



# HEATING, VENTILATION AND AIR CONDITIONING

## CATALOGUE 2023



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## CARRIER

Carrier is a world leader in HVAC, Refrigeration, Fire & Security solutions. For over a century, we have been developing innovative products and services that have changed the way people live and work. That drive for innovation continues today with a renewed focus on creating solutions that will change the world for the better. At Carrier, we see possibilities in everything.

04

## COOLING

Whether air conditioning is needed for a new building or a refurbishment project, for a commercial center, an office application or an industrial process, Carrier offers a wide range of solutions: air cooled, water cooled and absorption units, with scroll, rotary, screw and centrifugal compressors from 8 to 10,500 kW cooling capacity.

57

## HEATING

Carrier offers a vast range of heating solutions from air-to-water heat pumps to water-to-water heat pumps, with heating only or reversible capability, with scroll and screw compressors from 5 to 1,980 kW heating capacity. Carrier's heating machines are designed to deliver up to 85°C hot water temperature.

435

## AIR TREATMENT

An important aspect of any HVAC system is the correct supply of treated fresh air to the building occupants, improving indoor air quality (IAQ) levels. Carrier offers a vast range of close control units and packaged units, as well as standard and customized air handling solutions to ensure the best match to the requirements. Carrier also proposes a range of hybrid terminal, cassette, cabinet, concealed, ducted terminals to match any application requirements and installation criteria: in the room, in the ceiling, above a false ceiling, in a central plant room, and many more.

647

## CONTROLS

Carrier equipment and system controls are available for standard system applications and customized, tailor made projects. Carrier offers a wide range of control solutions covering all HVAC applications.

983



# CARRIER

Carrier is the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions. For over a century, we have been developing innovative products and services that have changed the way people live and work. That drive for innovation continues today with a renewed focus on creating solutions that will change the world for the better. At Carrier, we see possibilities in everything.



## Creating solutions that matter for people and our planet



### Innovation is in our DNA

At Carrier, we have a proud history of pioneering industries through innovation. Our leading world-class brands are the legacy of our founders,

who invented technologies to meet real needs, turned them into businesses, and then innovated to lead entire industries.



### A Leading Legacy

Carrier was built on a legacy of innovation – beginning with our founders. We are innovators at heart and inventors by heritage. From the start, we've led in pioneering new technologies and in enabling entirely new industries that have changed the world. Today, building on our history of firsts, we're boldly advancing the industries we created to make a difference in people's lives.

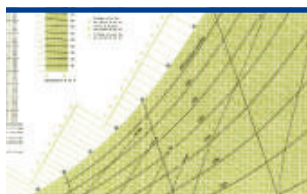


**DISCOVER CARRIER ON**  
[www.carrier.com/eu/](http://www.carrier.com/eu/)



# CARRIER'S HERITAGE: THE INVENTION THAT CHANGED THE WORLD

On July 17, 1902, Willis Carrier designed the first modern air-conditioning system to solve a problem at the Sackett & Wilhelms printing plant in Brooklyn, New York City, launching an industry that would fundamentally improve the way we live, work and play.



**1911**  
Willis Carrier writes a "Rational Psychrometric Formulae" for the calculation of the wet temperature that quickly becomes the predecessor of the charts used today. He becomes internationally recognized.



**1922**  
Carrier unveiled the first centrifugal chiller, which opened the door to large-scale comfort air-conditioning.



**1931**  
Carrier takes the seas, with the M.V. Victoria, the first vessel to make its maiden voyage equipped with air conditioning.



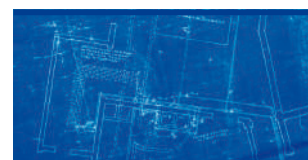
**2016**  
Carrier launches the first high temperature water-to-water heat pumps using the next generation of refrigerants: HFO.

**2020**  
The OptiClean™ Dual-Mode Air Scrubber & Negative Air Machine was named as one of TIME's 100 Best Inventions of 2020.



**1904**

Willis Carrier applied for a patent on his invention, an "Apparatus for Treating Air"; he had invented the world's first spray-type air conditioning equipment, able to both wash and humidify or dehumidify air. Modern air conditioning now had its fundamental building block.



**1917**

Carrier hires America's first woman air-conditioning engineer, right around the time that the decision to allow U.S. women the right to vote was being debated by lawmakers.

**1926**

Carrier introduces the first home air conditioner.

**1998**

Willis Carrier is named one of Time magazine's "100 Most Influential People of the Century."

**2018**

Carrier opens its new world headquarters, the Center for Intelligent Buildings.



# 2030 ENVIRONMENTAL, SOCIAL & GOVERNANCE GOALS

Learn about our  
progress at

[corporate.carrier.com/esg-report](https://corporate.carrier.com/esg-report)

Our 2030 ESG goals underscore our commitment to the things that matter and to continuously challenge ourselves to think bigger and to be better. Expanding on three decades of environmental targets, our goals include measures to improve our planet, our people and our communities. We strive to be a catalyst for positive and sustainable change as we innovate, empower our people and operate with integrity. That is *The Carrier Way*.

## OUR PLANET

Climate change is among the most significant issues facing humanity. HVAC contributes an estimated 15% of the world's greenhouse gas emissions. More than one-third of all food produced is wasted every year, resulting in an estimated 4.4 gigatons of greenhouse gas emissions. We recognize the potential for smart, sustainable innovation, and are committed to setting science-based emissions targets aligned with the goals of the Paris Agreement.

- Reduce our customers' **carbon footprint** by **more than 1 gigaton**.
- Invest over **\$2 billion** to develop **healthy, safe, sustainable and intelligent building and cold chain solutions** that incorporate **sustainable design principles and reduce lifecycle impacts**.
- Achieve **carbon neutral** operations.
- Reduce **energy intensity** by 10% across our operations.
- Achieve **water neutrality** in our operations, prioritizing water-scarce locations.
- Deliver **zero waste** to landfill from manufacturing locations.
- Establish a **responsible supply chain program** and assess key factory suppliers against program criteria.

## OUR PEOPLE

Our greatest strength is the diversity of our employees and their ideas. We are a company of innovators and problem-solvers who are united by *The Carrier Way* – our purpose, values and culture.

- Exceed benchmark **employee engagement**.
- Achieve **gender parity** in senior leadership roles.
- Achieve a **diverse workforce** that represents the communities in which we live and work.
- Foster the growth of **Employee Resource Groups** to drive social impact.
- Maintain world-class **safety metrics**.

## OUR COMMUNITIES

Decades of leadership in sustainability have guided Carrier to the forefront of healthy buildings, healthy homes and a more connected cold chain. Throughout our global operations, we are reducing our environmental footprint and making investments that have a positive impact on society.

- Positively impact communities by enabling access to **safe and healthy indoor environments, alleviating hunger and food waste, and volunteering our time and talent**.
- Invest in **science, technology, engineering and math education** programs that promote **diversity and inclusion**.
- Promote **sustainability** through education, partnerships and climate resiliency programs.



# SUSTAINABILITY

At Carrier, we are driving sustainability in buildings and homes and across the cold chain. We continue to deliver innovative products and services that help customers avoid greenhouse gas emissions, while reducing our own environmental footprint throughout our global operations.



## SPOTLIGHT MONTLUEL

We renovated the test lab in our Montluel, France, facility, where we make and test chillers.

The renovations included the installation of our high-efficiency AquaForce chillers, which are variable speed drive chillers optimized by our controls to adapt to energy need and operating conditions, such as weather.

We also shifted the refrigerant used to a lower global warming potential and nonflammable refrigerant, R-515B(E), and installed our energy-efficiency dry coolers, which replaced cooling towers that have been dismantled.

The renovation resulted in a 25% reduction in the facility's annual energy consumption and the reduction of water use by nearly 1.2 million gallons per year in the test lab.

# THE CARRIER WAY

*The Carrier Way* is the foundation of everything we do. It defines our vision, reaffirms our values, describes the behaviors that create a winning culture, and establishes how we work and win together.

## The Carrier Way

### VISION

Our aspiration; why we come to work every day.

Creating solutions that matter for people and our planet.

### VALUES

Our absolutes; always do the right thing.

Respect Integrity Inclusion Innovation Excellence

### CULTURE

Our behaviors; how we work and win together, while never compromising our values.

#### Passion for Customers

We win when our customers win.

#### Play to Win

We strive to be #1 in everything we do.

#### Choose Speed

We focus and move with a bias for action.

#### Achieve Results

We perform, with integrity.

#### Dare to Disrupt

We innovate and pursue sustainable solutions.

#### Build Best Teams

We develop diverse teams, and empower to move faster.



# CARRIER, LEADING INNOVATION

Carrier constantly builds upon its history of proven innovation with new solutions in air conditioning, building controls and energy services, setting the standard for performance, energy efficiency and sustainability.

## Ideas for an inspired tomorrow

HVAC challenges aren't always as common as you might expect, and our engineers work to ensure we can all take reliable, efficient environmental control for granted—from cultural heritage preservation to heat recovery application for district heating, with the next generation heating, cooling and technologies. Evaluating and applying advanced refrigerants and developing control algorithms to optimize performance isn't taken for granted here, and our engineer's work provides security to everyday living.

## Ultra-modern laboratories

Carrier's laboratories, among the largest such facilities dedicated to HVAC in Europe, and Research & Development teams, are an important part of what makes the company a natural leader. Carrier benefits from unique facilities, both in terms of cooling coverage, air treatment capacities and measurement accuracy.

## Innovative projects throughout Europe



### **MuCEM, Marseille, France** **June 2013**

#### *Seawater application*

Carrier's expertise in seawater heating and cooling systems helped the national Museum of European and Mediterranean Civilisations (MuCEM) to meet its environmental goals for an energy efficient and sustainable solution.



© Bahnhof - [www.bahnhof.net](http://www.bahnhof.net)

### **Bahnhof, Stockholm, Sweden** **January 2014**

#### *District heating, heat recovery application in three data centers*

Carrier AdvanTE3C engineers, working closely with the Swedish Internet service provider Bahnhof and hydraulic specialists have helped to optimize an innovative cooling & heating solution turning data centers into heat sources for local district heating systems.

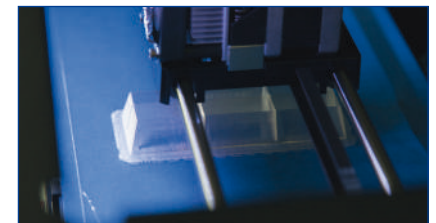
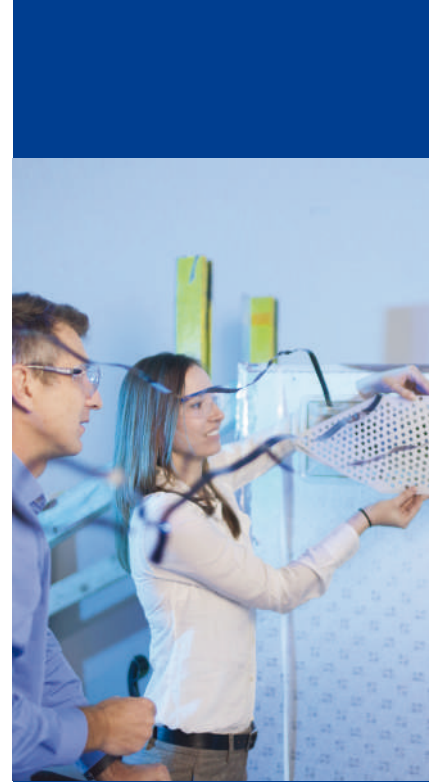


### **CADZIPLO, Geneva, Switzerland,** **August 2015**

#### *Europe's first screw water-to-water heat pumps using HFO*

Carrier has set a new milestone with Europe's first district heating project based on screw water-to-water heat pumps using low Global Warming Potential PUREtec™ refrigerant: HFO R-1234ze(E).

▶ Discover the story of CADZIPLO project on <https://youtu.be/kLJgLeBD8uQ>





# CARRIER HVAC IN EUROPE

Carrier's commercial HVAC presence in Europe, continuous innovation and constant investment in research and technology, along with a customer-focused philosophy, have led Carrier to the top of the European HVAC market for decades and continue to strengthen its position.

The group is active in equipment and service businesses under the brand names Carrier and CIAT. BluEdge® is the brand for Carrier and CIAT service.

## Culoz

Airside products



## Montluel

Commercial Heat pumps and Chillers



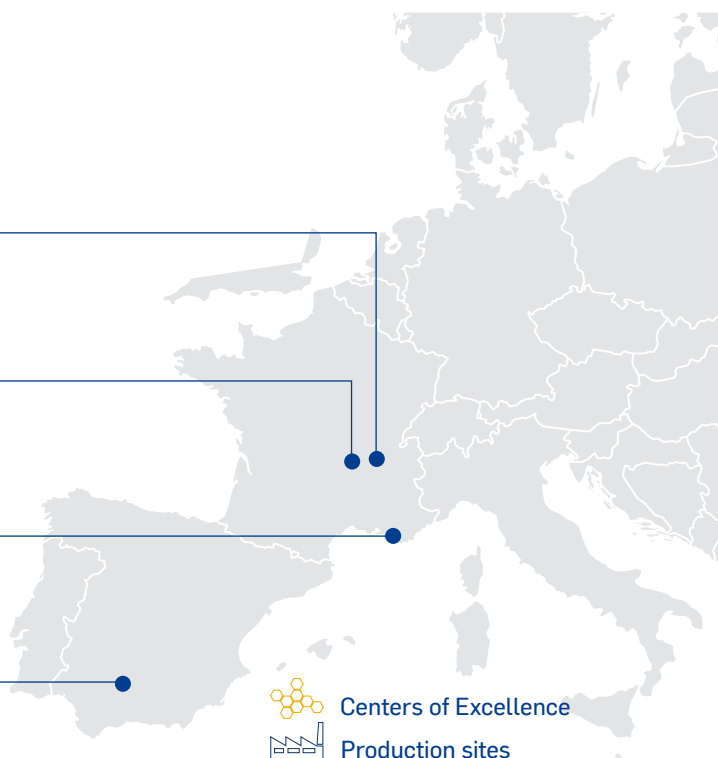
## Vence

Control systems & Connected services



## Montilla

Rooftops & Light Commercial Heat pumps



## AT A GLANCE



**HEADQUARTERS**  
MONTLUEL, France



**~3 700**  
EMPLOYEES



**2** MAJOR BRANDS  
Carrier & CIAT



**TOP 3** MARKETS  
France, UK & Iberica



**\$1.1B**  
2021 NET SALES



DIRECT SALES OFFICES  
IN **11** COUNTRIES



**50** INDEPENDENT  
DISTRIBUTORS



**3** FACTORIES



**4** CENTERS  
OF EXCELLENCE



**1** EUROPEAN  
PART CENTER  
WITH **12 000**  
ITEMS IN STOCK



# MONTLUEL CENTER OF EXCELLENCE: heat pumps and chillers expertise

The European Research and Design center and laboratory in Montluel, France, can design, choose and qualify the best technologies that would meet markets requirements and upcoming regulations.

Built in 1985 and covering 7 500 m<sup>2</sup>, it is capable of simulating the widest range of operating conditions encountered by heat pumps and chillers equipment. Montluel center of excellence is one of the most advanced and rigorous testing facilities in the world, ensuring that only the highest levels of quality and reliability are achieved.

## Modeling Analysis Simulation & Computation (MASC)

The center's numerical simulation platform capabilities include Model-Based Definition (MBD), Computational Fluid Dynamics (CFD), Finite Element Analysis (FEA) and 3-D design.

## Customization

The center has a dedicated customization team specializing in bespoke solutions to meet the chiller and heat pump needs of each customer. This includes applied engineering in fields such as seismic, nuclear, marine or offshore applications.

## Prototypes & Tests

It carries out prototyping modifications, tests for internal development projects and customer acceptance tests of products performance at any condition required by the application.

## 15 Test Rooms

- Thermal, performance, endurance and acoustic tests
- A/C and W/C Chillers, as well as terminal units
- Ambient control from **-20°C to +55°C** with humidity conditions of **5% to 95%**
- **1 200** measurement sensors
- **3 600 kW** maximum water-cooled unit test capacity

- **1 800 kW** maximum air-cooled unit test capacity
- **6 MW** total test capacity
- Ability to reach and maintain stable conditions
- High-precision method for acoustic measurement
- Specific tests on request

## Remote Testing

The center offers customers the possibility of witnessing the test from anywhere in the world. We connect with customers digitally, creating an environment where they feel that they are really in the laboratory.



## CERTIFICATIONS

Quality Management System

**ISO 9001:2015**

Approved by Lloyd's Register Quality Assurance

Environmental Management System

**PED 2014/68/EU**

Approved by Bureau Veritas

Quality System & case-by-case

**ISO 14001:2015**

Approved by Lloyd's Register Quality Assurance

Air-cooled & water-cooled performance

**Marine Application**

Approved by Lloyd's Register, Det Norske Veritas (DNV) & Germanischer Lloyd's (GL).

**AHRI**

Approved by AHRI, America reference label of the energy performance of air conditioning and refrigeration equipments

**EUROVENT**

Approved by Eurovent Certifications, European reference label of the energy performance of air conditioning and refrigeration equipments



# CULOZ CENTER OF EXCELLENCE: airside expertise

The Research and Design center and laboratory in Culoz are fully dedicated to airside solutions. The investment strategies Carrier has implemented in recent years, have allowed Culoz to rank among the top R&D centers in the sector.

This 4 000 m<sup>2</sup> center performs all types of customer acceptance tests on any product (AHU, Dry Cooler, TFCU... ) and is able to reproduce the exact customer office to determine the actual comfort level and optimize it if necessary.

## Indoor Environmental Quality

- Acoustic platforms
- Comfort test platform (Units and air diffusers according to EN ISO 7730 and EN 15726)
- Indoor Air Quality platform

## Dry Coolers

- Thermal rating up to 2 000 kW
- Acoustic and adiabatic cooling
- Possible to test water to water heat exchangers

## Air Handling Units

- Model Box performance under standard EN 1886
- Airflow tests (standard ISO 5801) up to 35 000 m<sup>3</sup>/h & 1 000 Pa
- Control software validation
- Sound tests (standard ISO 9614-1)
- Thermal performance tests (standards NF EN 1397, EN 14511) up to 200 kW / 56 000 m<sup>3</sup>/h

## Terminal Fan Coil Units

- Sound tests (standard ISO 9614-1)
- Thermal tests (standard NF EN 1397) -5°C to +50° / up to 20 kW
- Air flow tests (standard NF EN 5801)

## Reliability Tests

- 24/7 corrosion tests
- Static, cycling or burst hydraulic pressure tests up to 250 Bar

- Vibration tests with a maximum force of 2 000 N
- Endurance testing of fan coil units

## Heat recovery system and coils test platform

- Heat recovery efficiency and thermal capacity test
- Airflow capacity up to 30 000 m<sup>3</sup>/h pressure drop
- Thermal capacity up to 300 kW

## Numerical simulations

- Computational Fluid Dynamic (CFD)
- Indoor comfort simulation



## CERTIFICATIONS

Quality Management System

**ISO 9001:2015**  
**2014/68/EC**  
**DAP 08.D /DAP 13.C**  
**NF 414 rev. 9**

Approved by Lloyd's Register Quality Assurance  
Certified by Apave & Bureau Veritas  
Certified by Efectis  
Certified by Certita

Environmental Management System

**ISO 14001:2015**

Approved by Lloyd's Register Quality Assurance

Safety Management System

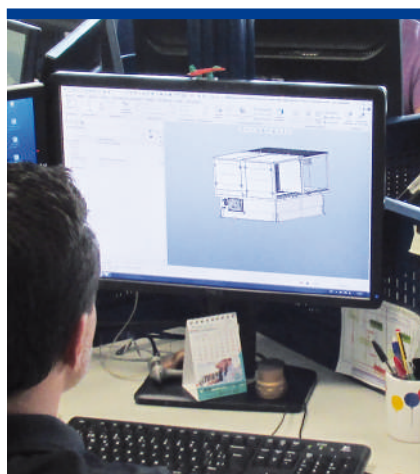
**ISO 45001:2018**

Approved by Lloyd's Register Quality Assurance



# MONTILLA CENTER OF EXCELLENCE: rooftops and light commercial chillers expertise

Our teams in Montilla, Southern Spain, have in-depth expertise in rooftop, packaged and dehumidifier units. The center offers specialized laboratories, as well as one of Europe's biggest aircraft preconditioner air units laboratory.



## Modeling Analysis Simulation & Computation (MASC)

The Montilla center of excellence offers numerical simulation capabilities in Model-Based Definition (MBD), Computational Fluid Dynamics (CFD) and 3-D design.

## Customization

An engineering team is specifically dedicated to customization projects. The center can also offer technical data acquisition for technical

documentation, as well as remote test supervision for special on-site applications.

## Prototypes & Tests

The center carries out prototyping and testing for our development team. It performs thermal, acoustic and vibration tests (2 test rooms), ambient control tests from -15°C to +55°C and specific tests for preconditioned air for aircraft and swimming pool dehumidification units.

## CERTIFICATIONS

|                                   |                                |  |
|-----------------------------------|--------------------------------|--|
| Quality Management System         | <b>ISO 9001:2015</b>           | Approved by IQNET and AENOR  |
| Environmental Management System   | <b>ISO 14001:2015</b>          | Approved by Lloyd's Register Quality Assurance   |
| Health & Safety Management System | <b>ISO 45001:2018</b>          | Approved by Lloyd's Register Quality Assurance   |
| Performances                      | <b>EUROVENT</b>                | Approved by Eurovent Certifications, European reference label of the energy performance of air conditioning and refrigeration equipments |
| Pressurized Equipment Directive   | <b>PED 2014/68/EU-Module H</b> | Approved by Bureau Veritas   |

# VENCE CENTER OF EXCELLENCE:

## control systems and remote connectivity services

Located in the South-East of France, the strength of Vence center of excellence is its engineering expertise in controls, automation and digital solutions as IoT and connected services with in depth knowledge of HVAC applications.

### Remote connectivity Services

The team is in charge of remote monitoring and predictive maintenance solutions using AI with more than 3 000 connected equipment. Our engineers focus on developing and offering technical support for Connected Services i.e. remote connectivity Solutions to our European distribution network. This new digital offering, which is added to existing BluEdge service agreements, connects customers' equipment to Carrier's cloud based IoT platform, providing them with advanced analytics and actionable insights to visualize, advise and optimize machine health and life cycle outcomes.

### i-Vu® Controls Solution for Plant Room

The team supports the i-Vu controls business of Carrier in Europe around the Plant Room. We bring technical support during the design & engineering phase of plant room control system and develop and promote new controls offers for Carrier customers. On a project by project basis, we also support the design of Plant Room with thermal energy storage (TES). The team's know-how is unique and proven with dual cooling/heating and controls/automation in-depth knowledge.

### Training Center

The Vence center of excellence is a training center of Carrier in Europe. We train service technicians on digital and control solutions to develop their skills and expertise. Training can be done remotely through webinar or on-site on training platforms designed specifically.

### R&D Connections

The Vence center of excellence works closely with Europe's leading Science Park, located in Sophia-Antipolis in Southern France. Our team has been involved in several European research and innovation projects.



**+ 1,300**  
CONNECTED  
APPLIANCES



**+ 500**  
PLANT ROOM  
CONTROL SYSTEMS  
(i-Vu & PlantCTRL™)



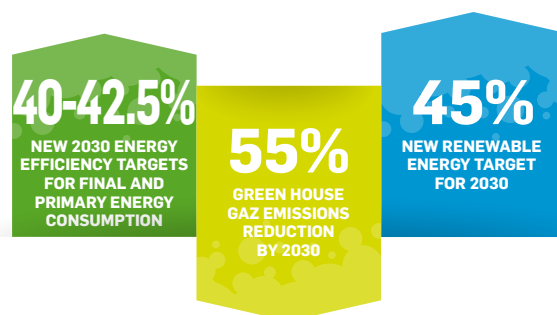
# CARRIER, MEETING THE CHALLENGE OF REGULATORY AND ENVIRONMENTAL CHANGES

Carrier is committed to limiting the environmental impact of its products and solutions and reducing energy consumption. This commitment is in line with the targets of the European Union to be climate-neutral in 2050.

Climate change is among the most significant issues facing humanity. To overcome this challenge, the European Commission proposes ambitious targets in terms of energy efficiency and greenhouse gas emissions.

The REPowerEU initiative seeks to diversify energy supply to better face energy price uncertainty and to speed up renewable, clean energies and electrification.

These objectives strongly influence the HVAC market. The industry has to comply with high demanding regulations (such as Ecodesign and F-Gas) and must anticipate the future market trends (decarbonization).



## Mastering energy efficiency with Ecodesign

In order to achieve the energy efficiency target, the European Union has developed a regulation to reduce energy consumption in buildings: **Ecodesign**.

Indeed buildings are the largest consumers of energy today and, of that consumption, HVAC systems account for considerably more than other equipment. Providing customers with energy efficient solutions is therefore now a key sustainable development opportunity for the HVAC industry.

## ECODESIGN

Ecodesign is an approach to product design that encourages manufacturers to consider the environmental impact of the product over its entire lifecycle.

In the European Union, the Ecodesign Directive 2009/125/EC establishes a framework for the setting of mandatory energy efficiency requirements for all energy-related products (ERPs). For more information visit [www.ecodesign.hvac.carrier.com](http://www.ecodesign.hvac.carrier.com)

### Regulation 1253/2014

has been setting energy efficiency requirements since 2016 for **ventilation units** equipped with filters, energy recovery devices, fans and motors. The requirements were reinforced in January 2018.

### Regulation 2016/2281

sets new energy efficiency requirements for **chillers of up to 2000 kW used in air conditioning applications for comfort cooling**. It came into force in January 2018. It also set new energy efficiency requirements for **industrial process cooling chillers of up to 2000 kW** with a positive leaving water temperature.

In addition, the regulation has set new energy efficiency requirements and informative requirements for **air conditioners, rooftops and packaged units in comfort cooling and space heating applications**. It came into force in January 2018 and has been reinforced in January 2021.

### Regulation 2015/2281

has introduced energy efficiency requirements in 2016 for **industrial process cooling chillers** with negative leaving temperatures and has been reinforced in July 2018.

### Under regulation 813/2013

**air- and water-to-water heat pumps up to 400 kW** must comply with higher energy efficiency requirements as from September 2017. **Heat pumps up to 70 kW must also carry Energy Labelling** in line with regulation 811/2013 from September 2015 onwards.

## Air Handling Units: overall product improvement

Since 2016, air handling units must comply with Ecodesign technical and minimum efficiency requirements as well:



ENERGY EFFICIENCY /  
SPECIFIC FAN POWER



INDOOR AIR QUALITY



ENERGY RECOVERY



INFORMATION



## Chillers, heat pumps, roof-tops and air conditioners: New metrics because seasonal efficiency matters

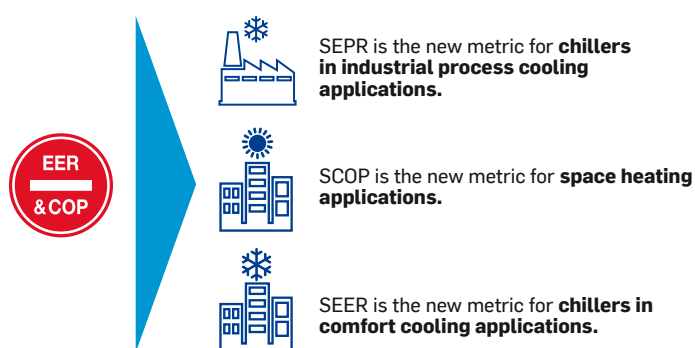
With all new construction to be nearly zero energy building from January 2021 onwards, the HVAC industry needs new accurate indicators to express the energy efficiency of equipment. These indicators must be representative of actual operations throughout the year, measuring the performance of equipment on a seasonal basis.

**EER & COP belong to the past.** Now and in the future, the focus is on

seasonal efficiency. With a broad new product range, Carrier is fully engaged to take up the challenge of energy efficiency.

**Compliance with the Ecodesign regulations therefore involves the use of new, more meaningful seasonal efficiency metrics.** The Seasonal Energy Efficiency Ratio (**SEER**), Seasonal Energy Performance Ratio (**SEPR**) and Seasonal Coefficient of Performance (**SCOP**) all ensure

precise evaluation of the energy actually consumed by chillers and heat pumps, by including seasonal variations in their measurements. Previous metrics (EER & COP) measured operations only at a single point, at full thermal load, and were therefore less representative of consumption over entire heating and cooling seasons.



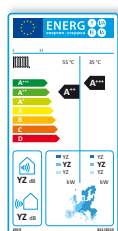
### Etas ( $\eta_s$ ):

In order to **compare the energy efficiency of products using different sources of energy**, the Ecodesign regulation introduces a new measurement expressed in primary energy:  $\eta_{sc}$  is the equivalent of SEER for comfort cooling applications and  $\eta_{sh}$  is the equivalent of SCOP for space heating.

These new seasonal performance metrics are now the key indicator used for all product ranges, in all applications. They are calculated according to technical standard EN 14825 and compliance is mandatory for a product to obtain CE marking.

## Energy Labelling

In addition; European Energy Labelling regulation 811/2013 classifies heat pumps up to 70 kW from D to A+++, according to their energy efficiency. This enhanced consumer information drives the market towards more energy-efficient products.



UP TO  
**25%**

above the  
Ecodesign  
requirements

## CARRIER, EXCEEDING THE MOST CHALLENGING REQUIREMENTS

Carrier's solutions are not only compliant with Ecodesign requirements, but can exceed them by up to 25%.

# REDUCING THE CARBON FOOTPRINT WITH F-GAS REGULATION

The challenge raised by the European Union's F-gas regulation means the entire industry must move to a new generation of refrigerants, that will not only protect the ozone layer but also have a very low global warming impact. Carrier is facing this challenge head on.

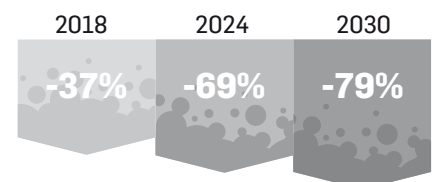
## The European F-gas Regulation 2014

The 2014 revision of the regulation introduced bans for certain equipment using HFCs and a phase down scheme for HFCs placed on the European market:

- Equipment bans target refrigeration applications and very low capacity air to air conditioners (residential). There are no specific bans on liquid chillers and hot water heat pumps using R-134a(E), R-407C(E) and R-410A(E) refrigerants.
- The phase down is a step-by-step approach where the quantities of HFCs that are placed on the market are gradually reduced through the allocation of quotas by the European Commission to producers and importers of bulk HFCs and importers of HFCs contained in pre-charged equipment. As a result of the phase down, HFC consumption will be drastically reduced by 2030.

The European F-gas is currently under revision. Carrier already anticipates more stringent regulations to phase down high GWP refrigerant.

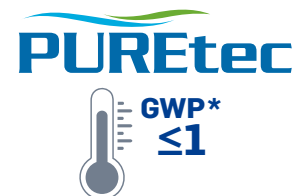
European Unions's targets HFC consumption related to CO<sub>2</sub> equivalent



## PUREtec™ HFO refrigerant solutions

With PUREtec, Carrier offers a range of long-term sustainable and efficient solutions using HFO refrigerants with zero impact on the ozone layer and ultra-low impact on global warming: HFO R-1234ze(E) for screw units and R-1233zd(E) for centrifugal units.

After the first HFO water-cooled screw chiller installed in Europe in 2016, Carrier has sold more than 1200 projects across Europe in multiple applications such as industry, data centers, district heating and healthcare.

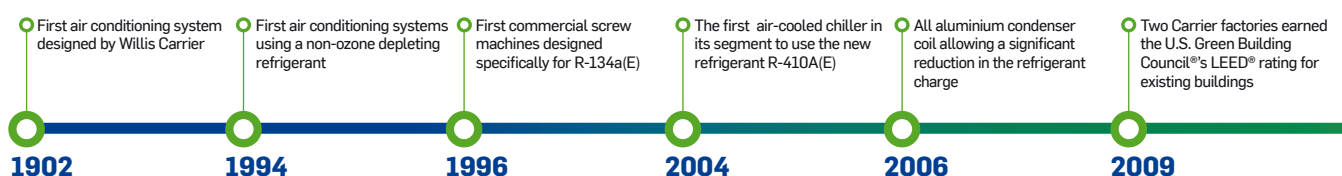


\* GWP according to AR5 from the IPCC (International Panel on Climate Change)

Building on its success, the PUREtec family has grown from the Carrier AquaForce PUREtec 61XWHZE high-temperature heat pumps range, to the AquaEdge™ 19DV centrifugal chillers and now to the new generation of AquaForce PUREtec 30KAV/P-ZE and 30XB/P-ZE premium air-cooled screw chillers.

|  |  |  |   |   |   |
|--|--|--|---|---|---|
| <b>30KAV/P-ZE</b><br><br>Air-cooled variable-speed screw chiller | <b>30XB/P-ZE</b><br><br>Air-cooled fixed-speed screw chiller | <b>30XWHP-ZE</b><br><br>Water-cooled fixed-speed screw heat pump | <b>30XWHV-ZE</b><br><br>Water-cooled variable-speed screw heat pump | <b>61XWH-ZE</b><br><br>High-temperature water-sourced screw heat pump | <b>19DV</b><br><br>Water-cooled centrifugal chiller |
|--|--|--|---|---|---|

## Carrier, always forward-thinking



## Lower GWP refrigerant solutions (Blends, R-32(E))

Carrier has selected a family of lower GWP refrigerants for use in chillers, heat pumps and rooftop packaged units to offer optimum solution in terms of total environmental impact, cost, safety and ease of use. The selection aligns with Carrier's 2030 environmental, social and governance goals to reduce its customers' carbon footprint by more than 1Gt.

- Carrier has selected **R-32(E) refrigerant to replace R-410A(E) refrigerant in commercial chillers using scroll technology**. Carrier's use of R-32(E) refrigerant and expert system design will reduce the refrigerant carbon footprint by up to 80%.
- Carrier is one of the first manufacturers to offer **screw water-cooled chillers and heat pumps operating on the new low GWP refrigerant R-515B(E)**, which provides a number of important benefits for end users. With an A1 safety classification, R-515B(E) is both non-flammable and non-toxic and has a GWP of less than 300.
- Carrier is offering **R-513A(E) refrigerant**, which has a GWP of 573, **on 19XR(V) centrifugal chillers**.
- The blend **R-454B(E) is the optimum solution for use in rooftop applications**. R-454B(E) is a lower flammability A2L refrigerant blend with a GWP of 466.



### 30RB/RBP & 30RQ/RQP



Air-cooled scroll chiller and air-to-water scroll heat pump

### 30XWHP-ZE



Water-cooled screw chiller

### 30XWHZ-VE



Water-cooled screw chiller

### 19XR(V)



Centrifugal chiller

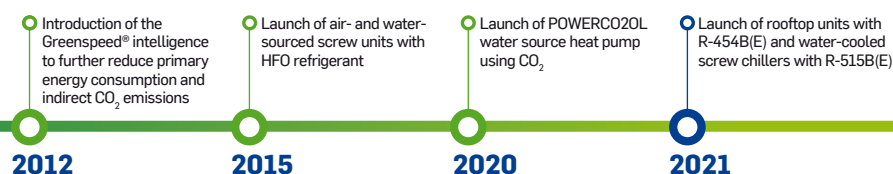
### 50FC R-454B



Rooftop unit

## Natural refrigerants

Carrier commercial refrigeration is a pioneer in the use of the natural refrigerant, CO<sub>2</sub>, for commercial refrigeration applications including cabinets and racks. Also known as R-744(E), CO<sub>2</sub> is a non-flammable and non-ozone depleting refrigerant and has a GWP of just one. The first Carrier CO<sub>2</sub> system was installed in 2004 in a supermarket in Switzerland. CO<sub>2</sub> mechanical systems continued to gain traction over the years. Carrier commitment to natural refrigerant systems will reinforce in the next years.



**New generation of Carrier's products to come...**



# DECARBONIZING HEATING IN THE BUILDING SECTOR



## Europe to end fossil fuel heating by 2050

Heating is one of the EU's most energy-consuming sectors: 64% of the total energy consumed in the EU is used for heating space and water. If Ecodesign and energy labelling will deliver a third of the EU's 2050 climate-neutral target, the European Commission must also to set heating on the right path, by phasing-out fossil fuel boilers beyond 2030.



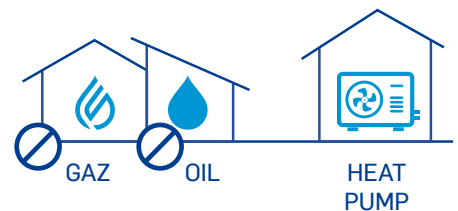
## Fossil fuel boiler ban from 2025 in the UK

The UK government has announced that by 2025, all new homes will be banned from installing gas and oil boilers and will instead be heated by low-carbon alternatives. To help this transition, the Public Sector

Decarbonization Scheme (PSDS) provides grants for public sector bodies to fund heat pumps or other heat decarbonization measures in public sector buildings such as schools.

BAN FROM 2025  
IN NEW BUILDS

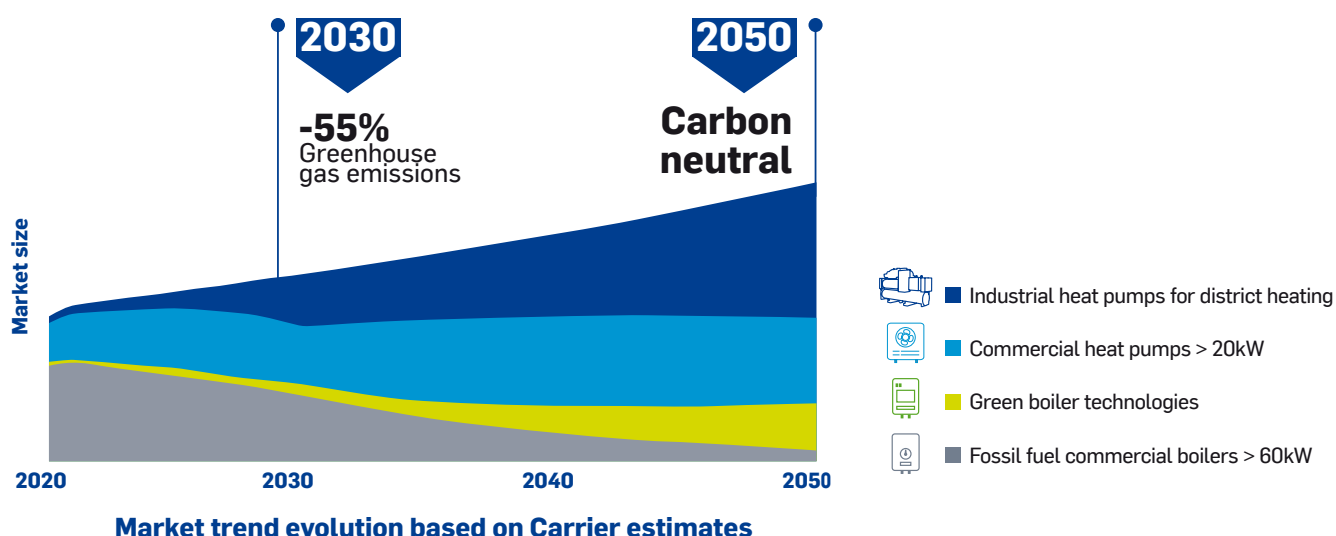
DECARBONIZATION  
SCHEME



## Carrier's commercial heating vision

In order to support the EU 2030 target of 55% less greenhouse gas emissions and the EU 2050 carbon neutral target, the commercial heating industry in Europe will have to make a major technology transition, from fossil fuel boilers to more sustainable heating systems.

Carrier is already offering tried and tested technologies and solutions to face this challenge head-on.



### FOSSIL FUEL BOILER DECLINE

More than 60% of European building sector are still heated with fossil fuel commercial boilers using natural gas or oil in 2020 \*.

Beside their high carbon footprint, fossil fuel technologies will have to face increasing EU and local regulations as well as uncertainty regarding their prices and availability in the future. These technologies are coming to an end and the transition must start right away.

«\*Iea, Are renewable heating options cost-competitive with fossil fuels in the residential sector ?, <https://www.iea.org/articles/are-renewable-heating-options-cost-competitive-with-fossil-fuels-in-the-residential-sector>. Published on 1 December 2021.»



### GREEN BOILER CHALLENGES

“Green” boiler technologies shall replace a portion of fossil fuel boilers. Nevertheless, they will need to overcome several technical challenges over the next years:

**Hydrogen boilers** are still in development and construction of ‘hydrogen-ready’ distribution networks in cities will take decades.

**Biomass boilers** might be a shorter-term solution, but with inconvenient operation and maintenance: they need to be cleaned every week, and owners will have to continuously supply the system with pellets or chips and remove the ashes, and the fuel needs space to be stored.





## Commercial heat pumps

Individual heat pumps are one of the most efficient appliances on the market to heat residential developments or buildings. Reversible air source heat pumps are the right solution to provide sustainable cooling and heating in buildings.

Carrier is already offering a complete range of heat pumps for commercial applications up to 65°C.

### AQUASNAP 61AF



High temperature  
air source heat pumps  
22 to 105 kW  
hot water up to 65°C

### AQUASNAP 61WG



High temperature  
water source heat pumps  
20 to 190 kW  
hot water up to 65°C

### AQUASNAP 30RQ



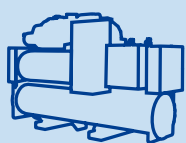
Medium temperature  
air source heat pumps  
20 to 520 kW  
hot water up to 55°C water down to -7°C

## PUBLIC SECTOR DECARBONIZATION SCHEME FOR SCHOOLS USING CARRIER 61AF HEAT PUMPS IN LONDON.

It is more than 180 Carrier AquaSnap 61AF air-to-water heat pumps that have been deployed in 60 schools in London and Dudley in the West Midlands. It is part of the project of the UK's Public Sector Decarbonization Scheme (PSDS) to

decarbonize heating in schools and many other public buildings. The aim is to reduce carbon emissions and energy running costs as part of a major decarbonization project. Asset+, one of the UK's leading independent Energy Performance Contractors, has chosen Carrier units for their energy efficiency and reliability.





## Industrial heat pumps for district heating

Forecasts indicate that 84% of the European citizens will live in urban areas in 2050 \*. Thus, future heating solutions must consider urban applications first for a greater impact on environment. The EU Heat Roadmap considers increasing smart heating and cooling networks to 30% by 2030 and to 50% by 2050 as essential milestones in achieving the ambitious goals of decarbonization.

In 2020, hundreds of large industrial heat pumps capable to produce hot water 70°C, 90°C or more have already been installed in various European district heating. These large industrial heat pumps use renewable energy from water or ground but also waste energy from buildings, processes, data centers to provide heating. In these projects, heat pumps have helped reducing drastically the CO<sub>2</sub> emissions as the electricity comes from renewable sources and saves million liters of fuel/year. Most of owners were eligible for financial aid which can cover up to 60% of the amount of the distribution network in some countries.

Carrier is the European leader in the supply of commercial heat pumps above 50 kW. Few years ago, Carrier has entered the specific market of large-scale industrial heat pumps able to deliver hot water up to 85°C using ultra-low GWP HFO R-1234ze(E) refrigerant for district heating applications, with over 200 units sold and the obtention of 2022 ACR Awards for a prestigious decarbonization project in London.

Carrier will continue to invest massively in the development of the next generation heat pumps benefiting from the latest technology innovations: ultra-low GWP and natural refrigerants, premium efficiency, and high temperature.

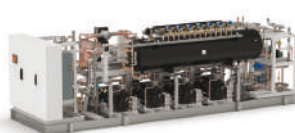
\*Dacey, J. (2020), Europe targets 100 climate-neutral cities by 2030, Eos, 101, <https://doi.org/10.1029/2020EO151719>. Published on 17 November 2020.

### AQUAFORCE 61XWHZE



High temperature water source  
heat pumps for district heating  
300 to 2.500 kW  
hot water up to 85°C

### POWERCO2OL



High temperature water source  
heat pumps for district heating  
500 to 1.500 kW  
hot water up to 85°C

### AQUAFORCE 30XWHVZE



Medium temperature water source  
heat pumps for district heating  
200 to 2.000 kW  
hot water up to 55°C

## CARRIER HFO 61XWHZE HEAT PUMPS CHOSEN TO HELP DECARBONIZE CITY OF LONDON

Air Conditioning Project of the Year 2022 (ACR News), AquaForce 61XWHZE water-to-water heat pump support Carrier's aims to cut carbon emissions from heating and cooling and improve air quality in the capital. Three heat pumps have been installed and will extract thermal energy from water pumped from deep boreholes in the aquifer 200 meters beneath the capital. These units upgrade the energy harvest to produce hot water at 80°C. It will be used to provide up to 4 MW of cooling to residential and business customers via district-wide network of highly insulated pipes underground for 10 kilometers.



## 12MW CARRIER HFO 61XWHZE HEAT PUMPS FOR YGEO DISTRICT HEATING IN FRANCE

12 MW of Carrier heat pumps have been installed to supply Rosny sous Bois and Noisy Le Sec district heating. The system is connected to a geothermal heat source, located at 1.8 km depth to obtain an evaporator entering water temperature of 52°C. A condenser leaving water temperature of up to 80°C is reached using six AquaForce 61XWHZE heat pumps in cascade counterflow system with smart monitoring.



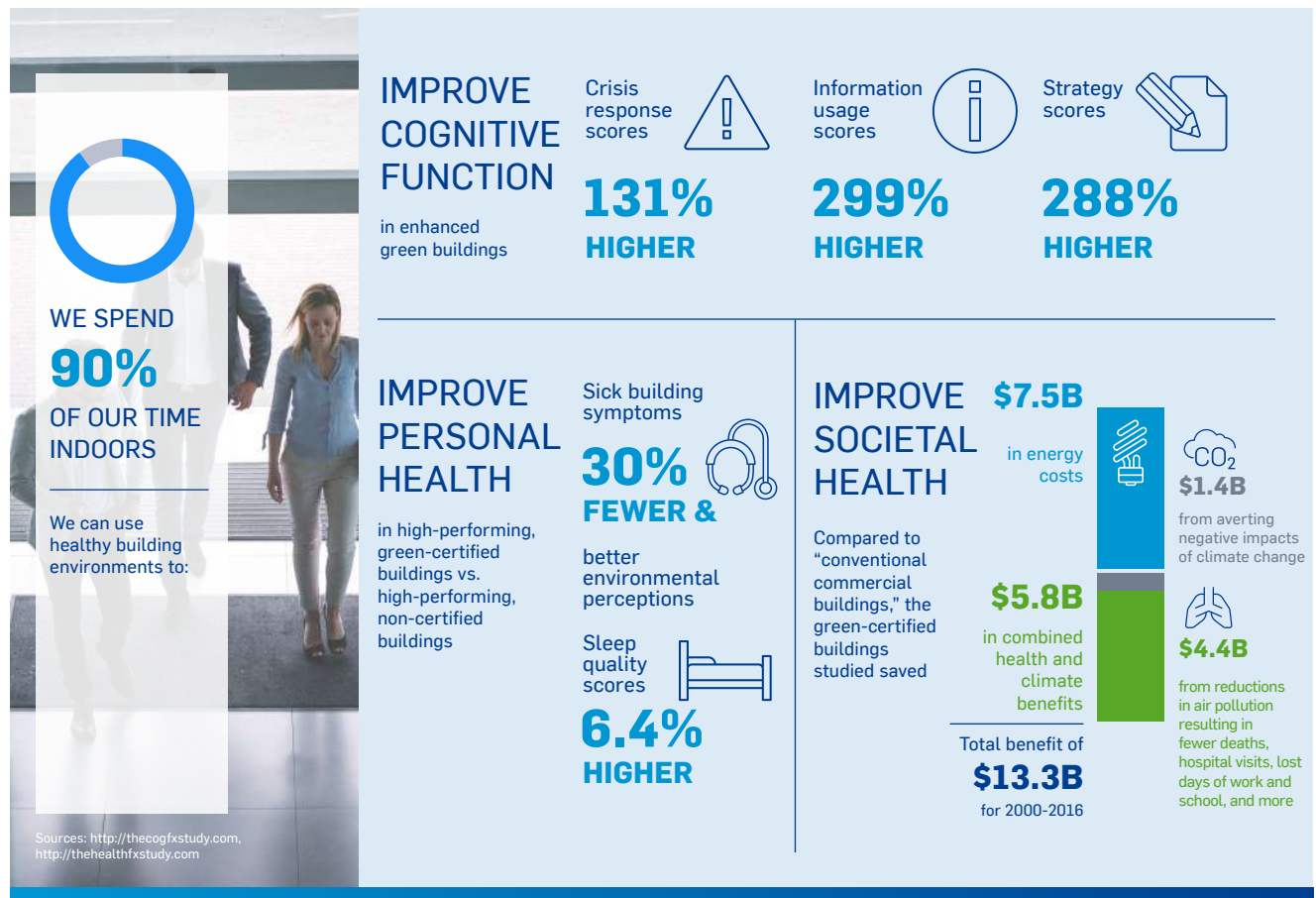


# CARRIER HEALTHY BUILDINGS PROGRAM

As a founding member of both the U.S. Green Building Council® and the International WELL Building Institute, Carrier has long been an industry leader in enhancing building health to promote personal health. Now, it is essential that the world have the solutions and services that enable healthy indoor environments.

## The science of healthy buildings

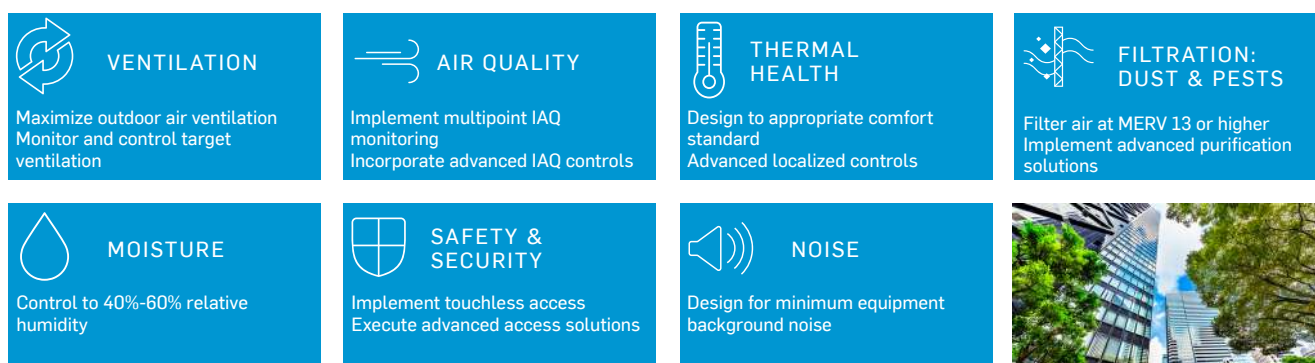
As humans, we spend 90% of our time indoors. Consequently, buildings play a significant role in our lives and directly impact our health. Through the COGfx Study, research has shown that healthy buildings can significantly improve cognitive function. In addition, healthy buildings can impact the bottom line for a business – from reducing energy waste and the related costs to increasing worker productivity.



# HEALTHYBUILDINGS

## Building on foundations

Healthy Buildings focus on addressing foundational aspects of the indoor environment to positively impact the people inside. Dr. Joseph Allen and a multidisciplinary team of experts from the Healthy Buildings Program at the Harvard T.H. Chan School of Public Health have identified these key areas as "The 9 Foundations of a Healthy Building." Based on the 9 Foundations, we've outlined actions building owners and operators can take to make their building a healthy building.



## Carrier's Approach to Healthy Buildings

### + ASSESSMENTS

Many building owners and operators may be unsure about how to move forward in developing a healthy building strategy. That's why, through our best-in-class BluEdge service offering, Carrier is here to help – starting with assessments across all aspects of your building.

### + OPTIMIZATION

Through advanced controls and digital solutions and services, Carrier is here to help you confidently optimize your building – and the investment in creating a healthy, safe environment.



### + EXPERTISE

Carrier has a history of expertise in healthy buildings. We invented modern air conditioning and helped establish the first NICU – and one of the earliest examples of a healthy indoor environment – at Allegheny General Hospital in 1914. We drove the green building movement and we invigorated the dialogue around the impact of indoor environments on people, performance and health with the groundbreaking COGfx and HEALTHfx studies. Today, we continue to apply more than 100 years of experience creating optimal indoor environments, partnering with academic researchers and global experts to unlock the incredible potential of indoor environments.

## OptiClean™ 39UV

Self-contained  
air scrubber



Learn more about  
39UV and all the  
Healthy Buildings  
solutions

### CONTACT YOUR LOCAL CARRIER EXPERT

to learn more about the solutions and services that will help improve the air quality, ventilation, and overall health in your buildings.

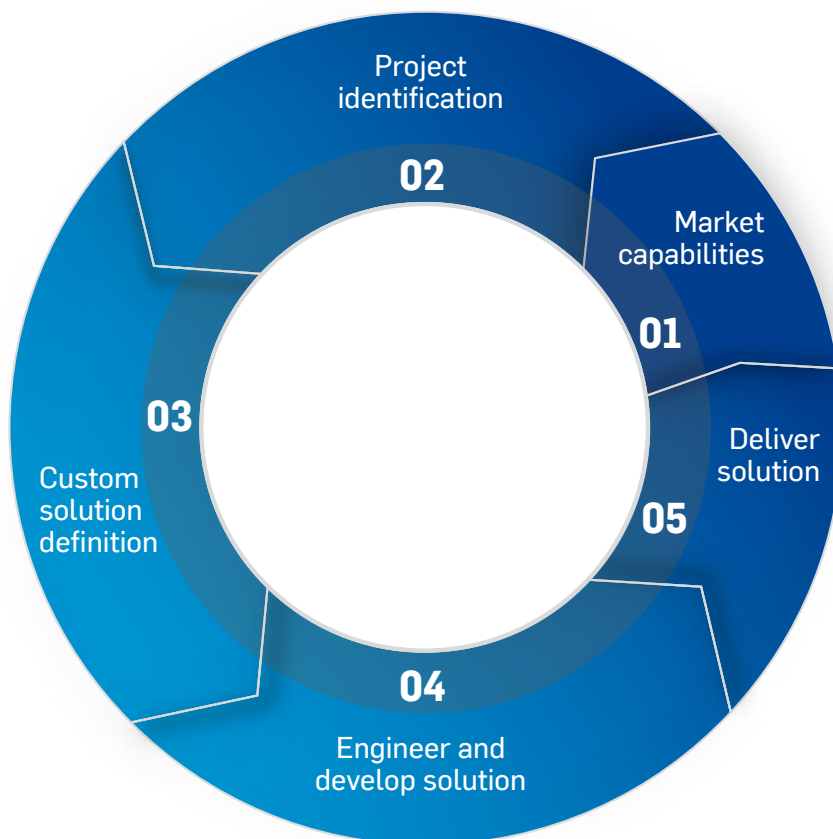


## ADVANTEC

**Our AdvanTEC experts work with customers to design, develop and deliver innovative building solutions to make buildings more sustainable, more healthy, more intelligent and with an improved user experience.**

Our global AdvanTEC team provides consultations and solution designs to help enterprises solve their most complex building problems with a holistic approach through different personas needs, usage modes and building subsystems. The challenges of the post-pandemic world and the ambitious ESG goals, that most of our customers are setting up to improve our lives and our planet, require multidisciplinary skills and innovative integrated solutions.

Smart, sustainable and healthy buildings design needs to match decarbonization targets, indoor air quality, improved security, complex and new usage modes (flex working), value added digital services based on IoT and AI (predictive maintenance, analytics): AdvanTEC, working directly with customers, with structured assessment methodologies and industry-leading modelling tools, co-design and develop the best solutions for the specific application and needs, leveraging on the comprehensive portfolio of Carrier.



# HEALTHY, SAFE, SUSTAINABLE AND INTELLIGENT

We have had to face critical challenges in the way we interact with the built environment during the last few years with COVID-19 and we will do so in the coming years, climate change is advancing, and we need to act. At Carrier, we're building on decades of leadership in sustainability, healthy and intelligent buildings to set ever-higher standards. We're committed to changing the way buildings are designed, built, and operated to suit the way we live and work today and into the future.

## Sustainable buildings: Supporting customers in the drive for net zero by 2050

Looking to contain the rise in global temperatures, organisations around the world are recognising the need to reduce the energy they consume and use less harmful solutions to cool and heat their properties. At Carrier, we're uniquely positioned to help our customers to achieve their goals using high efficiency chillers, exceptional service and maintenance programs, bespoke customer solutions and better refrigerant choices with a low Global Warming Potential (GWP).

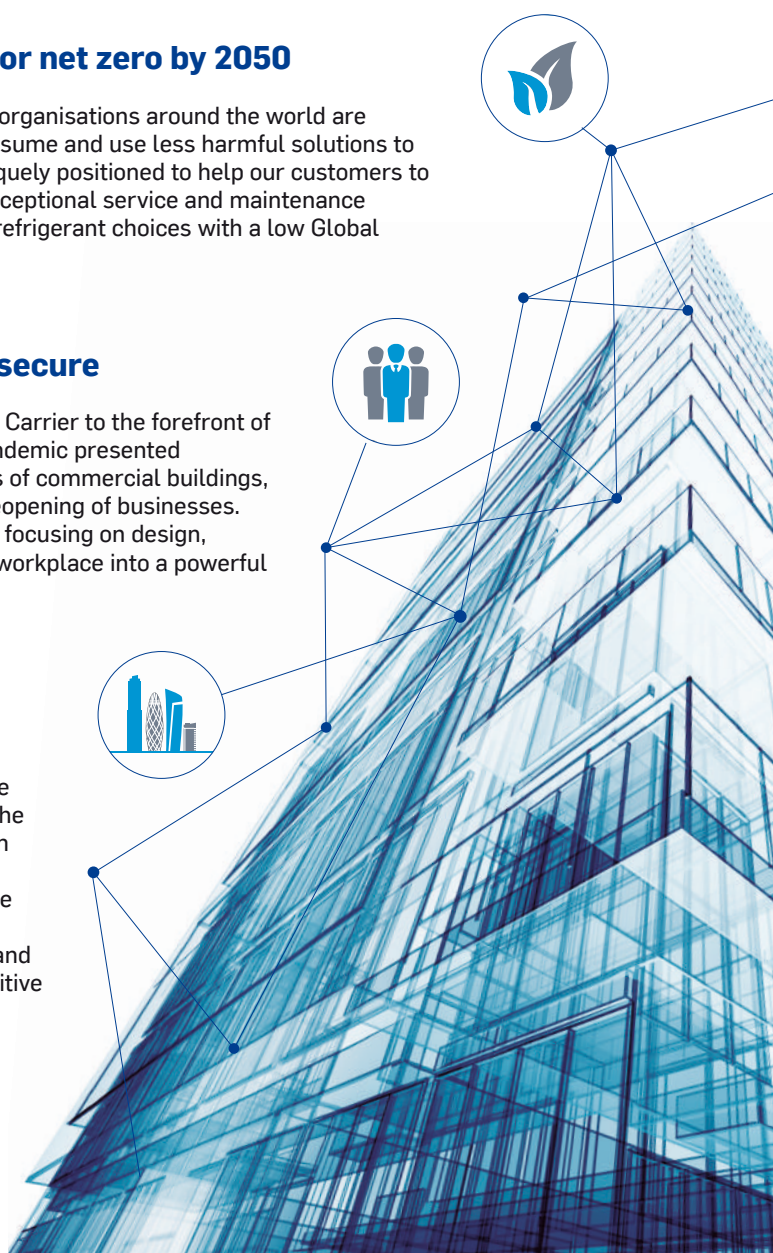
## Healthy buildings: Making buildings healthy, safe and secure

Decades of leadership in sustainability have guided Carrier to the forefront of the healthy buildings movement. The COVID-19 pandemic presented significant challenges for the owners and operators of commercial buildings, initially to protect occupants and enable the safe reopening of businesses. Moving forward, our healthy building strategies are focusing on design, retrofit and operation, effectively transforming the workplace into a powerful tool to drive human health and progress

## Intelligent Buildings: Ensuring buildings are ready for the new ways of working

Our vision is to create solutions that make a positive impact on people and on our planet, underscoring the importance of the work we do as the world leader in healthy, safe, sustainable, and intelligent building systems. We optimise built environments to improve operational efficiency and impact positively on the occupants, from helping to ensure physical safety and security to improving health, productivity, and cognitive performance

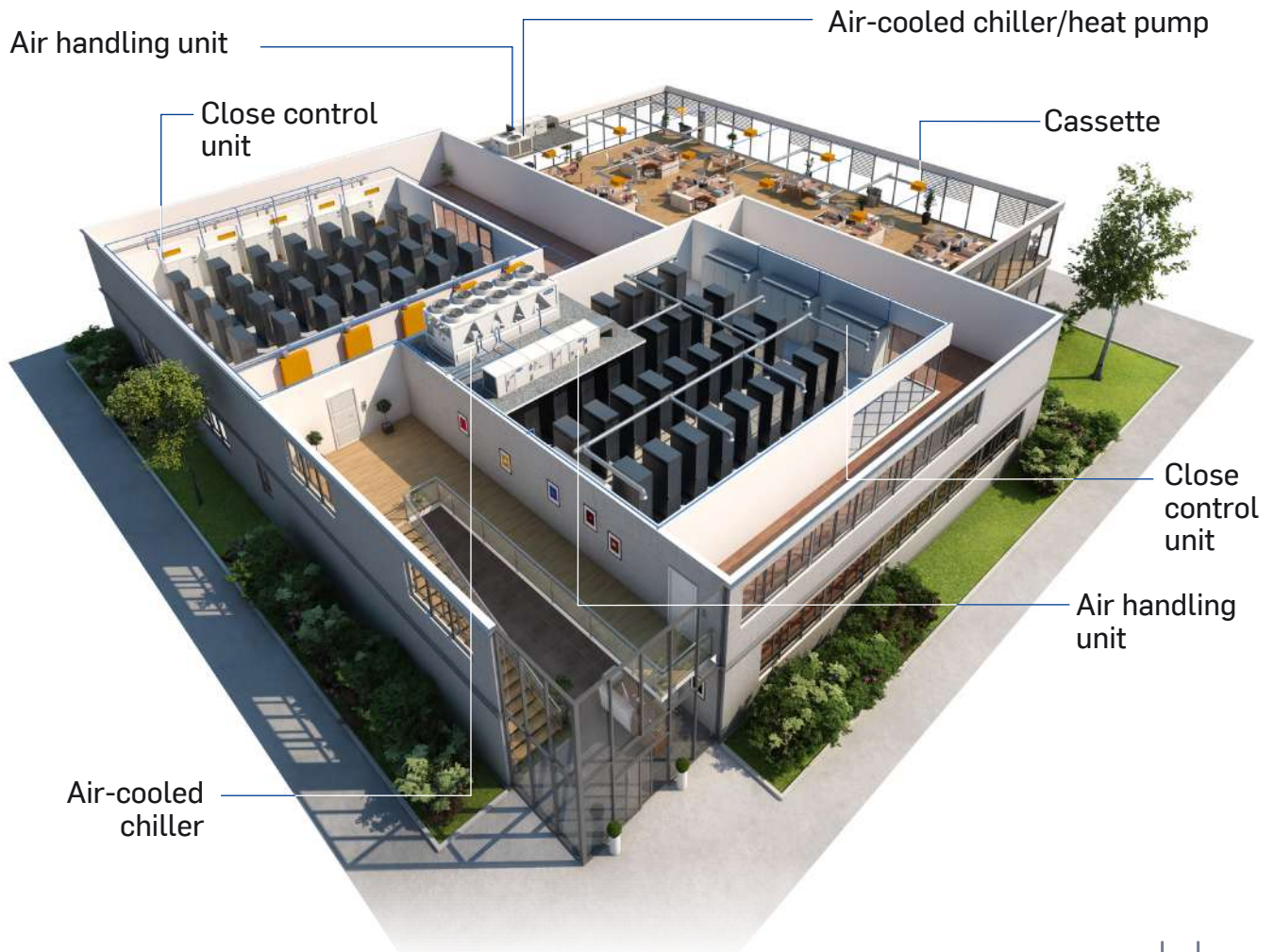
**We employ a lifecycle approach to our work using an industry-leading portfolio of advanced equipment, services and automation offerings covering HVAC and Fire & Security to support our customers in achieving their goals.**







# DATA CENTER



## KEY ADVANTAGES

### Fast capacity recovery

Maximum uptime is a priority for data center applications. To meet this challenge, the IT cooling system must be reliable and able to respond to unexpected variations. Carrier developed its dedicated fast capacity recovery feature, offering significant reduction of recovery time in case of power failure.

### Reliability

Products undergo extensive tests before they are shipped to the customer and are also certified by internal organisations to ensure the highest levels of safety and quality.

### Total free cooling

Air- or water-based free cooling systems are popular for data center applications

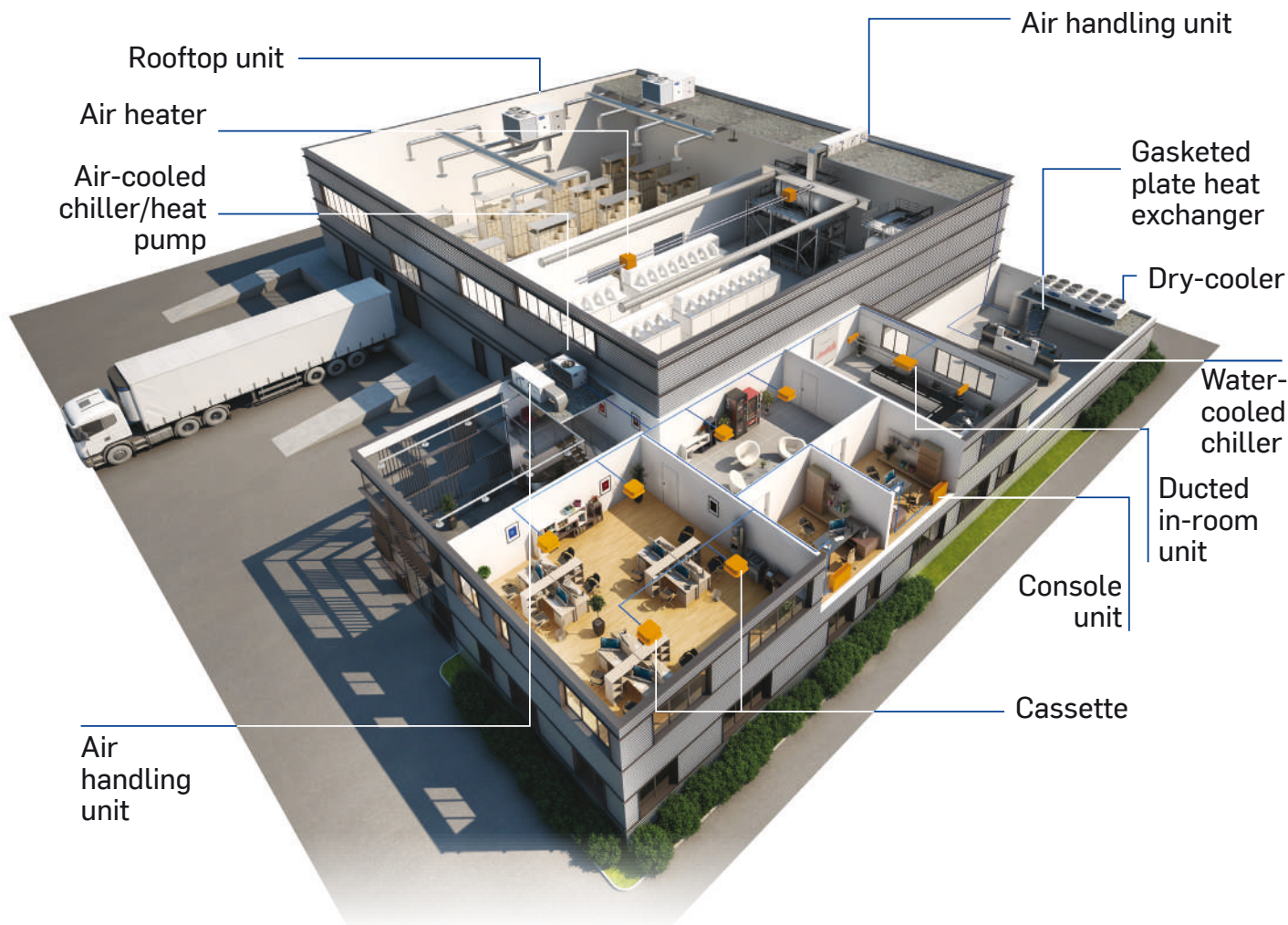
where the climate is suitable, resulting in energy savings through reduced use of the number of compressor running hours during the cold season. Carrier offers airside free cooling options on air handling units and hydraulic free cooling options for chiller systems, either with Carrier patented DX free cooling integrated system or using non-integrated systems using dry coolers or towers.

### Smart energy management

Advanced control solutions such as Carrier PlantCTRL™ allow facility managers to control the HVAC system and to optimize it as a whole for maximum availability and minimized energy consumption.

### PUE optimized

# INDUSTRY



## KEY ADVANTAGES

### Chilled water production down to -15°C

Low temperature chilled water production down to -6°C (medium) or to -15°C (low) covers specific applications such as ice storage and industrial process cooling.

### High efficiency at full and partial load

An inverter-driven machine usually offered very high

efficiency at partial load, but achieving high efficiency at partial load often means sacrificing efficiency at full load. Thanks to AquaForce® with Greenspeed® intelligence, you can have both.

### Proximity and proactivity to ensure no downtime

Advanced monitoring service offering continuously collects information from equipment to anticipate and prevent loss of

performances or any damage. This solution enables users to track and monitor their HVAC system performance and to take preventive and corrective actions remotely, optimizing the lifetime of the equipment.

### Smart energy management

Advanced control solutions such as Carrier® PlantCTRL™ allow to control the HVAC system and to optimize it as a whole for maximum

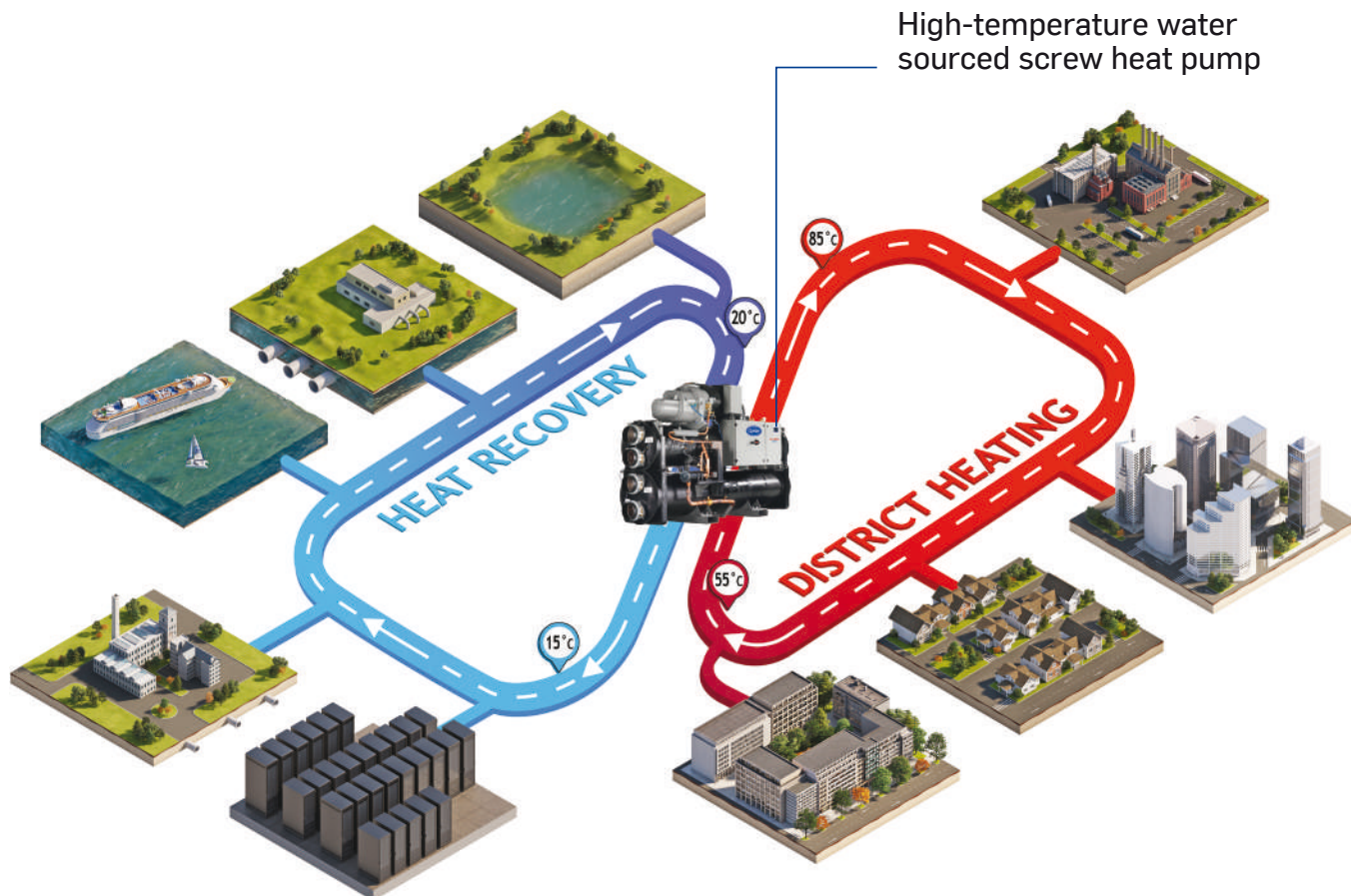
availability and minimized energy consumption.

In addition, Carrier designs, engineers and implements custom-made Thermal Energy Storage (TES) solutions for HVAC systems with peak cooling demand > 500 kW.

100% smart grid compatible, the TES solution reduces the capacity of the chillers by 30% to 70%, secures the cooling production and optimizes occupants' comfort.



# DISTRICT HEATING



## KEY ADVANTAGES

### Heat-pump, a renewable energy

The REPowerEU initiative considers increasing smart heating and cooling networks to 30% by 2030 and to 50% by 2050 as essential milestones in achieving the ambitious goals of decarbonization. Carrier is facing this challenge head on with solutions dedicated to district heating applications, such as the 61XWHZE range. Carrier heat pumps are part of the environmentally sustainable technologies

using renewable energy quoted in the European Directives on the use of Renewable Energy (RES). The Directive recognizes the technology as using renewable energy sources from air, water and ground.

### Heat-pumps do not depend on fossil fuel price rises

Future fossil fuel supply is determined by the resources in the ground and the technology available for extraction. Prices are

assumed to rise as fossil fuels are depleted, requiring more expensive technology for extraction.

### No noise & gas pollution compared with biomass boilers

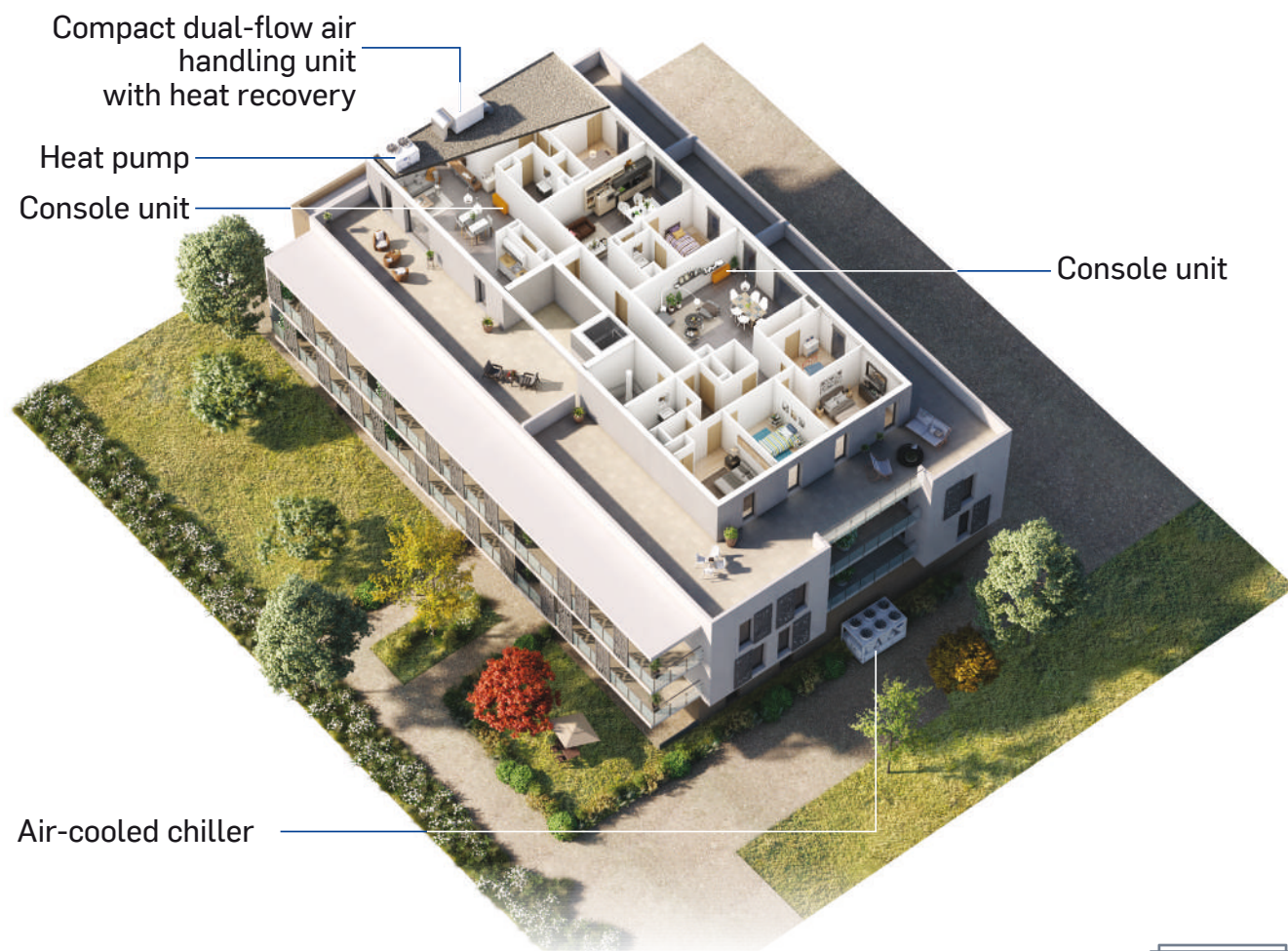
Carrier heat-pumps are supplied by electricity, are relatively quiet and do not exhaust gas. Installation of biomass boilers may impact the inhabitants and expose them to noise pollution and remove emissions that may cause coughing and sore

throats. In addition, delivery vehicles are needed to deliver the fuel and haul away ashes.

### Eligible to financial incentives

Many government environmental programs provides financial incentives for heat-pumps to support renewable heat production: Fonds Chaleur, Certificats d'Economie d'Energie (CEE) in France, Non-Domestic Renewable Heat Incentive (RHI) in the UK.

# RESIDENTIAL DEVELOPMENT



## KEY ADVANTAGES

### Indoor air quality

Carrier solutions can help to ensure and maintain a controlled microclimate, regulating the temperature and humidity levels, as well as ensuring optimal indoor air quality.

### Large range of heat pumps

Carrier has introduced dedicated heat pumps designed for heating

applications. They deliver superior energy efficiency both during cooling and heating operation whatever the external weather conditions: from -20 to 46°C outdoor air temperature.

### Energy savings

With a Seasonal Coefficient of Performance (SCOP) up to 4.7, AquaSnap 30AWH is the best value for air conditioning and heating solution in light commercial applications: the Heating Optimized

technologies improve significantly the heating capacity at low temperature, while the EnergySoft innovative defrosting technology improve the energy efficiency.

### Plug and play compact solutions

With complete factory wiring, easy handling features, factory-installed options and intuitive interface, the AquaSnap 30AWH and 30RQV set up is fast and

straightforward. Their compact size allows easy integration for small offices and shops.

### Advanced control

The new generation of control, NHC, perfectly meets the thermal needs of commercial buildings while insuring the Energy efficiency optimisation. NHC integrates master-slave configuration up to 4 units, with JBUS connection.





# OFFICE

HVAC advanced ceiling solution

Air handling unit

Air-cooled chiller/  
heat pump

Ducted  
in-room  
unit

Cassette

Hybrid terminal



## KEY ADVANTAGES

### Environmentally sustainable building approach

Carrier solutions not only offer efficiency to reduce the overall building energy consumption but are also designed for easy system integration: variable-speed pumps for efficient operation, time-scheduling, double-set-point; night-mode operation to optimize the chiller operation according to the requirements of the building; several communication protocols and remote monitoring to secure

consistent efficiency through the entire lifetime of the equipment.

### Partial free cooling

For applications with moderate cooling demand throughout the entire year including the cold season, units can be equipped with a patented Carrier DX free cooling system with a dedicated pump by-passing the compressor on one or both refrigerant circuits during winter operation. Operating without glycol, no extra free cooling coil. This results in

significant energy savings.

### HVAC advanced ceiling

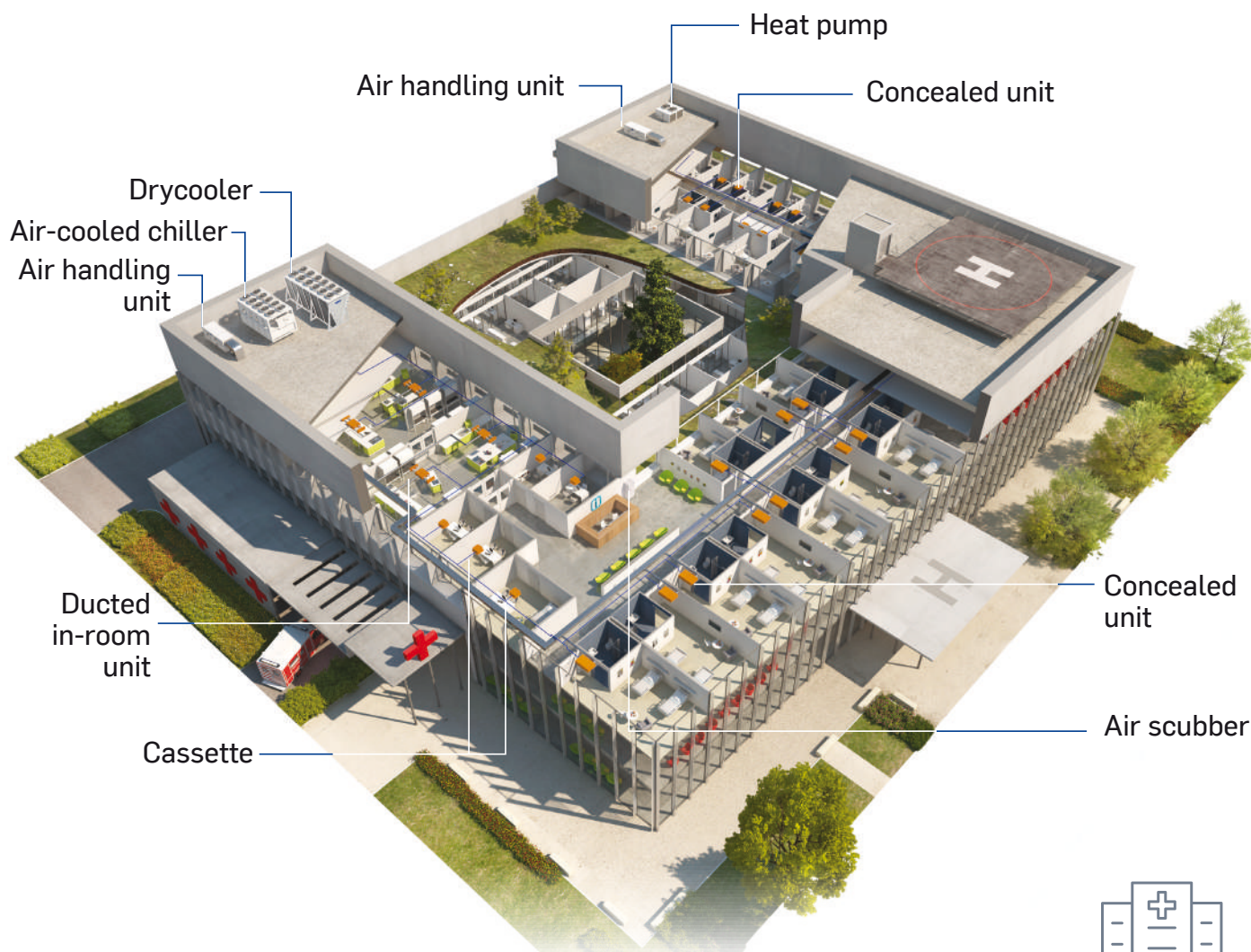
The HVAC advanced ceiling, in association with a Carrier ducted fan coil combines the advantages of radiation and convection to provide a high-level of comfort. In association with the high responsiveness and excellent capacities of the ducted fan coils, the solution guarantees energy efficiency, high level of comfort, extremely low noise, high indoor air quality and total customization of the

ceiling with printing, light or sound integration.

### Comfort management

From open space to individual offices, comfort can be personalized and controlled according to occupancy. The Aquasmart® system manages building zoning, occupancy and room temperature in accordance with needs. The system offers a remote access (WebCTRL®) and records historical data of the HVAC equipment.

# HEALTHCARE



## KEY ADVANTAGES

### Air quality

Carrier solutions can help to ensure and maintain a highly controlled microclimate, regulating the temperature and humidity levels, as well as ensuring optimal indoor air quality (filtration efficiency levels, management of CO<sub>2</sub> levels).

### Free cooling

For healthcare applications with 24/7 operations, a cooling demand may exist throughout the entire year. Units equipped

with a patented Carrier DX free cooling can offer significant energy savings without need for the use of glycol or extra free cooling coils and controls.

### Heat recovery

Carrier offers a range of heat recovery options, including high efficiency heat recovery on air handling units and desuperheaters or heat recovery condensers on chiller systems to contribute to reduced heating energy usage.

### System control

Hospitals often have dedicated control rooms to monitor the proper operation of all equipment in the entire building. Thanks to the availability of open protocol communication interfaces, Carrier equipment can be easily integrated in the building management system on site and, thanks to Carrier® PlantCTRL™, owners and plant managers may benefit from optimized control of the HVAC system plant room to reduce

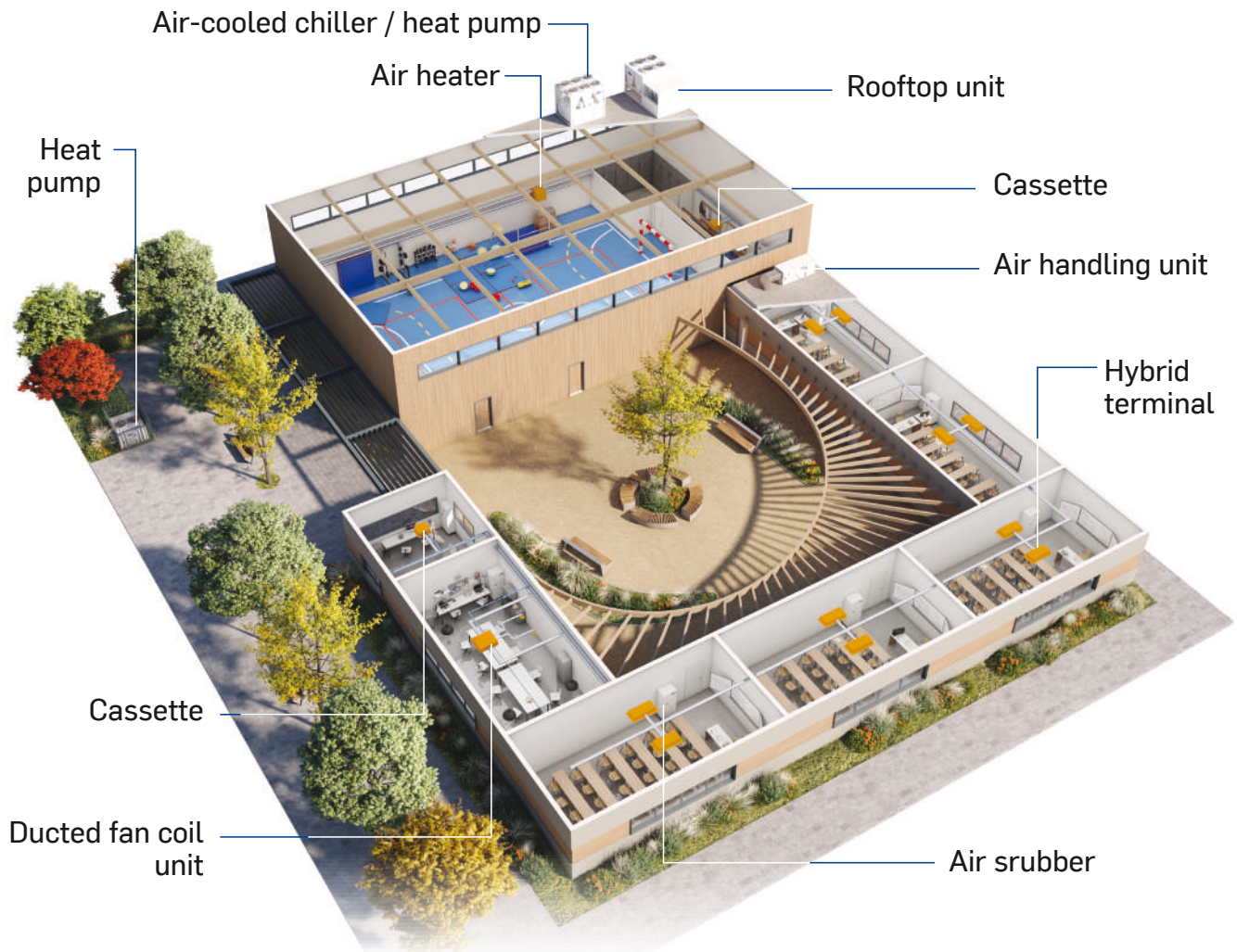
energy consumption and ensure continued delivery of comfort and air quality.

In addition, Carrier designs, engineers and implements custom-made Thermal Energy Storage (TES) solutions for HVAC systems with peak cooling demand > 500 kW. 100% smart grid compatible, the TES solution reduces the capacity of the chillers by 30% to 70%, secures the cooling production and optimizes occupants' comfort.





# EDUCATION



## KEY ADVANTAGES

### Indoor air quality

The health and safety of indoor environments can be significantly improved with consistent service and maintenance of not only buildings themselves, but also most importantly HVAC systems. The ventilation, heating and air conditioning solutions reliably reduce the concentration of indoor contaminants by introducing filtered outdoor air into the

building. On a very effective way, this process is also made easy thanks to specific air scrubber units.

### Building Upgrade

As the inventors of modern air conditioning and a world leader in HVAC, refrigeration, and fire and security solutions, Carrier has a legacy of creating safe and comfortable buildings. Retro. fits, modernizations and

upgrades must be done with student health and safety as a top priority, while being smart about costs, budgets and future requirements. Our experts are here to help – starting with assessments across various aspects of a building.

### Plug and Play solutions

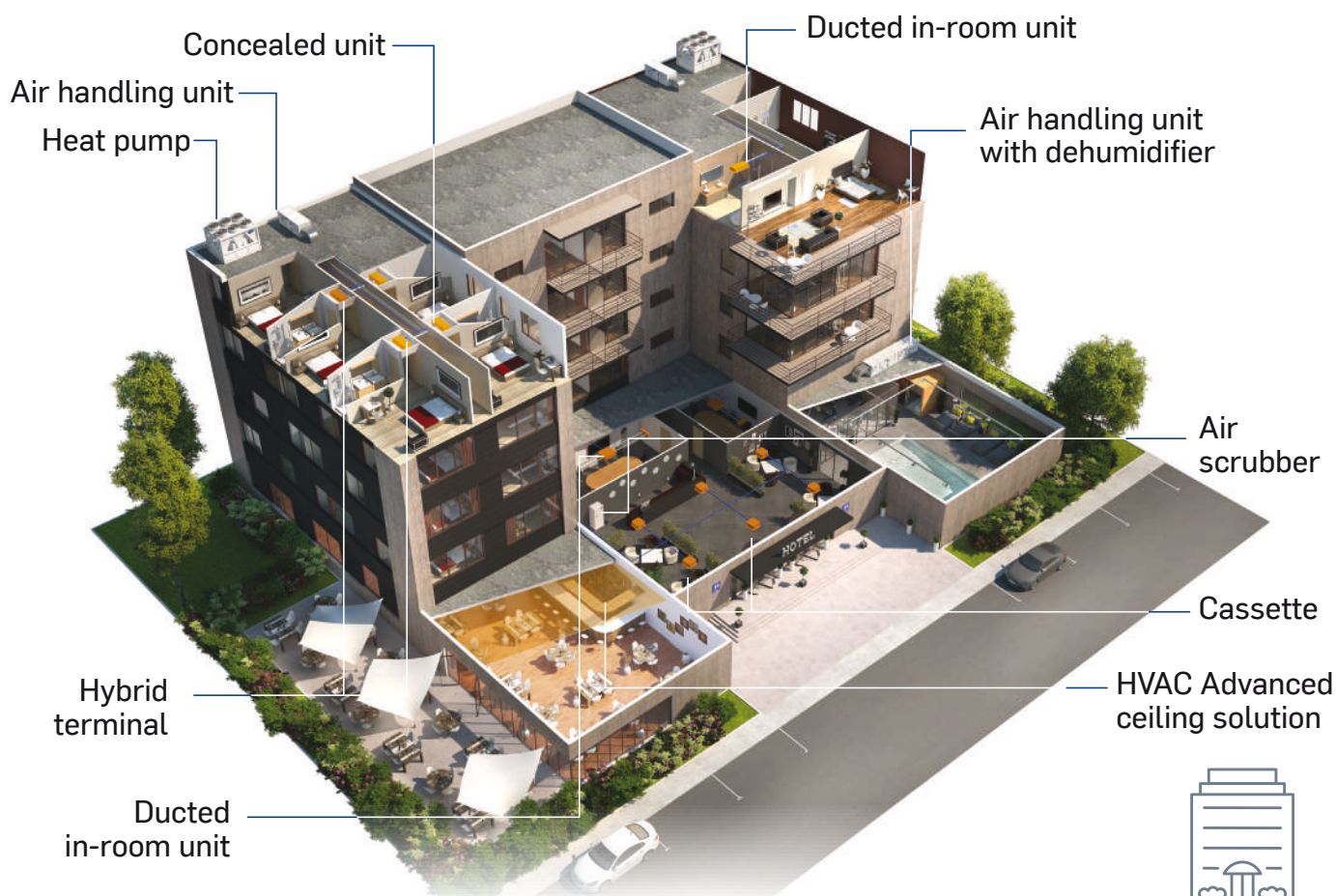
The design of the equipment is made to simplify your

installation as much as possible, making it easier to use for this application.

### Enhance University reputation

Strengthen university brand equity and loyalty by creating a distinctive educational and campus environment with personalized control.

# HOSPITALITY



## KEY ADVANTAGES

### Low noise features

Air conditioning, ventilation and heating (depending on the region and season) are among the first things guests experience. Carrier terminal solutions and diffusion capabilities offer the low noise performance that guests require in a relaxing environment.

### 36XH Hybrid Terminal

The 36XH Hybrid Terminal combines the advantages of both chilled beams and fan coils : energy efficiency, high level of comfort, extremely low noise and high level of air indoor quality. The fresh air intake volume can be

controlled according to CO<sub>2</sub> levels in order to provide the best indoor air quality and comfort in hotel rooms and minimize the global energy consumption of the system. The 36XH has three operation modes :  
 - Night mode : based on induced fresh air only  
 - Day mode : based on the combination of induced fresh air and water coil operation  
 - Boost mode : based on the combination of induced fresh air, water coil operation and fan operation

### Advanced temperature controls

Personalising a guest's stay is vital to building a relationship that will keep

them coming back. Carrier's easy-to-use, aesthetically pleasing user interfaces supported by energy management systems, from Aquasmart® to WebCTRL®, make providing individualized climate settings cost effective and intuitive. User interfaces are available in a wide variety of options in Carrier's range.

### Heat recovery

Carrier offers a range of heat recovery options, including high efficiency heat recovery on air handling units and desuperheaters or heat recovery condensers on chiller systems to contribute to reduced heating energy usage.

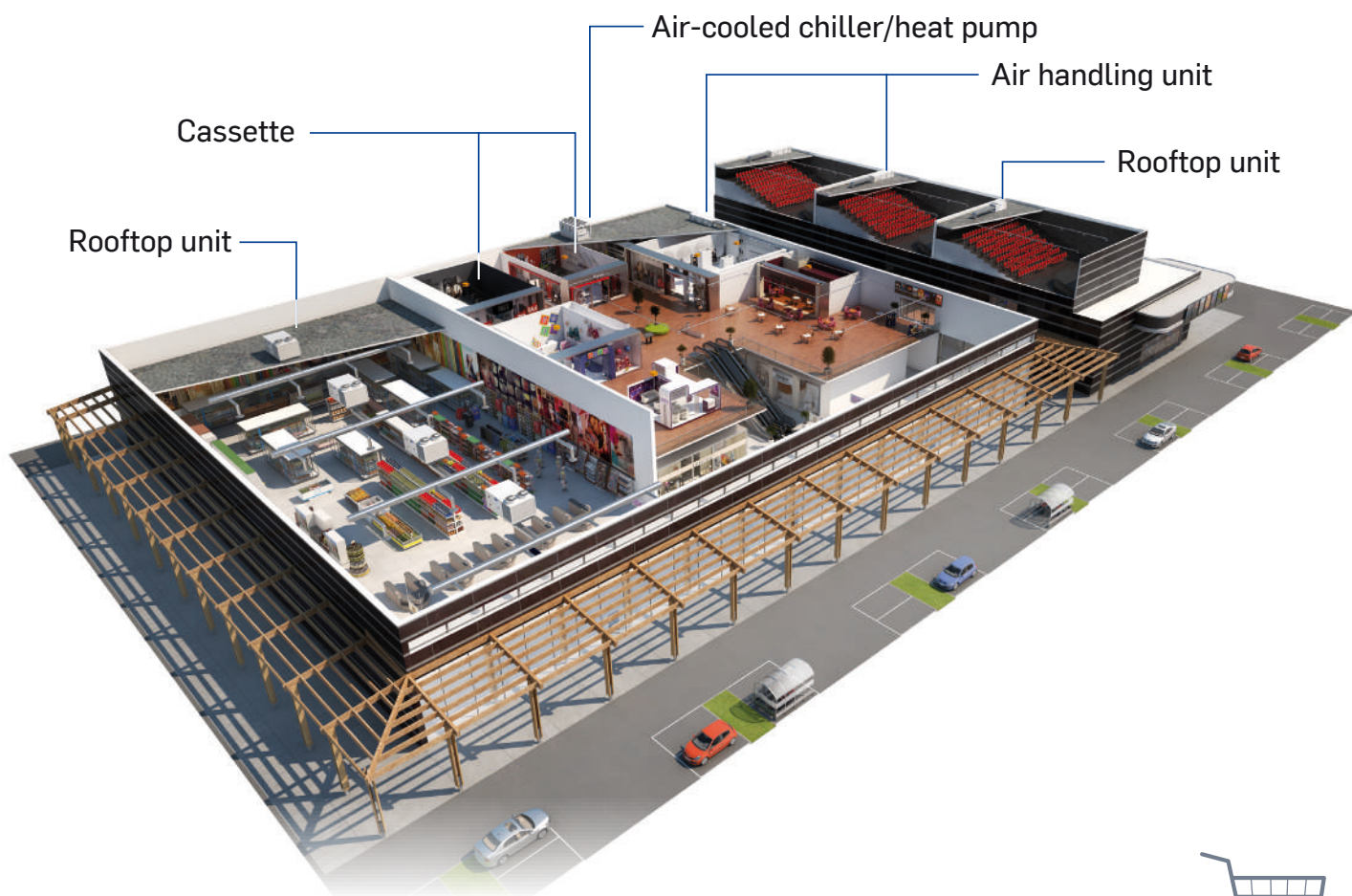
### Sanitary hot water

Hotels require a constant supply of sanitary hot water for various areas. Heat recovery at very high temperature is possible for many Carrier chillers offering energy to pre-heat the hot storage tank normally heated by traditional boilers. Furthermore dedicated high temperature heat pumps capable of hot water production up to 68°C offer further opportunities to reduce energy consumption of the system.





# RETAIL



## KEY ADVANTAGES

### For small/medium individual needs

Cost-effective self-contained air conditioning solutions for retail applications and/or warehouses are rooftop units. Designed for outside installation, these systems provide an easy, versatile solution for both new and retrofitted buildings. A range of types and options provide cooling, heating and ventilation and allow a variety of system designs from constant volume to variable volume designs.

### For larger centers

Centralized chiller systems and air handling units distribute chilled water and treated ventilation air to the shopping complex. Individual shops select the most appropriate chilled water terminals or packaged air treatment solutions for their comfort needs and to suit interior design.

### Heat recovery

Carrier offers a range of heat recovery options, including high efficiency heat recovery

solutions on rooftop and air handling units. These can contribute to reduced heating energy usage or in some cases replace components that use alternative fuels.

### Indoor air quality

Carrier solutions can help to ensure and maintain a highly controlled microclimate, regulating the temperature and humidity levels, as well as ensuring optimal indoor air quality (filtration efficiency levels, CO<sub>2</sub> levels management).

### Climate control systems

Carrier designs, engineers and implements custom-made Thermal Energy Storage (TES) solutions for HVAC systems with peak cooling demand > 500 kW.

100% smart grid compatible, the TES solution reduces the capacity of the chillers by 30% to 70%, secures the cooling production and optimizes occupants' comfort.

# LOGISTICS



## KEY ADVANTAGES

### Control and manage temperature

Carrier technologies are equipped with a multi-zone control system that helps logistics buildings to automatically adapt the temperature in the different rooms (offices, warehouse, reception), based on different factors such as human traffic.

### Occupant comfort

Carrier is responsible for ensuring the best possible comfort for occupants, regardless of the number of occupants in the building at any given time. To achieve this, Carrier must create healthier, people-centred environments. In this way, both the work performance and the health of the building's occupants can be improved.

### Energy savings

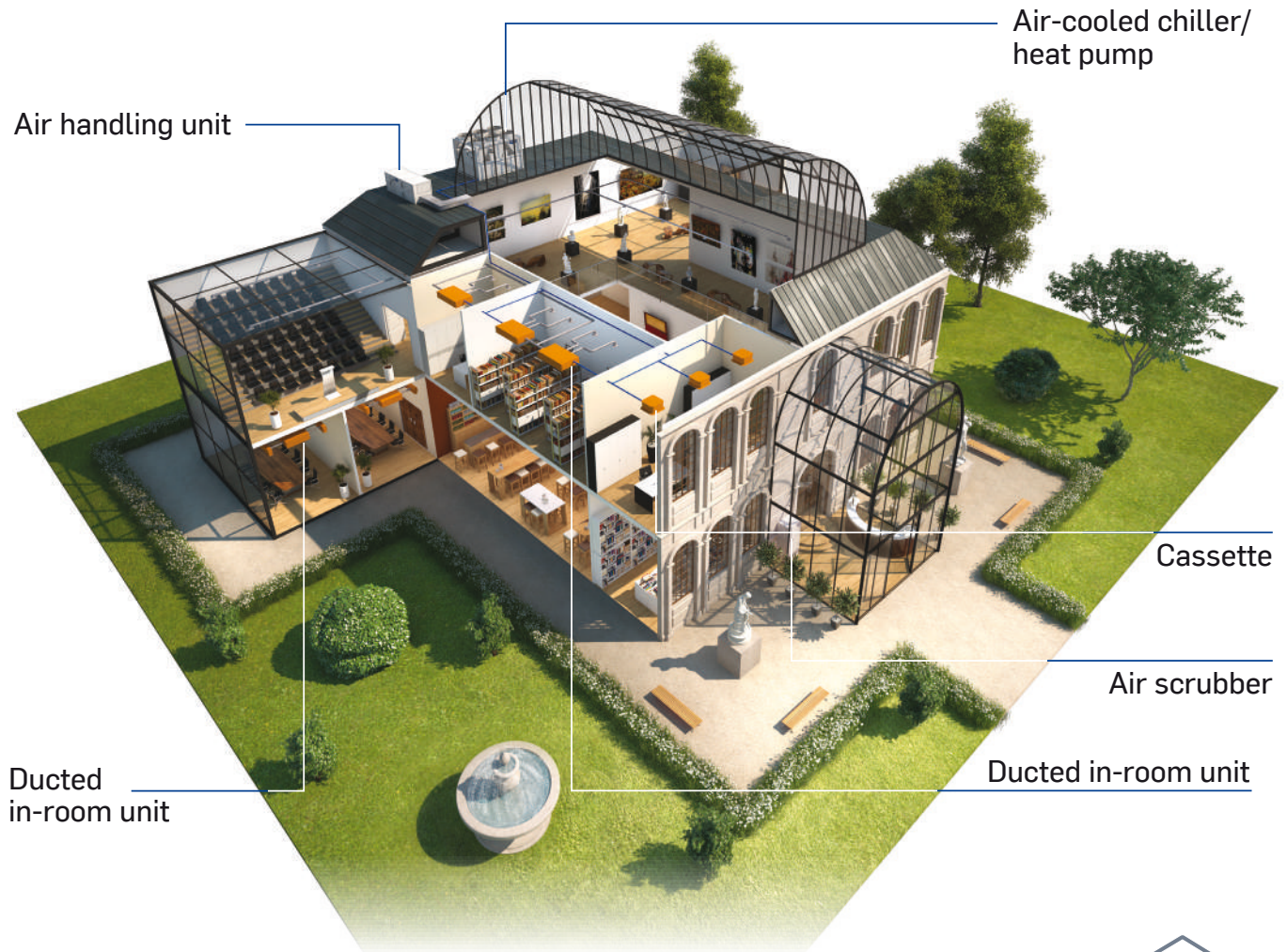
In order to save as much energy as possible, Carrier has developed solutions that allow for high environmental responsibility while maintaining high seasonal performance. One of these solutions is our rooftop ranges which has features that reduce energy consumption to a minimum.

### Environmentally sustainable

Carrier is committed to limiting the environmental impact of its products and solutions in line with HVAC industry challenges by lowering refrigerant GWP and increasing the HVAC system efficiency.



# CULTURAL HERITAGE



## KEY ADVANTAGES

### Low noise emission

Carrier units have dedicated low noise options to be virtually unnoticeable and to respect the need for "church-quiet" noise levels.

### Precise adaptability to load variation

Conditions inside buildings change as a result of many factors including the local climate, the time of the day and the number of visitors. Carrier solutions equipped with

precise electronic capacity controls and variable-speed motors adapt to meet load variations in just a few seconds, assuring exceptional comfort and in turn ensuring minimum energy consumption.

### Indoor air quality

Carrier solutions can help to ensure and maintain a highly controlled microclimate necessary to protect the works of art, regulating the temperature and humidity levels, as well as ensuring

optimal airflow quality and velocity.

### Smart energy management

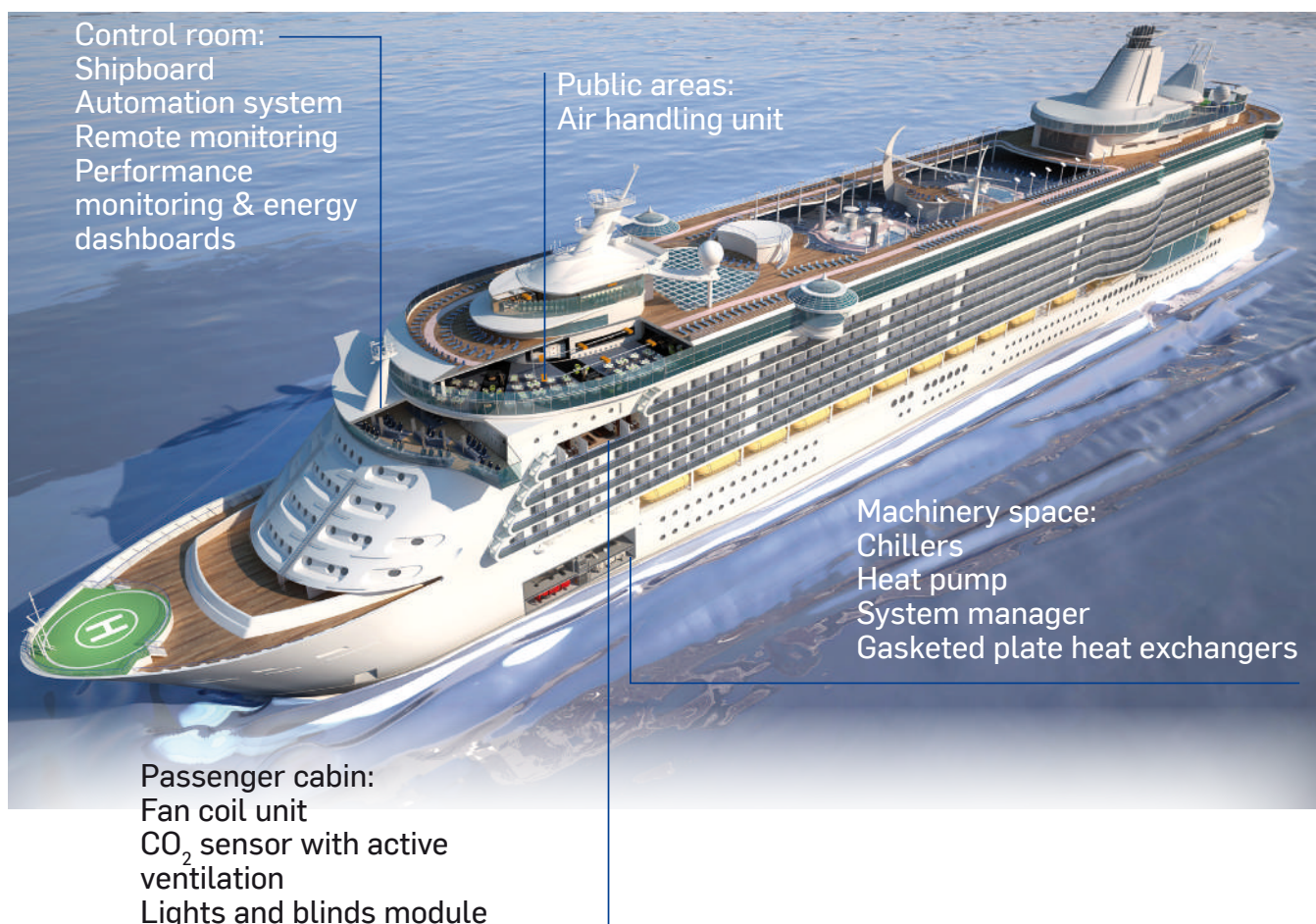
Night-mode operation, time-scheduling and precise room temperature control are key features for any cooling or heating device operating in a museum. Thanks to advanced control systems such as Aquasmart® and Carrier® PlantCTRL™, the HVAC system can be controlled and optimized as a whole for

maximum comfort and minimized energy consumption.

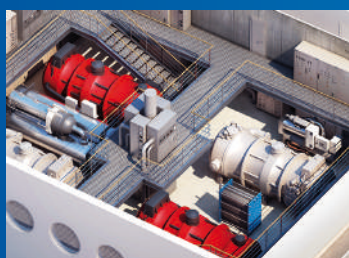
In addition, Carrier designs, engineers and implements custom-made Thermal Energy Storage (TES) solutions for HVAC systems with peak cooling demand > 500 kW. 100% smart grid compatible, the TES solution reduces the capacity of the chillers by 30% to 70%, secures the cooling production and optimizes occupants' comfort.



# MARINE & OFFSHORE



## KEY ADVANTAGES



### Machinery space

- AquaEdge™ two-stage chillers
- AquaForce® 30XWHV water-to-water heat pump
- PlantCTRL™ system manager
- 10TE gasketed plate heat exchangers



### Passenger cabin

- 42MS passenger cabin fan coil
- 36XH hybrid terminal
- WTC controller
- Room controller
- CO<sub>2</sub> sensor with active ventilation
- Lights and blinds module



### Public areas

- 39CQ compact air handling unit
- 39HQ AiroVision air handling unit
- 39CZ AiroVision air handling unit



## YOUR SERVICE PARTNER

Your daily challenge is a complex balance between maintaining optimal comfort levels, maximising system uptimes and minimising cost of ownership. BluEdge service teams are committed to ensuring your peace of mind and supporting your business objectives throughout the lifecycle of your equipment. We can help you create a customized program that is suited to your specific goals and needs.



### Customer needs come first

#### Proximity & Responsiveness

BluEdge service expert technicians are there to take action, quickly. Comprehensive and highly efficient maintenance processes mean your equipment works at peak performance level.

If necessary, you can rely on Carrier Rental Systems and readily available spare parts to avoid extended downtime.

#### Expertise & Consultancy

The BluEdge service platform has experienced teams, an extensive network of branches, top grade logistics and powerful information systems. These industry-leading resources come together to deliver a best-in-class service.

Your BluEdge service experts will help you to find the right balance between enhancing energy efficiency and maximising your investments.

#### Proactivity

As your preferred partner, Carrier designs tailored maintenance programs to meet your goals and optimize your business performance.

### Worldwide-recognized experts

#### Asset Management

- Advise on fast-moving regulatory environment.
- Guidance for energy optimization solution.
- Information on EH&S guidance.
- Providing educational sessions.

#### Technical expertise

BluEdge service technicians benefit from a multifaceted training program based on 115 years of industry experience to bring you top level, up-to-date service.

- Technical training to ensure the teams remain familiar with all equipment types.
- Environmental, Health and Safety (EH&S) training to ensure the highest standards of ongoing safety.

Present  
in more than  
**60**  
countries

**24/7**  
on-site  
availability

More than  
**115**  
years  
of experience

# A COMPREHENSIVE SERVICE RANGE TO BEST FIT CUSTOMER NEEDS



## MAINTENANCE

- Reduced, tightly controlled running costs
- Maximized equipment lifetime
- Full F-gas compliance for chillers

Carrier offers a comprehensive range of service agreements for all brands of chillers, rooftops, split and VRF (Variable Refrigerant Flow) air conditioning, air handling units, controls and accessories, from preventive to predictive maintenance.



## REPAIR

- Minimized downtime and losses
- Increased occupant satisfaction
- Emergency Repair Kits available on site

Carrier's factory-trained technicians fix your systems expertly and efficiently. For quick and easy repairs, Carrier designed repairs kit solutions. All around Europe, our customers benefit from a dense network of experts to get the efficient support for all application and business needs.



## SPARE PARTS

- State-of-the-art logistics with reliable next day deliveries
- Facilitated parts selection, and order on line: [www.store-eu.carrier.com](http://www.store-eu.carrier.com)
- Comprehensive parts solutions for all equipment

Carrier's powerful supply chain provides you with genuine manufacture parts and consumables with high service levels. The dedicated expert team facilitates your selection.



## MODERNISATION

- Compliance with new regulations
- Refrigerant conversion for chillers
- Improved reliability and optimized performance

Carrier experts support you all along the lifecycle of your building, HVAC plant and equipment. We propose turnkey solutions to replace and enhance equipment & systems. The flexibility & full support of these solutions based on your specific needs, secure and guarantee the performance of your cooling and heating production.



## RENTAL

- Ready on-site temperature control or pump solution
- Secured production and optimal comfort
- Alternative to asset investments

Whenever you need a temporary cooling or heating solution, Carrier Rental Systems organization provides tailored solutions from design through installation to decommissioning. (For seasonal capacity requirement, emergency, planned service work, facility refurbishment, event, contingency planning...)



## CONSULTANCY & REGULATION

- HVAC expertise & recommendations
- Guidance for understanding & complying with energy regulations
- Educational sessions for your asset management

As an expert on its equipment, Carrier offers you consultancy services on how to manage & optimize your energy consumptions and your maintenance costs. We help you to understand the fast-moving regulatory environment and to comply with it by taking into account your activity needs.



## CONTROL & MONITORING

- Equipment, plant & system management
- Easy and fully secure access to your HVAC system
- BMS compatibility

Our BluEdge Digital platform offer allows you to track and monitor your HVAC system performance & energy consumptions and take preventive and corrective actions remotely.



## ANALYSIS & OPTIMISATION

- Actionable analysis by nearby experts
- Analyse plant operating data to maximize equipment lifetime
- Saving opportunities & optimize performance

We innovate constantly to find the best solution for analysing and optimising your installation. Our HVAC experts provide you with diagnostics to help you save on maintenance costs and to analyze the data of your systems and their energy consumption.



## ENERGY STORAGE

- Turnkey system solutions for all HVAC applications
- For peak cooling systems >500 kW
- Shift your electricity consumptions from peak to off peak hours

Reducing electricity costs with continuous air conditioning throughout the year is a strong challenge for cities and customers. Installing a Thermal Energy Storage solution optimizes the design and the operation of your HVAC installation.





# EUROPEAN PARTS CENTER: BUILDING SERVICE EXCELLENCE FOR CUSTOMER

Thanks to our dedicated ERCD (EMEA Replacement Components Division) team and our factories located throughout Europe, Carrier is able to deliver 250 orders daily and ship efficiently more than 1,600 shipments per week around the world.



## A robust supply chain

### Dedicated team & expert advices

An experienced and attentive team will support you throughout the process of spare parts procurement: parts selection, management orders follow-up and logistics until delivery.

Our powerful purchasing negotiations ensures optimized pricing and lead-times. Thanks to our manufacturing expertise, we provide advice to help you find the best service solution to meet your specific needs.

- State-of-the art logistics with reliable next day delivery for Europe
- Storage permanently adjusted according to customer demand
- Accessible and reactive contacts
- Dedicated online shop to facilitate the selection of parts

## A comprehensive parts offering

### High added value parts solutions

With more than 10,000 items in stock, we propose a comprehensive parts offering including compressors, universal parts and manufactured components.

- Factory Authorized & Proprietary and universal spare parts
- Parts kits solutions
- Consultancy services
- Dedicated solutions for railways, mining & marine business

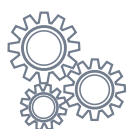
### Quality & reliability

The quality and the reliability of Carrier are integrated and guaranteed for all products & systems and extended to every spare part.

Discover our new e-commerce website dedicated to spare parts!

Visit: **[www.store-eu.carrier.com](http://www.store-eu.carrier.com) to get your access!**

- Order online with total autonomy
- Consult technical information & pictures of our parts
- Simplify your technical selection thanks to exploded views of end products
- Stay tuned to discover future contents!



**+90,000**  
MANAGED PART  
NUMBERS\*



**98%**  
DELIVERIES  
ON TIME\*



**5.6/7**  
CUSTOMER  
SATISFACTION\*

\*2019 Carrier data

# CARRIER RENTAL SYSTEMS: TAILOR MADE HIRE SOLUTIONS FOR COOLING & HEATING

Specialized in temperature control, pumps and power solutions, Carrier Rental Systems operates around Europe providing comfortable, efficient, healthy, safe and secure environments for many critical and diverse applications: industry, events, data centers, hospitals, retail, offices.

## Turnkey solutions

Carrier Rental Systems provides temporary short-, medium- and long-term cooling and heating solutions for customer needs including seasonal capacity requirements, breakdown emergencies, planned service work, facility refurbishment, special events and contingency planning.

With tailored systems for commercial and industrial applications, the Carrier Rental team is committed to ensuring on-time and on-budget delivery, from system design to installation and decommissioning.

### Customized solutions

Meet changing needs throughout the year to suit fluctuations in demand or seasonal temperature changes

### Inclusive 24/7 call out

Dedicated technicians to support your daily business

### Testing before buying

Trial the equipment before buying with Carrier Rental Systems

### New premises & short term leases

Provide the time to install a new air-conditioning system until you have expanded or refurbished your installation

### Fixed monthly costs

Constant rental prices

### No extra charges

Price maintenance included with the rental fee

### No need for capital expenditure

Contract based on a temporary plant basis

### Tax relief

100% allowable against corporation tax



### Industry:

Cooling solutions for industrial petrochemical, pharmaceutical, logistics...



### Hospital:

Heating and air-conditioning rentals for hospitals and their clinic's.



### Event:

Rentals for heating and cooling units (Red bull crashed ice in Belfast).



### Hotel:

Cooling unit rentals following a system failure (Royal Garden hotel in London).



**+8,000**  
AVAILABLE MODELS



**+40**  
DEPOTS



**24/7**  
INCLUDE  
CALL OUT



# AIR-COOLED CHILLERS

## Air-cooled rotary & scroll chillers



### 30RB

- Easy and fast installation
- Compact, reliable and efficient

16 - 41 kW



### 30RBY

- Superior reliability
- Economical operation

16 - 32 kW



### 30RB

- High efficiency
- Compact design
- Superior reliability
- Sustainable

40 - 160 kW





# AIR-COOLED CHILLERS

## Air-cooled scroll chillers



**R-32**

### 30RB-30RBP

- High efficiency
- Sustainable
- Easy and fast installation
- Compact, reliable and efficient

170 - 940 kW



## Air-cooled screw chillers



**HFO**  
R-1234ze

### 30KAV(P)ZE

- Outstanding performance
- Intelligence and connectivity

372 - 1,354 kW



**HFO**  
R-1234ze

### 30KAVIZE

- Dedicated to industry
- High performance
- Low sound levels
- Environmentally responsible
- Compact dimensions
- Easy installation & maintenance

532 - 1,307 kW



**NEW**



**HFO**  
R-1234ze

### 30XB(P)ZE

- Very economical operation
- Ease-of-use
- Exceptional reliability

210 - 1,170 kW



### 30KAV(P)

- Outstanding performance
- Intelligence and connectivity

493 - 1,079 kW



### 30XB(P)

- Low sound levels
- Environmentally responsible
- Exceptional reliability

277 - 1,684 kW





# WATER-COOLED CHILLERS

## Water-cooled screw chillers



### 30XW-VZE

- Low energy consumption
- High reliability
- Environmentally responsible

448 - 1,243 kW



### 30XW-PZE

- Easy and fast installation
- Environmentally responsible

269 - 1,110 kW



### 30XW-V

- Designed to support green building design

587 - 1,741 kW



### 30XW(P)

- High reliability
- Easy and fast installation
- Environmentally responsible

273 - 1,756 kW



# WATER-COOLED CHILLERS

## Water-cooled centrifugal chillers



**HFO**  
R-1233zd

### 19DV

- Industry leading energy efficiency
- Advanced back-to-back two-stage compressor
- Acoustic comfort

1,200 - 3,600 kW



**R-513A**

### 19XR/XRV (1 stage)

- Single stage compressor
- Wide application
- Low sound level

1,000 - 5,300 kW



**R-513A**

### 19XR/XRV (2 stage)

- Two-stage compressor
- High lift operation
- Small footprint

2,800 - 10,500 kW







## Air-cooled drycoolers



### 09PE

- Flexibility
- Energy optimization

10 - 1,100 kW



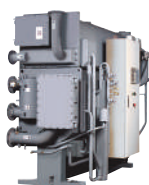
### 09VE

- Compact
- Acoustic comfort

100 - 1,870 kW



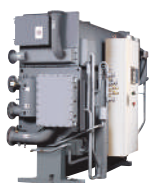
## Absorption chillers



### 16TJ (Single effect)

- Complete range 350 to 2500 kW
- Steam fired absorption chiller

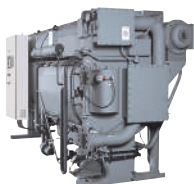
352 - 2461 kW



### 16LJ

- Complete range 83 to 4000 kW
- Hot water source from COPr up to 0.78

83 - 3,956 kW



### 16NK (Double effect)

- Steam fired absorption chiller
- High efficiency using double-effect cycle

345 - 4,652 kW



## Gasketed plate heat exchanger



### 10TE

- Economic conception
- High reliability

0 - 800 m<sup>3</sup>/h



# AIR-TO-WATER HEAT PUMPS

## Rotary compressors



### 61AF014-019

- High energy efficiency level
- Superior reliability

14 - 20 kW



### 30RQ

- Easy and fast installation
- Hydraulic module available

16 - 39 kW



17 - 41 kW



### 30RQ

- Low environmental impact
- High full and part load efficiency
- Compact and simple to install
- Low refrigerant charge
- Superior reliability

40 - 160 kW



40 - 160 kW





# AIR-TO-WATER HEAT PUMPS

## Scroll air-to-water heat pumps



### 61AF-030-105

- 61AF optimized for heating
- Compact design
- Plug & play approach

26 - 102 kW



**NEW**

### 30RQ-30RQP

- High efficiency, low operating cost
- Compact and simple to install
- Superior reliability
- Sustainable

160 - 1040 kW



170 - 940 kW





# WATER-TO-WATER HEAT PUMPS

## Water-to-water scroll heat pumps



### 61WG

- High temperature
- Plug-and-play approach
- High efficiency

29 - 230 kW



### 30WG/30WGA

- 30WG optimized for cooling
- Compact design

25 - 190 kW



29 - 230 kW



### 30WI

- High energy efficiency
- Compact design
- Broad field of applications

200 - 700 kW



250 - 830 kW





# WATER-TO-WATER HEAT PUMPS

## Water-to-water screw heat pumps



### 61XWHZE

- Multiple applications : district heating, space heating, and process heating

200 - 2,500 kW



### 30XWHVZE

- Low energy consumption
- Environmentally responsible

448 - 1,243 kW



524 - 1,485 kW



### 30XWHPZE

- Low energy consumption
- High reliability
- Safe design

269 - 1,110 kW



319 - 1,296 kW



### 30XWHV

- Easy and fast installation
- Environmentally responsible

587 - 1,741 kW



648 - 1,932 kW



### 30XWH(P)

- Low operating sound system
- Environmentally responsible
- Low energy consumption

273 - 1,756 kW



317 - 1,989 kW



# FAN COIL UNITS

## ADVANCED HVAC CEILING SOLUTIONS



- High level of thermal and acoustic comfort
- High Indoor Air Quality
- Freedom of shape, lightning and sound integration, printing
- Custom made ceiling or modular panel version

## Ducted terminal fan coil units



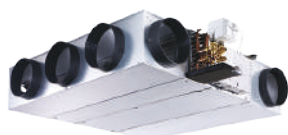
### 42EP

- Optimised energy consumption level
- Extra slim only 150 mm height

0.4 - 4.2 kW



0.5 - 5 kW



### 42NH

- Modular horizontal ducted unit
- Low energy consumption

0.6 - 12 kW



0.8 - 17 kW



### 42GR

- High efficiency
- Extremely low sound level
- Quick installation

1.3 - 3.4 kW



2.9 - 3.5 kW



### 42BJ

- All-in-one offer
- Minimal installation costs
- Very low sound level

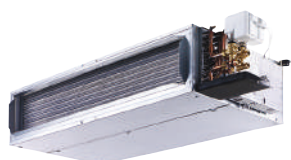
0.5 - 6 kW



0.5 - 12.2 kW



## Concealed terminal fan coil units



### 42NL

- Extremely quiet operation
- Flexibility for simplified installation

0.6 - 12 kW



0.8 - 17 kW



### 42ND

- Energy efficiency and ecodesign compliant
- Versatile and polyvalent horizontal and vertical installation

0.7 - 8.7 kW



1.0 - 9.15 kW







# FAN COIL UNITS

## Console and cassette fan coil units



### 42NC

- Energy efficiency and ecodesign compliant
- Versatile and polyvalent horizontal and vertical installation

0.7 - 8.7 kW



1.0 - 9.15 kW



### 42GW

- Versatility and easy installation
- Optimized 4-way diffusion

1.5 - 9.5 kW



1.3 - 11.3 kW



### 42KY

- Coanda effect for optimised diffusion
- Acoustic comfort
- Modern design for high aesthetical level
- 180° diffusion panel

1 - 6 kW



2 - 10 kW



### 42SI

- Extra slim
- 4 models available

0.55 - 2.9 kW



0.57 - 2.5 kW



## High-wall



### 42WM

- Versatile and compact
- Energy efficiency
- Thermal and acoustic comfort

1.2 - 3.8 kW



1.3 - 4.3 kW



## Air heater



### 42AM

- Ensures ultra-fast thermal comfort
- Available with low consumption EC motor

1,400 - 11,000 m³/h



# AIR TREATMENT SYSTEMS

## Air handling units



### 39CP

- AHU for all application
- Designed to conform to standards

1,000 - 30,000 m³/h



### 39HQ

- Extremely quiet operation
- Flexibility for simplified installation

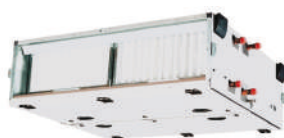
5,000 - 13,000 m³/h



### 39CZ

- The effective solution for service sector, industry and healthcare applications

6,000 - 60,000 m³/h



### 39CQ

- Modular Ultra-Slim AHU
- Ideal for a compact installation

1,000 - 6,000 m³/h



### 39HX

- Plug & play unit
- High-efficiency heat recovery unit
- High performance plug fan

300 - 18,000 m³/h



## Air scrubber



### 39UV

- Portable solution
- Recirculation or negative air machine
- HEPA filters with M5 pre-filter
- Provides safety conditions for locals without fresh air entry
- High Indoor Air Quality

1,000 - 1,800 - 2,500 m³/h



# AIR TREATMENT SYSTEMS

## Close control units



### 50CJ

- Compact footprint
- Dual-wall construction
- PLC control

5 - 47 kW



4 - 41 kW



1,300 - 12,000 m³/h



### 50CO

- Optimised Coanda effect diffusion
- Air quality

40 - 100 kW



18 - 73 kW



10,000 - 27,000 m³/h



## Rooftops



R-454B

NEW

### 50FC 020-093

*Version with R-410A is also available*

- Low environmental impact
- High seasonal efficiency SEER/SCOP
- Energy savings
- Air quality
- Extensive scope

22 - 90 kW



22 - 90 kW



R-454B

NEW

### 50FF/FC 100-280

*Version with R-410A is also available*

- Low environmental impact
- High seasonal efficiency SEER/SCOP
- Energy savings
- Air quality
- Extensive scope

97 - 273 kW



97 - 299 kW

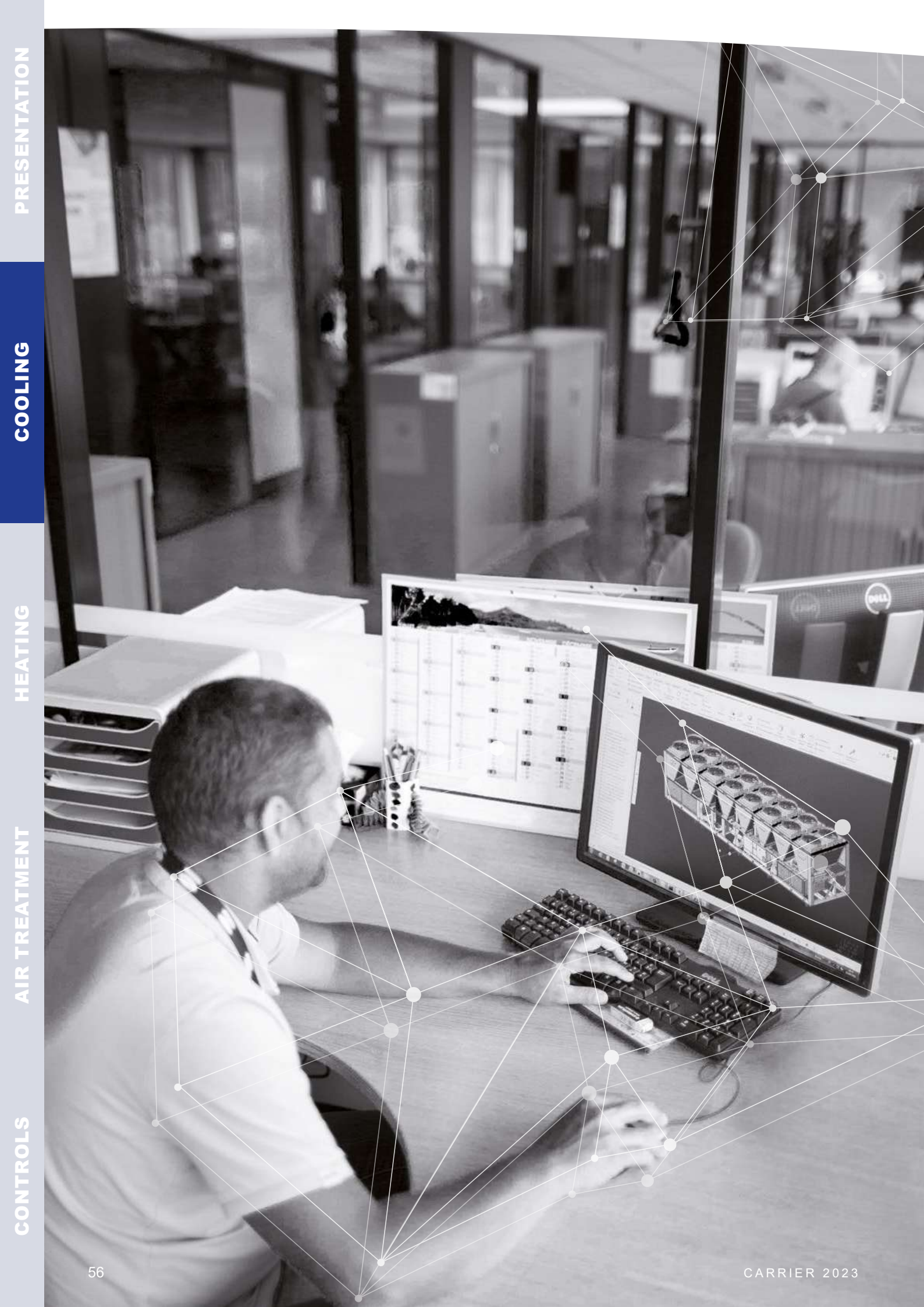






## DISCOVER ALSO XCT7, OUR VRF SYSTEM RANGE

[Click here](#)



# Cooling

57

| Type                                  | Range                 | Refrigerant  | Cooling capacity, kW | Page |
|---------------------------------------|-----------------------|--------------|----------------------|------|
| <b>Air-cooled units</b>               |                       |              |                      |      |
| With rotary compressors               | 30RBY 017-033         | R-410A       | 16-32                | 59   |
|                                       | 30RB 017-040          | R-410A       | 16-41                | 69   |
| With scroll compressors               | 30RB 040R-160R        | R-32         | 40-160               | 79   |
|                                       | 30RB/30RBP 170R-950R  | R-32         | 170-940              | 103  |
| With screw compressors                | 30XBE/30XBP 250-1700  | R-134a       | 277-1684             | 141  |
|                                       | 30XBE-ZE/30XBP-ZE     | R-1234ze     | 210-1170             | 173  |
|                                       | 30KAV/30KAVP          | R-134a       | 500-1100             | 201  |
| NEW                                   | 30KAV(P)ZE/ 30KAVIZE  | R-1234ze     | 350-1250             | 233  |
| <b>Water-cooled units</b>             |                       |              |                      |      |
| With scroll compressors               | 30WI                  | R-410A       | 200-700              | 273  |
| With screw compressors                | 30XW/30XW-P           | R-134a       | 273-1756             | 283  |
|                                       | 30XW-V                | R-134a       | 587-1741             | 311  |
|                                       | 30XW-PZE              | R-1234ze     | 269-1110             | 323  |
|                                       | 30XW-VZE              | R-1234ze     | 448-1243             | 337  |
| With centrifugal compressors          | 19DV                  | R-1233zd     | 1200-3600            | 349  |
|                                       | 19XR/XRV single stage | R-134A/R513a | 1000-5300            | 355  |
|                                       | 19XR/XRV Two-stage    | R-134A/R513a | 2800-10500           | 359  |
| <b>Air-cooled drycoolers</b>          |                       |              |                      |      |
| With axial fan                        | 09PE                  | -            | 10-1100              | 363  |
|                                       | 09VE                  | -            | 100-1870             | 369  |
| <b>Absorption chillers</b>            |                       |              |                      |      |
| <b>Single-effect</b>                  |                       |              |                      |      |
| Hot water-fired absorption chillers   | 16LJ-F                | -            | 83-3956              | 373  |
| Steam-fired absorption chillers       | 16TJ                  | -            | 352-2461             | 409  |
| <b>Double-effect</b>                  |                       |              |                      |      |
| Steam-fire absorption chillers        | 16NK                  | -            | 345-4652             | 419  |
| <b>Gasketed plate heat exchangers</b> |                       |              |                      |      |
|                                       | 10TE                  | -            |                      | 423  |





## DUCTABLE AIR-COOLED LIQUID CHILLERS



Easy and fast installation  
Hydraulic module available  
Economical operation  
Superior reliability

# 30RBY 017-033 A

## AQUASNAP®

Nominal cooling capacity 30RBY: 16-32 kW

The Aquasnap liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices and hotels etc.

The new Aquasnap units integrate the latest technological innovations:

- Ozone-friendly refrigerant R410A
- Scroll compressors
- Low-noise fans
- Auto-adaptive microprocessor control

The Aquasnap units are equipped with a hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply and the water supply and return piping.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## FEATURES

### Quiet operation

- Compressors
  - Low-noise scroll compressors with low vibration levels
  - The compressor assembly is supported by anti-vibration mountings
- Air heat exchanger section
  - Vertical air heat exchanger coils
  - The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise
  - Rigid fan installation for reduced start-up noise.

#### Access panels, 30RBY 017-021



### Easy and fast installation

- Integrated hydraulic module
  - Fixed speed circulator
  - Water filter protecting the water pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit
  - Overpressure valve, set to 4 bar
  - Automatic purge valve positioned at the highest point of the hydraulic module to remove air from the system.
  - Thermal insulation and frost protection down to -10°C, using an electric resistance heater and pump cycling.
  - Integrated water fill system to ensure correct water pressure (option)
- Physical features
  - With its small footprint the unit blends in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- Simplified electrical connections
  - A single power supply point (power supply without neutral available as an option and in standard for units size 40kW)
  - Main disconnect switch with high trip capacity
  - Transformer for safe 24 V control circuit supply included
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors.
- Easy duct connection (30RBY version only)
  - Rectangular discharge air connection.
  - Fan with 80 Pa available pressure. Centrifugal fan for sizes 017 and 021, and axial fan for sizes 026 and 033.
  - Rectangular suction and filter connection option (sizes 017 and 021 only).

#### Inlet filters, RBY 017-021





## FEATURES

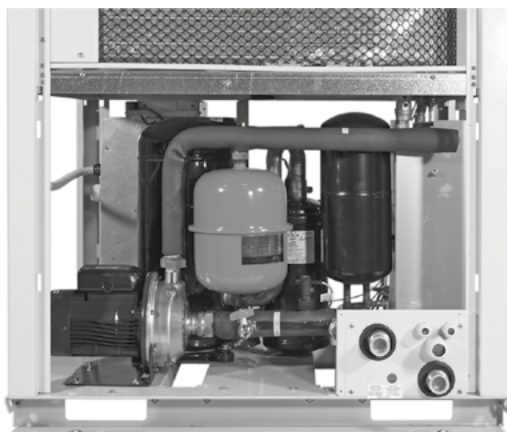
### Economical operation

- Increased energy efficiency at part load
  - Specific Free Defrost algorithm is present to optimise performance and comfort even during defrost period.
- Reduced maintenance costs
  - Maintenance-free scroll compressors
  - Fast diagnosis of possible incidents and their history via the Pro-Dialog+ control
  - R410A refrigerant is easier to use than other refrigerant blends

### Environmental care

- Ozone-friendly R410A refrigerant
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
  - Very efficient - gives an increased energy efficiency ratio (EER)
- Leak-tight refrigerant circuit
  - Brazed refrigerant connections for increased leak-tightness
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge

#### Hydraulic module, sizes 026-040



### Superior reliability

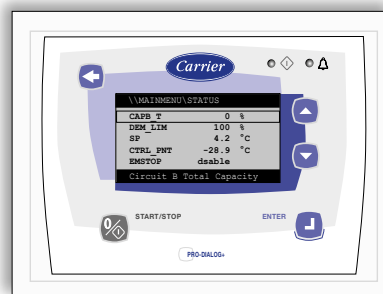
- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit (Carrier patent)

- Exceptional endurance tests
  - Corrosion resistance tests in salt mist in the laboratory
  - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports
  - Transport simulation test in the laboratory on a vibrating table.

### Pro-Dialog+ control

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

#### Pro-Dialog+ interface



- Energy management
  - Seven-day internal time schedule clock: Permits unit on/off control and operation at a second set point
  - Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T
  - Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
  - Change-over based on the outside air temperature
- Integrated features
  - Night mode: Capacity and fan speed limitation for reduced noise level
- Ease-of-use
  - The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
  - The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult Carrier)
  - The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

## FEATURES

### Remote operating mode with volt-free contacts (standard)

A simple two-wire communication bus between the RS485 port of the Aquasnap and the Carrier Comfort Network offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information on these products.

- Start/stop: Opening of this contact will shut down the unit
- Dual set point: Closing of this contact activates a second set point (example: Unoccupied mode)
- Alert indication: This volt-free contact indicates the presence of a minor fault
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of the unit
- User safety: This contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Out of service: This signal indicates that the unit is completely out of service
- Unit capacity: This analogue output (0-10 V) gives an immediate indication of the unit capacity
- Compressor operation: This contact signals that the compressor is in operation

### Remote interface (option)

This interface allows access to the same menus as the unit interface and can be installed up to 300 m away. It includes a box that can be mounted inside the building. The power supply is provided via a 220 V/24V transformer supplied.

#### Interface access, sizes 026-040



## TYPE KEY

|  |          |          |            |          |          |          |          |          |          |           |  |
|--|----------|----------|------------|----------|----------|----------|----------|----------|----------|-----------|--|
| <b>30R</b>   | <b>B</b> | <b>Y</b> | <b>021</b> | <b>C</b> | <b>H</b> | <b>E</b> | <b>-</b> | <b>B</b> | <b>A</b> | <b>--</b> | <b>-</b>                                     |
| Range  |          |          |            |          |          |          |          |          |          |           | Revision status                              |
| B - Cooling  |          |          |            |          |          |          |          |          |          |           | Not used                                     |
| Q - Heat pump  |          |          |            |          |          |          |          |          |          |           |  |
| - - Standard   |          |          |            |          |          |          |          |          |          |           | - - Standard                                 |
| Y - High static fan  |          |          |            |          |          |          |          |          |          |           | A - Remote user Interface HMI (As accessory) |
| 017 - nominal size 17 kW   |          |          |            |          |          |          |          |          |          |           | - - Without gateway                          |
| 021 - nominal size 21 kW   |          |          |            |          |          |          |          |          |          |           | B - CCN JBus gateway                         |
| 026 - nominal size 26 kW   |          |          |            |          |          |          |          |          |          |           | C - CCN Bacnet gateway                       |
| 033 - nominal size 33 kW   |          |          |            |          |          |          |          |          |          |           | D - CCN LONtalk gateway                      |
| 040 - nominal size 40 kW   |          |          |            |          |          |          |          |          |          |           | - - Standard                                 |
| C - Power supply with neutral cable (only sizes 017-033)               |          |          |            |          |          |          |          |          |          |           | - - Without coil protection                  |
| D - Power supply without neutral                                       |          |          |            |          |          |          |          |          |          |           | E - Epoxy coil protection (Gold-fin)         |
| X - Without hydraulic module   |          |          |            |          |          |          |          |          |          |           |  |
| H - With hydraulic module with expansion tank                          |          |          |            |          |          |          |          |          |          |           |  |
| F - With hydraulic module with expansion tank and water filling system |          |          |            |          |          |          |          |          |          |           |  |
| R - With hydraulic and without expansion tank                          |          |          |            |          |          |          |          |          |          |           |  |
| Z - With hydraulic, w/o expansion tank and with water filling system   |          |          |            |          |          |          |          |          |          |           |  |

## PHYSICAL DATA, 30RBY UNITS

| 30RBY   |   |                  | 017   | 021   | 026                             | 033   |      |
|---|---|------------------|---|-------|---------------------------------|-------|------|
| Cooling   |   |                  |   |       |                                 |       |      |
| Standard unit   | Nominal capacity                                | kW               | 15,7  | 20,3  | 27,0                            | 32,3  |      |
| Full load performances*                                 | CA1   | EER              | kW/kW   | 2,65  | 2,60                            | 2,88  | 3,05 |
|   |   | Eurovent class   |   | B     | B                               | A     | A    |
|   | CA2   | Nominal capacity | kW  | 19,9  | 24,8                            | 36,1  | 42,3 |
| EER   |   | kW/kW            | 3,07  | 2,85  | 3,49                            | 3,67  |      |
|   |   | Eurovent class   | E   | E     | D                               | B     |      |
| Standard unit   | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh          | 2,61  | 2,64  | 2,62                            | 2,61  |      |
| Seasonal energy efficiency**                            | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh          | 4,17  | 4,03  | 4,29                            | 4,06  |      |
|   | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh          | 2,76  | 2,72  | 2,86                            | 3,08  |      |
|   | SEER <sub>23/18°C</sub> Comfort medium temp.    | kWh/kWh          | 3,10  | 3,05  | 3,28                            | 3,52  |      |
| Integrated Part Load Value                              | IPLV.SI   | kW/kW            | 3,340   | 3,300 | 3,490                           | 3,690 |      |
| Operating weight <sup>(1)</sup>                         |   |                  |   |       |                                 |       |      |
| Standard unit, with hydraulic module                    |   | kg               | 209   | 228   | 255                             | 280   |      |
| Standard unit, without hydraulic module                 |   | kg               | 193   | 213   | 237                             | 262   |      |
| Sound pressure level <sup>(2)</sup>                     |   | dB(A)            | 50  | 50    | 53                              | 53    |      |
| Sound power level radiated from the unit <sup>(3)</sup> |   | dB(A)            | 82  | 82    | 85                              | 85    |      |
| Sound power level at unit discharge <sup>(3)</sup>      |   | dB(A)            | 80  | 80    | 91                              | 91    |      |
| Dimensions  |   |                  |   |       |                                 |       |      |
| Length  |   | mm               | 1135  | 1135  | 1002                            | 1002  |      |
| Depth   |   | mm               | 584   | 584   | 824                             | 824   |      |
| Height  |   | mm               | 1608  | 1608  | 1829                            | 1829  |      |
| Compressor  |   |                  | One hermetic scroll compressor                  |       |                                 |       |      |
| Refrigerant charge R-410A                               | kg  |                  | 5,5   | 6,4   | 5,8                             | 8,6   |      |
|   | teqCO <sub>2</sub>                              |                  | 11,5  | 13,4  | 12,1                            | 18,0  |      |
| Control   |   |                  | Pro-Dialog+                                     |       |                                 |       |      |
| Fans  |   |                  | Two 2-speed centrifugal fans, 5 backward-curved |       | One 2-speed axial fan, 7 blades |       |      |
| Diameter  |   | mm               | 454   | 454   | 630                             | 630   |      |
| Number of blades  |   |                  | 5   | 5     | 7                               | 7     |      |
| Available static pressure                               |   | Pa               | 80  | 80    | 80                              | 80    |      |
| Air flow  |   | l/s              | 1640  | 1640  | 3472                            | 3472  |      |
| Speed   |   | r/s              | 20,5  | 20,5  | 21,5                            | 21,5  |      |
| Water heat exchanger                                    |   |                  | One plate heat exchanger                        |       |                                 |       |      |
| Water volume  |   | l                | 1,52  | 1,90  | 2,28                            | 2,85  |      |
| Maximum operating pressure                              |   | kPa              | 1000  | 1000  | 1000                            | 1000  |      |

|   |   |
|---|---|
| *   | In accordance with standard EN14511-3:2013  |
| **  | In accordance with standard EN14825:2016, average climate   |
| ***   | With EG 30%   |
| CA1   | Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fooling factor 0 m <sup>2</sup> .K/W  |
| CA2   | Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fooling factor 0 m <sup>2</sup> .K/W |
| SEPR <sub>-2/-8°C</sub>                         | <b>Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application</b>   |
| SEER <sub>12/7°C</sub> & SEPR <sub>12/7°C</sub> | Values calculated in accordance with EN14825:2016   |
| SEER <sub>23/18°C</sub>                         | Values calculated in accordance with EN14825:2016   |
| IPLV.SI   | Calculations according to standard performances AHRI 551-591 (SI)   |
| (1)   | Weight shown is a guideline only. Please refer to the unit nameplate  |
| (2)   | For information, calculated from the sound power level Lw(A)  |
| (3)   | In accordance with ISO 9614 (10 <sup>-12</sup> W)   |



Eurovent certified values

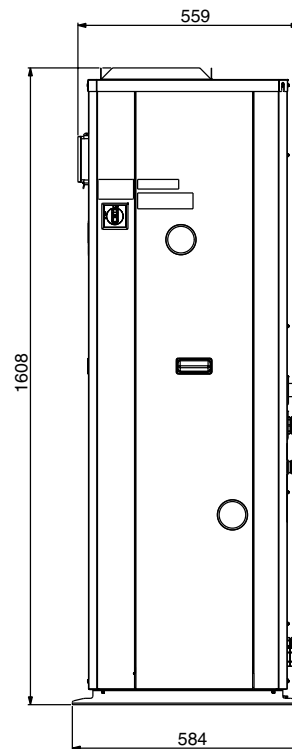
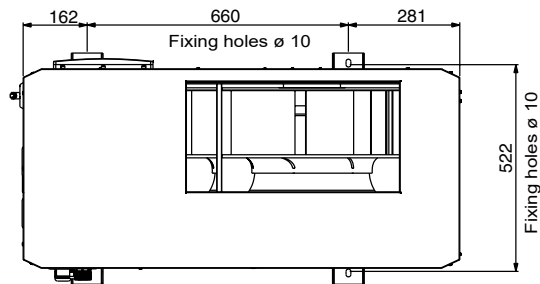
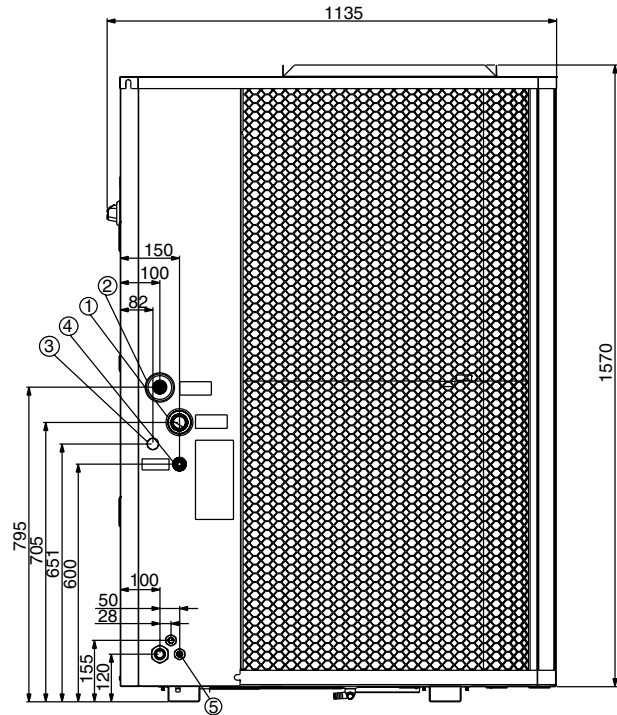
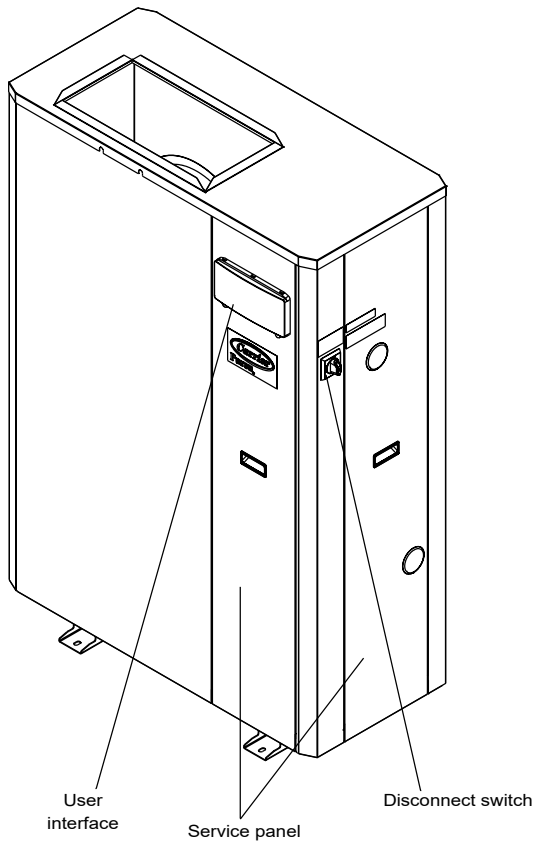
## PHYSICAL DATA, 30RBY UNITS

| 30RBY                             |    | 017  | 021   | 026   | 033   |
|-----------------------------------|----|--|-------|-------|-------|
| <b>Air heat exchanger</b>         |    | Copper tubes and aluminum fins   |       |       |       |
| Pipe diameter                     | in | 3/8  | 3/8   | 3/8   | 3/8   |
| Number of rows                    |    | 2  | 2     | 2     | 3     |
| Number of pipes per row           |    | 60   | 60    | 60    | 60    |
| Fin spacing                       | mm | 1,69   | 1,69  | 1,69  | 1,69  |
| <b>Standard unit</b>              |    |  |       |       |       |
| Water connections (MPT gas)       | in | 1  | 1     | 1-1/4 | 1-1/4 |
| <b>Unit with hydraulic module</b> |    | Pump, screen filter, expansion tank, flow switch, pressure gauge, automatic air purge valve, relief valve, water circuit drain valve |       |       |       |
| Pump                              |    | One single-speed pump, maximum water-side operating pressure 400 kPa   |       |       |       |
| Expansion tank capacity           | l  | 5  | 5     | 8     | 8     |
| Entering water connection         | in | 1-1/4  | 1-1/4 | 1-1/4 | 1-1/4 |
| Leaving water connection          | in | 1  | 1     | 1-1/4 | 1-1/4 |
| <b>Chassis paint colour</b>       |    | Colour code: RAL 7035  |       |       |       |



## DIMENSIONS/CLEARANCES

### 30RBY 017-021 - standard units



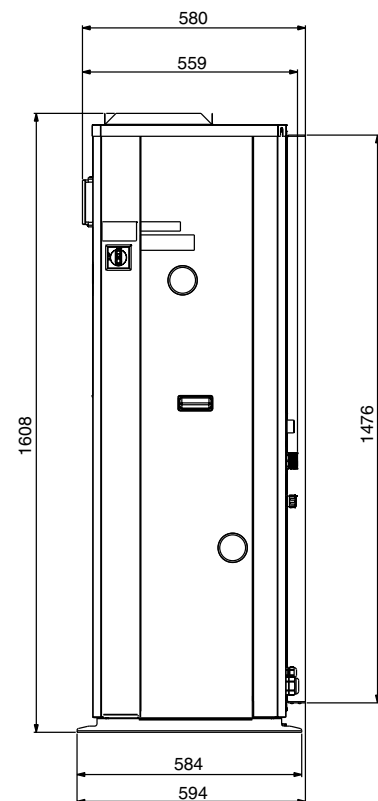
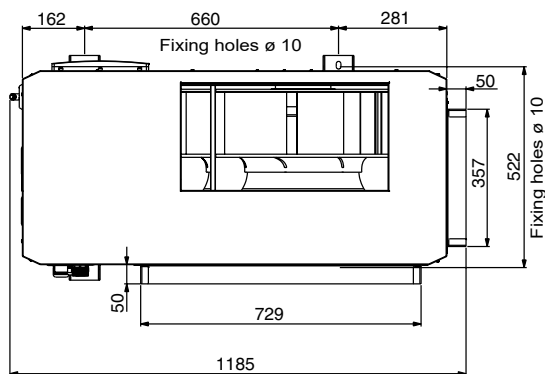
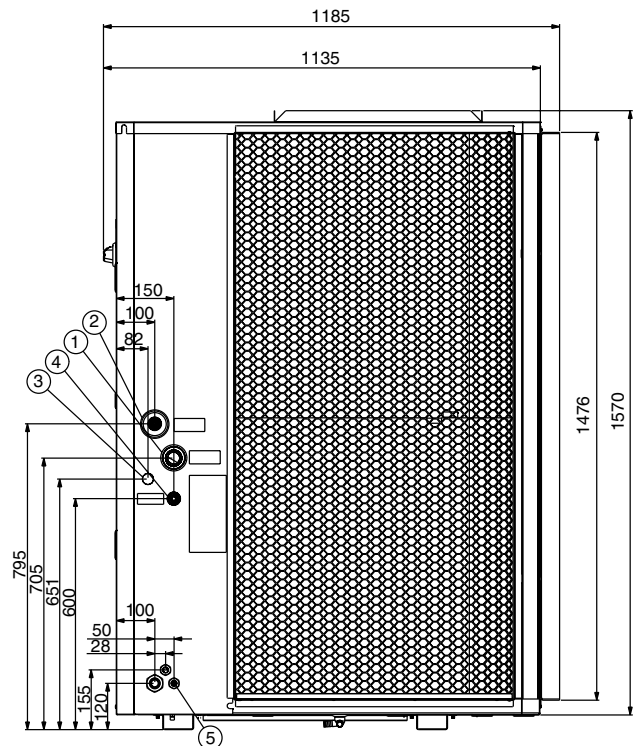
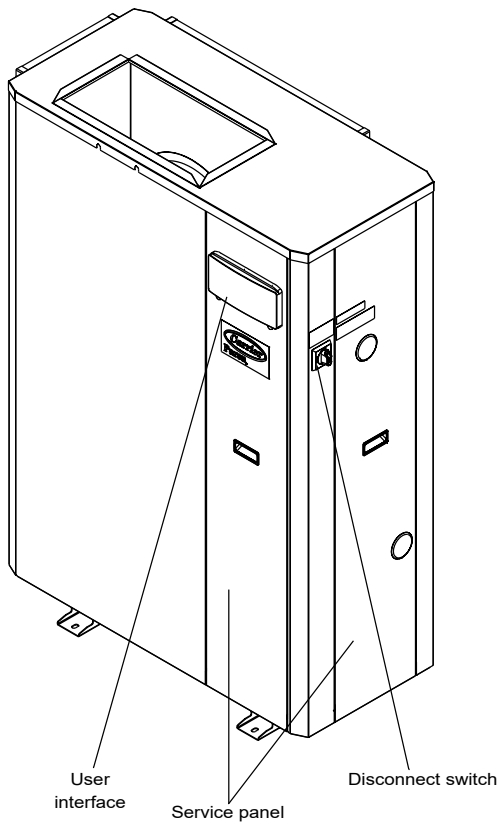
#### Legend

All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Relief valve
5. Power connections

## DIMENSIONS/CLEARANCES

### 30RBY 017-021 - units with return air ducts



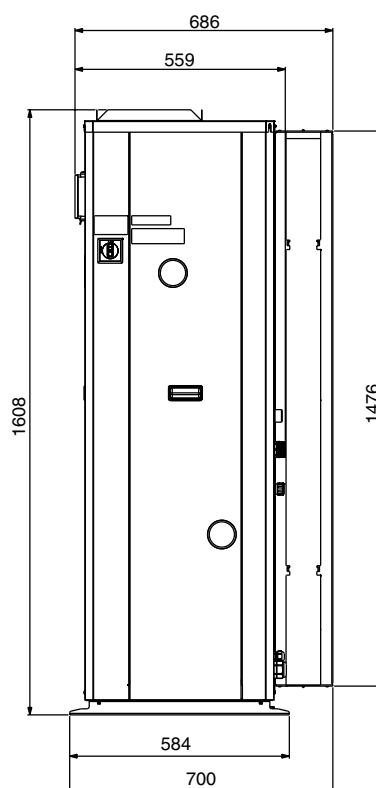
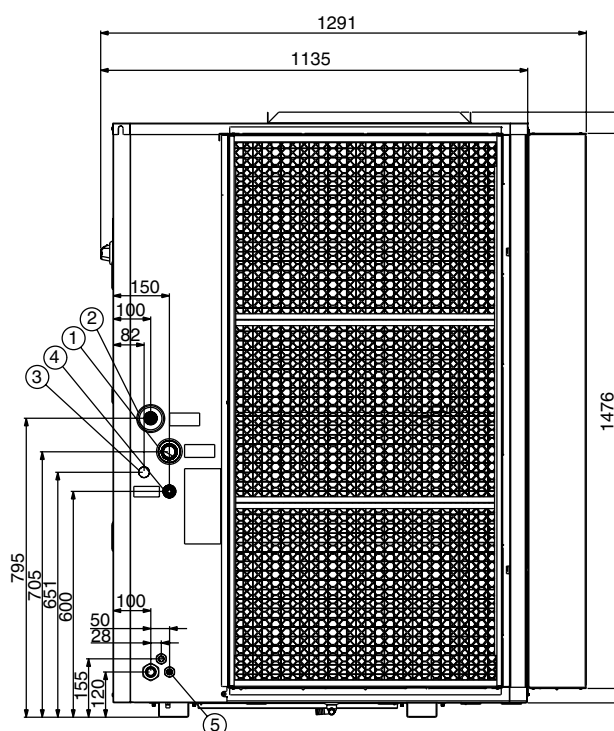
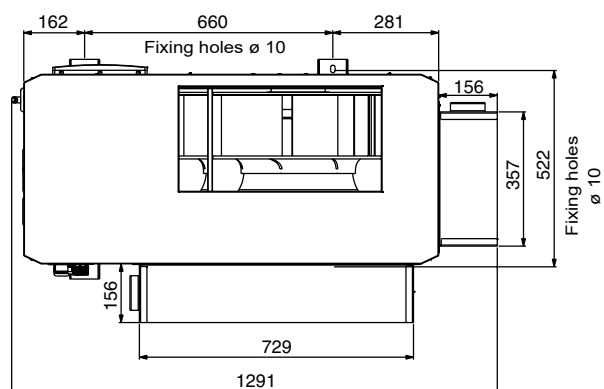
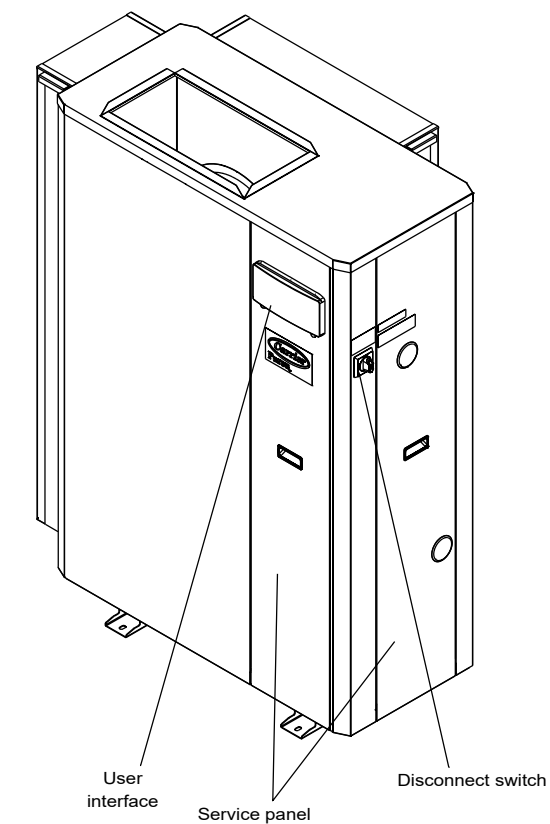
#### Legend

All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Relief valve
5. Power connections

## DIMENSIONS/CLEARANCES

### 30RBY 017-021 - units with filter frame on the return air side



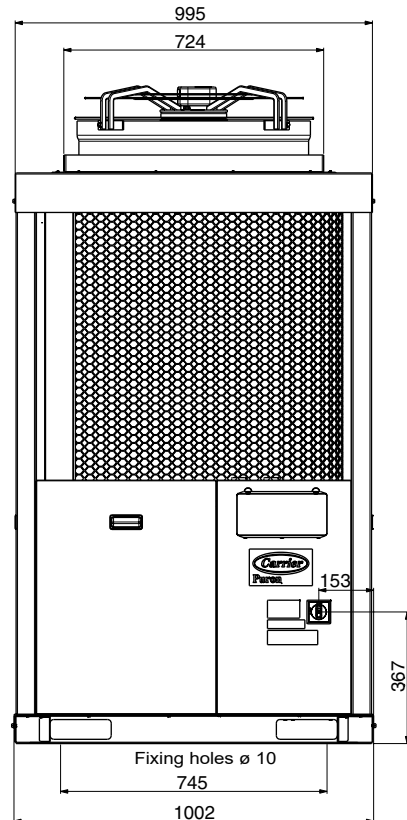
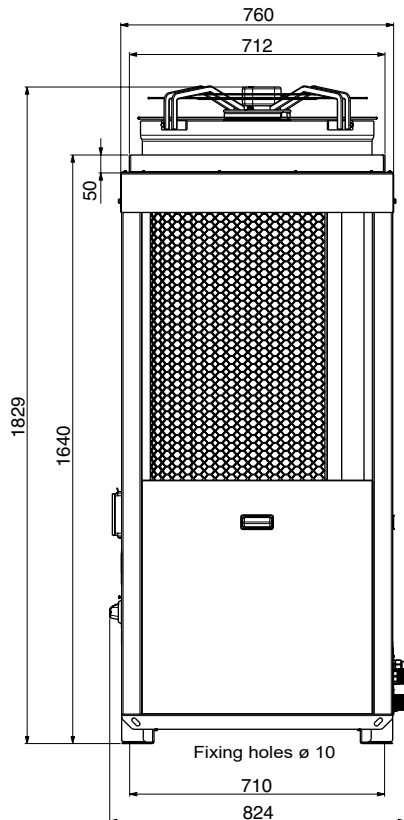
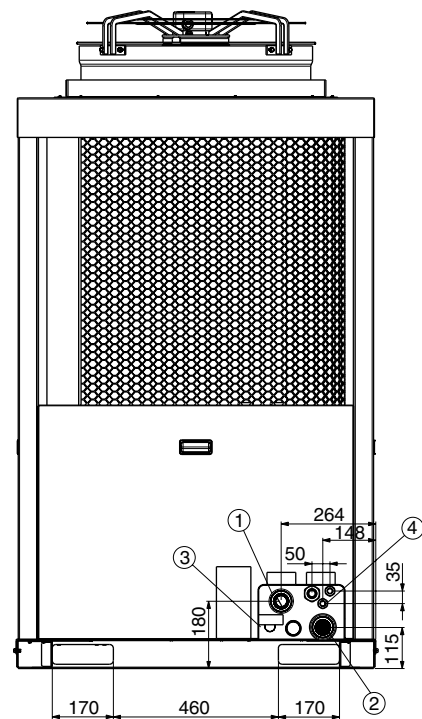
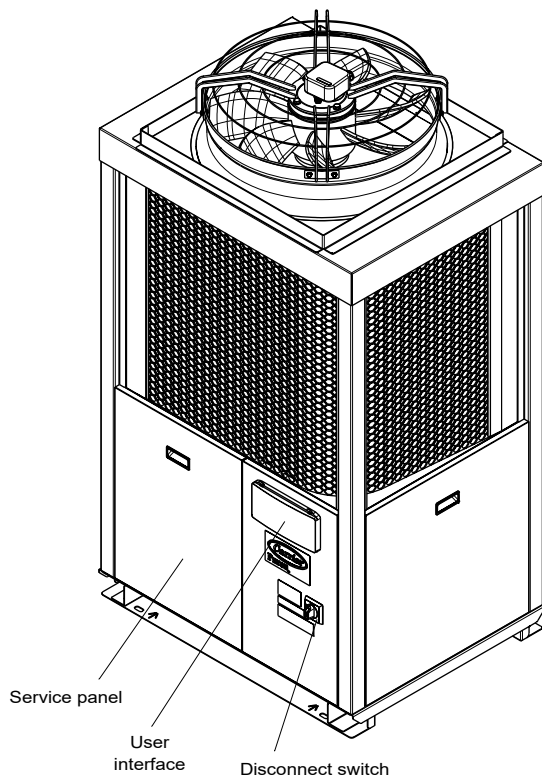
### Legend

**Legend**  
All dimensions are in mm

- All dimensions are in mm
1. Water inlet
  2. Water outlet
  3. Water fill kit connection (option)
  4. Relief valve
  5. Power connections

## DIMENSIONS/CLEARANCES

### 30RBY 026-033



#### Legend

All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Power connections



## AIR-COOLED LIQUID CHILLERS



Easy and fast installation  
Hydraulic module available  
Economical operation  
Superior reliability

# 30RB 017-040 A

## AQUASNAP

Nominal cooling capacity 30RB: 16-41 kW

The Aquasnap liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices and hotels etc.

The new Aquasnap units integrate the latest technological innovations:

- Ozone-friendly refrigerant R410A
- Scroll compressors
- Low-noise fans
- Auto-adaptive microprocessor control

The Aquasnap units are equipped with a hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply and the water supply and return piping.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## FEATURES

### Quiet operation

- Compressors
  - Low-noise scroll compressors with low vibration levels
  - The compressor assembly is supported by anti-vibration mountings
- Air heat exchanger section
  - Vertical air heat exchanger coils
  - The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise
  - Rigid fan installation for reduced start-up noise.

### Access panels, 30RB 017-021



### Easy and fast installation

- Integrated hydraulic module
  - Fixed speed circulator
  - Water filter protecting the water pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit
  - Overpressure valve, set to 4 bar
  - Automatic purge valve positioned at the highest point of the hydraulic module to remove air from the system.
  - Thermal insulation and frost protection down to -10°C, using an electric resistance heater and pump cycling.
  - Integrated water fill system to ensure correct water pressure (option)
- Physical features
  - With its small footprint the unit blends in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- Simplified electrical connections
  - A single power supply point (power supply without neutral available as an option and in standard for units size 40kW)
  - Main disconnect switch with high trip capacity
  - Transformer for safe 24 V control circuit supply included
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors.

## FEATURES

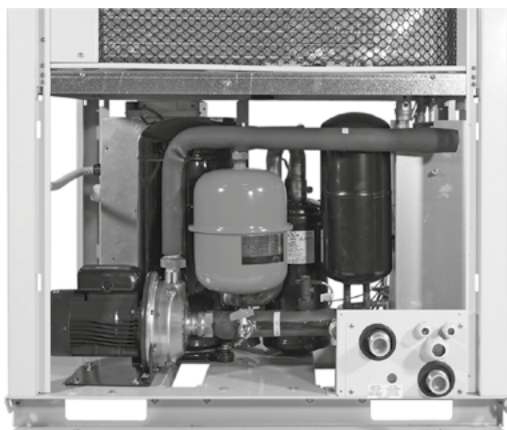
### Economical operation

- Increased energy efficiency at part load
  - Specific Free Defrost algorithm is present to optimise performance and comfort even during defrost period.
- Reduced maintenance costs
  - Maintenance-free scroll compressors
  - Fast diagnosis of possible incidents and their history via the Pro-Dialog+ control
  - R410A refrigerant is easier to use than other refrigerant blends

### Environmental care

- Ozone-friendly R410A refrigerant
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
  - Very efficient - gives an increased energy efficiency ratio (EER)
- Leak-tight refrigerant circuit
  - Brazed refrigerant connections for increased leak-tightness
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge

#### Hydraulic module, sizes 026-040



### Superior reliability

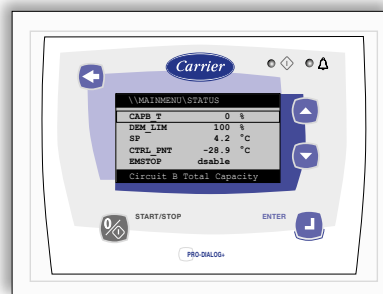
- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit (Carrier patent)

- Exceptional endurance tests
  - Corrosion resistance tests in salt mist in the laboratory
  - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports
  - Transport simulation test in the laboratory on a vibrating table.

### Pro-Dialog+ control

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

#### Pro-Dialog+ interface



- Energy management
  - Seven-day internal time schedule clock: Permits unit on/off control and operation at a second set point
  - Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T
  - Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
  - Change-over based on the outside air temperature
- Integrated features
  - Night mode: Capacity and fan speed limitation for reduced noise level
- Ease-of-use
  - The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
  - The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult Carrier)
  - The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

## FEATURES

### Remote operating mode with volt-free contacts (standard)

A simple two-wire communication bus between the RS485 port of the Aquasnap and the Carrier Comfort Network offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information on these products.

- Start/stop: Opening of this contact will shut down the unit
- Dual set point: Closing of this contact activates a second set point (example: Unoccupied mode)
- Alert indication: This volt-free contact indicates the presence of a minor fault
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of the unit
- User safety: This contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Out of service: This signal indicates that the unit is completely out of service
- Unit capacity: This analogue output (0-10 V) gives an immediate indication of the unit capacity
- Compressor operation: This contact signals that the compressor is in operation

### Remote interface (option)

This interface allows access to the same menus as the unit interface and can be installed up to 300 m away. It includes a box that can be mounted inside the building. The power supply is provided via a 220 V/24V transformer supplied.

#### Interface access, sizes 026-040



## TYPE KEY

|  |          |          |            |          |          |          |          |          |          |           |  |
|--|----------|----------|------------|----------|----------|----------|----------|----------|----------|-----------|--|
| <b>30R</b>   | <b>B</b> | <b>-</b> | <b>021</b> | <b>C</b> | <b>H</b> | <b>E</b> | <b>-</b> | <b>B</b> | <b>A</b> | <b>--</b> | <b>-</b>                                     |
| Range  |          |          |            |          |          |          |          |          |          |           | Revision status                              |
| B - Cooling  |          |          |            |          |          |          |          |          |          |           | Not used                                     |
| Q - Heat pump  |          |          |            |          |          |          |          |          |          |           |  |
| - - Standard   |          |          |            |          |          |          |          |          |          |           | - - Standard                                 |
| Y - High static fan  |          |          |            |          |          |          |          |          |          |           | A - Remote user Interface HMI (As accessory) |
| 017 - nominal size 17 kW   |          |          |            |          |          |          |          |          |          |           | - - Without gateway                          |
| 021 - nominal size 21 kW   |          |          |            |          |          |          |          |          |          |           | B - CCN JBus gateway                         |
| 026 - nominal size 26 kW   |          |          |            |          |          |          |          |          |          |           | C - CCN Bacnet gateway                       |
| 033 - nominal size 33 kW   |          |          |            |          |          |          |          |          |          |           | D - CCN LONtalk gateway                      |
| 040 - nominal size 40 kW   |          |          |            |          |          |          |          |          |          |           | - - Standard                                 |
| C - Power supply with neutral cable (only sizes 017-033)               |          |          |            |          |          |          |          |          |          |           | - - Without coil protection                  |
| D - Power supply without neutral                                       |          |          |            |          |          |          |          |          |          |           | E - Epoxy coil protection (Gold-fin)         |
| X - Without hydraulic module   |          |          |            |          |          |          |          |          |          |           |  |
| H - With hydraulic module with expansion tank                          |          |          |            |          |          |          |          |          |          |           |  |
| F - With hydraulic module with expansion tank and water filling system |          |          |            |          |          |          |          |          |          |           |  |
| R - With hydraulic and without expansion tank                          |          |          |            |          |          |          |          |          |          |           |  |
| Z - With hydraulic, w/o expansion tank and with water filling system   |          |          |            |          |          |          |          |          |          |           |  |



## PHYSICAL DATA, 30RB UNITS

| 30RB  |   | 017   | 021   | 026                                | 033   | 040   |       |
|---|---|---|-------|------------------------------------|-------|-------|-------|
| Cooling                                     |   |   |       |                                    |       |       |       |
| Standard unit                               | Nominal capacity                                | kW  | 16,4  | 21,4                               | 27,3  | 33,3  | 41,4  |
| Full load performances* CA1                 | EER   | kW/kW   | 3,04  | 3,11                               | 3,08  | 3,28  | 2,96  |
|   | Eurovent class                                  |   | B     | A                                  | B     | A     | B     |
|   | Nominal capacity                                | kW  | 22,7  | 29,5                               | 38,6  | 45,8  | 56,9  |
| CA2   | EER   | kW/kW   | 3,80  | 3,86                               | 4,01  | 4,11  | 3,52  |
|   | Eurovent class                                  |   | A     | A                                  | A     | A     | C     |
| Standard unit                               | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh   | 2,99  | 3,03                               | 3,16  | 3,02  | 3,07  |
| Seasonal energy efficiency**                | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh   | 5,29  | 5,28                               | 5,13  | 5,16  | 5,13  |
|   | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh   | 3,37  | 3,37                               | 3,30  | 3,51  | 3,44  |
|   | SEER <sub>23/18°C</sub> Comfort medium temp.    | kWh/kWh   | 3,99  | 3,92                               | 3,92  | 4,04  | 3,95  |
| Integrated Part Load Value                  | IPLV.SI   | kW/kW   | 4,350 | 4,340                              | 4,340 | 4,540 | 4,030 |
| Operating weight <sup>(1)</sup>             |   |   |       |                                    |       |       |       |
| Standard unit, with hydraulic module        |   | kg  | 189   | 208                                | 255   | 280   | 291   |
| Standard unit, without hydraulic module     |   | kg  | 173   | 93                                 | 237   | 262   | 273   |
| Sound power level <sup>(2)</sup>            |   | dB(A)   | 72    | 74                                 | 78    | 78    | 80    |
| Sound pressure level at 10 m <sup>(3)</sup> |   | dB(A)   | 40    | 42                                 | 46    | 46    | 48    |
| Dimensions                                  |   |   |       |                                    |       |       |       |
| Length                                      | mm  | 1136  |       | 1002                               |       |       |       |
| Depth                                       | mm  | 584   |       | 824                                |       |       |       |
| Height                                      | mm  | 1579  |       | 1790                               |       |       |       |
| Compressor                                  |   | One hermetic scroll compressor                            |       |                                    |       |       |       |
| Refrigerant charge R-410A                   | kg  | 5,5   | 6,4   | 5,8                                | 8,6   | 8,8   |       |
|   | teqCO <sub>2</sub>                              | 11,5  | 13,4  | 12,1                               | 18,0  | 18,4  |       |
| Control                                     |   | Pro-Dialog+   |       |                                    |       |       |       |
| Fans  |   | Two twin-speed axial fans, 3 blades                       |       | One twin-speed axial fan, 7 blades |       |       |       |
| Diameter                                    | mm  | 495   | 495   | 710                                | 710   | 710   |       |
| Air flow                                    | l/s   | 2212  | 2212  | 3530                               | 3530  | 3530  |       |
| Speed                                       | r/s   | 14,5  | 14,5  | 15                                 | 15    | 15    |       |
| Water heat exchanger                        |   | Plate heat exchanger, maximum operating pressure 1000 kPa |       |                                    |       |       |       |
| Water volume                                | l   | 1,52  | 1,9   | 2,28                               | 2,85  | 3,8   |       |
| Air heat exchanger                          |   | Copper tubes and aluminum fins                            |       |                                    |       |       |       |
| Pipe diameter                               | in  | 3/8   | 3/8   | 3/8                                | 3/8   | 3/8   |       |
| Number of rows                              |   | 2   | 2     | 2                                  | 3     | 3     |       |
| Number of pipes per row                     |   | 60  | 60    | 60                                 | 60    | 60    |       |
| Fin spacing                                 | mm  | 1,69  | 1,69  | 1,69                               | 1,69  | 1,69  |       |

- \* In accordance with standard EN14511-3:2013
- \*\* In accordance with standard EN14825:2016, average climate
- \*\*\* With EG 30%
- CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/W
- CA2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/W
- SEPR <sub>-2/-8°C</sub>** **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**
- SEER <sub>12/7°C</sub> & SEPR <sub>12/7°C</sub>** Values calculated in accordance with EN14825:2016
- SEER <sub>23/18°C</sub>** Values calculated in accordance with EN14825:2016
- IPLV.SI** Calculations according to standard performances AHRI 551-591 (SI)
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (3) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).



Eurovent certified values

## PHYSICAL DATA, 30RB UNITS

| 30RB                              |    | 017   | 021   | 026   | 033   | 040   |
|-----------------------------------|----|---|-------|-------|-------|-------|
| <b>Standard unit</b>              |    |   |       |       |       |       |
| Water connections (MPT gas)       | in | 1   | 1     | 1-1/4 | 1-1/4 | 1-1/4 |
| <b>Unit with hydraulic module</b> |    | Pump, screen filter, expansion tank, flow switch, pressure gauge, automatic air purge valve, relief valve |       |       |       |       |
| Pump                              |    | One single-speed pump, maximum water-side operating pressure 400 kPa                                      |       |       |       |       |
| Expansion tank capacity           | l  | 5   | 5     | 8     | 8     | 8     |
| Entering water connection         | in | 1-1/4   | 1-1/4 | 1-1/4 | 1-1/4 | 1-1/4 |
| Leaving water connection          | in | 1   | 1     | 1-1/4 | 1-1/4 | 1-1/4 |
| Nominal operating current         | A  | 1,3   | 1,4   | 2,4   | 2,6   | 2,8   |
| <b>Chassis paint colour</b>       |    | Beige   |       |       |       |       |

## ELECTRICAL DATA, 30RB UNITS

| 30RB                                     |         | 017   | 021  | 026  | 033  | 040                           |
|--|---------|---|------|------|------|-------------------------------|
| <b>Power circuit</b>                     |         |   |      |      |      |                               |
| Nominal power supply                     | V-ph-Hz | 400-3+N-50 (power supply option C)<br>or 400-3-50 (power supply option D) |      |      |      | 400-3-50<br>(STD - no option) |
| Voltage range                            | V       | 340-460   |      |      |      | 360-440                       |
| <b>Control circuit supply</b>            |         | 24 V via internal transformer   |      |      |      |                               |
| Maximum start-up current (Un)*           | A       | 75  | 95   | 118  | 118  | 176                           |
| Unit power factor at nominal capacity**  |         | 0.84  | 0.79 | 0.77 | 0.81 | 0.9                           |
| Maximum operating power input**          | kW      | 7.8   | 9.1  | 11   | 13.8 | 17.5                          |
| Nominal current drawn***                 | A       | 8   | 12   | 16   | 17   | 25                            |
| Maximum operating current draw (Un)****  | A       | 13  | 16   | 20   | 24   | 30                            |
| Maximum operating current draw (Un-15%)† | A       | 15  | 18   | 23   | 27   | 36                            |

\* Maximum instantaneous start-up current (locked rotor current of the compressor).

\* Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

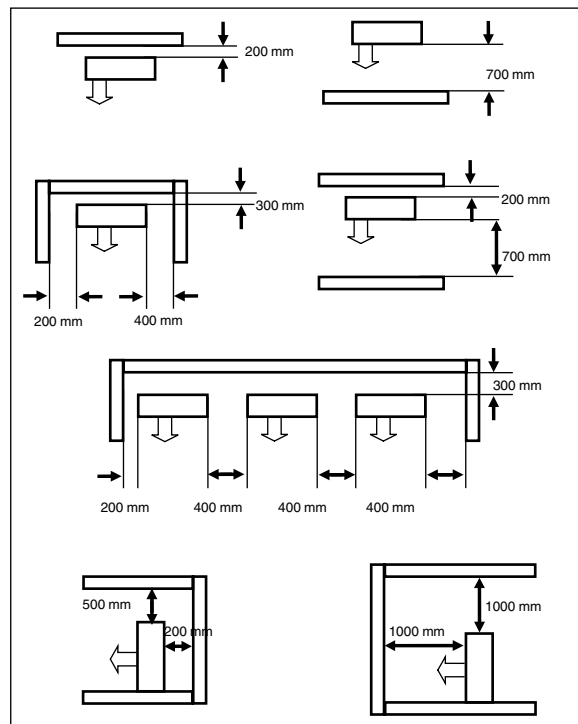
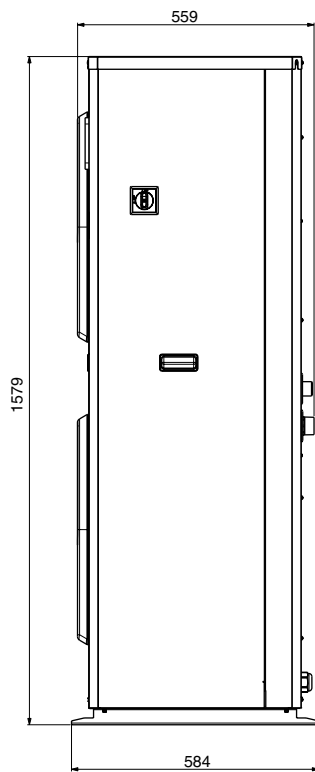
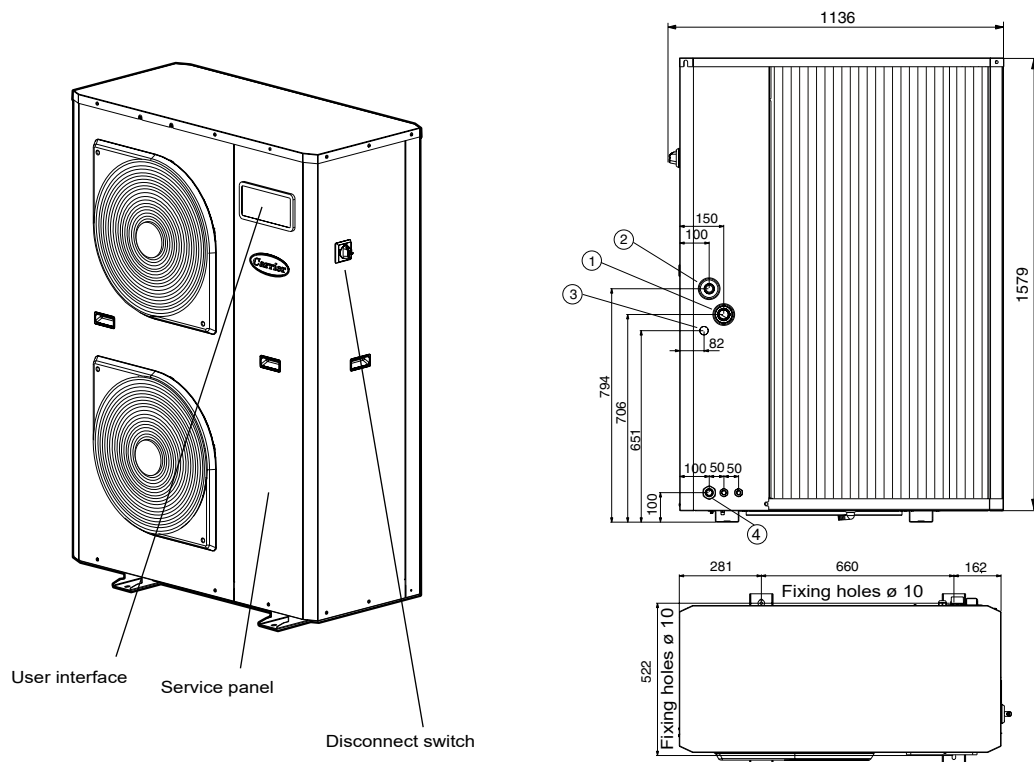
\*\*\* Standardised Eurovent conditions: Water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

\*\*\*\* Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

† Maximum unit operating current at maximum unit power input and 340-460V for sizes 017 to 033 or 360-440V for size 040.

## DIMENSIONS/CLEARANCES

### 30RB 017-021



#### Legend

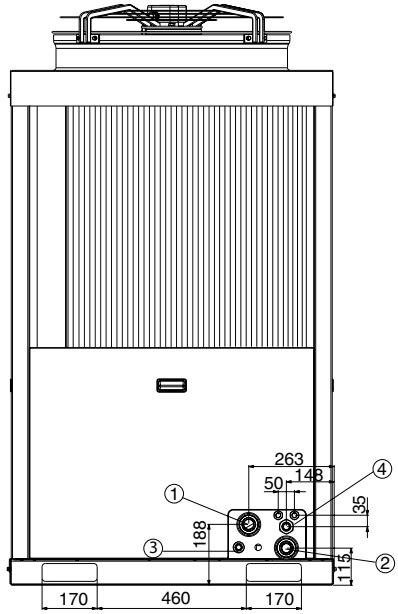
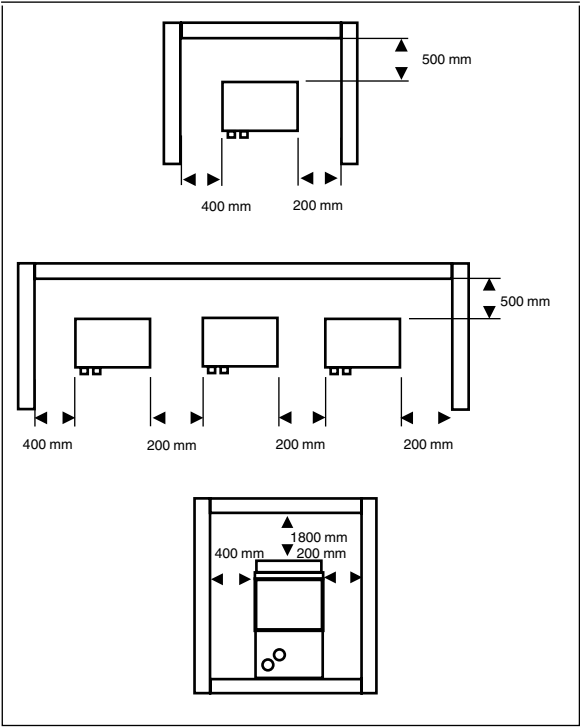
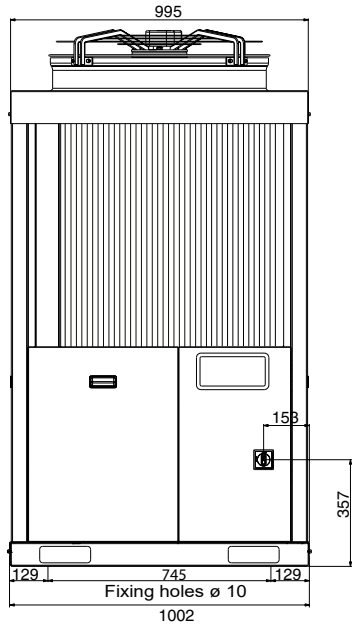
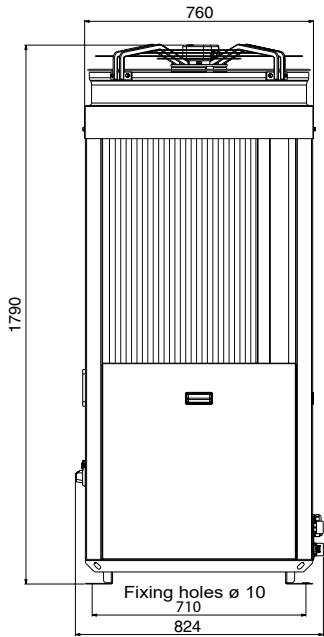
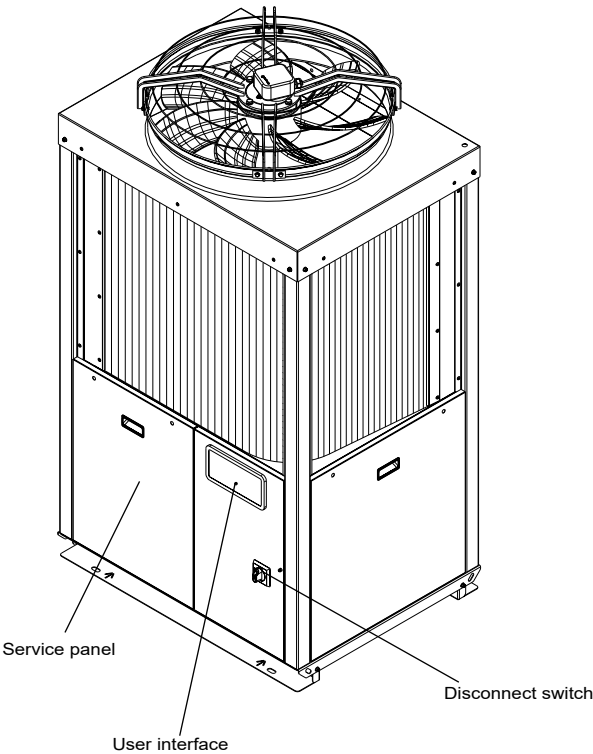
All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Power connections



# DIMENSIONS/CLEARANCES

## 30RB 026-040



### Legend

All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Power connections



## AIR-COOLED SCROLL CHILLERS WITH GREENSPEED® INTELLIGENCE



Low environmental impact

High full and part load efficiency

Compact and simple to install

Low refrigerant charge

Superior reliability

## 30RB 040R-160R

Cooling capacity 40-160 kW

Aquasnap® heat pumps and liquid chillers are the best solution for commercial and industrial applications where installers, engineering and design departments and building owners require reduced installation costs, optimal performances and maximum quality.

- AquaSnap® (30RB) is a compact all-in-one package optimised for applications which require reduced investment and installation costs (low CapEx).
- The large options panel allows for configurations that suit user requirements.
- Optional variable-speed fans and pumps with Carrier Greenspeed® intelligence control logic make this a product which is optimised for part load applications where a high SEER, SEPR or IPLV value is required.

In this configuration, AquaSnap® provides premium part load efficiency to reduce maintenance costs over the lifespan of the chiller. In addition, the sound levels achieved under the part load conditions are particularly low. Besides operating efficiently and quietly, the AquaSnap® range with Greenspeed® intelligence operates from -20 °C up to +46 °C as standard.

**AQUASNAP** greenspeed



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

Heating mode/COP/SCOP related to the 30RQ heat pump version

## R-32: THE BEST SOLUTION FOR SCROLL LIQUID CHILLERS AND HEAT PUMPS



Carrier was the first to introduce the R-1234ze HFO with ultra-low GWP in screw chillers, as far back as early 2016. Today, having examined its main properties, Carrier has chosen R-32 refrigerant to replace high-GWP R-410A refrigerant in its Scroll liquid chillers and heat pumps, for its lower environmental impact, high energy efficiency, good availability and ease of use.

R-32 is currently the ideal refrigeration solution for units equipped with Scroll compressors. By using R-32 refrigerants, Carrier has reduced the carbon footprint of its AquaSnap® range of liquid chillers and heat pumps by 77%. This is the result of a much lower GWP and a significant reduction in the system's cooling charge compared to the previous generation that used R-410A.

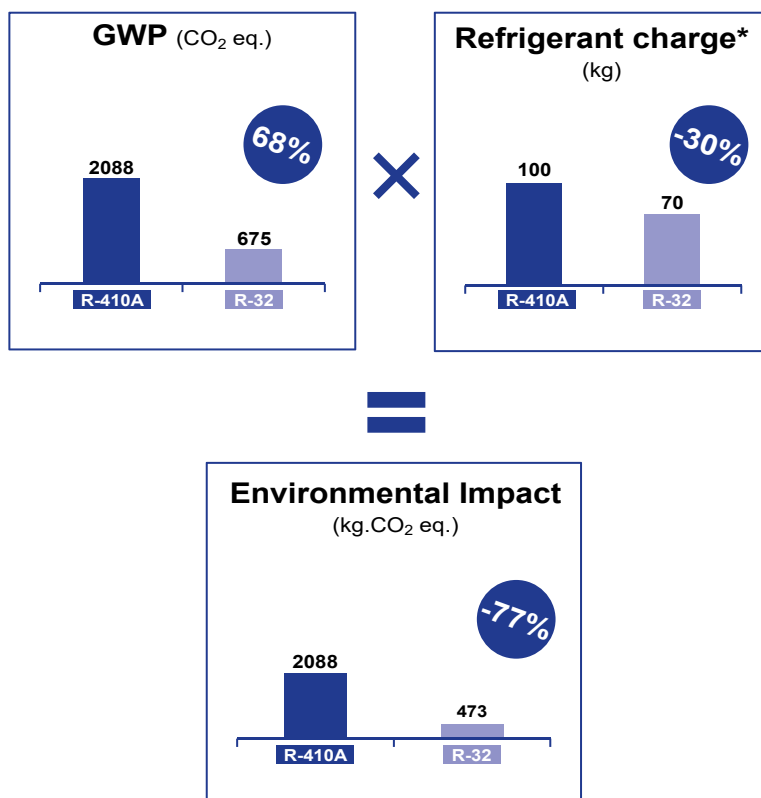
R-32 is also the right choice economically, reducing the locally imposed tax burden on HFCs based on the CO<sub>2</sub> impact.



**CO<sub>2</sub> FOOTPRINT**  
REDUCED BY UP TO **77%**

### Lower environmental impact (77% compared to R410A)

- R-32 has zero ozone depletion potential (ODP)
- The Global Warming Potential (GWP) of R-32 is 675, i.e. approximately one third of that of R-410A (PRP 2088)
- The AquaSnap® R-32 cooling charge is reduced by 30% compared to the previous version using R-410A\*
- The carbon footprint of AquaSnap® R-32 is therefore 473 (675 x 0.7), i.e. 77% lower than the version using R-410A (2088 x 1)



\* Reduced refrigerant charge in Carrier heat pumps thanks to the use of R-32 and a new coil design.



## R-32: THE BEST SOLUTION FOR SCROLL LIQUID CHILLERS AND HEAT PUMPS

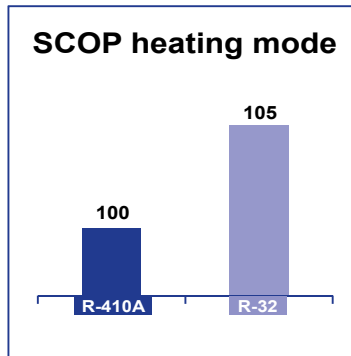
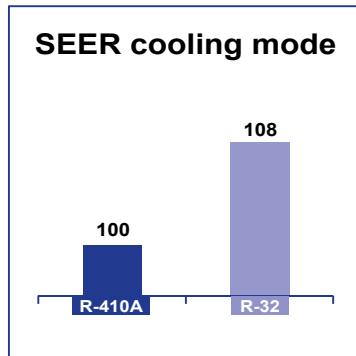


**SEER** up to **+8%**  
**SCOP** up to **+5%**

### High energy efficiency

The seasonal efficiency of AquaSnap® R-32 is higher than that of the previous R-410A version by:

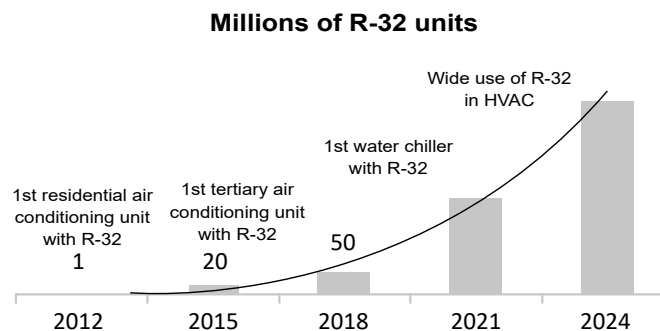
- +8% on average in cooling mode
- +5% on average in heating mode



### SIMPLICITY

### Widely available and easy to use

More than 50 million R-32 air conditioning units are in circulation on the global market. While R-32 has been used for some time in residential and commercial air conditioning units, most manufacturers now use R-32 in VRF systems, liquid chillers and heat pumps, which means R-32 is widely available around the world.



R-32 has been widely available for over 15 years, as it comprises 50% of the composition of R-410A.

R-32 is easy to use: It is a pure refrigerant, therefore it is not necessary to drain the entire circuit in the event of a leak.



### SAFETY

R-32 is an A2L classified refrigerant thanks to its low flammability.

- **No specific safety requirements** for transporting chillers by road or for outdoor installation.
- The service tools must be **certified** for **A2L** refrigerants in accordance with standard ISO 817 or EN378.
- Service technicians **must be qualified for brazing components** on PED 2 fluid units.

## AQUASNAP® - CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed fans (VSD or EC optional) and optional variable-speed pumps, Carrier's AquaSnap® 30RB range with Greenspeed® intelligence automatically adjusts the cooling capacity and water flow to perfectly adapt to the building's requirements or load variations. The result is optimum operation at both full load and part load. The 30RB offers energy efficiency up to 10% higher than the previous range with the same or a smaller footprint.

The range is already fully compliant with current Ecodesign regulations.



SEER up to 4.62  
SCOP up to 3.84

### ■ Extensive field of application

The AquaSnap® range is suitable for a very wide range of applications from tertiary to industrial processes. The range can operate at outdoor temperatures from -20 °C to +44 °C (Optional 46 °C) and with negative water temperatures (-8 °C). From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaSnap® 30RB units meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate or application.

### ■ Easy installation & maintenance

Thanks to the variable-speed pumps, automatic adjustment of the nominal water flow rate via electronic control and automatic measurement of the unit's energy performance under real conditions, pumping energy consumption is reduced by almost two thirds: These new features guarantee peace of mind for installers and maintenance companies and lower energy bills for users.



BETWEEN  
**-20 °C**  
and **46 °C**



Pumping energy  
reduced  
by up to **66%**

## AQUASNAP® - CUSTOMER BENEFITS

AquaSnap® liquid chillers and heat pumps are designed to meet current and future Ecodesign and F-Gas European regulation requirements in terms of energy efficiency and reduced CO<sub>2</sub> emissions. They use the best technologies available today:

- Reduced refrigerant charge of non-ozone depleting R-32A refrigerant with low GWP,
- Scroll compressors,
- Greenspeed® variable-speed fans option,
- NOVATION™ micro-channel heat exchangers with a new aluminium alloy (30RB),
- Brazed-plate heat exchangers with reduced pressure drops,
- Self-regulating microprocessor control with Greenspeed® intelligence,
- Colour touch screen with web connectivity options.

AquaSnap® can be equipped with a built-in hydraulic module, limiting the installation to conventional operations such as connection of the power supply and the supply and return piping (plug & play), according to the dimensions of the standard unit.

Recommended by Carrier, the AquaSnap® can be equipped with one or two Greenspeed® variable-speed pumps to significantly reduce energy costs linked to pumping (reduction of more than two-thirds), ensure optimum water flow rate control, and improve overall system reliability.



### Very economical operation

- High unit full- and part-load energy efficiency and efficient design of the water side:
  - SEER<sub>12/7 °C</sub> up to 4.6 in line with the new Ecodesign 2016/2281 regulation.
  - SCOP<sub>35 °C</sub> up to 3.84
  - Multiple scroll compressors equipped with a high-efficiency motor which can exactly match the cooling capacity to the load required
  - Electronic expansion valve enabling operation at a lower condensing pressure and improved use of the evaporator heat transfer area (superheat control)
  - Condenser with high-efficiency NOVATION™ (30RB) aluminium micro-channel heat exchangers and Greenspeed® variable-speed fans (optional)
  - Low pressure drop brazed plate heat exchangers (< 45 kPa under Eurovent conditions).

- Specific control functions to reduce unit cooling energy use during occupied and unoccupied periods:
  - Internal timer: Switches the chiller on/off and controls operation at a second setpoint,
  - Setpoint automatically offset based on the outdoor air temperature or room air temperature (via an option),
  - Floating high pressure (HP) management,
  - Variable-speed fan control,
  - Cooling demand limitation.

Refer to the control chapter for more information.

- Greenspeed® variable-speed pump to reduce pumping energy consumption by up to two-thirds (option recommended by Carrier):
  - Eliminate energy losses through the water flow rate control valve by electronically setting the nominal water flow rate,
  - Save energy during stand-by periods or part-load operation by automatically reducing the water pump speed. The energy consumption of the pump motor varies according to the cube of the speed, so that a reduction in speed of just 40% can reduce energy consumption by 80%,
  - Improved unit part-load performance (increased SEER/SCOP value with variable water flow according to standard EN14825).

Refer to the hydraulic option chapter for more information.

- Extra energy savings through multiple options:
  - Carrier drycooler Free cooling mode management,
  - Partial heat recovery.
- Reduced maintenance costs:
  - Fast diagnosis of possible incidents and their history via the control,
  - Programmable maintenance alert,
  - Programmable F-Gas leak monitoring alert

## AQUASNAP® - CUSTOMER BENEFITS

### Low noise level

- Condenser with fixed-speed fans (30RB):
  - Optional low-speed and variable-speed fans (700 rpm) and compressor enclosure to reduce full-load noise level by up to -9 dB(A)
  - Low noise 6th generation Flying Bird™ fans, made of a composite material (Carrier patent)
  - Rigid fan installation for reduced noise (Carrier patent).
- Condenser with Greenspeed® variable-speed fans (optional) recommended by Carrier for even quieter operation:
  - Optional factory setting of the fan at low speed, with compressor enclosure to reduce full-load noise level by up to -9 dB(A),
  - Exceptional acoustic signature during part-load operation through smooth fan speed variation.
- Specific control functions or features to reduce noise level during the night or unoccupied periods:
  - Night-time sound control with cooling capacity and fan speed limitation,
  - Low-noise scroll compressors with low vibration level,
  - The compressor assembly is installed on an independent chassis and supported by flexible anti-vibration mountings,
  - Dynamic suction and discharge piping support, minimising vibration transmission (Carrier patent),
  - Acoustic compressor enclosure, reducing radiated noise emissions (optional).

### Quick and easy installation

- Compact design:
  - AquaSnap® units are designed with compact dimensions for easy installation.
  - With a length of approximately 4.8 m for 550 kW and a width of 2.25 m, the units require minimal floor space.
- Integrated hydraulic module (option):
  - Low- or high-pressure water pump (as required),
  - Single or dual pump (as required) with runtime balancing and automatic changeover to the back-up pump if a fault develops

- Built-in variable-speed pumps with automatic nominal water flow adjustment via electronic control on the user display.
- Water filter protects the water pump against circulating debris,
- Pressure sensors for direct numerical display of the water flow rate and water pressures,
- Thermal insulation and frost protection down to -20 °C, using a heater (option),
- High-capacity membrane expansion tank (option).
- Built-in hydraulic module with Greenspeed® variable-speed pump (option recommended by Carrier):
  - Quick and easy electronic setting of the nominal water flow rate when the unit is commissioned, thus eliminating the need to adjust the water flow rate control valve,
  - Automatic control of the pump speed based on constant speed, constant pressure difference or constant temperature difference.
- Simplified electrical connections
  - A single power supply point without neutral,
  - Main disconnect switch with high trip capacity,
  - 24 V control circuit using an integrated transformer.
- Simplified hydraulic connections:
  - Victaulic type couplings on the exchanger;
  - Clearly identified and practical reference marks for entering and leaving water connections;
- Fast unit commissioning
  - Systematic factory test before shipment,
  - Quick-test function for step-by-step verification of the sensors, electrical components and motors.

### Reduced installation costs

- Optional Greenspeed® variable-speed pump with hydraulic module (option recommended by Carrier)
  - Cut costs relating to the water flow control valve,
  - The design of the water system with variable primary flow (VPF) can provide significant installation cost savings compared with traditional constant primary systems with variable secondary circuits; elimination of the secondary distribution pump, etc.
  - Water system design with fan coils fitted with 2-way valves instead of 3-way valves.
- No buffer tank required thanks to Carrier's advanced control algorithm
  - Minimum water loop volume reduced to 2.5 l/kW.



## AQUASNAP® - CUSTOMER BENEFITS

### Environmentally responsible

AquaSnap® liquid chillers with Greenspeed® intelligence (With optional variable-speed fans and pumps) are a boost for green cities and contribute to a sustainable future. Combining a refrigerant charge up to 30% lower, with R-32 refrigerant with a GWP 70% lower than that of the previous version using R410A, and exceptional energy efficiency, this chiller significantly reduces energy consumption while reducing carbon dioxide emissions throughout its life cycle.

- Pumping energy consumption can be reduced by up to 2/3 using Greenspeed® variable-speed pumps,
- 40% lower refrigerant charge: The micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Sealed refrigerant circuits:
  - Leaks are eliminated thanks to the absence of capillary tubes and the use of flare connections,
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge,
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance,
  - Qualified Carrier maintenance personnel to provide refrigerant servicing,
  - ISO 14001 production plant.

### Superior reliability

- State-of-the-art concept
  - Two self-contained refrigerant circuits; the second one automatically takes over if the first one develops a fault, maintaining partial cooling in all circumstances,
  - All compressor components are easily accessible on site, minimising downtime,
  - All-aluminium Novation™ micro-channel heat exchanger (MCHE) (30RB) with higher corrosion resistance than a conventional coil. The all-aluminium construction eliminates the formation of galvanic currents between aluminium and copper which can corrode the coil in saline or corrosive atmospheres,
  - V-coil design to protect the coils against hail impact,
  - Optional Enviro-shield® anti-corrosion coil coating for use in moderately corrosive environments. Coating applied through conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Immersion in a bath to ensure 100% coverage. No heat transfer variation, tested for 4000 hours in salt spray per ASTM B117,
  - Optional Super Enviro-shield® anti-corrosion coil coating for use in extremely corrosive environments. Extremely durable and flexible epoxy polymer coating applied on micro-channel heat exchangers by electro coating process with a final UV protective topcoat. Minimal heat transfer variation, tested for 6000 hours in salt spray per ASTM B117, superior impact resistance per ASTM D2794

- Electronic flow switch. Auto-setting according to cooler size and fluid type.

- Self-regulating control
  - The control algorithm prevents excessive compressor cycling and reduces the quantity of water in the water loop (Carrier patent),
  - Automatic compressor unloading in case of abnormally high condensing pressure,
  - Automatic fan speed adjustment in case of coil fouling (30RB models),
  - Smooth fan start to increase unit lifetime (optionals include variable-speed fans).
- Exceptional endurance tests:
  - To design critical components and sub-assemblies to minimise the risk of failure on site, Carrier uses specialised laboratories and advanced dynamic simulation tools.
  - To ensure that the units reach customer sites in the same condition as they are when tested in the factory, Carrier tests the machine behaviour during transportation over 250 km. The road test is based on a military standard and is the equivalent to 5000 km by truck on a normal road.
  - To guarantee the coil corrosion resistance, salt spray corrosion resistance tests are performed in the group's laboratory.
  - In addition, to maintain the unit's performance throughout its operating life whilst minimising maintenance costs, end users can access the "Connected Services" remote monitoring service.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and is designed, constructed and operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Choosing the right air conditioning system is one of the main considerations when designing a green building. For buildings with a load that varies throughout the year, the AquaSnap® 30RB unit offers a solution to this important challenge.

A number of green building certification programmes exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new AquaSnap® range helps customers affected by LEED® building certification.

## AQUASNAP® - CUSTOMER BENEFITS

### Energy saving certificate

The AquaSnap® 30RB unit is eligible for energy saving certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and speed)
- Floating Low pressure control
- Variable speed on asynchronous fan motor (optional)
- Variable speed on asynchronous pump motor (optional)
- Partial heat recovery (option)

For more details about financial incentives in France, please refer to the "CEE product sheet".

### The AquaSnap® range and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a major initiative set up to assess the design, construction and operation of green buildings with points assigned in seven credit categories:

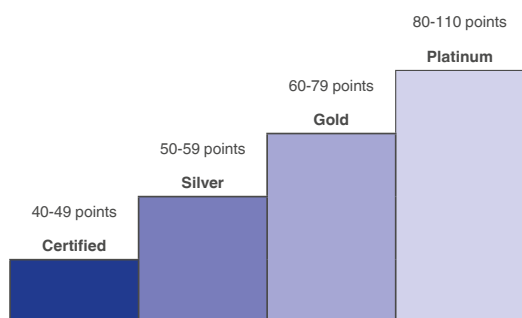
- Sustainable Sites (SS),
- Water efficiency (WE),
- Energy and atmosphere (EA),
- Materials and resources (MR),
- Indoor environmental quality (IEQ),
- Innovation in design (ID),
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain the same, the distribution of points varies depending on the type of building and the requirements of the application, based on whether it is a new construction, school, core & shell, retail or healthcare.

All programmes now use the same point scale:

#### 110 LEED® points available



The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impact of each component or sub-system on the building as a whole.

While the LEED® green building certification programmes do not certify products or services, choosing the right products, systems or service programmes is critical to obtaining LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilation and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

### EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential,
2. Impact on the ozone layer,
3. Acidification of soil and water,
4. Eutrophication of water,
5. Photochemical ozone creation,
6. Abiotic resource depletion,
7. Fresh water consumption,
8. Total use of primary energy during the life cycle.

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

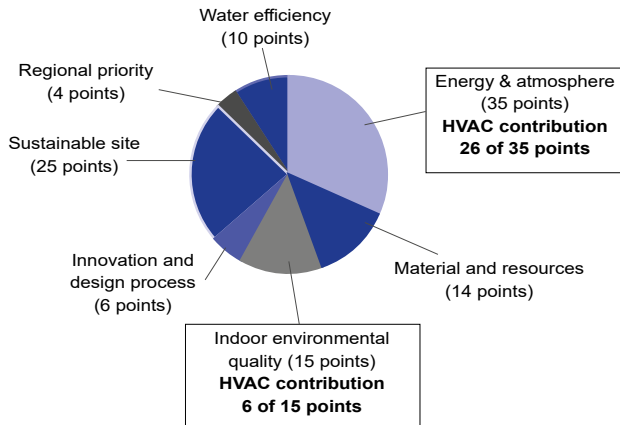
Carrier is the first HVAC manufacturer to provide PEPs for liquid chillers and heat pumps with, not only the 8 mandatory indicators, but all 27 indicators.

The AquaSnap® PEP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

## AQUASNAP® - CUSTOMER BENEFITS

### Designed to support Green Building Design

#### Overview of LEED® for new construction and major renovations



The new AquaSnap® units from Carrier can help building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- EA prerequisite 2: Minimum energy performance
- 30RB units exceed the energy efficiency requirements of ASHRAE 90.1-2007; therefore they satisfy the prerequisites.
- EA prerequisite 3: Fundamental refrigerant management  
30RB units do not use chlorofluorocarbon (CFC) refrigerants, thus satisfying the prerequisites.
- EA credit 1: Optimise energy performance (1 to 19 points)  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. 30RB units, which are designed for high performance especially during part load operation, help to reduce the building's energy consumption and therefore to gain points for this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used to analyse energy. It meets the modelling requirements for this credit and produces reports which can be easily transferred to LEED® charts.
- EA credit 4: Enhanced refrigerant management (2 points)  
With this credit, LEED® awards systems that minimise the installed system's Ozone Depletion Potential (ODP) and Global Warming Potential (GWP). 30RB units use a reduced R-32 charge and therefore help satisfy the requirements of this LEED® credit.

**NOTE:** This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30RB units. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the HVAC system as a whole.

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: fundamental commissioning of energy management systems;
- EA credit 3: enhanced commissioning (2 points);
- EA credit 5: measurements and verification (3 points).

**NOTE:** Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).

## 30RB TECHNICAL OVERVIEW



### SIXTH GENERATION FLYING BIRD™ FIXED-SPEED FANS

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with AC motor technology
- Variable speed option:
  - Patented algorithm to control the fan speed.
  - Dedicated variator or EC type motor.
  - Night mode operation.



### NOVATION™ SECOND GENERATION MICRO CHANNEL HEAT EXCHANGERS (30RB)

- Increased reliability with new aluminium alloy
- Significantly reduces the refrigerant charge (-40% compared to Cu/Al coils)
- Improved thermal performance, improved efficiency and lower pressure drops compared to Cu/Al coils
- Enviro-Shield® coating for mildly corrosive environments
- Super Enviro-Shield® coating for highly corrosive environments (industrial or marine applications)
- Easy cleaning with high pressure air or water washer



### SmartVu™ control

- 6 languages available
- 4.3" user-friendly touch screen
- All main parameters displayed on one screen
- Direct access to the unit's technical drawings and the main service documents
- Very easy online monitoring
- Easy and secure access to unit parameters
- Optional Bacnet, J-Bus or LON communication interfaces



### VARIABLE-SPEED PUMP

- Water flow electronic control and reading
- Automatic protection of the pump against low pressure
- Multiple control options:
  - Constant flow with low speed mode on standby
  - Variable flow based on pressure difference or constant temperature

### PUMP SPEED REGULATOR



### SCROLL COMPRESSORS



### REDUCED REFRIGERANT CHARGE



### HIGH-EFFICIENCY BRAZED PLATE HEAT EXCHANGER

- Latest generation asymmetrical type (unit with 2 circuits)
- Low pressure drop



Heating mode/COP/SCOP related to the 30RQ heat pump version



## TECHNICAL INSIGHTS

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced communication technology over Ethernet (IP) and a user-friendly and intuitive user interface with 4.3 inch colour touch screen.

- **Energy management configuration**
  - Internal timer: Controls chiller on/off times and operation at a second setpoint,
  - Setpoint offset based on the outdoor air temperature,
  - Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault,
  - For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.
- **Integrated features**
  - Night mode: Capacity and fan speed limitation for reduced noise level,
  - With hydraulic module: Water pressure display and water flow rate calculation.
- **Advanced communication features**
  - Easy, high-speed communication technology over Ethernet (IP) to a centralised building management system,
  - Access to multiple unit parameters.
- **Maintenance functions**
  - F-Gas regulation leak check reminder alert,
  - Maintenance alert can be configured to days, months or hours of operation,
  - Storage of maintenance manual, wiring diagram and spare parts list,
  - Display of trend curves for the main values,
  - Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs,
  - Blackbox memory.

### ■ 4.3" SmartVu™ user interface



- Intuitive and user-friendly 4.3" inch touch screen interface,
- Concise and clear information is available in local languages,
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit,
- Dual setpoint: closing of this contact activates a second setpoint (e.g.: unoccupied mode),
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value,
- Operation indication: This volt-free contact indicates that the chiller is operating (cooling load),
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits,
- Setpoint adjustable via 4-20 mA signal.

## TECHNICAL INSIGHTS

### Novation™ heat exchangers with micro-channel coil technology (30RB)

Already used in the automotive and aeronautical industries for many years, the Novation™ micro-channel heat exchanger (MCHE) used in the AquaSnap® 30RB-30RBP liquid chillers is made entirely of aluminium. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminium) come into contact in traditional heat exchangers.

- From an energy efficiency point of view, Novation™ heat exchangers are approximately 10% more efficient than traditional coils and micro-channel coil technology enables a 40% reduction in the amount of refrigerant used in the chiller.
- The reduced depth of the Novation™ MCHE reduces air pressure losses by 50% and makes it much less susceptible to fouling (e.g. by sand). The Novation™ MCHE heat exchanger can be cleaned quickly using a high-pressure washer.
- To further enhance long-term performance and protect coils against premature deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.
  - The Novation™ MCHE with Enviro-Shield® protection (option 262) is recommended for installations in moderately corrosive environments. The Enviro-Shield® protection uses corrosion inhibitors which actively arrest oxidation in case of mechanical damage.
  - The Novation™ MCHE with exclusive Super Enviro-Shield® protection (option 263) is recommended for installations in corrosive environments. Super Enviro-Shield® protection comprises an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.
- After more than 7000 hours of testing based on various standards in Carrier group laboratories, the Novation™ MCHE with Super Enviro-shield® coating emerged as the best customer choice to minimise the harmful effects of corrosive atmospheres and ensure a long equipment life:
  - Best corrosion resistance per the ASTM B117/D610 test;
  - Best heat transfer performance per the Carrier Marine 1 test;
  - Proven reliability per the ASTM B117 test.



| Coil Types (ranked by performance)  | Visual Corrosion Evaluation | Heat Transfer Performance Degradation | Time to Failure | Test Campaign Conclusions |
|-------------------------------------|-----------------------------|---------------------------------------|-----------------|---------------------------|
| Super Enviro-shield® Novation™ MCHE | Very good                   | Good                                  | No coil leak    | Best                      |
| Super Enviro-shield® Cu/Al coil     | Very good                   | Very good                             | No coil leak    | Very good                 |
| Enviro-shield® Novation™ MCHE       | Very good                   | Good                                  | No coil leak    | Very good                 |
| Al/Al coil                          | Very good                   | Good                                  | No coil leak    | Very good                 |
| Novation™ MCHE                      | Good                        | Very good                             | No coil leak    | Good                      |
| Cu/Cu coil                          | Good                        | Good                                  | Leak            | Acceptable                |
| Blygold® Cu/Al coil                 | Good                        | Good                                  | No coil leak    | Acceptable                |
| Precoat Cu/Al coil                  | Bad                         | Bad                                   | No coil leak    | Bad                       |
| Cu/Al coil                          | Bad                         | Bad                                   | No coil leak    | Bad                       |

## TECHNICAL INSIGHTS

### New generation of Flying Bird VI™ fans with AC or EC motors (optional)



The 30RB unit uses Carrier's sixth generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and a wide operating range. The fans use Carrier patented rotating shroud technology and back-swept blades with a wave-serration trailing edge inspired by nature.

It was designed and optimised for the 30RB air management system configuration and heat exchanger technology.

The fans and their impellers use Carrier's robust and proven injection moulded composite thermoplastic construction.

On the 30RB with option 17, the fans are driven by an EC motor, also known as brushless DC, with dedicated electronics to manage commutation. This offers high precision for fans that require higher efficiency and variable speed. The fans meet the latest European Ecodesign requirements for fan efficiency.

#### EC motor (option 17)



## OPTIONS

| Options   | No.  | Description  | Advantages   | AquaSnap 30RB |
|---|------|--|--|---------------|
| Low-temperature brine solution                      | 6B   | Low temperature chilled water production down to -8 °C with ethylene glycol and propylene glycol.  | Covers specific applications such as ice storage and industrial processes  | 040-160       |
| High static fans                                    | 12   | Unit equipped with high-pressure static variable-speed fans (maximum 200 Pa), each fan being equipped with a connection flange for connection to the ducting system.   | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics  | 040-160       |
| Return air connection frame                         | 12A  | Unit equipped with a connection frame at the heat exchange coil inlet  | Facilitates channelling of the air at the unit inlet.  | 040-080       |
| Very low noise level                                | 15LS | Acoustic compressor enclosure and low-speed fans   | Noise level reduction for sensitive sites  | 040-160       |
| High ambient temperature                            | 16   | Unit equipped with a higher speed fan  | Unit operating range extended to higher ambient temperatures   | 040-160       |
| EC fans   | 17   | Unit equipped with EC fans   | Improves the unit's energy efficiency  | 040-160       |
| Protection grilles                                  | 23   | Metallic protection grilles  | Coil protection against possible impact  | 040-160       |
| Air filter and return air connection frame          | 23B  | Unit equipped with a connection frame at the heat exchange coil inlet and washable G2 efficiency filter in accordance with EN 779  | Facilitates channelling of the air at the unit inlet and protects the air exchanger against pollution  | 040-080       |
| Soft starter per compressor                         | 25   | Electronic starter on each compressor  | Reduced start-up current   | 040-160       |
| Winter operation down to -20 °C                     | 28   | Fan speed control via frequency converter  | Stable unit operation when the outdoor air temperature is between -10 °C and -20 °C  | 040-160       |
| Water exchanger frost protection                    | 41   | Electric heater on the water type heat exchanger and the water duct  | Water type heat exchanger module frost protection for an outdoor air temperature between 0 °C and -20 °C   | 040-160       |
| Hydronic module antifreeze protection               | 42   | Electric heater on the hydronic module   | Antifreeze protection of the hydronic module for outdoor temperatures down to -20 °C   | 040-160       |
| Exchanger and hydronic module antifreeze protection | 42B  | Electric heaters on the water heat exchanger, water pipes, hydronic module, optional expansion tank and buffer tank  | Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20 °C  | 040-160       |
| Partial heat recovery                               | 49   | Unit equipped with one desuperheater on each refrigerant circuit   | Simultaneous production of free high-temperature hot water and chilled water production (or hot water for the heat pump)   | 040-160       |
| Master/slave operation                              | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with runtime balancing  | 040-160       |
| Evaporator single HP pump                           | 116R | High-pressure fixed-speed water pump, drain valve, air vent and pressure sensors. (optional expansion vessel and built-in safety hydraulic components available)   | Quick and easy installation (plug & play)  | 040-160       |
| Evaporator dual HP pump                             | 116S | Dual high-pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available)   | Quick and easy installation (plug & play)  | 040-160       |
| Variable-speed single HP pump                       | 116V | Single low-pressure water pump, water filter, electronic water flow control, pressure sensors. Multiple variable water flow control options (optional expansion tank and built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.  | 040-160       |
| Variable-speed dual high-pressure pump              | 116W | Dual high-pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated chapter.  | Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | 040-160       |
| Variable-speed single LP pump                       | 116X | Single low-pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. (optional expansion vessel and built-in hydraulic safety components available)                          | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.  | 040-160       |

Heating mode/COP/SCOP related to the 30RQ heat pump version



## OPTIONS

| Options   | No.  | Description  | Advantages   | AquaSnap 30RB |
|---|------|--|--|---------------|
| Variable-speed dual LP pump                                 | 116Y | Evaporator hydronic module equipped with a variable-speed low-pressure pump, a drain valve, an air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)                           | Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | 040-160       |
| Evaporator single LP pump                                   | 116T | Single low-pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available)  | Quick and easy installation (plug & play)  | 040-160       |
| LP dual-pump hydronic module                                | 116U | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components)  | Quick and easy installation (plug & play)  | 040-160       |
| Lon gateway   | 148D | Two-directional communication board complying with Lon Talk protocol   | Connects the unit by communication bus to a building management system   | 040-160       |
| Bacnet over IP  | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)  | Easy and high-speed connection by Ethernet line to a BMS. Allows access to multiple unit parameters  | 040-160       |
| ModBus over IP and RS485 communication gateway              | 149B | Two-directional high-speed communication using the ModBus over Ethernet network (IP) protocol  | Easy, quick connection via Ethernet line to a building technical management system. Allows access to several unit parameters.                                      | 040-160       |
| Refrigerant leak detector                                   | 159C | Unit equipped with refrigerant leak detector   | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 040-160       |
| Compliance with Russian regulations                         | 199  | EAC certification  | Compliance with Russian regulations  | 040-160       |
| Insulation of the evaporator inlet/outlet refrigerant lines | 256  | Thermal insulation of the evaporator inlet/outlet refrigerant lines, with flexible and UV-resistant insulation   | Prevents condensation on the evaporator inlet/outlet refrigerant lines   | 040-160       |
| Enviro-Shield anti-corrosion protection                     | 262  | Coating applied using a conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested to withstand more than 4000 hours of salt spray as per ASTM B117 | Improved corrosion resistance, recommended for use in moderately corrosive environments  | 040-160       |
| Super Enviro-Shield anti-corrosion protection               | 263  | Extremely durable and flexible epoxy polymer coating applied by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested to withstand 6000 hours of constant neutral salt spray as per ASTM B117, improved impact resistance as per ASTM D2794                | Improved corrosion resistance, recommended for use in extremely corrosive environments   | 040-160       |
| Evaporator screw connection sleeves kit                     | 264  | Evaporator inlet/outlet screw connection sleeves   | Allows unit connection to a screw connector  | 040-160       |
| Evaporator sleeve kit (to be welded)                        | 266  | Victaulic piping connections with welded joints  | Easy installation  | 040-160       |
| Reinforced ECM filtration for fan VFD                       | 282A | Fan variable frequency drive compliant with IEC 61800-3 class C1   | Allows unit installation in domestic residential environment by reducing electromagnetic interferences   | 040-160       |
| Reinforced ECM filtration for pump VFD                      | 282B | Pump variable frequency drive compliant with IEC 61800-3 class C1  | Allows unit installation in domestic residential environment by reducing electromagnetic interferences   | 040-160       |
| Expansion tank  | 293  | 6-bar expansion tank integrated in the hydraulic module (requires hydraulic module option)   | Easy and fast installation (plug & play), and protection of closed water systems from excessive pressure   | 040-160       |
| Water buffer tank module                                    | 307  | Built-in water buffer tank module  | Avoid short cycle on compressors and ensure a stable water in the loop   | 040-160       |

Heating mode/COP/SCOP related to the 30RQ heat pump version

## OPTIONS

| Options  | No. | Description  | Advantages   | AquaSnap 30RB |
|--|-----|--|--|---------------|
| Free cooling mode drycooler management             | 313 | Control and connections to a free cooling drycooler 09PE or 09VE fitted with option FC control box         | Easy system management, control capacity extended to a drycooler used in free cooling mode | 040-160       |
| Compliance with UAE regulations                    | 318 | Additional label on the unit with rated power input, rated current and EER in accordance with AHRI 550/590 | Compliance with ESMA standard UAE 5010-5:2016.   | 040-160       |
| Compliance with Qatar regulations                  | 319 | Specific name plate on the unit with 415 V +/-6% power supply  | Compliance with KAHRAMAA regulations in Qatar  | 040-160       |
| Installation or application process outside Europe | 326 | Specific management of option compatibility  | Permits non-standard option compatibility for HVAC application in the EU                   | 040-160       |
| Compliance with Moroccan regulations               | 327 | Specific regulatory documentation  | Compliance with Moroccan regulations   | 040-160       |
| Plastic cover                                      | 331 | Unit wrapped in a plastic cover and strapped onto a wooden pallet.   | Protects against dust and external soiling of the unit during storage and transport.       | 040-160       |

## PHYSICAL DATA, SIZES 040R TO 160R

| 30RB  |   |                  |         | 040R  | 045R  | 050R  | 055R  | 060R  | 070R  | 080R  | 090R  | 100R  | 120R  | 140R  | 160R  |
|---|---|------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling                                       |   |                  |         |       |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*   | CA1   | Nominal capacity | kW      | 41,7  | 47,3  | 52,9  | 56,1  | 63,6  | 71,2  | 81,1  | 93,4  | 107   | 124   | 140   | 160   |
|   |   | EER              | kW/kW   | 2,95  | 2,94  | 2,93  | 2,97  | 2,89  | 2,90  | 2,78  | 2,97  | 2,83  | 2,85  | 2,87  | 2,76  |
|   | CA2   | Nominal capacity | kW      | 54,6  | 62,7  | 69,4  | 74,3  | 84,6  | 93,0  | 103   | 126   | 142   | 162   | 183   | 203   |
|   |   | EER              | kW/kW   | 3,60  | 3,60  | 3,51  | 3,61  | 3,63  | 3,49  | 3,22  | 3,72  | 3,48  | 3,40  | 3,48  | 3,21  |
| Seasonal energy<br>efficiency**               | SEER <sup>12/7 °C</sup> Comfort low temp.     |                  | kWh/kWh | 4,41  | 4,47  | 4,50  | 4,62  | 4,41  | 4,31  | 4,24  | 4,38  | 4,51  | 4,57  | 4,46  | 4,37  |
|   | ηs cool <sup>12/7 °C</sup>                    |                  | %       | 173   | 176   | 177   | 182   | 174   | 169   | 167   | 172   | 177   | 180   | 176   | 172   |
|   | SEER <sup>23/18 °C</sup> Comfort medium temp. |                  | kWh/kWh | 6,10  | 6,11  | 6,06  | 6,17  | 5,61  | 5,72  | 5,46  | 5,54  | 5,78  | 5,73  | 5,61  | 5,34  |
|   | SEPR <sup>12/7 °C</sup> Process high temp.    |                  | kWh/kWh | 6,30  | 6,23  | 6,23  | 6,21  | 5,92  | 5,46  | 5,21  | 5,45  | 5,19  | 5,24  | 5,37  | 5,15  |
| SEPR <sup>-2/-8 °C</sup> Process medium temp. |   | kWh/kWh          | 3,59    | 3,65  | 3,79  | 3,89  | 3,65  | 3,61  | 3,67  | 3,54  | 3,54  | 3,74  | 3,61  | 3,68  |       |
| Part Load integrated values                   | IPLV.SI                                       |                  | kW/kW   | 4,945 | 5,025 | 5,182 | 5,270 | 5,369 | 4,630 | 4,630 | 4,904 | 4,953 | 4,997 | 4,707 | 4,680 |
| Sound levels                                  |   |                  |         |       |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit                                 |   |                  |         |       |       |       |       |       |       |       |       |       |       |       |       |
| Sound power <sup>(1)</sup>                    |   |                  | dB(A)   | 81,5  | 82,0  | 83,5  | 83,5  | 89,0  | 89,0  | 89,0  | 91,5  | 91,5  | 92,0  | 92,0  | 92,0  |
| Sound pressure at 10 m <sup>(2)</sup>         |   |                  | dB(A)   | 50,0  | 50,5  | 52,0  | 52,0  | 57,0  | 57,5  | 57,0  | 60,0  | 59,5  | 60,0  | 60,0  | 60,0  |
| Unit + option 15LS                            |   |                  |         |       |       |       |       |       |       |       |       |       |       |       |       |
| Sound power <sup>(1)</sup>                    |   |                  | dB(A)   | 78,5  | 79,0  | 80,0  | 80,0  | 80,0  | 80,0  | 80,0  | 83,0  | 83,0  | 83,0  | 83,0  | 83,0  |
| Sound pressure at 10 m <sup>(2)</sup>         |   |                  | dB(A)   | 47,0  | 47,5  | 48,5  | 48,5  | 48,0  | 48,5  | 48,0  | 51,0  | 51,0  | 51,5  | 51,0  | 51,0  |
| Dimensions                                    |   |                  |         |       |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit                                 |   |                  |         |       |       |       |       |       |       |       |       |       |       |       |       |
| Length  |   |                  | mm      | 1090  | 1090  | 1090  | 1090  | 1090  | 1090  | 1090  | 2125  | 2125  | 2125  | 2125  | 2125  |
| Width   |   |                  | mm      | 2109  | 2109  | 2109  | 2109  | 2109  | 2109  | 2109  | 2275  | 2275  | 2275  | 2275  | 2275  |
| Height  |   |                  | mm      | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  | 1330  |
| Unit height (option 12)                       |   |                  | mm      | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  | 1372  |
| Unit height (option 307)                      |   |                  | mm      | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  | 1931  |
| Unit height (option 12 + 307)                 |   |                  | mm      | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  | 1973  |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with EN14825:2018, average climatic conditions.

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W

CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W

**ηs cool** 12/7 °C & **SEER** 12/7 °C **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

**SEER** 23/18 °C **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

**SEPR** -2/-8 °C **Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for HT applications**

IPLV.SI Calculated as per AHRI standard 551-591.

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).



Eurovent certified values

## PHYSICAL DATA, SIZES 040R TO 160R

| 30RB   |                    | 040R  | 045R | 050R | 055R | 060R | 070R | 080R | 090R  | 100R  | 120R  | 140R  | 160R  |
|--|--------------------|---|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| <b>Operating weight <sup>(3)</sup></b>                     |                    |   |      |      |      |      |      |      |       |       |       |       |       |
| Standard unit  | kg                 | 408   | 409  | 428  | 428  | 435  | 446  | 454  | 672   | 734   | 743   | 861   | 877   |
| Unit + single high-pressure pump option                    | kg                 | 428   | 429  | 448  | 448  | 455  | 466  | 474  | 692   | 754   | 768   | 886   | 902   |
| Unit + dual high-pressure pump option                      | kg                 | 455   | 456  | 475  | 475  | 482  | 493  | 501  | 719   | 781   | 790   | 908   | 924   |
| Unit + single high-pressure pump and buffer tank options   | kg                 | 780   | 781  | 800  | 800  | 807  | 818  | 826  | 1110  | 1172  | 1186  | 1304  | 1320  |
| Unit + dual high-pressure pump and buffer tank options     | kg                 | 807   | 808  | 827  | 827  | 834  | 845  | 853  | 1137  | 1199  | 1208  | 1326  | 1342  |
| <b>Compressors</b>   |                    | Hermetic Scroll 48,3 r/s  |      |      |      |      |      |      |       |       |       |       |       |
| Circuit A  |                    | 2   | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 3     | 3     | 2     | 2     |
| Circuit B  |                    |   |      |      |      |      |      |      |       |       |       | 2     | 2     |
| No. of power stages  |                    | 2   | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 3     | 3     | 4     | 4     |
| <b>Refrigerant<sup>(3)</sup></b>                           |                    | R-32 / A2L/ PRP= 675 in accordance with AR4   |      |      |      |      |      |      |       |       |       |       |       |
| Circuit A  | kg                 | 3,72  | 3,92 | 4,43 | 4,90 | 4,70 | 4,87 | 4,84 | 7,75  | 8,40  | 9,00  | 5,00  | 5,07  |
|  | tCO <sub>2</sub> e | 2,5   | 2,6  | 3,0  | 3,3  | 3,2  | 3,3  | 3,3  | 5,2   | 5,7   | 6,1   | 3,4   | 3,4   |
| Circuit B  | kg                 |   |      |      |      |      |      |      |       |       |       | 5,00  | 5,07  |
|  | tCO <sub>2</sub> e |   |      |      |      |      |      |      |       |       |       | 3,4   | 3,4   |
| <b>Oil</b>   |                    | POE   |      |      |      |      |      |      |       |       |       |       |       |
| Circuit A  | l                  | 6,00  | 6,00 | 6,60 | 6,60 | 6,60 | 7,20 | 7,20 | 7,20  | 10,80 | 10,80 | 7,20  | 7,20  |
| Circuit B  | l                  |   |      |      |      |      |      |      |       |       |       | 7,20  | 7,20  |
| <b>Capacity control</b>                                    |                    | SmartVu™  |      |      |      |      |      |      |       |       |       |       |       |
| Minimum capacity   | %                  | 50  | 50   | 50   | 50   | 50   | 50   | 50   | 50    | 33    | 33    | 25    | 25    |
| <b>PED category</b>  |                    | III   |      |      |      |      |      |      |       |       |       |       |       |
| <b>Condenser</b>   |                    | All-aluminium micro-channel coils (MCHE)  |      |      |      |      |      |      |       |       |       |       |       |
| <b>Fans</b>  |                    | Axial Flying Bird 6 with rotating shroud  |      |      |      |      |      |      |       |       |       |       |       |
| <b>Standard unit</b>                                       |                    |   |      |      |      |      |      |      |       |       |       |       |       |
| Quantity   |                    | 1   | 1    | 1    | 1    | 1    | 1    | 1    | 2     | 2     | 2     | 2     | 2     |
| Maximum total air flow                                     | l/s                | 3882  | 3802 | 4058 | 3900 | 5484 | 5452 | 5414 | 10568 | 10512 | 10974 | 10904 | 10827 |
| Maximum rotation speed                                     | r/s                | 12  | 12   | 12   | 12   | 16   | 16   | 16   | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>  |                    | Direct expansion brazed-plate heat exchanger  |      |      |      |      |      |      |       |       |       |       |       |
| Water volume   | l                  | 3,55  | 4    | 4,44 | 4,44 | 5,18 | 6,07 | 6,96 | 7,4   | 8,44  | 9,92  | 12,69 | 14,31 |
| Max. water-side operating pressure without hydronic module | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydronic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                 |      |      |      |      |      |      |       |       |       |       |       |
| <b>Pump</b>  |                    | Centrifugal pump, monocell, 48,3 r/s, low- or high-pressure (as required), single or dual (as required) |      |      |      |      |      |      |       |       |       |       |       |
| Expansion tank volume (Option 293)                         | l                  | 12  | 12   | 12   | 12   | 12   | 12   | 12   | 35    | 35    | 35    | 35    | 35    |
| Buffer tank volume (Option 307)                            | l                  | 208   | 208  | 208  | 208  | 208  | 208  | 208  | 208   | 208   | 208   | 208   | 208   |
| Max. water-side operating pressure with hydronic module    | kPa                | 400   | 400  | 400  | 400  | 400  | 400  | 400  | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydronic module</b>   |                    | Victaulic® type   |      |      |      |      |      |      |       |       |       |       |       |
| Connections  | inches             | 2   | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 2     | 2     | 2     | 2     |
| External diameter  | mm                 | 60,3  | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3  | 60,3  | 60,3  | 60,3  | 60,3  |
| <b>Casing paint colour</b>                                 |                    | Colour code RAL 7035  |      |      |      |      |      |      |       |       |       |       |       |

(3) Values are guidelines only. Refer to the unit name plate.



## ELECTRICAL SPECIFICATIONS

| 30RB  |         | 040R                          | 045R | 050R | 055R | 060R | 070R | 080R | 090R | 100R | 120R | 140R | 160R |
|---|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                                     |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360 - 440                     |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Circuit A&B   | kW      | 19                            | 21   | 24   | 24   | 28   | 31   | 36   | 41   | 48   | 55   | 63   | 71   |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi), standard unit              |         | 0,81                          | 0,82 | 0,82 | 0,82 | 0,84 | 0,84 | 0,85 | 0,82 | 0,84 | 0,85 | 0,84 | 0,85 |
| <b>Nominal unit current draw<sup>(4)</sup></b>                  |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 26                            | 29   | 35   | 35   | 36   | 46   | 52   | 59   | 71   | 81   | 91   | 104  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 34                            | 37   | 42   | 42   | 48   | 54   | 60   | 72   | 84   | 93   | 108  | 121  |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 37                            | 39   | 44   | 44   | 51   | 58   | 65   | 77   | 89   | 99   | 115  | 129  |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 116                           | 118  | 165  | 165  | 169  | 177  | 191  | 238  | 206  | 223  | 231  | 251  |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12 °C/7 °C, outdoor air temperature = 35 °C.

### Short-circuit withstand current (TN system)<sup>(1)</sup>

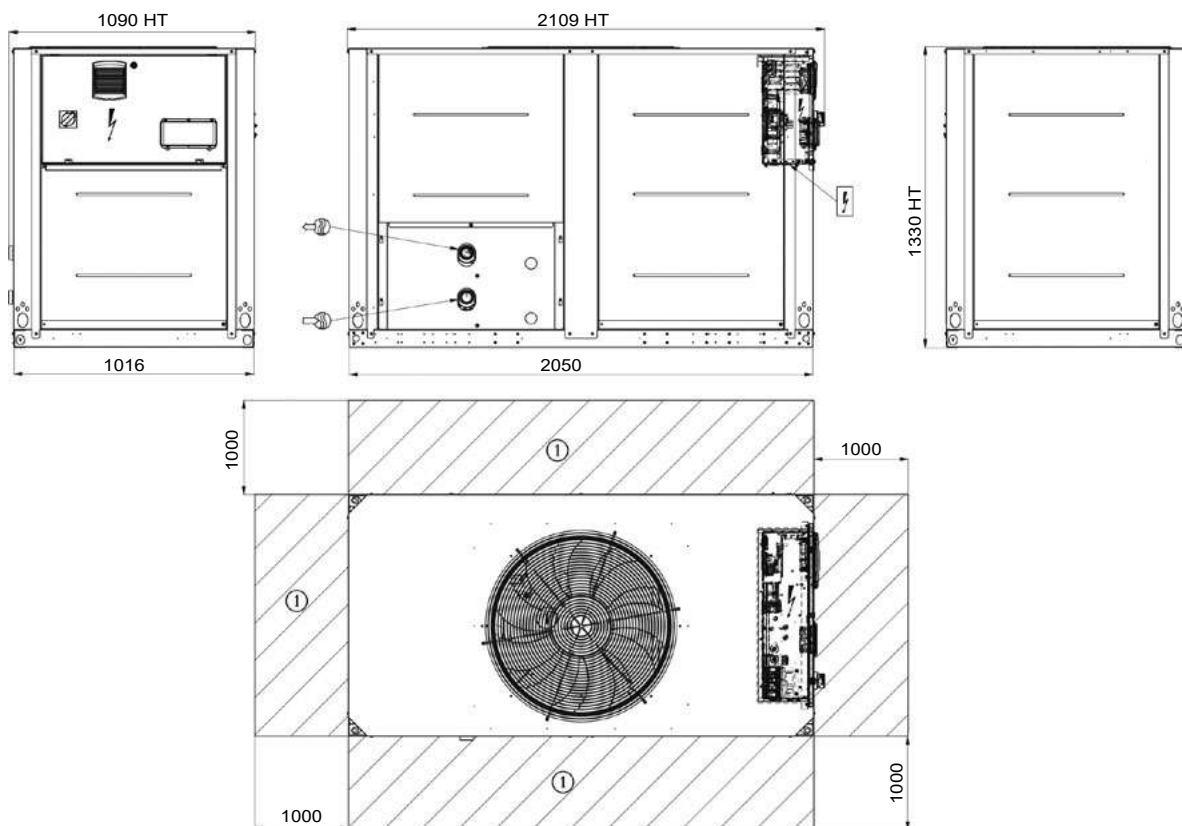
| 30RB   |        | 040R                      | 045R   | 050R   | 055R   | 060R   | 070R   | 080R   | 090R   | 100R   | 120R   | 140R   | 160R   |
|--|--------|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Rated short-circuit withstand currents</b>                  |        |                           |        |        |        |        |        |        |        |        |        |        |        |
| Rated short time (1s) current - I <sub>cs</sub>                | kA eff | 3,36                      | 3,36   | 3,36   | 3,36   | 3,36   | 3,36   | 5,62   | 5,62   | 5,62   | 5,62   | 5,62   | 5,62   |
| Rated peak current - I <sub>pk</sub>                           | kA pk  | 20                        | 20     | 20     | 20     | 20     | 20     | 15     | 20     | 20     | 15     | 20     | 15     |
| <b>Value with upstream electrical protection<sup>(1)</sup></b> |        |                           |        |        |        |        |        |        |        |        |        |        |        |
| Rated conditional short circuit current I <sub>cc</sub>        | kA eff | 40                        | 40     | 40     | 40     | 40     | 40     | 40     | 40     | 40     | 40     | 30     | 30     |
| Associated protection - type/supplier                          |        | Circuit breaker/Schneider |        |        |        |        |        |        |        |        |        |        |        |
| Associated protection - rating/reference                       |        | NS100H                    | NS100H | NS100H | NS100H | NS100H | NS100H | NS100H | NS100H | NS160H | NS160H | NS250H | NS250H |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended protection.

Note: The short circuit current withstand capability values above have been established for the TN system.

## DIMENSIONS/CLEARANCES

### 30RB 040R-080R, units without water buffer tank module


**Key:**

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Control box

**NOTE: Non-contractual drawings.**

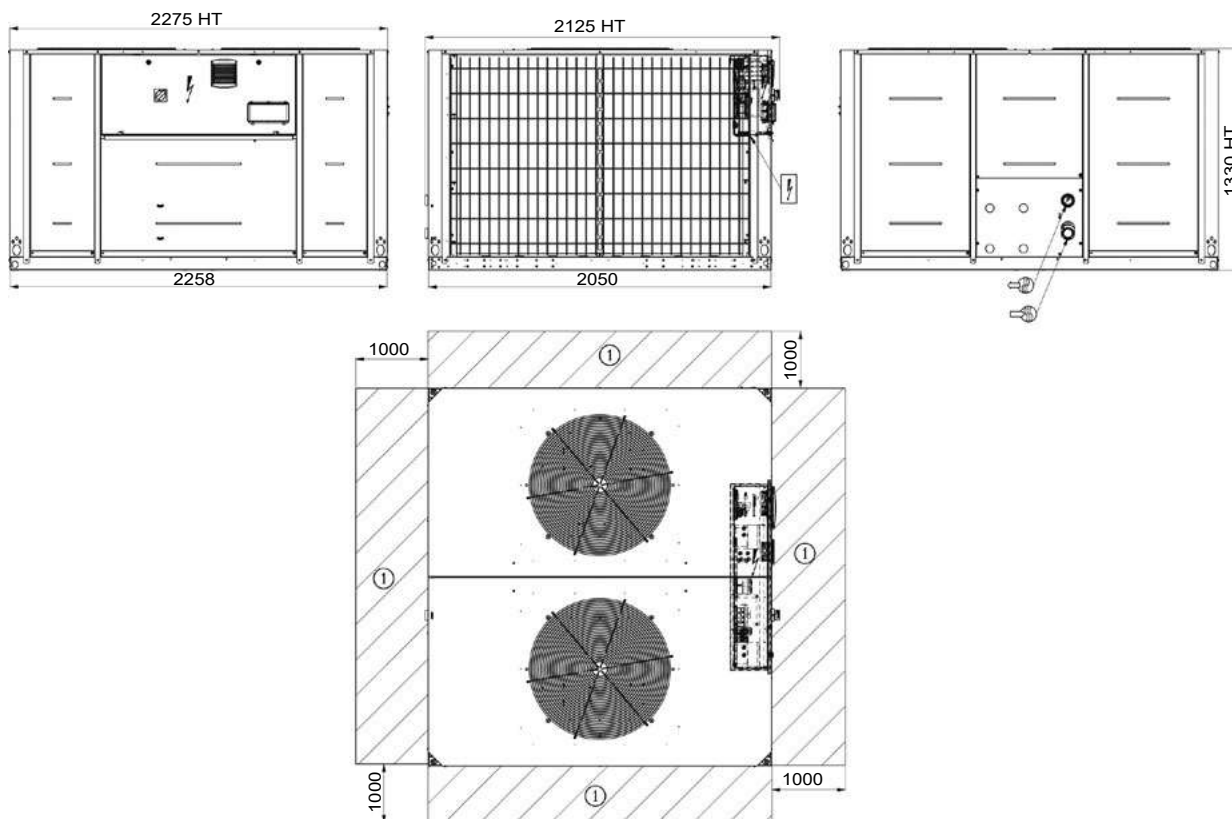
**When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.**

**Refer to the certified dimensional drawings for:**

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of the 12/12A/23B option connections.

## DIMENSIONS/CLEARANCES

### 30RB 090R-160R, units without water buffer tank module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Control box

#### NOTE: Non-contractual drawings.

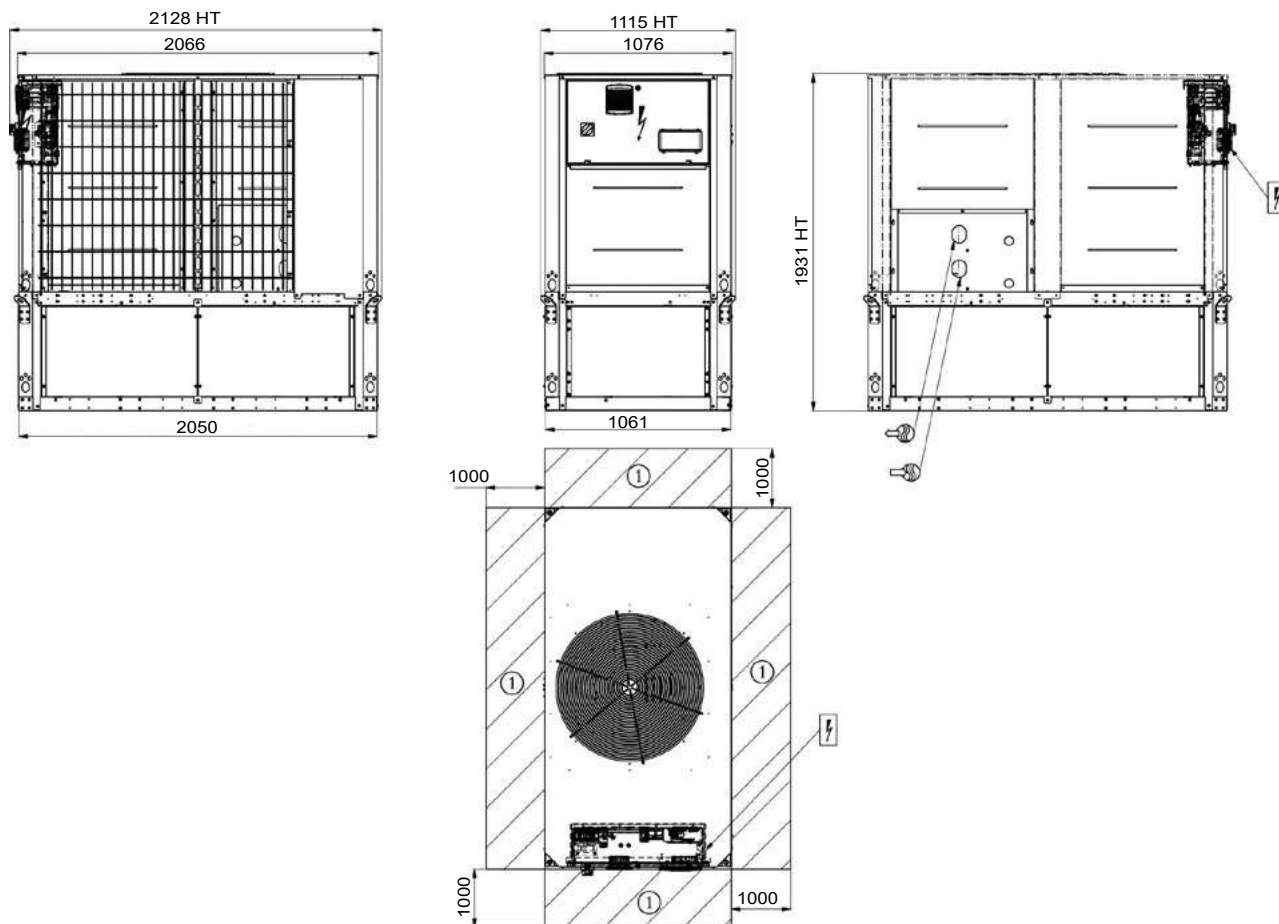
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of option 12 connections.

## DIMENSIONS/CLEARANCES

### 30RB 040R-080R, units with water buffer tank module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Control box

#### NOTE: Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

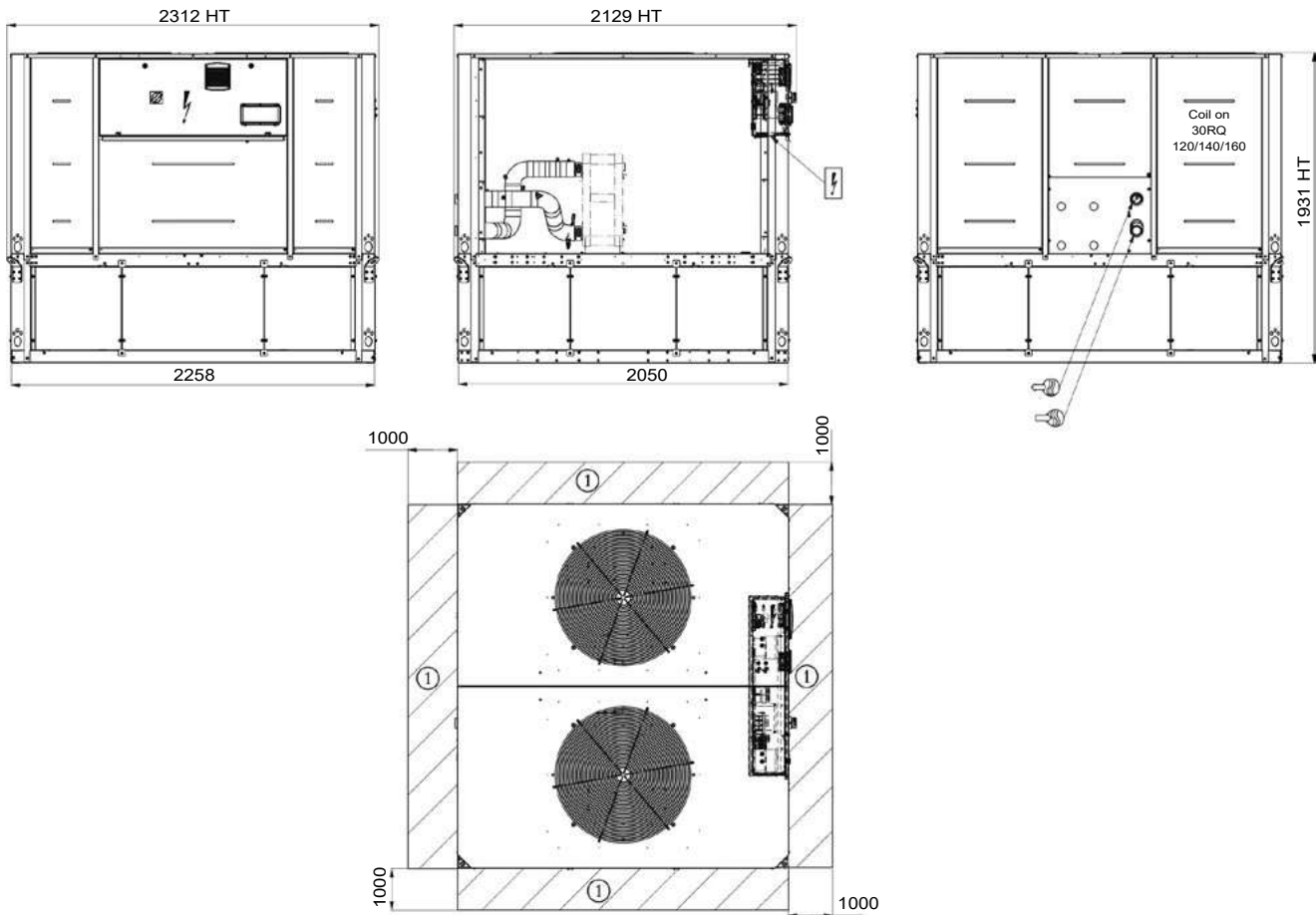
#### Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of the 12/12A/23B option connections.



## DIMENSIONS/CLEARANCES

### 30RB 090R-160R, units with water buffer tank module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Control box

#### NOTE: Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of option 12 connections.



## SCROLL CHILLERS WITH AIR COOLED CONDENSER AND GREENSPEED® INTELLIGENCE



Low environmental impact  
High full and part load efficiency  
Compact and simple to install  
Low refrigerant charge  
Superior reliability

## 30RB/30RBP 170R-950R

Nominal cooling capacity 170-940 kW



Aquasnap® heat pumps and liquid chillers are the best solution for commercial and industrial applications where installers, engineering and design departments and building owners require reduced installation costs, optimal performances and maximum quality.

The latest generation AquaSnap® is available in two new versions:

- The AquaSnap® (30RB) version is a compact all-in-one package optimised for full-load applications where reduced investment cost (low CapEx) is required.
- The premium AquaSnap® version with Greenspeed® intelligence (30RBP) is optimised for part load applications where a high SEER, SEPR or IPLV value is required. This version is equipped with a variable-speed pump and fans, providing premium part load efficiency to reduce maintenance costs over the lifespan of the chiller. In addition, the sound levels achieved under the part load conditions are particularly low. Besides operating efficiently and quietly, the AquaSnap® range with Greenspeed® intelligence operates from -20 °C up to +48 °C as standard.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

\* The availability of sizes and options depends on the country. Please contact your local commercial dealer for more information.

Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version

## R-32: THE BEST SOLUTION FOR SCROLL LIQUID CHILLERS

Carrier was the first to introduce the R-1234ze HFO with ultra-low GWP in screw chillers, as far back as early 2016. Today, having examined its main properties, Carrier has chosen R-32 refrigerant to replace high-GWP R-410A refrigerant in its Scroll liquid chillers, for its lower environmental impact, high energy efficiency, good availability and ease of use.

R-32 is currently the ideal refrigeration solution for units equipped with Scroll compressors. By using R-32 refrigerants, Carrier has reduced the carbon footprint of its AquaSnap® range of liquid chillers by 77%. This is the result of a much lower GWP and a significant reduction in the system's cooling load compared to the previous generation that used R-410A.

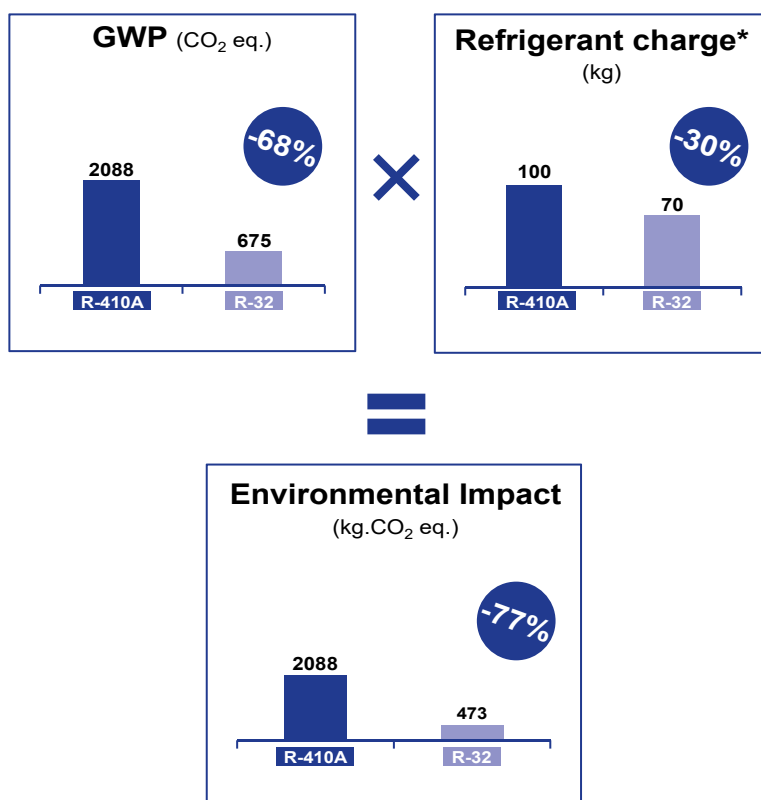
R-32 is also the right choice economically, reducing the locally imposed tax burden on HFCs based on the CO<sub>2</sub> impact.



**CO<sub>2</sub> FOOTPRINT**  
REDUCED BY UP TO **-77%**

### Lower environmental impact (-77% compared to R410A)

- R-32 has zero ozone depletion potential (ODP)
- The Global Warming Potential (GWP) of R-32 is 675, i.e. approximately one third of that of R-410A (PRP 2088)
- The AquaSnap® R-32 cooling load is reduced by 30% compared to the previous version using R-410A\*
- The carbon footprint of AquaSnap® R-32 is therefore 473 (675 x 0.7), i.e. 77% lower than the version using R-410A (2088 x 1)



\* Reduced refrigerant charge in Carrier heat pumps thanks to the use of R-32 and a new coil design.



## R-32: THE BEST SOLUTION FOR SCROLL LIQUID CHILLERS

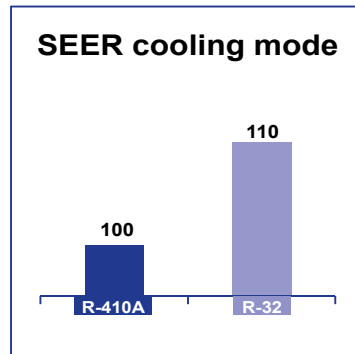


SEER up to +10%

### High energy efficiency

The seasonal efficiency of AquaSnap® R-32 is higher than that of the previous R-410A version by:

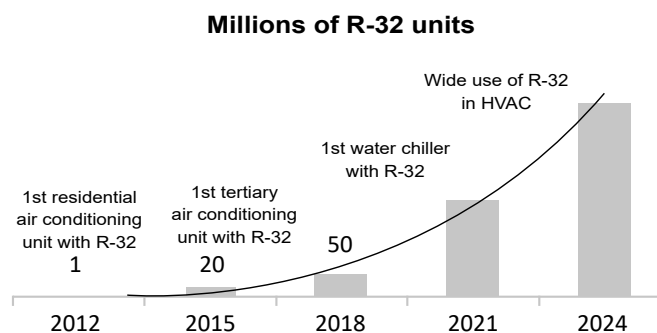
- Approximately +10% in cooling mode



SIMPLICITY

### Widely available and easy to use

More than 50 million R-32 air conditioning units are in circulation on the global market. While R-32 has been used for some time in residential and commercial air conditioning units, most manufacturers now use R-32 in VRF systems, liquid chillers, which means R-32 is widely available around the world.



R-32 has been widely available for over 15 years, as it comprises 50% of the composition of R-410A.

R-32 is easy to use: It is a pure refrigerant, therefore it is not necessary to drain the entire circuit in the event of a leak.



SAFETY

R-32 is an A2L classified refrigerant thanks to its low flammability.

- **No specific safety requirements** for transporting chillers by road.
- **Easy outdoor installation** in line with the requirements of standard EN 378.
- The service tools must be **certified** for **A2L** refrigerants in accordance with standard ISO 817 or EN378.
- Service technicians **must be qualified for brazing components** on PED 2 fluid units.

## AQUASNAP® - CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed fans (VSD as standard and EC optional) and optional variable-speed pumps, Carrier's AquaSnap® 30RBP range with Greenspeed® intelligence automatically adjusts the cooling capacity and water flow to perfectly adapt to the building's requirements or load variations. The result is optimum operation at both full load and part load (SEER up to 5.4). The 30RBP offers energy efficiency up to 10% higher than the previous range with the same or a smaller footprint.

The range is already fully compliant with the 2021 Ecodesign regulations.



SEER up to **5.4**

### ■ Intelligence and connectivity

The advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. The AquaSnap® 30RBP range is also characterised by a brand new smart energy monitoring function which provides users with smart data such as electrical energy consumption in real time, supplied cooling and heating energy and instantaneous and average seasonal energy efficiency values. For even greater energy savings, the AquaSnap® 30RBP can be monitored remotely by Carrier experts to further optimise the energy consumption level.



SMART ENERGY  
MONITORING

### ■ Extensive field of application

The AquaSnap® range is suitable for a very wide range of applications from tertiary to industrial processes. The range can operate at outdoor temperatures from -20 °C to +48 °C and with negative water temperatures (-8 °C). From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaSnap® 30RBP units meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate or application.



BETWEEN  
**-20 °C**  
and **48 °C**

### ■ Easy installation & maintenance

Thanks to the variable-speed pumps up to 950 kW, automatic adjustment of the nominal water flow rate via electronic control and automatic measurement of the unit's energy performance under real conditions, the pumping energy consumption is reduced by almost two thirds: these new features guarantee peace of mind for installers and maintenance companies and lower energy bills for users.



Pumping energy  
reduced by  
up to **66%**

## AQUASNAP® - CUSTOMER BENEFITS

AquaSnap® liquid chillers are designed to meet current and future Ecodesign and F-Gas European regulation requirements in terms of energy efficiency and reduced CO<sub>2</sub> emissions. They use the best technologies available today:

- Reduced refrigerant charge of non-ozone depleting R-32A refrigerant with low GWP
- Scroll compressors
- Greenspeed® variable-speed fans (30RBP models)
- NOVATION™ micro-channel heat exchangers with a new aluminium alloy (30RB/RBP)
- Brazed-plate heat exchangers with reduced pressure drops
- Self-regulating microprocessor control with Greenspeed® intelligence
- Colour touch screen with web connectivity options

Both AquaSnap® versions can be equipped with a built-in hydraulic module, limiting the installation to conventional operations such as connection of the power supply and the supply and return piping (plug & play), according to the dimensions of the standard unit.

Recommended by Carrier, the AquaSnap® can be equipped with one or two Greenspeed® variable-speed pumps to significantly reduce energy costs linked to pumping (reduction of more than two-thirds), ensure optimum water flow rate control, and improve overall system reliability.



### Very economical operation

- High unit full- and part-load energy efficiency and efficient design of the water side:
  - SEER<sub>12/7°C</sub> up to 5.4 (30RBP version) in accordance with the new Ecodesign 2016/2281 regulations.
  - Multiple scroll compressors equipped with a high-efficiency motor which can exactly match the cooling capacity to the load required
  - Electronic expansion valve enabling operation at a lower condensing pressure and improved use of the evaporator heat transfer area (superheat control)
  - Condenser with high-efficiency NOVATION™ (30RB/RBP) aluminium micro-channel heat exchangers and Greenspeed® variable-speed fans (30RBP version)
  - Low pressure drop brazed plate heat exchangers (< 45 kPa under Eurovent conditions).

- Specific control functions to reduce unit cooling energy use during occupied and unoccupied periods:
  - Internal timer: Switches the chiller on/off and controls operation at a second setpoint
  - Setpoint automatically offset based on the outdoor air temperature or room air temperature (via an option)
  - Floating high pressure (HP) management
  - Variable-speed fan control
  - Cooling demand limitation.

Refer to the control chapter for more information.

- Greenspeed® variable-speed pump to reduce pumping energy consumption by up to two-thirds (option recommended by Carrier):
  - Eliminate energy losses through the water flow rate control valve by electronically setting the nominal water flow rate
  - Save energy during stand-by periods or part-load operation by automatically reducing the water pump speed. The energy consumption of the pump motor varies according to the cube of the speed, so that a reduction in speed of just 40% can reduce energy consumption by 80%
  - Improved unit part-load performance (increased SEER value with variable water flow according to standard EN14825).

Refer to the hydraulic option chapter for more information.



- Extra energy savings through multiple options:
  - Carrier drycooler free cooling mode management
  - Partial or total heat recovery.
- Reduced maintenance costs:
  - Fast diagnosis of possible incidents and their history via the control
  - Programmable maintenance alert
  - Programmable F-Gas leak monitoring alert

## AQUASNAP® - CUSTOMER BENEFITS

### Low noise level

- Condenser with fixed-speed fans (30RB):
  - Optional low-speed fans (700 rpm) and compressor enclosure to reduce full-load noise level by 6 to 7 dB(A)
  - Condenser coils in V-shape with an open angle, allowing quieter air flow across the coil
  - Low noise 6th generation Flying Bird™ fans, made of a composite material (Carrier patent)
  - Rigid fan installation for reduced noise (Carrier patent).
- Condenser with Greenspeed® variable-speed fans (30RBP) recommended by Carrier for even quieter operation):
  - Optional factory setting of the fan at low speed, with compressor enclosure to reduce full-load noise level by 6 to 7 dB(A)
  - Exceptional acoustic signature during part-load operation through smooth fan speed variation.
- Specific control functions or features to reduce noise level during the night or unoccupied periods:
  - Night-time sound control with cooling capacity and fan speed limitation
  - Low-noise scroll compressors with low vibration level
  - The compressor assembly is installed on an independent chassis and supported by flexible anti-vibration mountings
  - Dynamic suction and discharge piping support, minimising vibration transmission (Carrier patent)
  - Acoustic compressor enclosure, reducing radiated noise emissions (optional).



### Quick and easy installation

- Compact design:
  - AquaSnap® units are designed with compact dimensions for easy installation.
  - With a length of approximately 4.8 m for 550 kW and a width of 2.25 m, the units require minimal floor space.
- Built-in hydraulic module (option):
  - Low or high pressure water pump (as required)
  - Single or dual pump (as required) with operation time balancing and automatic changeover to the back-up pump if a fault develops
  - Built-in variable-speed pumps with automatic nominal water flow adjustment via electronic control on the user display.
  - Water filter protects the water pump against circulating debris
  - Pressure sensors for direct numerical display of the water flow rate and water pressures

- Thermal insulation and frost protection down to -20 °C, using a heater (optional)
- High-capacity membrane expansion tank (option).

- Built-in hydraulic module with Greenspeed® variable-speed pump (option recommended by Carrier):
  - Quick and easy electronic setting of the nominal water flow rate when the unit is commissioned, thus eliminating the need to adjust the water flow rate control valve
  - Automatic control of the pump speed based on constant speed, constant pressure difference or constant temperature difference.
- Simplified electrical connections
  - A single power connection point without neutral
  - Main disconnect switch with high trip capacity
  - 24 V control circuit using a built-in transformer.
- Simplified hydraulic connections:
  - Victaulic type couplings on the exchanger;
  - Clearly identified and practical reference marks for water outlet and inlet connections;
- Fast unit commissioning
  - Systematic factory test before shipment
  - Quick-test function for step-by-step verification of the sensors, electrical components and motors.

### Reduced installation costs

- Optional Greenspeed® variable-speed pump with hydraulic module (option recommended by Carrier)
  - Cut costs relating to the water flow control valve
  - The design of the water system with variable primary flow (VPF) can provide significant installation cost savings compared with traditional constant primary systems with variable secondary circuits; elimination of the secondary distribution pump, etc.
  - Water system design with fan coil units fitted with 2-way valves instead of 3-way valves.
- No buffer tank required thanks to Carrier's advanced control algorithm
  - Minimum water loop volume reduced to 2.5 l/kW.

### Environmentally responsible

AquaSnap® liquid chillers with Greenspeed® intelligence are a boost for green cities and contribute to a sustainable future. Combining a refrigerant charge up to 30% lower, with R-32 refrigerant with a GWP 70% lower than that of the previous version using R410A, and exceptional energy efficiency, this chiller significantly reduces energy consumption while reducing carbon dioxide emissions throughout its life cycle.

- The AquaSnap® liquid chiller is equipped with an automatic energy meter that indicates the instantaneous and overall cooling energy at the outlet, the instantaneous and overall electrical energy consumption, the instantaneous and average seasonal energy efficiency for monitoring and a unit performance check.
- Pumping energy consumption can be reduced by up to 2/3 using Greenspeed® variable-speed pumps



## AQUASNAP® - CUSTOMER BENEFITS

- lower refrigerant charge: the micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Sealed refrigerant circuits:
  - Leaks are eliminated thanks to the absence of capillary tubes and the use of flare connections
  - Verification of pressure transducers and temperature sensors without transferring the refrigerant charge
  - Discharge line shut-off valve and liquid duct service valve for simplified maintenance
  - Qualified Carrier maintenance personnel to provide refrigerant servicing
  - ISO 14001 production plant
- Refrigerant leak detection: available as an option, this additional dry contact allows reporting of possible leaks. The leak detector (supplied externally) should be mounted in the most likely leak location.
- Self-regulating control
  - The control algorithm prevents excessive compressor cycling and reduces the quantity of water in the water loop (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure
  - Automatic fan speed adjustment in case of coil fouling (30RBP model)
  - Soft fan start to increase unit lifetime (30RBP model).
- Exceptional endurance tests:
  - To design critical components and sub-assemblies to minimise the risk of failure on site, Carrier uses specialised laboratories and advanced dynamic simulation tools.
  - To ensure that the units reach customer sites in the same condition as they are when tested in the factory, Carrier tests the machine behaviour during transportation over 250 km. The road test is based on a military standard and is the equivalent to 5000 km by truck on a normal road.
  - To guarantee the coil corrosion resistance, salt spray corrosion resistance tests are performed in the group's laboratory.
  - In addition, to maintain the unit's performance throughout its operating life whilst minimising maintenance costs, end users can access the "Connected Services" remote monitoring service.

### Superior reliability

- State-of-the-art concept
  - Two self-contained refrigerant circuits; the second one automatically takes over if the first one develops a fault, maintaining partial cooling in all circumstances
  - All compressor components are easily accessible on site, minimising downtime
  - All-aluminium Novation™ micro-channel heat exchanger (MCHE) (30RB-30RBP) with higher corrosion resistance than a conventional coil. The all-aluminium construction eliminates the formation of galvanic currents between aluminium and copper which can corrode the coil in saline or corrosive atmospheres
  - V-coil design to protect the coils against hail impact
  - Optional Enviro-shield® anti-corrosion coil coating for use in moderately corrosive environments. Coating applied through conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Immersion in a bath to ensure 100% coverage. No heat transfer variation, tested for 4000 hours in salt spray per ASTM B117
  - Optional Super Enviro-shield® anti-corrosion coil coating for use in extremely corrosive environments. Extremely durable and flexible epoxy polymer coating applied on the outer surface of the coil using an electro coating process with a final UV protective topcoat. Minimal heat transfer variation, tested for 6000 hours in salt spray per ASTM B117, superior impact resistance per ASTM D2794
  - Electronic flow switch. Auto-setting according to cooler size and fluid type.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and is designed, constructed and operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Choosing the right air conditioning system is one of the main considerations when designing a green building. For buildings with a load that varies throughout the year, the AquaSnap® 30RBP unit offers a solution to this important challenge.

A number of green building certification programmes exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new AquaSnap® range helps customers affected by the LEED® building certification.

## AQUASNAP® - CUSTOMER BENEFITS

### Energy saving certificate

The AquaSnap® 30RBP unit is eligible for energy saving certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and speed)
- Floating Low pressure control
- Variable speed on asynchronous fan motor
- Variable speed on asynchronous pump motor
- Partial or total recovery of energy

For more details about financial incentives in France, please refer to the "CEE product sheet".

### AquaSnap® and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a major initiative set up to assess the design, construction and operation of green buildings with points assigned in seven credit categories:

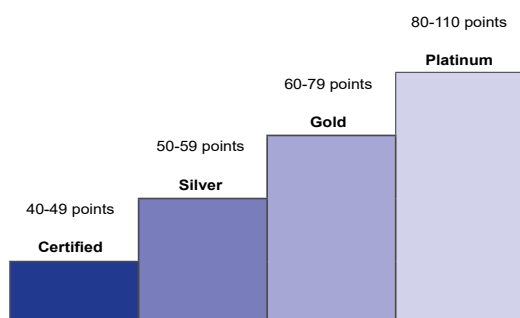
- Sustainable Sites (SS),
- Water efficiency (WE),
- Energy and atmosphere (EA),
- Materials and resources (MR)
- Indoor environmental quality (IEQ)
- Innovation in design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain the same, the distribution of points varies depending on the type of building and the requirements of the application, based on whether it is a new construction, school, core & shell, retail or healthcare.

All programmes now use the same point scale:

#### 110 LEED® points available



The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impact of each component or sub-system on the building as a whole.

While the LEED® green building certification programmes do not certify products or services, choosing the right products, systems or service programmes is critical to obtaining LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilation and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

### EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

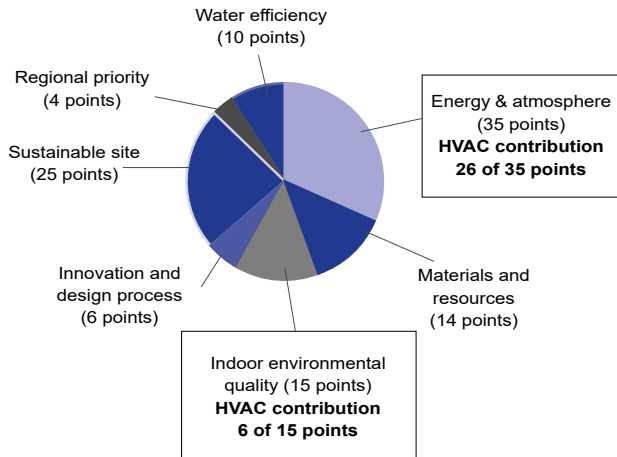
Carrier is the first HVAC manufacturer to provide PEPs for liquid chillers with not only the 8 mandatory indicators, but all 27 indicators.

The PEP for the AquaSnap® 30RBP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

## AQUASNAP® - CUSTOMER BENEFITS

### Designed to support Green Building Design

#### Overview of LEED® for new construction and major renovations



**NOTE:** This section describes the prerequisites and credit requirements in LEED® for new construction and is directly related to 30RBP units. Other prerequisites and credit requirements are not directly and purely related to the air conditioning unit itself, but more to the control of the HVAC system as a whole.

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: fundamental commissioning of energy management systems;
- EA credit 3: enhanced commissioning (2 points);
- EA credit 5: measurements and verification (3 points).

**NOTE:** Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).

The new AquaSnap® units from Carrier can help building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- EA prerequisite 2: minimum energy performance
- 30RBP units exceed the energy efficiency requirements of ASHRAE 90.1-2007; therefore they satisfy the prerequisites.
- EA prerequisite 3: fundamental refrigerant management  
30RBP units do not use chlorofluorocarbon (CFC) refrigerants, thus satisfying the prerequisites.
- EA credit 1: Optimise energy performance (1 to 19 points)  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. 30RBP units, which are designed for high performance especially during part load operation, help to reduce the building's energy consumption and therefore to gain points for this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used to analyse energy. It meets the modelling requirements for this credit and produces reports which can be easily transferred to LEED® charts.
- EA credit 4: Enhanced refrigerant management (2 points)  
With this credit, LEED® awards systems that minimise the installed system's Ozone Depletion Potential (ODP) and Global Warming Potential (GWP). 30RBP units use a reduced R-32 charge and therefore help satisfy the requirements of this LEED® credit.

## 30RB TECHNICAL OVERVIEW



### NOVATION™ SECOND GENERATION MICRO CHANNEL HEAT EXCHANGERS (30RB)

- Increased reliability with new aluminium alloy
- Significantly reduces the refrigerant charge (-40% compared to Cu/Al coils)
- Improved thermal performance, improved efficiency and lower pressure drops compared to Cu/Al coils
- Enviro-Shield® coating for mildly corrosive environments
- Super Enviro-Shield® coating for highly corrosive environments (industrial or marine applications)
- Easy cleaning with high pressure air or water washer



### SIXTH GENERATION FLYING BIRD™ FIXED-SPEED FANS

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with AC motor technology



### SmartVu™ control

- 9 languages available
- 4.3" user-friendly touch screen
- All main parameters displayed on one screen
- Direct access to the unit's technical drawings and the main service documents
- Very easy online monitoring
- Easy and secure access to unit parameters
- Optional BACnet, J-Bus or LON communication interfaces



### SCROLL COMPRESSORS



### REDUCED REFRIGERANT CHARGE



### HIGH-EFFICIENCY BRAZED PLATE HEAT EXCHANGER

- Latest generation asymmetrical type
- Low pressure drop

### SMART ENERGY CONSUMPTION MONITORING

- Real time energy consumption estimation (kWh)
- Estimation of the supplied cooling/heating energy (kWh)
- Instantaneous and average energy efficiency values under real operating conditions
- Remote monitoring with "Connected service"

Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version

## 30RBP TECHNICAL OVERVIEW



### SIXTH GENERATION FLYING BIRD™ VARIABLE-SPEED FANS

- Carrier fan blade design inspired by nature
- Patented algorithm to control the fan speed
- Dedicated variator or EC type motor
- Night mode operation



### PUMP SPEED REGULATOR



### VARIABLE-SPEED PUMP

- Water flow electronic control and reading
- Automatic protection of the pump against low pressure
- Multiple control options:
  - Constant flow with low speed mode on standby
  - Variable flow based on pressure difference or constant temperature



## TECHNICAL INSIGHTS

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced Ethernet-based communication technology (IP) and a user-friendly and intuitive user interface with 4.3-inch colour touch screen.

- Energy management configuration
  - Internal timer: Controls chiller on/off times and operation at a second setpoint
  - Setpoint offset based on the outdoor air temperature
  - Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault.
  - Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and cooling capacity, and instantaneous and average energy efficiency values.
  - For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.
- Integrated features
  - Night mode: Capacity and fan speed limitation for reduced noise level
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Advanced communication features
  - Easy, high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
  - Storage of maintenance manual, wiring diagram and spare parts list
  - Display of trend curves for the main values
  - Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
  - Blackbox memory

### ■ 4"3 SmartVu™ user interface



- Intuitive and user-friendly 4"3 inch touch screen interface
- Concise and clear information is available in local languages
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit
- Dual setpoint: closing of this contact activates a second setpoint (e.g.: unoccupied mode).
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value.
- Operation indication: This volt-free contact indicates that the chiller is operating (refrigeration).
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits.

## TECHNICAL INSIGHTS

### Energy management module (option)

The Energy Management Module offers extended remote control possibilities:

- Room temperature: enables the setpoint to be reset based on the indoor air temperature of the building (with Carrier thermostat).
- Setpoint reset: the cooling setpoint is reset based on a 4-20 mA signal.
- Demand limit: enables the maximum chiller power to be limited based on a 4-20 mA signal.
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller power or current to two predefined values.
- User safety: this contact can be used for any customer safety loop; opening the contact generates a specific alarm.
- Ice storage end: when ice storage has finished, this input is used to return to the second setpoint (unoccupied mode).
- Time schedule override: closing of this contact cancels the effects of the time schedule.
- Out of service: this signal indicates that the chiller is completely out of service.
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity.
- Alert indication: this volt-free contact indicates the need to carry out a maintenance operation or the presence of a minor fault.
- Boiler control: this on/off output controls an independent boiler to provide hot water.

## TECHNICAL INSIGHTS

### Novation™ heat exchangers with microchannel coil technology

Already used in the automotive and aeronautical industries for many years, the Novation™ micro-channel heat exchanger (MCHE) used in the AquaSnap® 30RB-30RBP liquid chillers is made entirely of aluminium. This packaged design significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminium) come into contact in traditional heat exchangers.

- From an energy efficiency point of view, Novation™ heat exchangers are approximately 10% more efficient than traditional coils and micro-channel coil technology enables a 40% reduction in the amount of refrigerant used in the chiller.
- The reduced depth of the Novation™ MCHE reduces air pressure losses by 50% and makes it much less susceptible to fouling (e.g. by sand). The Novation™ MCHE heat exchanger can be cleaned quickly using a high-pressure washer.
- To further enhance long-term performance and protect coils against premature deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.
  - The Novation™ MCHE with Enviro-Shield® protection (option 262) is recommended for installations in moderately corrosive environments. The Enviro-Shield® protection uses corrosion inhibitors which actively arrest oxidation in case of mechanical damage.
  - The Novation™ MCHE with exclusive Super Enviro-Shield® protection (option 263) is recommended for installations in corrosive environments. Super Enviro-Shield® protection comprises an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.
- After more than 7000 hours of testing based on various standards in Carrier group laboratories, the Novation™ MCHE with Super Enviro-shield® coating emerged as the best customer choice to minimise the harmful effects of corrosive atmospheres and ensure a long equipment life:
  - Best corrosion resistance per the ASTM B117/D610 test;
  - Best heat transfer performance per the Carrier Marine 1 test;
  - Proven reliability per the ASTM B117 test.



| Coil Types (ranked by performance)  | Visual Corrosion Evaluation | Heat Transfer Performance Degradation | Time to Failure | Test Campaign Conclusions |
|-------------------------------------|-----------------------------|---------------------------------------|-----------------|---------------------------|
| Super Enviro-shield® Novation™ MCHE | Very good                   | Good                                  | No coil leak    | Best                      |
| Super Enviro-shield® Cu/Al coil     | Very good                   | Very good                             | No coil leak    | Very good                 |
| Enviro-shield® Novation™ MCHE       | Very good                   | Good                                  | No coil leak    | Very good                 |
| Al/Al coil                          | Very good                   | Good                                  | No coil leak    | Very good                 |
| Novation™ MCHE                      | Good                        | Very good                             | No coil leak    | Good                      |
| Cu/Cu coil                          | Good                        | Good                                  | Leak            | Acceptable                |
| Blygold® Cu/Al coil                 | Good                        | Good                                  | No coil leak    | Acceptable                |
| Precoat Cu/Al coil                  | Bad                         | Bad                                   | No coil leak    | Bad                       |
| Cu/Al coil                          | Bad                         | Bad                                   | No coil leak    | Bad                       |

## TECHNICAL INSIGHTS

### New generation of Flying Bird VI™ fans with AC or EC motors (optional)



The 30RB-RBP unit uses Carrier's sixth generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and a wide operating range. The fans use Carrier patented rotating shroud technology and back-swept blades with a wave-serration trailing edge inspired by nature.

They were designed and optimised for the air management system configuration and heat exchanger technology used in the 30RB-RBP unit.

The fans and their impellers use Carrier's robust and proven injection moulded composite thermoplastic construction.

On the 30RBP with option 17, the fans are driven by an EC motor, also known as brushless DC, with dedicated electronics to manage commutation. This offers high precision for fans that require higher efficiency and variable speed. The fans meet the latest European Ecodesign requirements for fan efficiency.

#### EC motor (option 17)



## OPTIONS

| Options   | No.  | Description  | Advantages  | 30RB/RBP<br>170R-950R |
|---|------|--|---|-----------------------|
| Corrosion protection, traditional coils         | 3A   | Fins made of pre-treated aluminium (polyurethane and epoxy)  | Improved corrosion resistance, recommended for moderate marine and urban environments                                   | No                    |
| Low-temperature brine solution                  | 6B   | Low temperature chilled water production down to -8 °C with ethylene or propylene glycol   | Covers specific applications such as ice storage and industrial processes   | 30RBP<br>170R-950R    |
| High-pressure static fans                       | 12   | Unit equipped with high-pressure variable-speed static fans (maximum 200 Pa), each fan being equipped with a connection flange for connection to the ducting system.   | Ducted fan discharge, optimised fan speed control, based on the operating conditions and system characteristics         | 30RBP<br>170R-950R    |
| Very low noise level                            | 15LS | Acoustic compressor enclosure and low-speed fans   | Noise level reduction for sensitive sites   | 170R-950R             |
| EC fans   | 17   | Unit equipped with EC fans   | Improves the unit's energy efficiency   | 30RBP<br>170R-950R    |
| Protection grilles                              | 23   | Metallic protection grilles  | Coil protection against possible impact   | 170R-950R             |
| Soft starter per circuit                        | 25E  | Soft starter on each circuit   | Economical solution for reduced start-up current  | 170R-950R             |
| Soft starter per compressor                     | 25   | Electronic starter on each compressor  | Reduced start-up current  | 170R-410R             |
| Water exchanger frost protection                | 41   | Electric heater on the water type heat exchanger and the water duct  | Water type heat exchanger module frost protection for an outdoor air temperature between 0 °C and -20 °C                | 170R-950R             |
| Water manifold antifreeze protection            | 41D  | Electric heater on the water manifold pipe system  | Water manifold antifreeze protection down to an outdoor temperature of -20 °C   | No                    |
| Exchanger and hydraulic module frost protection | 42A  | Electrical heaters on the water type heat exchanger, water pipes, hydraulic module and expansion tank  | Water type heat exchanger and hydraulic module frost protection down to an outdoor air temperature of -20 °C            | 170R-950R             |
| Exchanger and hydraulic module frost protection | 42B  | Electrical heater on the water type heat exchanger, water pipes, hydraulic module and optional expansion tank & buffer tank  | Water type heat exchanger and hydraulic module frost protection down to an outdoor air temperature of -20 °C            | 170R-950R             |
| Partial heat recovery                           | 49   | Unit equipped with one desuperheater on each refrigerant circuit   | Production of free high-temperature hot water simultaneously with chilled water production (or hot water for heat pump) | 170R-950R             |
| Total heat recovery                             | 50   | Unit equipped with additional heat exchanger in series with the condenser coils.   | Production of free hot water, adjustable on demand  | 30RBP<br>170R-950R    |
| Master/slave operation                          | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with runtime balancing                                 | 170R-950R             |
| Compressor suction and discharge valves         | 92A  | Shut-off valves on the common compressor suction and discharge pipes   | Simplified maintenance. Possibility to store the refrigerant charge in the cooler or condenser side during servicing    | 170R-950R             |
| Evaporator single HP pump                       | 116R | Evaporator hydraulic module equipped with high-pressure fixed-speed pump, drain valve, air vent and pressure sensors. Please refer to the dedicated chapter for more details (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play)   | 170R-550R             |
| Dual HP pump hydraulic module                   | 116S | Dual high pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)                          | Quick and easy installation (plug & play)   | 170R-550R             |
| LP single-pump hydraulic module                 | 116T | Single low pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components)                                   | Quick and easy installation (plug & play)   | 170R-550R             |
| LP dual-pump hydraulic module                   | 116U | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components)  | Quick and easy installation (plug & play)   | 170R-550R             |



## OPTIONS

| Options   | No.  | Description   | Advantages   | 30RB/RBP<br>170R-950R |
|---|------|---|--|-----------------------|
| Variable-speed single HP pump                                 | 116V | Single low pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank included; option with built-in hydraulic safety components available)  | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | 170R-950R             |
| Variable-speed dual high-pressure pump.                       | 116W | Dual high pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)  | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | 170R-950R             |
| High energy efficiency underfloor heating/cooling application | 119C | Optimisation of the refrigerant and control circuit for the underfloor heating/cooling system application   | Improvement of performances and reduction of energy costs for the underfloor heating/cooling application   | No                    |
| Lon communication gateway                                     | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication BUS to a centralised building management system   | 170R-950R             |
| ModBus over IP and RS485 communication gateway                | 149B | Two-directional high-speed communication using the ModBus over Ethernet network (IP) protocol   | Easy, quick connection via Ethernet line to a building technical management system. Allows access to several unit parameters.  | 170R-950R             |
| Bacnet over IP  | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by Ethernet line to a BMS. Allows access to multiple unit parameters  | 170R-950R             |
| Energy management module                                      | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module section  | Extended remote control capabilities (setpoint reset, ice storage end, demand limits, boiler on/off command...)  | 170R-950R             |
| Contact for refrigerant leak detection                        | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly (the leak detector itself must be supplied by the customer)  | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 170R-950R             |
| Phase controller  | 159B | Phase controller on the power supply  | Reinforced protection of the compressors by monitoring rotation, the absence and asymmetry of the phases, and the over- or under-voltage of the electricity network                  | Dec. 2022             |
| Compliance with Russian regulations                           | 199  | EAC certification   | Compliance with Russian regulations  | 170R-950R             |
| Coil defrost resistance heaters                               | 252  | Electric heaters under the coils and the condensate pans  | Prevents frost formation on the coils; compulsory in heating mode if the outdoor temperature is below 0 °C   | No                    |
| Insulation of the evaporator inlet/outlet refrigerant lines   | 256  | Thermal insulation of the evaporator inlet/outlet refrigerant lines, with UV-resistant flexible connection and insulation   | Prevents condensation on the evaporator inlet/outlet refrigerant lines   | 170R-950R             |
| Enviro-Shield anti-corrosion protection®                      | 262  | Coating applied using a conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. Minimal heat transfer variation, tested to withstand more than 4000 hours of salt spray as per ASTM B117 | Improved corrosion resistance, recommended for use in moderately corrosive environments  | 170R-950R             |
| Super Enviro-Shield anti-corrosion protection®                | 263  | Extremely durable and flexible epoxy polymer coating applied by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested to withstand more than 6000 hours of constant neutral salt spray as per ASTM B117, improved impact resistance as per ASTM D2794           | Improved corrosion resistance, recommended for use in extremely corrosive environments   | 170R-950R             |
| Welded evaporator connection kit                              | 266  | Victaulic piping connections with welded joints   | Easy installation  | 170R-950R             |
| Compressor enclosure  | 279a | Compressor with enclosure   | Improved aesthetics, compressor protection against external elements (dust, sand, water...)  | 170R-950R             |
| EMC class. C2, as per EN 61800-3                              | 282  | Additional RFI filters on the unit power line   | Reduces electromagnetic interferences in compliance with the emissions level required in category C2 to enable it to be used in the first environment ("residential environment")    | 170R-950R             |

## OPTIONS

| Options  | No.  | Description   | Advantages   | 30RB/RBP<br>170R-950R                   |
|--|------|---|--|---|
| 230 V electrical plug                              | 284  | 230 VAC power source provided with plug socket and transformer (180 VA, 0.8 A)  | Enables connection of a laptop or an electrical device during system start-up or maintenance   | 170R-950R                               |
| Expansion tank                                     | 293  | 6-bar expansion tank built into the hydraulic module (requires hydraulic module option)   | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure   | 170R-950R                               |
| Electric energy meter                              | 294  | Electric energy meter. Display of energy consumption, instantaneous (U, V, I) and cumulative (kWh), on the machine interface, data available on the communication bus | Permits the acquisition and monitoring (remotely via the CMS/BMS) of the energy used.  | Dec. 2022                               |
| Ultra fast capacity recovery                       | 295+ | Built-in battery to allow an ultra-rapid restart whilst maintaining the unit's reliability.   | Full capacity recovery in less than one minute after a power failure. Meets the requirements of typical critical missions applications. (process, data centres)        | Dec. 2022                               |
| Screwed water connection sleeves for desuperheater | 303  | DSH connections with screw connection sleeves   | Easy to install. Allows unit connection to a screw connector   | 170R-950R                               |
| Welded connection sleeve for desuperheater         | 304  | DSH inlet/outlet welded connection sleeves  | Easy installation  | 170R-950R                               |
| Free cooling (total)                               | 305A | Free cooling hydraulic coils on the two refrigerant circuits  | Energy savings for applications which require cooling all year round (e.g.: industrial processes, data centres)  | 170R-950R                               |
| Free cooling (partial)                             | 305B | Free cooling hydraulic coils on a refrigerant circuit   | Energy savings for applications with reduced demand for cooling in the winter (e.g. office space with computer room, meeting rooms)                                    | 170R-950R                               |
| Water buffer tank module                           | 307  | Built-in water buffer tank module   | Avoids short cycle on compressors and ensures stable water in the loop   | 170R-950R                               |
| Free cooling dry cooler management                 | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box  | Easy system management, control capabilities extended to a drycooler used in Free Cooling mode   | 170R-950R                               |
| Compliance with UAE regulations                    | 318  | Additional label on the unit with input power, current and EER under rated conditions in accordance with AHRI 550/590   | Compliance with ESMA standard UAE 5010-5:2016.   | 170R-950R                               |
| Compliance with Qatar regulations                  | 319  | Specific name plate on the unit with 415 V +/-6% power supply   | Compliance with KAHRAMAA regulations in Qatar  | 170R-950R                               |
| Water manifold                                     | 325A | Pipe system ensuring a single hydraulic connection point  | Easy installation  | No                                      |
| Installation or application process outside Europe | 326  | Specific management of option compatibility   | Permits non-standard option compatibility for HVAC application in the EU   | 30RB<br>170R-380R<br>30RBP<br>170R-950R |
| Compliance with Moroccan regulations               | 327  | Specific regulatory documentation   | Compliance with Moroccan regulations   | 170R-950R                               |
| Delivered wrapped in plastic film                  | 331  | Unit wrapped in a plastic cover and strapped onto a wooden pallet.  | Protects against dust and external soiling of the unit during storage and transport.   | 170R-950R                               |
| IT neutral system                                  | 333  | Specific earthing which insulates the earth neutral point.  | The device continues to operate after the first electrical insulation fault thereby ensuring continuity of operations (industrial processes, data centres, hospitals). | Dec. 2022                               |



## FREE COOLING SYSTEM (OPTION 305A – 305B)

Reducing operating costs and protecting the environment have become the key concerns, both for air conditioning applications, and for industrial processes and cooling data centres.

The free cooling option allows significant energy savings to be made in all applications that require cooling throughout the year, particularly when used in colder climates. In these regions, free cooling can be used to fulfil a large proportion of the cooling requirements both economically and in a way that respects the environment

In free cooling mode, the compressors are stopped, and only the fans are in operation. The SmartVu™ control automatically switches from compressor cooling mode to free cooling mode depending on the chiller heat load and the temperature differential between the chilled water outlet and the ambient air.

Important: to optimise cooler performance, you are recommended to use the leaving water temperature setpoint offset function.

### Operating principle

The unit's SmartVu™ control maximises the use of the free cooling based on the needs of the application and the climate conditions. Once the chilled water/ambient air temperature differential exceeds the threshold value by 1K, the SmartVu™ control activates free cooling and adjusts the air flow rate to optimise the unit's energy performance. If the operating conditions permit the free cooling to operate on its own to meet the requirements, the compressors are stopped. Two motorised valves direct the chilled water to the free cooling coils.

### Three operating modes are possible:

#### Summer (warm weather season): Mechanical cooling mode

The liquid chiller meets the needs traditionally using the refrigerant circuit. The fluid bypasses the free cooling coils and is cooled by the evaporator.

#### Mid-season: Combination mode

It is possible to operate in combination free cooling and mechanical cooling mode. This helps optimise free cooling operations while covering the system's cooling requirements. The fluid is pre-cooled by the free cooling coils positioned in series with the refrigerant circuit evaporator which finalises cooling of the fluid.

#### Winter (cold weather season): Free cooling mode

Depending on the capacity requested and the setpoint, all of the requirements may be fulfilled by the free cooling in this operating mode without the fans running, thereby ensuring optimum energy efficiency.

### Adaptations to requirements

Depending on the requirements of the user, the AquaSnap free cooling is available with 2 performance levels:

- 305A total hydraulic free cooling on the 2 circuits, specifically designed for installations which have major cooling requirements all year round (industrial processes, data centres)
- 305B partial hydraulic free cooling on 1 circuit, designed for installations which have limited cooling requirements during the winter (offices, hospitals, etc.)

### Advantages of the built-in free cooling system

- The free cooling function is independent of the refrigerant circuit, which increases reliability and facilitates maintenance compared to free cooling built into the refrigerant circuit (DX FC).
- The Hydraulic Free Cooling design is intended to expand the scope of application compared to the Free Cooling refrigerant concept (DX FC) by enabling Free Cooling mode to be activated by a higher outdoor temperature, thereby allowing for greater energy savings.
- The built-in Hydraulic Free Cooling version developed based on the AquaSnap® range allows all of the advantages of a free cooling solution to be combined with the compact design of the base units.



## FREE COOLING SYSTEM (OPTION 305A – 305B)

## Physical properties of 30RBP units with the Free Cooling option

| 30RBP  |      |                                       |       | 170R                                     | 190R  | 210R  | 230R  | 270R  | 310R  | 340R  | 380R  | 410R  | 450R  |       |
|--|------|---------------------------------------|-------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling  |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*                        | CA1  | Nominal capacity                      | kW    | 181                                      | 198   | 220   | 239   | 288   | 328   | 366   | 401   | 440   | 475   |       |
|  |      | EER                                   | kW/kW | 3,28                                     | 3,46  | 3,31  | 3,25  | 3,12  | 3,23  | 3,16  | 3,21  | 3,16  | 3,22  |       |
| FREE COOLING   |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Total free cooling<br>option (305A)                                | CFC1 | Nominal capacity                      | kW    | 182                                      | 243   | 243   | 243   | 243   | 303   | 303   | 364   | 364   | 425   |       |
|  |      | Free cooling EER                      | kW/kW | 25,86                                    | 25,43 | 25,43 | 25,43 | 25,76 | 25,76 | 25,94 | 25,55 | 25,71 | 26,07 |       |
|  |      | Pressure drops                        | kPa   | 94                                       | 112   | 112   | 112   | 102   | 107   | 101   | 117   | 112   | 103   |       |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 88,0                                     | 89,0  | 89,0  | 89,0  | 89,0  | 90,0  | 90,0  | 90,5  | 91,0  | 91,0  |       |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 69,0                                     | 70,5  | 70,5  | 70,5  | 70,5  | 70,5  | 70,5  | 71,0  | 71,5  | 71,0  |       |
| Partial free cooling<br>option (305B)                              | CFC1 | Nominal capacity                      | kW    | 121                                      | 121   | 121   | 121   | 121   | 121   | 121   | 145   | 145   | 182   |       |
|  |      | Free cooling EER                      | kW/kW | 25,78                                    | 25,78 | 25,78 | 25,78 | 25,87 | 25,97 | 26,00 | 19,15 | 19,14 | 26,46 |       |
|  |      | Pressure drops                        | kPa   | 80                                       | 80    | 80    | 80    | 77    | 75    | 74    | 81    | 79    | 75    |       |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 86,0                                     | 86,0  | 86,0  | 86,0  | 86,0  | 86,0  | 86,0  | 87,5  | 88,0  | 87,5  |       |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 67,5                                     | 67,5  | 67,5  | 67,5  | 67,5  | 66,5  | 66,5  | 68,0  | 68,5  | 67,5  |       |
| Unit + option<br>15LS <sup>(3)</sup><br>Full load<br>performances* | CA1  | Nominal capacity                      | kW    | 171                                      | 189   | 208   | 226   | 270   | 309   | 343   | 377   | 413   | 447   |       |
|  |      | EER                                   | kW/kW | 3,06                                     | 3,29  | 3,08  | 3,03  | 2,82  | 2,96  | 2,85  | 2,94  | 2,86  | 2,94  |       |
| FREE COOLING   |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Total free cooling<br>option (305A)                                | CFC1 | Nominal capacity                      | kW    | 148                                      | 197   | 197   | 197   | 197   | 247   | 247   | 296   | 296   | 345   |       |
|  |      | Free cooling EER                      | kW/kW | 39,92                                    | 39,76 | 39,76 | 39,76 | 40,28 | 40,58 | 41,01 | 40,14 | 40,52 | 41,39 |       |
|  |      | Pressure drops                        | kPa   | 65                                       | 77    | 77    | 77    | 71    | 73    | 70    | 80    | 77    | 71    |       |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 79,5                                     | 80,5  | 80,5  | 80,5  | 81,0  | 82,0  | 82,0  | 82,0  | 82,5  | 82,5  |       |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 60,5                                     | 62,0  | 62,0  | 62,0  | 62,5  | 63,0  | 63,0  | 62,5  | 63,0  | 62,5  |       |
| Partial free cooling<br>option (305B)                              | CFC1 | Nominal capacity                      | kW    | 98                                       | 98    | 98    | 98    | 99    | 99    | 99    | 118   | 118   | 148   |       |
|  |      | Free cooling EER                      | kW/kW | 42,39                                    | 42,39 | 42,39 | 42,39 | 42,73 | 43,05 | 43,17 | 30,35 | 30,48 | 43,20 |       |
|  |      | Pressure drops                        | kPa   | 55                                       | 55    | 55    | 55    | 54    | 52    | 51    | 56    | 55    | 52    |       |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 77,5                                     | 77,5  | 77,5  | 77,5  | 78,0  | 78,0  | 78,0  | 79,0  | 79,5  | 79,0  |       |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 59,0                                     | 59,0  | 59,0  | 59,0  | 59,5  | 59,0  | 59,0  | 59,5  | 60,0  | 59,0  |       |
| Total Free Cooling - Option 305A                                   |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Free cooling coil  |      |                                       |       | All-aluminium micro-channel coils (MCHE) |       |       |       |       |       |       |       |       |       |       |
| Quantity   |      |                                       |       | 3  | 4     | 4     | 4     | 4     | 5     | 5     | 6     | 6     | 7     |       |
| Hydraulic connection   |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Connection   |      |                                       |       | in                                       | 3"    | 3"    | 3"    | 3"    | 3"    | 4"    | 4"    | 4"    | 4"    | 4"    |
| External diameter  |      |                                       |       | mm                                       | 88,9  | 88,9  | 88,9  | 88,9  | 88,9  | 114,3 | 114,3 | 114,3 | 114,3 | 114,3 |
| Additional water volume  |      |                                       |       | l  | 60    | 72    | 72    | 72    | 72    | 113   | 113   | 126   | 126   | 200   |
| Weight <sup>(4)</sup>  |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Additional weight (without water)                                  |      |                                       |       | kg                                       | 225   | 266   | 266   | 266   | 266   | 357   | 359   | 395   | 397   | 516   |
| Additional weight (during operation)                               |      |                                       |       | kg                                       | 287   | 341   | 341   | 341   | 341   | 475   | 477   | 526   | 528   | 725   |
| Operation  |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Max. operating pressure, water side                                |      |                                       |       | bar                                      | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Partial Free Cooling - Option 305B                                 |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Free cooling coil  |      |                                       |       | All-aluminium micro-channel coils (MCHE) |       |       |       |       |       |       |       |       |       |       |
| Quantity   |      |                                       |       | 2  | 2     | 2     | 2     | 2     | 2     | 2     | 3     | 3     | 3     |       |
| Hydraulic connection   |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Connection   |      |                                       |       | in                                       | 3"    | 3"    | 3"    | 3"    | 3"    | 4"    | 4"    | 4"    | 4"    | 4"    |
| External diameter  |      |                                       |       | mm                                       | 88,9  | 88,9  | 88,9  | 88,9  | 88,9  | 114,3 | 114,3 | 114,3 | 114,3 | 114,3 |
| Additional water volume  |      |                                       |       | l  | 48    | 48    | 48    | 48    | 48    | 58    | 58    | 75    | 75    | 101   |
| Weight <sup>(4)</sup>  |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Additional weight (without water)                                  |      |                                       |       | kg                                       | 178   | 178   | 178   | 178   | 179   | 210   | 212   | 248   | 250   | 306   |
| Additional weight (during operation)                               |      |                                       |       | kg                                       | 227   | 227   | 227   | 227   | 228   | 271   | 273   | 326   | 328   | 411   |
| Operation  |      |                                       |       |  |       |       |       |       |       |       |       |       |       |       |
| Max. operating pressure, water side                                |      |                                       |       | bar                                      | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     |

\* In accordance with EN14511-3:2018.

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 35 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m<sup>2</sup>, kWCFC1 Free cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 0 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m<sup>2</sup>, kW(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L<sub>w</sub>(A).

(3) Options: 15LS = Very low noise level, 116V = Variable speed high pressure single-pump hydraulic module,

(4) Values are guidelines only. Refer to the unit name plate.

Heating mode/COP/SCOP related to the 30RQ/30RQP heat pump version



## FREE COOLING SYSTEM (OPTION 305A – 305B)

| 30RBP  |      |                                       |       | 480R                                     | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R  |
|--|------|---------------------------------------|-------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling  |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load performances*                     | CA1  | Nominal capacity                      | kW    | 512                                      | 585   | 652   | 718   | 767   | 827   | 852   | 932   | 994   |
|  |      | EER                                   | kW/kW | 3,16                                     | 3,15  | 3,23  | 3,22  | 3,12  | 3,14  | 3,10  | 3,06  | 2,96  |
| FREE COOLING   |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Total free cooling option<br>(305A)                          | CFC1 | Nominal capacity                      | kW    | 425                                      | 485   | 546   | 607   | 607   | 667   | 667   | 728   | 728   |
|  |      | Free cooling EER                      | kW/kW | 26,12                                    | 25,96 | 25,99 | 25,77 | 25,77 | 25,65 | 25,65 | 25,41 | 25,41 |
|  |      | Pressure drops                        | kPa   | 102                                      | 110   | 111   | 120   | 120   | 126   | 126   | 136   | 136   |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 91,0                                     | 91,5  | 92,5  | 93,0  | 93,0  | 93,0  | 93,0  | 93,5  | 94,0  |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 71,0                                     | 71,5  | 72,0  | 72,5  | 72,5  | 72,0  | 72,0  | 72,5  | 73,0  |
| Partial free cooling option<br>(305B)                        | CFC1 | Nominal capacity                      | kW    | 182                                      | 242   | 204   | 262   | 262   | 303   | 303   | 364   | 364   |
|  |      | Free cooling EER                      | kW/kW | 26,46                                    | 26,58 | 20,36 | 20,91 | 20,91 | 26,66 | 26,66 | 26,57 | 26,57 |
|  |      | Pressure drops                        | kPa   | 75                                       | 79    | 77    | 82    | 82    | 80    | 80    | 86    | 86    |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 87,5                                     | 88,5  | 89,0  | 90,0  | 90,0  | 89,5  | 89,5  | 90,5  | 91,0  |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 67,5                                     | 68,5  | 68,5  | 69,5  | 69,5  | 68,5  | 68,5  | 69,5  | 70,0  |
| Unit + option 15LS <sup>(3)</sup><br>Full load performances* | CA1  | Nominal capacity                      | kW    | 481                                      | 549   | 613   | 677   | 719   | 777   | 798   | 873   | 925   |
|  |      | EER                                   | kW/kW | 2,85                                     | 2,85  | 2,94  | 2,94  | 2,82  | 2,84  | 2,79  | 2,76  | 2,63  |
| FREE COOLING   |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Total free cooling option<br>(305A)                          | CFC1 | Nominal capacity                      | kW    | 345                                      | 395   | 444   | 493   | 493   | 543   | 543   | 592   | 592   |
|  |      | Free cooling EER                      | kW/kW | 41,49                                    | 41,14 | 41,23 | 40,73 | 40,73 | 40,47 | 40,47 | 39,92 | 39,92 |
|  |      | Pressure drops                        | kPa   | 70                                       | 75    | 76    | 82    | 82    | 86    | 86    | 93    | 93    |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 83,0                                     | 83,5  | 85,0  | 85,0  | 85,0  | 85,5  | 84,5  | 85,5  | 86,0  |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 63,0                                     | 63,5  | 64,0  | 64,5  | 64,5  | 64,5  | 63,5  | 64,5  | 65,0  |
| Partial free cooling option<br>(305B)                        | CFC1 | Nominal capacity                      | kW    | 148                                      | 197   | 166   | 213   | 213   | 247   | 247   | 296   | 296   |
|  |      | Free cooling EER                      | kW/kW | 43,24                                    | 43,63 | 32,85 | 34,02 | 34,02 | 44,19 | 44,19 | 44,26 | 44,26 |
|  |      | Pressure drops                        | kPa   | 52                                       | 55    | 53    | 56    | 56    | 56    | 56    | 59    | 59    |
|  |      | Sound power <sup>(1)</sup>            | dB(A) | 79,5                                     | 80,5  | 81,0  | 82,0  | 82,0  | 82,0  | 81,0  | 82,5  | 83,0  |
|  |      | Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 59,5                                     | 60,5  | 60,5  | 61,5  | 61,5  | 61,0  | 60,0  | 61,5  | 62,0  |
| Total Free Cooling - Option 305A                             |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Free cooling coil  |      |                                       |       | All-aluminium micro-channel coils (MCHE) |       |       |       |       |       |       |       |       |
| Quantity   |      |                                       |       | 7  | 8     | 9     | 10    | 10    | 11    | 11    | 12    | 12    |
| Hydraulic connection   |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Connection   |      |                                       |       | in                                       | 4"    | 4"    | 5"    | 5"    | 5"    | 5"    | 5"    | 5"    |
| External diameter  |      |                                       |       | mm                                       | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Additional water volume                                      |      |                                       |       | l  | 200   | 213   | 298   | 310   | 310   | 351   | 351   | 364   |
| Weight <sup>(4)</sup>  |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Additional weight (without water)                            |      |                                       |       | kg                                       | 515   | 556   | 662   | 700   | 700   | 814   | 814   | 851   |
| Additional weight (during operation)                         |      |                                       |       | kg                                       | 724   | 778   | 972   | 1023  | 1023  | 1180  | 1180  | 1230  |
| Operation  |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Max. operating pressure, water side                          |      |                                       |       | bar                                      | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| Partial Free Cooling - Option 305B                           |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Free cooling coil  |      |                                       |       | All-aluminium micro-channel coils (MCHE) |       |       |       |       |       |       |       |       |
| Quantity   |      |                                       |       | 3  | 4     | 4     | 5     | 5     | 5     | 5     | 6     | 6     |
| Hydraulic connection   |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Connection   |      |                                       |       | in                                       | 4"    | 4"    | 5"    | 5"    | 5"    | 5"    | 5"    | 5"    |
| External diameter  |      |                                       |       | mm                                       | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| Additional water volume                                      |      |                                       |       | l  | 101   | 120   | 186   | 198   | 198   | 205   | 205   | 224   |
| Weight <sup>(4)</sup>  |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Additional weight (without water)                            |      |                                       |       | kg                                       | 305   | 346   | 406   | 443   | 443   | 499   | 499   | 536   |
| Additional weight (during operation)                         |      |                                       |       | kg                                       | 410   | 471   | 600   | 650   | 650   | 713   | 713   | 770   |
| Operation  |      |                                       |       |  |       |       |       |       |       |       |       |       |
| Max. operating pressure, water side                          |      |                                       |       | bar                                      | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     |

\* In accordance with EN14511-3:2018.

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 35 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m<sup>2</sup>. kW

CFC1 Free cooling mode conditions: evaporator water inlet/outlet temperature 17 °C/10 °C, outdoor air temperature at 0 °C, 30% Mono-Ethylene-Glycol, evaporator fouling factor 0 m<sup>2</sup>. kW

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 µPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).

(3) Options: 15LS = Very low noise level, 116V = Variable speed high pressure single-pump hydraulic module,

(4) Values are guidelines only. Refer to the unit name plate.



## FREE COOLING SYSTEM (OPTION 305A – 305B)

### Operating limits

#### 30RBP 170R-950R units

| Water-cooled heat exchanger               |    | Minimum | Maximum           |
|---|----|---------|-------------------|
| Water inlet temperature at start-up       | °C | 8       | 40                |
| Water outlet temperature during operation | °C | 5       | 20                |
| Air-cooled exchanger                      |    | Minimum | Maximum           |
| Outdoor ambient operating temperature     |    |         |                   |
| 30RBP units - Full load                   | °C | -20     | 47                |
| 30RBP units - Part load                   | °C | -20     | 52 <sup>(1)</sup> |

(1) Part load operation permitted above an outdoor air temperature of 47 °C. Contact the manufacturer to select a unit using the Carrier electronic catalogue.

All the free cooling units must be protected against freezing with 30% ethylene glycol in the cooling loop circuit (recommended value).

## PHYSICAL DATA, SIZES 170R TO 380R

| 30RB   |     |  |         | 170R  | 190R  | 210R  | 230R  | 270R  | 310R  | 340R  | 380R  |      |      |
|--|-----|--|---------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| Cooling  |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Standard unit<br>Full load performances*                     | CA1 | Nominal capacity                             | kW      | 172   | 188   | 207   | 227   | 270   | 311   | 346   | 380   |      |      |
|  |     | EER  | kW/kW   | 3,20  | 3,31  | 3,17  | 3,17  | 3,03  | 3,15  | 3,09  | 3,14  |      |      |
| Seasonal energy efficiency**                                 |     | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 4,28  | 4,35  | 4,28  | 4,24  | 4,26  | 4,43  | 4,44  | 4,25  |      |      |
|  |     | ηs cool <sub>12/7°C</sub>                    | %       | 168   | 171   | 168   | 167   | 167   | 174   | 175   | 167   |      |      |
|  |     | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 5,17  | 5,32  | 5,13  | 5,07  | 4,97  | 5,31  | 5,29  | 5,12  |      |      |
|  |     | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 5,21  | 5,25  | 5,19  | 5,10  | 5,10  | 5,32  | 5,37  | 5,39  |      |      |
|  |     | SEPR <sub>2/-8°C</sub> Process medium temp.  | kWh/kWh | 3,09  | 3,13  | 3,11  | 3,02  | 3,08  | 3,02  | 3,07  | 3,02  |      |      |
| Part Load integrated values                                  |     | IPLV.IP                                      | Btu/WWh | 16,58 | 16,99 | 16,55 | 16,62 | 16,58 | 17,09 | 17,16 | 16,82 |      |      |
| Part Load integrated values                                  |     | IPLV.SI                                      | kW/kW   | 4,83  | 4,95  | 4,82  | 4,84  | 4,81  | 4,97  | 4,98  | 4,89  |      |      |
| Unit + option 15LS<br>Full load performances*                | CA1 | Nominal capacity                             | kW      | 165   | 180   | 198   | 217   | 256   | 296   | 328   | 361   |      |      |
|  |     | EER  | kW/kW   | 3,05  | 3,24  | 3,04  | 3,02  | 2,81  | 2,96  | 2,86  | 2,94  |      |      |
| Seasonal energy efficiency**                                 |     | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 4,49  | 4,64  | 4,45  | 4,47  | 4,35  | 4,70  | 4,67  | 4,62  |      |      |
|  |     | ηs cool <sub>12/7°C</sub>                    | %       | 177   | 183   | 175   | 176   | 171   | 185   | 184   | 182   |      |      |
|  |     | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 5,27  | 5,52  | 5,22  | 5,26  | 4,99  | 5,66  | 5,55  | 5,43  |      |      |
|  |     | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 5,27  | 5,42  | 5,34  | 5,19  | 5,14  | 5,44  | 5,47  | 5,60  |      |      |
|  |     | SEPR <sub>2/-8°C</sub> Process medium temp.  | kWh/kWh | 3,06  | 3,11  | 3,08  | 3,00  | 3,04  | 3,09  | 3,14  | 3,09  |      |      |
| Sound levels   |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Standard unit  |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Sound power <sup>(1)</sup>                                   |     |  |         | dB(A) |       | 91,0  | 91,5  | 91,5  | 92,0  | 92,0  | 93,0  | 93,0 | 93,5 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |  |         | dB(A) |       | 58,5  | 59,5  | 59,5  | 60,0  | 60,0  | 60,5  | 60,5 | 61,0 |
| Unit + option 15LS <sup>(3)</sup>                            |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Sound power <sup>(1)</sup>                                   |     |  |         | dB(A) |       | 85,5  | 85,5  | 85,5  | 86,5  | 86,5  | 87,5  | 87,5 | 88,0 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |  |         | dB(A) |       | 53,0  | 53,5  | 53,5  | 54,5  | 54,5  | 55,5  | 55,5 | 55,5 |
| Dimensions - standard unit                                   |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Standard unit  |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Length   |     |  |         | mm    |       | 2410  | 2410  | 2410  | 2410  | 2410  | 3604  | 3604 | 3604 |
| Width  |     |  |         | mm    |       | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253 | 2253 |
| Height   |     |  |         | mm    |       | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324 | 2324 |
| Unit + option 307 <sup>(3)</sup>                             |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Length   |     |  |         | mm    |       | 3604  | 3604  | 3604  | 3604  | 3604  | 4798  | 4798 | 4798 |
| Operating weight <sup>(4)</sup>                              |     |  |         |       |       |       |       |       |       |       |       |      |      |
| Standard unit  |     |  |         | kg    |       | 1349  | 1397  | 1397  | 1521  | 1556  | 1995  | 2049 | 2211 |
| Unit + option 15LS <sup>(3)</sup>                            |     |  |         | kg    |       | 1432  | 1480  | 1480  | 1630  | 1665  | 2122  | 2176 | 2356 |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |     |  |         | kg    |       | 1567  | 1615  | 1615  | 1765  | 1811  | 2271  | 2371 | 2551 |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |     |  |         | kg    |       | 2550  | 2598  | 2598  | 2748  | 2794  | 3258  | 3357 | 3537 |

- \* In accordance with EN14511-3:2018.
- \*\* In accordance with EN14825:2018, average climate conditions
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. kW/W
- ηs cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
- SEER<sub>23/18 °C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**
- SEPR<sub>12/7 °C</sub> Values calculated in accordance with EN 14825:2016
- SEPR<sub>2/-8 °C</sub> **Values calculated in accordance with EN 14825:2016**
- IPLV.SI Calculated as per AHRI standard 551-591.
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).
- (3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module
- (4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL DATA, SIZES 170R TO 380R

| 30RB  |                    | 170R   | 190R  | 210R  | 230R  | 270R  | 310R  | 340R  | 380R  |
|---|--------------------|--|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |       |       |       |       |       |       |       |
| Circuit A   |                    | 1  | 1     | 1     | 2     | 2     | 2     | 2     | 3     |
| Circuit B   |                    | 2  | 2     | 2     | 2     | 2     | 3     | 3     | 3     |
| Number of power stages                                      |                    | 3  | 3     | 3     | 4     | 4     | 5     | 5     | 6     |
| <b>Unit PED category</b>                                    |                    | III  | III   | III   | III   | III   | III   | III   | III   |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L / GWP= 675 as per AR4  |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 6,1  | 9,3   | 9,3   | 10,9  | 11,3  | 11,9  | 12,7  | 17,3  |
|   | tCO <sub>2</sub> e | 4,1  | 6,3   | 6,3   | 7,4   | 7,6   | 8,0   | 8,6   | 11,7  |
| Circuit B   | kg                 | 10,9   | 10,9  | 10,9  | 10,9  | 11,3  | 16,7  | 17,5  | 17,3  |
|   | tCO <sub>2</sub> e | 7,4  | 7,4   | 7,4   | 7,4   | 7,6   | 11,3  | 11,8  | 11,7  |
| <b>Oil</b>  |                    |  |       |       |       |       |       |       |       |
| Circuit A   | l                  | 6,60   | 6,60  | 6,60  | 13,20 | 13,20 | 13,20 | 13,20 | 19,80 |
| Circuit B   | l                  | 13,20  | 13,20 | 13,20 | 13,20 | 13,20 | 19,80 | 19,80 | 19,80 |
| <b>Capacity control</b>                                     |                    | SmartVu™   |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 33   | 33    | 25    | 25    | 25    | 20    | 20    | 17    |
| <b>Condenser</b>  |                    | All-aluminium micro-channel coils (MCHE)   |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |  |       |       |       |       |       |       |       |
| Quantity  |                    | 3  | 4     | 4     | 4     | 4     | 5     | 5     | 6     |
| Maximum total air flow                                      | l/s                | 240  | 320   | 320   | 320   | 320   | 400   | 400   | 480   |
| Maximum rotation speed                                      | r/s                | 16   | 16    | 16    | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |       |       |       |       |       |       |       |
| Water volume  | l                  | 15   | 15    | 15    | 19    | 27    | 27    | 35    | 44    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |       |       |       |       |       |       |       |
| Pump  |                    | Centrifugal pump, monocell, 48.3 r/s, low or high pressure (as required), single or dual (as required) |       |       |       |       |       |       |       |
| Expansion tank volume (option)                              | l                  | 50   | 50    | 50    | 50    | 80    | 80    | 80    | 80    |
| Buffer tank volume (option)                                 | l                  | 550  | 550   | 550   | 550   | 550   | 550   | 550   | 550   |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |
| Connections   | inches             | 3  | 3     | 3     | 3     | 3     | 4     | 4     | 4     |
| External diameter   | mm                 | 88,9   | 88,9  | 88,9  | 88,9  | 88,9  | 114,3 | 114,3 | 114,3 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL DATA, SIZES 410R TO 950R

| 30RB   |     |  |         | 410R  | 450R  | 480R  | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R   |      |
|--|-----|--|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------|
| Cooling  |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Standard unit<br>Full load performances*                     | CA1 | Nominal capacity                             | kW      | 416   | 451   | 484   | 553   | 616   | 677   | 726   | 782   | 807   | 882   | 943,63 |      |
|  |     | EER  | kW/kW   | 3,09  | 3,14  | 3,09  | 3,08  | 3,15  | 3,14  | 3,06  | 3,07  | 3,04  | 3,00  | 2,92   |      |
| Seasonal energy efficiency**                                 |     | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 4,61  | 4,72  | 4,73  | 4,76  | 4,82  | 4,85  | 4,80  | 4,84  | 4,83  | 4,82  | 4,75   |      |
|  |     | ηs cool <sub>12/7°C</sub>                    | %       | 182   | 186   | 186   | 187   | 190   | 191   | 189   | 191   | 190   | 190   | 187    |      |
|  |     | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 5,59  | 5,79  | 5,76  | 5,75  | 6,06  | 6,01  | 5,88  | 6,01  | 5,97  | 6,00  | 5,83   |      |
|  |     | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 5,46  | 5,49  | 5,48  | 5,45  | 5,43  | 5,46  | 5,36  | 5,41  | 5,37  | 5,30  | 5,19   |      |
|  |     | SEPR <sub>-2/-8°C</sub> Process medium temp. | kWh/kWh | 3,08  | 3,05  | 3,07  | 3,07  | 3,45  | 3,38  | 3,42  | 3,36  | 3,38  | 3,33  | 3,36   |      |
| Part Load integrated values                                  |     | IPLV.IP                                      | Btu/Wh  | 16,97 | 17,11 | 17,10 | 17,10 | 17,47 | 17,41 | 17,22 | 17,39 | 17,34 | 17,24 | 17,03  |      |
| Part Load integrated values                                  |     | IPLV.SI                                      | kW/kW   | 4,93  | 4,98  | 4,97  | 4,97  | 5,07  | 5,06  | 5,02  | 5,06  | 5,05  | 5,02  | 4,96   |      |
| Unit + option 15LS<br>Full load performances*                | CA1 | Nominal capacity                             | kW      | 394   | 428   | 458   | 523   | 586   | 645   | 688   | 743   | 765   | 836   | 890    |      |
|  |     | EER  | kW/kW   | 2,86  | 2,93  | 2,85  | 2,85  | 2,94  | 2,93  | 2,83  | 2,85  | 2,81  | 2,77  | 2,66   |      |
| Seasonal energy efficiency**                                 |     | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 4,92  | 5,10  | 5,05  | 4,97  | 5,10  | 5,18  | 5,06  | 5,19  | 5,14  | 5,00  | 4,87   |      |
|  |     | ηs cool <sub>12/7°C</sub>                    | %       | 194   | 201   | 199   | 196   | 201   | 204   | 200   | 204   | 203   | 197   | 192    |      |
|  |     | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 5,82  | 6,01  | 5,93  | 6,00  | 6,29  | 6,47  | 6,22  | 6,45  | 6,36  | 6,12  | 5,87   |      |
|  |     | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 5,63  | 5,58  | 5,58  | 5,54  | 5,52  | 5,58  | 5,44  | 5,46  | 5,41  | 5,36  | 5,22   |      |
|  |     | SEPR <sub>-2/-8°C</sub> Process medium temp. | kWh/kWh | 3,16  | 3,13  | 3,15  | 3,15  | 3,54  | 3,46  | 3,49  | 3,44  | 3,46  | 3,41  | 3,44   |      |
| Sound levels   |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Standard unit  |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Sound power <sup>(1)</sup>                                   |     |  |         | dB(A) | 93,5  | 94,0  | 94,0  | 94,5  | 97,5  | 97,5  | 98,0  | 98,0  | 98,5  | 98,5   | 99,0 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |  |         | dB(A) | 61,5  | 61,5  | 61,5  | 62,0  | 65,0  | 65,0  | 66,0  | 65,0  | 66,0  | 66,0   | 66,5 |
| Unit + option 15LS <sup>(3)</sup>                            |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Sound power <sup>(1)</sup>                                   |     |  |         | dB(A) | 88,0  | 88,5  | 88,5  | 89,0  | 92,5  | 92,5  | 93,0  | 93,0  | 93,5  | 93,5   | 94,5 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |  |         | dB(A) | 56,0  | 56,0  | 56,5  | 57,0  | 60,5  | 60,0  | 60,5  | 60,0  | 61,0  | 60,5   | 61,5 |
| Dimensions - standard unit                                   |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Standard unit  |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Length   |     |  |         | mm    | 3604  | 4798  | 4798  | 4798  | 5992  | 5992  | 5992  | 7186  | 7186  | 7186   | 7186 |
| Width  |     |  |         | mm    | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253   | 2253 |
| Height   |     |  |         | mm    | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324   | 2324 |
| Unit + option 307 <sup>(3)</sup>                             |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Length   |     |  |         | mm    | 4798  | 5992  | 5992  | 5992  | 7186  | 7186  | 7186  | 8380  | 8380  | 8380   | 8380 |
| Operating weight <sup>(4)</sup>                              |     |  |         |       |       |       |       |       |       |       |       |       |       |        |      |
| Standard unit  |     |  |         | kg    | 2269  | 2697  | 2722  | 2927  | 3265  | 3511  | 3511  | 4042  | 4042  | 4291   | 4291 |
| Unit + option 15LS <sup>(3)</sup>                            |     |  |         | kg    | 2414  | 2860  | 2885  | 3108  | 3398  | 3664  | 3664  | 4216  | 4216  | 4485   | 4485 |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |     |  |         | kg    | 2609  | 3094  | 3119  | 3379  | 3708  | 3974  | 3974  | 4605  | 4605  | 4874   | 4874 |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |     |  |         | kg    | 3594  | 4086  | 4111  | 4371  | 4715  | 4981  | 4981  | 5626  | 5626  | 5895   | 5895 |

- \* In accordance with EN14511-3:2018.  
 \*\* In accordance with EN14825:2018, average climate conditions  
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 ηs cool <sub>12/7°C</sub> & SEER <sub>12/7°C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**  
 SEER <sub>23/18 °C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**  
 SEPR <sub>12/7 °C</sub> Values calculated in accordance with EN 14825:2016  
 SEPR <sub>-2/-8 °C</sub> **Values calculated in accordance with EN 14825:2016**  
 IPLV.SI Calculated as per AHRI standard 551-591.  
 (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.  
 (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).  
 (3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module  
 (4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version

## PHYSICAL DATA, SIZES 410R TO 950R

| 30RB  |                    | 410R   | 450R  | 480R  | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R  |
|---|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |       |       |       |       |       |       |       |       |       |       |
| Circuit A   |                    | 3  | 3     | 3     | 4     | 2     | 3     | 3     | 3     | 3     | 4     | 4     |
| Circuit B   |                    | 3  | 4     | 4     | 4     | 3     | 3     | 3     | 4     | 4     | 4     | 4     |
| Number of power stages                                      |                    | 6  | 7     | 7     | 8     | 5     | 6     | 6     | 7     | 7     | 8     | 8     |
| <b>Unit PED category</b>                                    |                    | III  | IV    | IV    | IV    | III   | III   | III   | IV    | IV    | IV    | IV    |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L /GWP= 675 as per AR4   |       |       |       |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 18,0   | 18,3  | 18,6  | 22,8  | 21,8  | 23,2  | 23,2  | 24,9  | 24,9  | 29,5  | 29,5  |
|   | tCO <sub>2</sub> e | 12,2   | 12,4  | 12,6  | 15,4  | 14,7  | 15,7  | 15,7  | 16,8  | 16,8  | 19,9  | 19,9  |
| Circuit B   | kg                 | 18,0   | 21,9  | 22,3  | 22,8  | 23,2  | 23,2  | 23,2  | 29,5  | 29,5  | 29,5  | 29,5  |
|   | tCO <sub>2</sub> e | 12,2   | 14,8  | 15,1  | 15,4  | 15,7  | 15,7  | 15,7  | 19,9  | 19,9  | 19,9  | 19,9  |
| <b>Oil</b>  |                    |  |       |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 19,8   | 19,8  | 19,8  | 26,4  | 13,2  | 19,8  | 19,8  | 19,8  | 19,8  | 26,4  | 26,4  |
| Circuit B   | l                  | 19,8   | 26,4  | 26,4  | 26,4  | 19,8  | 19,8  | 19,8  | 26,4  | 26,4  | 26,4  | 26,4  |
| <b>Capacity control</b>                                     |                    | SmartVu™   |       |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 17   | 14    | 14    | 13    | 20    | 17    | 17    | 14    | 14    | 13    | 13    |
| <b>Condenser</b>  |                    | All-aluminium micro-channel coils (MCHE)   |       |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |       |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |  |       |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 6  | 7     | 7     | 8     | 9     | 10    | 10    | 11    | 11    | 12    | 12    |
| Maximum total air flow                                      | l/s                | 480  | 560   | 560   | 640   | 720   | 800   | 800   | 880   | 880   | 960   | 960   |
| Maximum rotation speed                                      | r/s                | 16   | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |       |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 44   | 44    | 47    | 53    | 73    | 73    | 73    | 84    | 84    | 84    | 84    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |       |       |       |       |       |       |       |       |       |       |
| <b>Pump</b>   |                    | Centrifugal pump, monocell, 48.3 r/s, low or high pressure (as required), single or dual (as required) |       |       |       |       |       |       |       |       |       |       |
| Expansion tank volume (option)                              | l                  | 80   | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |
| Buffer tank volume (option)                                 | l                  | 550  | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |       |       |
| Connections   | inches             | 4  | 4     | 4     | 4     | 5     | 5     | 5     | 5     | 5     | 5     | 5     |
| External diameter   | mm                 | 114,3  | 114,3 | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.



## PHYSICAL PROPERTIES, SIZES 170R TO 410R

| 30RBP  |     |  | 170R    | 190R  | 210R  | 230R  | 270R  | 310R  | 340R  | 380R  | 410R  |       |
|--|-----|--|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling  |     |  |         |       |       |       |       |       |       |       |       |       |
| Standard unit  | CA1 | Nominal capacity                             | kW      | 172   | 187   | 206   | 227   | 270   | 311   | 346   | 380   | 416   |
|  |     | Full load performances*                      | EER     | kW/kW | 3,20  | 3,36  | 3,21  | 3,16  | 3,03  | 3,15  | 3,09  | 3,14  |
| Seasonal energy efficiency**                                 |     | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 4,82  | 5,02  | 4,84  | 4,94  | 4,79  | 5,25  | 5,15  | 5,09  | 5,11  |
|  |     | ηs cool <sub>12/7°C</sub>                    | %       | 190   | 198   | 191   | 195   | 189   | 207   | 203   | 201   | 201   |
|  |     | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 5,98  | 6,23  | 5,93  | 5,99  | 5,69  | 6,35  | 6,17  | 6,13  | 6,07  |
|  |     | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 6,30  | 6,61  | 6,42  | 6,13  | 5,97  | 6,30  | 6,24  | 6,36  | 6,31  |
|  |     | SEPR <sub>2/-8°C</sub> Process medium temp.  | kWh/kWh | 3,48  | 3,60  | 3,54  | 3,41  | 3,41  | 3,51  | 3,56  | 3,50  | 3,57  |
| Part Load integrated values                                  |     | IPLV.IP                                      | Btu/Wh  | 18,42 | 19,72 | 18,25 | 18,94 | 18,49 | 19,31 | 19,18 | 18,97 | 18,87 |
| Part Load integrated values                                  |     | IPLV.SI                                      | kW/kW   | 5,37  | 5,73  | 5,31  | 5,51  | 5,37  | 5,61  | 5,56  | 5,50  | 5,47  |
| Unit + option 15LS   | CA2 | Nominal capacity                             | kW      | 165   | 180   | 198   | 217   | 256   | 296   | 328   | 361   | 394   |
|  |     | Full load performances*                      | EER     | kW/kW | 3,05  | 3,24  | 3,04  | 3,02  | 2,81  | 2,96  | 2,85  | 2,94  |
| Seasonal energy efficiency**                                 |     | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 4,80  | 5,00  | 4,81  | 4,90  | 4,73  | 5,20  | 5,08  | 5,11  | 5,09  |
|  |     | ηs cool <sub>12/7°C</sub>                    | %       | 189   | 197   | 189   | 193   | 186   | 205   | 200   | 201   | 201   |
|  |     | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 5,95  | 6,18  | 5,83  | 5,98  | 5,58  | 6,36  | 6,13  | 6,03  | 5,95  |
|  |     | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 6,24  | 6,66  | 6,49  | 6,12  | 5,88  | 6,34  | 6,25  | 6,42  | 6,34  |
|  |     | SEPR <sub>2/-8°C</sub> Process medium temp.  | kWh/kWh | 3,37  | 3,45  | 3,39  | 3,28  | 3,28  | 3,39  | 3,43  | 3,39  | 3,44  |
| Sound levels   |     |  |         |       |       |       |       |       |       |       |       |       |
| Standard unit  |     |  |         |       |       |       |       |       |       |       |       |       |
| Sound power <sup>(1)</sup>                                   |     | dB(A)  | 91,0    | 90,5  | 90,5  | 92,0  | 92,0  | 93,0  | 93,0  | 93,5  | 93,5  |       |
| Sound pressure at 10 m <sup>(2)</sup>                        |     | dB(A)  | 58,5    | 58,5  | 58,5  | 60,0  | 60,0  | 60,5  | 60,5  | 61,0  | 61,5  |       |
| Unit + option 15LS <sup>(3)</sup>                            |     |  |         |       |       |       |       |       |       |       |       |       |
| Sound power <sup>(1)</sup>                                   |     | dB(A)  | 85,5    | 85,5  | 85,5  | 86,5  | 86,5  | 87,5  | 87,5  | 88,0  | 88,0  |       |
| Sound pressure at 10 m <sup>(2)</sup>                        |     | dB(A)  | 53,0    | 53,5  | 53,5  | 54,5  | 54,5  | 55,5  | 55,5  | 55,5  | 56,0  |       |
| Dimensions - standard unit                                   |     |  |         |       |       |       |       |       |       |       |       |       |
| Standard unit  |     |  |         |       |       |       |       |       |       |       |       |       |
| Length   |     | mm   | 2410    | 2410  | 2410  | 2410  | 2410  | 3604  | 3604  | 3604  | 3604  |       |
| Width  |     | mm   | 2253    | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  |       |
| Height   |     | mm   | 2324    | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  |       |
| Unit + option 307 <sup>(3)</sup>                             |     |  |         |       |       |       |       |       |       |       |       |       |
| Length   |     | mm   | 3604    | 3604  | 3604  | 3604  | 3604  | 4798  | 4798  | 4798  | 4798  |       |
| Operating weight <sup>(4)</sup>                              |     |  |         |       |       |       |       |       |       |       |       |       |
| Standard unit  |     | kg   | 1349    | 1397  | 1397  | 1521  | 1556  | 1995  | 2049  | 2211  | 2269  |       |
| Unit + option 15LS <sup>(3)</sup>                            |     | kg   | 1432    | 1480  | 1480  | 1630  | 1665  | 2122  | 2176  | 2356  | 2414  |       |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |     | kg   | 1567    | 1615  | 1615  | 1765  | 1811  | 2271  | 2371  | 2551  | 2609  |       |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |     | kg   | 2550    | 2598  | 2598  | 2748  | 2794  | 3258  | 3357  | 3537  | 3594  |       |

- \* In accordance with EN14511-3:2018.  
 \*\* In accordance with EN14825:2018, average climate conditions  
 CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W  
 ηs cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**  
 SEER<sub>23/18°C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**  
 SEPR<sub>12/7°C</sub> Values calculated in accordance with EN 14825:2016  
 SEPR<sub>2/-8°C</sub> **Values calculated in accordance with EN 14825:2016**  
 IPLV.SI Calculated as per AHRI standard 551-591.  
 (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.  
 (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).  
 (3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module  
 (4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL PROPERTIES, SIZES 170R TO 410R

| 30RBP   |                    | 170R   | 190R | 210R | 230R | 270R | 310R  | 340R  | 380R  | 410R  |
|---|--------------------|--|------|------|------|------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |      |      |      |      |       |       |       |       |
| Circuit A   |                    | 1  | 1    | 1    | 2    | 2    | 2     | 2     | 3     | 3     |
| Circuit B   |                    | 2  | 2    | 2    | 2    | 2    | 3     | 3     | 3     | 3     |
| Number of power stages                                      |                    | 3  | 3    | 3    | 4    | 4    | 5     | 5     | 6     | 6     |
| <b>Unit PED category</b>                                    |                    | III  | III  | III  | III  | III  | III   | III   | III   | III   |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L /GWP= 675 as per AR4   |      |      |      |      |       |       |       |       |
| Circuit A   | kg                 | 6,1  | 9,3  | 9,3  | 10,9 | 11,3 | 11,9  | 12,7  | 17,3  | 18,0  |
|   | tCO <sub>2</sub> e | 4,1  | 6,3  | 6,3  | 7,4  | 7,6  | 8,0   | 8,6   | 11,7  | 12,2  |
| Circuit B   | kg                 | 10,9   | 10,9 | 10,9 | 10,9 | 11,3 | 16,7  | 17,5  | 17,3  | 18,0  |
|   | tCO <sub>2</sub> e | 7,4  | 7,4  | 7,4  | 7,4  | 7,6  | 11,3  | 11,8  | 11,7  | 12,2  |
| <b>Oil</b>  |                    |  |      |      |      |      |       |       |       |       |
| Circuit A   | l                  | 6,6  | 6,6  | 6,60 | 13,2 | 13,2 | 13,2  | 13,2  | 19,8  | 19,8  |
| Circuit B   | l                  | 13,2   | 13,2 | 13,2 | 13,2 | 13,2 | 19,8  | 19,8  | 19,8  | 19,8  |
| <b>Capacity control</b>                                     |                    | SmartVu™   |      |      |      |      |       |       |       |       |
| Minimum capacity  | %                  | 33   | 33   | 25   | 25   | 25   | 20    | 20    | 17    | 17    |
| <b>Condenser</b>  |                    | All-aluminium micro-channel coils (MCHE)   |      |      |      |      |       |       |       |       |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |      |      |      |      |       |       |       |       |
| <b>Standard unit</b>  |                    |  |      |      |      |      |       |       |       |       |
| Quantity  |                    | 3  | 4    | 4    | 4    | 4    | 5     | 5     | 6     | 6     |
| Maximum total air flow                                      | l/s                | 240  | 320  | 320  | 320  | 320  | 400   | 400   | 480   | 480   |
| Maximum rotation speed                                      | r/s                | 16   | 16   | 16   | 16   | 16   | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |      |      |      |      |       |       |       |       |
| Water volume  | l                  | 15   | 15   | 15   | 19   | 27   | 27    | 35    | 44    | 44    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000 | 1000 | 1000 | 1000 | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |      |      |      |      |       |       |       |       |
| Pump  |                    | Centrifugal pump, monocell, 48.3 r/s, low or high pressure (as required), single or dual (as required) |      |      |      |      |       |       |       |       |
| Expansion tank volume (option)                              | l                  | 50   | 50   | 50   | 50   | 50   | 80    | 80    | 80    | 80    |
| Buffer tank volume (option)                                 | l                  | 550  | 550  | 550  | 550  | 550  | 550   | 550   | 550   | 550   |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400  | 400  | 400  | 400  | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |      |      |      |      |       |       |       |       |
| Connections   | inches             | 3  | 3    | 3    | 3    | 3    | 4     | 4     | 4     | 4     |
| External diameter   | mm                 | 88,9   | 88,9 | 88,9 | 88,9 | 88,9 | 114,3 | 114,3 | 114,3 | 114,3 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |      |      |      |      |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL PROPERTIES, SIZES 450R TO 950R

| 30RBP  |  |         | 450R  | 480R  | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R  |
|--|--|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Cooling  |  |         |       |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load performances* CA1                 | Nominal capacity                             | kW      | 451   | 484   | 553   | 616   | 677   | 726   | 782   | 807   | 882   | 944   |
|  | EER  | kW/kW   | 3,14  | 3,09  | 3,08  | 3,15  | 3,14  | 3,06  | 3,07  | 3,04  | 3,00  | 2,92  |
| Seasonal energy<br>efficiency**                              | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 5,28  | 5,24  | 5,29  | 5,32  | 5,32  | 5,20  | 5,33  | 5,30  | 5,31  | 5,18  |
|  | ηs cool <sub>12/7°C</sub>                    | %       | 208   | 207   | 209   | 210   | 210   | 205   | 210   | 209   | 209   | 204   |
|  | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 6,33  | 6,23  | 6,32  | 6,56  | 6,51  | 6,28  | 6,54  | 6,47  | 6,56  | 6,32  |
|  | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 6,41  | 6,32  | 6,27  | 6,27  | 6,33  | 6,14  | 6,25  | 6,18  | 6,07  | 5,88  |
|  | SEPR <sub>-2/-8°C</sub> Process medium temp. | kWh/kWh | 3,55  | 3,55  | 3,55  | 3,91  | 3,82  | 3,83  | 3,79  | 3,80  | 3,74  | 3,74  |
| Part Load integrated values                                  | IPLV.IP                                      | Btu/Wh  | 19,38 | 19,24 | 19,21 | 19,65 | 19,48 | 19,04 | 19,58 | 19,45 | 19,35 | 18,94 |
| Part Load integrated values                                  | IPLV.SI                                      | kW/kW   | 5,63  | 5,59  | 5,58  | 5,69  | 5,64  | 5,52  | 5,68  | 5,65  | 5,62  | 5,51  |
| Unit + option 15LS<br>Full load performances* CA2            | Nominal capacity                             | kW      | 428   | 458   | 523   | 586   | 645   | 688   | 743   | 765   | 836   | 890   |
|  | EER  | kW/kW   | 2,93  | 2,85  | 2,85  | 2,94  | 2,93  | 2,83  | 2,85  | 2,81  | 2,77  | 2,66  |
| Seasonal energy<br>efficiency**                              | SEER <sub>12/7°C</sub> Comfort low temp.     | kWh/kWh | 5,37  | 5,30  | 5,21  | 5,24  | 5,35  | 5,20  | 5,43  | 5,38  | 5,22  | 5,07  |
|  | ηs cool <sub>12/7°C</sub>                    | %       | 212   | 209   | 205   | 207   | 211   | 205   | 214   | 212   | 206   | 200   |
|  | SEER <sub>23/18°C</sub> Comfort medium temp. | kWh/kWh | 6,25  | 6,12  | 6,25  | 6,41  | 6,59  | 6,33  | 6,69  | 6,60  | 6,34  | 6,06  |
|  | SEPR <sub>12/7°C</sub> Process high temp.    | kWh/kWh | 6,38  | 6,29  | 6,24  | 6,26  | 6,32  | 6,11  | 6,17  | 6,10  | 6,03  | 5,79  |
|  | SEPR <sub>-2/-8°C</sub> Process medium temp. | kWh/kWh | 3,43  | 3,44  | 3,43  | 3,91  | 3,82  | 3,83  | 3,80  | 3,80  | 3,73  | 3,73  |
| Sound levels   |  |         |       |       |       |       |       |       |       |       |       |       |
| Standard unit  |  |         |       |       |       |       |       |       |       |       |       |       |
| Sound power <sup>(1)</sup>                                   |  | dB(A)   | 94,0  | 94,0  | 94,5  | 97,5  | 97,5  | 98,0  | 98,0  | 98,5  | 98,5  | 99,0  |
| Sound pressure at 10 m <sup>(2)</sup>                        |  | dB(A)   | 61,5  | 61,5  | 62,0  | 65,0  | 65,0  | 66,0  | 65,0  | 66,0  | 66,0  | 66,5  |
| Unit + option 15LS <sup>(3)</sup>                            |  |         |       |       |       |       |       |       |       |       |       |       |
| Sound power <sup>(1)</sup>                                   |  | dB(A)   | 88,5  | 88,5  | 89,0  | 92,5  | 92,5  | 93,0  | 93,0  | 93,5  | 93,5  | 94,5  |
| Sound pressure at 10 m <sup>(2)</sup>                        |  | dB(A)   | 56,0  | 56,5  | 57,0  | 60,5  | 60,0  | 60,5  | 60,0  | 61,0  | 60,5  | 61,5  |
| Dimensions - standard unit                                   |  |         |       |       |       |       |       |       |       |       |       |       |
| Standard unit  |  |         |       |       |       |       |       |       |       |       |       |       |
| Length   |  | mm      | 4798  | 4798  | 4798  | 5992  | 5992  | 5992  | 7186  | 7186  | 7186  | 7186  |
| Width  |  | mm      | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  |
| Height   |  | mm      | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  | 2324  |
| Unit + option 307 <sup>(3)</sup>                             |  |         |       |       |       |       |       |       |       |       |       |       |
| Length   |  | mm      | 5992  | 5992  | 5992  | 7186  | 7186  | 7186  | 8380  | 8380  | 8380  | 8380  |
| Operating weight <sup>(4)</sup>                              |  |         |       |       |       |       |       |       |       |       |       |       |
| Standard unit  |  | kg      | 2697  | 2722  | 2927  | 3265  | 3511  | 3511  | 4042  | 4042  | 4291  | 4291  |
| Unit + option 15LS <sup>(3)</sup>                            |  | kg      | 2860  | 2885  | 3108  | 3398  | 3664  | 3664  | 4216  | 4216  | 4485  | 4485  |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |  | kg      | 3094  | 3119  | 3379  | 3708  | 3974  | 3974  | 4605  | 4605  | 4874  | 4874  |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |  | kg      | 4086  | 4111  | 4371  | 4715  | 4981  | 4981  | 5626  | 5626  | 5895  | 5895  |

\* In accordance with EN14511-3:2018.

\*\* In accordance with EN14825:2018, average climate conditions

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W

CA2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W

**ηs cool** <sub>12/7°C</sub> & **SEER** <sub>12/7°C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

**SEER** <sub>23/18 °C</sub> **Values in bold comply with Ecodesign Regulation (EU) No. 2016/2281 for Comfort applications**

**SEPR** <sub>12/7 °C</sub> **Values calculated in accordance with EN 14825:2016**

**SEPR** <sub>-2/-8 °C</sub> **Values calculated in accordance with EN 14825:2016**

IPLV.SI Calculated as per AHRI standard 551-591.

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).

(3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module

(4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL PROPERTIES, SIZES 450R TO 950R

| 30RBP   |                    | 450R   | 480R  | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R  |
|---|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |       |       |       |       |       |       |       |       |       |
| Circuit A   |                    | 3  | 3     | 4     | 2     | 3     | 3     | 3     | 3     | 4     | 4     |
| Circuit B   |                    | 4  | 4     | 4     | 3     | 3     | 3     | 4     | 4     | 4     | 4     |
| Number of power stages                                      |                    | 7  | 7     | 8     | 5     | 6     | 6     | 7     | 7     | 8     | 8     |
| Unit PED category   |                    | IV   | IV    | IV    | III   | III   | III   | IV    | IV    | IV    | IV    |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L / GWP= 675 as per AR4  |       |       |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 18,3   | 18,6  | 22,8  | 21,8  | 23,2  | 23,2  | 24,9  | 24,9  | 29,5  | 29,5  |
|   | tCO <sub>2</sub> e | 12,4   | 12,6  | 15,4  | 14,7  | 15,7  | 15,7  | 16,8  | 16,8  | 19,9  | 19,9  |
| Circuit B   | kg                 | 21,9   | 22,3  | 22,8  | 23,2  | 23,2  | 23,2  | 29,5  | 29,5  | 29,5  | 29,5  |
|   | tCO <sub>2</sub> e | 14,8   | 15,1  | 15,4  | 15,7  | 15,7  | 15,7  | 19,9  | 19,9  | 19,9  | 19,9  |
| <b>Oil</b>  |                    |  |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 19,8   | 19,8  | 26,4  | 13,2  | 19,8  | 19,8  | 19,8  | 19,8  | 26,4  | 26,4  |
| Circuit B   | l                  | 26,4   | 26,4  | 26,4  | 19,8  | 19,8  | 19,8  | 26,4  | 26,4  | 26,4  | 26,4  |
| <b>Capacity control</b>                                     |                    | SmartVu™   |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 14   | 14    | 13    | 20    | 17    | 17    | 14    | 14    | 13    | 13    |
| <b>Condenser</b>  |                    | All-aluminium micro-channel coils (MCHE)   |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |  |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 7  | 7     | 8     | 9     | 10    | 10    | 11    | 11    | 12    | 12    |
| Maximum total air flow                                      | l/s                | 560  | 560   | 640   | 720   | 800   | 800   | 880   | 880   | 960   | 960   |
| Maximum rotation speed                                      | r/s                | 16   | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 44   | 47    | 53    | 73    | 73    | 73    | 84    | 84    | 84    | 84    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |       |       |       |       |       |       |       |       |       |
| <b>Pump</b>   |                    | Centrifugal pump, monocell, 48.3 r/s, low or high pressure (as required), single or dual (as required) |       |       |       |       |       |       |       |       |       |
| Expansion tank volume (option)                              | l                  | 80   | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |
| Buffer tank volume (option)                                 | l                  | 550  | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |       |
| Connections   | inches             | 4  | 4     | 4     | 5     | 5     | 5     | 5     | 5     | 5     | 5     |
| External diameter   | mm                 | 114,3  | 114,3 | 114,3 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 | 139,7 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.

## ELECTRICAL DATA NOTES

| 30RB  |         | 170R                          | 190R  | 210R  | 230R  | 270R  | 310R  | 340R  | 380R  | 410R  |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |       |       |       |       |       |       |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |       |       |       |       |       |       |
| Voltage range   | V       | 360 - 440                     |       |       |       |       |       |       |       |       |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |       |       |       |       |       |       |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |
| Circuit A&B   | kW      | 74,6                          | 81,2  | 90,8  | 99,4  | 118,6 | 133,9 | 148,3 | 163,5 | 178,4 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |
| Standard unit power factor                                      |         | 0,83                          | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,85  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 129,0                         | 141,2 | 157,8 | 172,0 | 205,2 | 231,6 | 256,5 | 282,9 | 302,4 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 137,7                         | 150,6 | 168,6 | 183,6 | 219,6 | 247,5 | 274,5 | 302,4 | 324   |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 305                           | 354   | 370   | 348   | 418   | 444   | 469   | 496   | 515   |
| Unit + option 25/25E  | A       | 262                           | 302   | 318   | 305   | 366   | 392   | 417   | 444   | 463   |

| 30RB  |         | 450R                          | 480R  | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R  |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |       |       |       |       |       |       |       |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |       |       |       |       |       |       |       |
| Voltage range   | V       | 360 - 440                     |       |       |       |       |       |       |       |       |       |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |       |       |       |       |       |       |       |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |       |
| Circuit A&B   | kW      | 193,7                         | 208,1 | 237,8 | 256,4 | 282,7 | 306,1 | 328,5 | 340,2 | 374,4 | 405,6 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit power factor                                      |         | 0,85                          | 0,85  | 0,85  | 0,84  | 0,84  | 0,84  | 0,84  | 0,84  | 0,84  | 0,84  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 327,9                         | 352,8 | 403,2 | 439,5 | 486,0 | 525,0 | 565,0 | 584,5 | 644,0 | 696,0 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 351                           | 378   | 432   | 472   | 522   | 564   | 607   | 628   | 692   | 748   |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 541                           | 565   | 616   | 770   | 823   | 856   | 902   | 915   | 981   | 1027  |
| Unit + option 25/25E  | A       | 489                           | 513   | 564   | 687   | 740   | 773   | 819   | 832   | 898   | 944   |

- (1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).  
(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).  
(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.



## ELECTRICAL DATA NOTES

| 30RBP   |         | 170R                          | 190R  | 210R  | 230R  | 270R  | 310R  | 340R  | 380R  | 410R  |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |       |       |       |       |       |       |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |       |       |       |       |       |       |
| Voltage range   | V       | 360 - 440                     |       |       |       |       |       |       |       |       |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |       |       |       |       |       |       |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |
| Circuit A&B   | kW      | 74,8                          | 81,5  | 91,1  | 99,8  | 118,9 | 134,3 | 148,7 | 164   | 178,4 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |
| Standard unit power factor                                      |         | 0,85                          | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 126,3                         | 137,6 | 154,2 | 168,4 | 201,6 | 227,1 | 252,0 | 277,5 | 302,4 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 135                           | 147   | 165   | 180   | 216   | 243   | 270   | 297   | 324   |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 302                           | 350   | 367   | 344   | 414   | 440   | 465   | 490   | 515   |
| Unit + option 25/25E  | A       | 259                           | 298   | 315   | 301   | 362   | 388   | 413   | 438   | 463   |

| 30RBP   |         | 450R                          | 480R  | 550R  | 610R  | 670R  | 720R  | 770R  | 800R  | 870R  | 950R  |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |       |       |       |       |       |       |       |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |       |       |       |       |       |       |       |
| Voltage range   | V       | 360 - 440                     |       |       |       |       |       |       |       |       |       |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |       |       |       |       |       |       |       |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |       |
| Circuit A&B   | kW      | 193,7                         | 208,1 | 237,8 | 256,4 | 282,7 | 306,1 | 328,5 | 340,2 | 374,4 | 405,6 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit power factor                                      |         | 0,85                          | 0,85  | 0,85  | 0,84  | 0,84  | 0,84  | 0,84  | 0,84  | 0,84  | 0,84  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 327,9                         | 352,8 | 403,2 | 439,5 | 486,0 | 525,0 | 565,0 | 584,5 | 644,0 | 696,0 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 351                           | 378   | 432   | 472   | 522   | 564   | 607   | 628   | 692   | 748   |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 541                           | 565   | 616   | 770   | 823   | 856   | 902   | 915   | 981   | 1027  |
| Unit + option 25/25E  | A       | 489                           | 513   | 564   | 687   | 740   | 773   | 819   | 832   | 898   | 944   |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

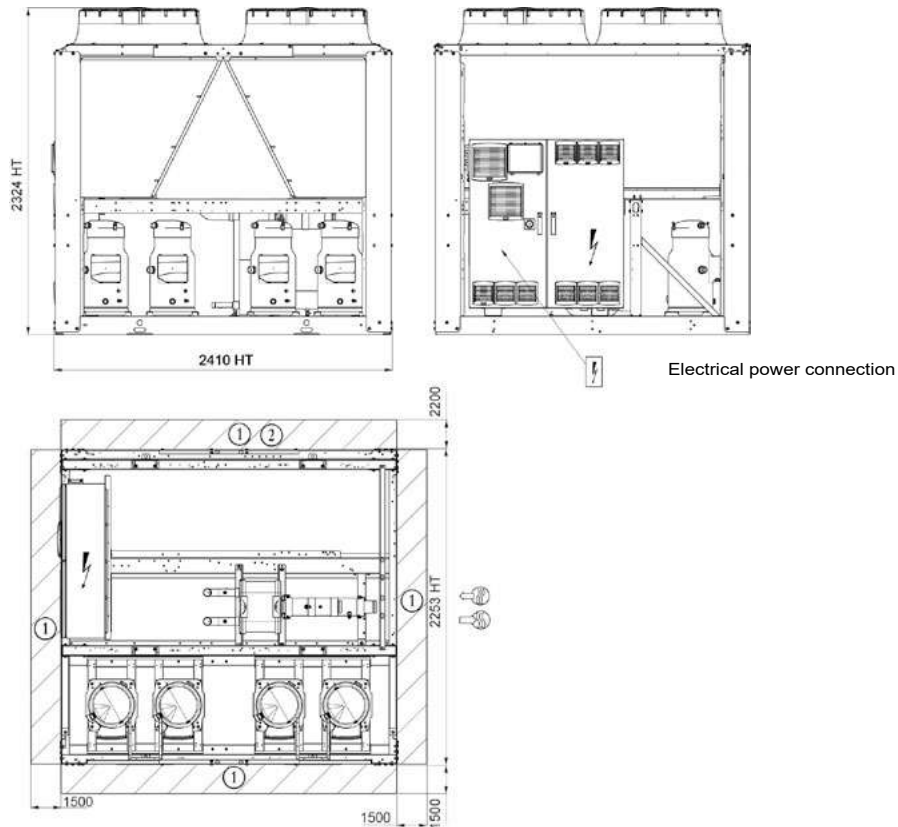
(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.



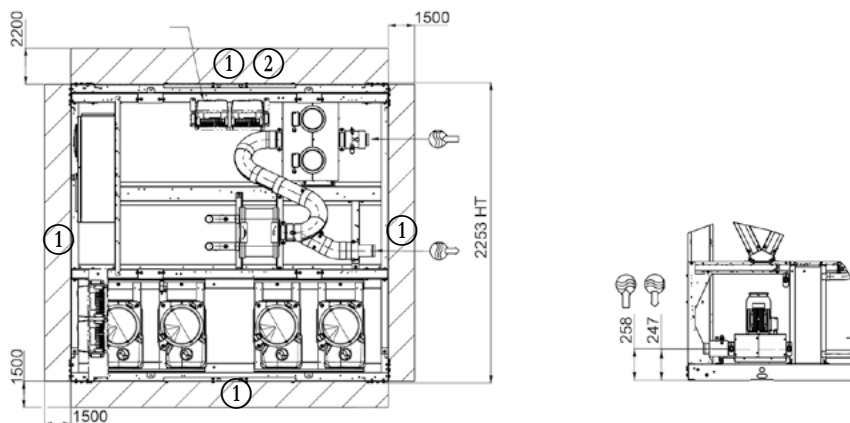
## DIMENSIONS/CLEARANCES

### 30RB/30RBP 170R-270R (with and without hydraulic module)

#### Without hydraulic module



#### With hydraulic module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for removal of the coils

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.

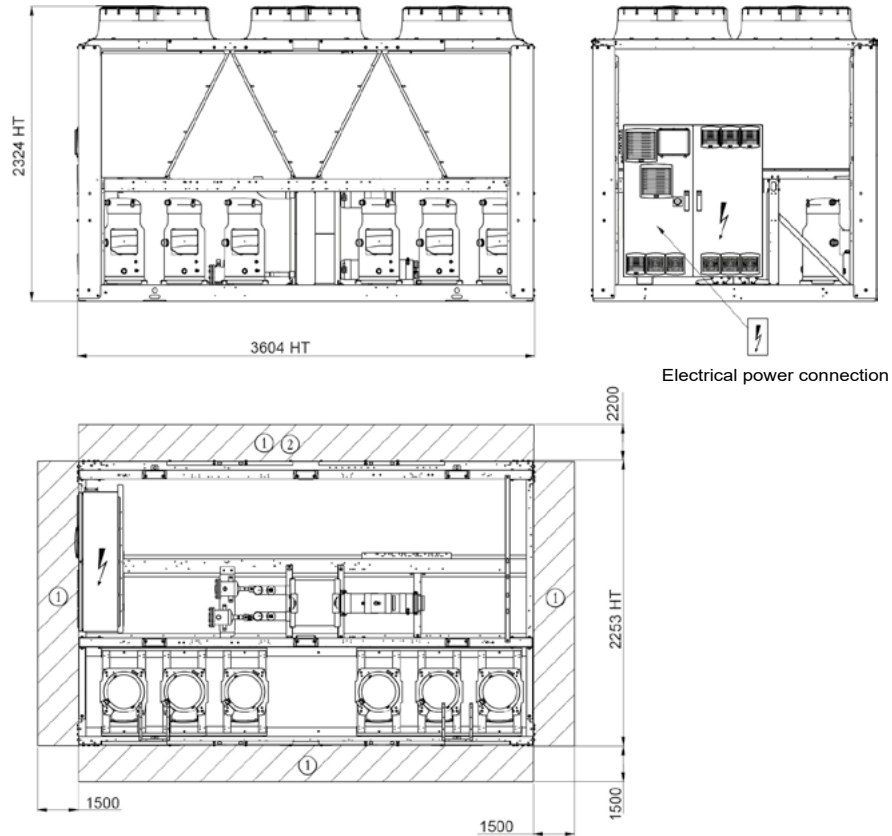
Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version



## DIMENSIONS/CLEARANCES

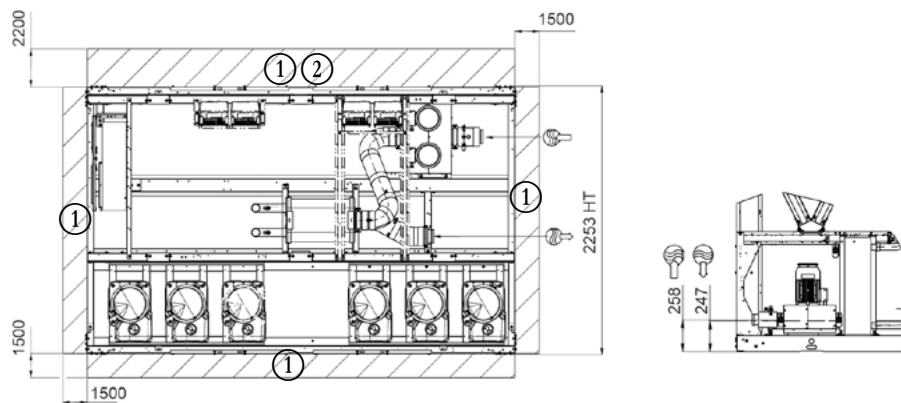
### 30RB/30RBP 310R-410R (with and without hydraulic module)

#### Without hydraulic module



Electrical power connection

#### With hydraulic module



#### Key:

All dimensions are given in mm.

① Clearances required for maintenance and air flow

② Clearance recommended for removal of the coils

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request. Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.

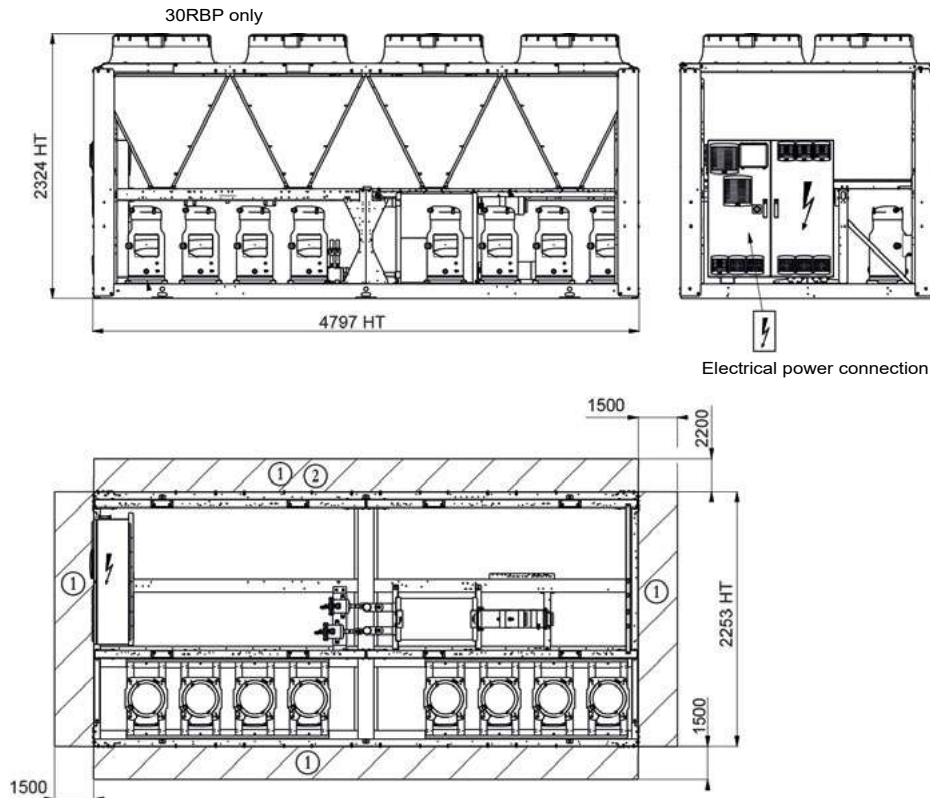
Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version



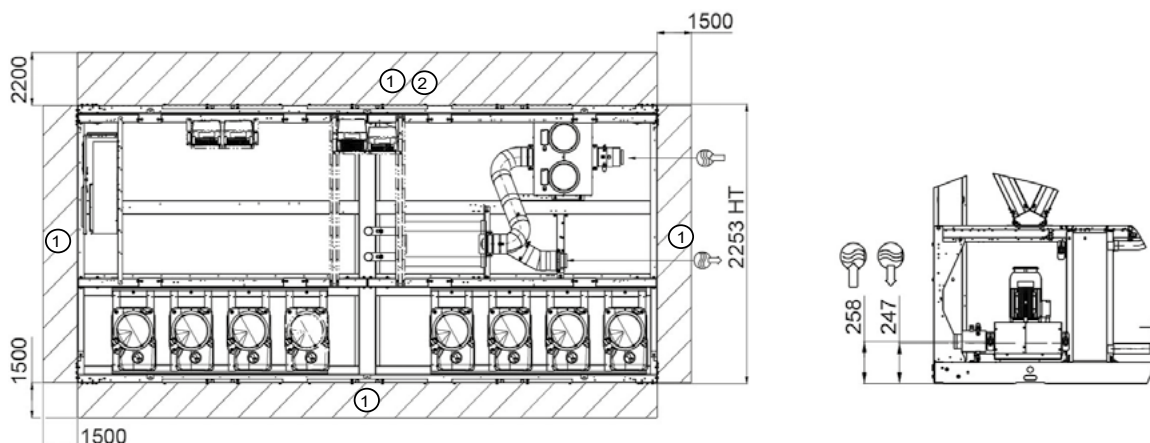
## DIMENSIONS/CLEARANCES

### 30RB/30RBP 450R-550R (with and without hydraulic module)

#### Without hydraulic module



#### With hydraulic module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for removal of the coils

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.

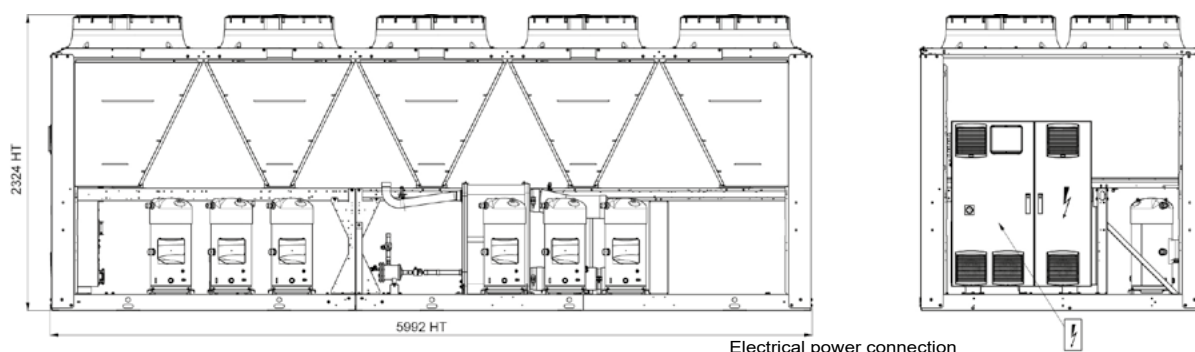
Heating mode/COP/SCOP related to the 30RQ/30RQP heat pump version



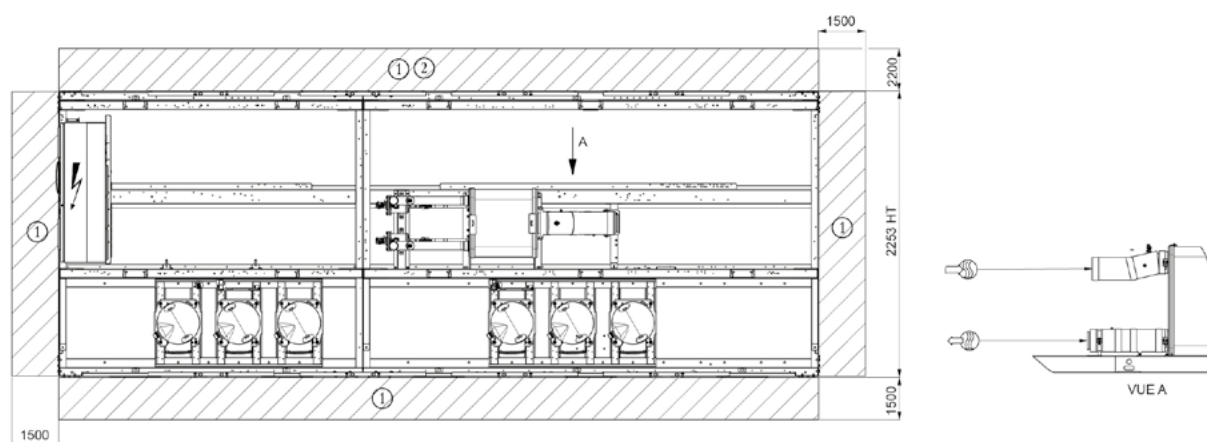
## DIMENSIONS/CLEARANCES

### 30RB/30RBP 610R-720R (with and without hydraulic module)

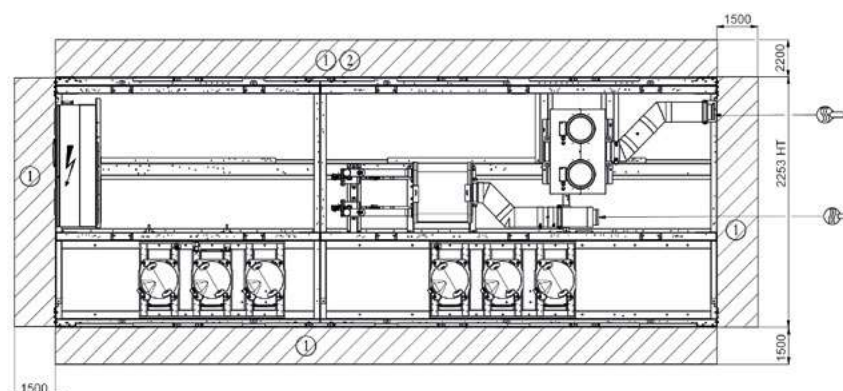
#### Without hydraulic module



Electrical power connection



#### With hydraulic module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for removal of the coils

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request. Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.

Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version

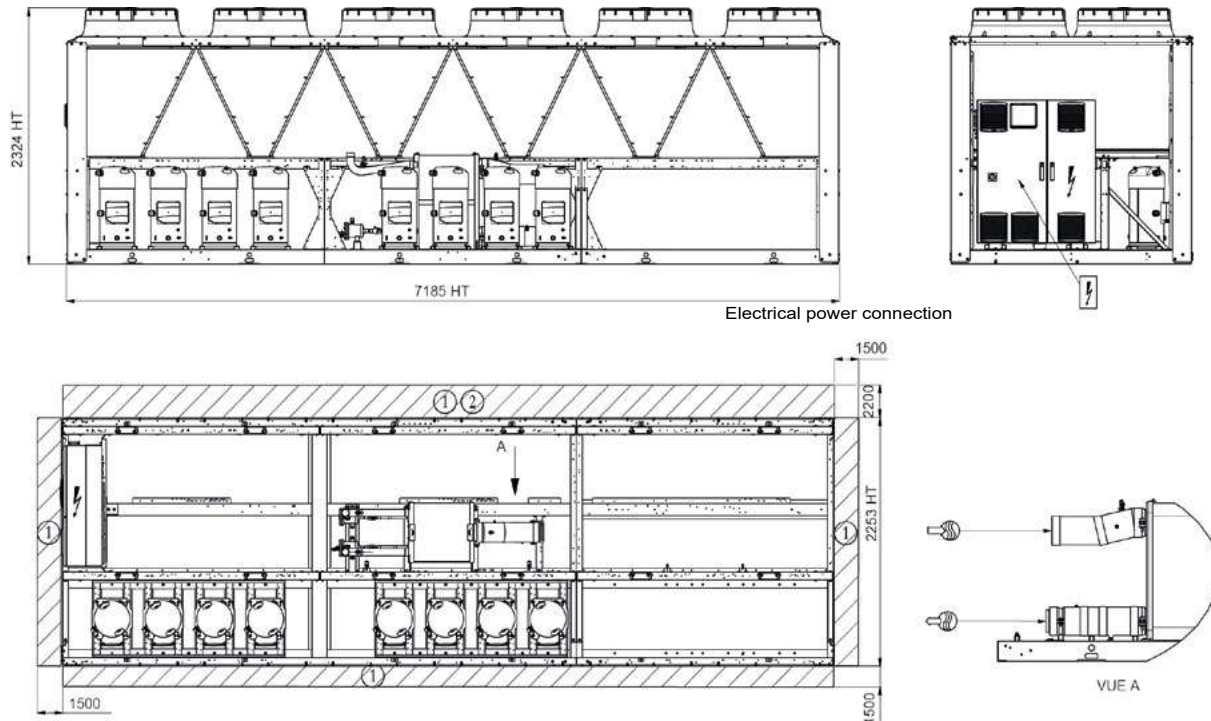




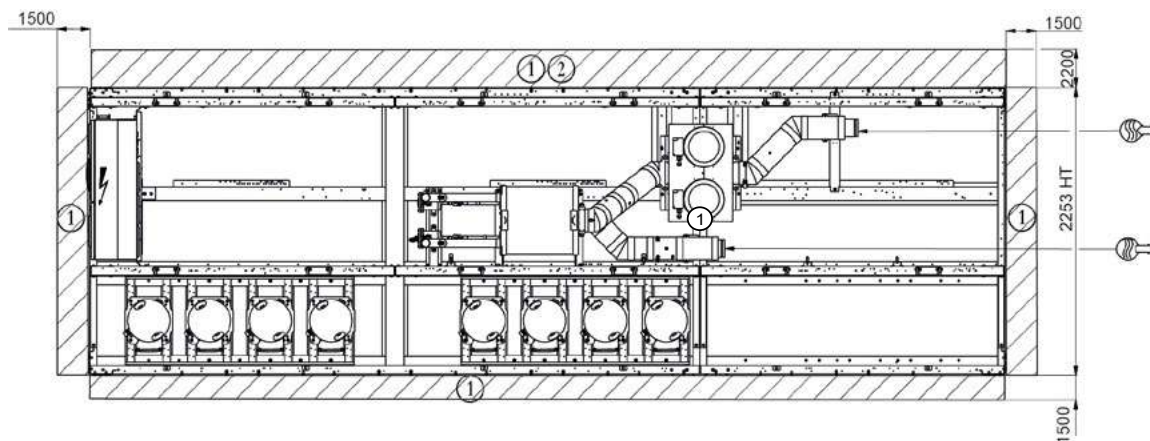
## DIMENSIONS/CLEARANCES

### 30RB/30RBP 770R-950R (with and without hydraulic module)

#### Without hydraulic module



#### With hydraulic module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for removal of the coils

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.

Heating mode/COP/SCOP related to the 30RQ-/30RQP heat pump version



## AIR-COOLED FIXED-SPEED SCREW CHILLER



Very economical operation  
Low sound levels  
Simple installation  
Environmentally responsible  
Exceptional reliability

# 30XBE / 30XBP 250-1700

## AQUAFORCE®

Nominal cooling capacity 277 - 1684 kW - 50 Hz

The AquaForce™ 30XBE and 30XBP liquid chillers are the economic solution for commercial and industrial applications where high reliability and economic operation in all climate conditions are key customer requirements.

The AquaForce™ 30XBE and 30XBP liquid chillers are designed to meet current and future regulations for energy efficiency and operating sound levels. They use the latest Carrier technologies:

Carrier 06T twin-rotor fixed-speed screw compressors.

Low noise 6th generation of Carrier Flying Bird™ fans with AC motor (30XBE) or EC motor (30XBP).

Carrier flooded shell-and-tube evaporator with new copper tube design for low pressure drops

2nd generation of "V" shape Carrier Novation™ microchannel heat exchangers with optional Enviro-Shield coatings.

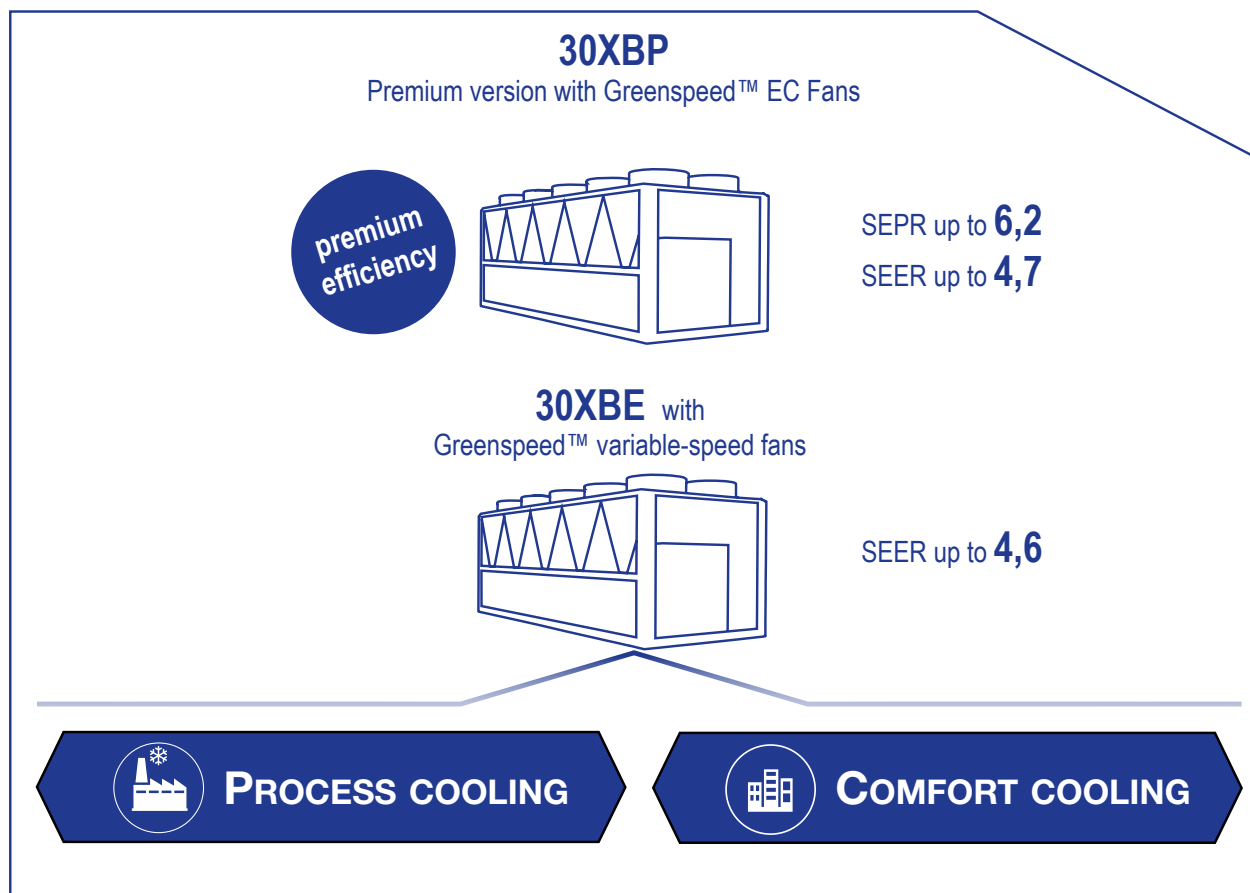
Carrier SmartVu™ control with color touch screen user interface that includes 10 languages and integrated web-server.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## AQUAFORCE®, THE RIGHT SOLUTION FOR EVERY APPLICATION

Carrier's AquaForce® 30XBE range is available in two levels of efficiency to perfectly match each customer application and meet the European Ecodesign directive requirements.



**30XBE**  
with Greenspeed™ intelligence

The AquaForce® 30XBE with Greenspeed™ intelligence is equipped with variable-speed AC fan motors. It offers an economical solution to enhance seasonal energy efficiency levels for comfort applications. The 30XBE with Greenspeed™ intelligence meets the 2021 EU Ecodesign SEER 12/7°C requirements (Application thermal load variation from 0% to 100%).



**30XBP**

The AquaForce® 30XBP with Greenspeed™ intelligence is the premium version with EC fans and additional heat exchange surface to improve both the full load and part load energy efficiency.

The 30XBP provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.

## 30XBE RANGES CUSTOMER BENEFITS

### ■ Absolute reliability

Carrier's AquaForce® 30XBE is the evolution of the 30XA range that counts thousands of installations worldwide. The reliability of the AquaForce® system is the result of intensive research, field experience combined with the highest quality standards. The AquaForce® range is equipped with the Carrier 06T twin screw compressors, well-known for its robustness, 99,7% of units without a compressor failure\*, and the fully aluminium Novation® microchannel heat exchangers with Super Enviro-shield™ coatings to deliver guaranteed long-term optimized performance.

\* Quality rate measured over a period of 15 years operation.



**99,7%**  
of units without a  
compressor failure



Up to  
**40% less**  
refrigerant charge



**25%**  
smaller



from  
**-20°C**  
to **55°C**



**93 dB(A)**

### ■ Environmental responsibility

Carrier's AquaForce® 30XBE ranges are a boost for green cities and contributes to a sustainable future. Combining a reduced load refrigerant (-40% vs traditional cu/al coils) thanks to the use of Novation® microchannel heat exchangers and high energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions throughout its life cycle.

The AquaForce® PUREtec™ version, designed exclusively for ultra low GWP HFO R1234ze, are available.

### ■ Compact

Designed with one "V shape" Novation® microchannel heat exchanger less, Carrier's AquaForce® 30XBE is 25% smaller than the previous 30XA generation. As an example, the 30XBE -500 model is 1.2 meters shorter than the previous 30XA-502 model while offering same energy efficiency ratio.

### ■ Extensive scope of application

Carrier's AquaForce® 30XBE and 30XBP adapt effortlessly to a wide range of applications. Extended operating temperatures from -20°C to 55°C outdoor air temperatures and negative water temperatures make it ideal for various sectors of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaForce® 30XBE and 30XBP are the perfect solutions to combine competitive price associated with high energy efficiency whatever the climate and wherever the location.

### ■ Low operating sound levels

The AquaForce® 30XBE and 30XBP range offers 4 sound levels to meet the most demanding technical requirements in noise sensitive environments. 30XBE is up to 6 dB(A) quieter than the AquaForce® 30XAV generation.

The range is equipped in standard with the 6th generation of Carrier Flying Bird fans. The new fan blade inspired by nature is the result of advanced research in our laboratory. The unit can be equipped in option with AC or EC motor to guarantee smooth fan speed variation and thus eliminate start-stop noise during part load operation.

For further acoustic comfort, the units can be equipped with an acoustic compressor and oil separator enclosure reducing radiated noise (option 15), with low speed fans (option 15LS) and with sound attenuation material on the refrigerating circuit to guarantee ultra-low noise operation for highly noise sensitive environment (option 15LS+).



## CUSTOMER BENEFITS

The range is available in 2 efficiency levels.

- **30XBE standard unit with variable speed AC fan motors**  
The AquaForce™ 30XBE is equipped with fixed-speed screw compressors and variable-speed fans with AC motors. The 30XBE offers an economical solution to enhances seasonal energy efficiency levels for comfort applications.  
(Average SEPR of 5,7, average SEER of 4,6, average EER of 3,1)
- **30XBP premium unit**  
The 30XBP premium unit is equipped with EC fans to improve both the full load and part load energy efficiency. The 30XBP provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.  
(Average SEPR of 6,0, average SEER of 4,7, average EER of 3.2)

### Very economical operation

Exceptionally high full load and part load energy efficiency:

- 30XBE version: SEER 12/7°C up to 4.4 in accordance with EN14825.
- 30XBP version: SEER 12/7°C up to 4.6 in accordance with EN14825.
- Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
- Novation™ aluminium condenser with high-efficiency micro-channels.
- Flooded shell-and-tube evaporator with new generation of cooler tubes to reduce exchanger pressure drops, especially in applications with high percentage of glycol.
- Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface (superheat control).
- Economiser system with electronic expansion device for increased cooling capacity.

### Low operating sound levels

- **Compressors**
  - Discharge dampers integrated in the oil separator (Carrier patent).
  - Silencer on the economiser return line.
  - Compressor and oil separator acoustic enclosure, reducing radiated noise (option).
- **Condenser section**
  - Condenser coils in wide angle V configuration, allowing quieter air flow across the coil
  - Low-noise 6<sup>th</sup> generation Flying Bird fans, made of a composite material (Carrier patent), are now even quieter and do not generate intrusive low-frequency noise
  - Inverter driven EC fans on 30XBP version eliminate start stop noise during part load operation.
  - Rigid fan mounting preventing start-up noise (Carrier patent).

## CUSTOMER BENEFITS

### Simple installation

- Integrated hydraulic module (option)
  - Centrifugal low or high-pressure water pump (as required), based on the pressure loss of the hydraulic installation
  - Single or dual pump (as required) with run time balancing and automatic changeover to the back-up pump if a fault develops
  - Water filter to protect pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit (option)
  - Thermal insulation and aluminium cladding (option)
  - Pressure sensor to check filter condition and for direct numerical display of the water flow rate with an estimate of the instantaneous cooling capacity at the control interface
- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V).
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the controls, expansion devices, fans and compressors.

### Environmental responsibility

- R-134a refrigerant
  - Range designed for use with R-134a refrigerant with the possibility to upgrade to ultra-low global warming potential R-1234ze by using the dedicated field retrofit kit.
  - 40% reduction in the refrigerant charge through the use of micro-channel heat exchangers
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Liquid line service valve for simplified maintenance (option).

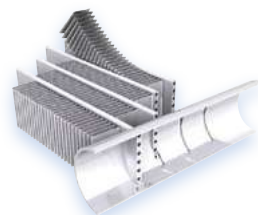
### Exceptional reliability

- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
  - Dedicated electronic compressor protection module.
- Air condenser
  - 2<sup>nd</sup> generation of "V" shape Carrier Novation™ aluminium microchannel heat exchangers (MCHE) with high corrosion resistance. The all aluminium design eliminates the formation of galvanic currents between aluminium and copper that cause coil corrosion in saline or corrosive environments.
- Evaporator
  - Thermal insulation with aluminium sheet finish (option) for improved resistance to mechanical and UV damage.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure. If condenser coil fouling or fan failure occurs, the Aquaforce continues to operate, but at reduced capacity
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of sophisticated finite element stress analysis for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table. The test is based on a military standard and equivalent to 4000 km by truck.
  - Salt mist corrosion resistance test in the laboratory for increased corrosion resistance.

## 30XB TECHNICAL INSIGHTS

**6TH GENERATION OF FLYING BIRD™ FANS WITH AC OR EC MOTOR**

- Exclusive Carrier design
- Fan blade design inspired by nature
- 30XBE standard version with variable-speed fans and AC motor
- EC fans available as standard on 30XBP premium version

**2ND GENERATION OF “V” SHAPE NOVATION® MICRO CHANNEL HEAT EXCHANGERS**

- Exclusive Carrier design
- High reliability with long-life aluminum alloy
- Significantly reduces refrigerant load (~40% vs cu/al coils)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)

**FIXED-SPEED SINGLE OR DUAL PUMPS WITH AC MOTOR (OPTION)**

- Low static pressure (~100 kPa) or high static pressure (~180 kPa) available
- Available on all sizes up to 400 kW

**CARRIER FIXED-SPEED 06T TWIN SCREW COMPRESSOR WITH AC MOTOR**

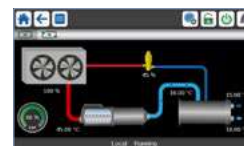
- Exclusive Carrier design
- Twin screw compressor designed for fixed speed operation
- Sliding valve control (30%-100%)
- Bearing life exceeding 100,000 hours
- 99,7% of units without compressor default

**FLOODED SHELL AND TUBE EVAPORATOR**

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol

**ADVANCED SMARTVU™ WITH 5 INCH COLOR TOUCH SCREEN INTERFACE**

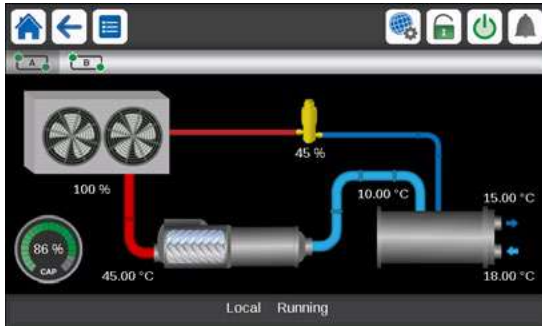
- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity
- Web server capabilities-easy remote access via internet
- Trending capabilities



## TECHNICAL INSIGHTS

### SmartVu™ Control

SmartVu™, user interface



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 5" interface (7" optional)
  - Direct access to the unit's technical drawings and the main service documents
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Easy access to the control panel with inclined touch screen mounting to ensure legibility under any lighting conditions
  - Safe operation and unit setting: password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and «smart» intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation.
- Energy management:
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.

### Remote Management (Standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), and in conjunction with one of Carrier's network products (Chiller System Manager or Plant system Manager) it forms part of a fully integrated and balanced HVAC system (optional).
- Aquaforce also communicates with other building management systems via optional communication gateways.

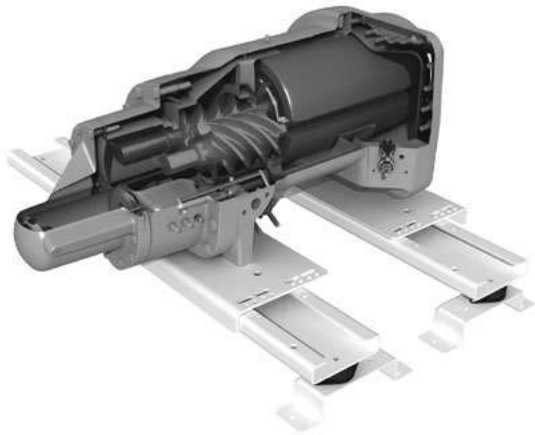
- The following commands/visualisations are possible from remote connection:
  - Start/stop of the machine
  - Dual set-point management: through a dedicated contact is possible to activate a second set-point (for example, during unoccupied mode).
  - Demand limit setting: to limit the maximum chiller capacity to a predefined value
  - Water pump control: these outputs control the contactors of one/two evaporator water pumps
  - Automatic changeover of pumps in the event of a fault (only with options 116S/116U).
  - Operation visualisation: indication if the unit is operating or in stand-by (no cooling load), (no cooling load) - alarm visualisation.

### Remote Management (EMM option)

- The Energy Management Module (EMM) offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostat are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
  - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode)
  - Time schedule override: closing this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service
  - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault
  - Compressors running status: Set of outputs (one for each compressor) indicating which compressors are running.

## TECHNICAL INSIGHTS

### 06T Screw Compressor



#### 99.7%\* of units without a compressor failure

\* Quality rate measured over a period of 15 years operation

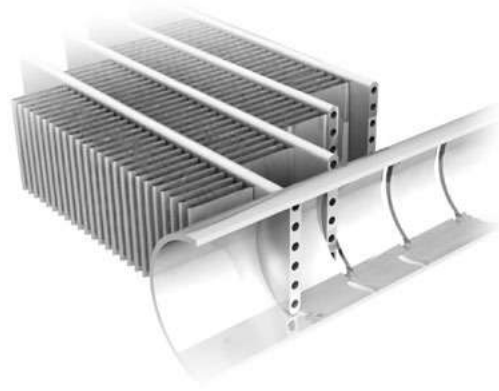
The Carrier 06T screw compressor benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high outside temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The compressor is equipped with a separate oil separator that minimises the amount of oil in circulation in the refrigerant circuit and, with its integrated silencer, considerably reduces discharge gas pulsations for much quieter operation.

### Novation® Heat Exchangers with Micro-Channel coil Technology



Already utilised in the automobile and aeronautical industries for many years, the Novation™ MCHE micro-channel heat exchanger used in the Aquaforce is entirely made of aluminium. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminium) come into contact in traditional heat exchangers. Unlike traditional heat exchangers the Novation™ MCHE heat exchanger can be used in moderate marine and urban environments (Carrier recommendation).

From an energy efficiency point-of-view the Novation™ MCHE heat exchanger is approximately 10% more efficient than a traditional coil and allows a 40% reduction in the amount of refrigerant used in the chiller. The low thickness of the Novation™ MCHE reduces air pressure losses by 50% and makes it susceptible to very little fouling (e.g. by sand). Cleaning of the Novation™ MCHE heat exchanger is very fast using a high-pressure washer.

Carrier Novation® MCHE with Super Enviro-shield® coating, the ideal customer choice

To further enhance long-term performance, and to protect coils from early deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.

The Novation™ MCHE with Enviro-Shield protection (option 262) are recommended for installations in moderately corrosive environments. The Enviro-Shield protection utilises corrosion inhibitors which actively arrest oxidation in case of mechanical damage.

The Novation™ MCHE with the exclusive Super Enviro-Shield protection (option 263) are recommended for installations in corrosive environments. The Super Enviro-Shield protection consist in an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.



# TECHNICAL INSIGHTS

## Novation® Heat Exchangers with Micro-Channel coil Technology

After a total of more than 7,000 hours of testing following various test standards in UTC laboratories, the Carrier Novation® MCHE with Super Enviro-shield® coating appears to be the ideal customer choice to minimize the harmful effects of corrosive atmospheres and ensure long equipment life.

- Best corrosion resistance per ASTM B117/D610 test
- Best heat transfer performance per Carrier Marine 1 test
- Proven reliability per ASTM B117 test

| Coil Types<br>(ranked by performance) | Visual Corrosion<br>Evaluation | Heat Transfer Performance<br>Degradation | Time to Failure | Test Campaign<br>Conclusions |
|---------------------------------------|--------------------------------|--|-----------------|------------------------------|
| Super Enviro-shield® Novation™ MCHE   | Very good                      | Very good                                | No coil leak    | Best                         |
| Super Enviro-shield® Cu/Al coil       | Very good                      | Good                                     | No coil leak    | Very good                    |
| Enviro-shield® Novation™ MCHE         | Very good                      | Good                                     | No coil leak    | Very good                    |
| Al/Al coil                            | Very good                      | Good                                     | No coil leak    | Very good                    |
| Novation™ MCHE                        | Good                           | Good                                     | No coil leak    | Good                         |
| Cu/Cu coil                            | Good                           | Good                                     | Leak            | Acceptable                   |
| Blygold® Cu/Al coil                   | Good                           | Good                                     | No coil leak    | Acceptable                   |
| Precoat Cu/Al coil                    | Bad                            | Bad                                      | No coil leak    | Bad                          |
| Cu/Al coil                            | Bad                            | Bad                                      | No coil leak    | Bad                          |

## New Generation of Flying Bird VI fans with EC motor



The 30XBE and 30XBP utilize Carrier's 6<sup>th</sup> generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and wide operating range. The fan includes Carrier patented rotating shroud technology and back-swept blades with a unique wave-serration trailing edge inspired from nature.

It was designed and optimized for the 30XB ranges air management system configuration and heat exchanger technology and is offered with induction and EC motor options. The fan meets the latest European eco-design requirements for fan efficiency. The fan uses Carrier's robust and proven injection molded composite-thermoplastic construction.

## OPTIONS

| Options  | No.   | Description  | Advantages  | Use for 30XBE / 30XBP |
|--|-------|--|---|-----------------------|
| Corrosion protection, traditional coils        | 3A    | Fins made of pre-treated aluminum (polyurethane and epoxy)   | Improved corrosion resistance, recommended for moderate marine and urban environments   | 30XBE/30XBP 250-1700  |
| Medium-temperature brine solution              | 5     | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -12°C when ethylene glycol is used (-8°C with propylene glycol)  | Covers specific applications such as ice storage and industrial processes   | 30XBE/30XBP 250-1700  |
| Low-temperature brine solution                 | 6     | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -15°C when ethylene glycol is used (-10°C with propylene glycol) | Covers specific applications such as ice storage and industrial processes   | 30XBE/30XBP 250-1700  |
| Light-brine solution, down to -3°C             | 8     | Implementation of new control algorithms to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)                              | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements   | 30XBE/30XBP 250-1700  |
| Unit equipped for air discharge ducting        | 10    | Fans equipped with discharge connection flanges - maximum available pressure 60 Pa   | Facilitates connections to the discharge ducts  | 30XBE/30XBP 250-1700  |
| Low noise level                                | 15    | Aesthetic and sound absorbing compressor enclosure   | Noise level reduction   | 30XBE/30XBP 250-1700  |
| Very low noise level                           | 15LS  | Aesthetic and sound absorbing compressor enclosure associated with low-speed fans  | Noise level reduction in sensitive environments   | 30XBE/30XBP 250-1700  |
| Ultra low noise level                          | 15LS+ | Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources  | Noise level reduction in sensitive environments   | 30XBE/30XBP 250-1700  |
| IP54 control box                               | 20A   | Increased leak tightness of the unit   | Protects the inside of the electrical box from dust, water and sand. In general this option is recommended for installations in polluted environments   | 30XBE/30XBP 250-1700  |
| Tropicalisation of the electrical box          | 22    | Electrical box equipped with an electrical heater and a fan. Electrical connections on the compressors painted with a special varnish and covered with an anti-condensation foam.      | Allows safe operation in typical "tropical" climate. This option is recommended for all applications where humidity inside the electrical box can reach 80% at 40°C and unit can remain in stand-by for a long time under these conditions. | 30XBE/30XBP 250-1700  |
| Grilles and enclosure panels                   | 23    | Metal grilles on the 4 unit sides, plus side enclosure panels at each end of each coil   | Improves aesthetics, protection against intrusion to the unit interior, coil and piping protection against impacts.   | 30XBE/30XBP 250-1700  |
| Enclosure panels                               | 23A   | Side enclosure panels at each end of each coil   | Improves aesthetics, coil and piping protection against impacts.  | 30XBE/30XBP 250-1700  |
| Low inrush current                             | 25C   | Specific compressor loading and unloading sequence to limit the unit start-up current  | Reduced start-up current  | 30XBE/30XBP 250-1700  |
| Water exchanger frost protection               | 41A   | Electric resistance heater on the water exchanger and discharge valve  | Water exchanger frost protection down to -20°C outside temperature  | 30XBE/30XBP 250-1700  |
| Evaporator & hydraulic module frost protection | 41B   | Electric resistance heater on water exchanger, discharge valve and hydraulic module  | Water exchanger and hydraulic module frost protection down to -20°C outside temperature   | 30XBE/30XBP 250-500   |
| Total heat recovery                            | 50    | Unit equipped with additional heat exchanger in parallel with the condenser coils.   | Production of free hot-water simultaneously with chilled water production   | 30XBE/30XBP 250-1000  |
| Master/slave operation                         | 58    | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel                        | Optimised operation of two units connected in parallel operation with operating time equalisation   | 30XBE/30XBP 250-400   |
| Single power connection point                  | 81    | Unit power connection via one main supply connection   | Quick and easy installation   | 30XBE/30XBP 1100-1500 |
| Evap. and pumps with aluminum jacket           | 88A   | Evaporator and pumps covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions  | 30XBE/30XBP 250-400   |
| Service valve set                              | 92    | Liquid line valve (evaporator inlet), compressor suction and discharge line valves and economiser line valve   | Allow isolation of various refrigerant circuit components for simplified service and maintenance  | 30XBE/30XBP 250-1700  |

## OPTIONS

| Options  | No.  | Description   | Advantages  | Use for 30XBE / 30XBP |
|--|------|---|---|-----------------------|
| Compressor discharge valves                    | 93A  | Shut-off valve on the compressor discharge piping   | Simplified maintenance  | 30XBE/30XBP 250-1700  |
| Evaporator with one pass more                  | 100A | Evaporator with one pass more on the water side   | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high evaporator delta T)           | 30XBE/30XBP 250-1700  |
| 21 bar evaporator                              | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high-rise buildings)                                  | 30XBE/30XBP 250-1700  |
| Reversed evaporator water connections          | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements   | 30XBE/30XBP 250-1700  |
| HP single-pump hydraulic module                | 116R | Hydraulic module equipped with water filter, one high pressure pump, drain valve and pressure transducers (expansion tank & aluminum jacket not included).                          | Easy and fast installation (plug & play). Increased system reliability  | 30XBE/30XBP 250-400   |
| HP dual-pump hydraulic module                  | 116S | Hydraulic module equipped with water filter, two high pressure pumps, drain valve and pressure transducers (expansion tank & aluminum jacket not included).                         | Easy and fast installation (plug & play). Increased system reliability  | 30XBE/30XBP 250-400   |
| LP single-pump hydraulic module                | 116T | Hydraulic module equipped with water filter, one low pressure pump, drain valve and pressure transducers (expansion tank & aluminum jacket not included).                           | Easy and fast installation (plug & play). Increased system reliability  | 30XBE/30XBP 250-400   |
| LP dual-pump hydraulic module                  | 116U | Hydraulic module equipped with water filter, two low pressure pumps, drain valve and pressure transducers (expansion tank & aluminum jacket not included).                          | Easy and fast installation (plug & play). Increased system reliability  | 30XBE/30XBP 250-400   |
| Dx Free Cooling system on two circuits         | 118A | Patented Carrier free-cooling system with cooling micro-pump on both refrigerant circuits. Operation without glycol, no extra free-cooling coil. See Dx Free-cooling option chapter | Energy savings for applications with cooling demand throughout the entire year  | 30XBE/30XBP 250-1000  |
| Lon gateway                                    | 148D | Bi-directional communication board complying with Lon Talk protocol   | Connects the unit by communication bus to a building management system  | 30XBE/30XBP 250-1700  |
| Bacnet over IP                                 | 149  | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters    | 30XBE/30XBP 250-1700  |
| Modbus over IP and RS485 communication gateway | 149B | Bi-directional high-speed communication using the Modbus over Ethernet network (IP) protocol  | Easy, quick connection via Ethernet line to a building technical management system. Allows access to several unit parameters. | 30XBE/30XBP 250-1700  |
| Energy Management Module                       | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)              | 30XBE/30XBP 250-1700  |
| 7" user interface                              | 158A | Control supplied with a 7 inch colour touch screen user interface   | Enhanced ease of use.   | 30XBE/30XBP 250-1700  |
| Input contact for Refrigerant leak detection   | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)                                  | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions                   | 30XBE/30XBP 250-1700  |
| Dual relief valves on 3-way valve              | 194  | Three-way valve upstream of dual relief valves on the evaporator and the oil separator  | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4              | 30XBE/30XBP 250-1700  |
| Compliance with Swiss regulations              | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications  | Conformance with Swiss regulations  | 30XBE/30XBP 250-1700  |
| Compliance with Russian regulations            | 199  | EAC certification   | Conformance with Russian regulations  | 30XBE/30XBP 250-1700  |

## OPTIONS

| Options                                       | No.  | Description  | Advantages  | Use for<br>30XBE /<br>30XBP |
|---|------|--|---|-----------------------------|
| Compliance with Australian regulations        | 200  | Unit approved to Australian code   | Conformance with Australian regulations   | 30XBE/30XBP 250-1700        |
| Insulation of the evap. in/out ref.lines      | 256  | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation   | Prevents condensation on the evaporator entering/leaving refrigerant lines  | 30XBE/30XBP 250-1700        |
| Enviro-Shield anti-corrosion protection       | 262  | Coating by conversion process which modifies the surface of the aluminum producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested 4000 hours salt spray per ASTM B117  | Improved corrosion resistance, recommended for use in moderately corrosive environments   | 30XBE/30XBP 250-1700        |
| Super Enviro-Shield anti-corrosion protection | 263  | Extremely durable and flexible epoxy polymer coating applied on micro channel heat exchangers by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Improved corrosion resistance, recommended for use in extremely corrosive environments  | 30XBE/30XBP 250-1700        |
| Welded evaporator connection kit              | 266  | Victaulic pipe adapters for welded joints  | Easy installation   | 30XBE/30XBP 250-1700        |
| Compressor enclosure                          | 279a | Compressor enclosure   | Improved aesthetic, compressor protection against external elements (dust, sand, water...)  | 30XBE/30XBP 250-1700        |
| Evaporator with aluminum jacket               | 281  | Evaporator covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions  | 30XBE/30XBP 250-1700        |
| 230V electrical plug                          | 284  | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps)   | Permits connection of a laptop or an electrical device during unit commissioning or servicing   | 30XBE/30XBP 250-1700        |
| Expansion tank                                | 293  | 6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option)   | Easy and fast installation (plug & play), & Protection of closed water systems from excessive pressure  | 30XBE/30XBP 250-400         |
| US screw compressor                           | 297  | Screw compressor made in US  |   | 30XBE/XBP 1100-1700         |
| Variable Water Flow control                   | 299  | Hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant $\Delta T$ , constant outlet pressure and "fixed-speed" control   | When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/optimised chiller operation | 30XBE/XBP 250-400           |
| Free-cooling dry-cooler control               | 313  | Remote control of 09PE or 09VE dry-cooler based on a 0-10V signal.   | Easy system management, extended control capabilities of a remote dry-cooler used in free-cooling mode  | 30XBE/XBP 250-1700          |
| Compliance with UAE regulation                | 318  | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590  | Compliance with ESMA standard UAE.S 5010-5 :2019.   | 30XBE/30XBP 250-1700        |
| Compliance with Qatar regulation              | 319  | Specific nameplate on the unit with power supply 415 V+/-6%  | Compliance with KAHRAMAA regulation in Qatar.   | 30XBE/30XBP 250-1700        |
| Compliance with Morocco regulation            | 327  | Specific documents according Morocco regulation  | Conformance with Morocco regulations  | 30XBE/30XBP 250-1700        |
| Plastic tarp                                  | 331  | Plastic tarp covering units with strapping and campled on the wooden pallet.   | Allow unit to avoid dust and dirt from the outside environment during stocking and shipping.  | 30XBE/30XBP 250-1700        |

## PHYSICAL DATA, SIZES 30XBE-250 TO 800

| 30XBE                                 |       |   |         | 250   | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 750  | 800  |      |
|---------------------------------------|-------|---|---------|-------|------|------|------|------|------|------|------|------|------|------|
| Cooling                               |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         | CA1   | Nominal capacity                                | kW      | 277   | 300  | 322  | 392  | 444  | 494  | 623  | 676  | 730  | 782  |      |
|                                       |       | Full load performances*                         | EER     | kW/kW | 3,15 | 3,12 | 3,08 | 3,18 | 3,11 | 3,08 | 3,22 | 3,28 | 3,10 | 3,10 |
| Unit with option 15LS (+)             | CA1   | Nominal capacity                                | kW      | 271   | 293  | 313  | 384  | 432  | 478  | 607  | 659  | 709  | 757  |      |
|                                       |       | Full load performances*                         | EER     | kW/kW | 3,13 | 3,08 | 3,00 | 3,16 | 3,03 | 2,93 | 3,13 | 3,20 | 2,97 | 2,93 |
| Seasonal energy efficiency **         |       | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,47  | 4,46 | 4,40 | 4,33 | 4,56 | 4,55 | 4,55 | 4,62 | 4,56 | 4,55 |      |
|                                       |       | η <sub>s</sub> cool <sup>12/7°C</sup>           | %       | 176   | 175  | 173  | 170  | 179  | 179  | 179  | 182  | 179  | 179  |      |
|                                       |       | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,70  | 5,69 | 5,65 | 5,78 | 5,72 | 5,74 | 5,68 | 5,79 | 5,63 | NA   |      |
| Unit with Option 5                    |       | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 2,72  | 3,02 | 3,18 | 2,81 | 3,51 | 3,56 | 3,65 | 3,67 | 3,44 | 3,35 |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Unit with Option 299                  |       | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,47  | 4,47 | 4,43 | 4,49 | NA   | NA   | NA   | NA   | NA   | NA   |      |
|                                       |       | η <sub>s</sub> cool <sup>12/7°C</sup>           | %       | 176   | 176  | 174  | 177  | NA   | NA   | NA   | NA   | NA   | NA   |      |
|                                       |       | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,72  | 5,71 | 5,68 | 5,83 | NA   | NA   | NA   | NA   | NA   | NA   |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Unit with Option 6                    |       | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,29  | 3,46 | 3,52 | 3,26 | 3,42 | 3,5  | 3,5  | 3,62 | 3,38 | 3,34 |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Unit with 15LS (+)                    |       | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,49  | 4,48 | 4,41 | 4,33 | 4,56 | 4,57 | 4,56 | 4,62 | 4,56 | 4,58 |      |
|                                       |       | η <sub>s</sub> cool <sup>12/7°C</sup>           | %       | 176   | 176  | 173  | 170  | 179  | 180  | 179  | 182  | 179  | 180  |      |
|                                       |       | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,82  | 5,88 | 5,79 | 5,57 | 5,70 | 5,79 | 5,92 | 5,93 | 5,79 | 5,72 |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Unit with Option 5 & 15LS (+)         |       | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 2,75  | 3,10 | 3,29 | 2,83 | 3,54 | 3,67 | 3,79 | 3,82 | 3,55 | 3,57 |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Unit with Option 299 & 15LS (+)       |       | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,47  | 4,47 | 4,42 | 4,47 | NA   | NA   | NA   | NA   | NA   | NA   |      |
|                                       |       | η <sub>s</sub> cool <sup>12/7°C</sup>           | %       | 176   | 176  | 174  | 176  | NA   | NA   | NA   | NA   | NA   | NA   |      |
|                                       |       | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,84  | 5,91 | 5,82 | 5,61 | NA   | NA   | NA   | NA   | NA   | NA   |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Unit with Option 6 & 15LS(+)          |       | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,35  | 3,58 | 3,71 | 3,38 | 3,64 | 3,61 | 3,63 | 3,78 | 3,50 | 3,55 |      |
| Seasonal energy efficiency **         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound levels                          |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            | dB(A) |   |         | 99    | 99   | 99   | 99   | 101  | 99   | 101  | 99   | 103  | 103  |      |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) |   |         | 67    | 67   | 67   | 67   | 69   | 67   | 68   | 66   | 70   | 70   |      |
| Unit + option 15 <sup>(3)</sup>       |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            | dB(A) |   |         | 93    | 93   | 94   | 95   | 95   | 95   | 97   | 96   | 97   | 98   |      |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) |   |         | 61    | 61   | 62   | 63   | 63   | 63   | 64   | 63   | 64   | 65   |      |
| Unit + option 15LS <sup>(3)</sup>     |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            | dB(A) |   |         | 87    | 87   | 87   | 90   | 91   | 91   | 93   | 92   | 94   | 94   |      |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) |   |         | 55    | 55   | 55   | 58   | 59   | 59   | 60   | 59   | 61   | 61   |      |
| Unit + option 15LS+ <sup>(3)</sup>    |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            | dB(A) |   |         | -     | -    | -    | -    | 89   | 89   | 91   | 90   | 91   | 92   |      |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) |   |         | -     | -    | -    | -    | 57   | 57   | 58   | 57   | 58   | 59   |      |
| Dimensions                            |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |       |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Length                                | mm    |   |         | 3604  | 3604 | 3604 | 4798 | 4798 | 4798 | 7186 | 7186 | 7186 | 7186 |      |
| Width                                 | mm    |   |         | 2253  | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |      |
| Height                                | mm    |   |         | 2322  | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |      |

- \* In accordance with standard EN14511-3:2018.  
 \*\* In accordance with standard EN14825:2016, average climate  
 \*\*\* With EG 30%  
 CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m<sup>2</sup>.K/W  
 η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**  
 SEPR<sub>-2/-8°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**  
 NA Non Authorized for the specific application for CEE market  
 (1) In dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.  
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L<sub>w</sub>(A).  
 (3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = DX freecooling option, 50= heat recovery.



Eurovent certified values



## PHYSICAL DATA, SIZES 30XBE-250 TO 800

| 30XBE   |                    | 250   | 300   | 350   | 400   | 450   | 500   | 600   | 700   | 750   | 800   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Operating weight<sup>(4)</sup></b>                       |                    |   |       |       |       |       |       |       |       |       |       |
| Standard unit   | l                  | 3040  | 3071  | 3091  | 3674  | 3737  | 3798  | 4797  | 4943  | 5201  | 5514  |
| Unit + option 15 <sup>(3)</sup>                             | l                  | 3308  | 3339  | 3359  | 3973  | 4036  | 4097  | 5128  | 5274  | 5532  | 5845  |
| Unit + option 118 a <sup>(3)</sup>                          |                    | 3124  | 3155  | 3175  | 3778  | 3841  | 4182  | 4929  | 5075  | 5348  | 5661  |
| Unit + option 50 <sup>(3)</sup>                             |                    | 3385  | 3417  | 3437  | 4106  | 4248  | 4590  | 5550  | 5696  | 6056  | 6368  |
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s  |       |       |       |       |       |       |       |       |       |
| Circuit A   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| No. of control stages                                       |                    |   |       |       |       |       |       |       |       |       |       |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R134a   |       |       |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 39  | 37    | 37    | 52    | 53    | 55    | 60    | 61    | 69    | 69    |
|   | teqCO <sub>2</sub> | 55,8  | 52,9  | 52,9  | 74,4  | 75,8  | 77,9  | 85,8  | 87,2  | 98,0  | 98,7  |
| Circuit B   | kg                 | 40  | 38    | 39    | 40    | 40    | 37    | 61    | 64    | 61    | 67    |
|   | teqCO <sub>2</sub> | 57,2  | 54,3  | 55,8  | 57,2  | 57,2  | 52,9  | 87,2  | 91,5  | 86,5  | 95,8  |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  | 23,5  | 27,6  | 27,6  |
| Circuit B   | l                  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  |
| <b>Capacity control</b>                                     |                    | SmartVu™, , Electronic Expansion Valve (EXV)  |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)   |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | FLYING-BIRD 6, axial fan with rotating impeller   |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 6   | 6     | 6     | 8     | 8     | 8     | 11    | 12    | 12    | 12    |
| Maximum total air flow                                      | l/s                | 28920   | 28920 | 28920 | 38560 | 38560 | 38560 | 53020 | 57840 | 57840 | 57840 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |       |       |       |
| Maximum total air flow                                      | l/s                | 23580   | 23580 | 23580 | 31440 | 31440 | 31440 | 43230 | 47160 | 47160 | 47160 |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type   |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 58  | 61    | 61    | 66    | 70    | 77    | 79    | 94    | 98    | 119   |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air drain valve, pressure sensors, expansion tank (option) |       |       |       |       |       |       |       |       |       |
| Pump  |                    | Centrifugal pump, monocell, 48,3r/s, low or high pressure (as required), single or dual (as required)             |       |       |       |       |       |       |       |       |       |
| Expansion vessel volume                                     | l                  | 50  | 50    | 50    | 50    |       |       |       |       |       |       |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400   | 400   | 400   | 400   |       |       |       |       |       |       |
| <b>Water connections without or with hydraulic module</b>   |                    | Victaulic® type   |       |       |       |       |       |       |       |       |       |
| <b>Standard &amp; option 8, without option 116</b>          |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 5   | 5     | 5     | 5     | 5     | 5     | 5     | 6     | 6     | 6     |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 168,3 | 168,3 | 168,3 |
| <b>Options 5, 6 et 100A</b>                                 |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 4   | 4     | 4     | 4     | 4     | 4     | 5     | 5     | 5     | 5     |
| Actual outside diameter                                     | mm                 | 114,3   | 114,3 | 114,3 | 114,3 | 114,3 | 114,3 | 141,3 | 141,3 | 141,3 | 141,3 |
| <b>Options 116</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 4   | 4     | 4     | 4     | -     | -     | -     | -     | -     | -     |
| Actual outside diameter                                     | mm                 | 114,3   | 114,3 | 114,3 | 114,3 | -     | -     | -     | -     | -     | -     |
| <b>Casing paint</b>   |                    | Colour code RAL 7035  |       |       |       |       |       |       |       |       |       |

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = Dx freecooling option, 50= heat recovery.

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL DATA, SIZES 30XBE-850 TO 1700

| 30XBE                                 |  |                               |   | 850     | 900   | 1000  | 1100  | 1200   | 1300   | 1400   | 1500   | 1700   |        |
|---------------------------------------|--|-------------------------------|---|---------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| Cooling                               |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Standard unit                         |  | CA1                           | Nominal capacity  | kW      | 824,7 | 898,8 | 982,6 | 1143,0 | 1262,4 | 1329,6 | 1440,7 | 1511,5 | 1683,9 |
| Full load performances*               |  |                               | EER   | kW/kW   | 3,08  | 3,12  | 3,17  | 3,22   | 3,19   | 3,16   | 3,05   | 3,07   | 3,21   |
| Unit with option 15LS (+)             |  | CA1                           | Nominal capacity  | kW      | 795   | 878   | 969   | 1113   | 1226   | 1290   | 1392   | 1464   | 1639   |
| Full load performances*               |  |                               | EER   | kW/kW   | 2,89  | 2,99  | 3,03  | 3,11   | 3,05   | 2,98   | 2,82   | 2,89   | 3,10   |
| Standard unit                         |  | Seasonal energy efficiency ** | SEER $_{12/7^{\circ}\text{C}}$ Comfort low temp.        | kWh/kWh | 4,56  | 4,56  | 4,60  | 4,58   | 4,61   | 4,55   | 4,55   | 4,55   | 4,56   |
| Seasonal energy efficiency **         |  |                               | $\eta_{\text{S cool}}$ $_{12/7^{\circ}\text{C}}$        | %       | 179   | 179   | 181   | 180    | 181    | 179    | 179    | 179    | 179    |
|                                       |  |                               | SEPR $_{12/7^{\circ}\text{C}}$ Process high temp.       | kWh/kWh | 5,55  | 5,54  | 5,83  | 5,76   | 5,71   | 5,68   | 5,56   | 5,44   | 5,83   |
| Unit with Option 5                    |  | Seasonal energy efficiency ** | SEPR $_{-2/-8^{\circ}\text{C}}$ Process medium temp.*** | kWh/kWh | 3,53  | 3,44  | 3,55  | 3,52   | 3,47   | 3,6    | 3,63   | 3,18   | 3,73   |
| Seasonal energy efficiency **         |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Unit with Option 299                  |  | Seasonal energy efficiency ** | SEER $_{12/7^{\circ}\text{C}}$ Comfort low temp.        | kWh/kWh | NA    | NA    | NA    | NA     | NA     | NA     | NA     | NA     | NA     |
| Seasonal energy efficiency **         |  |                               | $\eta_{\text{S cool}}$ $_{12/7^{\circ}\text{C}}$        | %       | NA    | NA    | NA    | NA     | NA     | NA     | NA     | NA     | NA     |
|                                       |  |                               | SEPR $_{12/7^{\circ}\text{C}}$ Process high temp.       | kWh/kWh | NA    | NA    | NA    | NA     | NA     | NA     | NA     | NA     | NA     |
| Unit with option 6                    |  | Seasonal energy efficiency ** | SEPR $_{-2/-8^{\circ}\text{C}}$ Process medium temp.*** | kWh/kWh | 3,47  | 3,39  | 3,47  | 3,29   | 2,63   | 3,45   | 3,53   | 3,20   | 3,48   |
| Seasonal energy efficiency **         |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Unit with 15LS (+)                    |  | Seasonal energy efficiency ** | SEER $_{12/7^{\circ}\text{C}}$ Comfort low temp.        | kWh/kWh | 4,56  | 4,57  | 4,56  | 4,60   | 4,62   | 4,59   | 4,56   | 4,55   | 4,58   |
| Seasonal energy efficiency **         |  |                               | $\eta_{\text{S cool}}$ $_{12/7^{\circ}\text{C}}$        | %       | 179   | 180   | 179   | 181    | 182    | 181    | 179    | 179    | 180    |
|                                       |  |                               | SEPR $_{12/7^{\circ}\text{C}}$ Process high temp.       | kWh/kWh | 5,80  | 5,76  | 5,88  | 5,90   | 5,81   | 5,71   | 5,68   | 5,52   | 5,81   |
| Unit with option 5 & 15LS (+)         |  | Seasonal energy efficiency ** | SEPR $_{-2/-8^{\circ}\text{C}}$ Process medium temp.*** | kWh/kWh | 3,66  | 3,55  | 3,78  | 3,61   | 3,31   | 3,22   | 3,27   | 3,28   | 3,80   |
| Seasonal energy efficiency **         |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Unit with Option 299 & 15LS (+)       |  | Seasonal energy efficiency ** | SEER $_{12/7^{\circ}\text{C}}$ Comfort low temp.        | kWh/kWh | NA    | NA    | NA    | NA     | NA     | NA     | NA     | NA     | NA     |
| Seasonal energy efficiency **         |  |                               | $\eta_{\text{S cool}}$ $_{12/7^{\circ}\text{C}}$        | %       | NA    | NA    | NA    | NA     | NA     | NA     | NA     | NA     | NA     |
|                                       |  |                               | SEPR $_{12/7^{\circ}\text{C}}$ Process high temp.       | kWh/kWh | NA    | NA    | NA    | NA     | NA     | NA     | NA     | NA     | NA     |
| Unit with option 6 & 15LS (+)         |  | Seasonal energy efficiency ** | SEPR $_{-2/-8^{\circ}\text{C}}$ Process medium temp.*** | kWh/kWh | 3,59  | 3,47  | 3,7   | 3,58   | 3,44   | 3,67   | 3,67   | 3,45   | 3,77   |
| Seasonal energy efficiency **         |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Sound levels                          |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Standard unit                         |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 101   | 104   | 102   | 103    | 102    | 104    | 104    | 104    | 104    |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   | dB(A)   | 68    | 71    | 69    | 70     | 69     | 71     | 71     | 71     | 70     |
| Unit + option 15 <sup>(3)</sup>       |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 97    | 99    | 98    | 98     | 98     | 100    | 99     | 99     | 100    |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   | dB(A)   | 64    | 66    | 65    | 65     | 65     | 67     | 66     | 66     | 66     |
| Unit + option 15LS <sup>(3)</sup>     |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 94    | 95    | 94    | 94     | 94     | 99     | 95     | 96     | 96     |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   | dB(A)   | 61    | 62    | 61    | 61     | 61     | 66     | 62     | 63     | 62     |
| Unit + option 15LS+ <sup>(3)</sup>    |  |                               |   |         |       |       |       |        |        |        |        |        |        |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 91    | 93    | 92    | 93     | 93     | 97     | 94     | 95     | 93     |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   | dB(A)   | 58    | 60    | 59    | 60     | 60     | 64     | 61     | 62     | 59     |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

\*\*\* With EG 30%

+ SEER calculated with the option 119

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W

 $\eta_{\text{S cool}}$   $_{12/7^{\circ}\text{C}}$  & SEER  $_{12/7^{\circ}\text{C}}$  **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR  $_{-2/-8^{\circ}\text{C}}$  **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**

NA Non Authorized for the specific application for CEE market

- Not applicable

(1) in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = DX freecooling option, 50= heat recovery.



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBE-850 TO 1700

| 30XBE   |                    | 850   | 900   | 1000  | 1100  | 1200  | 1300  | 1400  | 1500   | 1700            |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|--------|-----------------|
| <b>Dimensions</b>   |                    |   |       |       |       |       |       |       |        |                 |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |        |                 |
| Length  | mm                 | 7186  | 8380  | 9574  | 11962 | 11962 | 11962 | 11962 | 13157  | 8380/<br>8380   |
| Width   | mm                 | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253   | 2253            |
| Height  | mm                 | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322   | 2322            |
| <b>Operating weight<sup>(4)</sup></b>                       |                    |   |       |       |       |       |       |       |        |                 |
| Standard unit   | kg                 | 5563  | 6169  | 6665  | 7928  | 8069  | 8660  | 8735  | 9072   | 5935/<br>5935   |
| Unit + option 15 <sup>(3)</sup>                             | kg                 | 5894  | 6499  | 6996  | 8302  | 8443  | 9034  | 9109  | 9446   | 6266/<br>6266   |
| Unit + option 118 <sup>(3)</sup>                            | kg                 | 6050  | 6388  | 6862  | -     | -     | -     | -     | -      | -               |
| Unit + option 50 <sup>(3)</sup>                             | kg                 | 6726  | 7130  | 7619  | -     | -     | -     | -     | -      | -               |
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s      |       |       |       |       |       |       |        |                 |
| Circuit A   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      | 1               |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      | 1               |
| Circuit C   |                    |   |       |       |       |       |       |       |        | 1               |
| Circuit D   |                    |   |       |       |       |       |       |       |        | 1               |
| No. of control stages                                       |                    |   |       |       |       |       |       |       |        |                 |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R134a   |       |       |       |       |       |       |        |                 |
| Circuit A   | kg                 | 69  | 72    | 79    | 82    | 84    | 115   | 121   | 124    | 75              |
|   | teqCO <sub>2</sub> | 98,7  | 103,0 | 113,0 | 117,3 | 120,1 | 164,5 | 173,0 | 177,3  | 107,3           |
| Circuit B   | kg                 | 67  | 74    | 83    | 118   | 130   | 121   | 127   | 130    | 67              |
|   | teqCO <sub>2</sub> | 95,8  | 105,8 | 118,7 | 168,7 | 185,9 | 173,0 | 181,6 | 185,9  | 95,8            |
| Circuit C   | kg                 |   |       |       |       |       |       |       |        | 75              |
|   | teqCO <sub>2</sub> |   |       |       |       |       |       |       |        | 107,3           |
| Circuit D   | kg                 |   |       |       |       |       |       |       |        | 67              |
|   | teqCO <sub>2</sub> |   |       |       |       |       |       |       |        | 95,8            |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |        |                 |
| Circuit A   | l                  | 27,6  | 27,6  | 27,6  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0   | 27,6            |
| Circuit B   | l                  | 23,5  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0  | 36,0  | 36,0   | 23,5            |
| Circuit C   | l                  |   |       |       |       |       |       |       |        | 27,6            |
| Circuit D   | l                  |   |       |       |       |       |       |       |        | 23,5            |
| <b>Capacity control</b>                                     |                    | SmartVu™, Electronic Expansion Valve (EXV)      |       |       |       |       |       |       |        |                 |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15     | 8               |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)             |       |       |       |       |       |       |        |                 |
| <b>Fans</b>   |                    | FLYING-BIRD 6, axial fan with rotating impeller |       |       |       |       |       |       |        |                 |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |        |                 |
| Quantity  |                    | 12  | 14    | 16    | 19    | 20    | 20    | 20    | 22     | 28              |
| Maximum total air flow                                      | l/s                | 57840   | 67480 | 77120 | 91580 | 96400 | 96400 | 96400 | 106040 | 134960          |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7   | 15,7            |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |        |                 |
| Maximum total air flow                                      | l/s                | 47160   | 55020 | 62880 | 78600 | 78600 | 78600 | 78600 | 86460  | 110040          |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7   | 11,7            |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type                         |       |       |       |       |       |       |        |                 |
| Water volume  | l                  | 119   | 130   | 140   | 164   | 174   | 180   | 189   | 189    | 240             |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000   | 1000            |
| <b>Water connections without or with hydraulic module</b>   |                    | Victaulic® type                                 |       |       |       |       |       |       |        |                 |
| <b>Standard &amp; option 8</b>                              |                    |   |       |       |       |       |       |       |        |                 |
| Nominal diameter  | in                 | 6   | 6     | 8     | 6     | 6     | 6     | 6     | 6      | 6               |
| Actual outside diameter                                     | mm                 | 168,3   | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3  | 168,3           |
| <b>Options 5, 6 et 100A</b>                                 |                    |   |       |       |       |       |       |       |        |                 |
| Nominal diameter  | in                 | 5   | 5     | 6     | 6     | 6     | 6     | 6     | 6      | 6/6             |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3  | 168,3/<br>168,3 |
| <b>Casing paint</b>   |                    | Colour code RAL 7035                            |       |       |       |       |       |       |        |                 |

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = Dx freecooling option, 50= heat recovery.

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL DATA, SIZES 30XBP-250 TO 800

| 30XBP                                 |                               |   |         | 250   | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 750  | 800  |      |
|---------------------------------------|-------------------------------|---|---------|-------|------|------|------|------|------|------|------|------|------|------|
| Cooling                               |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         | CA1                           | Nominal capacity                                | kW      | 277   | 301  | 323  | 392  | 445  | 500  | 623  | 677  | 730  | 782  |      |
| Full load performances*               |                               | EER   | kW/kW   | 3,21  | 3,18 | 3,14 | 3,23 | 3,16 | 3,23 | 3,27 | 3,34 | 3,14 | 3,13 |      |
| Unit with Option 15LS                 | CA1                           | Nominal capacity                                | kW      | 271   | 293  | 313  | 384  | 432  | 486  | 607  | 659  | 709  | 757  |      |
| Full load performances*               |                               | EER   | kW/kW   | 3,17  | 3,11 | 3,03 | 3,20 | 3,05 | 3,13 | 3,16 | 3,23 | 2,99 | 2,95 |      |
| Standard unit                         | Seasonal energy efficiency ** | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,66  | 4,64 | 4,55 | 4,50 | 4,62 | 4,67 | 4,66 | 4,77 | 4,61 | 4,58 |      |
| Seasonal energy efficiency **         |                               | ηs cool <sub>12/7°C</sub>                       | %       | 183   | 183  | 179  | 177  | 182  | 184  | 183  | 188  | 181  | 180  |      |
|                                       |                               | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,12  | 6,16 | 6,11 | 6,06 | 6,01 | 6,13 |      | 6,18 | 5,81 | 5,69 |      |
| Unit with option 5                    | Seasonal energy efficiency ** | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh | 2,86  | 3,26 | 3,39 | 2,97 | 3,67 | 3,80 | 3,84 | 4,02 | 3,61 | 3,63 |      |
| Seasonal energy efficiency **         |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,59  | 4,57 | 4,52 | 4,61 | NA   | NA   | NA   | NA   | NA   | NA   |      |
|                                       |                               | ηs cool <sub>12/7°C</sub>                       | %       | 180   | 180  | 178  | 181  | NA   | NA   | NA   | NA   | NA   | NA   |      |
| Unit with Option 299                  | Seasonal energy efficiency ** | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,13  | 6,18 | 6,15 | 6,10 | NA   | NA   | NA   | NA   | NA   | NA   |      |
| Seasonal energy efficiency **         |                               | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh | 3,51  | 3,72 | 3,78 | 3,64 | 3,62 | 3,72 | 3,68 | 3,96 | 3,55 | 3,61 |      |
|                                       |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,67  | 4,67 | 4,56 | 4,49 | 4,59 | 4,64 | 4,65 | 4,78 | 4,60 | 4,57 |      |
| Unit with Option 15LS(+)              | Seasonal energy efficiency ** | ηs cool <sub>12/7°C</sub>                       | %       | 184   | 184  | 179  | 176  | 181  | 183  | 183  | 188  | 181  | 180  |      |
| Seasonal energy efficiency **         |                               | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,09  | 6,18 | 6,08 | 5,88 | 5,90 | 6,11 | 6,07 | 6,23 | 5,85 | 5,85 |      |
|                                       |                               | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh | 2,85  | 3,25 | 3,42 | 2,94 | 3,64 | 3,7  | 3,93 | 3,97 | 3,64 | 3,68 |      |
| Unit with option 5 & 15LS(+)          | Seasonal energy efficiency ** | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,59  | 4,59 | 4,51 | 4,58 | NA   | NA   | NA   | NA   | NA   | NA   |      |
| Seasonal energy efficiency **         |                               | ηs cool <sub>12/7°C</sub>                       | %       | 181   | 181  | 177  | 180  | NA   | NA   | NA   | NA   | NA   | NA   |      |
|                                       |                               | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,11  | 6,20 | 6,11 | 5,91 | NA   | NA   | NA   | NA   | NA   | NA   |      |
| Unit with option 6 & 15LS(+)          | Seasonal energy efficiency ** | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh | 3,47  | 3,74 | 3,89 | 3,52 | 3,75 | 3,79 | 3,77 | 3,93 | 3,59 | 3,67 |      |
| Seasonal energy efficiency **         |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound levels                          |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |                               |   |         | dB(A) | 99   | 99   | 99   | 99   | 101  | 99   | 101  | 99   | 103  | 103  |
| Sound pressure at 10 m <sup>(2)</sup> |                               |   |         | dB(A) | 67   | 67   | 67   | 67   | 69   | 67   | 68   | 67   | 70   | 70   |
| Unit + option 15 <sup>(3)</sup>       |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |                               |   |         | dB(A) | 93   | 93   | 94   | 95   | 95   | 95   | 97   | 96   | 97   | 98   |
| Sound pressure at 10 m <sup>(2)</sup> |                               |   |         | dB(A) | 61   | 61   | 62   | 63   | 63   | 63   | 65   | 63   | 64   | 65   |
| Unit + option 15LS <sup>(3)</sup>     |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |                               |   |         | dB(A) | 87   | 87   | 87   | 90   | 91   | 91   | 93   | 92   | 94   | 94   |
| Sound pressure at 10 m <sup>(2)</sup> |                               |   |         | dB(A) | 55   | 55   | 55   | 58   | 59   | 59   | 60   | 59   | 61   | 61   |
| Unit + option 15LS+ <sup>(3)</sup>    |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |                               |   |         | dB(A) | -    | -    | -    | -    | 89   | 89   | 91   | 90   | 91   | 92   |
| Sound pressure at 10 m <sup>(2)</sup> |                               |   |         | dB(A) | -    | -    | -    | -    | 56   | 56   | 57   | 56   | 58   | 58   |
| Dimensions                            |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Length                                |                               |   |         | mm    | 3604 | 3604 | 3604 | 4798 | 4798 | 5992 | 7186 | 7186 | 7186 | 7186 |
| Width                                 |                               |   |         | mm    | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height                                |                               |   |         | mm    | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| Operating weight <sup>(4)</sup>       |                               |   |         |       |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |                               |   |         | kg    | 2999 | 3030 | 3049 | 3629 | 3692 | 4023 | 4726 | 4860 | 5127 | 5439 |
| Unit + option 15 <sup>(3)</sup>       |                               |   |         | kg    | 3267 | 3298 | 3317 | 3928 | 3991 | 4322 | 5057 | 5191 | 5458 | 5770 |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2016, average climate
- \*\*\* With EG 30%
- CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/W
- η<sub>s</sub> cool<sub>12/7°C</sub> & SEER <sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR <sub>-2/-8°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**
- NA Non Authorized for the specific application for CEE market
- (1) in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
- (3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = DX freecooling option, 50= heat recovery.
- (4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBP-250 TO 800

| 30XBP   |                    | 250   | 300   | 350   | 400   | 450   | 500   | 600   | 700   | 750   | 800   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s  |       |       |       |       |       |       |       |       |       |
| Circuit A   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| No. of control stages                                       |                    |   |       |       |       |       |       |       |       |       |       |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R134a   |       |       |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 39  | 37    | 37    | 52    | 53    | 59    | 60    | 61    | 69    | 69    |
|   | teqCO <sub>2</sub> | 55,8  | 52,9  | 52,9  | 74,4  | 75,8  | 83,7  | 85,8  | 87,2  | 98,0  | 98,7  |
| Circuit B   | kg                 | 40  | 38    | 39    | 40    | 40    | 36    | 61    | 64    | 61    | 67    |
|   | teqCO <sub>2</sub> | 57,2  | 54,3  | 55,8  | 57,2  | 57,2  | 51,5  | 87,2  | 91,5  | 86,5  | 95,8  |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  | 23,5  | 27,6  | 27,6  |
| Circuit B   | l                  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  |
| <b>Capacity control</b>                                     |                    | SmartVu™, , Electronic Expansion Valve (EXV)  |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)   |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | FLYING-BIRD 6, axial fan with rotating impeller   |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 6   | 6     | 6     | 8     | 8     | 9     | 11    | 12    | 12    | 12    |
| Maximum total air flow                                      | l/s                | 28920   | 28920 | 28920 | 38560 | 38560 | 43380 | 53020 | 57840 | 57840 | 57840 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |       |       |       |
| Maximum total air flow                                      | l/s                | 23580   | 23580 | 23580 | 31440 | 31440 | 35370 | 43230 | 47160 | 47160 | 47160 |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type   |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 58  | 61    | 61    | 66    | 70    | 77    | 79    | 94    | 98    | 119   |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air drain valve, pressure sensors, expansion tank (option) |       |       |       |       |       |       |       |       |       |
| Pump  |                    | Centrifugal pump, monocell, 48,3r/s, low or high pressure (as required), single or dual (as required)             |       |       |       |       |       |       |       |       |       |
| Expansion vessel volume                                     | l                  | 50  | 50    | 50    | 50    |       |       |       |       |       |       |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400   | 400   | 400   | 400   |       |       |       |       |       |       |
| <b>Water connections without or with hydraulic module</b>   |                    | Victaulic® type   |       |       |       |       |       |       |       |       |       |
| <b>Standard &amp; option 8, without option 116</b>          |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 5   | 5     | 5     | 5     | 5     | 5     | 5     | 6     | 6     | 6     |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 168,3 | 168,3 | 168,3 |
| <b>Options 5, 6 et 100A</b>                                 |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 4   | 4     | 4     | 4     | 4     | 4     | 5     | 5     | 5     | 5     |
| Actual outside diameter                                     | mm                 | 114,3   | 114,3 | 114,3 | 114,3 | 114,3 | 114,3 | 141,3 | 141,3 | 141,3 | 141,3 |
| <b>Options 116</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 4   | 4     | 4     | 4     | -     | -     | -     | -     | -     | -     |
| Actual outside diameter                                     | mm                 | 114,3   | 114,3 | 114,3 | 114,3 | -     | -     | -     | -     | -     | -     |
| <b>Casing paint</b>   |                    | Colour code RAL 7035  |       |       |       |       |       |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.



## PHYSICAL DATA, SIZES 30XBP-850 TO 1500

| 30XBP                                 |     |   |         | 850  | 900  | 1000 | 1100  | 1200  | 1300  | 1400  | 1500  |
|---------------------------------------|-----|---|---------|------|------|------|-------|-------|-------|-------|-------|
| Cooling                               |     |   |         |      |      |      |       |       |       |       |       |
| Standard unit                         | CA1 | Nominal capacity                                | kW      | 837  | 899  | 982  | 1143  | 1262  | 1330  | 1441  | 1512  |
| Full load performances*               |     | EER   | kW/kW   | 3,27 | 3,15 | 3,21 | 3,28  | 3,24  | 3,20  | 3,08  | 3,11  |
| Unit with Option 15LS                 | CA1 | Nominal capacity                                | kW      | 813  | 872  | 969  | 1113  | 1227  | 1290  | 1391  | 1466  |
| Full load performances *              |     | EER   | kW/kW   | 3,13 | 2,98 | 3,06 | 3,16  | 3,06  | 3,01  | 2,84  | 2,91  |
| Standard unit                         |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,68 | 4,61 | 4,69 | 4,70  | 4,72  | 4,62  | 4,63  | 4,62  |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | 184  | 181  | 185  | 185   | 186   | 182   | 182   | 182   |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,96 | 5,84 | 5,83 | 5,90  | 5,87  | 5,99  | 5,65  | 6,16  |
| Unit with option 5                    |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,83 | 3,67 | 3,66 | 3,77  | 3,66  | 3,70  | 3,72  | 3,24  |
| Seasonal energy efficiency **         |     |   |         |      |      |      |       |       |       |       |       |
|                                       |     |   |         |      |      |      |       |       |       |       |       |
| Unit with Option 299                  |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | NA   | NA   | NA   | NA    | NA    | NA    | NA    | NA    |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | NA   | NA   | NA   | NA    | NA    | NA    | NA    | NA    |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | NA   | NA   | NA   | NA    | NA    | NA    | NA    | NA    |
| Unit with option 6                    |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,75 | 3,64 | 3,58 | 3,45  | 3,73  | 3,59  | 3,69  | 3,42  |
| Seasonal energy efficiency **         |     |   |         |      |      |      |       |       |       |       |       |
|                                       |     |   |         |      |      |      |       |       |       |       |       |
| Unit with Option 15LS(+)              |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,66 | 4,58 | 4,67 | 4,68  | 4,70  | 4,57  | 4,56  | 4,56  |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | 183  | 180  | 184  | 184   | 185   | 180   | 179   | 179   |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,97 | 5,87 | 5,91 | 6,17  | 6,12  | 5,98  | 5,77  | 5,98  |
| Unit with option 5 & 15LS(+)          |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,75 | 3,65 | 3,72 | 3,55  | 3,49  | 3,41  | 3,45  | 3,46  |
| Seasonal energy efficiency **         |     |   |         |      |      |      |       |       |       |       |       |
|                                       |     |   |         |      |      |      |       |       |       |       |       |
| Unit with Option 299 & 15LS(+)        |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | NA   | NA   | NA   | NA    | NA    | NA    | NA    | NA    |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | NA   | NA   | NA   | NA    | NA    | NA    | NA    | NA    |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | NA   | NA   | NA   | NA    | NA    | NA    | NA    | NA    |
| Unit with option 6 & 15LS(+)          |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,69 | 3,64 | 3,65 | 3,69  | 3,70  | 3,93  | 3,87  | 3,50  |
| Seasonal energy efficiency **         |     |   |         |      |      |      |       |       |       |       |       |
|                                       |     |   |         |      |      |      |       |       |       |       |       |
| Sound levels                          |     |   |         |      |      |      |       |       |       |       |       |
| Standard unit                         |     |   |         |      |      |      |       |       |       |       |       |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 101  | 104  | 102  | 103   | 102   | 104   | 104   | 104   |
| Sound pressure at 10 m <sup>(2)</sup> |     |   | dB(A)   | 70   | 71   | 69   | 70    | 69    | 71    | 71    | 71    |
| Unit + option 15 <sup>(3)</sup>       |     |   |         |      |      |      |       |       |       |       |       |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 97   | 99   | 98   | 98    | 98    | 100   | 99    | 99    |
| Sound pressure at 10 m <sup>(2)</sup> |     |   | dB(A)   | 65   | 66   | 65   | 65    | 65    | 67    | 65    | 65    |
| Unit + option 15LS <sup>(3)</sup>     |     |   |         |      |      |      |       |       |       |       |       |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 94   | 95   | 94   | 94    | 94    | 99    | 95    | 96    |
| Sound pressure at 10 m <sup>(2)</sup> |     |   | dB(A)   | 61   | 62   | 61   | 61    | 61    | 66    | 62    | 63    |
| Unit + option 15LS+ <sup>(3)</sup>    |     |   |         |      |      |      |       |       |       |       |       |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 91   | 93   | 92   | 93    | 93    | 97    | 94    | 95    |
| Sound pressure at 10 m <sup>(2)</sup> |     |   | dB(A)   | 58   | 60   | 59   | 60    | 60    | 66    | 61    | 62    |
| Dimensions                            |     |   |         |      |      |      |       |       |       |       |       |
| Standard unit                         |     |   |         |      |      |      |       |       |       |       |       |
| Length                                |     |   | mm      | 8380 | 8380 | 9574 | 11962 | 11962 | 11962 | 11962 | 13157 |
| Width                                 |     |   | mm      | 2253 | 2253 | 2253 | 2253  | 2253  | 2253  | 2253  | 2253  |
| Height                                |     |   | mm      | 2322 | 2322 | 2322 | 2322  | 2322  | 2322  | 2322  | 2322  |
| Operating weight <sup>(4)</sup>       |     |   |         |      |      |      |       |       |       |       |       |
| Standard unit                         |     |   | kg      | 5795 | 6080 | 6561 | 7812  | 7949  | 8565  | 8640  | 8941  |
| Unit + option 15 <sup>(3)</sup>       |     |   | kq      | 6126 | 6411 | 6892 | 8183  | 8320  | 8939  | 9014  | 9315  |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2016, average climate
- \*\*\* With EG 30%
- CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m<sup>2</sup>.K/W
- η<sub>js</sub> cool<sup>12/7°C</sup> & SEER <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR <sup>-2/-8°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**
- NA Non Authorized for the specific application for CEE market
- (1) in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L<sub>w</sub>(A).
- (3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = DX freecooling option, 50= heat recovery.
- (4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBP-850 TO 1700

| 30XBP   |                    | 850   | 900   | 1000  | 1100  | 1200  | 1300  | 1400  | 1500   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|--------|
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s  |       |       |       |       |       |       |        |
| Circuit A   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| No. of control stages                                       |                    |   |       |       |       |       |       |       |        |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R134a   |       |       |       |       |       |       |        |
| Circuit A   | kg                 | 75  | 72    | 79    | 82    | 84    | 115   | 121   | 124    |
|   | teqCO <sub>2</sub> | 107,3   | 103,0 | 113,0 | 117,3 | 120,1 | 164,5 | 173,0 | 177,3  |
| Circuit B   | kg                 | 67  | 74    | 83    | 118   | 130   | 121   | 127   | 130    |
|   | teqCO <sub>2</sub> | 95,8  | 105,8 | 118,7 | 168,7 | 185,9 | 173,0 | 181,6 | 185,9  |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |        |
| Circuit A   | l                  | 27,6  | 27,6  | 27,6  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0   |
| Circuit B   | l                  | 23,5  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0  | 36,0  | 36,0   |
| <b>Capacity control</b>                                     |                    | SmartVu™, , Electronic Expansion Valve (EXV)  |       |       |       |       |       |       |        |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15     |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)   |       |       |       |       |       |       |        |
| <b>Fans</b>   |                    | FLYING-BIRD 6, axial fan with rotating impeller   |       |       |       |       |       |       |        |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |        |
| Quantity  |                    | 14  | 14    | 16    | 19    | 20    | 20    | 20    | 22     |
| Maximum total air flow                                      | l/s                | 67480   | 67480 | 77120 | 91580 | 96400 | 96400 | 96400 | 106040 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7   |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |        |
| Maximum total air flow                                      | l/s                | 55020   | 55020 | 62880 | 78600 | 78600 | 78600 | 78600 | 86460  |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7   |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type   |       |       |       |       |       |       |        |
| Water volume  | l                  | 119   | 130   | 140   | 164   | 174   | 180   | 189   | 189    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000   |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air drain valve, pressure sensors, expansion tank (option) |       |       |       |       |       |       |        |
| Pump  |                    | Centrifugal pump, monocell, 48,3r/s, low or high pressure (as required), single or dual (as required)             |       |       |       |       |       |       |        |
| Expansion vessel volume                                     | l                  |   |       |       |       |       |       |       |        |
| Max. water-side operating pressure with hydraulic module    | kPa                |   |       |       |       |       |       |       |        |
| <b>Water connections without or with hydraulic module</b>   |                    | Victaulic® type   |       |       |       |       |       |       |        |
| <b>Standard &amp; option 8</b>                              |                    |   |       |       |       |       |       |       |        |
| Nominal diameter  | in                 | 6   | 6     | 8     | 6     | 6     | 6     | 6     | 6      |
| Actual outside diameter                                     | mm                 | 168,3   | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3  |
| <b>Options 5, 6 et 100A</b>                                 |                    |   |       |       |       |       |       |       |        |
| Nominal diameter  | in                 | 5   | 5     | 6     | 6     | 6     | 6     | 6     | 6      |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3  |
| <b>Casing paint</b>   |                    | Colour code RAL 7035  |       |       |       |       |       |       |        |

(4) Values are guidelines only. Refer to the unit name plate.

## ELECTRICAL DATA, 30XB-250 TO 1000

| 30XB  |         | 250                           | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 750  | 800  | 850  | 900  | 1000 |
|---|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                                     |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400-3-50                      |      |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                       |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup> - 30XB</b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | kW      | 127                           | 137  | 148  | 173  | 193  | 212  | 259  | 279  | 310  | 328  | 359  | 377  | 442  |
| Unit + option 15LS  | kW      | 121                           | 132  | 142  | 166  | 186  | 204  | 249  | 268  | 299  | 317  | 348  | 366  | 428  |
| <b>Power factor at maximum power<sup>(1)</sup> - 30XB</b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Standard unit</b>  |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                             |         | 0,88                          | 0,87 | 0,87 | 0,88 | 0,88 | 0,88 | 0,88 | 0,88 | 0,87 | 0,87 | 0,88 | 0,87 | 0,88 |
| <b>Unit + option 15LS</b>                                       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                             |         | 0,88                          | 0,87 | 0,87 | 0,88 | 0,88 | 0,88 | 0,88 | 0,88 | 0,87 | 0,87 | 0,88 | 0,87 | 0,88 |
| <b>Nominal operating current draw<sup>(2)</sup> - 30XB</b>      |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 151                           | 167  | 183  | 211  | 242  | 263  | 327  | 351  | 402  | 423  | 439  | 495  | 535  |
| Unit + option 15LS  | A       | 142                           | 158  | 174  | 199  | 230  | 251  | 310  | 333  | 384  | 405  | 421  | 477  | 513  |
| <b>Maximum operating current draw (Un)<sup>(1)</sup> - 30XB</b> |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 209                           | 227  | 245  | 285  | 318  | 348  | 426  | 459  | 514  | 544  | 590  | 629  | 729  |
| Unit + option 15LS  | A       | 200                           | 218  | 236  | 273  | 306  | 336  | 409  | 441  | 496  | 526  | 572  | 611  | 707  |
| <b>Maximum current (Un-10%)<sup>(1)</sup> - 30XB</b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 221                           | 240  | 259  | 301  | 336  | 368  | 450  | 485  | 544  | 576  | 625  | 667  | 773  |
| Unit + option 15LS  | A       | 212                           | 231  | 250  | 289  | 324  | 356  | 433  | 467  | 526  | 558  | 607  | 649  | 751  |
| <b>Nominal start-up current<sup>(3)</sup> - 30XB</b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 246                           | 246  | 262  | 379  | 480  | 480  | 539  | 564  | 738  | 759  | 759  | 835  | 835  |
| Unit + option 15LS  | A       | 241                           | 241  | 257  | 374  | 475  | 475  | 531  | 555  | 730  | 751  | 751  | 826  | 844  |
| Unit + option 25C   | A       | 184                           | 177  | 193  | 317  | 411  | 411  | 413  | 438  | 631  | 637  | 637  | 666  | 659  |
| <b>Maximum start-up current(Un)<sup>(2)</sup> - 30XB</b>        |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 275                           | 293  | 293  | 408  | 511  | 511  | 618  | 618  | 783  | 813  | 813  | 902  | 952  |
| Unit + option 15LS  | A       | 270                           | 288  | 288  | 403  | 506  | 506  | 610  | 609  | 775  | 805  | 805  | 893  | 941  |
| Unit + option 25C   | A       | 213                           | 224  | 224  | 346  | 442  | 442  | 492  | 492  | 676  | 691  | 691  | 733  | 756  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

## ELECTRICAL DATA, 30XB-1100 TO 1700

| 30XB  |         | 1100                          | 1200 | 1300 | 1400 | 1500 | 1700 |
|---|---------|-------------------------------|------|------|------|------|------|
| <b>Power circuit supply</b>                                     |         |                               |      |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400-3-50                      |      |      |      |      |      |
| Voltage range   | V       | 360-440                       |      |      |      |      |      |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |      |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup> - 30XB</b>       |         |                               |      |      |      |      |      |
| <b>Standard unit</b>  |         |                               |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>  | kW      | 194                           | 223  | 264  | 284  | 307  | 363  |
| Circuit 2 <sup>(a)</sup>  | kW      | 284                           | 308  | 282  | 305  | 307  | 363  |
| Option 081  | kW      | 478                           | 532  | 546  | 588  | 614  | -    |
| <b>Unit + option 15LS</b>                                       |         |                               |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>  | kW      | 187                           | 216  | 255  | 274  | 297  | 351  |
| Circuit 2 <sup>(a)</sup>  | kW      | 275                           | 298  | 273  | 296  | 297  | 351  |
| Option 081  | kW      | 461                           | 514  | 528  | 570  | 594  | -    |
| <b>Power factor at maximum power<sup>(1)</sup> - 30XB</b>       |         |                               |      |      |      |      |      |
| <b>Standard unit</b>  |         |                               |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                             |         | 0,89                          | 0,89 | 0,89 | 0,89 | 0,89 | 0,90 |
| <b>Unit + option 15LS</b>                                       |         |                               |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                             |         | 0,89                          | 0,89 | 0,89 | 0,89 | 0,89 | 0,90 |
| <b>Nominal operating current draw<sup>(2)</sup> - 30XB</b>      |         |                               |      |      |      |      |      |
| <b>Standard unit</b>  |         |                               |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>  | A       | 251                           | 267  | 334  | 347  | 382  | 439  |
| Circuit 2 <sup>(a)</sup>  | A       | 350                           | 386  | 347  | 379  | 382  | 439  |
| Option 081  | A       | 601                           | 652  | 681  | 726  | 764  | -    |
| <b>Unit + option 15LS</b>                                       |         |                               |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>  | A       | 239                           | 255  | 319  | 332  | 366  | 417  |
| Circuit 2 <sup>(a)</sup>  | A       | 334                           | 367  | 332  | 364  | 366  | 417  |
| Option 081  | A       | 572                           | 621  | 650  | 695  | 731  | -    |
| <b>Maximum operating current draw (Un)<sup>(1)</sup> - 30XB</b> |         |                               |      |      |      |      |      |
| <b>Standard unit</b>  |         |                               |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>  | A       | 316                           | 362  | 430  | 460  | 498  | 586  |
| Circuit 2 <sup>(a)</sup>  | A       | 463                           | 500  | 460  | 495  | 498  | 586  |
| Option 081  | A       | 778                           | 862  | 889  | 954  | 995  | -    |
| <b>Unit + option 15LS</b>                                       |         |                               |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>  | A       | 304                           | 350  | 415  | 445  | 482  | 566  |
| Circuit 2 <sup>(a)</sup>  | A       | 447                           | 483  | 445  | 480  | 482  | 566  |
| Option 081  | A       | 751                           | 833  | 860  | 925  | 963  | -    |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B or for units 30XB1550 to 1700 units: Circuit 1 supplies circuits A and B, circuit 2 supplies circuits C and D.

## ELECTRICAL DATA, 30XB-1100 TO 1700

| 30XB  |   | 1100 | 1200 | 1300 | 1400 | 1500 | 1700 |
|---|---|------|------|------|------|------|------|
| <b>Maximum current (Un-10%)(1) - 30XB</b>     |   |      |      |      |      |      |      |
| <b>Standard unit</b>                          |   |      |      |      |      |      |      |
| Circuit 1(a)                                  | A | 335  | 384  | 466  | 498  | 529  | 621  |
| Circuit 2(a)                                  | A | 501  | 531  | 498  | 526  | 529  | 621  |
| Option 081                                    | A | 835  | 915  | 963  | 1023 | 1057 | -    |
| <b>Unit + option 15LS</b>                     |   |      |      |      |      |      |      |
| Circuit 1(a)                                  | A | 323  | 372  | 451  | 483  | 513  | 601  |
| Circuit 2(a)                                  | A | 485  | 514  | 483  | 511  | 513  | 601  |
| Option 081                                    | A | 808  | 886  | 934  | 994  | 1025 | -    |
| <b>Nominal start-up current (3) - 30XB</b>    |   |      |      |      |      |      |      |
| <b>Standard unit</b>                          |   |      |      |      |      |      |      |
| Circuit 1(a)                                  | A | 587  | 587  | 629  | 629  | 629  | 759  |
| Circuit 2(a)                                  | A | 629  | 629  | 629  | 629  | 629  | 759  |
| Option 081                                    | A | 944  | 979  | 982  | 1014 | 1018 | -    |
| Option 081 & Opt 25c                          | A | 687  | 702  | 729  | 744  | 744  | -    |
| <b>Unit + option 15LS</b>                     |   |      |      |      |      |      |      |
| Circuit 1(a)                                  | A | 587  | 587  | 629  | 629  | 629  | 751  |
| Circuit 2(a)                                  | A | 629  | 629  | 629  | 629  | 629  | 751  |
| Option 081                                    | A | 927  | 961  | 966  | 998  | 1001 | -    |
| Option 081 & Opt 25c                          | A | 671  | 684  | 714  | 729  | 727  | -    |
| <b>Maximum start-up current(Un)(2) - 30XB</b> |   |      |      |      |      |      |      |
| <b>Standard unit</b>                          |   |      |      |      |      |      |      |
| Circuit 1(a)                                  | A | 587  | 587  | 629  | 629  | 629  | 813  |
| Circuit 2(a)                                  | A | 629  | 629  | 629  | 629  | 629  | 813  |
| Option 081                                    | A | 1059 | 1097 | 1097 | 1132 | 1136 | -    |
| Option 081 & Opt 25c                          | A | 802  | 820  | 844  | 862  | 862  | -    |
| <b>Unit + option 15LS</b>                     |   |      |      |      |      |      |      |
| Circuit 1(a)                                  | A | 587  | 587  | 629  | 629  | 629  | 805  |
| Circuit 2(a)                                  | A | 629  | 629  | 629  | 629  | 629  | 805  |
| Option 081                                    | A | 1042 | 1079 | 1081 | 1116 | 1119 | -    |
| Option 081 & Opt 25c                          | A | 786  | 802  | 829  | 847  | 845  | -    |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B or for units 30XB1550 to 1700 units: Circuit 1 supplies circuits A and B, circuit 2 supplies circuits C and D.



## ELECTRICAL DATA, 30XBP-250 TO 1000

| 30XBP  |         | 250                           | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 750  | 800  | 850  | 900  | 1000 |
|--|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                                      |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |      |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range  | V       | 360-440                       |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                                    |         | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup> - 30XBP</b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | kW      | 126                           | 137  | 147  | 172  | 192  | 210  | 257  | 278  | 308  | 327  | 357  | 375  | 440  |
| Unit + option 15LS   | kW      | 124                           | 135  | 145  | 170  | 189  | 208  | 254  | 274  | 304  | 323  | 353  | 371  | 434  |
| <b>Power factor at maximum power<sup>(1)</sup> - 30XBP</b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                              |         | 0,90                          | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| <b>Unit + option 15LS</b>  |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                              |         | 0,90                          | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| <b>Nominal operating current draw<sup>(2)</sup> - 30XBP</b>      |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | A       | 145                           | 161  | 177  | 203  | 234  | 255  | 315  | 339  | 390  | 411  | 427  | 483  | 521  |
| Unit + option 15LS   | A       | 142                           | 158  | 174  | 199  | 230  | 251  | 310  | 333  | 384  | 405  | 420  | 476  | 512  |
| <b>Maximum operating current draw (Un)<sup>(1)</sup> - 30XBP</b> |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | A       | 203                           | 221  | 239  | 277  | 310  | 340  | 414  | 447  | 502  | 532  | 578  | 617  | 715  |
| Unit + option 15LS   | A       | 200                           | 218  | 236  | 273  | 306  | 336  | 409  | 441  | 496  | 526  | 571  | 610  | 706  |
| <b>Maximum current (Un-10%)<sup>(1)</sup> - 30XBP</b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | A       | 215                           | 234  | 253  | 293  | 328  | 360  | 438  | 473  | 532  | 564  | 613  | 655  | 759  |
| Unit + option 15LS   | A       | 212                           | 231  | 250  | 289  | 324  | 356  | 433  | 467  | 526  | 558  | 606  | 648  | 750  |
| <b>Nominal start-up current<sup>(3)</sup> - 30XBP</b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | A       | 243                           | 243  | 259  | 376  | 477  | 477  | 534  | 558  | 733  | 754  | 754  | 829  | 848  |
| Unit + option 15LS   | A       | 241                           | 241  | 257  | 374  | 475  | 475  | 531  | 555  | 730  | 751  | 751  | 826  | 844  |
| Unit + option 25C  | A       | 181                           | 174  | 190  | 314  | 408  | 408  | 408  | 432  | 626  | 632  | 632  | 660  | 652  |
| <b>Maximum start-up current(Un)<sup>(2)</sup> - 30XBP</b>        |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | A       | 272                           | 290  | 290  | 405  | 508  | 508  | 613  | 612  | 778  | 808  | 808  | 896  | 945  |
| Unit + option 15LS   | A       | 270                           | 288  | 288  | 403  | 506  | 506  | 610  | 609  | 775  | 805  | 805  | 893  | 941  |
| Unit + option 25C  | A       | 210                           | 221  | 221  | 343  | 439  | 439  | 487  | 486  | 671  | 686  | 686  | 727  | 749  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

## ELECTRICAL DATA, 30XBP-1100 TO 1500

| 30XBP  |         | 1100                          | 1200 | 1300 | 1400 | 1500 |
|--|---------|-------------------------------|------|------|------|------|
| <b>Power circuit supply</b>                                |         |                               |      |      |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |      |      |      |      |
| Voltage range  | V       | 360-440                       |      |      |      |      |
| <b>Control circuit supply</b>                              |         | 24 V via internal transformer |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup> - 30XBP</b> |         |                               |      |      |      |      |
| <b>Standard unit</b>                                       |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>                                   | kW      | 191                           | 220  | 262  | 282  | 304  |
| Circuit 2 <sup>(a)</sup>                                   | kW      | 279                           | 304  | 280  | 303  | 304  |
| Option 081   | kW      | 469                           | 525  | 542  | 584  | 609  |
| <b>Unit + option 15LS</b>                                  |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>                                   | kW      | 188                           | 217  | 258  | 278  | 301  |
| Circuit 2 <sup>(a)</sup>                                   | kW      | 276                           | 301  | 277  | 300  | 301  |
| Option 081   | kW      | 463                           | 518  | 535  | 578  | 602  |
| <b>Power factor at maximum power<sup>(1)</sup> - 30XBP</b> |         |                               |      |      |      |      |
| <b>Standard unit</b>                                       |         |                               |      |      |      |      |
| Displacement Power Factor (Cos Phi)                        |         | 0,88                          | 0,89 | 0,88 | 0,89 | 0,89 |
| <b>Unit + option 15LS</b>                                  |         |                               |      |      |      |      |
| Displacement Power Factor (Cos Phi)                        |         | 0,88                          | 0,89 | 0,88 | 0,89 | 0,89 |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B or for units 30XBP1550 to 1700 units: Circuit 1 supplies circuits A and B, circuit 2 supplies circuits C and D.

## ELECTRICAL DATA, 30XBP-1100 TO 1500

| 30XBP  |   | 1100 | 1200 | 1300 | 1400 | 1500 |
|--|---|------|------|------|------|------|
| <b>Nominal operating current draw<sup>(2)</sup> - 30XBP</b>      |   |      |      |      |      |      |
| <b>Standard unit</b>   |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 245  | 261  | 330  | 343  | 377  |
| Circuit 2 <sup>(a)</sup>   | A | 340  | 377  | 343  | 375  | 377  |
| Option 081   | A | 584  | 638  | 672  | 717  | 754  |
| <b>Unit + option 15LS</b>  |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 240  | 256  | 324  | 337  | 372  |
| Circuit 2 <sup>(a)</sup>   | A | 334  | 371  | 337  | 369  | 372  |
| Option 081   | A | 574  | 627  | 661  | 706  | 743  |
| <b>Maximum operating current draw (Un)<sup>(1)</sup> - 30XBP</b> |   |      |      |      |      |      |
| <b>Standard unit</b>   |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 312  | 358  | 428  | 458  | 495  |
| Circuit 2 <sup>(a)</sup>   | A | 455  | 495  | 458  | 493  | 495  |
| Option 081   | A | 766  | 853  | 885  | 950  | 990  |
| <b>Unit + option 15LS</b>  |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 307  | 353  | 422  | 452  | 490  |
| Circuit 2 <sup>(a)</sup>   | A | 450  | 490  | 452  | 487  | 490  |
| Option 081   | A | 756  | 842  | 874  | 939  | 979  |
| <b>Maximum current (Un-10%)<sup>(1)</sup> - 30XBP</b>            |   |      |      |      |      |      |
| <b>Standard unit</b>   |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 331  | 380  | 464  | 496  | 526  |
| Circuit 2 <sup>(a)</sup>   | A | 493  | 526  | 496  | 524  | 526  |
| Option 081   | A | 823  | 906  | 959  | 1019 | 1052 |
| <b>Unit + option 15LS</b>  |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 326  | 375  | 458  | 490  | 521  |
| Circuit 2 <sup>(a)</sup>   | A | 488  | 521  | 490  | 518  | 521  |
| Option 081   | A | 813  | 895  | 948  | 1008 | 1041 |
| <b>Nominal start-up current<sup>(3)</sup> - 30XBP</b>            |   |      |      |      |      |      |
| <b>Standard unit</b>   |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 587  | 587  | 629  | 629  | 629  |
| Circuit 2 <sup>(a)</sup>   | A | 629  | 629  | 629  | 629  | 629  |
| Option 081   | A | 927  | 964  | 972  | 1004 | 1006 |
| Option 081 & Opt 25c   | A | 678  | 691  | 719  | 734  | 733  |
| <b>Unit + option 15LS</b>  |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 587  | 587  | 629  | 629  | 629  |
| Circuit 2 <sup>(a)</sup>   | A | 629  | 629  | 629  | 629  | 629  |
| Option 081   | A | 922  | 959  | 966  | 998  | 1001 |
| Option 081 & Opt 25c   | A | 674  | 685  | 714  | 729  | 727  |
| <b>Maximum start-up current(Un)<sup>(2)</sup> - 30XBP</b>        |   |      |      |      |      |      |
| <b>Standard unit</b>   |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 587  | 587  | 629  | 629  | 629  |
| Circuit 2 <sup>(a)</sup>   | A | 629  | 629  | 629  | 629  | 629  |
| Option 081   | A | 1042 | 1082 | 1087 | 1122 | 1124 |
| Option 081 & Opt 25c   | A | 793  | 809  | 834  | 852  | 851  |
| <b>Unit + option 15LS</b>  |   |      |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A | 587  | 587  | 629  | 629  | 629  |
| Circuit 2 <sup>(a)</sup>   | A | 629  | 629  | 629  | 629  | 629  |
| Option 081   | A | 1037 | 1077 | 1081 | 1116 | 1119 |
| Option 081 & Opt 25c   | A | 789  | 803  | 829  | 847  | 845  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B and for units 30XBP1550 to 1700 units: Circuit 1 supplies circuits A and B, circuit 2 supplies circuits C and D.

## ELECTRICAL DATA, 30XB WITH OPTION CU/AL HEAT EXCHANGER

| 30XB with option 254 or 255                                     | 250                           | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 750  | 800  | 850  | 900  | 1000 |
|---|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                                     |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage V-ph-Hz   | 400-3-50                      |      |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range V   | 360-440                       |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                                   | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup> - 30XB</b>       |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit kW  | 127                           | 137  | 150  | 173  | 193  | 214  | 259  | 279  | 312  | 331  | 363  | 384  | 446  |
| Unit + option 15LS kW   | 121                           | 132  | 144  | 166  | 186  | 207  | 249  | 268  | 301  | 320  | 352  | 373  | 433  |
| <b>Power factor at maximum power<sup>(1)</sup> - 30XB</b>       |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Standard unit</b>  |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                             | 0,88                          | 0,87 | 0,87 | 0,88 | 0,88 | 0,88 | 0,88 | 0,88 | 0,87 | 0,87 | 0,88 | 0,87 | 0,88 |
| <b>Unit + option 15LS</b>                                       |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                             | 0,88                          | 0,87 | 0,87 | 0,88 | 0,88 | 0,88 | 0,88 | 0,88 | 0,87 | 0,87 | 0,88 | 0,87 | 0,88 |
| <b>Nominal operating current draw<sup>(2)</sup> - 30XB</b>      |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit A   | 151                           | 167  | 187  | 211  | 242  | 267  | 327  | 351  | 406  | 427  | 447  | 506  | 542  |
| Unit + option 15LS A  | 142                           | 158  | 177  | 199  | 230  | 255  | 310  | 333  | 388  | 409  | 428  | 488  | 521  |
| <b>Maximum operating current draw (Un)<sup>(1)</sup> - 30XB</b> |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit A   | 209                           | 227  | 249  | 285  | 318  | 352  | 426  | 459  | 518  | 548  | 598  | 640  | 736  |
| Unit + option 15LS A  | 200                           | 218  | 239  | 273  | 306  | 340  | 409  | 441  | 500  | 530  | 579  | 622  | 715  |
| <b>Maximum current (Un-10%)<sup>(1)</sup> - 30XB</b>            |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit A   | 221                           | 240  | 263  | 301  | 336  | 372  | 450  | 485  | 548  | 580  | 633  | 678  | 780  |
| Unit + option 15LS A  | 212                           | 231  | 253  | 289  | 324  | 360  | 433  | 467  | 530  | 562  | 614  | 660  | 759  |
| <b>Nominal start-up current<sup>(3)</sup> - 30XB</b>            |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit A   | 246                           | 246  | 262  | 379  | 480  | 480  | 539  | 564  | 738  | 759  | 759  | 835  | 835  |
| Unit + option 15LS A  | 241                           | 241  | 257  | 374  | 475  | 475  | 531  | 555  | 730  | 751  | 751  | 826  | 844  |
| Unit + option 25C A   | 184                           | 177  | 193  | 317  | 411  | 411  | 413  | 438  | 631  | 637  | 637  | 666  | 659  |
| <b>Maximum start-up current(Un)<sup>(2)</sup> - 30XB</b>        |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit A   | 275                           | 293  | 293  | 408  | 511  | 511  | 618  | 618  | 783  | 813  | 813  | 902  | 952  |
| Unit + option 15LS A  | 270                           | 288  | 288  | 403  | 506  | 506  | 610  | 609  | 775  | 805  | 805  | 893  | 941  |
| Unit + option 25C A   | 213                           | 224  | 224  | 346  | 442  | 442  | 492  | 492  | 676  | 691  | 691  | 733  | 756  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

- 30XB(E/P)&XBP 250 to 1000 units have a single power connection point; 30XB(E/P)&XBP 1100 to 1700 units have two connection points.

- The control box includes the following standard features:
  - One general disconnect switch per circuit
  - Starter and motor protection devices for each compressor, the fan(s) and the pump
  - Control devices

#### Field connections:

- All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Carrier 30XB(E/P)&XBP units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (corresponds to IEC 60204-1) (machine safety - electrical machine components - part 1: General regulations) are specifically taken into account, when designing the electrical equipment.

#### IMPORTANT:

- Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation regulations.
- Conformance with EN 60204 is the best means of ensuring compliance with the Machines Directive 1.5.1.

Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.

1. Environment\* - Environment as classified in EN 60364 (corresponds to IEC 60364):
  - Outdoor installation\*
  - Ambient temperature range: from -20°C to +55°C\*\*
  - altitude less than or equal to 2000 m (for hydronic module, see paragraph 4.7 in the IOM)
  - presence of hard solids, class AE3 (no significant dust present)\*
  - presence of corrosive and polluting substances, class AF1 (negligible)
  - Units shall not be located in places open to all persons, which can include children.
2. Compatibility for low-frequency conducted disturbances according to IEC61000-2-2 and to class 2 levels per IEC61000-2-4 standard:
  - Power supply frequency variation : ±2Hz
  - Phase imbalance : 2%
  - Total Voltage Harmonic Distortion (THDV) : 8%\*\*\*
3. The neutral (N) line must not be connected directly to the unit (if necessary use a transformer).

4. Overcurrent protection of the power supply conductors is not provided with the unit.

5. The factory-installed disconnect switch(es)/circuit breaker(s) is (are) of a type suitable for power interruption in accordance with EN 60947-3 (corresponds to IEC 60947-3).

6. The units are designed for simplified connection on TN(s) networks (IEC 60364). For IT networks provide a local earth and consult competent local organisations to complete the electrical installation. Units delivered with variable frequency drive(s) (options : 28, 17 & 30XBE range) are not compatible with IT network. 30XB units are designed to use for domestic / residential and industrial environments:

Machines that are not equipped with variable frequency drive(s) are in accordance with the codes :

- 61000-6-3: General standards - Standard emission for residential, commercial and light industry.

- 61000-6-2: General standards - Immunity for industrial environments.

Machines that are equipped with variable frequency drive(s) (options 28, 17 & 30XBE range) are in accordance with the codes

- 61000-6-4: Generic standards - Emission standard for industrial environments.

- 61000-6-2: Generic standards - Immunity for industrial environments.

- Leakage currents: If protection by monitoring the leakage currents is necessary to ensure the safety of the installation, the presence of circuitry with DC component as well as additional leakage currents introduced by the use of variable frequency drive(s) in the unit must be considered (options 28, 17 & 30XBE range). In particular these protection devices shall be
  - suitable for protection of circuitry with AC and DC components
  - of reinforced immunity types and have a threshold not lower than 150mA.

- Capacitors that are integrated as part of the option 231 can generate electrical disturbances in the installation the unit is connected to. Presence of these capacitors must be considered during the electrical study prior to the start-up.

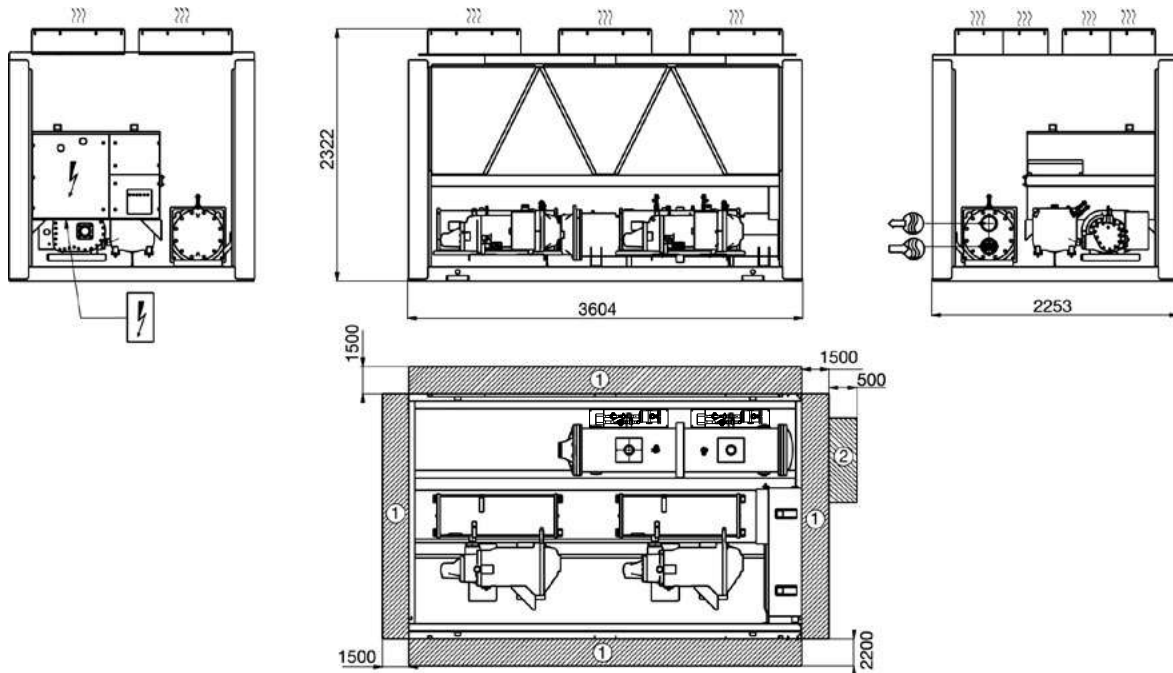
**NOTE: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.**

\* The required protection level for this class is IP43BW (according to reference document IEC 60529). All 30XB & XBP units are protected to IP44CW and fulfil this protection condition.

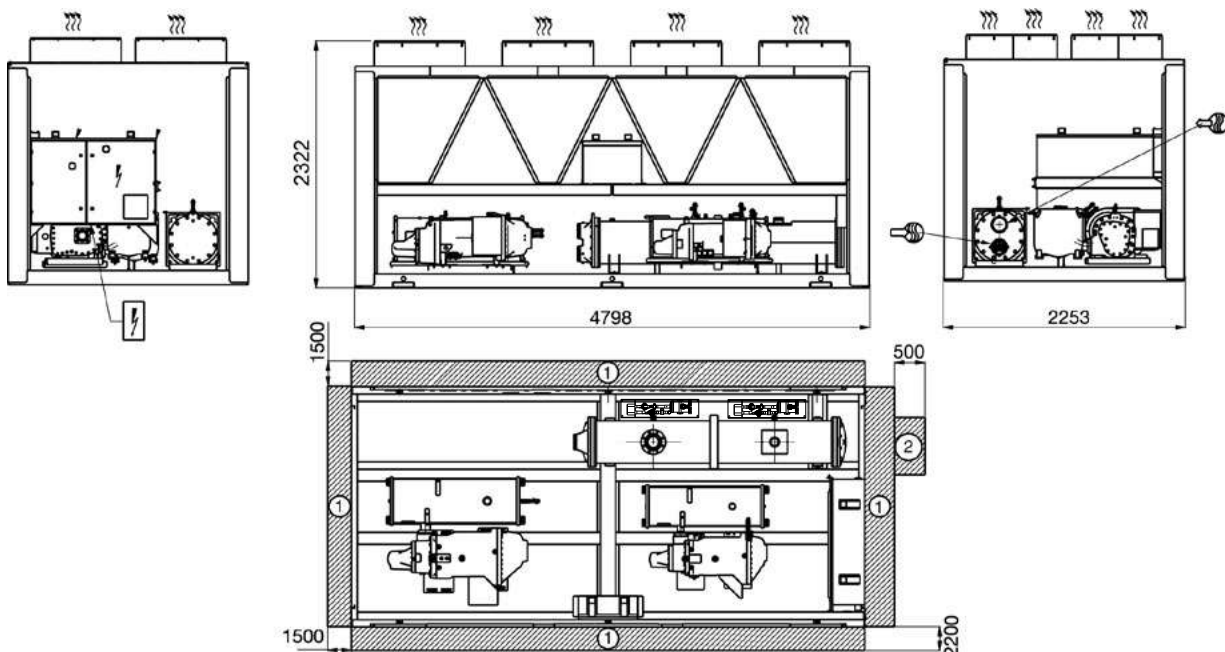
\*\* These limits are modified for machines equipped with option/QM 231: Maximum ambient temperature : 45°C  
Total Voltage harmonic distortion : 3%

## DIMENSIONS / CLEARANCES

### 30XBE 250 to 350, 30XBP250 to 350



### 30XBE 400 to 500, 30XBP 400 to 450



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection

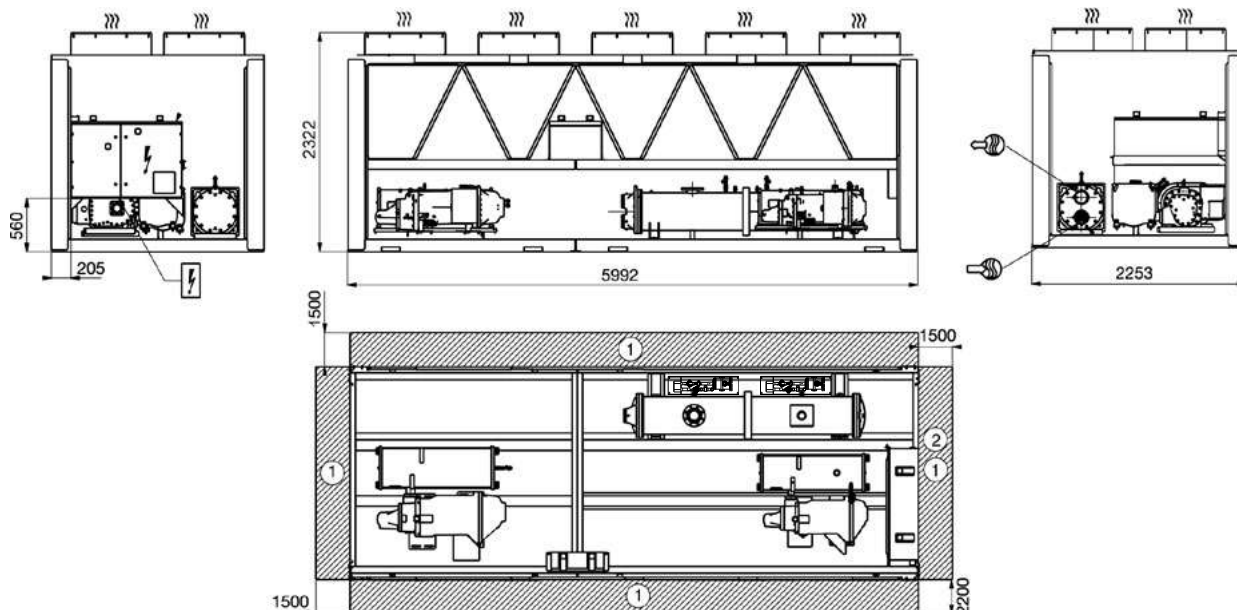
#### NOTES:

- Drawings are not contractually binding.
- Before designing an installation, consult the certified dimensional drawings, available on request.
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.13 - "Multiple chiller installation" and 3.14 - "Distance to the wall" of the installation manual to determine the space required

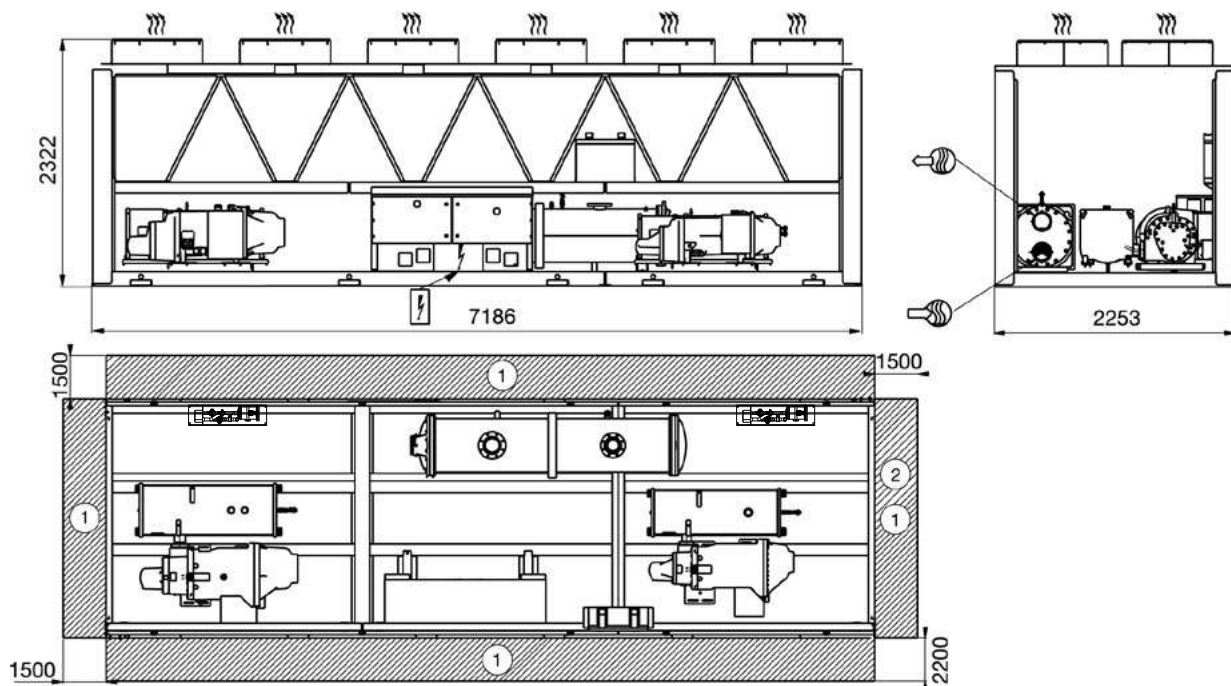


## DIMENSIONS / CLEARANCES

### 30XBP 500, 30XBE 500, 50 (heat recovery) or 118A (free cooling)






### 30XBE 600 to 900, 30XBP 600 to 800



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
-  Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
-  Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- ))) Air outlet – do not obstruct
-  Power supply and control connection

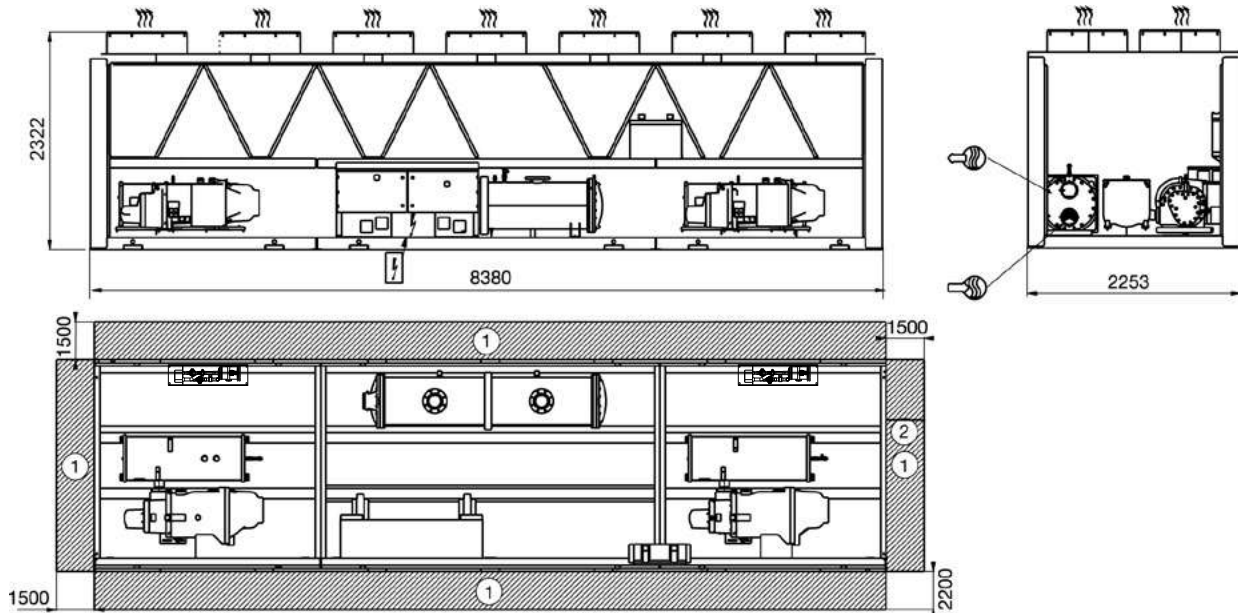
#### NOTES:

- Drawings are not contractually binding.
- Before designing an installation, consult the certified dimensional drawings, available on request.
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.13 - "Multiple chiller installation" and 3.14 - "Distance to the wall" of the installation manual to determine the space required

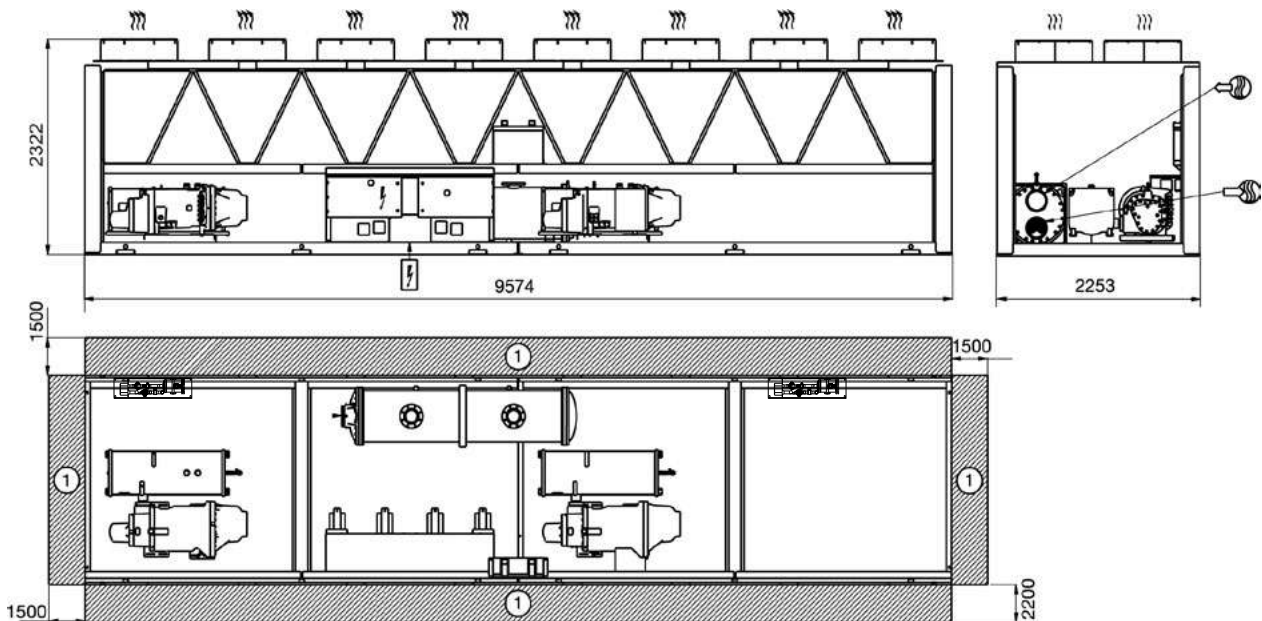


## DIMENSIONS / CLEARANCES

### 30XBE 900, 30XBP 850 & 900, 30XBE 850 with option 50 or 118A



### 30XBE 1000, 30XBP 1000



#### Legend

All dimensions are given in mm.

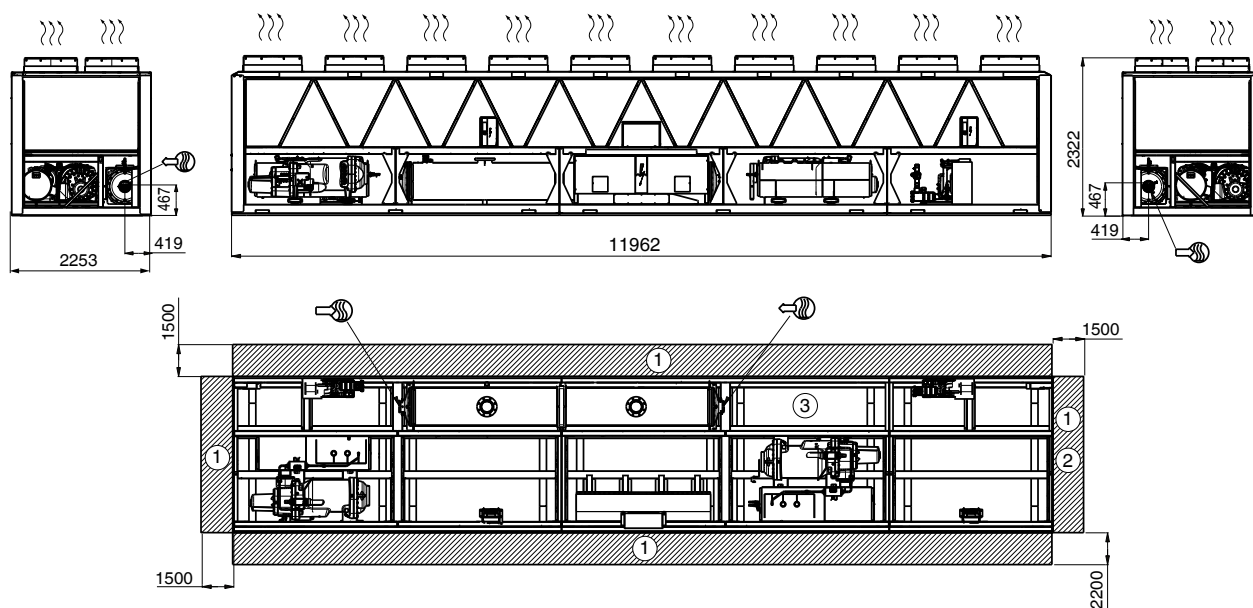
- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection

#### NOTES:

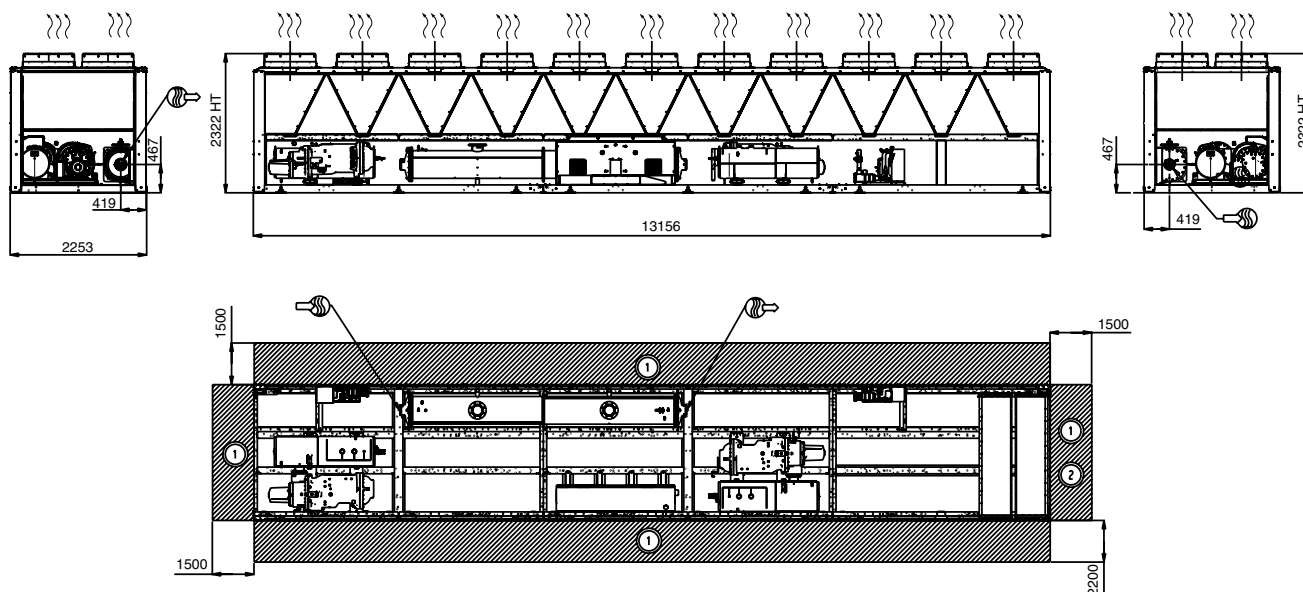
- Drawings are not contractually binding.
- Before designing an installation, consult the certified dimensional drawings, available on request.
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.13 - "Multiple chiller installation" and 3.14 - "Distance to the wall" of the installation manual to determine the space required

## DIMENSIONS / CLEARANCES

### 30XBE 1100 to 1400, 30XBP 1100 to 1400






### 30XB1500, 30XBP1500



#### Legend

All dimensions are given in mm.

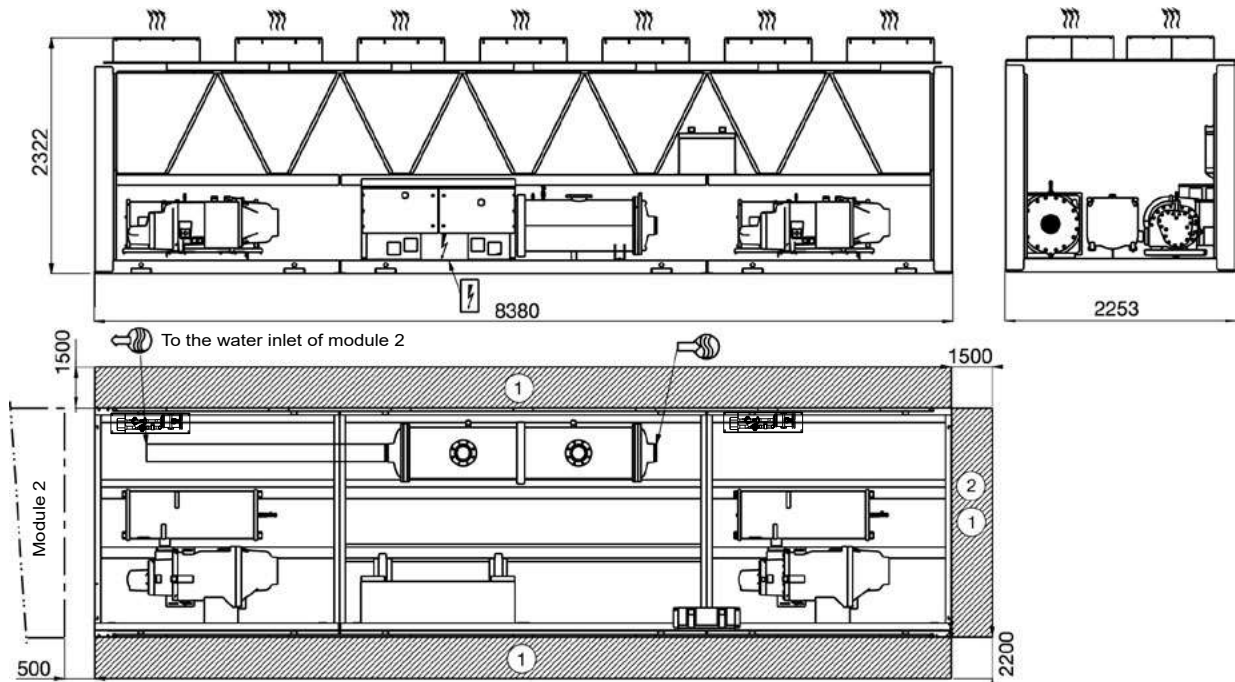
- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
-  Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
-  Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- ))) Air outlet – do not obstruct
-  Power supply and control connection

#### NOTES:

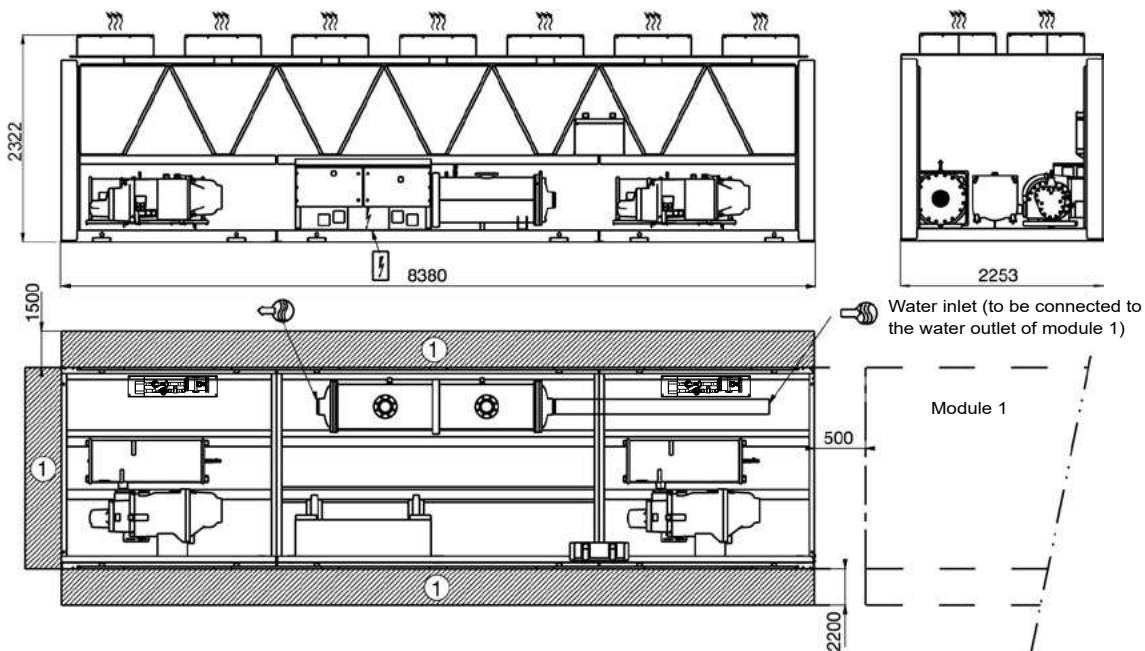
- Drawings are not contractually binding.
- Before designing an installation, consult the certified dimensional drawings, available on request.
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.13 - "Multiple chiller installation" and 3.14 - "Distance to the wall" of the installation manual to determine the space required

## DIMENSIONS / CLEARANCES

### 30XBE 1700 module 1/2



### 30XBE 1700 module 2/2



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection

#### NOTES:

- Drawings are not contractually binding.
- Before designing an installation, consult the certified dimensional drawings, available on request.
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.13 - "Multiple chiller installation" and 3.14 - "Distance to the wall" of the installation manual to determine the space required



## AIR-COOLED FIXED-SPEED SCREW CHILLER



Very economical operation  
Low sound levels  
Simple installation  
Environmentally responsible  
Exceptional reliability

30XBEZE 200 - 1200  
30XBPZE 200 - 1200

**AQUAFORCE**  
PUREtec

Nominal cooling capacity 210 - 1170 kW - 50 Hz

The AquaForce® 30XBEZE and 30XBPZE liquid chillers are the economic solution with ultra-low GWP R-1234ze refrigerant for commercial and industrial applications where high reliability and economic operation in all climate conditions are key customer requirements.

The AquaForce® 30XBEZE and 30XBPZE liquid chillers are designed to meet current and future regulations for energy efficiency and operating sound levels. They use the latest Carrier technologies:

- Refrigerant R-1234ze
- Carrier 06T twin-rotor fixed-speed screw compressors.
- Low noise 6th generation of Carrier Flying Bird™ fans with variable speed AC motor (30XBEZE) or variable speed EC motor.
- Carrier flooded shell-and-tube evaporator with new copper tube design for low pressure drops
- 2nd generation of "V" shape Carrier Novation™ microchannel heat exchangers with optional Enviro-Shield coatings.
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## AQUAFORCE® VISION WITH PURETEC™ REFRIGERANT

### SUSTAINABILITY

PUREtec™: the environmental excellence solution

#### ■ GWP<1

Carrier has selected HFO R-1234ze as the best refrigerant to replace HFC R-134a on screw chillers and heat-pumps.

HFO R-1234ze offers a **Global Warming Potential (GWP) index below 1**, similar to that of natural substances (CO<sub>2</sub> GWP=1).

#### ■ High efficiency

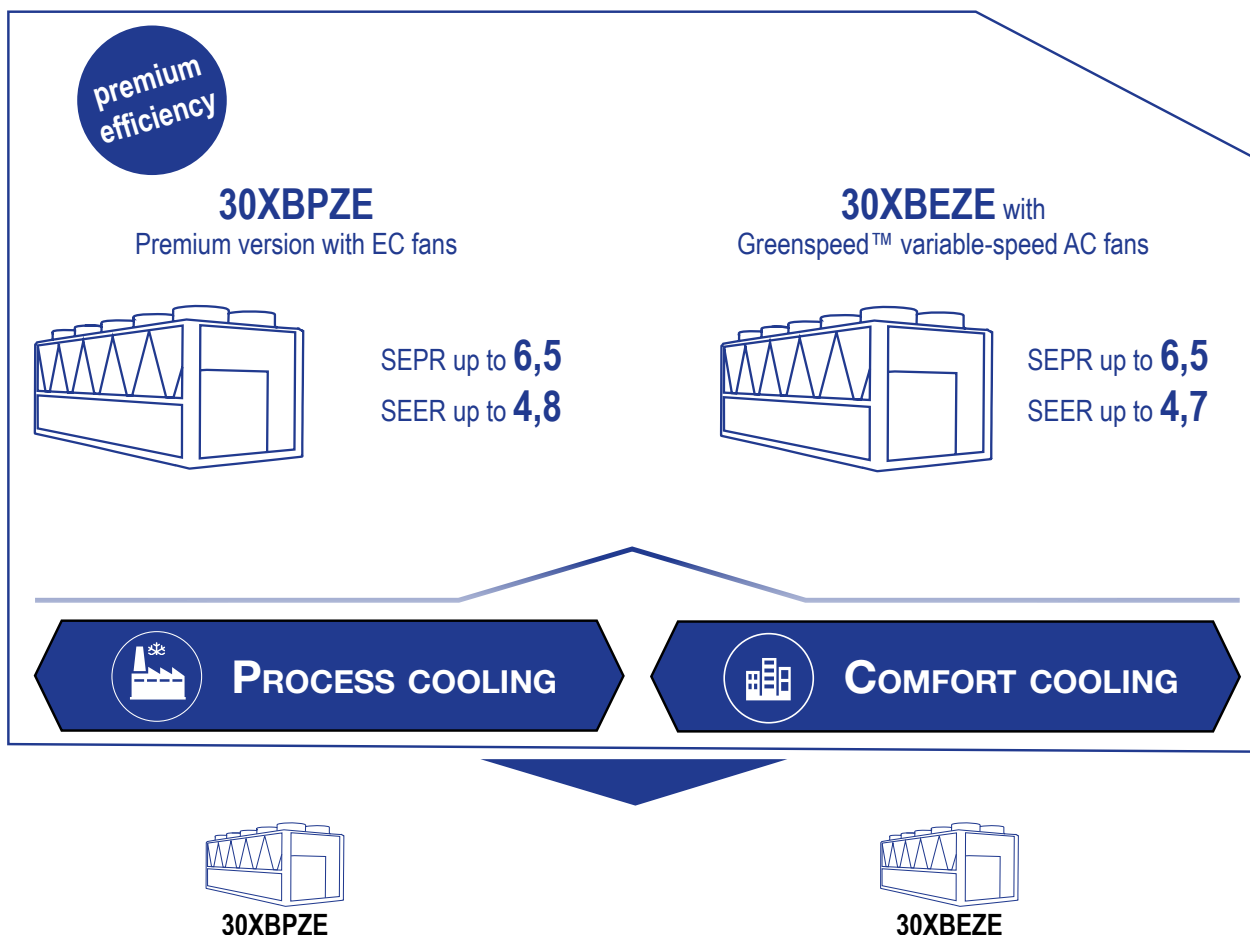
This excellent efficiency performance in turn means a **lower total carbon footprint**, with a reduction of 10% compared to HFC R-134a and HFC/HFO R-513A refrigerants.

#### ■ Regulation compliance

Carrier has made the strategic decision to choose a long-term solution for its new chiller and heat-pump ranges using screw compressors: **HFO R-1234ze, with a GWP<1, is not impacted by the F-gas Regulation.**

## AQUAFORCE® VISION THE RIGHT SOLUTION FOR EVERY APPLICATION

Carrier's AquaForce® Vision range is available in three levels of efficiency to perfectly match each customer application and meet the European Ecodesign directive requirements.



The AquaForce® 30XBPZE with Greenspeed™ intelligence is the premium version EC fans to improve both the full load and part load energy efficiency. The 30XBPZE provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.

The AquaForce® 30XBEZE is equipped with fixed-speed screw compressor and variable-speed AC fans motors. The 30XBEZE offers an economical solution whilst providing high full load energy efficiency level for process applications and 12/7°C operation in hot climates. 30XBEZE is compliant with the 2021 EU Ecodesign SEPR -2/-8°C and 12/7°C requirements for medium and high temperature process chillers.

## AQUAFORCE® VISION CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with fixed-speed screw compressors with EC fans and extra condensing surface, Carrier's AquaForce® Vision 30XBPZE chiller with Greenspeed™ intelligence improve both the full load and part load energy efficiency. The 30XBPZE provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.



SEER  
up to **4,5**

### ■ Low sound levels

The new generation of Carrier 06T fixed-speed twin screw compressor with integrated resonator array and the 6th generation of Flying Bird™ fans with new fan blade design inspired by nature help reduce compressor and airflow noise down to as little as 90 dB(A). 30XBEZE/30XBPZE is 6 dB(A) quieter than the previous AquaForce® 30XAV generation.



**90 dB(A)**

### ■ Environmentally responsible

Carrier AquaForce® Vision 30XBEZE/30XBPZE is a boost for green cities and contributes to a sustainable future. Combining a reduced load refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 25% throughout its life cycle.



UP TO  
**25% LESS**  
CO<sub>2</sub> EMISSION

### ■ Extensive scope of application

Carrier AquaForce® Vision adapts effortlessly to a wide range of applications. Extended operating temperatures from -20°C to 55°C outdoor air temperatures and negative water temperatures make it ideal for various sectors of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaForce® Vision 30XBEZE/30XBPZE meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.



FROM  
**-20°C**  
to **55°C**

### ■ Easy installation & maintenance

Built-in fixed-speed pumps up to 400 kW, automatic nominal water flow adjustment through electronic control, automatic unit energy performance measurement under real conditions, all these new features provide peace of mind for installers and service companies alike.



**25%**  
SMALLER

## CUSTOMER BENEFITS

The range is available in 2 efficiency levels.

### ■ 30XBEZE standard unit

The AquaForce® 30XBEZE is equipped with fixed-speed screw compressors and variable speed fans with AC motors. The 30XBEZE offers an economical solution whilst providing high full load efficiency for process applications and operation in high ambients.

(Average SEPR of 6,1, average SEER of 4,6, average EER of 3,3)

### ■ 30XBPZE premium unit

The 30XBPZE premium unit is equipped with variable speed EC fans to improve both the full load and part load energy efficiency. The 30XBPZE provides very cost effective operation in both process and comfort applications through the use of state of the art EC fan technology.

(Average SEPR of 6,4, average SEER of 4,6, average EER of 3,4)

## Very economical operation

Exceptionally high full load and part load energy efficiency:

- 30XBEZE version with Eurovent energy efficiency class A, and SEER 12/7°C up to 4,7 in accordance with EN14825.
- 30XBPZE version with Eurovent energy efficiency class A, and SEER 12/7°C up to 4,8 in accordance with EN14825.
- Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
- Novation™ aluminium condenser with high-efficiency micro-channels.
- Flooded shell-and-tube evaporator with new generation of cooler tubes to reduce exchanger pressure drops, especially in applications with high percentage of glycol.
- Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface (superheat control).
- Economiser system with electronic expansion device for increased cooling capacity.

## Low operating sound levels

### ■ Compressors

- Discharge dampers integrated in the oil separator (Carrier patent).
- Silencer on the economiser return line.
- Compressor and oil separator acoustic enclosure, reducing radiated noise (option).

### ■ Condenser section

- Condenser coils in wide angle V configuration, allowing quieter air flow across the coil
- Low-noise 6<sup>th</sup> generation Flying Bird fans, made of a composite material (Carrier patent), are now even quieter and do not generate intrusive low-frequency noise
- Rigid fan mounting preventing start-up noise (Carrier patent).

## CUSTOMER BENEFITS

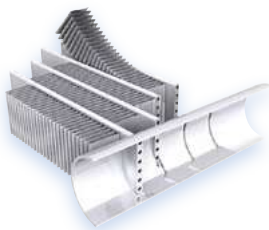
### Simple installation

- Integrated hydraulic module (option)
  - Centrifugal low or high-pressure water pump (as required), based on the pressure loss of the hydraulic installation
  - Single or dual pump (as required) with run time balancing and automatic changeover to the back-up pump if a fault develops
  - Water filter to protect pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit (option)
  - Thermal insulation and aluminium cladding (option)
  - Pressure sensor to check filter condition and for direct numerical display of the water flow rate with an estimate of the instantaneous cooling capacity at the control interface
- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V).
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the controls, expansion devices, fans and compressors.

### Exceptional reliability

- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
  - Dedicated electronic compressor protection module.
- Air condenser
  - 2<sup>nd</sup> generation of "V" shape Carrier Novation™ aluminium microchannel heat exchangers (MCHE) with high corrosion resistance. The all aluminium design eliminates the formation of galvanic currents between aluminium and copper that cause coil corrosion in saline or corrosive environments.
- Evaporator
  - Thermal insulation with aluminium sheet finish (option) for improved resistance to mechanical and UV damage.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure. If condenser coil fouling or fan failure occurs, the AquaForce® continues to operate, but at reduced capacity
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of sophisticated finite element stress analysis for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table. The test is based on a military standard and equivalent to 4000 km by truck.
  - Salt mist corrosion resistance test in the laboratory for increased corrosion resistance.

## 30XBEZE AND 30XBPZE TECHNICAL INSIGHTS



### 3<sup>RD</sup> GENERATION OF NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer

### ADVANCED SMARTVU™ WITH 7 INCH COLOR TOUCH SCREEN INTERFACE

- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



- Remote monitoring with Carrier Connect

### FLOODED SHELL AND TUBE EVAPORATOR

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol



### 6<sup>TH</sup> GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH AC OR EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- AC motor technology
- High efficiency version with EC motor technology (option and 30XBPZE).



### FIXED-SPEED DUAL PUMPS WITH AC MOTOR (OPTION)

- Low static pressure (~100 kPa) or high static pressure (~180 kPa) available
- Available on all sizes up to 400 kW



### CARRIER FIXED-SPEED 06T TWIN SCREW COMPRESSOR WITH AC MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for fixed speed operation
- Sliding valve control (30%-100%)
- Bearing life exceeding 100.000 hours
- 99,7% of units without compressor default



## CUSTOMER BENEFITS

### Environmental responsibility

- The AquaForce® with PUREtec™ refrigerant liquid chillers with Greenspeed™ Intelligence is a boost for green cities and contributes to a sustainable future. Combining a reduced charge of R-1234ze refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 15% throughout its life cycle (compared to previous fixed-speed screw liquid chiller generation).
- R-1234ze: HFO refrigerant with zero ozone depletion potential and ultra low GWP (<1).
- 40% less refrigerant charge: the micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Leak tight refrigerant circuits:
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.
- Refrigerant leak alert: the AquaForce® 30XBEZE/30XBPZE liquid chiller is equipped with an automatic refrigerant leak detection algorithm that can detect serious refrigerant loss at any point on the system (Sensitivity: 25% refrigerant charge loss per circuit, depending on the conditions). The automatic refrigerant leak detection system can help to achieve recognition within pollution prevention assessment programs, ideal for assisting in the design of sustainable buildings.
- Refrigerant leak detection: available as an option, this additional dry-contact allows reporting of possible leaks. The leak detector (by others) should be mounted in the most likely leak location.



- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity airconditioning equipment.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year 30XBEZE/30XBPZE units offer a solution to this important challenge.

A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new 30XBEZE/30XBPZE range helps customers involved in LEED® building certification.

The other benefit of using the AquaForce® with PUREtec™ refrigerant products is the eligibility for BUILDING labeling programs like BREEAM, HQE in France or Green Building Council labelling, that are recognizing the use of sustainable heating and air-conditioning equipment.

Let's take the example of BREEAM assessment method for the sustainability of buildings.

Two credits can be awarded where the refrigerants used in air-conditioning systems have a Global Warming Potential below 10.

And one additional credit can be awarded where the systems have a low Total Equivalent Warming Impact.

The AquaForce® with PUREtec™ refrigerant is not only a solution that is reducing the energy bill and the CO<sub>2</sub> footprint. It also helps the green certification of your buildings.

### Energy saving certificate

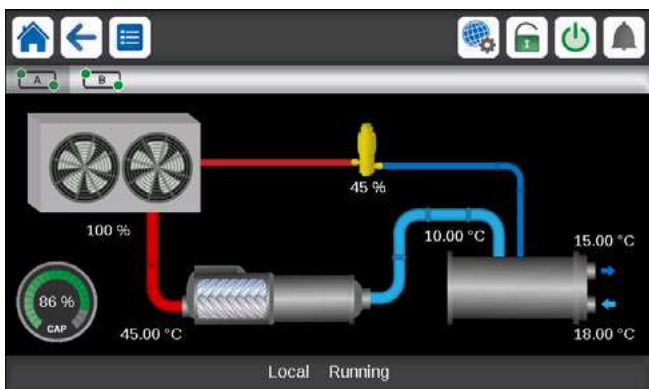
AquaForce® with with PUREtec™ refrigerant is eligible to Energy savings certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and its speed)
- Floating Low pressure control
- Variable speed on asynchronous fan motor
- Variable speed on asynchronous pump motor

For more details about financial incentives in France, please refer to "Fiche produit CEE"

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management:
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote management (standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- AquaForce® with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System Manager or the Plant System Manager (optional).

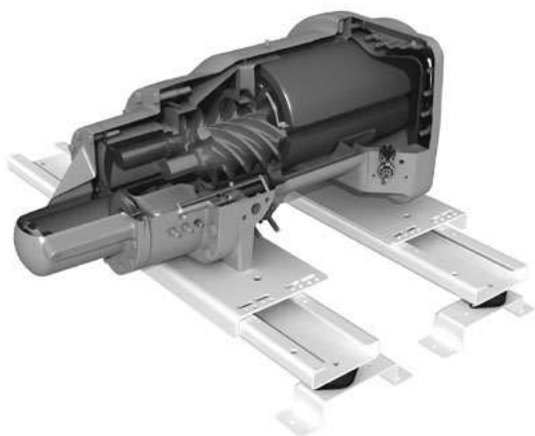
- The 30XBEZE/30XBPZE also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: Indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module (EMM) offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
  - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

## TECHNICAL INSIGHTS

### 06T Screw Compressor



#### 99.7%\* of units without a compressor failure

\* Quality rate measured over a period of 15 years operation

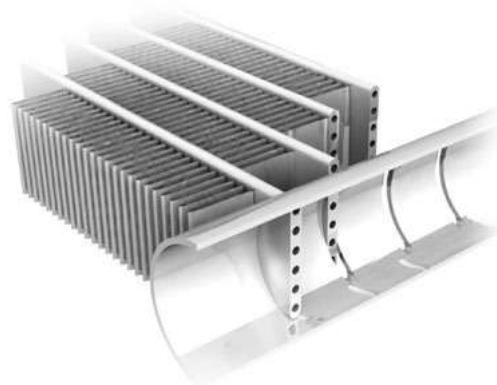
The Carrier 06T screw compressor benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high outside temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The compressor is equipped with a separate oil separator that minimises the amount of oil in circulation in the refrigerant circuit and, with its integrated silencer, considerably reduces discharge gas pulsations for much quieter operation.

### Novation® Heat Exchangers with Micro-Channel coil Technology



Already utilised in the automobile and aeronautical industries for many years, the Novation™ MCHE micro-channel heat exchanger used in the AquaForce® is entirely made of aluminium. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminium) come into contact in traditional heat exchangers. Unlike traditional heat exchangers the Novation™ MCHE heat exchanger can be used in moderate marine and urban environments (Carrier recommendation).

From an energy efficiency point-of-view the Novation™ MCHE heat exchanger is approximately 10% more efficient than a traditional coil and allows a 40% reduction in the amount of refrigerant used in the chiller. The low thickness of the Novation™ MCHE reduces air pressure losses by 50% and makes it susceptible to very little fouling (e.g. by sand). Cleaning of the Novation™ MCHE heat exchanger is very fast using a high-pressure washer.

Carrier Novation® MCHE with Super Enviro-shield® coating, the ideal customer choice

To further enhance long-term performance, and to protect coils from early deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.

The Novation™ MCHE with Enviro-Shield protection (option 262) are recommended for installations in moderately corrosive environments. The Enviro-Shield protection utilises corrosion inhibitors which actively arrest oxidation in case of mechanical damage.

The Novation™ MCHE with the exclusive Super Enviro-Shield protection (option 263) are recommended for installations in corrosive environments. The Super Enviro-Shield protection consist in an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.

## TECHNICAL INSIGHTS

### Novation® Heat Exchangers with Micro-Channel coil Technology

After a total of more than 7,000 hours of testing following various test standards in UTC laboratories, the Carrier Novation® MCHE with Super Enviro-shield® coating appears to be the ideal customer choice to minimize the harmful effects of corrosive atmospheres and ensure long equipment life.

- Best corrosion resistance per ASTM B117/D610 test
- Best heat transfer performance per Carrier Marine 1 test
- Proven reliability per ASTM B117 test

| Coil Types<br>(ranked by performance) | Visual Corrosion<br>Evaluation | Heat Transfer Performance<br>Degradation | Time to Failure | Test Campaign<br>Conclusions |
|---------------------------------------|--------------------------------|--|-----------------|------------------------------|
| Super Enviro-shield® Novation™ MCHE   | Very good                      | Very good                                | No coil leak    | Best                         |
| Super Enviro-shield® Cu/Al coil       | Very good                      | Good                                     | No coil leak    | Very good                    |
| Enviro-shield® Novation™ MCHE         | Very good                      | Good                                     | No coil leak    | Very good                    |
| Al/Al coil                            | Very good                      | Good                                     | No coil leak    | Very good                    |
| Novation™ MCHE                        | Good                           | Good                                     | No coil leak    | Good                         |
| Cu/Cu coil                            | Good                           | Good                                     | Leak            | Acceptable                   |
| Blygold® Cu/Al coil                   | Good                           | Good                                     | No coil leak    | Acceptable                   |
| Precoat Cu/Al coil                    | Bad                            | Bad                                      | No coil leak    | Bad                          |
| Cu/Al coil                            | Bad                            | Bad                                      | No coil leak    | Bad                          |

### New Generation of Flying Bird VI fans



The 30XBEZE and 30XBPZE utilize Carrier's 6<sup>th</sup> generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and wide operating range. The fan includes Carrier patented rotating shroud technology and back-swept blades with a unique wave-serration trailing edge inspired from nature.

It was designed and optimized for the 30XBEZE air management system configuration and heat exchanger technology and is offered with induction and EC motor options. The fan meets the latest European eco-design requirements for fan efficiency. The fan uses Carrier's robust and proven injection molded composite-thermoplastic construction.

## OPTIONS

| Options  | No.   | Description  | Advantages  | Use for<br>30XBEZE /<br>30XBPZE |
|--|-------|--|---|---------------------------------|
| Medium-temperature brine solution              | 5     | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -6°C when ethylene glycol is used (0°C with propylene glycol)    | Covers specific applications such as ice storage and industrial processes   | 30XB(E/P)ZE<br>200-1200         |
| Low-temperature brine solution                 | 6     | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -12°C when ethylene glycol is used (-10°C with propylene glycol) | Covers specific applications such as ice storage and industrial processes   | 30XB(E/P)ZE<br>200-1200         |
| Unit equipped for air discharge ducting        | 10    | Fans equipped with discharge connection flanges - maximum available pressure 60 Pa   | Facilitates connections to the discharge ducts  | 30XB(E/P)ZE<br>200-1200         |
| Low noise level                                | 15    | Aesthetic and sound absorbing compressor enclosure   | Noise level reduction   | 30XB(E/P)ZE<br>200-1200         |
| Very low noise level                           | 15LS  | Sound absorbing & aesthetic compressor enclosure and oil separator, evaporator and suction line acoustic treatment, combined with low-speed fans                                       | Noise level reduction in sensitive environments   | 30XB(E/P)ZE<br>200-1200         |
| Ultra low noise level                          | 15LS+ | Acoustic compressor enclosure, low-speed fans and enhanced sound insulation of main noise sources  | Noise level reduction for sensible site   | 30XB(E/P)ZE<br>200-1200         |
| Tropicalisation                                | 22    | Unit control box suitable for tropical climates  | Reduced relative humidity in the control boxes for operation in tropical climates (warm and humid)                  | 30XB(E/P)ZE<br>200-1200         |
| Grilles and enclosure panels                   | 23    | Metallic protection grilles and side enclosure panels  | Improves aesthetics, protection against intrusion to the unit interior, coil and piping protection against impacts. | 30XB(E/P)ZE<br>200-1200         |
| Enclosure panels                               | 23A   | Side enclosure panels  | Improves aesthetics and piping protection against impacts.  | 30XB(E/P)ZE<br>200-1200         |
| Low inrush current                             | 25C   | compressor loading and unloading sequence to limit the unit start-up current   | Reduced start-up current  | 30XB(E/P)ZE<br>200-1200         |
| Water exchanger frost protection               | 41A   | Electric resistance heater on the water exchanger and discharge valve  | Water exchanger frost protection down to -20°C outside temperature  | 30XB(E/P)ZE<br>200-1200         |
| Evaporator & hydraulic module frost protection | 41B   | Electric resistance heater on water exchanger, discharge valve and hydraulic module  | Water exchanger and hydraulic module frost protection down to -20°C outside temperature                             | 30XB(E/P)ZE<br>200-400          |
| Total heat recovery                            | 50    | Unit equipped with additional heat exchanger in parallel with the condenser coils.   | Production of free hot-water simultaneously with chilled water production   | 30XB(E/P)ZE<br>200-750          |
| Total heat recovery on one circuit             | 50C   | Unit equipped with additional heat exchanger in parallel with the condenser coils on one circuit only  | Production of free hot-water simultaneously with chilled water production   | 30XB(E/P)ZE<br>900-1200         |
| Master/slave operation                         | 58    | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel                        | Optimised operation of two units connected in parallel operation with operating time equalisation                   | 30XB(E/P)ZE<br>900-1200         |
| Single power connection point                  | 81    | Unit power connection via one main supply connection   | Quick and easy installation   | 30XB(E/P)ZE<br>900-1200         |
| Evap. and pumps with aluminum jacket           | 88A   | Evaporator and pumps covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions  | 30XB(E/P)ZE<br>200-400          |
| Service valve set                              | 92    | Liquid line valve (evaporator inlet) and compressor suction line valve   | Allow isolation of various refrigerant circuit components for simplified service and maintenance                    | 30XB(E/P)ZE<br>200-1200         |
| Compressor discharge valves                    | 93A   | Shut-off valve on the compressor discharge piping  | Simplified maintenance  | 30XB(E/P)ZE<br>200-1200         |
| Evaporator with one pass more                  | 100A  | Evaporator with one pass more on the water side  | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high evaporator delta T) | 30XB(E/P)ZE<br>200-1200         |
| 21 bar evaporator                              | 104   | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column evaporator side (typically high buildings)                             | 30XB(E/P)ZE<br>200-1200         |
| Reversed evaporator water connections          | 107   | Evaporator with reversed water inlet/outlet  | Easy installation on sites with specific requirements   | 30XB(E/P)ZE<br>200-1200         |
| HP dual-pump hydraulic module                  | 116S  | Hydraulic module equipped with water filter, two high pressure pumps, drain valve and pressure transducers (expansion tank & aluminum jacket not included).                            | Easy and fast installation (plug & play).   | 30XB(E/P)ZE<br>200-400          |



## OPTIONS

| Options                                       | No.  | Description  | Advantages  | Use for<br>30XB(E)ZE /<br>30XBPZE |
|---|------|--|---|-----------------------------------|
| LP dual-pump hydraulic module                 | 116U | Hydraulic module equipped with water filter, two low pressure pumps, drain valve and pressure transducers (expansion tank & aluminum jacket not included).   | Easy and fast installation (plug & play).   | 30XB(E/P)ZE<br>200-400            |
| Lon gateway                                   | 148D | Bi-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 30XB(E/P)ZE<br>200-1200           |
| Bacnet over IP                                | 149  | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 30XB(E/P)ZE<br>200-1200           |
| Modbus over IP and RS485                      | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 30XB(E/P)ZE<br>200-1200           |
| Energy Management Module                      | 156  | EMM Control board with additional inputs/ outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)  | 30XB(E/P)ZE<br>200-1200           |
| 7" user interface                             | 158A | Control supplied with a 7 inch colour touch screen user interface  | Enhanced ease of use.   | 30XB(E/P)ZE<br>200-1200           |
| Refrigerant leak detection                    | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)   | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions   | 30XB(E/P)ZE<br>200-1200           |
| Dual relief valves on 3-way valve             | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4  | 30XB(E/P)ZE<br>200-1200           |
| Compliance with Swiss regulations             | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications   | Conformance with Swiss regulations  | 30XB(E/P)ZE<br>200-1200           |
| Compliance with Russian regulations           | 199  | EAC certification  | Conformance with Russian regulations  | 30XB(E/P)ZE<br>200-1200           |
| Compliance with Australian regulations        | 200  | Unit approved to Australian code   | Conformance with Australian regulations   | 30XB(E/P)ZE<br>200-1200           |
| Insulation of the evap. in/out ref. lines     | 256  | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation   | Prevents condensation on the evaporator entering/leaving refrigerant lines  | 30XB(E/P)ZE<br>200-1200           |
| Enviro-Shield anti-corrosion protection       | 262  | Coating by conversion process which modifies the surface of the aluminum producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested 4000 hours salt spray per ASTM B117  | Improved corrosion resistance, recommended for use in moderately corrosive environments   | 30XB(E/P)ZE<br>200-1200           |
| Super Enviro-Shield anti-corrosion protection | 263  | Extremely durable and flexible epoxy polymer coating applied on micro channel heat exchangers by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Improved corrosion resistance, recommended for use in extremely corrosive environments  | 30XB(E/P)ZE<br>200-1200           |
| Welded evaporator connection kit              | 266  | Victaulic piping connections with welded joints  | Easy installation   | 30XB(E/P)ZE<br>200-1200           |
| Compressor enclosure                          | 279a | Compressor enclosure   | Improved aesthetic, compressor protection against external elements (dust, sand, water...)  | 30XB(E/P)ZE<br>200-1200           |
| Evaporator with aluminum jacket               | 281  | Evaporator covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions  | 30XB(E/P)ZE<br>200-1200           |
| 230V electrical plug                          | 284  | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps)   | Permits connection of a laptop or an electrical device during unit commissioning or servicing   | 30XB(E/P)ZE<br>200-1200           |
| Expansion tank                                | 293  | 6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option)   | Easy and fast installation (plug & play), & Protection of closed water systems from excessive pressure  | 30XB(E/P)ZE<br>200-1200           |
| US screw compressor                           | 297  | Screw compressor made in US  |   | 30XB(E/P)ZE<br>200-1200           |
| Variable Water Flow control                   | 299  | hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant $\Delta T$ , constant outlet pressure and "fixed-speed" control   | When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/optimised chiller operation | 30XB(E/P)ZE<br>200-1200           |
| Free-cooling dry-cooler control               | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box   | Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode  | 30XB(E/P)ZE<br>200-1200           |

## PHYSICAL DATA, SIZES 30XBEZE 200 TO 600

| 30XBEZE                               |  |                               |   | 200     | 230  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  |      |
|---------------------------------------|--|-------------------------------|---|---------|------|------|------|------|------|------|------|------|------|------|
| Cooling                               |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |  | CA1                           | Nominal capacity                                | kW      | 210  | 229  | 246  | 298  | 340  | 380  | 472  | 520  | 556  | 592  |
| Full load performances*               |  |                               | EER   | kW/kW   | 3,31 | 3,26 | 3,29 | 3,35 | 3,33 | 3,32 | 3,33 | 3,42 | 3,27 | 3,27 |
| Unit with option 15LS (+)             |  | CA1                           | Nominal capacity                                | kW      | 208  | 226  | 244  | 296  | 337  | 374  | 464  | 512  | 546  | 580  |
| Full load performances*               |  |                               | EER   | kW/kW   | 3,33 | 3,35 | 3,28 | 3,36 | 3,31 | 3,27 | 3,40 | 3,47 | 3,27 | 3,24 |
| Standard unit                         |  | Seasonal energy efficiency ** | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,65 | 4,57 | 4,54 | 4,49 | 4,51 | 4,51 | 4,67 | 4,78 | 4,60 | 4,59 |
| Seasonal energy efficiency **         |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 183  | 180  | 179  | 177  | 177  | 177  | 184  | 188  | 181  | 181  |
|                                       |  |                               | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,23 | 6,36 | 6,43 | 6,26 | 6,24 | 6,34 | 6,36 | 6,39 | 6,03 | 6,06 |
| Unit with Option 6                    |  | Seasonal energy efficiency ** | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh | 3,55 | 3,53 | 3,53 | 3,37 | 3,53 | 3,51 | 3,49 | 3,60 | 3,56 | 3,38 |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,59 | 4,59 | 4,57 | 4,64 | 4,65 | 4,63 | -    | -    | -    | -    |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 181  | 181  | 180  | 183  | 183  | 182  | -    | -    | -    | -    |
| Unit with Option 299                  |  | Seasonal energy efficiency ** | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,22 | 6,35 | 6,45 | 6,31 | 6,28 | 6,37 | -    | -    | -    | -    |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,59 | 4,59 | 4,57 | 4,64 | 4,65 | 4,63 | -    | -    | -    | -    |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 181  | 181  | 180  | 183  | 183  | 182  | -    | -    | -    | -    |
| Unit with Option 5                    |  | Seasonal energy efficiency ** | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,20 | 6,36 | 6,32 | 6,05 | 6,23 | 6,13 | 6,22 | 6,26 | 6,15 | 5,80 |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,71 | 4,64 | 4,52 | 4,53 | 4,48 | 4,49 | 4,67 | 4,82 | 4,58 | 4,58 |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 186  | 182  | 178  | 178  | 176  | 176  | 184  | 190  | 180  | 180  |
| Unit with option 15LS (+)             |  | Seasonal energy efficiency ** | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,36 | 6,56 | 6,44 | 6,34 | 6,24 | 6,03 | 6,39 | 6,53 | 5,95 | 6,06 |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,71 | 4,64 | 4,52 | 4,53 | 4,48 | 4,49 | 4,67 | 4,82 | 4,58 | 4,58 |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 186  | 182  | 178  | 178  | 176  | 176  | 184  | 190  | 180  | 180  |
| Unit with Option 6 & 15LS (+)         |  | Seasonal energy efficiency ** | SEPR <sub>-2/-8°C</sub> Process medium temp.*** | kWh/kWh | 3,55 | 3,53 | 3,53 | 3,37 | 3,53 | 3,50 | 3,51 | 3,60 | 3,54 | 3,35 |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,65 | 4,65 | 4,54 | 4,68 | 4,61 | 4,60 | -    | -    | -    | -    |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 183  | 183  | 179  | 184  | 182  | 181  | -    | -    | -    | -    |
| Unit with Option 299 & 15LS (+)       |  | Seasonal energy efficiency ** | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,35 | 6,46 | 6,46 | 6,40 | 6,28 | 6,06 | -    | -    | -    | -    |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,65 | 4,65 | 4,54 | 4,68 | 4,61 | 4,60 | -    | -    | -    | -    |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 183  | 183  | 179  | 184  | 182  | 181  | -    | -    | -    | -    |
| Unit with Option 5 & 15LS (+)         |  | Seasonal energy efficiency ** | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,27 | 6,43 | 6,37 | 6,12 | 6,28 | 6,25 | 6,34 | 6,32 | 6,21 | 5,87 |
| Seasonal energy efficiency **         |  |                               | SEER <sub>12/7°C</sub> Comfort low temp.        | kWh/kWh | 4,65 | 4,65 | 4,54 | 4,68 | 4,61 | 4,60 | -    | -    | -    | -    |
|                                       |  |                               | ηs cool <sub>12/7°C</sub>                       | %       | 183  | 183  | 179  | 184  | 182  | 181  | -    | -    | -    | -    |
|                                       |  |                               | SEPR <sub>12/7°C</sub> Process high temp.       | kWh/kWh | 6,36 | 6,56 | 6,44 | 6,34 | 6,24 | 6,03 | 6,39 | 6,53 | 5,95 | 6,06 |
| Sound levels                          |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 99   | 99   | 99   | 99   | 101  | 99   | 101  | 99   | 103  | 103  |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   |         | 67   | 67   | 67   | 67   | 69   | 67   | 68   | 66   | 70   | 70   |
| Sound pressure at 1 m                 |  |                               |   | dB(A)   | 80   | 80   | 80   | 79   | 81   | 79   | 80   | 78   | 82   | 82   |
| Unit + option 15 <sup>(3)</sup>       |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 93   | 93   | 94   | 95   | 95   | 95   | 97   | 96   | 97   | 98   |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   |         | 61   | 61   | 62   | 63   | 63   | 63   | 64   | 63   | 64   | 65   |
| Sound pressure at 1 m                 |  |                               |   | dB(A)   | 74   | 74   | 75   | 75   | 75   | 75   | 76   | 75   | 76   | 77   |
| Unit + option 15LS <sup>(3)</sup>     |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | 87   | 87   | 87   | 90   | 91   | 91   | 93   | 92   | 94   | 94   |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   |         | 55   | 55   | 55   | 58   | 59   | 59   | 60   | 59   | 61   | 61   |
| Sound pressure at 1 m                 |  |                               |   | dB(A)   | 68   | 68   | 68   | 70   | 71   | 71   | 72   | 71   | 73   | 73   |
| Unit + option 15LS+ <sup>(3)</sup>    |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |  |                               |   | dB(A)   | -    | -    | -    | -    | 89   | 89   | 91   | 90   | 91   | 92   |
| Sound pressure at 10 m <sup>(2)</sup> |  |                               |   |         | -    | -    | -    | -    | 57   | 57   | 58   | 57   | 58   | 59   |
| Sound pressure at 1 m                 |  |                               |   | dB(A)   | -    | -    | -    | -    | 69   | 69   | 70   | 69   | 70   | 71   |
| Dimensions                            |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit                         |  |                               |   |         |      |      |      |      |      |      |      |      |      |      |
| Length                                |  |                               |   | mm      | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 7186 | 7186 | 7186 | 7186 |
| Width                                 |  |                               |   | mm      | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height                                |  |                               |   | mm      | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

\*\*\* With EG 30%

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m<sup>2</sup>.K/Wη<sub>s</sub> cool <sub>12/7°C</sub> & SEER <sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR <sub>-2/-8°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**

NA Non Authorized for the specific application for CEE market

- Not applicable

(1) in dB ref=10<sup>-12</sup>W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L<sub>w</sub>(A).

(3) Options : 15 = Low noise, 15LS = Very Low noise, 15LS+ = Ultra Low noise



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBEZE 200 TO 600

| 30XBEZE   |                    | 200   | 230   | 250   | 300   | 350   | 400   | 450   | 500   | 550   | 600   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Operating weight<sup>(4)</sup></b>                       |                    |   |       |       |       |       |       |       |       |       |       |
| Standard unit   | l                  | 3040  | 3071  | 3091  | 3674  | 3737  | 3798  | 4797  | 4943  | 5201  | 5514  |
| Unit + option 15 <sup>(3)</sup>                             | l                  | 3308  | 3339  | 3359  | 3973  | 4036  | 4097  | 5128  | 5274  | 5532  | 5845  |
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s              |       |       |       |       |       |       |       |       |       |
| Circuit A   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| No. of control stages                                       |                    |   |       |       |       |       |       |       |       |       |       |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R1234ze(E) / A2L  |       |       |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 37  | 35    | 35    | 51    | 52    | 52    | 58    | 58    | 65    | 69    |
|   | teqCO <sub>2</sub> | 0,04  | 0,04  | 0,04  | 0,05  | 0,05  | 0,05  | 0,06  | 0,06  | 0,07  | 0,07  |
| Circuit B   | kg                 | 39  | 36    | 37    | 37    | 37    | 37    | 59    | 62    | 58    | 65    |
|   | teqCO <sub>2</sub> | 0,04  | 0,04  | 0,04  | 0,04  | 0,04  | 0,04  | 0,06  | 0,06  | 0,06  | 0,07  |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  | 23,5  | 27,6  | 27,6  |
| Circuit B   | l                  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  |
| Capacity control  |                    | SmartVu™, Electronic Expansion Valve (EXV)              |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)                     |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Inverter driven Flying Bird (TM) VI fans with AC motors |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 6   | 6     | 6     | 8     | 8     | 8     | 11    | 12    | 12    | 12    |
| Maximum total air flow                                      | l/s                | 28920   | 28920 | 28920 | 38560 | 38560 | 38560 | 53020 | 57840 | 57840 | 57840 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |       |       |       |
| Maximum total air flow                                      | l/s                | 23580   | 23580 | 23580 | 31440 | 31440 | 31440 | 43230 | 47160 | 47160 | 47160 |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type                                 |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 58  | 61    | 61    | 66    | 70    | 77    | 79    | 94    | 98    | 119   |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Water connections</b>                                    |                    | Victaulic® type   |       |       |       |       |       |       |       |       |       |
| <b>Standard</b>   |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 5   | 5     | 5     | 5     | 5     | 5     | 5     | 6     | 6     | 6     |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 168,3 | 168,3 | 168,3 |
| <b>Options 100A</b>   |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 4   | 4     | 4     | 4     | 4     | 4     | 5     | 5     | 5     | 5     |
| Actual outside diameter                                     | mm                 | 114,3   | 114,3 | 114,3 | 114,3 | 114,3 | 114,3 | 141,3 | 141,3 | 141,3 | 141,3 |
| <b>Options 100C</b>   |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 5   | 5     | 5     | 5     | 5     | 5     | 6     | 6     | 6     | 6     |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 |
| <b>Casing paint</b>   |                    | Colour code RAL 7035                                    |       |       |       |       |       |       |       |       |       |

(3) Options : 15 = Low noise, 15LS = Very Low noise, 15LS+ = Ultra Low noise

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL DATA, SIZES 30XBEZE 630 TO 1200

| 30XBEZE                               |     |   |         | 630  | 700  | 750  | 900  | 950  | 1050 | 1150 | 1200 |
|---------------------------------------|-----|---|---------|------|------|------|------|------|------|------|------|
| Cooling                               |     |   |         |      |      |      |      |      |      |      |      |
| Standard unit                         | CA1 | Nominal capacity                                | kW      | 628  | 684  | 755  | 877  | 957  | 1025 | 1120 | 1171 |
| Full load performances*               |     | EER   | kW/kW   | 3,29 | 3,29 | 3,29 | 3,30 | 3,29 | 3,29 | 3,26 | 3,24 |
| Unit with option 15LS (+)             | CA1 | Nominal capacity                                | kW      | 613  | 671  | 737  | 860  | 935  | 1003 | 1093 | 1146 |
| Full load performances*               |     | EER   | kW/kW   | 3,24 | 3,24 | 3,26 | 3,28 | 3,22 | 3,28 | 3,16 | 3,25 |
| Standard unit                         |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,59 | 4,61 | 4,59 | 4,67 | 4,62 | 4,61 | 4,64 | 4,59 |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | 181  | 181  | 180  | 184  | 182  | 181  | 183  | 181  |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,93 | 6,10 | 5,99 | 5,94 | 5,64 | 6,01 | 5,92 | 5,95 |
| Unit with Option 6                    |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,37 | 3,36 | 3,38 | 3,41 | 3,31 | 3,48 | 3,43 | 3,31 |
| Seasonal energy efficiency **         |     |   |         |      |      |      |      |      |      |      |      |
|                                       |     |   |         |      |      |      |      |      |      |      |      |
| Unit with Option 299                  |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | -    | -    | -    | -    | -    | -    | -    | -    |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
| Unit with Option 5                    |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,76 | 5,76 | 5,75 | 5,77 | 5,51 | 5,89 | 5,68 | 5,51 |
| Seasonal energy efficiency **         |     |   |         |      |      |      |      |      |      |      |      |
|                                       |     |   |         |      |      |      |      |      |      |      |      |
| Unit with option 15LS (+)             |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,59 | 4,59 | 4,56 | 4,65 | 4,58 | 4,60 | 4,61 | 4,56 |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | 180  | 181  | 179  | 183  | 180  | 181  | 182  | 180  |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,97 | 6,15 | 6,19 | 6,29 | 6,04 | 6,12 | 6,06 | 6,00 |
| Unit with Option 6 & 15LS (+)         |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,32 | 3,29 | 3,36 | 3,40 | 3,30 | 3,47 | 3,44 | 3,31 |
| Seasonal energy efficiency **         |     |   |         |      |      |      |      |      |      |      |      |
|                                       |     |   |         |      |      |      |      |      |      |      |      |
| Unit with Option 299 & 15LS (+)       |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
| Seasonal energy efficiency **         |     | ηs cool <sup>12/7°C</sup>                       | %       | -    | -    | -    | -    | -    | -    | -    | -    |
|                                       |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
| Unit with Option 5 & 15LS (+)         |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,84 | 5,82 | 5,82 | 5,83 | 5,72 | 5,91 | 5,77 | 5,70 |
| Seasonal energy efficiency **         |     |   |         |      |      |      |      |      |      |      |      |
|                                       |     |   |         |      |      |      |      |      |      |      |      |
| Sound levels                          |     |   |         |      |      |      |      |      |      |      |      |
| Standard unit                         |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 101  | 104  | 102  | 103  | 102  | 104  | 104  | 104  |
| Sound pressure at 10 m <sup>(2)</sup> |     |   |         | 68   | 71   | 69   | 70   | 69   | 71   | 71   | 71   |
| Sound pressure at 1 m <sup>(2)</sup>  |     |   | dB(A)   | 80   | 83   | 81   | 81   | 80   | 81   | 81   | 81   |
| Unit + option 15 <sup>(3)</sup>       |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 97   | 99   | 98   | 98   | 98   | 100  | 99   | 99   |
| Sound pressure at 10 m <sup>(2)</sup> |     |   |         | 64   | 66   | 65   | 65   | 65   | 67   | 66   | 66   |
| Sound pressure at 1 m <sup>(2)</sup>  |     |   | dB(A)   | 76   | 78   | 77   | 76   | 76   | 77   | 76   | 76   |
| Unit + option 15LS <sup>(3)</sup>     |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 94   | 95   | 94   | 94   | 94   | 99   | 95   | 96   |
| Sound pressure at 10 m <sup>(2)</sup> |     |   |         | 61   | 62   | 61   | 61   | 61   | 66   | 62   | 63   |
| Sound pressure at 1 m <sup>(2)</sup>  |     |   | dB(A)   | 73   | 74   | 73   | 72   | 72   | 76   | 72   | 73   |
| Unit + option 15LS+ <sup>(3)</sup>    |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>            |     |   | dB(A)   | 91   | 93   | 92   | 93   | 93   | 97   | 94   | 95   |
| Sound pressure at 10 m <sup>(2)</sup> |     |   |         | 58   | 60   | 59   | 60   | 60   | 64   | 61   | 62   |
| Sound pressure at 1 m <sup>(2)</sup>  |     |   | dB(A)   | 70   | 72   | 71   | 71   | 71   | 74   | 71   | 72   |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

\*\*\* With EG 30%

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/Wη<sub>s</sub> cool<sub>12/7°C</sub> & SEER <sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR <sub>-2/-8°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**

NA Non Authorized for the specific application for CEE market

- Not applicable

(1) in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L<sub>w</sub>(A).

(3) Options : 15 = Low noise, 15LS = Very Low noise, 15LS+ = Ultra Low noise



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBEZE 630 TO 1200

| 30XBEZE   |                    | 630   | 700   | 750   | 900   | 950   | 1050  | 1150  | 1200   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|--------|
| <b>Dimensions</b>   |                    |   |       |       |       |       |       |       |        |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |        |
| Length  | mm                 | 7186  | 8380  | 8380  | 10770 | 10770 | 11962 | 11962 | 13157  |
| Width   | mm                 | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253   |
| Height  | mm                 | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322   |
| <b>Operating weight<sup>(4)</sup></b>                       |                    |   |       |       |       |       |       |       |        |
| Standard unit   | kg                 | 5563  | 6168  | 6344  | 7687  | 7780  | 8660  | 8735  | 9072   |
| Unit + option 15 <sup>(3)</sup>                             | kg                 | 5894  | 6499  | 6675  | 8061  | 8154  | 9034  | 9109  | 9446   |
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s              |       |       |       |       |       |       |        |
| Circuit A   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| No. of control stages                                       |                    |   |       |       |       |       |       |       |        |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R1234ze(E) / A2L  |       |       |       |       |       |       |        |
| Circuit A   | kg                 | 69  | 72    | 72    | 80    | 80    | 115   | 121   | 124    |
|   | teqCO <sub>2</sub> | 0,07  | 0,07  | 0,07  | 0,08  | 0,08  | 0,12  | 0,12  | 0,12   |
| Circuit B   | kg                 | 67  | 74    | 74    | 121   | 126   | 121   | 127   | 130    |
|   | teqCO <sub>2</sub> | 0,07  | 0,07  | 0,07  | 0,12  | 0,13  | 0,12  | 0,13  | 0,13   |
| <b>Oil</b>  |                    | Oil type  |       |       |       |       |       |       |        |
| Circuit A   | l                  | 27,6  | 27,6  | 27,6  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0   |
| Circuit B   | l                  | 23,5  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0  | 36,0  | 36,0   |
| Circuit C   | l                  |   |       |       |       |       |       |       |        |
| Circuit D   | l                  |   |       |       |       |       |       |       |        |
| <b>Capacity control</b>                                     |                    | SmartVu™, Electronic Expansion Valve (EXV)              |       |       |       |       |       |       |        |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15     |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)                     |       |       |       |       |       |       |        |
| <b>Fans</b>   |                    | Inverter driven Flying Bird (TM) VI fans with AC motors |       |       |       |       |       |       |        |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |        |
| Quantity  |                    | 12  | 14    | 14    | 18    | 18    | 20    | 20    | 22     |
| Maximum total air flow                                      | l/s                | 57840   | 67480 | 67480 | 86760 | 86760 | 96400 | 96400 | 106040 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7   |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |        |
| Maximum total air flow                                      | l/s                | 47160   | 55020 | 55020 | 70740 | 70740 | 78600 | 78600 | 86460  |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7   |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type                                 |       |       |       |       |       |       |        |
| Water volume  | l                  | 119   | 130   | 140   | 164   | 174   | 180   | 189   | 189    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000   |
| <b>Water connections</b>                                    |                    | Victaulic® type   |       |       |       |       |       |       |        |
| <b>Standard &amp; option 6</b>                              |                    |   |       |       |       |       |       |       |        |
| Nominal diameter  | in                 | 6   | 6     | 8     | 6     | 6     | 6     | 6     | 6      |
| Actual outside diameter                                     | mm                 | 168,3   | 168,3 | 219,1 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3  |
| <b>Options 5 &amp; 100A</b>                                 |                    |   |       |       |       |       |       |       |        |
| Nominal diameter  | in                 | 5   | 5     | 6     | 6     | 6     | 6     | 6     | 6      |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3 | 168,3  |
| <b>Casing paint</b>   |                    | Colour code RAL 7035                                    |       |       |       |       |       |       |        |

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = Dx freecooling option, 50= heat recovery.

(4) Values are guidelines only. Refer to the unit name plate.



## PHYSICAL DATA, SIZES 30XBPZE 200 TO 600

| 30XPZE   |     |   | 200     | 230  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  |      |
|--|-----|---|---------|------|------|------|------|------|------|------|------|------|------|
| Cooling  |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit  | CA1 | Nominal capacity                                | kW      | 210  | 229  | 246  | 298  | 340  | 380  | 473  | 520  | 556  | 593  |
| Full load performances*  |     | EER   | kW/kW   | 3,37 | 3,32 | 3,34 | 3,42 | 3,38 | 3,37 | 3,42 | 3,49 | 3,33 | 3,44 |
| Unit with Option 15LS  | CA1 | Nominal capacity                                | kW      | 208  | 226  | 244  | 296  | 337  | 374  | 464  | 512  | 546  | 580  |
| Full load performances*  |     | EER   | kW/kW   | 3,37 | 3,33 | 3,29 | 3,40 | 3,34 | 3,30 | 3,42 | 3,50 | 3,29 | 3,27 |
| Standard unit<br>Seasonal energy efficiency **                   |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,75 | 4,68 | 4,62 | 4,57 | 4,61 | 4,60 | 4,76 | 4,86 | 4,66 | 4,69 |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | 187  | 184  | 182  | 180  | 182  | 181  | 188  | 192  | 183  | 185  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,29 | 6,42 | 6,48 | 6,28 | 6,31 | 6,42 | 6,43 | 6,44 | 6,07 | 6,15 |
| Unit with option 6<br>Seasonal energy efficiency **              |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,57 | 3,58 | 3,57 | 3,42 | 3,58 | 3,56 | 3,56 | 3,65 | 3,60 | 3,43 |
| Unit with option 299<br>Seasonal energy efficiency **            |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,70 | 4,70 | 4,65 | 4,73 | 4,76 | 4,73 | -    | -    | -    | -    |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | 185  | 185  | 183  | 186  | 187  | 186  | -    | -    | -    | -    |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,28 | 6,41 | 6,49 | 6,32 | 6,35 | 6,46 | -    | -    | -    | -    |
| Unit with Option 5<br>Seasonal energy efficiency **              |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,28 | 6,43 | 6,39 | 6,12 | 6,30 | 6,20 | 6,32 | 6,35 | 6,26 | 5,90 |
| Unit with option 15LS(+)<br>Seasonal energy efficiency **        |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,83 | 4,70 | 4,59 | 4,61 | 4,60 | 4,58 | 4,70 | 4,86 | 4,59 | 4,54 |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | 190  | 185  | 180  | 181  | 181  | 180  | 185  | 191  | 181  | 179  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,45 | 6,54 | 6,48 | 6,37 | 6,33 | 6,13 | 6,40 | 6,43 | 6,06 | 6,09 |
| Unit with Option 6 & 15LS (+)<br>Seasonal energy efficiency **   |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,56 | 3,58 | 3,57 | 3,42 | 3,57 | 3,54 | 3,55 | 3,65 | 3,60 | 3,42 |
| Unit with Option 299 & 15LS (+)<br>Seasonal energy efficiency ** |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,76 | 4,71 | 4,61 | 4,77 | 4,74 | 4,69 | -    | -    | -    | -    |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | 188  | 185  | 181  | 188  | 186  | 185  | -    | -    | -    | -    |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,44 | 6,46 | NA   | 6,42 | 6,37 | 6,17 | -    | -    | -    | -    |
| Unit with Option 5 & 15LS (+)<br>Seasonal energy efficiency **   |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,34 | 6,5  | 6,43 | 6,19 | 6,34 | 6,30 | 6,29 | 6,33 | 6,21 | 5,87 |
| Sound levels   |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 99   | 99   | 99   | 99   | 101  | 99   | 101  | 99   | 103  | 103  |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 67   | 67   | 67   | 67   | 69   | 67   | 68   | 66   | 70   | 70   |
| Sound pressure at 1 m  |     |   | dB(A)   | 80   | 80   | 80   | 79   | 81   | 79   | 80   | 78   | 82   | 82   |
| Unit + option 15 <sup>(3)</sup>                                  |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 93   | 93   | 94   | 95   | 95   | 95   | 97   | 96   | 97   | 98   |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 61   | 61   | 62   | 63   | 63   | 63   | 64   | 63   | 64   | 65   |
| Sound pressure at 1 m  |     |   | dB(A)   | 74   | 74   | 75   | 75   | 75   | 75   | 76   | 75   | 76   | 77   |
| Unit + option 15LS <sup>(3)</sup>                                |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 87   | 87   | 87   | 90   | 91   | 91   | 93   | 92   | 94   | 94   |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 55   | 55   | 55   | 58   | 59   | 59   | 60   | 59   | 61   | 61   |
| Sound pressure at 1 m  |     |   | dB(A)   | 68   | 68   | 68   | 70   | 71   | 71   | 72   | 71   | 73   | 73   |
| Unit + option 15LS+ <sup>(3)</sup>                               |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | -    | -    | -    | -    | 89   | 89   | 91   | 90   | 91   | 92   |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | -    | -    | -    | -    | 57   | 57   | 58   | 57   | 58   | 59   |
| Sound pressure at 1 m  |     |   | dB(A)   | -    | -    | -    | -    | 69   | 69   | 70   | 69   | 70   | 71   |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

\*\*\* With EG 30%

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/Wηs cool <sup>12/7°C</sup> & SEER <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR <sup>-2/-8°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**

NA Non Authorized for the specific application for CEE market

(1) in dB ref=10<sup>-12</sup>W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = Dx freecooling option, 50= heat recovery.



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBPZE 200 TO 600

| 30XBPZE   |                    | 200   | 230   | 250   | 300   | 350   | 400   | 450   | 500   | 550   | 600   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Dimensions</b>   |                    |   |       |       |       |       |       |       |       |       |       |
| Standard unit   |                    |   |       |       |       |       |       |       |       |       |       |
| Length  | mm                 | 3604  | 3604  | 3604  | 4798  | 4798  | 4798  | 7186  | 7186  | 7186  | 7186  |
| Width   | mm                 | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  |
| Height  | mm                 | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  |
| <b>Operating weight<sup>(4)</sup></b>                       |                    |   |       |       |       |       |       |       |       |       |       |
| Standard unit   | kg                 | 3015  | 3047  | 3066  | 3652  | 3715  | 3776  | 4761  | 4895  | 5161  | 5474  |
| Unit + option 15 <sup>(3)</sup>                             | kg                 | 3283  | 3314  | 3334  | 3952  | 4014  | 4075  | 5092  | 5226  | 5492  | 5805  |
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s              |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| No. of control stages                                       | l                  |   |       |       |       |       |       |       |       |       |       |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R1234ze(E) / A2L  |       |       |       |       |       |       |       |       |       |
| Circuit A   | kg                 | 39  | 37    | 37    | 52    | 53    | 55    | 60    | 61    | 69    | 69    |
|   | teqCO <sub>2</sub> | 0,04  | 0,04  | 0,04  | 0,05  | 0,05  | 0,05  | 0,06  | 0,06  | 0,07  | 0,07  |
| Circuit B   | kg                 | 40,0  | 38    | 39    | 40    | 40    | 36    | 61    | 64    | 61    | 67    |
|   | teqCO <sub>2</sub> | 0,04  | 0,04  | 0,04  | 0,04  | 0,04  | 0,04  | 0,06  | 0,06  | 0,06  | 0,07  |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Circuit A   | l                  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  | 23,5  | 27,6  | 27,6  |
| Circuit B   | l                  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 20,8  | 23,5  | 23,5  | 23,5  | 23,5  |
| <b>Capacity control</b>                                     |                    | SmartVu™, Electronic Expansion Valve (EXV)              |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)                     |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Inverter driven Flying Bird (TM) VI fans with EC motors |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 6   | 6     | 6     | 8     | 8     | 8     | 11    | 12    | 12    | 12    |
| Maximum total air flow                                      | l/s                | 28920   | 28920 | 28920 | 38560 | 38560 | 38560 | 53020 | 57840 | 57840 | 57840 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |       |       |       |
| Maximum total air flow                                      | l/s                | 23580   | 23580 | 23580 | 31440 | 31440 | 31440 | 43230 | 47160 | 47160 | 47160 |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-tube type                                 |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 58  | 61    | 61    | 66    | 70    | 77    | 79    | 94    | 98    | 119   |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Water connections</b>                                    |                    | Victaulic® type   |       |       |       |       |       |       |       |       |       |
| <b>Standard &amp; option 6</b>                              |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 5   | 5     | 5     | 5     | 5     | 5     | 5     | 6     | 6     | 6     |
| Actual outside diameter                                     | mm                 | 141,3   | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | 168,3 | 168,3 | 168,3 |
| <b>Options 5 &amp; 100A</b>                                 |                    |   |       |       |       |       |       |       |       |       |       |
| Nominal diameter  | in                 | 4   | 4     | 4     | 4     | 4     | 4     | 5     | 5     | 5     | 5     |
| Actual outside diameter                                     | mm                 | 114,3   | 114,3 | 114,3 | 114,3 | 114,3 | 114,3 | 141,3 | 141,3 | 141,3 | 141,3 |
| <b>Casing paint</b>   |                    | Colour code RAL 7035                                    |       |       |       |       |       |       |       |       |       |

(3) Options : 15 = Low noise, 15LS = Very Low noise, 118a = Dx freecooling option, 50= heat recovery.

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL DATA, SIZES 30XBPZE 0630 TO 1200

| 30XBPZE  |     |   |         | 630  | 700  | 750  | 900  | 950  | 1050 | 1150 | 1200 |
|--|-----|---|---------|------|------|------|------|------|------|------|------|
| Cooling  |     |   |         |      |      |      |      |      |      |      |      |
| Standard unit  | CA1 | Nominal capacity                                | kW      | 637  | 685  | 763  | 880  | 968  | 1026 | 1120 | 1173 |
| Full load performances*  |     | EER   | kW/kW   | 3,44 | 3,35 | 3,43 | 3,39 | 3,42 | 3,35 | 3,31 | 3,34 |
| Unit with Option 15LS (+)  | CA1 | Nominal capacity                                | kW      | 623  | 671  | 748  | 864  | 949  | 1002 | 1093 | 1145 |
| Full load performances*  |     | EER   | kW/kW   | 3,43 | 3,27 | 3,44 | 3,40 | 3,42 | 3,31 | 3,18 | 3,26 |
| Standard unit<br>Seasonal energy efficiency **                   |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,75 | 4,70 | 4,79 | 4,79 | 4,79 | 4,69 | 4,66 | 4,65 |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | 187  | 185  | 189  | 189  | 189  | 185  | 183  | 183  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,03 | 6,15 | 6,07 | 6,00 | 5,73 | 6,07 | 5,99 | 6,07 |
| Unit with option 6<br>Seasonal energy efficiency **              |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,43 | 3,41 | 3,45 | 3,47 | 3,37 | 3,53 | 3,49 | 3,36 |
| Unit with option 299<br>Seasonal energy efficiency **            |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | -    | -    | -    | -    | -    | -    | -    | -    |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
| Unit with Option 5<br>Seasonal energy efficiency **              |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,84 | 5,84 | 5,82 | 5,86 | 5,61 | 5,99 | 5,76 | 5,65 |
| Unit with option 15LS(+)<br>Seasonal energy efficiency **        |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | 4,70 | 4,57 | 4,69 | 4,70 | 4,71 | 4,67 | 4,60 | 4,61 |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | 185  | 180  | 185  | 185  | 185  | 184  | 181  | 181  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 6,00 | 6,13 | 6,00 | 5,96 | 5,72 | 6,05 | 5,93 | 5,95 |
| Unit with Option 6 & 15LS (+)<br>Seasonal energy efficiency **   |     | SEPR <sup>-2/-8°C</sup> Process medium temp.*** | kWh/kWh | 3,41 | 3,37 | 3,44 | 3,46 | 3,36 | 3,51 | 3,46 | 3,34 |
| Unit with Option 299 & 15LS (+)<br>Seasonal energy efficiency ** |     | SEER <sup>12/7°C</sup> Comfort low temp.        | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
|  |     | ηs cool <sup>12/7°C</sup>                       | %       | -    | -    | -    | -    | -    | -    | -    | -    |
|  |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | -    | -    | -    | -    | -    | -    | -    | -    |
| Unit with Option 5 & 15LS (+)<br>Seasonal energy efficiency **   |     | SEPR <sup>12/7°C</sup> Process high temp.       | kWh/kWh | 5,84 | 5,83 | 5,76 | 5,83 | 5,55 | 5,96 | 5,73 | 5,58 |
| Sound levels   |     |   |         |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 101  | 104  | 102  | 103  | 102  | 104  | 104  | 104  |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 68   | 71   | 69   | 70   | 69   | 71   | 71   | 71   |
| Sound pressure at 1 m  |     |   | dB(A)   | 80   | 83   | 80   | 80   | 79   | 81   | 81   | 81   |
| Unit + option 15 <sup>(3)</sup>                                  |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 97   | 99   | 98   | 98   | 98   | 100  | 99   | 99   |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 64   | 66   | 65   | 65   | 65   | 67   | 66   | 66   |
| Sound pressure at 1 m  |     |   | dB(A)   | 76   | 78   | 76   | 75   | 75   | 77   | 76   | 76   |
| Unit + option 15LS <sup>(3)</sup>                                |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 94   | 95   | 94   | 94   | 94   | 99   | 95   | 96   |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 61   | 62   | 61   | 61   | 61   | 66   | 62   | 63   |
| Sound pressure at 1 m  |     |   | dB(A)   | 73   | 74   | 72   | 71   | 71   | 76   | 72   | 73   |
| Unit + option 15LS+ <sup>(3)</sup>                               |     |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                       |     |   | dB(A)   | 91   | 92   | 92   | 93   | 93   | 97   | 94   | 95   |
| Sound pressure at 10 m <sup>(2)</sup>                            |     |   |         | 58   | 59   | 59   | 60   | 60   | 64   | 61   | 62   |
| Sound pressure at 1 m  |     |   | dB(A)   | 70   | 71   | 70   | 70   | 70   | 74   | 71   | 72   |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

\*\*\* With EG 30%

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/W**ηs cool** <sup>12/7°C</sup> & **SEER** <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application****SEPR** <sup>-2/-8°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2015/1095 for Process application**

NA Non Authorized for the specific application for CEE market

(1) In dB ref=10<sup>-12</sup>W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).

(3) Options : 15 = Low noise, 15LS = Very Low noise, 15LS+ = Ultra Low noise



Eurovent certified values

## PHYSICAL DATA, SIZES 30XBPZE 0630 TO 1200

| 30XBPZE   |                    | 630   | 700   | 750   | 900   | 950   | 1050  | 1150  | 1200   |
|---|--------------------|---|-------|-------|-------|-------|-------|-------|--------|
| <b>Dimensions</b>   |                    |   |       |       |       |       |       |       |        |
| Standard unit   |                    |   |       |       |       |       |       |       |        |
| Length  | mm                 | 8380  | 8380  | 9574  | 11962 | 11962 | 11962 | 11962 | 13157  |
| Width   | mm                 | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253  | 2253   |
| Height  | mm                 | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322  | 2322   |
| <b>Operating weight<sup>(4)</sup></b>                       |                    |   |       |       |       |       |       |       |        |
| Standard unit   | kg                 | 5841  | 6114  | 6607  | 7867  | 7993  | 8622  | 8697  | 9000   |
| Unit + option 15 <sup>(3)</sup>                             | kg                 | 6172  | 6445  | 6938  | 8241  | 8367  | 8996  | 9071  | 9374   |
| <b>Compressors</b>  |                    | 06T semi-hermetic screw compressor, 50 r/s              |       |       |       |       |       |       |        |
| Circuit A   | l                  | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| Circuit B   |                    | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| No. of control stages                                       | l                  |   |       |       |       |       |       |       |        |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R1234ze(E) / A2L  |       |       |       |       |       |       |        |
| Circuit A   | kg                 | 75  | 72    | 79    | 82    | 84    | 115   | 121   | 124    |
|   | teqCO <sub>2</sub> | 0,08  | 0,07  | 0,08  | 0,08  | 0,08  | 0,12  | 0,12  | 0,12   |
| Circuit B   | kg                 | 67  | 74    | 83    | 118   | 130   | 121   | 127   | 130    |
|   | teqCO <sub>2</sub> | 0,07  | 0,07  | 0,08  | 0,12  | 0,13  | 0,12  | 0,13  | 0,13   |
| <b>Oil</b>  |                    |   |       |       |       |       |       |       |        |
| Circuit A   | l                  | 27,6  | 27,6  | 27,6  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0   |
| Circuit B   | l                  | 23,5  | 27,6  | 27,6  | 36,0  | 36,0  | 36,0  | 36,0  | 36,0   |
| <b>Capacity control</b>                                     |                    | SmartVu™, Electronic Expansion Valve (EXV)              |       |       |       |       |       |       |        |
| Minimum capacity  | %                  | 15  | 15    | 15    | 15    | 15    | 15    | 15    | 15     |
| <b>Air heat exchanger</b>                                   |                    | Aluminum micro-channel coils (MCHE)                     |       |       |       |       |       |       |        |
| <b>Fans</b>   |                    | Inverter driven Flying Bird (TM) VI fans with EC motors |       |       |       |       |       |       |        |
| <b>Standard unit</b>  |                    |   |       |       |       |       |       |       |        |
| Quantity  |                    | 14  | 14    | 16    | 19    | 20    | 20    | 20    | 22     |
| Maximum total air flow                                      | l/s                | 67480   | 67480 | 77120 | 91580 | 96400 | 96400 | 96400 | 106040 |
| Maximum rotation speed                                      | r/s                | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7  | 15,7   |
| <b>Unit + option 15LS</b>                                   |                    |   |       |       |       |       |       |       |        |
| Maximum total air flow                                      | l/s                | 55020   | 55020 | 62880 | 74670 | 78600 | 78600 | 78600 | 86460  |
| Maximum rotation speed                                      | r/s                | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7  | 11,7   |
| <b>Water heat exchanger</b>                                 |                    | Flooded multi-pipe type                                 |       |       |       |       |       |       |        |
| Water volume  | l                  | 119   | 130   | 140   | 164   | 174   | 180   | 189   | 189    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000   |
| <b>Water connections</b>                                    |                    | Victaulic® type   |       |       |       |       |       |       |        |
| <b>Standard &amp; option 6</b>                              |                    |   |       |       |       |       |       |       |        |
| Nominal diameter  | in                 | 6   | 6     | 8     | 6     | 6     | 6     | 6     | 6      |
| Actual outside diameter                                     | mm                 | 168.3   | 168.3 | 219.1 | 168.3 | 168.3 | 168.3 | 168.3 | 168.3  |
| <b>Options 5 &amp; 100A</b>                                 |                    |   |       |       |       |       |       |       |        |
| Nominal diameter  | in                 | 5   | 5     | 6     | 6     | 6     | 6     | 6     | 6      |
| Actual outside diameter                                     | mm                 | 141.3   | 141.3 | 168.3 | 168.3 | 168.3 | 168.3 | 168.3 | 168.3  |
| <b>Casing paint</b>   |                    | Colour code RAL 7035                                    |       |       |       |       |       |       |        |

(3) Options : 15 = Low noise, 15LS = Very Low noise, 15LS+ = Ultra Low noise

(4) Values are guidelines only. Refer to the unit name plate.

## ELECTRICAL DATA, 30XBEZE 200 TO 750

| 30XBEZE   |         | 200                           | 230  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  | 630  | 700  | 750  |
|---|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                               |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400-3-50                      |      |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                       |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                             |         | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power <sup>(1)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | kW      | 97                            | 105  | 112  | 142  | 160  | 174  | 224  | 239  | 257  | 270  | 281  | 305  | 327  |
| Unit + option 15LS  | kW      | 92                            | 99   | 107  | 135  | 153  | 167  | 214  | 229  | 246  | 260  | 271  | 293  | 315  |
| <b>Power factor at maximum power <sup>(1)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                       |         | 0,90                          | 0,90 | 0,89 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,89 | 0,89 | 0,90 | 0,88 | 0,89 |
| <b>Unit + option 15LS</b>                                 |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                       |         | 0,90                          | 0,90 | 0,89 | 0,89 | 0,90 | 0,88 | 0,89 | 0,90 | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 |
| <b>Nominal operating current draw <sup>(2)</sup></b>      |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 116                           | 125  | 134  | 161  | 181  | 198  | 248  | 268  | 288  | 304  | 314  | 347  | 367  |
| Unit + option 15LS  | A       | 107                           | 116  | 125  | 149  | 169  | 185  | 231  | 249  | 269  | 286  | 296  | 326  | 345  |
| <b>Maximum operating current draw (Un) <sup>(1)</sup></b> |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 155                           | 169  | 182  | 227  | 258  | 280  | 359  | 384  | 417  | 439  | 454  | 500  | 530  |
| Unit + option 15LS  | A       | 147                           | 160  | 173  | 216  | 247  | 269  | 343  | 367  | 400  | 422  | 437  | 480  | 510  |
| <b>Maximum current (Un-10%) <sup>(1)</sup></b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 166                           | 181  | 195  | 244  | 277  | 300  | 385  | 412  | 447  | 471  | 488  | 537  | 569  |
| Unit + option 15LS  | A       | 158                           | 172  | 187  | 232  | 265  | 289  | 369  | 395  | 430  | 454  | 471  | 517  | 549  |
| <b>Nominal start-up current <sup>(3)</sup></b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 227                           | 227  | 236  | 360  | 454  | 454  | 501  | 521  | 700  | 717  | 717  | 759  | 769  |
| Unit + option 15LS  | A       | 223                           | 223  | 232  | 356  | 450  | 450  | 494  | 512  | 693  | 710  | 710  | 749  | 759  |
| Unit + option 25C   | A       | 184                           | 180  | 189  | 317  | 407  | 407  | 392  | 412  | 605  | 612  | 612  | 628  | 642  |
| <b>Maximum start-up current(Un) <sup>(2)</sup></b>        |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 248                           | 261  | 261  | 381  | 479  | 479  | 581  | 580  | 754  | 776  | 776  | 837  | 852  |
| Unit + option 15LS  | A       | 244                           | 257  | 257  | 377  | 475  | 475  | 574  | 572  | 747  | 769  | 769  | 827  | 842  |
| Unit + option 25C   | A       | 205                           | 214  | 214  | 338  | 432  | 432  | 472  | 472  | 659  | 671  | 671  | 706  | 725  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.



## ELECTRICAL DATA, 30XBEZE 0900 TO 1200

| 30XBEZE  |         | 900                           | 950  | 1050 | 1150 | 1200 |
|--|---------|-------------------------------|------|------|------|------|
| <b>Power circuit supply</b>  |         |                               |      |      |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |      |      |      |      |
| Voltage range  | V       | 360-440                       |      |      |      |      |
| <b>Control circuit supply</b>                                      |         | 24 V via internal transformer |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup> - 30XBEZE</b>       |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | kW      | 154                           | 163  | 224  | 245  | 262  |
| Circuit 2 <sup>(a)</sup>   | kW      | 246                           | 262  | 244  | 260  | 262  |
| Option 081   | kW      | 399                           | 426  | 468  | 505  | 524  |
| <b>Unit + option 15LS</b>  |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | kW      | 147                           | 157  | 215  | 236  | 253  |
| Circuit 2 <sup>(a)</sup>   | kW      | 236                           | 253  | 235  | 252  | 253  |
| Option 081   | kW      | 383                           | 410  | 450  | 487  | 505  |
| <b>Power factor at maximum power<sup>(1)</sup> - 30XBEZE</b>       |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Displacement Power Factor (Cos Phi)                                |         | 0,89                          | 0,89 | 0,89 | 0,89 | 0,89 |
| <b>Unit + option 15LS</b>  |         |                               |      |      |      |      |
| Displacement Power Factor (Cos Phi)                                |         | 0,89                          | 0,89 | 0,89 | 0,89 | 0,89 |
| <b>Nominal operating current draw<sup>(2)</sup> - 30XBEZE</b>      |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 174                           | 184  | 250  | 267  | 292  |
| Circuit 2 <sup>(a)</sup>   | A       | 270                           | 292  | 267  | 288  | 292  |
| Option 081   | A       | 444                           | 475  | 516  | 555  | 583  |
| <b>Unit + option 15LS</b>  |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 163                           | 173  | 235  | 252  | 275  |
| Circuit 2 <sup>(a)</sup>   | A       | 253                           | 275  | 252  | 273  | 275  |
| Option 081   | A       | 416                           | 447  | 486  | 524  | 549  |
| <b>Maximum operating current draw (Un)<sup>(1)</sup> - 30XBEZE</b> |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 250                           | 265  | 365  | 397  | 425  |
| Circuit 2 <sup>(a)</sup>   | A       | 400                           | 425  | 397  | 422  | 425  |
| Option 081   | A       | 650                           | 690  | 762  | 819  | 850  |
| <b>Unit + option 15LS</b>  |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 240                           | 255  | 351  | 383  | 410  |
| Circuit 2 <sup>(a)</sup>   | A       | 384                           | 410  | 383  | 408  | 410  |
| Option 081   | A       | 624                           | 665  | 733  | 790  | 819  |
| <b>Maximum current (Un-10%)<sup>(1)</sup> - 30XBEZE</b>            |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 269                           | 285  | 392  | 426  | 457  |
| Circuit 2 <sup>(a)</sup>   | A       | 429                           | 457  | 426  | 454  | 457  |
| Option 081   | A       | 697                           | 741  | 818  | 879  | 913  |
| <b>Unit + option 15LS</b>  |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 259                           | 275  | 378  | 412  | 441  |
| Circuit 2 <sup>(a)</sup>   | A       | 414                           | 441  | 412  | 440  | 441  |
| Option 081   | A       | 672                           | 716  | 790  | 851  | 882  |
| <b>Nominal start-up current<sup>(3)</sup> - 30XBEZE</b>            |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 587                           | 587  | 629  | 629  | 629  |
| Circuit 2 <sup>(a)</sup>   | A       | 629                           | 629  | 629  | 629  | 629  |
| Option 081   | A       | 854                           | 876  | 893  | 915  | 918  |
| Option 081 & Opt 25c   | A       | 629                           | 640  | 672  | 683  | 683  |
| <b>Maximum start-up current(Un)<sup>(2)</sup> - 30XBEZE</b>        |         |                               |      |      |      |      |
| Circuit 1 <sup>(a)</sup>   | A       | 587                           | 587  | 629  | 629  | 629  |
| Circuit 2 <sup>(a)</sup>   | A       | 629                           | 629  | 629  | 629  | 629  |
| Option 081   | A       | 987                           | 1012 | 1026 | 1051 | 1054 |
| Option 081 & Opt 25c   | A       | 761                           | 776  | 804  | 819  | 818  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B.

## ELECTRICAL DATA, 30XBPZE 200 TO 750

| 30XBPZE   |         | 200                           | 230  | 250  | 300  | 350  | 400  | 450  | 500  | 550  | 600  | 630  | 700  | 750  |
|---|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                               |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400-3-50                      |      |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                       |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                             |         | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power <sup>(1)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | kW      | 96                            | 103  | 111  | 140  | 158  | 172  | 222  | 237  | 255  | 268  | 282  | 302  | 328  |
| Unit + option 15LS  | kW      | 94                            | 101  | 109  | 138  | 156  | 170  | 218  | 233  | 250  | 264  | 278  | 298  | 323  |
| <b>Power factor at maximum power <sup>(1)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                       |         | 0,90                          | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| <b>Unit + option 15LS</b>                                 |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi)                       |         | 0,90                          | 0,89 | 0,89 | 0,90 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,88 | 0,89 |
| <b>Nominal operating current draw <sup>(2)</sup></b>      |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 113                           | 122  | 131  | 158  | 177  | 194  | 243  | 262  | 282  | 299  | 314  | 341  | 366  |
| Unit + option 15LS  | A       | 110                           | 119  | 128  | 154  | 173  | 190  | 237  | 256  | 276  | 293  | 307  | 334  | 358  |
| <b>Maximum operating current draw (Un) <sup>(1)</sup></b> |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 154                           | 167  | 181  | 226  | 256  | 278  | 357  | 382  | 415  | 437  | 457  | 497  | 533  |
| Unit + option 15LS  | A       | 151                           | 164  | 178  | 222  | 252  | 274  | 351  | 375  | 408  | 430  | 450  | 490  | 525  |
| <b>Maximum current (Un-10%) <sup>(1)</sup></b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 165                           | 180  | 194  | 242  | 275  | 299  | 383  | 409  | 445  | 469  | 491  | 534  | 572  |
| Unit + option 15LS  | A       | 162                           | 176  | 191  | 238  | 271  | 295  | 377  | 403  | 439  | 463  | 483  | 527  | 564  |
| <b>Nominal start-up current <sup>(3)</sup></b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 227                           | 227  | 236  | 360  | 454  | 454  | 500  | 519  | 699  | 716  | 718  | 758  | 770  |
| Unit + option 15LS  | A       | 225                           | 225  | 234  | 358  | 452  | 452  | 498  | 516  | 697  | 713  | 715  | 754  | 766  |
| Unit + option 25C   | A       | 184                           | 180  | 189  | 317  | 407  | 407  | 392  | 411  | 604  | 611  | 614  | 626  | 643  |
| <b>Maximum start-up current(Un) <sup>(2)</sup></b>        |         |                               |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 247                           | 261  | 261  | 380  | 479  | 479  | 580  | 579  | 753  | 775  | 778  | 836  | 854  |
| Unit + option 15LS  | A       | 246                           | 259  | 259  | 379  | 477  | 477  | 577  | 576  | 751  | 773  | 775  | 832  | 850  |
| Unit + option 25C   | A       | 204                           | 213  | 213  | 337  | 431  | 431  | 471  | 470  | 658  | 670  | 673  | 705  | 727  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

## ELECTRICAL DATA, 30XBPZE 900 TO 1200

| 30XBPZE  |         | 200                           | 600  | 630  | 700  | 750  |
|--|---------|-------------------------------|------|------|------|------|
| <b>Power circuit supply</b>                                    |         |                               |      |      |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |      |      |      |      |
| Voltage range  | V       | 360-440                       |      |      |      |      |
| <b>Control circuit supply</b>                                  |         | 24 V via internal transformer |      |      |      |      |
| <b>Maximum operating input power <sup>(1)</sup></b>            |         |                               |      |      |      |      |
| <b>Standard unit</b>   | kW      |                               |      |      |      |      |
| Circuit 1 (a)  | kW      | 154                           | 164  | 222  | 243  | 260  |
| Circuit 2 (a)  | kW      | 244                           | 262  | 242  | 258  | 260  |
| Option 081   | kW      | 397                           | 425  | 464  | 501  | 520  |
| <b>Unit + option 15LS</b>                                      |         |                               |      |      |      |      |
| Circuit 1 (a)  | kW      | 151                           | 162  | 219  | 240  | 256  |
| Circuit 2 (a)  | kW      | 240                           | 258  | 239  | 255  | 256  |
| Option 081   | kW      | 391                           | 419  | 457  | 494  | 513  |
| <b>Power factor at maximum power <sup>(1)</sup></b>            |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Displacement Power Factor (Cos Phi)                            |         | 0,88                          | 0,89 | 0,88 | 0,89 | 0,89 |
| <b>Unit + option 15LS</b>                                      |         |                               |      |      |      |      |
| Displacement Power Factor (Cos Phi)                            |         | 0,88                          | 0,89 | 0,88 | 0,89 | 0,89 |
| <b>Nominal operating current draw <sup>(2)</sup> - 30XBEZE</b> |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 173                           | 183  | 245  | 263  | 287  |
| Circuit 2 (a)  | A       | 265                           | 289  | 263  | 284  | 287  |
| Option 081   | A       | 438                           | 472  | 507  | 546  | 573  |
| <b>Unit + option 15LS</b>                                      |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 169                           | 179  | 240  | 257  | 281  |
| Circuit 2 (a)  | A       | 260                           | 283  | 257  | 279  | 281  |
| Option 081   | A       | 428                           | 462  | 497  | 536  | 561  |
| <b>Maximum operating current draw (Un) <sup>(1)</sup></b>      |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 252                           | 267  | 363  | 395  | 423  |
| Circuit 2 (a)  | A       | 398                           | 426  | 395  | 420  | 423  |
| Option 081   | A       | 649                           | 692  | 758  | 815  | 846  |
| <b>Unit + option 15LS</b>                                      |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 247                           | 263  | 358  | 390  | 417  |
| Circuit 2 (a)  | A       | 392                           | 420  | 390  | 415  | 417  |
| Option 081   | A       | 639                           | 682  | 747  | 804  | 834  |
| <b>Maximum current (Un-10%) <sup>(1)</sup></b>                 |         |                               |      |      |      |      |
| <b>Standard unit</b>   |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 270                           | 286  | 390  | 424  | 454  |
| Circuit 2 (a)  | A       | 427                           | 457  | 424  | 452  | 454  |
| Option 081   | A       | 697                           | 743  | 814  | 876  | 908  |
| <b>Unit + option 15LS</b>                                      |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 266                           | 282  | 385  | 419  | 449  |
| Circuit 2 (a)  | A       | 421                           | 451  | 419  | 447  | 449  |
| Option 081   | A       | 687                           | 733  | 804  | 865  | 897  |
| <b>Nominal start-up current <sup>(3)</sup></b>                 |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 587                           | 587  | 629  | 629  | 629  |
| Circuit 2 (a)  | A       | 629                           | 629  | 629  | 629  | 629  |
| Option 081   | A       | 852                           | 876  | 892  | 913  | 916  |
| Option 081 & Opt 25c   | A       | 627                           | 640  | 670  | 681  | 680  |
| <b>Maximum start-up current(Un) <sup>(2)</sup></b>             |         |                               |      |      |      |      |
| Circuit 1 (a)  | A       | 587                           | 587  | 629  | 629  | 629  |
| Circuit 2 (a)  | A       | 629                           | 629  | 629  | 629  | 629  |
| Option 081   | A       | 985                           | 1013 | 1024 | 1049 | 1052 |
| Option 081 & Opt 25c   | A       | 759                           | 777  | 802  | 817  | 816  |

(1) Values obtained at unit continuous maximum operating conditions (data given on the unit nameplate)

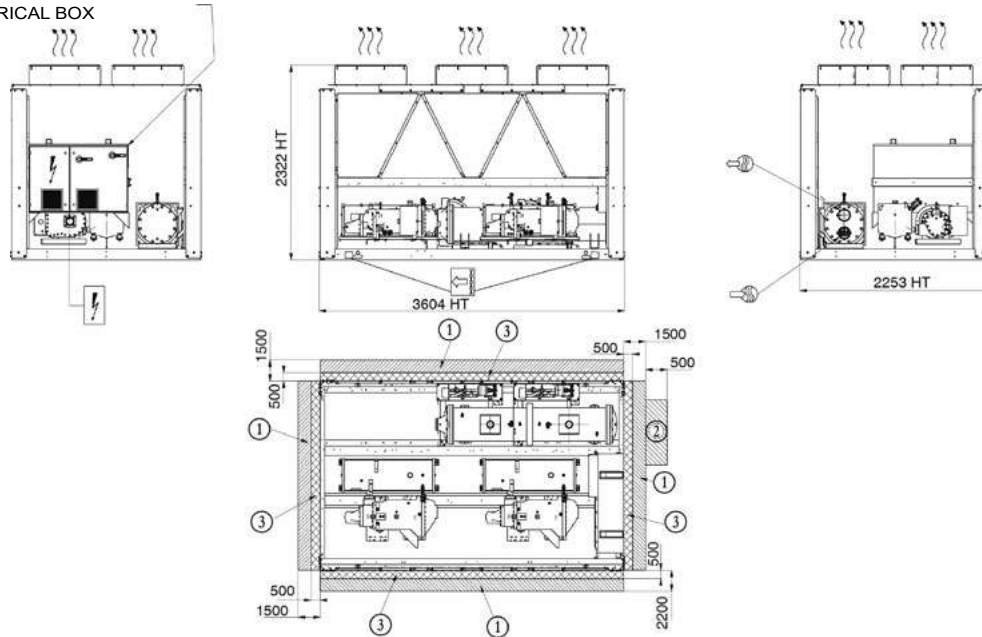
(2) Operating current of the smallest compressor(s) + fan current + locked rotor current or reduced start-up current of the largest compressor.

(3) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

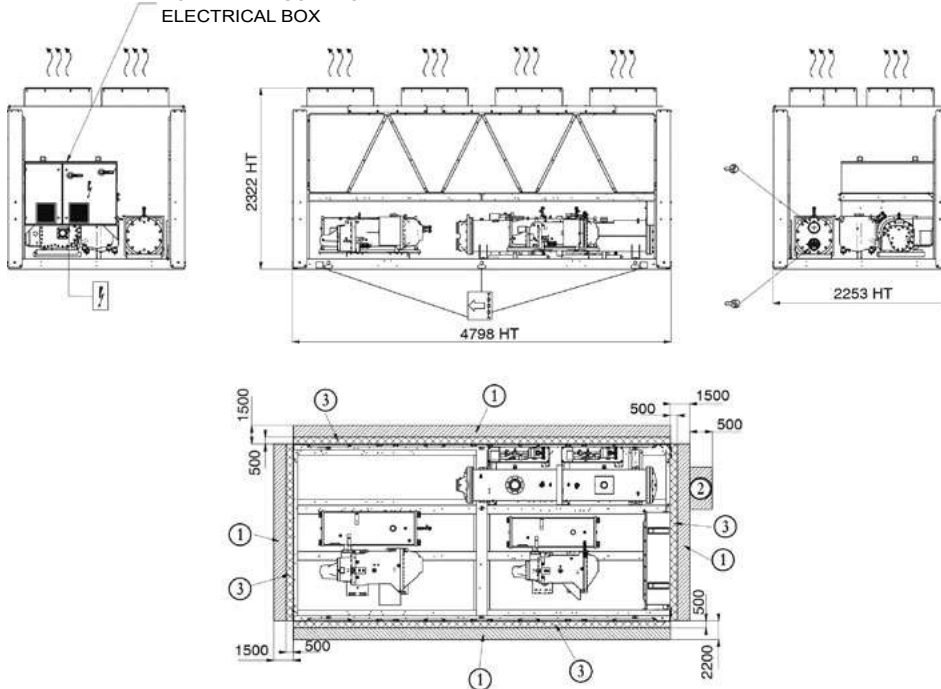
(a) When the machines are equipped with two power supplies, circuit 1 supplies the refrigerant circuit A and circuit 2 supplies the refrigerant circuit B.

## DIMENSIONS / CLEARANCES

### 30XB(P)ZE 0200 to 250

POWER AND CONTROL  
ELECTRICAL BOX


### 30XB(P)ZE 0300 to 400

POWER AND CONTROL  
ELECTRICAL BOX


#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

② Recommended space for evaporator tube removal

③ ATEX zone around the unit

Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.

Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.

Air outlet – do not obstruct

Power supply and control connection

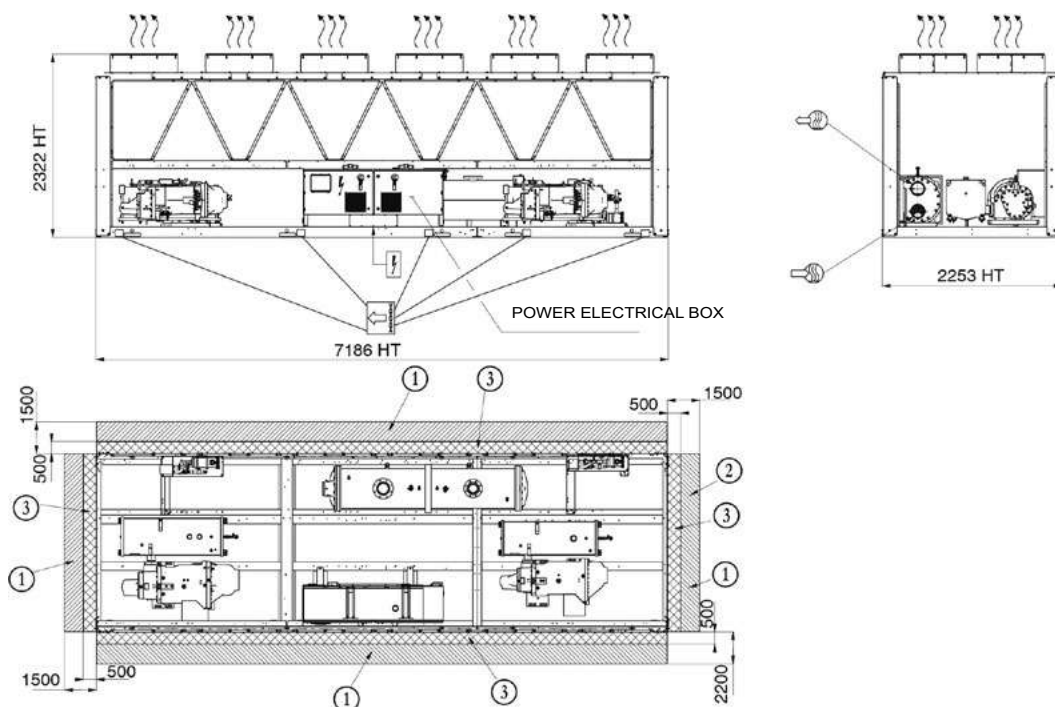
Slinging points

#### NOTES:

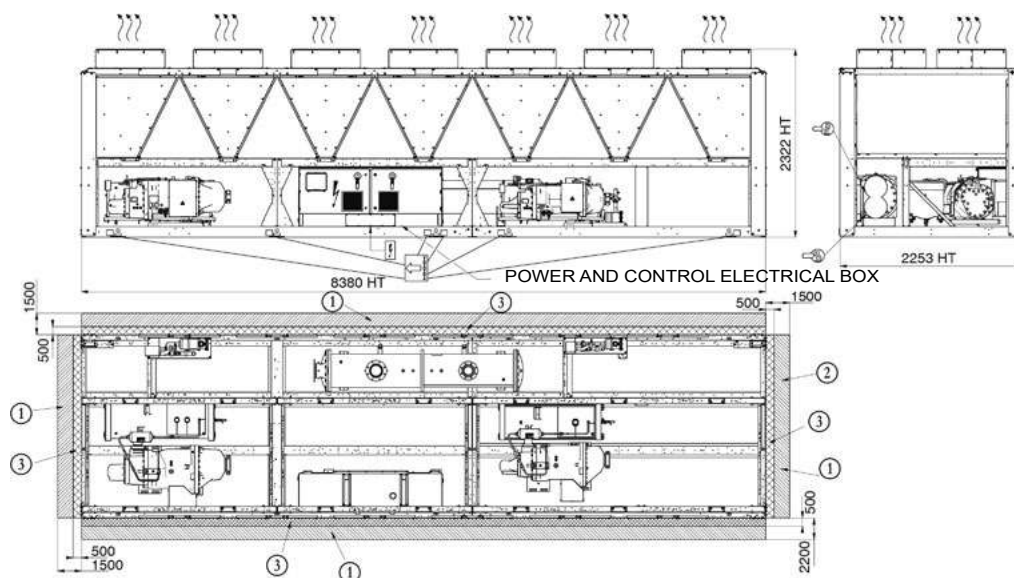
- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - "Multiple chiller installation" and 3.8 - "Distance to the wall" of the installation manual to determine the space required

## DIMENSIONS / CLEARANCES

### 30XBEZE 0450 to 630, 30XBPZE 0450 to 0600



### 30XBEZE 0700 & 750, 30XBPZE 0630 & 700



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- ③ ATEX zone around the unit
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection
- Slings points

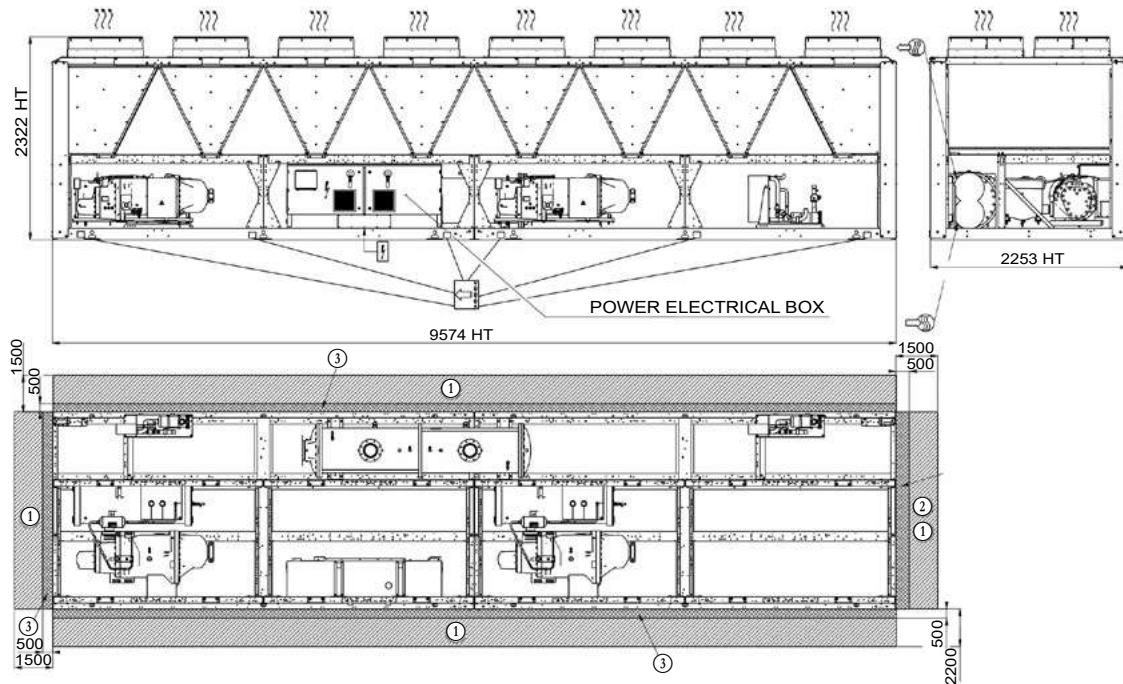
#### NOTES:

- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - "Multiple chiller installation" and 3.8 - "Distance to the wall" of the installation manual to determine the space required

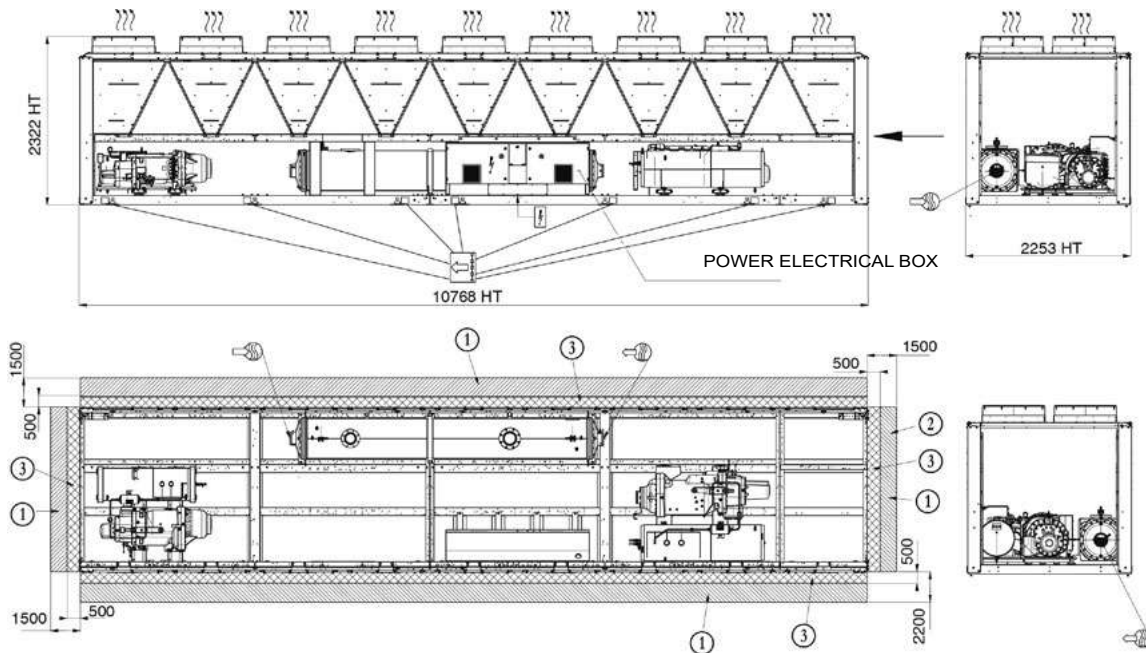


## DIMENSIONS / CLEARANCES

### 30XBPZE 0750



### 30XBEZE 0900 to 950



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

② Recommended space for evaporator tube removal

③ ATEX zone around the unit

Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.

Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.

Air outlet – do not obstruct

Power supply and control connection

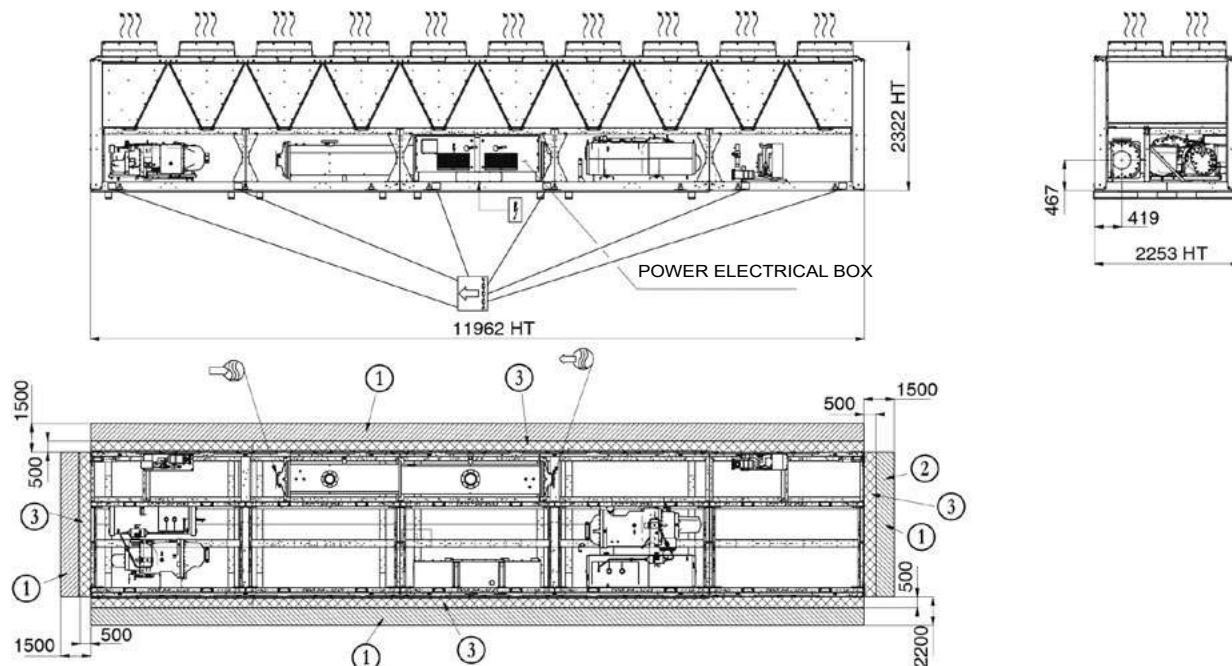
Slinging points

#### NOTES:

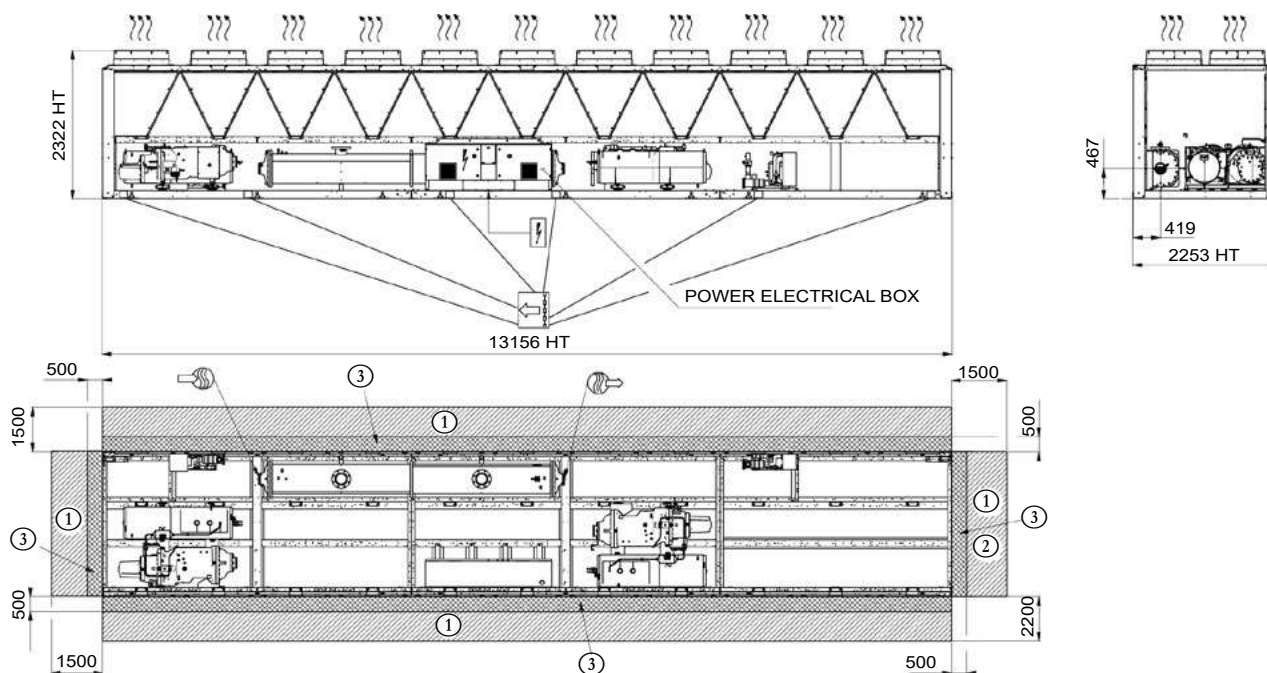
- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - "Multiple chiller installation" and 3.8 - "Distance to the wall" of the installation manual to determine the space required

## DIMENSIONS / CLEARANCES

### 30XBEZE 1050 & 1150, 30XBPZE 0900 to 1150



### 30XB(E/P)ZE 1200



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Recommended space for evaporator tube removal
- ③ ATEX zone around the unit
- Water inlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Water outlet for standard unit - for options 100A, 100C, 107 refer to the certified drawing.
- Air outlet – do not obstruct
- Power supply and control connection
- Sliding points

#### NOTES:

- Drawings are not contractually binding.
- Refer to unit nameplate for unit weight information
- Before designing an installation, consult the certified dimensional drawings, provided with the unit (Appendix 4).
- If the installation includes several units or if this (these) is (are) close to walls, please refer to chapters 3.7 - "Multiple chiller installation" and 3.8 - "Distance to the wall" of the installation manual to determine the space required

## VARIABLE-SPEED SCREW LIQUID CHILLER WITH GREENSPEED™ INTELLIGENCE



Outstanding performance  
Low sound levels  
Intelligence and connectivity  
Wide range of applications  
Simple installation and maintenance

# 30KAV 500 - 1100 30KAVP 500 - 1100

Nominal cooling capacity 493-1079 kW

The AquaForce® Vision 30KAV/30KAVP liquid chillers with Greenspeed™ Intelligence are the premium solution for commercial applications where installers, consultants and building owners require superior reliability and optimal performances, especially at part load.

The 30KAV/30KAVP units are designed to exceed European Ecodesign directive requirements in terms of energy efficiency, versatility and operating sound levels. This result is achieved through the optimised combination of proven best-in-class technologies that include:

- 2<sup>nd</sup> generation of high-efficiency variable-speed twin screw compressors with built in volume index control (Vi) valve for optimal full and part load performance and Integrated Resonator Array (IRA) for low sound operation
- 30KAVP premium efficiency with a Permanent Magnet technology motor. Motor is synchronous and spins without any slip and rotor losses.
- 6<sup>th</sup> generation of Carrier Flying Bird™ fans with AC or EC motor depending on options.
- Carrier flooded shell-and-tube evaporator with new copper tubes for low pressure drops
- 3<sup>rd</sup> generation of "W" profile Carrier Novation™ microchannel heat exchangers with optional Enviro-Shield coatings.
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages and new smart energy monitoring function.

**AQUAFORCE** greenspeed



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## 30KAV CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed screw compressors and variable-speed fans (AC as standard and EC as option) and optional variable-speed pumps, Carrier's AquaForce® Vision 30KAV chiller with Greenspeed™ intelligence automatically adjusts the cooling capacity and the water flow to perfectly match the needs of the building or the process load variations. The result is optimum operation at both full load and part load (SEER up to 5.4). 30KAV offers energy efficiency up to 10% higher than the 30XAV range with the same footprint.

The range is already fully compliant with the 2021 Ecodesign regulations.



SEER  
up to **5.4**

### ■ Low sound levels

The new generation of Carrier 06Z variable-speed twin screw compressor with integrated resonator array and the 6th generation of Flying Bird™ fans with new fan blade design inspired by nature help reduce compressor and airflow noise down to as little as 90 dB(A). 30KAV is 6 dB(A) quieter than the previous AquaForce® 30XAV generation.



**90 dB(A)**

### ■ Intelligence and connectivity

The advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. 30KAV also features innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling energy output and instantaneous and average seasonal energy efficiency ratios. For further energy savings, 30KAV can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.



SMART ENERGY  
MONITORING

### ■ Extensive scope of application

Carrier's AquaForce® Vision adapts effortlessly to a wide range of applications. Extended operating temperatures from -20°C to 55°C outdoor air temperatures and negative water temperatures make it ideal for various sectors of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaForce® Vision 30KAV meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.



FROM  
**-20°C**  
to **55°C**

### ■ Easy installation & maintenance

Built-in variable-speed pumps up to 800 kW, automatic nominal water flow adjustment through electronic control, automatic unit energy performance measurement under real conditions, in units that are 25% smaller than the previous 30XAV generation, all these new features provide peace of mind for installers and service companies alike.



**25%**  
SMALLER

## 30KAVP CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed screw compressors with permanent magnet motor, EC fans and extra condensing surface, Carrier's AquaForce® Vision 30KAVP chiller with Greenspeed™ intelligence automatically adjusts the cooling capacity and the water flow to perfectly match the needs of the building or the process load variations.

The SEER is 25% above 2021 Ecodesign requirements.



SEER  
up to 5.6

### ■ Low sound levels

The new generation of Carrier 06Z variable-speed twin screw compressor with integrated resonator array and the 6th generation of Flying Bird™ fans with new fan blade design inspired by nature help reduce compressor and airflow noise down to as little as 90 dB(A). 30KAVP is 6 dB(A) quieter than the previous AquaForce® 30XAV generation.



90 dB(A)

### ■ Intelligence and connectivity

The advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. 30KAVP also features innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling energy output and instantaneous and average seasonal energy efficiency ratios. For further energy savings, 30KAVP can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.



SMART ENERGY  
MONITORING

### ■ Extensive scope of application

Carrier's AquaForce® Vision adapts effortlessly to a wide range of applications. Extended operating temperatures from -20°C to 55°C outdoor air temperatures and negative water temperatures make it ideal for various sectors of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaForce® Vision 30KAVP meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.



FROM  
-20°C  
to 55°C

### ■ Easy installation & maintenance

Built-in variable-speed pumps up to 800 kW, automatic nominal water flow adjustment through electronic control, automatic unit energy performance measurement under real conditions, in units that are 25% smaller than the previous 30XAV generation, all these new features provide peace of mind for installers and service companies alike.



25%  
SMALLER



## CUSTOMER BENEFITS

AquaForce® Vision 30KAV/30KAVP liquid chillers with Greenspeed™ Intelligence adapt effortlessly to a wide range of applications. An extended operating range covering ambient temperatures from -20 to 55°C makes it ideal for all areas of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, 30KAV/30KAVP meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.

Furthermore, the advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. 30KAV/30KAVP also features innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios as well as smart refrigerant leak alert that can indicate significant loss of refrigerant at any point of the system.

For further energy savings, 30KAV can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.

The 30KAV/30KAVP range is available in 5 efficiency levels.

### ■ 30KAV standard unit

The AquaForce™ 30KAV is equipped with variable-speed screw compressor and variable-speed fans with AC motors. The 30KAV is optimised to meet the most demanding technical and economic requirements while offering high seasonal energy efficiency levels.

(Average SEER of 5.17, average EER of 3.0)

### ■ 30KAV with EC fans (option 17)

The 30KAV with EC fans option enhances the seasonal energy efficiency and offers state of the art EC fan technology as standard.

(Average SEER of 5.23, average EER of 3.0)

### ■ 30KAV with High Energy Efficiency (option 119)

The 30KAV with High Energy Efficiency option is equipped with variable-speed fans with AC motor and additional heat exchange surface to deliver optimum performance at both full load and part load.

(Average SEER of 5.35, average EER of 3.4)

### ■ 30KAV with High Energy Efficiency+ (option 119+)

The 30KAV with High Energy Efficiency+ option is equipped with EC fans and additional heat exchange surface to provide the highest possible seasonal energy efficiency.

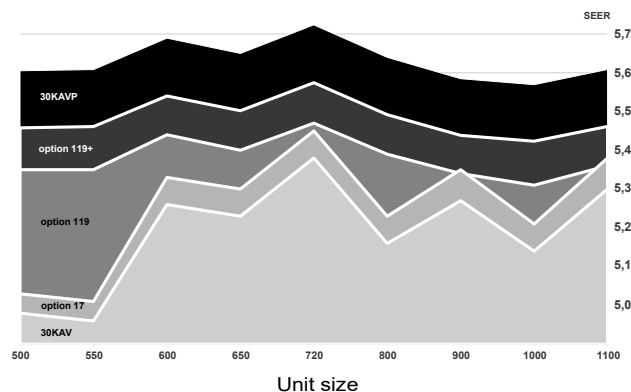
(Average SEER of 5.45, average EER of 3.4)

### ■ 30KAVP Premium Energy Efficiency.

The 30KAVP is based on 30KAV with option 119+. In addition, variable speed screw compressor is equipped with a premium permanent magnet motor. This is a synchronous motor without any slip and rotor losses.

(Average SEER of 5.6, average EER of 3.5)

## SEER of the 30KAV/30KAVP range



## Outstanding energy performance

- The 30KAV with “High energy efficiency+” is designed for very high performance both at full and part load: average SEER 5.45, average EER 3.4 as per EN14825 & EN14511.
- The 30KAVP with “Premium energy efficiency” is designed for very high performance both at full and part load: average SEER 5.6, average EER 3.5 as per EN14825 & EN14511.
- The high energy efficiency is achieved through:
  - 2<sup>nd</sup> generation of Carrier high-efficiency variable-speed twin-screw compressors with built in volume index control (Vi) valve for both optimal full and part load performance
  - Variable-speed Flying Bird™ fans with EC motor minimising power consumption while delivering optimum air flow
  - Novation™ aluminum condenser with high-efficiency micro-channel coils technology
  - New Carrier flooded shell-and-tube evaporator with new copper tubes for low pressure drops
  - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface (superheat control)
  - Economiser system with electronic expansion device for increased cooling capacity.
- Optimised electrical performance:
  - Negligible start-up current (value is lower than the maximum unit current draw)
  - High displacement power factor (above 0.98)
  - EMC compliance with Class 3 requirements of the EU standard EN61800-3 (Class 2 is possible as an option).
- Hydraulic module with variable-speed dual pump
  - Variable-speed, dual pumps which automatically adjust the water flow to match the needs of the building or process load variations.
  - 3 pump control modes available: constant water flow with possibility to reduce the pump speed when there is no cooling demand, variable water flow with constant delta T or constant delta P control.
- Smart energy monitoring
  - Innovative smart energy monitoring providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios (Electricity metering accuracy: +/-5%. Cooling capacity metering accuracy: +/-5% at nominal rated conditions).
  - For further energy savings, 30KAV can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.

## CUSTOMER BENEFITS

### Built-in reliability and easy servicing

The 30KAV/30KAVP units offer enhanced performances as well as Carrier's acclaimed product quality and reliability. Major components were chosen, selected and tested to minimise the possibility of failure.

- 2<sup>nd</sup> generation of variable-speed twin-screw compressors:
  - The screw compressors are industrial-type with oversized bearings and motor cooled by suction gas, with a proven failure rate lower than 0.1%.
  - 30KAVP is fitted with a Permanent Magnet (PM) motor to run the variable screw compressor.
  - Motor is synchronous and spins at supplied frequency, without any slip and rotor losses to induce magnetic field. There is a benefit of +1% in full load efficiency and of +4% in part load efficiency compared to induction motors.
  - Air-cooled compressor variable-speed drive (VSD) to ensure reliable operation and easy maintenance. (Glycol-cooled variable-speed drive (VSD) types are subject to higher failure rates due to glycol pump issue. Refrigerant-cooled variable-speed drive (VSD) types are subject to higher compressor vibration levels causing possible failures in the long term).
  - Compressor bearing life exceeding 100 000 hours
  - All components related to the compressor assembly are easily accessible on site minimising down-time.

- Variable-speed fans:

30KAV is fitted with variable-speed asynchronous fan- motors as standard. One variable-speed drive (VSD) is sized to manage a group of fans per refrigerant circuit reducing first cost while ensuring high part-load efficiency.

30KAV with High Energy Efficiency+ option and 30KAVP is fitted with variable-speed EC fan-motors. Each EC fan is controlled independently ensuring continuous chiller operation in case of motor or drive failure.

- Air-cooled condenser:

- Novation™ aluminum micro-channel heat exchanger (MCHE) with high corrosion resistance. The all aluminum design eliminates the formation of galvanic currents between aluminum and copper that cause coil corrosion in saline or corrosive environments.
- Enviro-shield™ coating for MCHE used in standard and mildly corrosive environments with superior durability confirmed through 5000 hours testing in constant neutral salt spray per ASTM B117 and superior heat transfer performances confirmed through 2000 hours testing per CM1 (Carrier proprietary testing).
- Super Enviro-shield™ coating for MCHE used in highly corrosive environments (industry or marine applications) with superior durability confirmed through 5000 hours testing in constant neutral salt spray per ASTM B117 and superior heat transfer performances confirmed through 2000 hours testing per CM1 (Carrier proprietary testing).

- Evaporator:

- Carrier designed flooded evaporator with mechanically cleanable water tubes
- Electronic paddle-free flow switch to ensure prompt alarm in case of poor liquid flow rate
- Thermal insulation with aluminum sheet finish (option) improved resistance to mechanical and UV damage.

- Refrigerant circuits:

- Two independent refrigerant circuits to secure partial cooling, if one of the two develops a fault.

- Auto-adaptive control:

- Control algorithm prevents excessive compressor cycling (Carrier patent)

- Automatic compressor unloading in case of abnormally high condensing pressure. If condenser coil fouling or fan failure occurs, the Aquaforce continues to operate, but at reduced capacity.

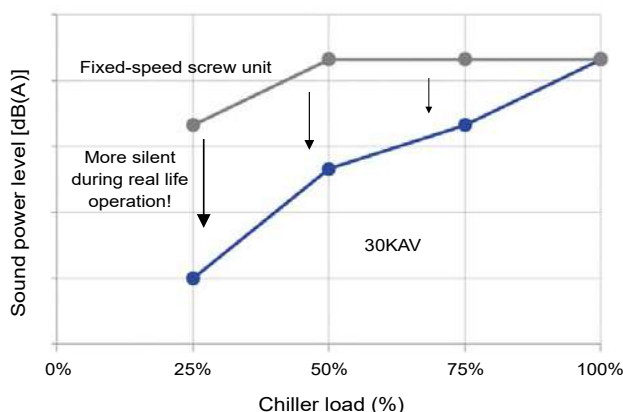
- Exceptional endurance tests:

- To design critical components and sub-assemblies to minimise the risk of failure on site, Carrier uses specialised laboratories and advanced dynamic simulation tools.
- To ensure that the units reach customer sites in the same condition as they are when tested in the factory, Carrier tests the machine behavior while being moved along a 250 km trial. The test-route is based on a military standard and is the equivalent to 5000km by truck in a normal road.
- To ensure coils corrosion resistance, salt mist corrosion resistance test are performed in UTC's laboratory.

In addition, to maintain unit performance throughout its operating life, whilst minimising maintenance costs, end users can access the "Carrier Connect" remote monitoring service.

### Minimised operating sound levels

- The Greenspeed® Intelligence, featuring variable-speed screw compressors and condenser fans, minimises noise levels at part load operation.



- Standard unit features include:

- The new generation of Carrier 06Z variable-speed twin screw compressor with integrated resonator array to reduce the noise level by 6 dB(A) compared with 06T twin screw compressor previous generation.
- The 6<sup>th</sup> generation of silent Flying Bird™ fans with new fan blade design inspired by nature, help reduce airflow noise.

- 30KAV/30KAVP is available with 4 sound levels to match the most sensitive environments:

- Standard: standard unit configuration with new generation of low sound screw compressor and fans
- Low noise option: addition of high-performance compressor sound enclosure
- Very low noise option: addition of high-performance compressor sound enclosure and fan operation at lower rotational speed.

### Easy and fast installation

- Built-in variable speed pumps up to 800 kW
  - Full hydraulic module with dual pumps (low or high pressure as required) and optional expansion tank
  - Automatic nominal water flow adjustment through electronic control on the user display
- Compact units for easy transportation and installation.
  - Dimensions 25% smaller than the previous 30XAV generation

## CUSTOMER BENEFITS

- Similar dimensions as the old 30GX chillers for easy replacement of the installed base.
- Simplified electrical connections:
  - Main disconnect switch
  - Transformer supply to the integrated control circuit (400/24V)
  - Single electrical point of connection
- Simplified water connections:
  - Victaulic connections on the evaporator
  - Clearly identified entering and practical reference marks for entering and leaving water connections
  - Possibility to choose different evaporator configurations, 1 or 2 passes.
- Fast commissioning:
  - Systematic factory operating test before shipment
  - Functional test for main components, expansion devices, fans and compressors.

### Environmental responsibility

- The AquaForce® Vision 30KAV/30KAVP liquid chillers with Greenspeed™ Intelligence is a boost for green cities and contributes to a sustainable future. Combining a reduced charge of R134a refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 25% throughout its life cycle (compared to previous fixed-speed screw liquid chiller generation).
- The AquaForce® Vision 30KAV/30KAVP liquid chiller is equipped with an automatic energy meter that provides estimated instantaneous and cumulative cooling energy output, instantaneous and cumulative electric energy consumption, instantaneous and average seasonal energy efficiency ratios (Accuracy: +/- 5% at nominal condition, +/-10% elsewhere) for unit performance monitoring and verification.
- R-134a: HFC refrigerant with zero ozone depletion potential
- 40% less refrigerant charge: The micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Leak tight refrigerant circuits:
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.
- Refrigerant leak alert: The AquaForce® Vision 30KAV/30KAVP liquid chiller is equipped with an automatic refrigerant leak detection algorithm that can detect serious refrigerant loss at any point on the system (Sensitivity: 25% refrigerant charge loss per circuit, depending on the conditions). The automatic refrigerant leak detection system can help to achieve recognition within pollution prevention assessment programs, ideal for assisting in the design of sustainable buildings.
- Refrigerant leak detection: Available as an option, this additional dry-contact allows reporting of possible leaks. The leak detector (by others) should be mounted in the most likely leak location.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year 30KAV/30KAVP units offer a solution to this important challenge.

A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new 30KAV/30KAVP range helps customers involved in LEED® building certification.

### Energy saving certificate

30KAV-30KAVP is eligible to Energy savings certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and its speed)
- Floating Low pressure control
- Variable speed on asynchronous compressor motor
- Variable speed on asynchronous fan motor
- Variable speed on asynchronous pump motor

30 KAVP with its PM Motor is also eligible to:

- Variable speed on synchronous compressor motor

For more details about financial incentives in France, please refer to "Fiche produit CEE"

### 30KAV and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a preeminent programme to rate the design, construction and operation of green buildings with points assigned in seven credit categories:

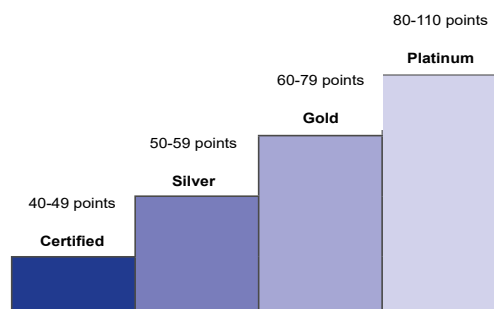
- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain same, the point distribution varies to address different building types and application needs, for example according to New Construction, Schools, Core & Shell, Retail and Healthcare.

All programmes now use the same point scale:

#### 110 Possible LEED® points



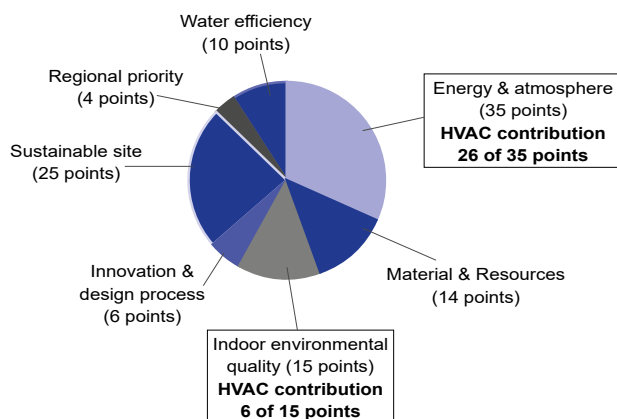
## CUSTOMER BENEFITS

The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impacts of each component or sub-system to the overall building.

While the LEED® green building certification programs do not certify products or services, the selection of the right products, systems or service programs is critical to obtain LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilating and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points

### Overview of LEED® for new construction and major renovations



The new 30KAV/30KAVP units from Carrier can assist building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- **EA prerequisite 2: Minimum energy Performance**  
The 30KAV/30KAVP exceeds the energy efficiency requirements of ASHRAE 90,1-2007; therefore it complies with the prerequisite standard.
- **EA prerequisite 3: Fundamental Refrigerant Management**  
The 30KAV/30KAVP does not use chlorofluorocarbon (CFC) refrigerants thus satisfying the prerequisite statement.
- **EA credit 1: Optimise energy performance (1 to 19 points):**  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90,1-2007 reference. The 30KAV/30KAVP, which is designed for high performance especially during part load operation, contributes to reducing the energy consumption of the building and therefore helps in gaining points within this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used as an energy analyses program complying with the modeling requirements for this credit and produce reports that are easily transferable to LEED® templates.
- **EA credit 4: Enhanced refrigerant management (2 points):**  
With this credit, LEED® awards systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) of the system. The 30KAV/30KAVP uses a reduced R134a charge and therefore contributes toward satisfying this credit under LEED®.

**NOTE: This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30KAV/30KAVP. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the complete HVAC system.**

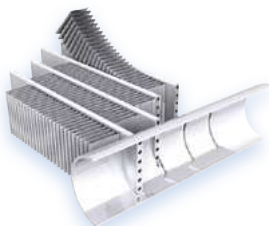
i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: Fundamental commissioning of energy management system
- EA credit 3: Enhanced commissioning (2 points)
- EA credit 5: Measurements and verification (3 points).

**NOTE: Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).**



## 30KAV TECHNICAL INSIGHTS



### 3<sup>RD</sup> GENERATION OF "W" SHAPE NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (~40% vs cu/al coils)
- More compact units (~25% vs previous 30XAV generation)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer

### ADVANCED SMARTVU™ WITH 7 INCH COLOR TOUCH SCREEN INTERFACE

- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



### POWERFUL SMART ENERGY MONITORING FUNCTION

- Provides smart data based on intelligent algorithms
- Real time energy consumption measurement (kWh)
- Cooling energy output measurement (kWh)
- Instantaneous and average Energy Efficiency Ratio under real operating conditions
- Remote monitoring with Carrier Connect

### FLOODED SHELL AND TUBE EVAPORATOR

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol



### 6<sup>TH</sup> GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH AC OR EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with AC motor technology
- EC motor technology (option)



### VARIABLE-SPEED DUAL PUMPS WITH AC MOTOR

- Dual pumps designed for variable speed operation
- High efficiency AC motor
- Low static pressure (~100 kPa) or high static pressure (~180 Kpa) available
- 3 pump control modes available: constant water flow with 2 speeds, variable water flow based on constant delta T or constant delta P
- Compatibility of chillers for variable primary flow operation

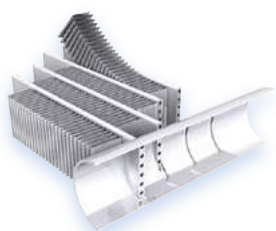


### LATEST GENERATION CARRIER VARIABLE-SPEED 06Z TWIN SCREW COMPRESSOR WITH AC MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- High efficiency AC motor
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled inverter drive for increased reliability
- Bearing life exceeding 100.000 hours
- Twin screw compressor with permanent magnet motor as option



## 30KAVP TECHNICAL INSIGHTS



### 3<sup>RD</sup> GENERATION OF “W” SHAPE NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- More compact units (-25% vs previous 30XAV generation)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer
- Extra W module to increase seasonal efficiency

### ADVANCED SMARTVU™ WITH 7 INCH COLOR TOUCH SCREEN INTERFACE

- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



### POWERFUL SMART ENERGY MONITORING FUNCTION

- Provides smart data based on intelligent algorithms
- Real time energy consumption measurement (kWh)
- Cooling energy output measurement (kWh)
- Instantaneous and average Energy Efficiency Ratio under real operating conditions
- Remote monitoring with Carrier Connect

### FLOODED SHELL AND TUBE EVAPORATOR

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol



### 6<sup>TH</sup> GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with EC motor



### VARIABLE-SPEED DUAL PUMPS WITH AC MOTOR

- Dual pumps designed for variable speed operation
- High efficiency AC motor
- Low static pressure (~100 kPa) or high static pressure (~180 Kpa) available
- 3 pump control modes available: constant water flow with 2 speeds, variable water flow based on constant delta T or constant delta P
- Compatibility of chillers for variable primary flow operation



### LATEST GENERATION CARRIER VARIABLE-SPEED 06Z TWIN SCREW COMPRESSOR WITH PERMANENT MAGNET MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- High efficiency permanent magnet motor
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled inverter drive for increased reliability
- Bearing life exceeding 100.000 hours

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management:
  - Innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios.
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote management (standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System Manager or the Plant System Manager (optional).

- The 30KAV/30KAVP also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: Indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module (EMM) offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA.
  - Demand limit: Permits limitation of the maximum chiller capacity.
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

## TECHNICAL INSIGHTS

### New generation of Carrier 06Z variable-speed twin screw compressor



The new generation of 06Z variable-speed twin screw compressors benefits for Carrier's long experience in the development of twin-rotor screw compressors. The 06Z compressor design is based on the successful 06T screw compressor, core of the well-known Aquaforce series with a number of modifications to reduce noise level and improve the energy efficiency especially during part load operation.

- New 06Z twin screw compressor optimized for variable speed operation: elimination of the slide valve, built in volume index control (Vi) valve for both optimal full and part load performance, high efficiency AC motor with stepless inverter control from 20% to 100%.
- 30KAVP screw compressor is equipped with a Permanent Magnet (PM) Motor, which is a four pole motor compared to the two pole induction motor. By the way, the frequency setting doubles with PM motors, but the shaft speed remains the same. There is no slip or rotor losses. Thus, there is a benefit of +1% in full load efficiency and of +4% in part load efficiency.

Permanent Magnet Motor



- Separate air-cooled inverter drive for increased reliability
- New 06Z twin screw compressor design with Integrated Resonator Array (IRA) to reduce the sound level by up to 6 dB(A) when compared with previous 06T generation
- Integrated Check Valve for quiet shutdown
- Bearing life exceeding 100 000 hours.
- A dedicated oil separator is installed at the discharge of each compressor to ensure maximum oil return: Oil separates from refrigerant by gravity and returns to the low pressure side of the compressor without use of additional pumps.
- Volume index control (Vi) valve provides a reliable method of adjusting the compression ratio to better match system demand. It provides optimal performance regardless of operating condition
- Screw compressors work on the positive displacement principle to compress gas to a higher pressure. As a result, if there is an unusually high pressure in the condenser (due for example to coil fouling or operation in harsh climate) the compressor does not switch off, but continues operation at reduced capacity (unloaded mode).
- The silencer in the oil separator line (at the compressor outlet) considerably reduces discharge gas pulsations for much quieter operation.

## TECHNICAL INSIGHTS

### Novation® Heat Exchangers with Microchannel Coil Technology

Already utilised in the automobile and aeronautical industries for many years, the Novation™ Micro-Channel Heat Exchanger (MCHE) used in the Aquaforce is entirely made of aluminum. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminum) come into contact in traditional heat exchangers.

- From the energy efficiency point-of-view the Novation® heat exchangers are approximately 10% more efficient than traditional coils and micro-channel coil technology allows a 40% reduction in the amount of refrigerant used in the chiller.
- The reduced depth of the Novation™ MCHE reduces air pressure losses by 50% and makes it much less susceptible to fouling (e.g. by sand). Cleaning of the Novation™ MCHE heat exchanger is very fast using a high pressure washer.
- To further enhance long-term performance, and protect coils from early deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.
  - The Novation™ MCHE with Enviro-Shield protection (option 262) is recommended for installations in moderately corrosive environments. The Enviro-Shield protection utilises corrosion inhibitors which actively arrest oxidation in case of mechanical damage.
  - The Novation™ MCHE with exclusive Super Enviro-Shield protection (option 263) is recommended for installations in corrosive environments. The Super Enviro-Shield protection consist of an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.
- After a total of more than 7,000 hours of testing following various test standards in UTC laboratories, the Carrier Novation® MCHE with Super Enviro-shield® coating appears to be the best-suited customer choice to minimize the harmful effects of corrosive atmospheres and ensure long equipment life.
  - Best corrosion resistance per ASTM B117/D610 test
  - Best heat transfer performance per Carrier Marine 1 test
  - Proven reliability per ASTM B117 test



| Coil Types (ranked by performance)  | Visual Corrosion Evaluation | Heat Transfer Performance Degradation | Time to Failure | Test Campaign Conclusions |
|-------------------------------------|-----------------------------|---------------------------------------|-----------------|---------------------------|
| Super Enviro-shield® Novation™ MCHE | Very good                   | Good                                  | No coil leak    | Best                      |
| Super Enviro-shield® Cu/Al coil     | Very good                   | Very good                             | No coil leak    | Very good                 |
| Enviro-shield® Novation™ MCHE       | Very good                   | Good                                  | No coil leak    | Very good                 |
| Al/Al coil                          | Very good                   | Good                                  | No coil leak    | Very good                 |
| Novation™ MCHE                      | Good                        | Very good                             | No coil leak    | Good                      |
| Cu/Cu coil                          | Good                        | Good                                  | Leak            | Acceptable                |
| Blygold® Cu/Al coil                 | Good                        | Good                                  | No coil leak    | Acceptable                |
| Precoat Cu/Al coil                  | Bad                         | Bad                                   | No coil leak    | Bad                       |
| Cu/Al coil                          | Bad                         | Bad                                   | No coil leak    | Bad                       |

## TECHNICAL INSIGHTS

### New generation of Flying Bird VI fans with EC motors



The 30KAV/30KAVP utilizes Carrier's the 6th generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and wide operating range. The fan includes Carrier patented rotating shroud technology and back-swept blades with a unique wave-serration trailing edge inspired from nature.

It was designed and optimized for the 30KAV/30KAVP air management system configuration and heat exchanger technology. On 30KAVP, and on 30KAV with option 17 and option 119+, fans are propelled by an EC motor, also known as brushless DC, with a unique electronics to manage commutation. This provides a great accuracy for fans that require higher efficiencies and variable speed. The fan meets the latest European eco-design requirements for fan efficiency. The fan uses Carrier's robust and proven injection molded composite-thermoplastic construction.

#### EC Motor





## TECHNICAL INSIGHTS

### Variable Frequency Drives (VFD)

The compressors, the fans and the pumps of 30KAV-30KAVP are controlled by VFDs.

- VFDs electrical box has an IP44 rating as standard and IP54 as an option (available in 2019).
- Electrical box is capable of operating up to 55°C (with option 16 "High Ambient").
- Unit controls is capable of withstanding storage temperatures in the control compartment from -20°C to 68°C.
- All VFDs on the chiller (compressors, fans and pumps motors) are fully air cooled and shall not require an additional glycol cooling system, thus avoiding the maintenance associated with such cooling systems.



Fan drives + Pump drives +  
electronic boards



Compressor drives + main  
power connection

## OPTIONS

| Option   | N°   | Description  | Advantage   | Use 30KAV | Use 30KAVP |
|--|------|--|---|-----------|------------|
| Medium Brine down to -6°C                            | 5    | Redesigned evaporator to allow chilled brine solution production down to -6°C (including different number of tubes in the evaporator, extra insulation, specific sensors and algorithms).  | Covers specific applications such as ice storage and industrial processes   | 0500-1100 | 0500-1100  |
| Low Brine with turbulators down to -15°C             | 6    | Redesigned evaporator including turbulators to allow chilled brine solution production with low pressure drops on the entire negative application range, down to -15°C (including turbulators, extra insulation and algorithms). | Covers specific applications such as ice storage and industrial processes   | 0500-1100 | 0500-1100  |
| Light-brine solution, down to -4°C                   | 8    | Implementation of new control algorithms and thermal insulation to allow chilled brine solution production down to -4°C when ethylene glycol is used (-2°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements                         | 0500-1100 | 0500-1100  |
| Low noise level                                      | 15   | Aesthetic and sound absorbing compressor enclosure   | Noise level reduction   | 0500-1100 | 0500-1100  |
| Very low noise level                                 | 15LS | Sound absorbing & aesthetic compressor enclosure and oil separator, evaporator and suction line acoustic treatment, combined with low-speed fans   | Noise level reduction in sensitive environments   | 0500-1100 | 0500-1100  |
| High ambient temperature                             | 16   | Electrical components sized for part load operation up to 55°C air ambient   | Extended unit part-load operation up to 55°C ambient temperature  | 0500-1100 | 0500-1100  |
| EC fans  | 17   | Unit equipped with EC fans   | Enhances the unit energy efficiency   | 0500-1100 | -          |
| IP54 control box                                     | 20A  | Increased leak tightness of the unit   | Protects the inside of the electrical box from dust, water and sand. In general this option is recommended for installations in polluted environments | 0500-1100 | 0500-1100  |
| Grilles and enclosure panels                         | 23   | Metallic protection grilles and side enclosure panels  | Improves aesthetics, protection against intrusion to the unit interior, coil and piping protection against impacts.                                   | 0500-1100 | 0500-1100  |
| Enclosure panels                                     | 23A  | Side enclosure panels  | Improves aesthetics and piping protection against impacts.  | 0500-1100 | 0500-1100  |
| Water exchanger frost protection                     | 41A  | Electric resistance heater on the water exchanger and discharge valve  | Water exchanger frost protection down to -20°C outside temperature  | 0500-1100 | 0500-1100  |
| Evaporator & hydraulic module frost protection       | 41B  | Electric resistance heater on water exchanger, discharge valve and hydraulic module  | Water exchanger and hydraulic module frost protection down to -20°C outside temperature   | 0500-0800 | 0500-0800  |
| Evaporator & recovery condenser frost protection     | 41C  | Electric resistance heater on evaporator exchanger, discharge valve and add heaters and insulation on hydraulic connection (option 325)  | Water exchanger module frost protection between 0°C and -20°C outside air temperature   | 0500-1100 | 0500-1100  |
| Partial heat recovery                                | 49   | Unit equipped with one desuperheater on each refrigerant circuit   | Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for Heat pump)                               | 0500-1100 | 0500-1100  |
| Total heat recovery                                  | 50   | Unit equipped with additional heat exchanger in series with the condenser coils. (Each exchanger is equipped with heaters and insulation)  | Production of free hot-water with variable heat reclaim   | 0500-1100 | 0500-1100  |
| Master/slave operation                               | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with operating time equalisation   | 0500-1100 | 0500-1100  |
| Main disconnect switch with short-circuit protection | 70D  | Disconnect circuit breaker equipped with an external disconnect switch handle  | Ensure protection of main disconnect switch and associated cables against short-circuits when building devices are not compliant                      | 0500-1100 | 0500-1100  |
| Evap. and pumps with aluminum jacket                 | 88A  | Evaporator and pumps covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions  | 0500-0800 | 0500-0800  |
| Service valve set                                    | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve   | Allow isolation of various refrigerant circuit components for simplified service and maintenance  | 0500-1100 | 0500-1100  |
| Compressor discharge valves                          | 93A  | Shut-off valve on the compressor discharge piping  | Simplified maintenance  | 0500-1100 | 0500-1100  |
| 21 bar evaporator                                    | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column evaporator side (typically high buildings)   | 0500-1100 | 0500-1100  |

## OPTIONS

| Option  | N°   | Description  | Advantage   | Use 30KAV | Use 30KAVP |
|---|------|--|---|-----------|------------|
| LP VSD dual-pump hydraulic mod.                 | 116A | Dual low-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter.  | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | 0500-0800 | 0500-0800  |
| HP VSD dual-pump hydraulic module               | 116W | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control (expansion tank with built-in safety hydraulic components available in option)   | Easy and fast installation (plug & play), significant pumping energy cost savings (up to two-thirds), tighter water flow control, improved system reliability     | 0500-0800 | 0500-0800  |
| High Energy Efficiency                          | 119  | Additional condenser coil to improve unit energy efficiency  | Enhances the unit energy efficiency performance   | 0500-1100 | -          |
| High Energy Efficiency+                         | 119+ | Additional condenser coil plus EC fans to improve unit energy efficiency   | Enhances the unit energy efficiency performance   | 0500-1100 | -          |
| Lon gateway                                     | 148D | Bi-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 0500-1100 | 0500-1100  |
| Bacnet over IP                                  | 149  | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 0500-1100 | 0500-1100  |
| Modbus over IP and RS485                        | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 0500-1100 | 0500-1100  |
| Energy Management Module                        | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter  | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)  | 0500-1100 | 0500-1100  |
| Input contact for Refrigerant leak detection    | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)   | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions   | 0500-1100 | 0500-1100  |
| Dual relief valves on 3-way valve               | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4  | 0500-1100 | 0500-1100  |
| Compliance with Swiss regulations               | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications   | Conformance with Swiss regulations  | 0500-1100 | 0500-1100  |
| Compliance with Russian regulations             | 199  | EAC certification  | Conformance with Russian regulations  | 0500-1100 | 0500-1100  |
| Compliance with Australian regulations          | 200  | Unit approved to Australian code   | Conformance with Australian regulations   | 0500-1100 | 0500-1100  |
| Insulation of the evap. in/out ref.lines        | 256  | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation   | Prevents condensation on the evaporator entering/leaving refrigerant lines  | 0500-1100 | 0500-1100  |
| Enviro-Shield anti-corrosion protection         | 262  | Coating by conversion process which modifies the surface of the aluminum producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested 4000 hours salt spray per ASTM B117  | Improved corrosion resistance, recommended for use in moderately corrosive environments   | 0500-1100 | 0500-1100  |
| Super Enviro-Shield anti-corrosion protection   | 263  | Extremely durable and flexible epoxy polymer coating applied on micro channel heat exchangers by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Improved corrosion resistance, recommended for use in extremely corrosive environments  | 0500-1100 | 0500-1100  |
| Welded evaporator connection (kit)              | 266  | Victaulic piping connections with welded joints  | Easy installation   | 0500-1100 | 0500-1100  |
| Welded heat recovery condenser connection (kit) | 267  | Victaulic piping connection with welded joints   | Easy installation   | 0500-1100 | 0500-1100  |

## OPTIONS

| Option                             | N°   | Description  | Advantage  | Use 30KAV | Use 30KAVP |
|------------------------------------|------|--|--|-----------|------------|
| Evaporator with aluminum jacket    | 281  | Evaporator covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions   | 0500-1100 | 0500-1100  |
| EMC class. C2, as per EN 61800-3   | 282  | Additional RFI filters on the unit power line  | Reduces electromagnetic interferences for compliance with emission level category C2 in order to allow the units to operate in the first environment (so called, residential environment)  | 0500-1100 | 0500-1100  |
| 230V electrical plug               | 284  | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps)   | Permits connection of a laptop or an electrical device during unit commissioning or servicing  | 0500-1100 | 0500-1100  |
| Expansion tank                     | 293  | 6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option)   | Easy and fast installation (plug & play), & Protection of closed water systems from excessive pressure   | 0500-0800 | 0500-0800  |
| Electric energy meter              | 294  | Electricity meter . Display of energy consumption, instantaneous (U, V, I) and cumulated (kWh) on the unit user interface datas available on communication bus   | Permits the acquisition, (remote) monitoring of energy used.   | 0500-1100 | 0500-1100  |
| Fast Capacity Recovery             | 295  | New software algorithms to allow quick restart and fast loading while preserving unit-reliability  | Full capacity recovery in less than 5 minutes after power failure. Matches requirements of typical critical missions applications  | 0500-1100 | 0500-1100  |
| Ultra Fast Capacity Recovery       | 295+ | Electrical battery to enable quick restart and fast loading preserving unit reliability  | Full capacity recovery in less than 1 minute after power failure. Matches requirements of typical critical missions applications.  | 0500-1100 | 0500-1100  |
| Mexico screw compressor            | 297  | Screw compressor made in Mexico  | Mexico screw compressor  | 0500-1100 | -          |
| Variable Water Flow control        | 299  | hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant delta T, constant outlet pressure and "fixed-speed" control | When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/ optimised chiller operation | 0500-1100 | 0500-1100  |
| Free-cooling dry-cooler control    | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box   | Easy system management, Extended control capabilities to a dryccoler used in Free Cooling mode   | 0500-1100 | 0500-1100  |
| Compliance with UAE regulation     | 318  | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590  | Compliance with ESMA standard UAE.S 5010-5:2019.   | 0500-1100 | 0500-1100  |
| Compliance with Qatar regulation   | 319  | Specific nameplate on the unit with power supply 415 V+/-6%  | Compliance with KAHRAMAA regulation in Qatar.  | 0500-1100 | 0500-1100  |
| Hydraulic connection kit           | 325  | Water piping on condenser and evaporator side  | Easy installation  | 0500-1100 | 0500-1100  |
| Compliance with Morocco regulation | 327  | Specifics documents according Morocco regulation   | Conformance with Morocco regulations   | 0500-1100 | 0500-1100  |
| Compressor with permanent magnet   | 329  | Screw compressor equipped with permanent magnet motor  | Permanent magnet motor improves significantly compressor efficiency  | 0500-1100 | -          |
| Plastic Tarp                       | 331  | Plastic tarp covering units with strapping and campled on the wooden pallet  | Allow unit to avoid dust and dirt from the outside environment during stocking and shipping  | 0500-1100 | 0500-1100  |

## PHYSICAL DATA

## Standard units

| 30KAV   |   | 500     | 550  | 600  | 650  | 720  | 800  | 900  | 1000 | 1100 |
|---|---|---------|------|------|------|------|------|------|------|------|
| <b>Cooling</b>  |   |         |      |      |      |      |      |      |      |      |
| <b>Standard unit</b><br>Full load performances*                       | Nominal capacity                          | kW      | 493  | 537  | 600  | 636  | 723  | 791  | 892  | 1079 |
|   | EER                                       | kW/kW   | 3,00 | 2,91 | 3,14 | 2,98 | 3,19 | 3,03 | 3,07 | 3,05 |
| <b>Standard unit</b><br>Seasonal energy efficiency **                 | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 4,96 | 4,95 | 5,20 | 5,16 | 5,31 | 5,09 | 5,23 | 5,11 |
|   | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 196  | 195  | 205  | 203  | 209  | 201  | 206  | 202  |
|   | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,49 | 6,41 | 6,84 | 6,70 | 6,78 | 6,69 | 6,70 | 6,67 |
| <b>Unit + option 17</b><br>Seasonal energy efficiency **              | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 5,02 | 5,00 | 5,27 | 5,23 | 5,39 | 5,16 | 5,31 | 5,19 |
|   | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 198  | 197  | 208  | 206  | 213  | 203  | 209  | 204  |
|   | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,56 | 6,46 | 6,92 | 6,78 | 6,86 | 6,77 | 6,78 | 6,74 |
| <b>Unit + option 329</b><br>Seasonal energy efficiency **             | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 5,12 | 5,11 | 5,41 | 5,38 | 5,53 | 5,31 | 5,43 | 5,29 |
|   | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 202  | 201  | 213  | 212  | 218  | 209  | 214  | 209  |
|   | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,72 | 6,64 | 7,11 | 6,96 | 7,05 | 6,91 | 6,93 | 6,83 |
| <b>Unit + option 17 + option 329</b><br>Seasonal energy efficiency ** | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 5,18 | 5,17 | 5,49 | 5,47 | 5,61 | 5,39 | 5,52 | 5,38 |
|   | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 204  | 204  | 217  | 216  | 221  | 213  | 218  | 212  |
|   | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,78 | 6,69 | 7,20 | 7,04 | 7,14 | 6,99 | 7,02 | 6,91 |
| <b>Sound levels</b>   |   |         |      |      |      |      |      |      |      |      |
| <b>Standard unit</b>  |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>  |   | dB(A)   | 95   | 95   | 96   | 98   | 99   | 98   | 99   | 100  |
| Sound pressure at 10 m <sup>(2)</sup>                                 |   | dB(A)   | 63   | 63   | 64   | 65   | 66   | 65   | 67   | 67   |
| <b>Unit + option 15<sup>(3)</sup></b>                                 |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>  |   | dB(A)   | 94   | 94   | 94   | 96   | 97   | 96   | 97   | 98   |
| Sound pressure at 10 m <sup>(2)</sup>                                 |   | dB(A)   | 62   | 62   | 61   | 64   | 64   | 63   | 65   | 65   |
| <b>Unit + option 15LS<sup>(3)</sup></b>                               |   |         |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>  |   | dB(A)   | 90   | 90   | 90   | 92   | 94   | 92   | 94   | 93   |
| Sound pressure at 10 m <sup>(2)</sup>                                 |   | dB(A)   | 57   | 58   | 58   | 59   | 61   | 60   | 62   | 60   |
| <b>Dimensions</b>   |   |         |      |      |      |      |      |      |      |      |
| <b>Standard unit</b>  |   |         |      |      |      |      |      |      |      |      |
| Length  |   | mm      | 4387 | 4387 | 5578 | 5578 | 6772 | 6772 | 7962 | 9155 |
| Width   |   | mm      | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 |
| Height  |   | mm      | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| <b>Unit length + options</b>  |   |         |      |      |      |      |      |      |      |      |
| Options 49/50 <sup>(3)</sup>  |   | mm      | 5578 | 5578 | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 |
| Options 116A/116W <sup>(3)</sup>                                      |   | mm      | 5578 | 5578 | 5578 | 5578 | 6772 | 6772 | -    | -    |
| <b>Operating weight<sup>(4)</sup></b>                                 |   |         |      |      |      |      |      |      |      |      |
| Standard unit   |   | kg      | 4779 | 4792 | 5167 | 5180 | 5643 | 6085 | 6526 | 6991 |
| Unit + option 49 <sup>(3)</sup>                                       |   | kg      | 5177 | 5190 | 5592 | 5605 | 5843 | 6304 | 6741 | 7222 |
| Unit + option 50 <sup>(3)</sup>                                       |   | kg      | 5230 | 5243 | 5718 | 5731 | 5969 | 6489 | 6927 | 7451 |
| Unit + options 116A/116W <sup>(3)</sup>                               |   | kg      | 5314 | 5428 | 5623 | 5649 | 6261 | 6682 | -    | -    |

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In accordance with standard EN14511-3:2018.

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In accordance with standard EN14825:2018, average climate

CA1

Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/Wη<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub>**Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

(1)

**Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**  
in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2)

In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power L<sub>w</sub>(A).

(3)

Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine.

(4)

Values are guidelines only. Refer to the unit name plate.

(5)

For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.



Eurovent certified values



## PHYSICAL DATA

### Standard units

| 30KAV  |                    | 500  | 550   | 600   | 650   | 720   | 800   | 900   | 1000  | 1100  |
|--|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>   |                    | Inverter driven 06Z twin screw compressor with AC motor  |       |       |       |       |       |       |       |       |
| Circuit A  | Quantity           | 1  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  | Quantity           | 1  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Unit minimum capacity <sup>(5)</sup>                                     | %                  | 13   | 13    | 13    | 13    | 13    | 13    | 13    | 12    | 12    |
| <b>Refrigerant<sup>(4)</sup></b>   |                    | R134a (GWP=1300 following AR5, ODP=0)  |       |       |       |       |       |       |       |       |
| Circuit A  | kg                 | 52   | 53    | 60    | 63    | 71    | 87    | 98    | 92    | 99    |
|  | teqCO <sub>2</sub> | 74   | 76    | 86    | 90    | 102   | 124   | 140   | 132   | 142   |
| Circuit B  | kg                 | 53   | 54    | 61    | 64    | 72    | 65    | 77    | 93    | 100   |
|  | teqCO <sub>2</sub> | 76   | 77    | 87    | 92    | 103   | 93    | 110   | 133   | 143   |
| <b>Refrigerant<sup>(4)</sup> - Option 5<sup>(3)</sup> (Medium Brine)</b> |                    | R134a (GWP=1300 following AR5, ODP=0)  |       |       |       |       |       |       |       |       |
| Circuit A  | kg                 | 61   | 63    | 71    | 74    | 86    | 105   | 114   | 110   | 120   |
|  | teqCO <sub>2</sub> | 87   | 90    | 102   | 106   | 123   | 150   | 163   | 157   | 172   |
| Circuit B  | kg                 | 62   | 64    | 72    | 75    | 87    | 80    | 90    | 111   | 121   |
|  | teqCO <sub>2</sub> | 89   | 92    | 103   | 107   | 124   | 114   | 129   | 159   | 173   |
| <b>Refrigerant<sup>(4)</sup> - Option 6<sup>(3)</sup> (Low Brine)</b>    |                    | R134a (GWP=1300 following AR5, ODP=0)  |       |       |       |       |       |       |       |       |
| Circuit A  | kg                 | 55   | 56    | 63    | 66    | 77    | 91    | 103   | 97    | 104   |
|  | teqCO <sub>2</sub> | 78   | 80    | 90    | 95    | 110   | 131   | 147   | 138   | 149   |
| Circuit B  | kg                 | 56   | 57    | 64    | 67    | 78    | 68    | 81    | 98    | 105   |
|  | teqCO <sub>2</sub> | 80   | 81    | 92    | 96    | 111   | 98    | 116   | 140   | 150   |
| <b>Oil</b>   |                    | Oil for R134a. Contact Carrier ERCD for supplying.   |       |       |       |       |       |       |       |       |
| Circuit A  | l                  | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    |
| Circuit B  | l                  | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    |
| <b>Unit control</b>  |                    | SmartVu™ with 7 inch coloured touch screen interface   |       |       |       |       |       |       |       |       |
| Languages  |                    | 10 languages<br>(DE, EN, ES, FR, IT, NL, PT, TR, TU + one on customer choice)  |       |       |       |       |       |       |       |       |
| Smart energy metering  |                    | Standard feature   |       |       |       |       |       |       |       |       |
| Wireless connectivity  |                    | Option   |       |       |       |       |       |       |       |       |
| <b>Expansion valve</b>   |                    | Electronic expansion valve   |       |       |       |       |       |       |       |       |
| <b>Air heat exchanger</b>  |                    | Novation™ Micro Channel Heat Exchanger   |       |       |       |       |       |       |       |       |
| <b>Fans</b>  |                    |  |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>   |                    | Inverter driven Flying Bird™ VI fans with AC motor   |       |       |       |       |       |       |       |       |
| <b>Unit + option 17</b>  |                    | Inverter driven Flying Bird™ VI fans with EC motor   |       |       |       |       |       |       |       |       |
| Quantity   |                    | 6  | 6     | 8     | 8     | 10    | 10    | 12    | 12    | 14    |
| Maximum total air flow   | l/s                | 35580  | 35580 | 47440 | 47440 | 59300 | 59300 | 71160 | 71160 | 83020 |
| Maximum rotation speed   | r/s                | 16,0   | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  |
| Maximum total air flow + option 15LS <sup>(3)</sup>                      | l/s                | 28920  | 26100 | 41600 | 43200 | 56000 | 50000 | 67200 | 57840 | 72800 |
| Maximum rotation speed + option 15LS <sup>(3)</sup>                      | r/s                | 13,2   | 12,0  | 14,2  | 14,7  | 15,2  | 13,7  | 15,2  | 13,2  | 14,2  |
| <b>Water heat exchanger</b>  |                    | Flooded shell and tube heat exchanger  |       |       |       |       |       |       |       |       |
| Water volume   | l                  | 83   | 88    | 96    | 100   | 115   | 126   | 144   | 165   | 183   |
| Max. water-side operating pressure without hydraulic module              | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>   |                    | Double pump, screen filter, relief valve, water drain valve, pressure sensors, expansion tank (option), heaters (option) |       |       |       |       |       |       |       |       |
| <b>Pump</b>  |                    | Inverter driven dual pumps with AC motor   |       |       |       |       |       |       |       |       |
| Expansion vessel volume  | l                  | 80   | 80    | 80    | 80    | 80    | 80    | -     | -     | -     |
| Max. water-side operating pressure                                       | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | -     | -     | -     |
| <b>Water connections</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |
| <b>Without options 116A/116W<sup>(3)</sup></b>                           |                    |  |       |       |       |       |       |       |       |       |
| Connections  | pouces             | 5  | 5     | 6     | 6     | 6     | 6     | 8     | 8     | 8     |
| Outside tube diameter  | mm                 | 141,3  | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 219,1 | 219,1 | 219,1 |
| <b>With options 116A/116W<sup>(3)</sup></b>                              |                    |  |       |       |       |       |       |       |       |       |
| Connections  | pouces             | 5  | 5     | 5     | 5     | 5     | 5     | -     | -     | -     |
| Outside tube diameter  | mm                 | 141,3  | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | -     | -     | -     |
| <b>Casing paint</b>  |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine

(4) Values are guidelines only. Refer to the unit name plate.

(5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.

## PHYSICAL DATA

## Units with High energy Efficiency option (119) and 30KAVP units

| 30KAV option 119  |     |   |         | 500  | 550  | 600  | 650  | 720  | 800  | 900  | 1000  | 1100  |  |
|---|-----|---|---------|------|------|------|------|------|------|------|-------|-------|--|
| Cooling   |     |   |         |      |      |      |      |      |      |      |       |       |  |
| Unit + option 119 + option 17<br>Full load performances*      | CA1 | Nominal capacity                          | kW      | 517  | 575  | 611  | 661  | 731  | 819  | 907  | 1010  | 1097  |  |
|   |     | EER                                       | kW/kW   | 3,49 | 3,41 | 3,42 | 3,32 | 3,37 | 3,35 | 3,29 | 3,30  | 3,25  |  |
| Unit + option 119<br>Seasonal energy efficiency**             |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 5,35 | 5,29 | 5,35 | 5,32 | 5,39 | 5,32 | 5,28 | 5,26  | 5,29  |  |
|   |     | ηs cool <sub>12/7°C</sub>                 | %       | 211  | 209  | 211  | 210  | 213  | 210  | 208  | 208   | 209   |  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 7,04 | 6,93 | 6,98 | 6,84 | 6,88 | 6,77 | 6,57 | 6,50  | 6,48  |  |
| Unit + option 119 + option 17<br>Seasonal energy efficiency** |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 5,44 | 5,39 | 5,44 | 5,40 | 5,49 | 5,42 | 5,37 | 5,36  | 5,39  |  |
|   |     | ηs cool <sub>12/7°C</sub>                 | %       | 215  | 212  | 215  | 213  | 217  | 214  | 212  | 212   | 212   |  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 7,13 | 7,02 | 7,07 | 6,93 | 6,98 | 6,86 | 6,67 | 6,60  | 6,57  |  |
| 30KAVP  |     |   |         | 500  | 550  | 600  | 650  | 720  | 800  | 900  | 1000  | 1100  |  |
| Standard unit<br>Full load performances*                      | CA1 | Nominal capacity                          | kW      | 513  | 575  | 613  | 661  | 731  | 818  | 907  | 1010  | 1097  |  |
|   |     | EER                                       | kW/kW   | 3,56 | 3,48 | 3,49 | 3,39 | 3,47 | 3,42 | 3,36 | 3,36  | 3,31  |  |
| Standard unit<br>Seasonal energy efficiency**                 |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 5,61 | 5,61 | 5,69 | 5,65 | 5,72 | 5,64 | 5,58 | 5,57  | 5,61  |  |
|   |     | ηs cool <sub>12/7°C</sub>                 | %       | 221  | 221  | 225  | 223  | 226  | 223  | 220  | 220   | 221   |  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,81 | 7,28 | 7,34 | 7,23 | 7,33 | 7,12 | 6,95 | 6,83  | 6,82  |  |
| 30KAV option 119 & 30KAVP                                     |     |   |         | 500  | 550  | 600  | 650  | 720  | 800  | 900  | 1000  | 1100  |  |
| Sound levels  |     |   |         |      |      |      |      |      |      |      |       |       |  |
| 30KAV_option_119+ & 30KAVP                                    |     |   |         |      |      |      |      |      |      |      |       |       |  |
| Sound power <sup>(1)</sup>                                    |     | dB(A)                                     |         | 96   | 96   | 97   | 98   | 99   | 98   | 100  | 98    | 100   |  |
| Sound pressure at 10 m <sup>(2)</sup>                         |     | dB(A)                                     |         | 63   | 63   | 64   | 66   | 66   | 65   | 67   | 65    | 67    |  |
| 30KAV_option_119+ & 30KAVP : option 15 <sup>(3)</sup>         |     |   |         |      |      |      |      |      |      |      |       |       |  |
| Sound power <sup>(1)</sup>                                    |     | dB(A)                                     |         | 95   | 95   | 94   | 96   | 97   | 96   | 98   | 98    | 98    |  |
| Sound pressure at 10 m <sup>(2)</sup>                         |     | dB(A)                                     |         | 62   | 62   | 62   | 64   | 64   | 64   | 65   | 65    | 65    |  |
| 30KAV_option_119+ & 30KAVP : option 15LS <sup>(3)</sup>       |     |   |         |      |      |      |      |      |      |      |       |       |  |
| Sound power <sup>(1)</sup>                                    |     | dB(A)                                     |         | 90   | 91   | 91   | 92   | 94   | 92   | 94   | 93    | 94    |  |
| Sound pressure at 10 m <sup>(2)</sup>                         |     | dB(A)                                     |         | 57   | 58   | 58   | 59   | 61   | 60   | 61   | 60    | 61    |  |
| Dimensions  |     |   |         |      |      |      |      |      |      |      |       |       |  |
| 30KAV option 119 & 30KAVP                                     |     |   |         |      |      |      |      |      |      |      |       |       |  |
| Length  |     | mm  |         | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 | 9120 | 10346 | 10346 |  |
| Width   |     | mm  |         | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261  | 2261  |  |
| Height  |     | mm  |         | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324  | 2324  |  |
| Unit length + options   |     |   |         |      |      |      |      |      |      |      |       |       |  |
| Options 49/50 <sup>(3)</sup>                                  |     | mm  |         | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 | 9120 | 10346 | 10346 |  |
| Options 116A/116W <sup>(3)</sup>                              |     | mm  |         | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 | -    | -     | -     |  |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2018, average climate
- CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W
- ηs cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**  
**Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**
- (1) in dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
- (3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine
- (4) Values are guidelines only. Refer to the unit name plate.
- (5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.



Eurovent certified values

## PHYSICAL DATA

### Units with High energy Efficiency option (119) and 30KAVP units

| 30KAV option 119 & 30KAVP  |                    | 500   | 550  | 600  | 650  | 720  | 800  | 900  | 1000 | 1100 |
|--|--------------------|---|------|------|------|------|------|------|------|------|
| <b>Operating weight<sup>(4)</sup></b>                                    |                    |   |      |      |      |      |      |      |      |      |
| 30KAV option 119+ & 30KAVP   | kg                 | 5527  | 5535 | 5547 | 5550 | 5985 | 6792 | 6901 | 7663 | 7692 |
| option 49 <sup>(3)</sup>   | kg                 | 5728  | 5735 | 5748 | 5751 | 6183 | 7007 | 7116 | 7891 | 7920 |
| option 50 <sup>(3)</sup>   | kg                 | 5781  | 5788 | 5874 | 5877 | 6327 | 7192 | 7301 | 8120 | 8149 |
| options 116A/116W <sup>(3)</sup>   | kg                 | 5979  | 6093 | 6081 | 6107 | 6075 | 7524 | -    | -    | -    |
| <b>Compressors</b>   |                    | Inverter driven 06Z twin screw compressor. 30KAV: AC motor. 30KAVP: permanent magnet motor. |      |      |      |      |      |      |      |      |
| Circuit A  | Quantity           | 1   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B  | Quantity           | 1   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Unit minimum capacity <sup>(5)</sup>                                     | %                  | 13  | 13   | 13   | 13   | 13   | 13   | 13   | 12   | 12   |
| <b>Refrigerant<sup>(4)</sup> - 30KAV option 119 &amp; 30KAVP</b>         |                    | R134a (GWP=1300 following AR5, ODP=0)   |      |      |      |      |      |      |      |      |
| Circuit A  | kg                 | 71  | 71   | 68   | 69   | 78   | 101  | 105  | 105  | 106  |
|  | teqCO <sub>2</sub> | 102   | 102  | 97   | 99   | 112  | 144  | 150  | 150  | 152  |
| Circuit B  | kg                 | 72  | 72   | 68   | 70   | 79   | 79   | 84   | 106  | 107  |
|  | teqCO <sub>2</sub> | 103   | 103  | 97   | 100  | 113  | 113  | 120  | 152  | 153  |
| <b>Refrigerant<sup>(4)</sup> - Option 5<sup>(3)</sup> (Medium Brine)</b> |                    | R134a (GWP=1300 following AR5, ODP=0)   |      |      |      |      |      |      |      |      |
| Circuit A  | kg                 | 80  | 81   | 79   | 80   | 91   | 119  | 121  | 123  | 127  |
|  | teqCO <sub>2</sub> | 114   | 116  | 113  | 114  | 130  | 170  | 173  | 176  | 182  |
| Circuit B  | kg                 | 81  | 82   | 79   | 81   | 92   | 94   | 97   | 124  | 128  |
|  | teqCO <sub>2</sub> | 116   | 117  | 113  | 116  | 132  | 134  | 139  | 177  | 183  |
| <b>Refrigerant<sup>(4)</sup> - Option 6<sup>(3)</sup> (Low Brine)</b>    |                    | R134a (GWP=1300 following AR5, ODP=0)   |      |      |      |      |      |      |      |      |
| Circuit A  | kg                 | 75  | 75   | 71   | 69   | 82   | 106  | 110  | 110  | 111  |
|  | teqCO <sub>2</sub> | 107   | 107  | 102  | 99   | 117  | 152  | 158  | 158  | 159  |
| Circuit B  | kg                 | 76  | 76   | 71   | 72   | 83   | 83   | 88   | 111  | 112  |
|  | teqCO <sub>2</sub> | 108   | 108  | 102  | 104  | 119  | 119  | 126  | 159  | 161  |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine.

(4) Values are guidelines only. Refer to the unit name plate.

(5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.

## PHYSICAL DATA

### Units with High energy Efficiency option (119) and 30KAVP units

| 30KAV option 119 & 30KAVP                                   |      | 500  | 550   | 600   | 650   | 720   | 800   | 900   | 1000  | 1100  |
|---|------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Oil</b>  |      | Oil for R134a. Contact Carrier ERCD for supplying.   |       |       |       |       |       |       |       |       |
| Circuit A   | I    | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    |
| Circuit B   | I    | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    |
| <b>Unit control</b>   |      | SmartVu™ with 7 inch colored touch screen interface  |       |       |       |       |       |       |       |       |
| Languages   |      | 10 languages (DE, EN, ES, FR, IT, NL, PT, TR, TU + one on customer choice)   |       |       |       |       |       |       |       |       |
| Smart energy metering                                       |      | Standard feature   |       |       |       |       |       |       |       |       |
| Wireless connectivity                                       |      | Option   |       |       |       |       |       |       |       |       |
| <b>Expansion valve</b>                                      |      | Electronic expansion valve   |       |       |       |       |       |       |       |       |
| <b>Air heat exchanger</b>                                   |      | Novation™ Micro Channel Heat Exchanger   |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |      |  |       |       |       |       |       |       |       |       |
| <b>30KAV option 119</b>                                     |      | Inverter driven Flying Bird™ VI fans with AC motor   |       |       |       |       |       |       |       |       |
| <b>30KAV option 119 + option 17 &amp; 30KAVP</b>            |      | Inverter driven Flying Bird™ VI fans with EC motor   |       |       |       |       |       |       |       |       |
| Quantity  |      | 10   | 10    | 10    | 10    | 12    | 14    | 14    | 16    | 16    |
| Maximum total air flow                                      | l/s  | 59300  | 59300 | 59300 | 59300 | 71160 | 83020 | 83020 | 94880 | 94880 |
| Maximum rotation speed                                      | r/s  | 16,0   | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  |
| Maximum total air flow + option 15LS <sup>(3)</sup>         | l/s  | 44700  | 43500 | 52000 | 52000 | 64800 | 67480 | 75600 | 74080 | 83200 |
| Maximum rotation speed + option 15LS <sup>(3)</sup>         | r/s  | 12,3   | 12    | 14,2  | 14,2  | 14,7  | 13,2  | 14,7  | 12,7  | 14,2  |
| <b>Water heat exchanger</b>                                 |      | Flooded shell and tube heat exchanger  |       |       |       |       |       |       |       |       |
| Water volume  | l    | 83   | 88    | 96    | 100   | 115   | 126   | 144   | 165   | 183   |
| Max. water-side operating pressure without hydraulic module | kPa  | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |      | Double pump, screen filter, relief valve, water drain valve, pressure sensors, expansion tank (option), heaters (option) |       |       |       |       |       |       |       |       |
| <b>Pump</b>   |      | Inverter driven dual pumps with AC motor   |       |       |       |       |       |       |       |       |
| Expansion vessel volume                                     | l    | 80   | 80    | 80    | 80    | 80    | 80    | -     | -     | -     |
| Max. water-side operating pressure                          | kPa  | 400  | 400   | 400   | 400   | 400   | 400   | -     | -     | -     |
| <b>Water connections</b>                                    |      | Victaulic® type  |       |       |       |       |       |       |       |       |
| <b>Without options 116A/116W<sup>(3)</sup></b>              |      |  |       |       |       |       |       |       |       |       |
| Connections   | inch | 5  | 5     | 6     | 6     | 6     | 6     | 8     | 8     | 8     |
| Outside tube diameter                                       | mm   | 141,3  | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 219,1 | 219,1 | 219,1 |
| <b>With options 116A/116W<sup>(3)</sup></b>                 |      |  |       |       |       |       |       |       |       |       |
| Connections   | inch | 5  | 5     | 5     | 5     | 5     | 5     | -     | -     | -     |
| Outside tube diameter                                       | mm   | 141,3  | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | -     | -     | -     |
| <b>Casing paint</b>   |      | Colour code RAL 7035   |       |       |       |       |       |       |       |       |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine.

## ELECTRICAL DATA

### Electrical data - Standard units

| 30KAV  |         | 500                           | 550 | 600 | 650 | 720 | 800 | 900 | 1000 | 1100 |
|--|---------|-------------------------------|-----|-----|-----|-----|-----|-----|------|------|
| <b>Power circuit supply</b>                              |         |                               |     |     |     |     |     |     |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |     |     |     |     |     |     |      |      |
| Voltage range  | V       | 360-440                       |     |     |     |     |     |     |      |      |
| <b>Control circuit supply</b>                            |         | 24 V via internal transformer |     |     |     |     |     |     |      |      |
| <b>Maximum operating input power<sup>(1)</sup></b>       |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | kW      | 221                           | 241 | 263 | 286 | 317 | 361 | 400 | 450  | 483  |
| Unit + option 16   | kW      | 238                           | 260 | 282 | 306 | 338 | 383 | 433 | 475  | 529  |
| <b>Power factor at maximum power<sup>(1) (2)</sup></b>   |         | 0,91-0,93                     |     |     |     |     |     |     |      |      |
| Displacement Power Factor (Cos Phi)                      |         | >0,98                         |     |     |     |     |     |     |      |      |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>      |         | 35-45                         |     |     |     |     |     |     |      |      |
| <b>Maximum operating current draw (Un)<sup>(1)</sup></b> |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | A       | 344                           | 375 | 409 | 444 | 492 | 561 | 622 | 699  | 751  |
| Unit + option 16   | A       | 371                           | 404 | 438 | 475 | 525 | 595 | 674 | 738  | 823  |
| <b>Maximum operating current draw (Un-10%)</b>           |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | A       | 377                           | 410 | 447 | 473 | 524 | 612 | 662 | 745  | 800  |
| Unit + option 16   | A       | 405                           | 441 | 479 | 507 | 560 | 649 | 719 | 787  | 878  |
| <b>Start-up current</b>                                  |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | A       | 212                           | 228 | 245 | 262 | 286 | 378 | 412 | 399  | 425  |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions.

(4) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.



## ELECTRICAL DATA

## Electrical data - Units with combination of options High energy efficiency (119), PM motor (329), EC motor (17)

| 30KAV options 119 & 329                                  |         | 500                           | 550 | 600 | 650 | 720 | 800 | 900 | 1000 | 1100 |
|--|---------|-------------------------------|-----|-----|-----|-----|-----|-----|------|------|
| <b>Power circuit supply</b>                              |         |                               |     |     |     |     |     |     |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |     |     |     |     |     |     |      |      |
| Voltage range  | V       | 360-440                       |     |     |     |     |     |     |      |      |
| <b>Control circuit supply</b>                            |         | 24 V via internal transformer |     |     |     |     |     |     |      |      |
| <b>Maximum operating input power<sup>(1)</sup></b>       |         |                               |     |     |     |     |     |     |      |      |
| Unit + option 119  | kW      | 220                           | 244 | 255 | 277 | 307 | 353 | 386 | 438  | 466  |
| Unit + option 119 + option 17                            | kW      | 218                           | 242 | 252 | 274 | 304 | 350 | 382 | 434  | 461  |
| Unit + option 119 + option 16                            | kW      | 237                           | 263 | 274 | 297 | 328 | 375 | 419 | 463  | 512  |
| Unit + option 119 + option 17 + option 16                | kW      | 235                           | 261 | 271 | 294 | 325 | 372 | 415 | 459  | 507  |
| Unit + option 329  | kW      | 219                           | 239 | 258 | 281 | 314 | 353 | 395 | 428  | 475  |
| Unit + option 329 + option 16                            | kW      | 236                           | 258 | 277 | 301 | 335 | 375 | 428 | 453  | 521  |
| Unit + option 329 + option 119                           | kW      | 218                           | 242 | 250 | 272 | 304 | 345 | 381 | 416  | 458  |
| Unit + option 329 + option 119 + option 16               | kW      | 235                           | 261 | 269 | 292 | 325 | 367 | 414 | 441  | 504  |
| <b>Power factor at maximum power<sup>(1) (2)</sup></b>   |         | 0,91-0,93                     |     |     |     |     |     |     |      |      |
| Displacement Power Factor (Cos Phi)                      |         | >0,98                         |     |     |     |     |     |     |      |      |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>      | %       | 35-45                         |     |     |     |     |     |     |      |      |
| <b>Maximum operating current draw (Un)<sup>(1)</sup></b> |         |                               |     |     |     |     |     |     |      |      |
| Unit + option 119  | A       | 342                           | 380 | 397 | 430 | 476 | 548 | 600 | 681  | 724  |
| Unit + option 119 + option 17                            | A       | 339                           | 377 | 393 | 426 | 471 | 543 | 594 | 675  | 717  |
| Unit + option 119 + option 16                            | A       | 369                           | 409 | 426 | 461 | 509 | 582 | 652 | 720  | 796  |
| Unit + option 119 + option 17 + option 16                | A       | 366                           | 406 | 422 | 457 | 504 | 577 | 646 | 714  | 789  |
| Unit + option 329  | A       | 341                           | 372 | 401 | 436 | 488 | 548 | 614 | 665  | 739  |
| Unit + option 329 + option 16                            | A       | 368                           | 401 | 430 | 467 | 521 | 582 | 666 | 704  | 811  |
| Unit + option 329 + option 119                           | A       | 339                           | 377 | 389 | 422 | 472 | 535 | 592 | 647  | 712  |
| Unit + option 329 + option 119 + option 16               | A       | 366                           | 406 | 418 | 453 | 505 | 569 | 644 | 686  | 784  |
| <b>Maximum operating current draw (Un-10%)</b>           |         |                               |     |     |     |     |     |     |      |      |
| Unit + option 119  | A       | 373                           | 404 | 433 | 458 | 507 | 597 | 638 | 725  | 780  |
| Unit + option 119 + option 17                            | A       | 370                           | 401 | 429 | 454 | 502 | 592 | 632 | 719  | 773  |
| Unit + option 119 + option 16                            | A       | 401                           | 435 | 465 | 492 | 543 | 634 | 695 | 767  | 858  |
| Unit + option 119 + option 17 + option 16                | A       | 398                           | 432 | 461 | 488 | 538 | 629 | 689 | 761  | 851  |
| Unit + option 329  | A       | 374                           | 407 | 439 | 465 | 520 | 599 | 654 | 711  | 788  |
| Unit + option 329 + option 16                            | A       | 402                           | 438 | 471 | 499 | 556 | 636 | 711 | 753  | 866  |
| Unit + option 329 + option 119                           | A       | 370                           | 401 | 425 | 450 | 503 | 584 | 630 | 691  | 768  |
| Unit + option 329 + option 119 + option 16               | A       | 398                           | 432 | 457 | 484 | 539 | 621 | 687 | 733  | 846  |
| <b>Start-up current</b>                                  |         |                               |     |     |     |     |     |     |      |      |
| Unit + option 119  | A       | 211                           | 230 | 239 | 255 | 278 | 371 | 401 | 390  | 411  |
| Unit + option 119 + option 17                            | A       | 209                           | 229 | 237 | 253 | 275 | 369 | 398 | 387  | 408  |
| Unit + option 329  | A       | 204                           | 219 | 220 | 240 | 271 | 353 | 391 | 376  | 400  |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions."

(4) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

## ELECTRICAL DATA

### Electrical data - 30KAVP units

| 30KAVP   |         | 500                           | 550 | 600 | 650 | 720 | 800 | 900 | 1000 | 1100 |
|--|---------|-------------------------------|-----|-----|-----|-----|-----|-----|------|------|
| <b>Power circuit supply</b>                                  |         |                               |     |     |     |     |     |     |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |     |     |     |     |     |     |      |      |
| Voltage range  | V       | 360-440                       |     |     |     |     |     |     |      |      |
| <b>Control circuit supply</b>                                |         | 24 V via internal transformer |     |     |     |     |     |     |      |      |
| <b>Maximum operating input power<sup>(1)</sup></b>           |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | kW      | 216                           | 240 | 247 | 269 | 301 | 342 | 377 | 415  | 453  |
| Unit + option 16   | kW      | 233                           | 259 | 266 | 289 | 322 | 364 | 410 | 440  | 499  |
| <b>Power factor at maximum power <sup>(1) (2)</sup></b>      |         | 0,91-0,93                     |     |     |     |     |     |     |      |      |
| Displacement Power Factor (Cos Phi)                          |         | >0,98                         |     |     |     |     |     |     |      |      |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>          | %       | 35-45                         |     |     |     |     |     |     |      |      |
| <b>Maximum operating current draw (Un)<sup>(1)</sup></b>     |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | A       | 336                           | 374 | 385 | 418 | 467 | 530 | 586 | 645  | 705  |
| Unit + option 16   | A       | 363                           | 403 | 414 | 449 | 500 | 564 | 638 | 684  | 777  |
| <b>Maximum operating current draw (Un-10%)<sup>(1)</sup></b> |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  | A       | 367                           | 398 | 421 | 446 | 498 | 579 | 624 | 689  | 761  |
| Unit + option 16   | A       | 395                           | 429 | 453 | 480 | 534 | 616 | 681 | 731  | 839  |
| <b>Start-up current</b>                                      |         |                               |     |     |     |     |     |     |      |      |
| Standard unit  |         | 212                           | 228 | 245 | 262 | 286 | 378 | 412 | 399  | 425  |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions."

(4) Standardised EUROVENT conditions, water-cooled exchanger water inlet/outlet = 12°C/7°C, outdoor air temperature = 35°C.

### Compressor electrical data

| Compressor      | I Max (A) <sup>(1)</sup><br>Standard | I Max (A) <sup>(1)</sup><br>Option 16 | F max (Hz) <sup>(2)</sup> | Inverter type <sup>(3)</sup> |
|-----------------|--------------------------------------|---------------------------------------|---------------------------|------------------------------|
| 06ZCE1H3AA06013 | 190                                  | 202                                   | 82                        | D3h                          |
| 06ZCE1T3AA06013 | 239                                  | 254                                   | 105                       | D3h                          |
| 06ZFC2T3AA06013 | 364                                  | 389                                   | 95                        | D4h                          |
| 06ZCEAT3AA06013 | 220                                  | 233                                   | 103                       | D3h                          |
| 06ZFCBT3AA06013 | 335                                  | 357                                   | 93                        | D4h                          |

(1) Maximum compressor operating current draw over the entire range when powered at rated voltage. May be lower depending on the unit size.

(2) Maximum compressor frequency other the entire range. This frequency can be limited to a lower value depending on the unit size.

(3) Mechanical inverter type : defines inverter weight and dimensions.

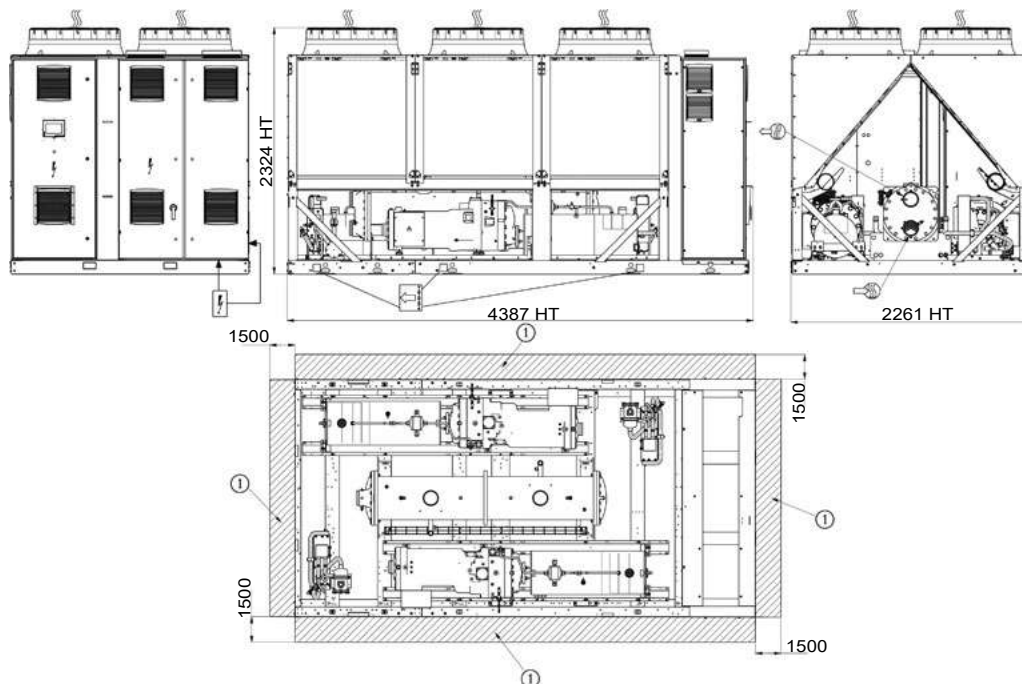
### Distribution of compressors per circuit

| Compressor 30KAV | Circuit | 500 | 550 | 600 | 650 | 720 | 800 | 900 | 1000 | 1100 |
|------------------|---------|-----|-----|-----|-----|-----|-----|-----|------|------|
| 06ZCE1H3AA06013  | A       | 1   | 1   | -   | -   | -   | -   | -   | -    | -    |
|                  | B       | 1   | 1   | -   | -   | -   | -   | -   | -    | -    |
| 06ZCE1T3AA06013  | A       | -   | -   | 1   | 1   | 1   | -   | -   | -    | -    |
|                  | B       | -   | -   | 1   | 1   | 1   | 1   | 1   | -    | -    |
| 06ZFC2T3AA06013  | A       | -   | -   | -   | -   | -   | 1   | 1   | 1    | 1    |
|                  | B       | -   | -   | -   | -   | -   | -   | -   | 1    | 1    |

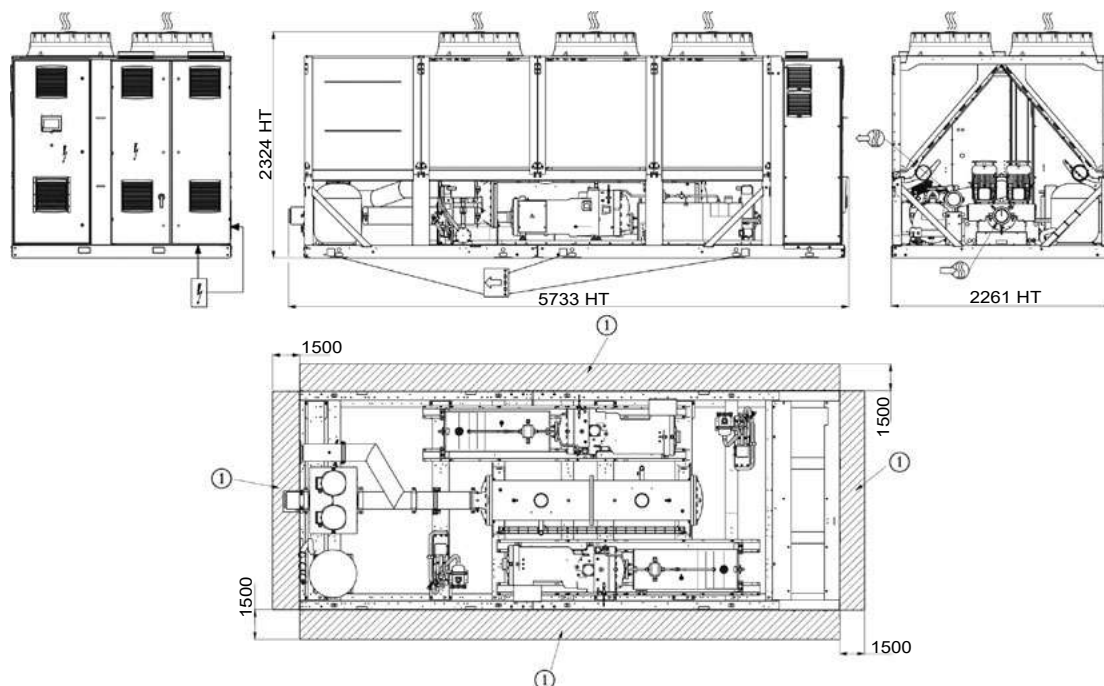
| Compressor 30KAVP | Circuit | 500 | 550 | 600 | 650 | 720 | 800 | 900 | 1000 | 1100 |
|-------------------|---------|-----|-----|-----|-----|-----|-----|-----|------|------|
| 06ZCEAT3AA06013   | A       | 1   | 1   | 1   | 1   | 1   | -   | -   | -    | -    |
|                   | B       | 1   | 1   | 1   | 1   | 1   | 1   | 1   | -    | -    |
| 06ZFCBT3AA06013   | A       | -   | -   | -   | -   | -   | 1   | 1   | 1    | 1    |
|                   | B       | -   | -   | -   | -   | -   | -   | -   | 1    | 1    |

## DIMENSIONS/CLEARANCES

### 30KAV 500 & 550 without Hydraulic module



### 30KAV 500 & 550 with Hydraulic module



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)



Water inlet for standard unit



Water outlet for standard unit



Air outlet – do not obstruct



Power electrical connection

#### NOTES:

Drawings are not contractually binding.

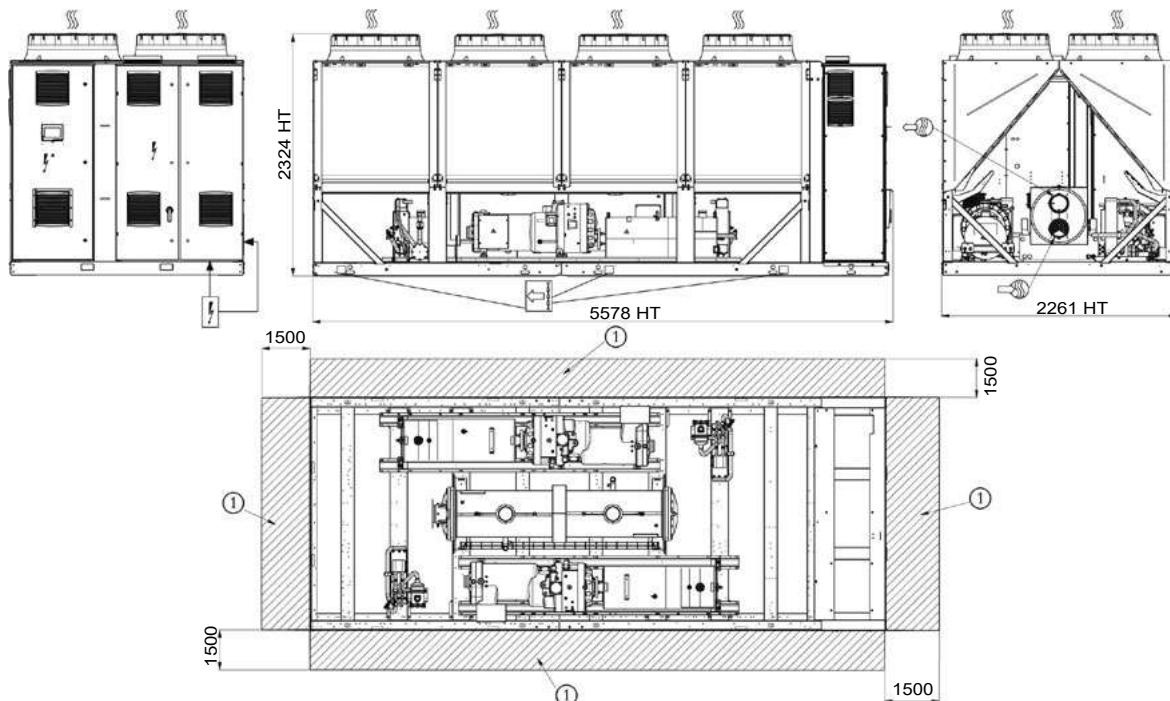
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

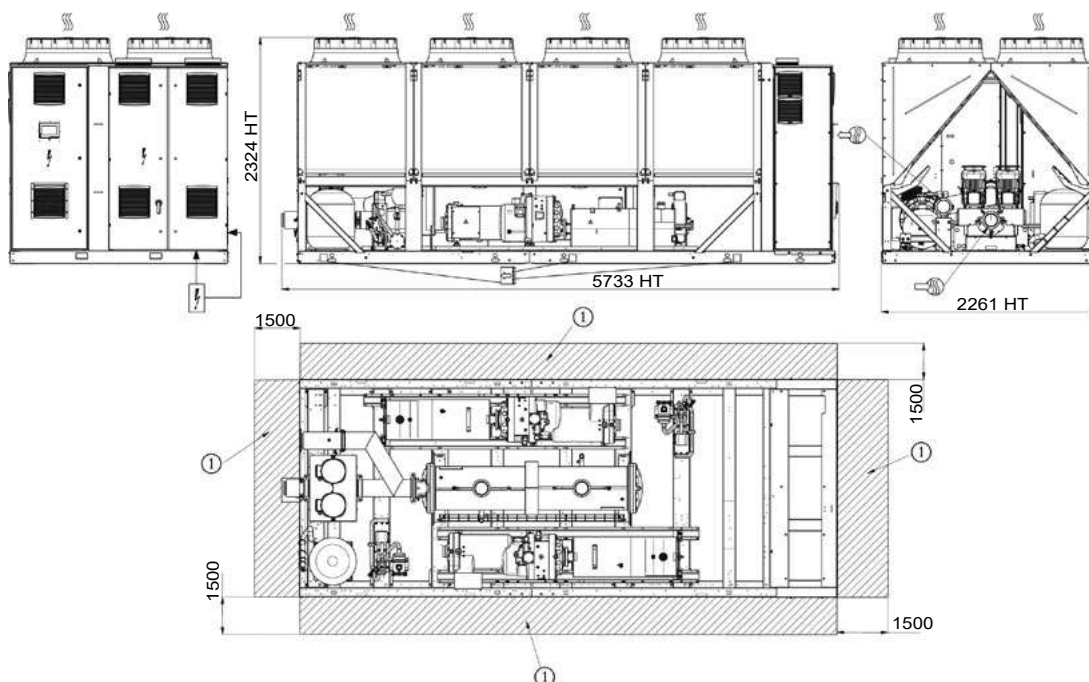
If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

## DIMENSIONS/CLEARANCES

### 30KAV 600 & 650 without Hydraulic module



### 30KAV 600 & 650 with Hydraulic module



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

Water inlet for standard unit

Water outlet for standard unit

Air outlet – do not obstruct

Power electrical connection

#### NOTES:

Drawings are not contractually binding.

Before designing an installation, consult the certified dimensional drawings, available on request.

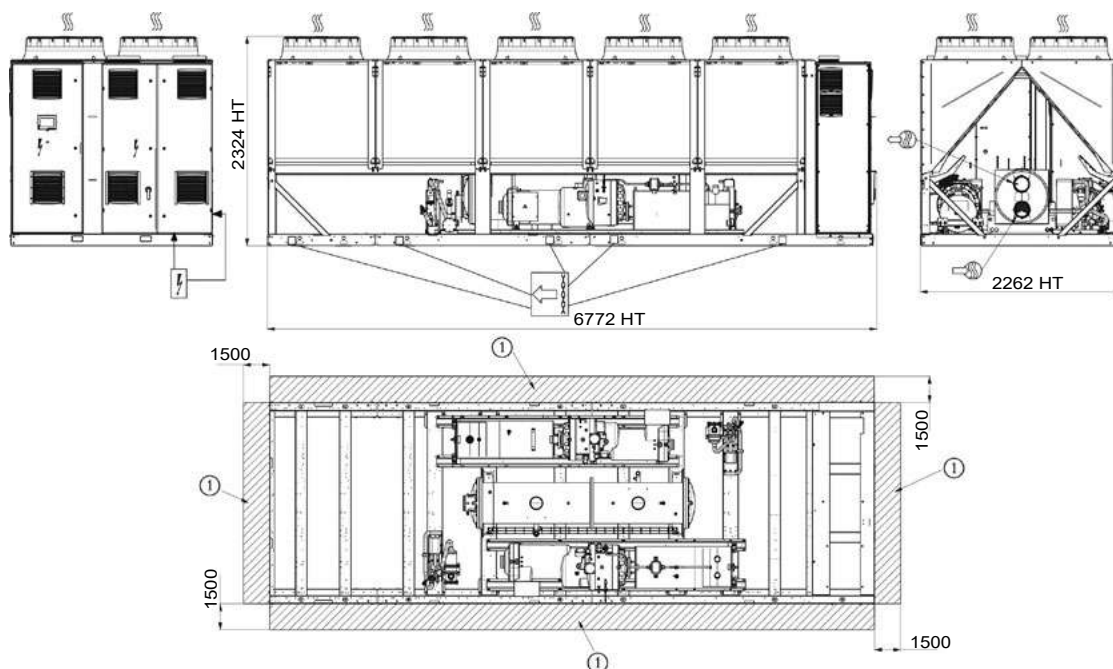
For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

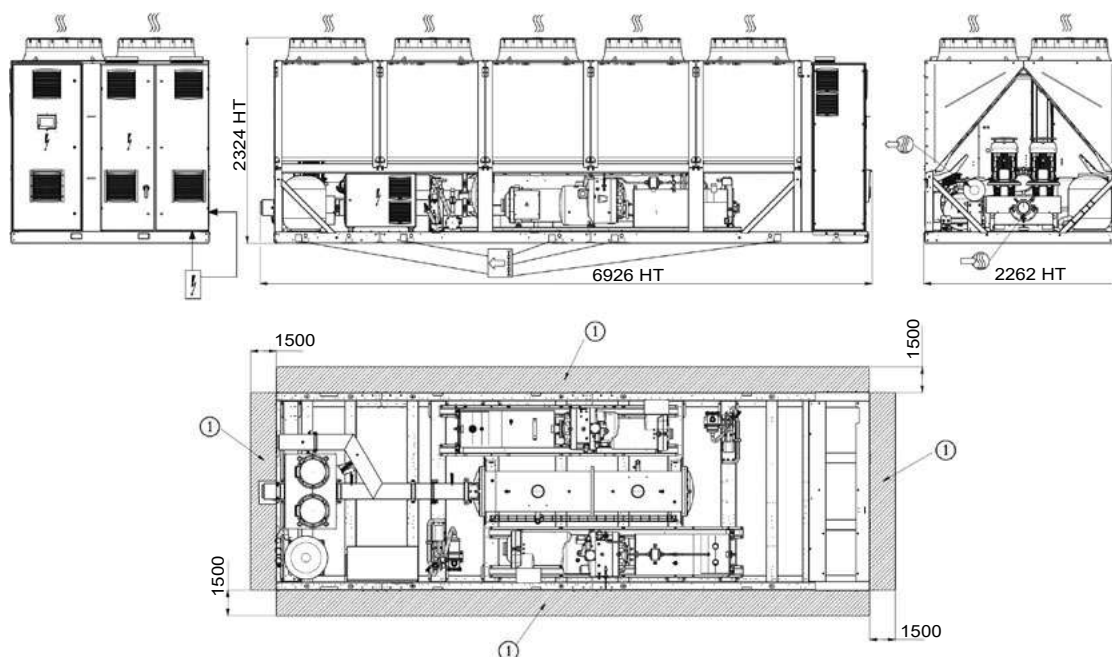


## DIMENSIONS/CLEARANCES

30KAV 720 & 800 ; 30KAV 500, 550, 600, 650 - opt 119 ; 30KAVP 500, 550, 600, 650 ; without hydraulic module



30KAV 720 & 800 ; 30KAV 500, 550, 600, 650 - opt 119 ; 30KAVP 500, 550, 600, 650 ; with hydraulic module



### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)



Water inlet for standard unit



Water outlet for standard unit



Air outlet – do not obstruct



Power electrical connection

### NOTES:

Drawings are not contractually binding.

Before designing an installation, consult the certified dimensional drawings, available on request.

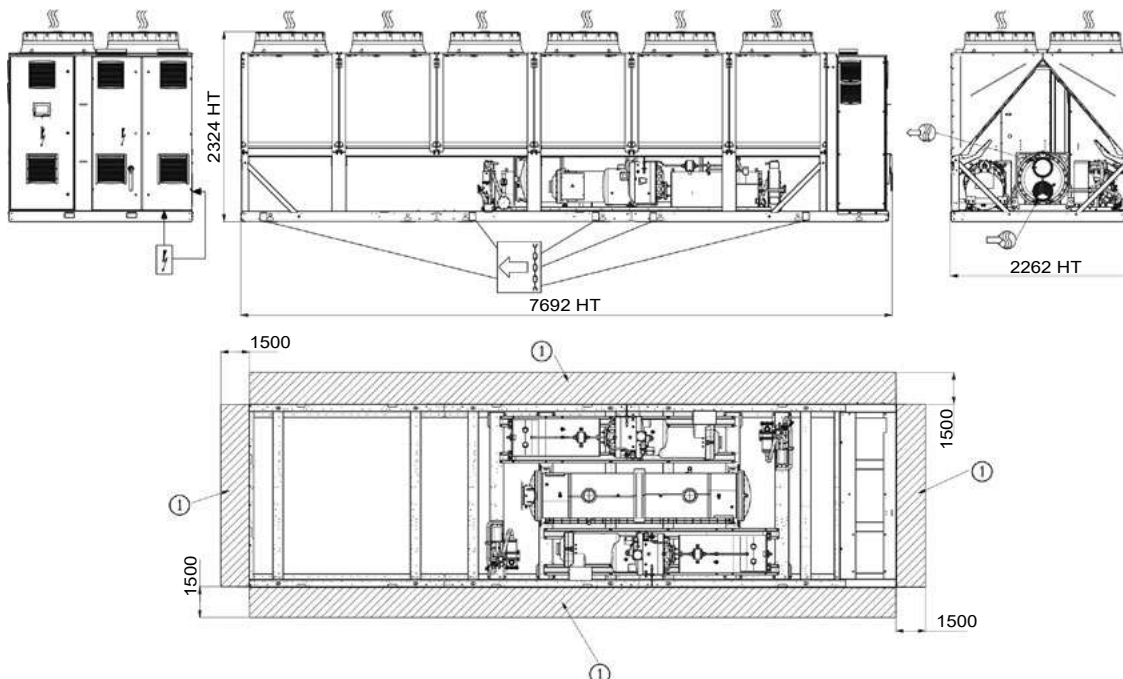
For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

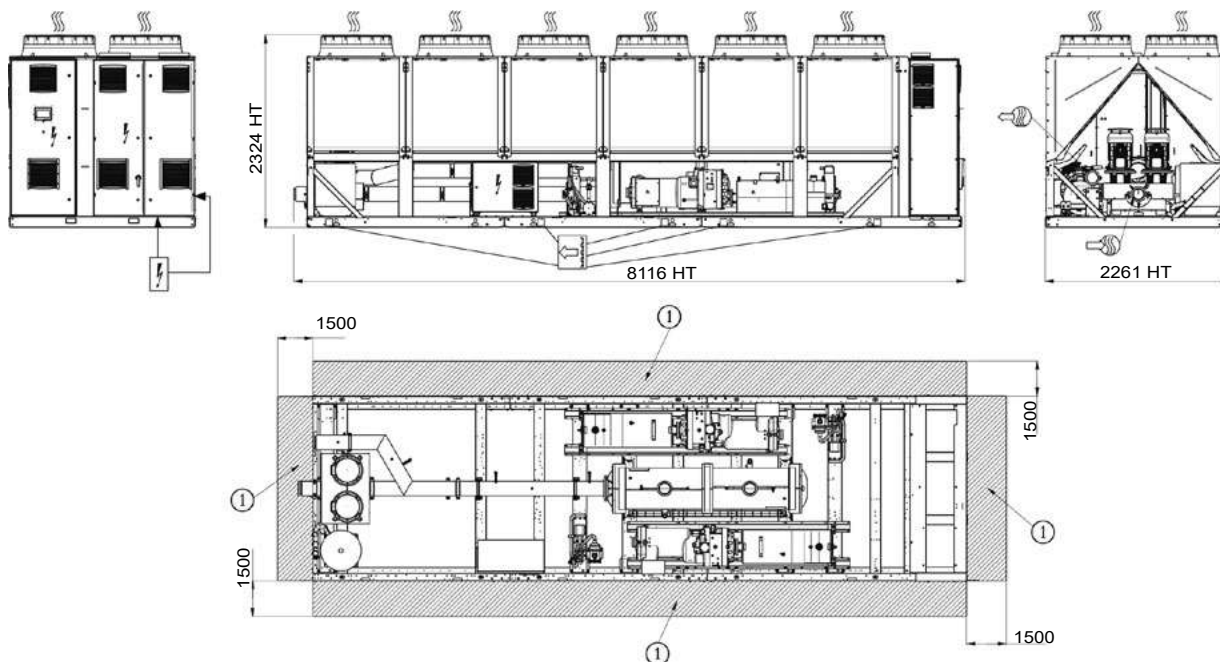


## DIMENSIONS/CLEARANCES

### 30KAV 900 & 1000 ; 30KAV 720 - opt 119 ; 30KAVP 720 ; without hydraulic module



### 30KAV 720 - opt 119 ; 30KAVP 720 ; with hydraulic module



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

Water inlet for standard unit

Water outlet for standard unit

Air outlet – do not obstruct

Power electrical connection

#### NOTES:

Drawings are not contractually binding.

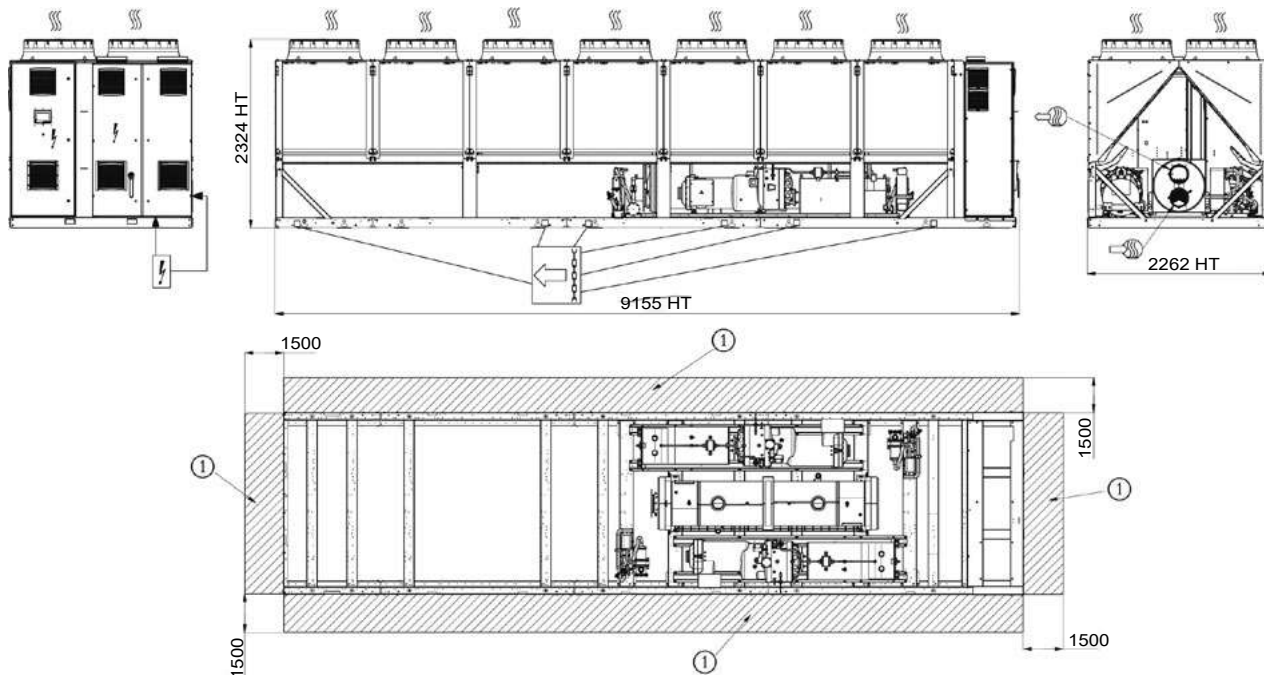
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

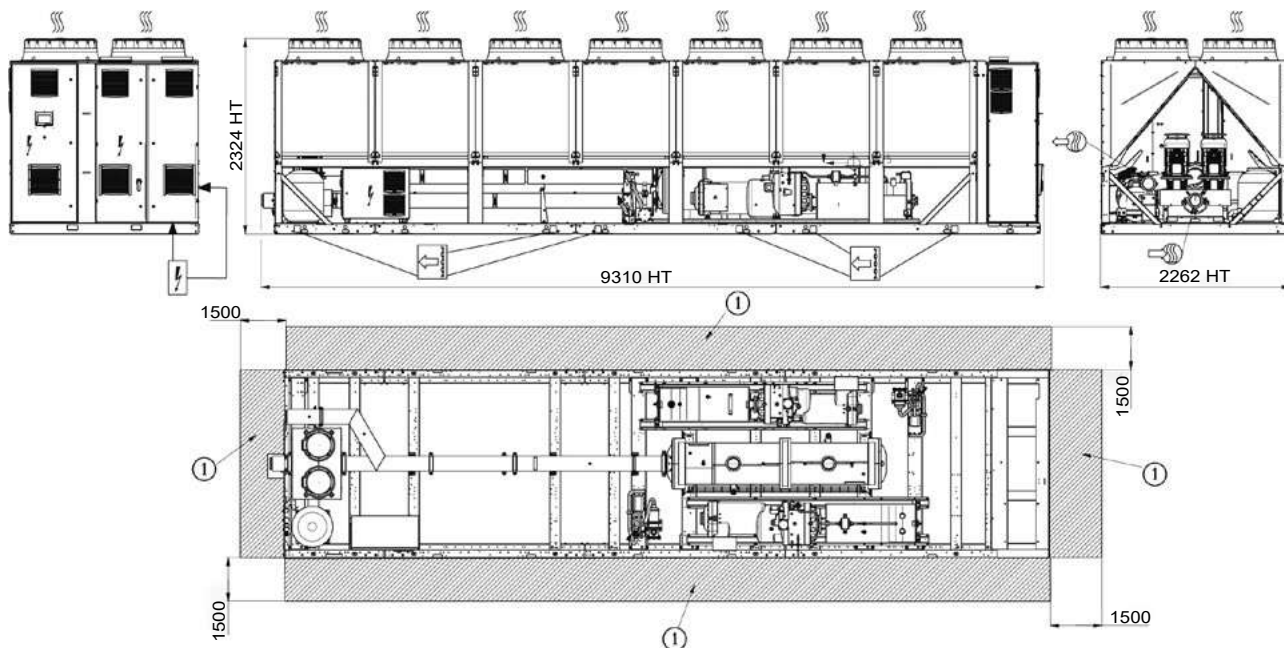
If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

## DIMENSIONS/CLEARANCES

## 30KAV 1100 ; 30KAV 800 &amp; 900 - opt 119 ; 30KAVP 800 &amp; 900 ; without hydraulic module



## 30KAV 800 - opt 119 ; 30KAVP 800 ; with hydraulic module



## Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

Water inlet for standard unit

Water outlet for standard unit

Air outlet – do not obstruct

Power electrical connection

## NOTES:

Drawings are not contractually binding.

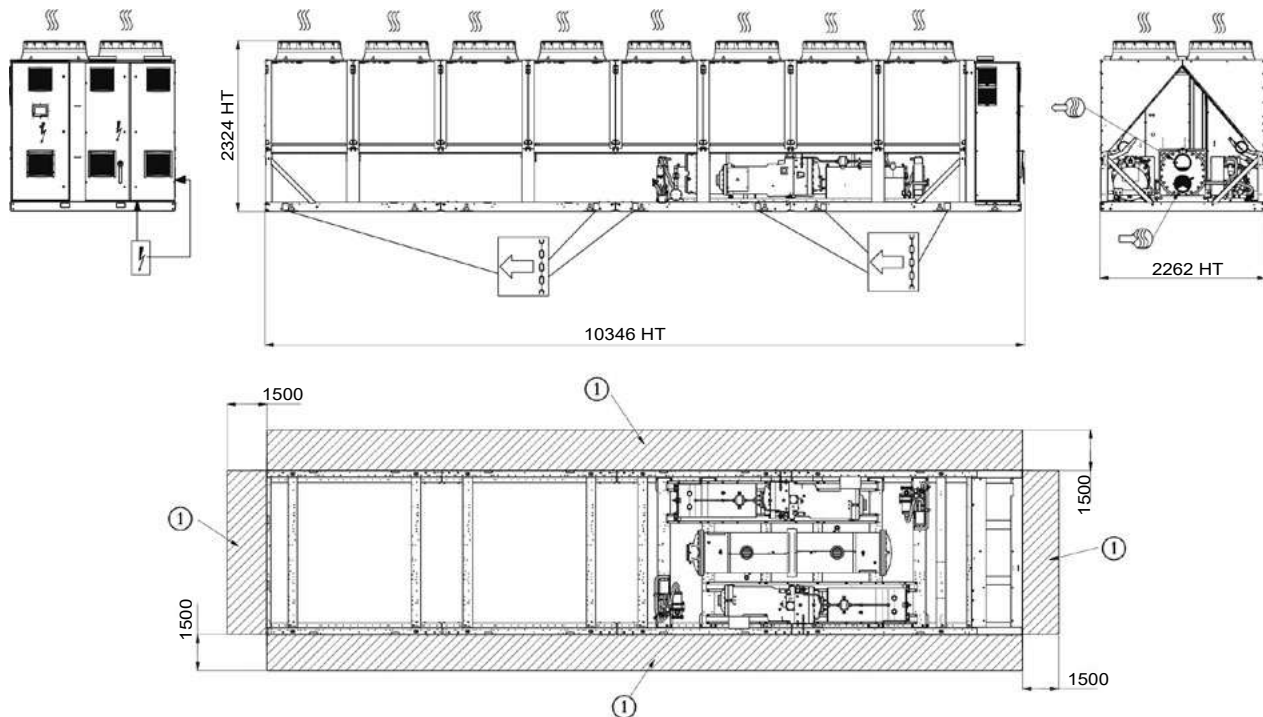
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

If any unit(s) are close to walls, please refer to chapter "Distance to the wall" of this document to determine the space required.

## DIMENSIONS/CLEARANCES

### 30KAV 1000 & 1100 - opt 119 ; 30KAVP 1000 & 1100



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- Water inlet for standard unit
- Water outlet for standard unit
- Air outlet – do not obstruct
- Power electrical connection

#### Multiple chiller installation

It is recommended to install multiple chillers in a single row, arranged as shown in the example below, to avoid recycling of warm air from one unit to another.



If the situation at the site does not permit this arrangement, contact your Carrier distributor to evaluate the various possible arrangements. In certain situations an accessory (supplied loose at the time of purchase) can be added.

#### NOTES:

Drawings are not contractually binding.

Before designing an installation, consult the certified dimensional drawings, available on request.

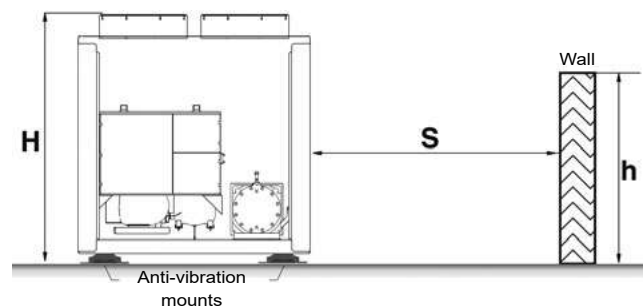
For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

#### Distance to the wall

To ensure correct operation for most cases:

- If  $h < H$  (2,3 m),  $S$  minimum = 3 m
- If  $h > H$  ou  $S < 3$  m, contact your Carrier distributor to evaluate the various possible arrangements. In certain situations an accessory (supplied loose at the time of purchase) can be added.







**NEW**

## VARIABLE-SPEED SCREW LIQUID CHILLER WITH GREENSPEED® INTELLIGENCE



Outstanding performance

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30KAV-ZE 350 - 1300  
30KAVPZE 350 - 800  
30KAVIZE 500-1250

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Nominal cooling capacity 30KAVPZE : 372 - 819 kW

Nominal cooling capacity 30KAVIZE : 532 - 1307 kW

The AquaForce® Vision with Greenspeed® intelligence and PUREtec™ refrigerant is the premium solution with variable speed screw compressor and with ultra-low GWP R-1234ze refrigerant for commercial and industrial applications where installers, consultants and building owners require superior reliability and optimal energy performances, especially at part load.

All units are designed to exceed European Ecodesign directive requirements in terms of energy efficiency, versatility and operating sound levels. This result is achieved through the optimised combination of proven best-in-class technologies that include:

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- 2<sup>nd</sup> generation of high-efficiency variable-speed twin screw compressors with built in volume index control (Vi) valve for optimal full and part load performance and Integrated Resonator Array (IRA) for low sound operation.
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- 6<sup>th</sup> generation of Carrier Flying Bird™ fans with AC or EC motor depending on options.
- Carrier flooded shell-and-tube evaporator with new copper tubes for low pressure drops
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CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## AQUAFORCE® VISION WITH PURETEC™ REFRIGERANT

### SUSTAINABILITY

PUREtec™: the environmental excellence solution

#### ■ GWP<1

Carrier has selected HFO R-1234ze as the best refrigerant to replace HFC R-134a on screw chillers and heat-pumps.

HFO R-1234ze offers a **Global Warming Potential (GWP) index below 1**, similar to that of natural substances (CO<sub>2</sub> GWP=1).

#### ■ High efficiency

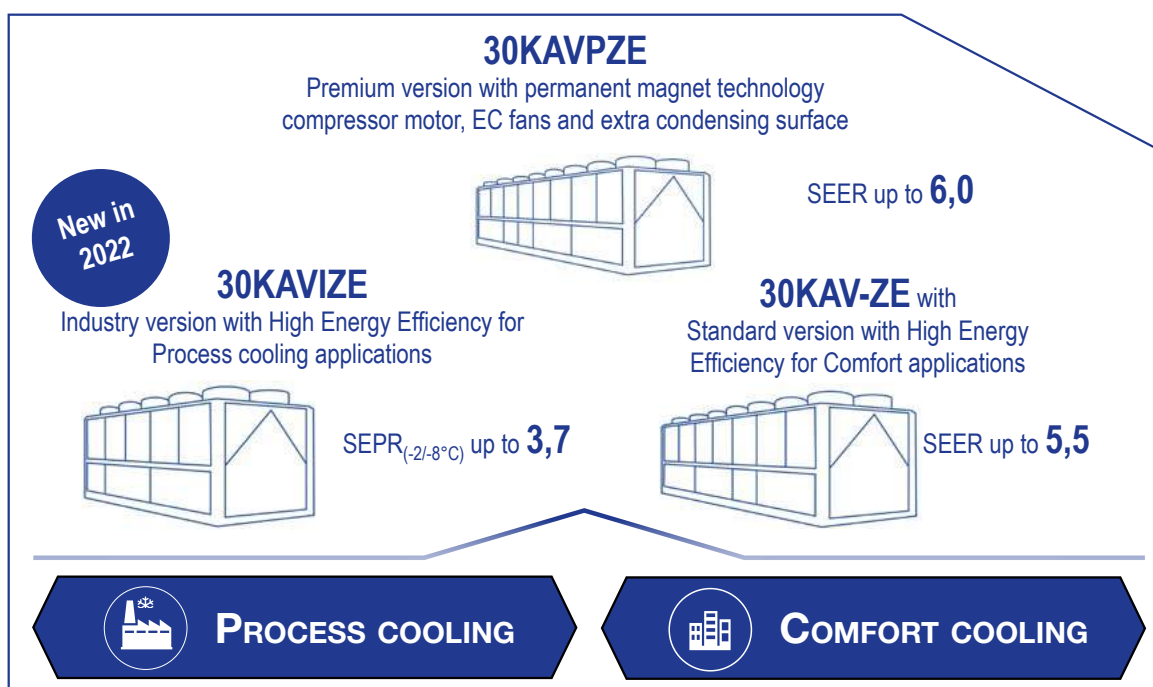
This excellent efficiency performance in turn means a **lower total carbon footprint**, with a reduction of 10% compared to HFC R-134a and HFC blends such as R-513A.

#### ■ Regulation compliance

Carrier has made the strategic decision to choose a long-term solution for its new chiller and heat-pump ranges using screw compressors: **HFO R-1234ze, with a GWP<1, is not impacted by the F-gas Regulation.**

## AQUAFORCE® VISION THE RIGHT SOLUTION FOR EVERY APPLICATION

Carrier's AquaForce® Vision range is available in three levels of efficiency to perfectly match each customer application and meet the European Ecodesign directive requirements.



**30KAVIZE**

The AquaForce® 30KAVIZE dedicated to Industry is equipped with variable-speed screw compressor and a reduced condensing surface.

The 30KAVIZE offers an economical solution with a high SEPR level in industrial process cooling. 30KAVIZE is compliant with the 2021 EU Ecodesign SEPR -2/-8°C and 12/7°C requirements for medium and high temperature process chillers.

The 30KAVIZE is also suitable for comfort applications thanks to its reduced dimensions (1/3 smaller than the 30KAV-ZE), and its energy performance that meets the Ecodesign requirements SEER 12/7°C in comfort.



**30KAV-ZE**

The AquaForce® 30KAV-ZE with Greenspeed™ intelligence is equipped with variable speed screw compressor. It offers an economical solution to enhance seasonal energy efficiency levels for comfort applications. The 30KAV-ZE with Greenspeed™ intelligence meets the 2021 EU Ecodesign SEER 12/7°C requirements.



**30KAVPZE**

The AquaForce® 30KAVPZE with Greenspeed™ intelligence is the premium version with permanent magnet technology compressor motor, EC fans and additional heat exchange surface to improve both the full load and part load energy efficiency. The 30KAVPZE provides very cost effective operation in both process and comfort applications through the use of advanced technologies.

## AQUAFORCE® VISION 30KAVIZE CUSTOMER BENEFITS

### ■ Designed for Industry

The 30KAVIZE has been specially developed with an optimised condenser surface for medium process cooling applications down to -12°C with ethylene glycol or down to -10°C with propylene glycol.

The wide operating map of the 30KAVIZE also allows high process cooling temperature, up to +24°C water outlet

temperature. The 30KAVIZE range is available with specific options for the industry:

Ultra-Fast Capacity Recovery at Full Power in less than 1 minute.

Low noise and Very low noise options, EC fans, Total heat recovery, Electric Energy Meter, etc.

New options designed specifically for the industry will be added soon:

- Boosted Total Heat Recovery (April 2022)
- Electrical cabinet designed for IT Neutral System (June 2022)
- Synchronous compressor motor with permanent magnet (End 2022)

### ■ High energy performance

Equipped with variable speed screw compressors, fans, 30KAVIZE chiller automatically adjusts the cooling capacity to adapt perfectly to the load variations of the industrial process.

The SEPR is 25% higher than the Ecodesign 2021 requirements.

### ■ Low sound levels

The new generation of Carrier 06Z variable-speed twin screw compressor with integrated resonance attenuator and the 6th generation of Flying Bird™ fans with new fan blade design inspired by nature help to significantly reduce compressor and fan noise. As an option, the 30KAVIZE chiller can be fitted with an acoustic cover for the screw compressor to achieve very low noise levels.

### ■ Intelligence and connectivity

The advanced SmartVu™ intelligent control displays the service parameters in real time, for an intuitive and particularly user-friendly use. The 30KAVIZE range is also characterized by an innovative intelligent energy monitoring function, which provides users with intelligent data such as real-time electrical energy consumption, cooling capacity, as well as instantaneous and average values of the real energy efficiency of the machine. To go further in terms of energy savings, the 30KAVIZE range can be monitored remotely by Carrier experts, in order to carry out a diagnosis and optimize electricity consumption.



SEPR (-2°C/-8°C)  
Up to **3,7**



**90 dB(A)**



SMART ENERGY  
MONITORING

### ■ Environmental responsibility

AquaForce® 30KAVIZE uses ultra-low global warming potential (GWP <1) HFO R-1234ze refrigerant. Combining reduced refrigerant charge and exceptional energy efficiency, it significantly lowers energy consumption while reducing CO<sub>2</sub> emissions throughout its life cycle.

### ■ Extensive scope of applications

AquaForce® 30KAVIZE adapts effortlessly to a wide variety of applications. Extended operating temperatures from -20°C to +48°C for air temperatures outdoor, and water temperatures from +24°C to -12°C make it the ideal solution for various applications in industry but also in comfort. AquaForce® 30KAVIZE meets the highest requirements in terms of energy efficiency and energy savings, whatever the climate and geographical location, to meet the needs of the food, chemical, paper, metal, plastic and pharmaceutical industries.

### ■ Easy installation & maintenance

AquaForce® 30KAVIZE offers very compact dimensions, one third less than the 30KAVZE range, facilitating the replacement of machines in tight spaces. AquaForce® 30KAVIZE offers intelligent automatic refrigerant leak detection and continuous energy performance monitoring to facilitate remote maintenance of equipment.



HFO R-1234ze refrigerant with direct CO<sub>2</sub> impact reduced by 99.9% compared to R-134a and 99.8% compared to R-513A



From  
**+24 °C**  
down to **-12 °C**



**1/3**  
SMALLER

## AQUAFORCE® VISION 30KAV(P)ZE CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed screw compressors with permanent magnet motor, EC fans and extra condensing surface, Carrier's AquaForce® Vision 30KAVPZE chiller with Greenspeed™ intelligence automatically adjusts the cooling capacity and the water flow to perfectly match the needs of the building or the process load variations.

The SEER is 25% above 2021 Ecodesign requirements.



SEER  
up to 6,0\*

\* For 30KAVPZE  
Up to 5,6 for 30KAV-ZE

### ■ Environmentally responsible

Carrier's AquaForce® Vision is a boost for green cities and contributes to a sustainable future. Combining a reduced load refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 25% throughout its life cycle.



UP TO  
**25% LESS**  
CO<sub>2</sub> EMISSION

### ■ Low sound levels

The new generation of Carrier 06Z variable-speed twin screw compressor with integrated resonator array and the 6th generation of Flying Bird™ fans with new fan blade design inspired by nature help reduce compressor and airflow noise down to as little as 90 dB(A). This range is 6 dB(A) quieter than the previous AquaForce® 30XAV generation.



**90 dB(A)**

### ■ Extensive scope of application

Carrier's AquaForce® Vision adapts effortlessly to a wide range of applications. Extended operating temperatures from -20°C to 55°C outdoor air temperatures and negative water temperatures make it ideal for various sectors of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaForce® Vision meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.



FROM  
**-20°C**  
to **55°C**

### ■ Intelligence and connectivity

The advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. 30KAV ranges also features innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling energy output and instantaneous and average seasonal energy efficiency ratios. For further energy savings, 30KAV ranges can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.



SMART ENERGY  
MONITORING

### ■ Easy installation & maintenance

Built-in variable-speed pumps up to 600kW, automatic nominal water flow adjustment through electronic control, automatic unit energy performance measurement under real conditions, in units that are 25% smaller than the previous 30XAV generation, all these new features provide peace of mind for installers and service companies alike.



**25%**  
SMALLER

## AQUAFORCE® VISION CUSTOMER BENEFITS

AquaForce® Vision liquid chillers with Greenspeed® Intelligence adapt effortlessly to a wide range of applications. An extended operating range covering ambient temperatures from -20 to 55°C makes it ideal for all areas of activity. From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, 30KAV ranges meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate and wherever the location.

Furthermore, the advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. 30KAV ranges also features innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios as well as smart refrigerant leak alert that can indicate significant loss of refrigerant at any point of the system.

For further energy savings, AquaForce® Vision can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.

AquaForce® Vision is available in 5 versions.

- **30KAVIZE is a cost effective dedicated range designed to meet industrial expectations while being eligible to comfort applications**  
(Average SEPR (-2/-8) of 3,6, average SEER of 5,0, average EER of 2.8)
- **30KAV-ZE standard unit**  
30KAV-ZE is equipped with variable-speed screw compressor and variable-speed fans with AC motors. The 30KAV-ZE is optimised to meet the most demanding technical and economic requirements while offering high seasonal energy efficiency levels.  
(Average SEER of 5.2, average EER of 3.1)
- **30KAV-ZE with EC fans (option 17)**  
The 30KAV-ZE with EC fans option enhances the seasonal energy efficiency and offers state of the art EC fan technology as standard.  
(Average SEER of 5.3, average EER of 3.1)
- **30KAV-ZE with High Energy Efficiency (option 119)**  
The 30KAV-ZE with High Energy Efficiency option is equipped with variable-speed fans with AC motor and additional heat exchange surface to deliver optimum performance at both full load and part load.  
(Average SEER of 5.4, average EER of 3.4)
- **30KAV-ZE with High Energy Efficiency+ (option 119+)**  
The 30KAV-ZE with High Energy Efficiency+ option is equipped with EC fans and additional heat exchange surface to provide the highest possible seasonal energy efficiency.  
(Average SEER of 5.5, average EER of 3.4)
- **30KAVPZE Premium Energy Efficiency.**  
The 30KAVPZE is based on 30KAV-ZE with option 119+. In addition, variable speed screw compressor is equipped with a premium permanent magnet motor. This is a synchronous motor without any slip and rotor losses.  
(Average SEER of 5.6, average EER of 3.5)

### Outstanding energy performance

- The 30KAV-ZE with "High energy efficiency+" is designed for very high performance both at full and part load: average SEER 5.5, average EER 3.4 as per EN14825 & EN14511.
- The 30KAVPZE with "Premium energy efficiency" is designed for very high performance both at full and part load: average SEER 5.6, average EER 3.5 as per EN14825 & EN14511.

- The high energy efficiency is achieved through:
  - 2<sup>nd</sup> generation of Carrier high-efficiency variable-speed twin-screw compressors with built in volume index control (Vi) valve for both optimal full and part load performance
  - Variable-speed Flying Bird™ fans with EC motor minimising power consumption while delivering optimum air flow
  - Novation™ aluminum condenser with high-efficiency micro-channel coils technology
  - New Carrier flooded shell-and-tube evaporator with new copper tubes for low pressure drops
  - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface (superheat control)
  - Economiser system with electronic expansion device for increased cooling capacity.
- Optimised electrical performance:
  - Negligible start-up current (value is lower than the maximum unit current draw)
  - High displacement power factor (above 0.98)
  - EMC compliance with Class 3 requirements of the EU standard EN61800-3 (Class 2 is possible as an option).
- Hydraulic module with variable-speed dual pump
  - Variable-speed, dual pumps which automatically adjust the water flow to match the needs of the building or process load variations.
  - 3 pump control modes available: constant water flow with possibility to reduce the pump speed when there is no cooling demand, variable water flow with constant delta T or constant delta P control.
- Smart energy monitoring
  - Innovative smart energy monitoring providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios (Electricity metering accuracy: +/-5%. Cooling capacity metering accuracy: +/-5% at nominal rated conditions).
  - For further energy savings, 30KAV ranges can be monitored remotely by Carrier experts for energy consumption diagnosis and optimization.

### Built-in reliability and easy servicing

The AquaForce® Vision offer enhanced performances as well as Carrier's acclaimed product quality and reliability. Major components were chosen, selected and tested to minimise the possibility of failure.

- 2<sup>nd</sup> generation of variable-speed twin-screw compressors:
  - The screw compressors are industrial-type with oversized bearings and motor cooled by suction gas, with a proven failure rate lower than 0.1%.
  - 30KAVPZE is fitted with a Permanent Magnet (PM) motor to run the variable screw compressor.
  - Motor is synchronous and spins at supplied frequency, without any slip and rotor losses to induce magnetic field. There is a benefit of +1% in full load efficiency and of +4% in part load efficiency compared to induction motors.
  - Air-cooled compressor variable-speed drive (VSD) to ensure reliable operation and easy maintenance. (Glycol-cooled variable-speed drive (VSD) types are subject to higher failure rates due to glycol pump issue. Refrigerant-cooled variable-speed drive (VSD) types are subject to higher compressor vibration levels causing possible failures in the long term).
  - Compressor bearing life exceeding 100 000 hours
  - All components related to the compressor assembly are easily accessible on site minimising down-time.



## AQUAFORCE® VISION CUSTOMER BENEFITS

### ■ Variable-speed fans:

30KAV-ZE and 30KAVIZE are fitted with variable-speed asynchronous fan-motors as standard. One variable-speed drive (VSD) is sized to manage a group of fans per refrigerant circuit reducing first cost while ensuring high part-load efficiency.

30KAV-ZE and 30KAVIZE + option 17 and 30KAVPZE are equipped with variable speed EC fan motors. Each EC fan is controlled independently ensuring continuous chiller operation in case of motor or drive failure.

### ■ Air-cooled condenser:

- Novation™ aluminum micro-channel heat exchanger (MCHE) with high corrosion resistance. The all aluminum design eliminates the formation of galvanic currents between aluminum and copper that cause coil corrosion in saline or corrosive environments.
- Enviro-shield™ coating for MCHE used in standard and mildly corrosive environments with superior durability confirmed through 5000 hours testing in constant neutral salt spray per ASTM B117 and superior heat transfer performances confirmed through 2000 hours testing per CM1 (Carrier proprietary testing).
- Super Enviro-shield™ coating for MCHE used in highly corrosive environments (industry or marine applications) with superior durability confirmed through 5000 hours testing in constant neutral salt spray per ASTM B117 and superior heat transfer performances confirmed through 2000 hours testing per CM1 (Carrier proprietary testing).

### ■ Evaporator:

- Carrier designed flooded evaporator with mechanically cleanable water tubes
- Electronic paddle-free flow switch to ensure prompt alarm in case of poor liquid flow rate
- Thermal insulation with aluminum sheet finish (option) improved resistance to mechanical and UV damage.

### ■ Refrigerant circuits:

- Two independent refrigerant circuits to secure partial cooling, if one of the two develops a fault.

### ■ Auto-adaptive control:

- Control algorithm prevents excessive compressor cycling (Carrier patent)
- Automatic compressor unloading in case of abnormally high condensing pressure. If condenser coil fouling or fan failure occurs, the Aquaforce continues to operate, but at reduced capacity.

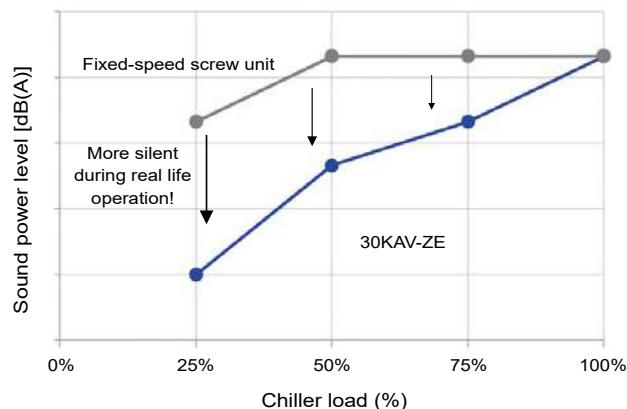
### ■ Exceptional endurance tests:

- To design critical components and sub-assemblies to minimise the risk of failure on site, Carrier uses specialised laboratories and advanced dynamic simulation tools.
- To ensure that the units reach customer sites in the same condition as they are when tested in the factory, Carrier tests the machine behavior while being moved along a 250 km trial. The test-route is based on a military standard and is the equivalent to 5000km by truck in a normal road.
- To ensure coils corrosion resistance, salt mist corrosion resistance test are performed in Carrier's laboratory.

In addition, to maintain unit performance throughout its operating life, whilst minimising maintenance costs, end users can access the "Carrier Connect" remote monitoring service.

### Minimised operating sound levels

- The Greenspeed® Intelligence, featuring variable-speed screw compressors and condenser fans, minimises noise levels at part load operation.



### ■ Standard unit features include:

- The new generation of Carrier 06Z variable-speed twin screw compressor with integrated resonator array to reduce the noise level by 6 dB(A) compared with 06T twin screw compressor previous generation.
- The 6<sup>th</sup> generation of silent Flying Bird™ fans with new fan blade design inspired by nature, help reduce airflow noise.

### ■ AquaForce® Vision is available with 3 sound levels to match the most sensitive environments:

- Standard: standard unit configuration with new generation of low sound screw compressor and fans
- Low noise option: addition of high-performance compressor sound enclosure
- Very low noise option: addition of high-performance compressor sound enclosure and fan operation at lower rotational speed.

### Easy and fast installation

#### ■ Built-in variable speed pumps up to 600kW

- Full hydraulic module with dual pumps (low or high pressure as required) and optional expansion tank
- Automatic nominal water flow adjustment through electronic control on the user display

#### ■ Compact units for easy transportation and installation.

- Dimensions 25% smaller than the previous 30XAV generation
- Similar dimensions as the old 30GX chillers for easy replacement of the installed base.

#### ■ Simplified electrical connections:

- Main disconnect switch
- Transformer supply to the integrated control circuit (400/24V)
- Single electrical point of connection

#### ■ Simplified water connections:

- Victaulic connections on the evaporator
- Clearly identified entering and practical reference marks for entering and leaving water connections
- Possibility to choose different evaporator configurations, 1 or 2 passes.

#### ■ Fast commissioning:

- Systematic factory operating test before shipment
- Functional test for main components, expansion devices, fans and compressors.



## AQUAFORCE® VISION CUSTOMER BENEFITS

### Environmental care

- The AquaForce® Vision with PUREtec™ refrigerant liquid chillers with Greenspeed® Intelligence is a boost for green cities and contributes to a sustainable future. Combining a reduced charge of R-1234ze refrigerant and exceptional energy efficiency it significantly lowers energy consumption while reducing carbon dioxide emissions by 25% throughout its life cycle (compared to previous fixed-speed screw liquid chiller generation).
- The AquaForce® Vision with PUREtec™ refrigerant liquid chiller is equipped with an automatic energy meter that provides estimated instantaneous and cumulative cooling energy output, instantaneous and cumulative electric energy consumption, instantaneous and average seasonal energy efficiency ratios (Accuracy: +/- 5% at nominal condition, +/-10% elsewhere) for unit performance monitoring and verification.
- The AquaForce® Vision with PUREtec™ refrigerant designed exclusively for HFO R-1234ze will be available during the course of 2019.
- R-1234ze: HFO refrigerant with zero ozone depletion potential
- 40% less refrigerant charge: The micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Leak tight refrigerant circuits:
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.
- Refrigerant leak alert: The AquaForce® Vision liquid chiller is equipped with an automatic refrigerant leak detection algorithm that can detect serious refrigerant loss at any point on the system (Sensitivity: 25% refrigerant charge loss per circuit, depending on the conditions). The automatic refrigerant leak detection system can help to achieve recognition within pollution prevention assessment programs, ideal for assisting in the design of sustainable buildings.
- Refrigerant leak detection: Available as an option, this additional dry-contact allows reporting of possible leaks. The leak detector (by others) should be mounted in the most likely leak location.



- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP<1 following AR5) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity airconditioning equipment.

- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year AquaForce® Vision offer a solution to this important challenge.

A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new AquaForce® Vision range helps customers involved in LEED® building certification.

The other benefit of using the AQUAFORCE PUREtec™ products is the eligibility for BUILDING labeling programs like BREEAM, HQE in France or Green Building Council labelling, that are recognizing the use of sustainable heating and air-conditioning equipment.

Let's take the example of BREEAM assessment method for the sustainability of buildings.

Two credits can be awarded where the refrigerants used in air-conditioning systems have a Global Warming Potential below 10.

And one additional credit can be awarded where the systems have a low Total Equivalent Warming Impact.

AQUAFORCE PUREtec™ is not only a solution that is reducing the energy bill and the CO<sub>2</sub> footprint.

It also helps the green certification of your buildings!

### Energy saving certificate

AquaForce® Vision with with PUREtec™ refrigerant is eligible to Energy savings certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and its speed)
- Floating Low pressure control
- Variable speed on asynchronous compressor motor
- Variable speed on asynchronous fan motor
- Variable speed on asynchronous pump motor

30KAVPZE is equipped with variable speed synchronous compressor motor

For more details about financial incentives in France, please refer to "Fiche produit CEE"

## AQUAFORCE® VISION CUSTOMER BENEFITS

### 30KAV-ZE and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a preeminent programme to rate the design, construction and operation of green buildings with points assigned in seven credit categories:

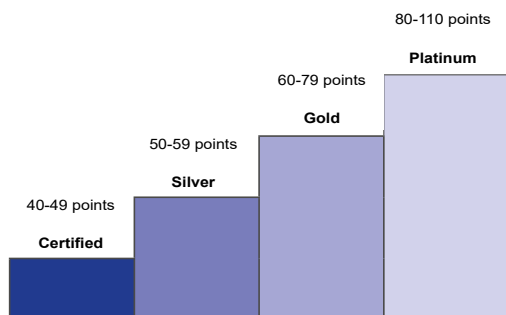
- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain same, the point distribution varies to address different building types and application needs, for example according to New Construction, Schools, Core & Shell, Retail and Healthcare.

All programmes now use the same point scale:

#### 110 Possible LEED® points

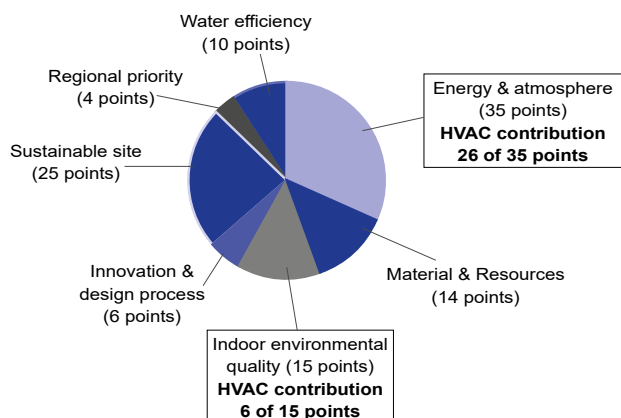


The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impacts of each component or sub-system to the overall building.

While the LEED® green building certification programs do not certify products or services, the selection of the right products, systems or service programs is critical to obtain LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilating and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points

#### Overview of LEED® for new construction and major renovations



The new AquaForce® Vision with with PUREtec™ refrigerant units from Carrier can assist building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

#### ■ EA prerequisite 2: Minimum energy Performance

The AquaForce® Vision with with PUREtec™ refrigerant exceeds the energy efficiency requirements of ASHRAE 90.1-2007; therefore it complies with the prerequisite standard.

#### ■ EA prerequisite 3: Fundamental Refrigerant Management

The AquaForce® Vision with with PUREtec™ refrigerant does not use chlorofluorocarbon (CFC) refrigerants thus satisfying the prerequisite statement.

#### ■ EA credit 1: Optimise energy performance (1 to 19 points):

Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. The AquaForce® Vision with with PUREtec™ refrigerant, which is designed for high performance especially during part load operation, contributes to reducing the energy consumption of the building and therefore helps in gaining points within this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used as an energy analyses program complying with the modeling requirements for this credit and produce reports that are easily transferable to LEED® templates.

#### ■ EA credit 4: Enhanced refrigerant management (2 points):

With this credit, LEED® awards systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) of the system. The AquaForce® Vision with with PUREtec™ refrigerant uses a reduced R-1234ze charge and therefore contributes toward satisfying this credit under LEED®.

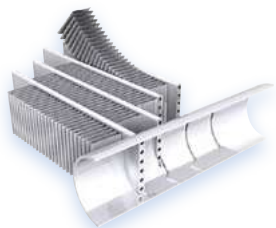
**NOTE: This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the AquaForce® Vision. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the complete HVAC system.**

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: Fundamental commissioning of energy management system
- EA credit 3: Enhanced commissioning (2 points)
- EA credit 5: Measurements and verification (3 points).

**NOTE: Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).**

## 30KAVIZE – TECHNICAL INSIGHTS



### 3RD GENERATION OF "W" SHAPE NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- More compact units (-25% vs previous 30XAV generation)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer

### ADVANCED SMARTVU™ WITH 7 INCH COLOR TOUCH SCREEN INTERFACE

- Exclusive Carrier design
- 10 languages available: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
- Touch screen user interface
- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



### POWERFUL SMART ENERGY MONITORING FUNCTION

- Provides smart data based on intelligent algorithms
- Real time energy consumption measurement (kWh)
- Cooling energy output measurement (kWh)
- Instantaneous and average Energy Efficiency Ratio under real operating conditions
- Remote monitoring with Carrier Connect

### FLOODED SHELL AND TUBE EVAPORATOR

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol



### 6TH GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH AC OR EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- AC motor technology
- High efficiency version with EC motor technology (option)



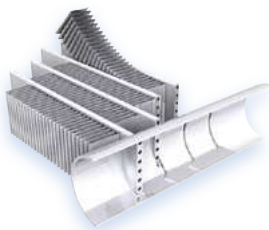
- HFO R-1234ze with Global Warming Potential (GWP) below 1.
- Long-term solution to meet the the F-Gas regulation.



### LATEST GENERATION CARRIER VARIABLE-SPEED 06Z TWIN SCREW COMPRESSOR WITH AC MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- High efficiency AC motor
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled inverter drive for increased reliability
- Bearing life exceeding 100.000 hours
- Twin screw compressor with permanent magnet motor as option

## 30KAV-ZE TECHNICAL INSIGHTS



### 3<sup>RD</sup> GENERATION OF "W" SHAPE NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Exclusive Carrier design
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (-40% vs cu/al coils)
- More compact units (-25% vs previous 30XAV generation)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer

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- BACnet, J-Bus or LON communication interfaces
- Optional wireless connectivity



### POWERFUL SMART ENERGY MONITORING FUNCTION

- Provides smart data based on intelligent algorithms
- Real time energy consumption measurement (kWh)
- Cooling energy output measurement (kWh)
- Instantaneous and average Energy Efficiency Ratio under real operating conditions
- Remote monitoring with Carrier Connect

### FLOODED SHELL AND TUBE EVAPORATOR

- Exclusive Carrier design
- Flooded technology for high energy efficiency
- New generation of copper tubes with specific profile to reduce pressure drops when operating with glycol



### 6<sup>TH</sup> GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH AC OR EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- AC motor technology
- High efficiency version with EC motor technology (option)



### VARIABLE-SPEED DUAL PUMPS WITH AC MOTOR

- Dual pumps designed for variable speed operation
- High efficiency AC motor
- Low static pressure (~100 kPa) or high static pressure (~180 Kpa) available
- 3 pump control modes available: constant water flow with 2 speeds, variable water flow based on constant delta T or constant delta P
- Compatibility of chillers for variable primary flow operation



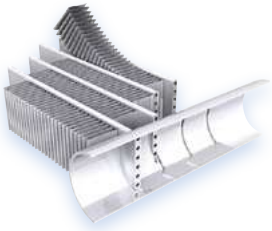
### LATEST GENERATION CARRIER VARIABLE-SPEED 06Z TWIN SCREW COMPRESSOR WITH AC MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- High efficiency AC motor
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled inverter drive for increased reliability
- Bearing life exceeding 100.000 hours
- Twin screw compressor with permanent magnet motor as option





## 30KAVPZE TECHNICAL INSIGHTS



### 3<sup>RD</sup> GENERATION OF "W" SHAPE NOVATION® MICRO CHANNEL HEAT EXCHANGERS

- Extra W module to increase seasonal efficiency
- Extra W module to increase condensing surface and seasonal efficiency versus 30KAVZE
- Increased reliability with new aluminum alloy
- Significantly reduces refrigerant charge (~40% vs cu/al coils)
- Enviro-shield™ coating for mildly corrosive environments
- Super Enviro-shield™ coating for highly corrosive environments (industry or marine applications)
- Easy cleaning with high pressure air or water washer
- Extra W module to increase seasonal efficiency



### 6<sup>TH</sup> GENERATION OF VARIABLE-SPEED FLYING BIRD™ FANS WITH EC MOTOR

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with EC motor



### LATEST GENERATION CARRIER VARIABLE-SPEED 06Z TWIN SCREW COMPRESSOR WITH PERMANENT MAGNET MOTOR

- Exclusive Carrier design
- Twin screw compressor designed for variable speed operation
- High efficiency permanent magnet motor
- Stepless variable-speed control (0%-100%)
- Integrated resonator array for compressor acoustic attenuation
- Integrated check valve for quiet shutdown
- Air-cooled inverter drive for increased reliability
- Bearing life exceeding 100,000 hours



## TECHNICAL INSIGHTS

### SmartVu Control (standard)

#### SmartVu™



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management:
  - Innovative smart energy monitoring, providing users with smart data such as real time electric energy consumption, cooling capacity, and instantaneous and average seasonal energy efficiency ratios.
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation

- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote management (standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System Manager or the Plant System Manager (optional).
- Units also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: Indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module (EMM) offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA.
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

## TECHNICAL INSIGHTS

### New generation of Carrier 06Z variable-speed twin screw compressor



The new generation of 06Z variable-speed twin screw compressors benefits from Carrier's long experience in the development of twin-rotor screw compressors. The 06Z compressor design is based on the successful 06T screw compressor, core of the well-known Aquaforce series with a number of modifications to reduce noise level and improve the energy efficiency especially during part load operation.

- New 06Z twin screw compressor optimized for variable speed operation: elimination of the slide valve, built-in volume index control (Vi) valve for both optimal full and part load performance, high efficiency AC motor with stepless inverter control from 20% to 100%.
- 30KAVPZE screw compressor is equipped with a Permanent Magnet (PM) Motor, which is a four pole motor compared to the two pole induction motor. By the way, the frequency setting doubles with PM motors, but the shaft speed remains the same. There is no slip or rotor losses. Thus, there is a benefit of +1% in full load efficiency and of +4% in part load efficiency.

Permanent Magnet Motor



- Separate air-cooled inverter drive for increased reliability
- New 06Z twin screw compressor design with Integrated Resonator Array (IRA) to reduce the sound level by up to 6 dB(A) when compared with previous 06T generation
- Integrated Check Valve for quiet shutdown
- Bearing life exceeding 100 000 hours.
- A dedicated oil separator is installed at the discharge of each compressor to ensure maximum oil return: Oil separates from refrigerant by gravity and returns to the low pressure side of the compressor without use of additional pumps.
- Volume index control (Vi) valve provides a reliable method of adjusting the compression ratio to better match system demand. It provides optimal performance regardless of operating condition
- Screw compressors work on the positive displacement principle to compress gas to a higher pressure. As a result, if there is an unusually high pressure in the condenser (due for example to coil fouling or operation in harsh climate) the compressor does not switch off, but continues operation at reduced capacity (unloaded mode).
- The silencer in the oil separator line (at the compressor outlet) considerably reduces discharge gas pulsations for much quieter operation.

## TECHNICAL INSIGHTS

### Novation® Heat Exchangers with Microchannel Coil Technology

Already utilised in the automobile and aeronautical industries for many years, the Novation™ Micro-Channel Heat Exchanger (MCHE) used in the Aquaforce is entirely made of aluminum. This one-piece concept significantly increases its corrosion resistance by eliminating the galvanic currents that are created when two different metals (copper and aluminum) come into contact in traditional heat exchangers.

- From the energy efficiency point-of-view the Novation® heat exchangers are approximately 10% more efficient than traditional coils and micro-channel coil technology allows a 40% reduction in the amount of refrigerant used in the chiller.
- The reduced depth of the Novation™ MCHE reduces air pressure losses by 50% and makes it much less susceptible to fouling (e.g. by sand). Cleaning of the Novation™ MCHE heat exchanger is very fast using a high pressure washer.
- To further enhance long-term performance, and protect coils from early deterioration, Carrier offers (as options) dedicated treatments for installations in corrosive environments.
  - The Novation™ MCHE with Enviro-Shield protection (option 262) is recommended for installations in moderately corrosive environments. The Enviro-Shield protection utilises corrosion inhibitors which actively arrest oxidation in case of mechanical damage.
  - The Novation™ MCHE with exclusive Super Enviro-Shield protection (option 263) is recommended for installations in corrosive environments. The Super Enviro-Shield protection consist of an extremely durable and flexible epoxy coating uniformly applied over all coil surfaces for complete isolation from the contaminated environment.
- After a total of more than 7,000 hours of testing following various test standards in Carrier laboratories, the Carrier Novation® MCHE with Super Enviro-shield® coating appears to be the best-suited customer choice to minimize the harmful effects of corrosive atmospheres and ensure long equipment life.
  - Best corrosion resistance per ASTM B117/D610 test
  - Best heat transfer performance per Carrier Marine 1 test
  - Proven reliability per ASTM B117 test



| Coil Types (ranked by performance)  | Visual Corrosion Evaluation | Heat Transfer Performance Degradation | Time to Failure     | Test Campaign Conclusions |
|-------------------------------------|-----------------------------|---------------------------------------|---------------------|---------------------------|
| Super Enviro-shield® Novation™ MCHE | Very good                   | Very good                             | No coil leak        | Best                      |
| Super Enviro-shield® Cu/Al coil     | Very good                   | Very good                             | No coil leak        | Very good                 |
| Enviro-shield® Novation™ MCHE       | Very good                   | Good                                  | No coil leak        | Very good                 |
| Al/Al coil                          | Very good                   | Good                                  | No coil leak        | Very good                 |
| Novation™ MCHE                      | Good                        | Very good                             | No coil leak        | Good                      |
| Cu/Cu coil                          | Good                        | Good                                  | Leak before 5,000 h | Acceptable                |
| Blygold® Cu/Al coil                 | Good                        | Good                                  | No coil leak        | Acceptable                |
| Precoat Cu/Al coil                  | Bad                         | Bad                                   | No coil leak        | Bad                       |
| Cu/Al coil                          | Bad                         | Bad                                   | No coil leak        | Bad                       |

## TECHNICAL INSIGHTS

### New generation of Flying Bird VI fans with EC motors



AquaForce® Vision utilizes Carrier's the 6th generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and wide operating range. The fan includes Carrier patented rotating shroud technology and back-swept blades with a unique wave-serration trailing edge inspired from nature.

It was designed and optimized for the AquaForce® Vision air management system configuration and heat exchanger technology. On 30KAVPZE, 30KAV-ZE and on 30KAVIZE with option 17 , fans are propelled by an EC motor, also known as brushless DC, with a unique electronics to manage commutation. This provides a great accuracy for fans that require higher efficiencies and variable speed. The fan meets the latest European eco-design requirements for fan efficiency. The fan uses Carrier's robust and proven injection molded composite-thermoplastic construction.

EC fan



## OPTIONS

| Option   | No.  | Description  | Advantage  | Use<br>30KAV-ZE | Use<br>30KAVPZE | Use<br>30KAVIZE |
|--|------|--|--|-----------------|-----------------|-----------------|
| Medium Brine down to -6°C                            | 5    | Redesigned evaporator to allow chilled brine solution production down to -6°C (including different number of tubes in the evaporator, extra insulation, specific sensors and algorithms).  | Covers specific applications such as ice storage and industrial processes.   | 0350-1300       | 0350-0800       | 0500-1250       |
| Low Brine with turbulators down to -12°C             | 6    | Redesigned evaporator including turbulators to allow chilled brine solution production with low pressure drops on the entire negative application range, down to -12°C (including turbulators, extra insulation, specific sensors and algorithms). | Covers specific applications such as ice storage and industrial processes.   | 0350-1300       | 0350-0800       | 0500-1250       |
| Low noise level                                      | 15   | Aesthetic and sound absorbing compressor enclosure   | Noise level reduction  | 0350-1300       | 0350-0800       | 0500-1250       |
| Very low noise level                                 | 15LS | Sound absorbing & aesthetic compressor enclosure and oil separator, evaporator and suction line acoustic treatment, combined with low-speed fans   | Noise level reduction for sensitive site   | 0350-1300       | 0350-0800       | 0500-1250       |
| High ambient temperature                             | 16   | Electrical components sized for part load operation up to 55°C air ambient   | Extended unit part-load operation up to 55°C ambient temperature   | 0350-1300       | 0350-0800       | NO              |
| EC fans  | 17   | Unit equipped with EC fans   | Enhances the unit energy efficiency  | 0350-1300       | NO              | 0500-1250       |
| IP54 control box                                     | 20A  | Increased leak tightness of the unit   | Protects the inside of the electrical box from dust, water and sand. In general this option is recommended for installations in polluted environments              | 0350-1300       | 0350-0800       | 0500-1250       |
| Grilles and enclosure panels                         | 23   | Metal protection grilles and side enclosure panels   | Improves aesthetics, protection against intrusion to the unit interior, coil and piping protection against impacts.  | 0350-1300       | 0350-0800       | 0500-1250       |
| Enclosure panels                                     | 23A  | Side enclosure panels  | Improves aesthetics and piping protection against impacts.   | 0350-1300       | 0350-0800       | 0500-1250       |
| Water exchanger frost protection                     | 41A  | Electric resistance heater on the water exchanger and discharge valve  | Water exchanger frost protection down to -20°C outside temperature   | 0350-1300       | 0350-0800       | 0500-1250       |
| Evaporator and hydraulic module frost protection     | 41B  | Electric resistance heater on water exchanger, discharge valve and hydraulic module  | Water exchanger and hydraulic module frost protection down to -20°C outside temperature  | 0350-0600       | 0350-0600       | NO              |
| Evaporator & recovery condenser frost protection     | 41C  | Electric resistance heater on evaporator exchanger, discharge valve and add heaters and insulation on hydraulic connection (option 325)  | Water exchanger module frost protection between 0°C and -20°C outside air temperature  | 0350-1300       | 0350-0800       | 0500-1250       |
| Partial heat recovery                                | 49   | Unit equipped with one desuperheater on each refrigerant circuit   | Production of free high-temperature hot-water simultaneously with chilled water production (or hot water for Heat pump)  | 0350-0800       | 0350-0800       | NO              |
| Total heat recovery                                  | 50   | Unit equipped with an additional heat exchanger in series with the condenser coils (Each heat exchanger is equipped with electrical heaters and insulation)  | Production of free hot-water with variable heat reclaim  | 0350-1300       | 0350-0800       | 0500-1250       |
| Boosted Total Heat Recovery                          | 50+  | Unit equipped with additional heat exchanger in series with the condenser coils, and valves to isolate part of the coils.  | Production of free hot-water simultaneously with chilled water production. Coils isolation reduce the condensing area leading to improve heat recovery efficiency. | 0900-1300       | NO              | 0500-1250       |
| Master/slave operation                               | 58   | Unit equipped with supplementary leaving water temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel   | Optimised operation of two units connected in parallel operation with operating time equalisation  | 0350-1300       | 0350-0800       | 0500-1250       |
| Main disconnect switch with short-circuit protection | 70D  | Circuit breaker equipped with an external disconnect switch handle   | Ensure protection of main disconnect switch and associated cables against short-circuits when building devices are not compliant                                   | 0350-1300       | 0350-0800       | 0500-1250       |
| Evap. and pumps with aluminium jacket                | 88A  | Evaporator and pumps covered with an aluminium sheet for thermal insulation protection   | Improved resistance to aggressive climate conditions   | 0350-0600       | 0350-0600       | NO              |
| Service valve set                                    | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve   | Allow isolation of various refrigerant circuit components for simplified service and maintenance   | 0350-1300       | 0350-0800       | 0500-1250       |
| Compressor discharge valves                          | 93A  | Shut-off valve on the compressor discharge piping  | Simplified maintenance   | 0350-1300       | 0350-0800       | 0500-1250       |
| 21 bar evaporator                                    | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column on the condenser side (typically high buildings)  | 0350-1300       | 0350-0800       | 0500-1250       |



## OPTIONS

| Option  | No.  | Description  | Advantage   | Use<br>30KAV-ZE | Use<br>30KAVPZE | Use<br>30KAVIZE |
|---|------|--|---|-----------------|-----------------|-----------------|
| LP VSD dual-pump hydraulic mod.                 | 116A | Dual low-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter.  | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability                         | 0350-0600       | 0350-0600       | NO              |
| HP VSD dual-pump hydraulic mod.                 | 116W | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control (expansion tank with built-in safety hydraulic components available in option)   | Easy and fast installation (plug & play), significant pumping energy cost savings (up to two-thirds), tighter water flow control, improved system reliability                             | 0350-0600       | 0350-0600       | NO              |
| High Energy Efficiency                          | 119  | Additional condenser coil to improve unit energy efficiency  | Enhances the unit energy efficiency performance   | 0350-1100       | NO              | NO              |
| High Energy Efficiency+                         | 119+ | Additional condenser coil plus EC fans to improve unit energy efficiency   | Enhances the unit energy efficiency performance   | 0350-1100       | NO              | NO              |
| Lon gateway                                     | 148D | Bi-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 0350-1300       | 0350-0800       | 0500-1250       |
| Bacnet over IP                                  | 149  | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 0350-1300       | 0350-0800       | 0500-1250       |
| Modbus over IP and RS485                        | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 0350-1300       | 0350-0800       | 0500-1250       |
| Energy Management Module                        | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter  | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)  | 0350-1300       | 0350-0800       | 0500-1250       |
| Input contact for Refrigerant leak detection    | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)   | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions   | 0350-1300       | 0350-0800       | 0500-1250       |
| Dual relief valves on 3-way valve               | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4  | 0350-1300       | 0350-0800       | 0500-1250       |
| Compliance with Swiss regulations               | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications   | Conformance with Swiss regulations  | 0350-1300       | 0350-0800       | 0500-1250       |
| Compliance with Russian regulations             | 199  | EAC certification  | Conformance with Russian regulations  | 0350-1300       | 0350-0800       | 0500-1250       |
| Compliance with Australian regulations          | 200  | Unit approved to Australian code   | Conformance with Australian regulations   | 0350-1300       | 0350-0800       | 0500-1250       |
| Insulation of the evap. in/out ref. lines       | 256  | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation   | Prevents condensation on the evaporator entering/leaving refrigerant lines  | 0350-1300       | 0350-0800       | 0500-1250       |
| Enviro-Shield anti-corrosion protection         | 262  | Coating by conversion process which modifies the surface of the aluminum producing a coating that is integral to the coil. Complete immersion in a bath to ensure 100% coverage. No heat transfer variation, tested 4000 hours salt spray per ASTM B117  | Improved corrosion resistance, recommended for use in moderately corrosive environments   | 0350-1300       | 0350-0800       | 0500-1250       |
| Super Enviro-Shield anti-corrosion protection   | 263  | Extremely durable and flexible epoxy polymer coating applied on micro channel heat exchangers by electro coating process, final UV protective topcoat. Minimal heat transfer variation, tested 6000 hours constant neutral salt spray per ASTM B117, superior impact resistance per ASTM D2794 | Improved corrosion resistance, recommended for use in extremely corrosive environments  | 0350-1300       | 0350-0800       | 0500-1250       |
| Welded evaporator connection (kit)              | 266  | Victaulic piping connections with welded joints  | Easy installation   | 0350-1300       | 0350-0800       | 0500-1250       |
| Welded heat recovery condenser connection (kit) | 267  | Victaulic piping connection with welded joints   | Easy installation   | 0350-1300       | 0350-0800       | 0500-1250       |
| Evaporator with aluminum jacket                 | 281  | Evaporator covered with an aluminum sheet for thermal insulation protection  | Improved resistance to aggressive climate conditions  | 0350-1300       | 0350-0800       | 0500-1250       |
| EMC class. C2, as per EN 61800-3                | 282  | Additional RFI filters on the unit power line  | Reduces electromagnetic interferences for compliance with emission level category C2 in order to allow the units to operate in the first environment (so called, residential environment) | 0350-1300       | 0350-0800       | 0500-1250       |

## OPTIONS

| Option                             | No.  | Description  | Advantage  | Use<br>30KAV-ZE | Use<br>30KAVPZE | Use<br>30KAVIZE |
|------------------------------------|------|--|--|-----------------|-----------------|-----------------|
| 230V electrical plug               | 284  | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8 Amps)   | Permits connection of a laptop or an electrical device during unit commissioning or servicing  | 0350-1300       | 0350-0800       | 0500-1250       |
| Expansion tank                     | 293  | 6 bar expansion tank integrated in the hydraulic module (requires hydraulic module option)   | Easy and fast installation (plug & play), & Protection of closed water systems from excessive pressure   | 0350-0600       | 0350-0600       | NO              |
| Electric energy meter              | 294  | Electricity meter . Display of energy consumption, instantaneous (U, V, I) and cumulated (kWh) on the unit user interface datas available on communication bus   | Permits the acquisition, (remote) monitoring of energy used.   | 0350-1300       | 0350-0800       | 0500-1250       |
| Fast Capacity Recovery             | 295  | New software algorithms to allow quick restart and fast loading while preserving unit-reliability  | Full capacity recovery in less than 5 minutes after power failure. Matches requirements of typical critical missions applications  | 0350-1300       | 0350-0800       | 0500-1250       |
| Ultra Fast Capacity Recovery       | 295+ | Electrical battery to enable quick restart and fast loading preserving unit reliability  | Full capacity recovery in less than 1 minute after power failure. Matches requirements of typical critical missions applications.  | 0350-1300       | 0350-0800       | 0500-1250       |
| Mexico screw compressor            | 297  | Screw compressor made in Mexico  |  | 0350-1300       | NO              | 0500-1250       |
| Variable Water Flow control        | 299  | Hydraulic control function package that permits control of the water flow rate based on different possible logics (at customer choice): constant delta T, constant outlet pressure and "fixed-speed" control | When variable-speed pumps on the primary circuit, the VWF control modulates flow rate through the evaporator, minimising pump consumption while ensuring safe/ optimised chiller operation | 0350-1300       | 0350-0800       | 0500-1250       |
| Free-cooling dry-cooler control    | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box   | Easy system managment, Extended control capabilities to a drycooler used in Free Cooling mode  | 0350-1300       | 0350-0800       | 0500-1250       |
| Compliance with UAE regulation     | 318  | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590  | Compliance with ESMA standard UAE.S 5010-5:2019.   | 0350-1300       | 0350-0800       | 0500-1250       |
| Compliance with Qatar regulation   | 319  | Specific nameplate on the unit with power supply 415 V+/-6%  | Compliance with KAHRAMAA regulation in Qatar.  | 0350-1300       | 0350-0800       | 0500-1250       |
| Hydraulic connection kit           | 325  | Water piping on condenser and evaporator side  | Easy installation  | 0350-1300       | 0350-0800       | 0800-1250       |
| Compliance with Morocco regulation | 327  | Specifics documents according Morocco regulation   | Conformance with Morocco regulations   | 0350-1300       | 0350-0800       | 0500-1250       |
| Compressor with permanent magnet   | 329  | Screw compressor equipped with permanent magnet motor  | Permanent magnet motor improves significantly compressor efficiency  | 0350-0800       | NO              | 0500-0800       |
| Plastic Tarp                       | 331  | Plastic tarp covering units with strapping and campled on the wooden pallet  | Allow unit to avoid dust and dirt from the outside environment during stocking and shipping  | 0350-1300       | 0350-0800       | 0500-1250       |

## PHYSICAL DATA

## Standard units - Units 350 - 800 kW

| 30KAV-ZE   |     |   |         | 350  | 400  | 450  | 500  | 550  | 600  | 650  | 750  | 800  |
|--|-----|---|---------|------|------|------|------|------|------|------|------|------|
| Cooling  |     |   |         |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load<br>performances*                          | CA1 | Nominal capacity                          | kW      | 372  | 404  | 458  | 483  | 533  | 606  | 673  | 751  | 823  |
|  |     | EER                                       | kW/kW   | 3,08 | 3,01 | 3,13 | 3,08 | 3,13 | 3,15 | 3,18 | 3,17 | 3,20 |
| Standard unit<br>Seasonal energy<br>efficiency **                    |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | 4,99 | 4,99 | 5,20 | 5,19 | 5,30 | 5,20 | 5,19 | 5,16 | 5,30 |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | 197  | 197  | 205  | 205  | 209  | 205  | 205  | 204  | 209  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | 5,40 | 5,68 | 6,45 | 6,52 | 6,46 | 6,43 | 6,40 | 6,32 | 6,49 |
| Unit + option 17<br>Seasonal energy<br>efficiency **                 |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | 5,05 | 5,05 | 5,27 | 5,28 | 5,38 | 5,27 | 5,28 | 5,24 | 5,39 |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | 199  | 199  | 208  | 208  | 212  | 208  | 208  | 207  | 213  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | 5,43 | 5,72 | 6,54 | 6,64 | 6,57 | 6,53 | 6,51 | 6,41 | 6,60 |
| Unit + option 329<br>Seasonal energy<br>efficiency **                |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | 5,15 | 5,15 | 5,37 | 5,36 | 5,47 | 5,36 | 5,36 | 5,32 | 5,47 |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | 203  | 203  | 212  | 211  | 216  | 211  | 211  | 210  | 216  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | 5,71 | 5,97 | 6,79 | 6,84 | 6,83 | 6,69 | 6,67 | 6,57 | 6,76 |
| Unit + option 17<br>+ option 329<br>Seasonal energy<br>efficiency ** |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | 5,21 | 5,21 | 5,44 | 5,44 | 5,55 | 5,44 | 5,44 | 5,40 | 5,56 |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | 205  | 205  | 215  | 215  | 219  | 215  | 215  | 213  | 219  |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | 5,75 | 6,01 | 6,88 | 6,96 | 6,96 | 6,79 | 6,79 | 6,66 | 6,87 |
| Sound levels   |     |   |         |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>   |     |   | dB(A)   | 95   | 95   | 96   | 98   | 99   | 98   | 99   | 98   | 100  |
| Sound pressure at 10 m <sup>(2)</sup>                                |     |   | dB(A)   | 63   | 63   | 64   | 65   | 66   | 65   | 67   | 65   | 67   |
| Pression acoustique à 1 m  |     |   | dB(A)   | 75   | 75   | 76   | 78   | 78   | 77   | 78   | 77   | 78   |
| Unit + option 15 <sup>(3)</sup>                                      |     |   |         |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>   |     |   | dB(A)   | 94   | 94   | 94   | 96   | 97   | 96   | 97   | 97   | 98   |
| Sound pressure at 10 m <sup>(2)</sup>                                |     |   | dB(A)   | 62   | 62   | 61   | 64   | 64   | 63   | 65   | 64   | 65   |
| Pression acoustique à 1 m  |     |   | dB(A)   | 74   | 74   | 74   | 76   | 76   | 75   | 76   | 76   | 76   |
| Unit + option 15LS <sup>(3)</sup>                                    |     |   |         |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>   |     |   | dB(A)   | 90   | 90   | 90   | 92   | 94   | 92   | 94   | 93   | 94   |
| Sound pressure at 10 m <sup>(2)</sup>                                |     |   | dB(A)   | 57   | 58   | 58   | 59   | 61   | 60   | 62   | 60   | 61   |
| Pression acoustique à 1 m  |     |   | dB(A)   | 70   | 70   | 70   | 72   | 73   | 71   | 73   | 72   | 72   |
| Dimensions   |     |   |         |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |
| Length   |     |   | mm      | 4387 | 4387 | 5578 | 5578 | 6772 | 6772 | 7962 | 7962 | 9155 |
| Width  |     |   | mm      | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 |
| Height   |     |   | mm      | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit length + options  |     |   |         |      |      |      |      |      |      |      |      |      |
| Options 49/50 <sup>(3) (6)</sup>                                     |     |   | mm      | 5578 | 5578 | 6772 | 6772 | 6772 | 6772 | 7962 | 7962 | 9155 |
| Options 116A/116W <sup>(3) (6)</sup>                                 |     |   | mm      | 5578 | 5578 | 5578 | 5578 | 6772 | 6772 | -    | -    | -    |
| Operating weight <sup>(4)</sup>                                      |     |   |         |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   | kg      | 4777 | 4790 | 5166 | 5192 | 5667 | 6089 | 6558 | 7011 | 7430 |
| Unit + option 49 <sup>(3) (6)</sup>                                  |     |   | kg      | 5177 | 5190 | 5592 | 5605 | 5843 | 6304 | 6741 | 7222 | 7657 |
| Unit + option 50 <sup>(3)</sup>                                      |     |   | kg      | 5230 | 5243 | 5718 | 5731 | 5969 | 6489 | 6927 | 7451 | 7860 |
| Unit + options 116A/116W <sup>(3) (6)</sup>                          |     |   | kg      | 5291 | 5405 | 5592 | 5618 | 6223 | 6644 | -    | -    | -    |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2018, average climate
- CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W
- ηs cool** <sup>12/7°C</sup> & **SEER** <sup>12/7°C</sup> **SEPR** <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**  
**Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**  
 (1) In dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.  
 (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).  
 (3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. ; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine  
 (4) Values are guidelines only. Refer to the unit name plate.  
 (5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.  
 (6) Options 49, 116A, 116W are not available on units 900 to 1300.



Eurovent certified values

## PHYSICAL DATA

### Standard units - Units 350 - 800 kW

| 30KAV-ZE   |                    | 350  | 400   | 450   | 500   | 550   | 600   | 650   | 750   | 800   |
|--|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>   |                    | Inverter driven 06Z twin screw compressor with AC motor  |       |       |       |       |       |       |       |       |
| Circuit A  | Quantity           | 1  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  | Quantity           | 1  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Unit minimum capacity <sup>(5)</sup>                                     | %                  | 13   | 13    | 13    | 13    | 13    | 13    | 13    | 12    | 12    |
| <b>Refrigerant<sup>(4)</sup></b>   |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)   |       |       |       |       |       |       |       |       |
| Circuit A  | kg                 | 49   | 50    | 57    | 60    | 67    | 83    | 93    | 87    | 94    |
|  | teqCO <sub>2</sub> | 0,30   | 0,30  | 0,34  | 0,36  | 0,40  | 0,50  | 0,56  | 0,52  | 0,56  |
| Circuit B  | kg                 | 50   | 51    | 58    | 61    | 68    | 62    | 73    | 88    | 95    |
|  | teqCO <sub>2</sub> | 0,30   | 0,31  | 0,35  | 0,36  | 0,41  | 0,37  | 0,44  | 0,53  | 0,57  |
| <b>Refrigerant<sup>(4)</sup> - Option 5<sup>(3)</sup> (Medium Brine)</b> |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)   |       |       |       |       |       |       |       |       |
| Circuit A  | kg                 | 58   | 60    | 68    | 71    | 82    | 101   | 109   | 105   | 115   |
|  | teqCO <sub>2</sub> | 0,35   | 0,36  | 0,41  | 0,43  | 0,49  | 0,61  | 0,65  | 0,63  | 0,69  |
| Circuit B  | kg                 | 59   | 61    | 69    | 72    | 83    | 77    | 86    | 106   | 116   |
|  | teqCO <sub>2</sub> | 0,35   | 0,37  | 0,41  | 0,43  | 0,50  | 0,46  | 0,52  | 0,64  | 0,70  |
| <b>Refrigerant<sup>(4)</sup> - Option 6<sup>(3)</sup> (Low Brine)</b>    |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)   |       |       |       |       |       |       |       |       |
| Circuit A  | kg                 | 52   | 53    | 60    | 63    | 71    | 87    | 98    | 92    | 99    |
|  | teqCO <sub>2</sub> | 0,31   | 0,32  | 0,36  | 0,38  | 0,42  | 0,52  | 0,59  | 0,55  | 0,59  |
| Circuit B  | kg                 | 53   | 54    | 61    | 64    | 72    | 65    | 77    | 93    | 100   |
|  | teqCO <sub>2</sub> | 0,32   | 0,32  | 0,37  | 0,38  | 0,43  | 0,39  | 0,46  | 0,56  | 0,60  |
| <b>Oil</b>   |                    | Oil for R1234ze. Contact Carrier ERCD for supplying.   |       |       |       |       |       |       |       |       |
| Circuit A  | l                  | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    |
| Circuit B  | l                  | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    |
| <b>Unit control</b>  |                    | SmartVu™ with 7 inch coloured touch screen interface   |       |       |       |       |       |       |       |       |
| Languages  |                    | 10 languages (DE, EN, ES, FR, IT, NL, PT, TR, TU + one on customer choice)   |       |       |       |       |       |       |       |       |
| Smart energy metering  |                    | Standard feature   |       |       |       |       |       |       |       |       |
| Wireless connectivity  |                    | Option   |       |       |       |       |       |       |       |       |
| <b>Expansion valve</b>   |                    | Electronic expansion valve   |       |       |       |       |       |       |       |       |
| <b>Air heat exchanger</b>  |                    | Novation™ Micro Channel Heat Exchanger   |       |       |       |       |       |       |       |       |
| <b>Fans</b>  |                    | Novation™ Micro Channel Heat Exchanger   |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>   |                    | Inverter driven Flying Bird™ VI fans with AC motor   |       |       |       |       |       |       |       |       |
| <b>Unit + option 17</b>  |                    | Inverter driven Flying Bird™ VI fans with EC motor   |       |       |       |       |       |       |       |       |
| Quantity   |                    | 6  | 6     | 8     | 8     | 10    | 10    | 12    | 12    | 14    |
| Maximum total air flow   | l/s                | 35580  | 35580 | 47440 | 47440 | 59300 | 59300 | 71160 | 71160 | 83020 |
| Maximum rotation speed   | r/s                | 16,0   | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  |
| Maximum total air flow + option 15LS <sup>(3)</sup>                      | l/s                | 28920  | 26100 | 41600 | 43200 | 56000 | 50000 | 67200 | 57840 | 72800 |
| Maximum rotation speed + option 15LS <sup>(3)</sup>                      | r/s                | 13,2   | 12,0  | 14,2  | 14,7  | 15,2  | 13,7  | 15,2  | 13,2  | 14,2  |
| <b>Water heat exchanger</b>  |                    | Flooded shell and tube heat exchanger  |       |       |       |       |       |       |       |       |
| Water volume   | l                  | 83   | 88    | 96    | 100   | 115   | 126   | 144   | 165   | 183   |
| Max. water-side operating pressure without hydraulic module              | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>   |                    | Double pump, screen filter, relief valve, water drain valve, pressure sensors, expansion tank (option), heaters (option) |       |       |       |       |       |       |       |       |
| <b>Pump</b>  |                    | Inverter driven dual pumps with AC motor   |       |       |       |       |       |       |       |       |
| Expansion vessel volume  | l                  | 80   | 80    | 80    | 80    | 80    | 80    | -     | -     | -     |
| Max. water-side operating pressure                                       | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | -     | -     | -     |
| <b>Water connections</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |
| <b>Without options 116A/116W<sup>(3)</sup> (6)</b>                       |                    |  |       |       |       |       |       |       |       |       |
| Connections  | inch               | 5  | 5     | 6     | 6     | 6     | 6     | 8     | 8     | 8     |
| Outside tube diameter  | mm                 | 141,3  | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 219,1 | 219,1 | 219,1 |
| <b>With options 116A/116W<sup>(3)</sup> (6)</b>                          |                    |  |       |       |       |       |       |       |       |       |
| Connections  | inch               | 5  | 5     | 5     | 5     | 5     | 5     | -     | -     | -     |
| Outside tube diameter  | mm                 | 141,3  | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | -     | -     | -     |
| <b>Casing paint</b>  |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. ; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine

(4) Values are guidelines only. Refer to the unit name plate.

(5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.

(6) Options 49, 116A, 116W are not available on units 900 to 1300.

## PHYSICAL DATA

### Standard units - Units 900 - 1300 kW

| 30KAV-ZE   |     |   |         | 900   | 1000  | 1100  | 1200  | 1300  |
|--|-----|---|---------|-------|-------|-------|-------|-------|
| Cooling  |     |   |         |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*                          | CA1 | Nominal capacity                          | kW      | 941   | 1036  | 1146  | 1257  | 1354  |
|  |     | EER                                       | kW/kW   | 3,15  | 3,22  | 3,31  | 3,27  | 3,01  |
| Standard unit<br>Seasonal energy<br>efficiency **                    |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | 5,34  | 5,43  | 5,49  | 5,51  | 5,41  |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | 211   | 214   | 216   | 217   | 213   |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | 6,23  | 6,29  | 6,40  | 6,30  | 6,14  |
| Unit + option 17<br>Seasonal energy<br>efficiency **                 |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | 5,48  | 5,58  | 5,63  | 5,65  | 5,54  |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | 216   | 220   | 222   | 223   | 219   |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | 6,38  | 6,45  | 6,55  | 6,44  | 6,28  |
| Unit + option 329<br>Seasonal energy<br>efficiency **                |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | -     | -     | -     | -     | -     |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | -     | -     | -     | -     | -     |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | -     | -     | -     | -     | -     |
| Unit + option 17<br>+ option 329<br>Seasonal energy<br>efficiency ** |     | SEER <sup>12/7°C</sup> Comfort low temp.  | kWh/kWh | -     | -     | -     | -     | -     |
|  |     | ηs cool <sup>12/7°C</sup>                 | %       | -     | -     | -     | -     | -     |
|  |     | SEPR <sup>12/7°C</sup> Process high temp. | kWh/kWh | -     | -     | -     | -     | -     |
| Sound levels   |     |   |         |       |       |       |       |       |
| Standard unit  |     |   |         |       |       |       |       |       |
| Sound power <sup>(1)</sup>   |     |   | dB(A)   | 100   | 102   | 100   | 103   | 104   |
| Sound pressure at 10 m <sup>(2)</sup>                                |     |   | dB(A)   | 67    | 69    | 67    | 69    | 71    |
| Pression acoustique à 1 m  |     |   | dB(A)   | 78    | 80    | 78    | 80    | 81    |
| Unit + option 15 <sup>(3)</sup>                                      |     |   |         |       |       |       |       |       |
| Sound power <sup>(1)</sup>   |     |   | dB(A)   | 98    | 100   | 98    | 100   | 99    |
| Sound pressure at 10 m <sup>(2)</sup>                                |     |   | dB(A)   | 65    | 67    | 65    | 67    | 66    |
| Pression acoustique à 1 m  |     |   | dB(A)   | 76    | 78    | 75    | 77    | 76    |
| Unit + option 15LS <sup>(3)</sup>                                    |     |   |         |       |       |       |       |       |
| Sound power <sup>(1)</sup>   |     |   | dB(A)   | 96    | 96    | 97    | 98    | 98    |
| Sound pressure at 10 m <sup>(2)</sup>                                |     |   | dB(A)   | 63    | 74    | 64    | 65    | 65    |
| Pression acoustique à 1 m  |     |   | dB(A)   | 74    | 74    | 75    | 75    | 75    |
| Dimensions   |     |   |         |       |       |       |       |       |
| Standard unit  |     |   |         |       |       |       |       |       |
| Length   |     |   | mm      | 9157  | 10347 | 11541 | 12731 | 12731 |
| Width  |     |   | mm      | 2261  | 2261  | 2261  | 2261  | 2261  |
| Height   |     |   | mm      | 2324  | 2324  | 2324  | 2324  | 2324  |
| Unit length + options  |     |   |         |       |       |       |       |       |
| Options 49/50 <sup>(3) (6)</sup>                                     |     |   | mm      | 10347 | 10347 | 11541 | 12731 | 12731 |
| Options 116A/116W <sup>(3) (6)</sup>                                 |     |   | mm      | -     | -     | -     | -     | -     |
| Operating weight <sup>(4)</sup>                                      |     |   |         |       |       |       |       |       |
| Standard unit  |     |   | kg      | 8760  | 9241  | 9880  | 10267 | 10318 |
| Unit + option 49 <sup>(3) (6)</sup>                                  |     |   | kg      | -     | -     | -     | -     | -     |
| Unit + option 50 <sup>(3)</sup>                                      |     |   | kg      | 9603  | 9902  | 10534 | 10961 | 11040 |
| Unit + options 116A/116W <sup>(3) (6)</sup>                          |     |   | kg      | -     | -     | -     | -     | -     |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2018, average climate
- CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W
- ηs cool <sup>12/7°C</sup> & SEER <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**  
**Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**
- (1) In dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
- (3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. ; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine
- (4) Values are guidelines only. Refer to the unit name plate.
- (5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.
- (6) Options 49, 116A, 116W are not available on units 900 to 1300.



Eurovent certified values



## PHYSICAL DATA

### Standard units - Units 900 - 1300 kW

| 30KAV-ZE   |                    | 900  | 1000  | 1100   | 1200   | 1300   |
|--|--------------------|--|-------|--------|--------|--------|
| <b>Compressors</b>   |                    | Inverter driven 06Z twin screw compressor with AC motor                    |       |        |        |        |
| Circuit A  | Quantity           | 1  | 1     | 1      | 1      | 1      |
| Circuit B  | Quantity           | 1  | 1     | 1      | 1      | 1      |
| Unit minimum capacity <sup>(5)</sup>                                     | %                  | 15   | 14    | 13     | 12     | 10     |
| <b>Refrigerant<sup>(4)</sup></b>   |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)                                   |       |        |        |        |
| Circuit A  | kg                 | 108  | 119   | 128    | 135    | 139    |
|  | teqCO <sub>2</sub> | 0,65   | 0,71  | 0,77   | 0,81   | 0,83   |
| Circuit B  | kg                 | 107  | 118   | 126    | 133    | 137    |
|  | teqCO <sub>2</sub> | 0,64   | 0,71  | 0,76   | 0,80   | 0,82   |
| <b>Refrigerant<sup>(4)</sup> - Option 5<sup>(3)</sup> (Medium Brine)</b> |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)                                   |       |        |        |        |
| Circuit A  | kg                 | 124  | 137   | 147    | 155    | 160    |
|  | teqCO <sub>2</sub> | 0,74   | 0,82  | 0,88   | 0,93   | 0,96   |
| Circuit B  | kg                 | 123  | 136   | 145    | 153    | 158    |
|  | teqCO <sub>2</sub> | 0,74   | 0,82  | 0,87   | 0,92   | 0,95   |
| <b>Refrigerant<sup>(4)</sup> - Option 6<sup>(3)</sup> (Low Brine)</b>    |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)                                   |       |        |        |        |
| Circuit A  | kg                 | 113  | 125   | 134    | 142    | 146    |
|  | teqCO <sub>2</sub> | 0,68   | 0,75  | 0,80   | 0,85   | 0,88   |
| Circuit B  | kg                 | 112  | 124   | 132    | 140    | 144    |
|  | teqCO <sub>2</sub> | 0,67   | 0,74  | 0,79   | 0,84   | 0,86   |
| <b>Oil</b>   |                    | Oil for R1234ze. Contact Carrier ERCD for supplying.                       |       |        |        |        |
| Circuit A  | l                  | 30   | 30    | 30     | 30     | 30     |
| Circuit B  | l                  | 30   | 30    | 30     | 30     | 30     |
| <b>Unit control</b>  |                    | SmartVu™ with 7 inch coloured touch screen interface                       |       |        |        |        |
| Languages  |                    | 10 languages (DE, EN, ES, FR, IT, NL, PT, TR, TU + one on customer choice) |       |        |        |        |
| Smart energy metering  |                    | Standard feature   |       |        |        |        |
| Wireless connectivity  |                    | Option   |       |        |        |        |
| <b>Expansion valve</b>   |                    | Electronic expansion valve   |       |        |        |        |
| <b>Air heat exchanger</b>  |                    | Novation™ Micro Channel Heat Exchanger                                     |       |        |        |        |
| <b>Fans</b>  |                    | Novation™ Micro Channel Heat Exchanger                                     |       |        |        |        |
| <b>Standard unit</b>   |                    | Inverter driven Flying Bird™ VI fans with AC motor                         |       |        |        |        |
| <b>Unit + option 17</b>  |                    | Inverter driven Flying Bird™ VI fans with EC motor                         |       |        |        |        |
| Quantity   |                    | 14   | 16    | 18     | 20     | 20     |
| Maximum total air flow   | l/s                | 83020  | 94880 | 106740 | 118600 | 118600 |
| Maximum rotation speed   | r/s                | 16,0   | 16,0  | 16,0   | 16,0   | 16,0   |
| Maximum total air flow + option 15LS <sup>(3)</sup>                      | l/s                | 74200  | 84800 | 95400  | 106000 | 106000 |
| Maximum rotation speed + option 15LS <sup>(3)</sup>                      | r/s                | 14,4   | 14,4  | 14,4   | 14,4   | 14,4   |
| <b>Water heat exchanger</b>  |                    | Flooded shell and tube heat exchanger                                      |       |        |        |        |
| Water volume   | l                  | 178  | 224   | 243    | 261    | 270    |
| Max. water-side operating pressure without hydraulic module              | kPa                | 1000   | 1000  | 1000   | 1000   | 1000   |
| <b>Water connections</b>   |                    | Victaulic® type  |       |        |        |        |
| <b>Without options 116A/116W<sup>(3)</sup> (6)</b>                       |                    |  |       |        |        |        |
| Connections  | inch               | 8  | 8     | 8      | 8      | 8      |
| Outside tube diameter  | mm                 | 219,1  | 219,1 | 219,1  | 219,1  | 219,1  |
| <b>Casing paint</b>  |                    | Colour code RAL 7035   |       |        |        |        |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. ; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine

(4) Values are guidelines only. Refer to the unit name plate.

(5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.

(6) Options 49, 116A, 116W are not available on units 900 to 1300.

## PHYSICAL DATA

### 30KAV-ZE option 119 and 30KAVPZE

| 30KAV-ZE option 119 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 | 900 | 1000 | 1100 |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|

#### Cooling

|  |     |  |                |             |             |             |             |             |             |             |             |             |             |             |             |
|--|-----|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Unit + option 119 + 17</b><br>Full load performances*       | CA1 | Nominal capacity                             | kW             | 380         | 421         | 467         | 491         | 541         | 625         | 684         | 773         | 836         | 956         | 1051        | 1155        |
|  |     | EER  | kW/kW          | 3,53        | 3,53        | 3,40        | 3,32        | 3,33        | 3,45        | 3,36        | 3,43        | 3,39        | 3,42        | 3,46        | 3,46        |
| <b>Unit + option 119</b><br>Seasonal energy efficiency **      |     | <b>SEER</b> <sup>12/7°C</sup> <b>Comfort</b> | <b>kWh/kWh</b> | <b>5,39</b> | <b>5,33</b> | <b>5,47</b> | <b>5,43</b> | <b>5,48</b> | <b>5,45</b> | <b>5,35</b> | <b>5,36</b> | <b>5,36</b> | <b>5,59</b> | <b>5,66</b> | <b>5,60</b> |
|  |     | <b>ηs cool</b> <sup>12/7°C</sup>             | <b>%</b>       | <b>213</b>  | <b>210</b>  | <b>216</b>  | <b>214</b>  | <b>216</b>  | <b>215</b>  | <b>211</b>  | <b>211</b>  | <b>211</b>  | <b>221</b>  | <b>224</b>  | <b>221</b>  |
|  |     | <b>SEPR</b> <sup>12/7°C</sup> <b>Process</b> | <b>kWh/kWh</b> | <b>6,01</b> | <b>6,79</b> | <b>6,69</b> | <b>6,84</b> | <b>6,55</b> | <b>6,75</b> | <b>6,56</b> | <b>6,55</b> | <b>6,57</b> | <b>6,56</b> | <b>6,59</b> | <b>6,51</b> |
| <b>Unit + option 119 + 17</b><br>Seasonal energy efficiency ** |     | <b>SEER</b> <sup>12/7°C</sup> <b>Comfort</b> | <b>kWh/kWh</b> | <b>5,44</b> | <b>5,44</b> | <b>5,53</b> | <b>5,51</b> | <b>5,55</b> | <b>5,51</b> | <b>5,43</b> | <b>5,43</b> | <b>5,45</b> | <b>5,74</b> | <b>5,82</b> | <b>5,75</b> |
|  |     | <b>ηs cool</b> <sup>12/7°C</sup>             | <b>%</b>       | <b>215</b>  | <b>215</b>  | <b>218</b>  | <b>217</b>  | <b>219</b>  | <b>217</b>  | <b>214</b>  | <b>214</b>  | <b>215</b>  | <b>227</b>  | <b>230</b>  | <b>227</b>  |
|  |     | <b>SEPR</b> <sup>12/7°C</sup> <b>Process</b> | <b>kWh/kWh</b> | <b>6,03</b> | <b>6,88</b> | <b>6,76</b> | <b>6,95</b> | <b>6,65</b> | <b>6,82</b> | <b>6,67</b> | <b>6,63</b> | <b>6,68</b> | <b>6,73</b> | <b>6,75</b> | <b>6,66</b> |

| 30KAVPZE | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|

|   |     |  |                |             |             |             |             |             |             |             |             |             |
|---|-----|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Standard unit</b><br>Full load performances*       | CA1 | Nominal capacity                             | kW             | 380         | 421         | 467         | 491         | 541         | 625         | 684         | 773         | 836         |
|   |     | EER  | kW/kW          | 3,57        | 3,56        | 3,43        | 3,36        | 3,36        | 3,48        | 3,40        | 3,47        | 3,42        |
| <b>Standard unit</b><br>Seasonal energy efficiency ** |     | <b>SEER</b> <sup>12/7°C</sup> <b>Comfort</b> | <b>kWh/kWh</b> | <b>5,59</b> | <b>5,60</b> | <b>5,69</b> | <b>5,68</b> | <b>5,71</b> | <b>5,67</b> | <b>5,59</b> | <b>5,59</b> | <b>5,61</b> |
|   |     | <b>ηs cool</b> <sup>12/7°C</sup>             | <b>%</b>       | <b>221</b>  | <b>221</b>  | <b>225</b>  | <b>224</b>  | <b>225</b>  | <b>224</b>  | <b>221</b>  | <b>221</b>  | <b>221</b>  |
|   |     | <b>SEPR</b> <sup>12/7°C</sup> <b>Process</b> | <b>kWh/kWh</b> | <b>6,38</b> | <b>7,10</b> | <b>7,05</b> | <b>7,18</b> | <b>6,89</b> | <b>7,01</b> | <b>6,84</b> | <b>6,83</b> | <b>6,85</b> |

| 30KAV-ZE option 119 & 30KAVPZE (7) (8) | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 | 900 | 1000 | 1100 |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|

#### Sound levels

|   |       |    |    |    |    |    |    |     |    |     |     |     |     |
|---|-------|----|----|----|----|----|----|-----|----|-----|-----|-----|-----|
| <b>Unit</b>                             |       |    |    |    |    |    |    |     |    |     |     |     |     |
| Sound power <sup>(1)</sup>              | dB(A) | 96 | 96 | 97 | 98 | 99 | 98 | 100 | 98 | 100 | 100 | 102 | 100 |
| Sound pressure at 10 m <sup>(2)</sup>   | dB(A) | 63 | 63 | 64 | 66 | 66 | 65 | 67  | 65 | 67  | 67  | 69  | 67  |
| Pression acoustique à 1 m               | dB(A) | 76 | 76 | 76 | 78 | 78 | 77 | 78  | 77 | 78  | 78  | 79  | 77  |
| <b>Unit + option 15<sup>(3)</sup></b>   |       |    |    |    |    |    |    |     |    |     |     |     |     |
| Sound power <sup>(1)</sup>              | dB(A) | 95 | 95 | 94 | 96 | 97 | 96 | 98  | 98 | 98  | 98  | 100 | 98  |
| Sound pressure at 10 m <sup>(2)</sup>   | dB(A) | 62 | 62 | 62 | 64 | 64 | 64 | 65  | 65 | 65  | 65  | 67  | 65  |
| Pression acoustique à 1 m               | dB(A) | 75 | 75 | 74 | 76 | 76 | 76 | 76  | 76 | 76  | 76  | 77  | 75  |
| <b>Unit + option 15LS<sup>(3)</sup></b> |       |    |    |    |    |    |    |     |    |     |     |     |     |
| Sound power <sup>(1)</sup>              | dB(A) | 90 | 91 | 91 | 92 | 94 | 92 | 94  | 93 | 94  | 96  | 97  | 97  |
| Sound pressure at 10 m <sup>(2)</sup>   | dB(A) | 57 | 58 | 58 | 59 | 61 | 60 | 61  | 60 | 61  | 63  | 63  | 64  |
| Pression acoustique à 1 m               | dB(A) | 70 | 70 | 70 | 72 | 73 | 71 | 72  | 71 | 72  | 74  | 74  | 74  |

#### Dimensions

|                                      |    |      |      |      |      |      |      |      |       |       |       |       |       |
|--------------------------------------|----|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Unit                                 |    |      |      |      |      |      |      |      |       |       |       |       |       |
| Length                               | mm | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 | 9120 | 10346 | 10346 | 11541 | 12731 | 12731 |
| Width                                | mm | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261 | 2261  | 2261  | 2261  | 2261  | 2261  |
| Height                               | mm | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324  | 2324  | 2324  | 2324  | 2324  |
| Unit length + options                |    |      |      |      |      |      |      |      |       |       |       |       |       |
| Options 49/50 <sup>(3) (6)</sup>     | mm | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 | 9120 | 10346 | 10346 | 11541 | 12731 | 12731 |
| Options 116A/116W <sup>(3) (6)</sup> | mm | 6772 | 6772 | 6772 | 6772 | 7962 | 9155 | -    | -     | -     | -     | -     | -     |

- \* In accordance with standard EN14511-3:2018.  
 \*\* In accordance with standard EN14825:2018, average climate  
 \*\*\* With EG 30%  
 CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W  
 ηs cool <sup>12/7°C</sup> & SEER <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**  
 SEPR <sup>12/7°C</sup> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**  
 (1) In dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.  
 (2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).  
 (3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. ; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine  
 (6) Options 49, 116A, 116W are not available on units 900 to 1300.  
 (7) Option 119 is not available with 30KAV-ZE 1200 and 1300.  
 (8) 30KAVPZE premium version is not available with units 900, 1000, 1100, 1200, 1300.



Eurovent certified values

## PHYSICAL DATA

## 30KAV-ZE option 119 and 30KAVPZE

| 30KAV-ZE option 119 & 30KAVPZE <sup>(7) (8)</sup>                        |                    | 350  | 400   | 450   | 500   | 550   | 600   | 650   | 750   | 800   | 900    | 1000   | 1100   |
|--|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| <b>Operating weight<sup>(4)</sup></b>                                    |                    |  |       |       |       |       |       |       |       |       |        |        |        |
| Unit   | kg                 | 5490   | 5503  | 5523  | 5530  | 5972  | 6780  | 6906  | 7679  | 7726  | 9473   | 9942   | 10193  |
| Unit + option 49 <sup>(3) (6)</sup>                                      | kg                 | 5704   | 5717  | 5737  | 5744  | 6183  | 7013  | 7139  | 7928  | 7975  | -      | -      | -      |
| Unit + option 50 <sup>(3)</sup>  | kg                 | 5779   | 5792  | 5925  | 5932  | 6371  | 7257  | 7383  | 8231  | 8278  | 10127  | 10591  | 10842  |
| options 116A/116W <sup>(3) (6)</sup>                                     | kg                 | 5941   | 6055  | 6043  | 6069  | 6029  | 7470  | -     | -     | -     | -      | -      | -      |
| <b>Compressors</b>   |                    | Inverter driven 06Z twin screw compressor. 30KAV-ZE : AC motor. 30KAVPZE : permanent magnet motor.                       |       |       |       |       |       |       |       |       |        |        |        |
| Circuit A  | Quantity           | 1  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1      | 1      | 1      |
| Circuit B  | Quantity           | 1  | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1      | 1      | 1      |
| Unit minimum capacity <sup>(5)</sup>                                     | %                  | 13   | 13    | 13    | 13    | 13    | 13    | 13    | 12    | 12    | 15     | 14     | 13     |
| <b>Refrigerant<sup>(4)</sup></b>   |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)   |       |       |       |       |       |       |       |       |        |        |        |
| Circuit A  | kg                 | 67   | 67    | 68    | 66    | 74    | 96    | 100   | 100   | 101   | 122    | 133    | 135    |
|  | teqCO <sub>2</sub> | 0,40   | 0,40  | 0,41  | 0,40  | 0,44  | 0,58  | 0,60  | 0,60  | 0,60  | 0,73   | 0,80   | 0,81   |
| Circuit B  | kg                 | 68   | 68    | 68    | 67    | 75    | 75    | 80    | 101   | 102   | 121    | 132    | 133    |
|  | teqCO <sub>2</sub> | 0,41   | 0,41  | 0,41  | 0,40  | 0,45  | 0,45  | 0,48  | 0,60  | 0,61  | 0,73   | 0,79   | 0,80   |
| <b>Refrigerant<sup>(4)</sup> - Option 5<sup>(3)</sup> (Medium Brine)</b> |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)   |       |       |       |       |       |       |       |       |        |        |        |
| Circuit A  | kg                 | 76   | 77    | 79    | 77    | 87    | 114   | 116   | 118   | 122   | 138    | 151    | 154    |
|  | teqCO <sub>2</sub> | 0  | 0     | 0     | 0     | 1     | 1     | 1     | 1     | 1     | 0,83   | 0,91   | 0,92   |
| Circuit B  | kg                 | 77   | 78    | 79    | 78    | 88    | 90    | 93    | 119   | 123   | 137    | 150    | 152    |
|  | teqCO <sub>2</sub> | 0  | 0     | 0     | 0     | 1     | 1     | 1     | 1     | 1     | 0,82   | 0,90   | 0,91   |
| <b>Refrigerant<sup>(4)</sup> - Option 6<sup>(3)</sup> (Low Brine)</b>    |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)   |       |       |       |       |       |       |       |       |        |        |        |
| Circuit A  | kg                 | 70   | 70    | 71    | 69    | 78    | 101   | 105   | 105   | 106   | 127    | 139    | 141    |
|  | teqCO <sub>2</sub> | 0  | 0     | 0     | 0     | 0     | 1     | 1     | 1     | 1     | 0,76   | 0,83   | 0,85   |
| Circuit B  | kg                 | 71   | 71    | 71    | 70    | 79    | 79    | 84    | 106   | 107   | 126    | 138    | 139    |
|  | teqCO <sub>2</sub> | 0  | 0     | 0     | 0     | 0     | 0     | 1     | 1     | 1     | 0,76   | 0,83   | 0,83   |
| <b>Oil</b>   |                    | Oil for R1234ze. Contact Carrier ERCD for supplying.   |       |       |       |       |       |       |       |       |        |        |        |
| Circuit A  | l                  | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    | 30     | 30     | 30     |
| Circuit B  | l                  | 27   | 26    | 25    | 23    | 20    | 23    | 20    | 23    | 20    | 30     | 30     | 30     |
| <b>Unit control</b>  |                    | SmartVu™ with 7 inch colored touch screen interface  |       |       |       |       |       |       |       |       |        |        |        |
| Languages  |                    | 10 languages (DE, EN, ES, FR, IT, NL, PT, TR, TU + one on customer choice)   |       |       |       |       |       |       |       |       |        |        |        |
| Smart energy metering  |                    | Standard feature   |       |       |       |       |       |       |       |       |        |        |        |
| Wireless connectivity  |                    | Option   |       |       |       |       |       |       |       |       |        |        |        |
| <b>Expansion valve</b>   |                    | Electronic expansion valve   |       |       |       |       |       |       |       |       |        |        |        |
| <b>Air heat exchanger</b>  |                    | Novation™ Micro Channel Heat Exchanger   |       |       |       |       |       |       |       |       |        |        |        |
| <b>Fans</b>  |                    |  |       |       |       |       |       |       |       |       |        |        |        |
| <b>30KAV-ZE option 119 <sup>(7)</sup></b>                                |                    | Inverter driven Flying Bird™ VI fans with AC motor   |       |       |       |       |       |       |       |       |        |        |        |
| <b>30KAV-ZE option 119 + option 17</b>                                   |                    | Inverter driven Flying Bird™ VI fans with EC motor   |       |       |       |       |       |       |       |       |        |        |        |
| Quantity   |                    | 10   | 10    | 10    | 10    | 12    | 14    | 14    | 16    | 16    | 18     | 20     | 20     |
| Maximum total air flow   | l/s                | 59300  | 59300 | 59300 | 59300 | 71160 | 83020 | 83020 | 94880 | 94880 | 106740 | 118600 | 118600 |
| Maximum rotation speed   | r/s                | 16,0   | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16,0  | 16     | 16     | 16     |
| Maximum total air flow + option 15LS <sup>(3)</sup>                      | l/s                | 44700  | 43500 | 52000 | 52000 | 64800 | 67480 | 75600 | 74080 | 83200 | 95220  | 105800 | 105800 |
| Maximum rotation speed + option 15LS <sup>(3)</sup>                      | r/s                | 12,3   | 12    | 14,2  | 14,2  | 14,7  | 13,2  | 14,7  | 12,7  | 14,2  | 14,4   | 14,4   | 14,4   |
| <b>Water heat exchanger</b>  |                    | Flooded shell and tube heat exchanger  |       |       |       |       |       |       |       |       |        |        |        |
| Water volume   | l                  | 83   | 88    | 96    | 100   | 115   | 126   | 144   | 165   | 183   | 178    | 224    | 243    |
| Max. water-side operating pressure without hydraulic module              | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000   | 1000   | 1000   |
| <b>Hydraulic module (option)</b>   |                    | Double pump, screen filter, relief valve, water drain valve, pressure sensors, expansion tank (option), heaters (option) |       |       |       |       |       |       |       |       |        |        |        |
| <b>Pump</b>  |                    | Inverter driven dual pumps with AC motor   |       |       |       |       |       |       |       |       |        |        |        |
| Expansion vessel volume  | l                  | 80   | 80    | 80    | 80    | 80    | 80    | -     | -     | -     | -      | -      | -      |
| Max. water-side operating pressure                                       | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | -     | -     | -     | -      | -      | -      |
| <b>Water connections</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |        |        |        |
| <b>Without options 116A/116W<sup>(3) (6)</sup></b>                       |                    |  |       |       |       |       |       |       |       |       |        |        |        |
| Connections  | inch               | 5  | 5     | 6     | 6     | 6     | 6     | 8     | 8     | 8     | 8      | 8      | 8      |
| Outside tube diameter  | mm                 | 141,3  | 141,3 | 168,3 | 168,3 | 168,3 | 168,3 | 219,1 | 219,1 | 219,1 | 219,1  | 219,1  | 219,1  |
| <b>With options 116A/116W<sup>(3) (6)</sup></b>                          |                    |  |       |       |       |       |       |       |       |       |        |        |        |
| Connections  | inch               | 5  | 5     | 5     | 5     | 5     | 5     | -     | -     | -     | -      | -      | -      |
| Outside tube diameter  | mm                 | 141,3  | 141,3 | 141,3 | 141,3 | 141,3 | 141,3 | -     | -     | -     | -      | -      | -      |
| <b>Casing paint</b>  |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |        |        |        |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod. ; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine

(4) Values are guidelines only. Refer to the unit name plate.

(5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle.

(6) Options 49, 116A, 116W are not available on units 900 to 1300.

(7) Option 119 is not available with 30KAV-ZE 1200 and 1300.

(8) 30KAVPZE premium version is not available with units 900, 1000, 1100, 1200, 1300.

## PHYSICAL DATA

### 30KAVIZE

| 30KAVIZE | 500 | 800 | 1100 | 1250 |
|----------|-----|-----|------|------|
|----------|-----|-----|------|------|

#### Cooling

|  |     |   |         |             |             |             |             |
|--|-----|---|---------|-------------|-------------|-------------|-------------|
| <b>Standard unit</b><br>Full load<br>performances*                       | CA1 | Nominal capacity                                    | kW      | 532         | 781         | 1120        | 1307        |
|  |     | EER   | kW/kW   | 2,79        | 2,85        | 3,02        | 2,59        |
|  | *** | Nominal capacity                                    | kW      | 283         | 454         | 682         | 804         |
|  |     | EER   | kW/kW   | 1,83        | 1,82        | 2,05        | 1,90        |
| <b>Standard unit</b><br>Seasonal energy<br>efficiency **                 |     | <b>SEER</b> <sup>12/7°C</sup> Comfort low temp.     | kWh/kWh | <b>4,73</b> | <b>5,00</b> | <b>5,22</b> | <b>5,02</b> |
|  |     | <b>ηs cool</b> <sup>12/7°C</sup>                    | %       | <b>186</b>  | <b>197</b>  | <b>206</b>  | <b>198</b>  |
|  |     | <b>SEPR</b> <sup>12/7°C</sup> Process high temp.    | kWh/kWh | <b>5,62</b> | <b>6,03</b> | <b>5,95</b> | <b>5,55</b> |
|  |     | <b>SEPR</b> <sup>-2/-8°C</sup> Process medium temp. | kWh/kWh | <b>3,55</b> | <b>3,61</b> | <b>3,74</b> | <b>3,57</b> |
| <b>Unit + option 17</b><br>Seasonal energy<br>efficiency **              |     | <b>SEER</b> <sup>12/7°C</sup> Comfort low temp.     | kWh/kWh | <b>4,84</b> | <b>5,14</b> | <b>5,35</b> | <b>5,13</b> |
|  |     | <b>ηs cool</b> <sup>12/7°C</sup>                    | %       | <b>191</b>  | <b>202</b>  | <b>211</b>  | <b>202</b>  |
|  |     | <b>SEPR</b> <sup>12/7°C</sup> Process high temp.    | kWh/kWh | <b>5,75</b> | <b>6,20</b> | <b>6,08</b> | <b>5,66</b> |
|  |     | <b>SEPR</b> <sup>-2/-8°C</sup> Process medium temp. | kWh/kWh | <b>3,61</b> | <b>3,68</b> | <b>3,82</b> | <b>3,64</b> |
| <b>Unit + option 329</b><br>Seasonal energy<br>efficiency **             |     | <b>SEER</b> <sup>12/7°C</sup> Comfort low temp.     | kWh/kWh | <b>4,90</b> | <b>5,22</b> | -           | -           |
|  |     | <b>ηs cool</b> <sup>12/7°C</sup>                    | %       | <b>193</b>  | <b>206</b>  | -           | -           |
|  |     | <b>SEPR</b> <sup>12/7°C</sup> Process high temp.    | kWh/kWh | <b>5,73</b> | <b>6,18</b> | -           | -           |
|  |     | <b>SEPR</b> <sup>-2/-8°C</sup> Process medium temp. | kWh/kWh | <b>3,62</b> | <b>3,69</b> | -           | -           |
| <b>Unit + option 17 + option 329</b><br>Seasonal energy<br>efficiency ** |     | <b>SEER</b> <sup>12/7°C</sup> Comfort low temp.     | kWh/kWh | <b>5,02</b> | <b>5,36</b> | -           | -           |
|  |     | <b>ηs cool</b> <sup>12/7°C</sup>                    | %       | <b>198</b>  | <b>211</b>  | -           | -           |
|  |     | <b>SEPR</b> <sup>12/7°C</sup> Process high temp.    | kWh/kWh | <b>5,87</b> | <b>6,35</b> | -           | -           |
|  |     | <b>SEPR</b> <sup>-2/-8°C</sup> Process medium temp. | kWh/kWh | <b>3,69</b> | <b>3,77</b> | -           | -           |

#### Sound levels

|                                       |       |     |     |     |     |
|---------------------------------------|-------|-----|-----|-----|-----|
| Standard unit                         |       |     |     |     |     |
| Sound power <sup>(1)</sup>            | dB(A) | 102 | 103 | 101 | 105 |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 70  | 70  | 68  | 72  |
| Pression acoustique à 1 m             | dB(A) | 82  | 82  | 79  | 83  |
| Unit + option 15 <sup>(3)</sup>       |       |     |     |     |     |
| Sound power <sup>(1)</sup>            | dB(A) | 98  | 100 | 98  | 101 |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 66  | 67  | 65  | 68  |
| Pression acoustique à 1 m             | dB(A) | 78  | 79  | 76  | 79  |
| Unit + option 15LS <sup>(3)</sup>     |       |     |     |     |     |
| Sound power <sup>(1)</sup>            | dB(A) | 94  | 95  | 97  | 99  |
| Sound pressure at 10 m <sup>(2)</sup> | dB(A) | 62  | 62  | 64  | 66  |
| Pression acoustique à 1 m             | dB(A) | 74  | 74  | 75  | 77  |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2018, average climate

\*\*\* Cooling mode conditions: Evaporator with turbulators (option Brine 6), MEG 30%, entering/leaving temperature -4°C/8°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W

**ηs cool** <sup>12/7°C</sup> & **SEER** <sup>12/7°C</sup>

**SEPR** <sup>12/7°C</sup>

**SEPR** <sup>-2/-8°C</sup>

- (1) **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**  
In dB ref=10<sup>-12</sup> W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**  
In dB ref 20μPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 with an associated uncertainty of +/-3dB(A). For information, calculated from the sound power Lw(A).
- (3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod.; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine.



Eurovent certified values

## PHYSICAL DATA

| 30KAVIZE   |                    | 500  | 800   | 1100  | 1250  |
|--|--------------------|--|-------|-------|-------|
| <b>Dimensions</b>  |                    |  |       |       |       |
| <b>Standard unit</b>   |                    |  |       |       |       |
| Length   | mm                 | 4350   | 6735  | 9157  | 9157  |
| Width  | mm                 | 2261   | 2261  | 2261  | 2261  |
| Height   | mm                 | 2324   | 2324  | 2324  | 2324  |
| <b>Unit length + options</b>   |                    |  |       |       |       |
| Options 50 <sup>(3)</sup>  | mm                 | 5540   | 6735  | 10347 | 10347 |
| <b>Operating weight<sup>(4)</sup></b>                                    |                    |  |       |       |       |
| Standard unit  | kg                 | 4877   | 6679  | 9143  | 9266  |
| Option 50 <sup>(3)</sup>   | kg                 | 5473   | 7242  | 9986  | 10200 |
| <b>Compressors</b>   |                    | Inverter driven 06Z twin screw compressor with AC motor                    |       |       |       |
| Circuit A  | Quantity           | 1  | 1     | 1     | 1     |
| Circuit B  | Quantity           | 1  | 1     | 1     | 1     |
| Unit minimum capacity <sup>(5)</sup>                                     | %                  | 13   | 12    | 13    | 10    |
| <b>Refrigerant<sup>(4)</sup></b>   |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)                                   |       |       |       |
| Circuit A  | kg                 | 54   | 80    | 114   | 118   |
|  | teqCO <sub>2</sub> | 0,32   | 0,48  | 0,68  | 0,71  |
| Circuit B  | kg                 | 55   | 81    | 112   | 116   |
|  | teqCO <sub>2</sub> | 0,33   | 0,49  | 0,67  | 0,70  |
| <b>Refrigerant<sup>(4)</sup> - Option 5<sup>(3)</sup> (Medium Brine)</b> |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)                                   |       |       |       |
| Circuit A  | kg                 | 67   | 101   | 131   | 136   |
|  | teqCO <sub>2</sub> | 0,40   | 0,61  | 0,79  | 0,82  |
| Circuit B  | kg                 | 68   | 102   | 129   | 133   |
|  | teqCO <sub>2</sub> | 0,41   | 0,61  | 0,77  | 0,80  |
| <b>Refrigerant<sup>(4)</sup> - Option 6<sup>(3)</sup> (Low Brine)</b>    |                    | R1234ze A2L (GWP=1 following AR5, ODP=0)                                   |       |       |       |
| Circuit A  | kg                 | 57   | 84    | 120   | 124   |
|  | teqCO <sub>2</sub> | 0,34   | 0,50  | 0,72  | 0,74  |
| Circuit B  | kg                 | 58   | 85    | 118   | 122   |
|  | teqCO <sub>2</sub> | 0,35   | 0,51  | 0,71  | 0,73  |
| <b>Oil</b>   |                    | Oil for R1234ze. Contact Carrier ERCD for supplying.                       |       |       |       |
| Circuit A  | l                  | 20   | 20    | 30    | 30    |
| Circuit B  | l                  | 20   | 20    | 30    | 30    |
| <b>Unit control</b>  |                    | SmartVu™ with 7 inch coloured touch screen interface                       |       |       |       |
| Languages  |                    | 10 languages (DE, EN, ES, FR, IT, NL, PT, TR, TU + one on customer choice) |       |       |       |
| Smart energy metering  |                    | Standard feature   |       |       |       |
| Wireless connectivity  |                    | Option   |       |       |       |
| <b>Expansion valve</b>   |                    | Electronic expansion valve   |       |       |       |
| <b>Air heat exchanger</b>  |                    | Novation™ Micro Channel Heat Exchanger                                     |       |       |       |
| <b>Fans</b>  |                    | Novation™ Micro Channel Heat Exchanger                                     |       |       |       |
| <b>Standard unit</b>   |                    | Inverter driven Flying Bird™ VI fans with AC motor                         |       |       |       |
| <b>Unit + option 17</b>  |                    | Inverter driven Flying Bird™ VI fans with EC motor                         |       |       |       |
| Quantity   |                    | 6  | 10    | 14    | 14    |
| Maximum total air flow   | l/s                | 35580  | 59300 | 83020 | 83020 |
| Maximum rotation speed   | r/s                | 16,0   | 16,0  | 16,0  | 16,0  |
| Maximum total air flow + option 15LS <sup>(3)</sup>                      | l/s                | 31800  | 53000 | 74200 | 74200 |
| Maximum rotation speed + option 15LS <sup>(3)</sup>                      | r/s                | 14,4   | 14,4  | 14,4  | 14,4  |
| <b>Water heat exchanger</b>  |                    | Flooded shell and tube heat exchanger                                      |       |       |       |
| Water volume   | l                  | 115  | 183   | 243   | 270   |
| Max. water-side operating pressure without hydraulic module              | kPa                | 1000   | 1000  | 1000  | 1000  |
| <b>Water connections</b>   |                    | Victaulic® type  |       |       |       |
| Connections  | inch               | 6  | 8     | 8     | 8     |
| Outside tube diameter  | mm                 | 168,3  | 219,1 | 219,1 | 219,1 |
| <b>Casing paint</b>  |                    | Colour code RAL 7035   |       |       |       |

(3) Options: 15=Low noise level ; 15LS=Very low noise level ; 116A=LP VSD dual-pump hydraulic mod. ; 116W=HP VSD dual-pump hydraulic mod.; 49=Partial heat recovery ; 50= Totale heat recovery ; 5=Medium Brine ; 6=Low Brine

(4) Values are guidelines only. Refer to the unit name plate.

(5) For standard conditions. Depending on operating conditions, unit might have a different minimum capacity or cycle



## ELECTRICAL DATA

### Electrical data - Standard units

| 30KAV-ZE   | 350                           | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 | 900 | 1000 | 1100 | 1200 | 1300 |
|--|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| <b>Power circuit supply</b>                                  |                               |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Nominal voltage V-ph-Hz                                      | 400-3-50                      |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Voltage range V  | 360-440                       |     |     |     |     |     |     |     |     |     |      |      |      |      |
| <b>Control circuit supply</b>                                | 24 V via internal transformer |     |     |     |     |     |     |     |     |     |      |      |      |      |
| <b>Maximum operating input power<sup>(1)</sup></b>           |                               |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Standard unit kW   | 180                           | 196 | 214 | 232 | 257 | 293 | 325 | 366 | 393 | 418 | 459  | 499  | 550  | 608  |
| Unit + option 16 kW  | 194                           | 211 | 229 | 248 | 275 | 311 | 353 | 386 | 431 | 443 | 487  | 529  | 580  | 640  |
| <b>Power factor at maximum power<sup>(1) (2)</sup></b>       | 0,91-0,93                     |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Displacement Power Factor (Cos Phi)                          | >0,98                         |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup> %        | 35-45                         |     |     |     |     |     |     |     |     |     |      |      |      |      |
| <b>Maximum operating current draw (Un)<sup>(1)</sup></b>     |                               |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Standard unit A  | 280                           | 305 | 332 | 360 | 400 | 456 | 505 | 568 | 610 | 649 | 713  | 775  | 854  | 945  |
| Unit + option 16 A   | 301                           | 328 | 355 | 385 | 428 | 484 | 548 | 599 | 669 | 689 | 756  | 822  | 902  | 995  |
| <b>Maximum operating current draw (Un-10%)<sup>(1)</sup></b> |                               |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Standard unit A  | 306                           | 332 | 362 | 383 | 426 | 494 | 537 | 604 | 649 | 709 | 778  | 825  | 919  | 1006 |
| Unit + option 16 A   | 329                           | 357 | 388 | 410 | 455 | 524 | 583 | 638 | 712 | 753 | 825  | 874  | 971  | 1060 |
| <b>Start-up current</b>                                      |                               |     |     |     |     |     |     |     |     |     |      |      |      |      |
| Standard unit A  | 180                           | 192 | 206 | 220 | 240 | 314 | 341 | 334 | 335 | 399 | 430  | 461  | 535  | 544  |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions

## ELECTRICAL DATA

Electrical data - Units with combination of options High energy efficiency (119), Permanent magnet motor (329), EC motor (17)

### Units 350 - 800 kW

| 30KAV-ZE + option 119                                   |         | 350                           | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 |
|---|---------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Power circuit supply</b>                             |         |                               |     |     |     |     |     |     |     |     |
| Nominal voltage   | V-ph-Hz | 400-3-50                      |     |     |     |     |     |     |     |     |
| Voltage range   | V       | 360-440                       |     |     |     |     |     |     |     |     |
| <b>Control circuit supply</b>                           |         | 24 V via internal transformer |     |     |     |     |     |     |     |     |
| <b>Maximum unit power input<sup>(1)</sup></b>           |         |                               |     |     |     |     |     |     |     |     |
| Unit + option 119                                       | kW      | 181                           | 200 | 209 | 226 | 250 | 288 | 315 | 358 | 380 |
| Unit + option 119 + option 17                           | kW      | 179                           | 198 | 206 | 223 | 247 | 285 | 311 | 354 | 375 |
| Unit + option 119 + option 16                           | kW      | 195                           | 215 | 224 | 242 | 268 | 306 | 343 | 378 | 418 |
| Unit + option 119 + option 17 + option 16               | kW      | 193                           | 213 | 221 | 239 | 265 | 303 | 339 | 374 | 413 |
| Unit + option 329                                       | kW      | 169                           | 185 | 202 | 219 | 248 | 272 | 313 | 337 | 378 |
| Unit + option 329 + option 16                           | kW      | 175                           | 193 | 209 | 227 | 258 | 282 | 325 | 350 | 392 |
| Unit + option 329 + option 119                          | kW      | 170                           | 189 | 197 | 213 | 241 | 267 | 303 | 329 | 365 |
| Unit + option 329 + option 119 + option 16              | kW      | 176                           | 306 | 316 | 342 | 390 | 432 | 489 | 531 | 588 |
| <b>Maximum capacity power factor<sup>(1) (2)</sup></b>  |         | 0,91-0,93                     |     |     |     |     |     |     |     |     |
| Displacement Power Factor (Cos Phi)                     |         | >0,98                         |     |     |     |     |     |     |     |     |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>     | %       | 35-45                         |     |     |     |     |     |     |     |     |
| <b>Maximum unit current draw (Un)<sup>(1)</sup></b>     |         |                               |     |     |     |     |     |     |     |     |
| Unit + option 119                                       | A       | 281                           | 311 | 324 | 350 | 389 | 449 | 489 | 556 | 590 |
| Unit + option 119 + option 17                           | A       | 278                           | 308 | 320 | 346 | 384 | 444 | 483 | 550 | 583 |
| Unit + option 119 + option 16                           | A       | 302                           | 334 | 347 | 375 | 417 | 477 | 532 | 587 | 649 |
| Unit + option 119 + option 17 + option 16               | A       | 299                           | 331 | 343 | 371 | 412 | 472 | 526 | 581 | 642 |
| Unit + option 329                                       | A       | 263                           | 288 | 313 | 340 | 386 | 423 | 486 | 523 | 587 |
| Unit + option 329 + option 16                           | A       | 273                           | 300 | 324 | 352 | 401 | 439 | 505 | 543 | 608 |
| Unit + option 329 + option 119                          | A       | 264                           | 294 | 305 | 330 | 375 | 416 | 470 | 511 | 567 |
| Unit + option 329 + option 119 + option 16              | A       | 274                           | 306 | 316 | 342 | 390 | 432 | 489 | 531 | 588 |
| <b>Maximum unit current draw (Un-10%)<sup>(1)</sup></b> |         |                               |     |     |     |     |     |     |     |     |
| Unit + option 119                                       | A       | 306                           | 331 | 353 | 367 | 413 | 485 | 520 | 591 | 635 |
| Unit + option 119 + option 17                           | A       | 303                           | 328 | 349 | 363 | 408 | 480 | 514 | 585 | 628 |
| Unit + option 119 + option 16                           | A       | 329                           | 356 | 379 | 394 | 442 | 515 | 566 | 625 | 698 |
| Unit + option 119 + option 17 + option 16               | A       | 326                           | 353 | 375 | 390 | 437 | 510 | 560 | 619 | 691 |
| Unit + option 329                                       | A       | 289                           | 315 | 343 | 363 | 412 | 461 | 518 | 559 | 626 |
| Unit + option 329 + option 16                           | A       | 300                           | 327 | 356 | 376 | 428 | 479 | 539 | 580 | 641 |
| Unit + option 329 + option 119                          | A       | 289                           | 314 | 334 | 347 | 399 | 452 | 501 | 546 | 612 |
| Unit + option 329 + option 119 + option 16              | A       | 300                           | 326 | 347 | 360 | 415 | 470 | 522 | 567 | 627 |
| <b>Start-up current</b>                                 |         |                               |     |     |     |     |     |     |     |     |
| Unit + option 119                                       | A       | 175                           | 189 | 199 | 212 | 226 | 296 | 319 | 314 | 330 |
| Unit + option 119 + option 17                           | A       | 174                           | 187 | 197 | 210 | 224 | 294 | 316 | 311 | 326 |
| Unit + option 329                                       | A       | 160                           | 168 | 191 | 205 | 223 | 278 | 316 | 293 | 327 |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions.

## ELECTRICAL DATA

Electrical data - Units with combination of options High energy efficiency (119), Permanent magnet motor (329), EC motor (17)

### Units 900 - 1300 kW

| 30KAV-ZE + option 119                                   |         | 900                           | 1000 | 1100 | 1200 | 1300 |
|---|---------|-------------------------------|------|------|------|------|
| <b>Power circuit supply</b>                             |         |                               |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400-3-50                      |      |      |      |      |
| Voltage range   | V       | 360-440                       |      |      |      |      |
| <b>Control circuit supply</b>                           |         | 24 V via internal transformer |      |      |      |      |
| <b>Maximum unit power input<sup>(1)</sup></b>           |         |                               |      |      |      |      |
| Unit + option 119                                       | kW      | 408                           | 447  | 480  | -    | -    |
| Unit + option 119 + option 17                           | kW      | 403                           | 442  | 475  | -    | -    |
| Unit + option 119 + option 16                           | kW      | 434                           | 475  | 510  | -    | -    |
| Unit + option 119 + option 17 + option 16               | kW      | 429                           | 470  | 505  | -    | -    |
| Unit + option 329                                       | kW      | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 16                           | kW      | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 119                          | kW      | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 119 + option 16              | kW      | -                             | -    | -    | -    | -    |
| <b>Maximum capacity power factor<sup>(1) (2)</sup></b>  |         | 0,91-0,93                     |      |      |      |      |
| Displacement Power Factor (Cos Phi)                     |         | >0,98                         |      |      |      |      |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>     | %       | 35-45                         |      |      |      |      |
| <b>Maximum unit current draw (Un)<sup>(1)</sup></b>     |         |                               |      |      |      |      |
| Unit + option 119                                       | A       | 634                           | 694  | 746  | -    | -    |
| Unit + option 119 + option 17                           | A       | 627                           | 687  | 738  | -    | -    |
| Unit + option 119 + option 16                           | A       | 674                           | 737  | 793  | -    | -    |
| Unit + option 119 + option 17 + option 16               | A       | 667                           | 730  | 785  | -    | -    |
| Unit + option 329                                       | A       | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 16                           | A       | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 119                          | A       | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 119 + option 16              | A       | -                             | -    | -    | -    | -    |
| <b>Maximum unit current draw (Un-10%)<sup>(1)</sup></b> |         |                               |      |      |      |      |
| Unit + option 119                                       | A       | 691                           | 756  | 794  | -    | -    |
| Unit + option 119 + option 17                           | A       | 684                           | 749  | 786  | -    | -    |
| Unit + option 119 + option 16                           | A       | 735                           | 803  | 843  | -    | -    |
| Unit + option 119 + option 17 + option 16               | A       | 728                           | 796  | 835  | -    | -    |
| Unit + option 329                                       | A       | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 16                           | A       | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 119                          | A       | -                             | -    | -    | -    | -    |
| Unit + option 329 + option 119 + option 16              | A       | -                             | -    | -    | -    | -    |
| <b>Start-up current</b>                                 |         |                               |      |      |      |      |
| Unit + option 119                                       | A       | 391                           | 420  | 446  | -    | -    |
| Unit + option 119 + option 17                           | A       | 388                           | 417  | 442  | -    | -    |
| Unit + option 329                                       | A       | -                             | -    | -    | -    | -    |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions.

## ELECTRICAL DATA

### Electrical data - 30KAVPZE

| 30KAVPZE   |         | 350                           | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 |
|--|---------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Power circuit supply</b>                                  |         |                               |     |     |     |     |     |     |     |     |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |     |     |     |     |     |     |     |     |
| Voltage range  | V       | 360-440                       |     |     |     |     |     |     |     |     |
| <b>Control circuit supply</b>                                |         | 24 V via internal transformer |     |     |     |     |     |     |     |     |
| <b>Maximum operating input power<sup>(1)</sup></b>           |         |                               |     |     |     |     |     |     |     |     |
| Standard unit  | kW      | 168                           | 187 | 194 | 210 | 238 | 264 | 299 | 325 | 360 |
| Unit + option 16   | kW      | 174                           | 195 | 201 | 218 | 248 | 274 | 311 | 338 | 374 |
| <b>Power factor at maximum power <sup>(1) (2)</sup></b>      |         | 0,91-0,93                     |     |     |     |     |     |     |     |     |
| Displacement Power Factor (Cos Phi)                          |         | >0,98                         |     |     |     |     |     |     |     |     |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>          | %       | 35-45                         |     |     |     |     |     |     |     |     |
| <b>Maximum operating current draw (Un)<sup>(1)</sup></b>     |         |                               |     |     |     |     |     |     |     |     |
| Standard unit  | A       | 261                           | 291 | 301 | 326 | 370 | 411 | 464 | 505 | 560 |
| Unit + option 16   | A       | 271                           | 303 | 312 | 338 | 385 | 427 | 483 | 525 | 581 |
| <b>Maximum operating current draw (Un-10%)<sup>(1)</sup></b> |         |                               |     |     |     |     |     |     |     |     |
| Standard unit  | A       | 286                           | 311 | 330 | 343 | 394 | 447 | 495 | 540 | 605 |
| Unit + option 16   | A       | 309                           | 336 | 356 | 370 | 423 | 477 | 541 | 574 | 668 |
| <b>Start-up current</b>                                      |         |                               |     |     |     |     |     |     |     |     |
| Standard unit  |         | 173                           | 188 | 193 | 206 | 228 | 287 | 320 | 306 | 334 |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions.

### Electrical data - 30KAVIZE

| 30KAVIZE   |         | 500                           | 800 | 1100 | 1250 |
|--|---------|-------------------------------|-----|------|------|
| <b>Power circuit supply</b>                                  |         |                               |     |      |      |
| Nominal voltage  | V-ph-Hz | 400-3-50                      |     |      |      |
| Voltage range  | V       | 360-440                       |     |      |      |
| <b>Control circuit supply</b>                                |         | 24 V via internal transformer |     |      |      |
| <b>Maximum operating input power<sup>(1)</sup></b>           |         |                               |     |      |      |
| Standard unit  | kW      | 261                           | 405 | 520  | 626  |
| <b>Power factor at maximum power <sup>(1) (2)</sup></b>      |         | 0,91-0,93                     |     |      |      |
| Displacement Power Factor (Cos Phi)                          |         | >0,98                         |     |      |      |
| Total harmonic distortion (THDi) <sup>(1) (3)</sup>          | %       | 35-45                         |     |      |      |
| <b>Maximum operating current draw (Un)<sup>(1)</sup></b>     |         |                               |     |      |      |
| Standard unit  | A       | 405                           | 628 | 808  | 973  |
| <b>Maximum operating current draw (Un-10%)<sup>(1)</sup></b> |         |                               |     |      |      |
| Standard unit  | A       | 430                           | 668 | 860  | 1038 |
| <b>Start-up current</b>                                      |         |                               |     |      |      |
| Standard unit  |         | 239                           | 249 | 477  | 558  |

(1) Values obtained at operation with maximum operating power input (data given on the unit nameplate)

(2) Value decreases when load lowers

(3) May vary according to the installation's short circuit ratio

THDi increases when load lowers. But the highest impact on the installation occurs when the current is maximum. Therefore compliance of the installation regarding voltage harmonic distortion at PCC (per IEC61000-2-4 or other standard) shall be usually checked at max load in order to cover all load conditions.

## ELECTRICAL DATA

### Compressor electrical data

| Compressor      | I Max (A) <sup>(1)</sup><br>Standard | I Max (A) <sup>(1)</sup><br>Option 16 | F max (Hz) <sup>(2)</sup> | Inverter type <sup>(3)</sup> |
|-----------------|--------------------------------------|---------------------------------------|---------------------------|------------------------------|
| 06ZCE1H3AA06013 | 146                                  | 156                                   | 82                        | D3h                          |
| 06ZCE1T3AA06013 | 184                                  | 195                                   | 105                       | D3h                          |
| 06ZFC2T3AA06013 | 280                                  | 301                                   | 95                        | D3h/D4h                      |
| 06ZJG3H3AA06013 | 370                                  | 392                                   | 77                        | D4h                          |
| 06ZJG3T3AA06013 | 452                                  | 478                                   | 95                        | D4h                          |
| 06ZCEAT3AA06013 | 169                                  | 180                                   | 103                       | D3h                          |
| 06ZFCBT3AA06013 | 258                                  | 277                                   | 93                        | D3h                          |

(1) Maximum compressor operating current draw over the entire range when powered at rated voltage. May be lower depending on the unit size.

(2) Maximum compressor frequency other the entire range. This frequency can be limited to a lower value depending on the unit size.

(3) Mechanical inverter type : defines inverter weight and dimensions.

### Distribution of compressors per circuit

| Compressor 30KAV-ZE | Circuit | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 | 900 | 1000 | 1100 | 1200 | 1300 |
|---------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| 06ZCE1H3AA06013     | A       | 1   | 1   | -   | -   | -   | -   | -   | -   | -   | -   | -    | -    | -    | -    |
|                     | B       | 1   | 1   | -   | -   | -   | -   | -   | -   | -   | -   | -    | -    | -    | -    |
| 06ZCE1T3AA06013     | A       | -   | -   | 1   | 1   | 1   | -   | -   | -   | -   | -   | -    | -    | -    | -    |
|                     | B       | -   | -   | 1   | 1   | 1   | 1   | 1   | -   | -   | -   | -    | -    | -    | -    |
| 06ZFC2T3AA06013     | A       | -   | -   | -   | -   | -   | 1   | 1   | 1   | 1   | -   | -    | -    | -    | -    |
|                     | B       | -   | -   | -   | -   | -   | -   | -   | 1   | 1   | -   | -    | -    | -    | -    |
| 06ZJG3H3AA06013     | A       | -   | -   | -   | -   | -   | -   | -   | -   | -   | 1   | 1    | 1    | 1    | -    |
|                     | B       | -   | -   | -   | -   | -   | -   | -   | -   | -   | 1   | 1    | 1    | -    | -    |
| 06ZJG3T3AA06013     | A       | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | -    | -    | -    | 1    |
|                     | B       | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | -    | -    | 1    | 1    |

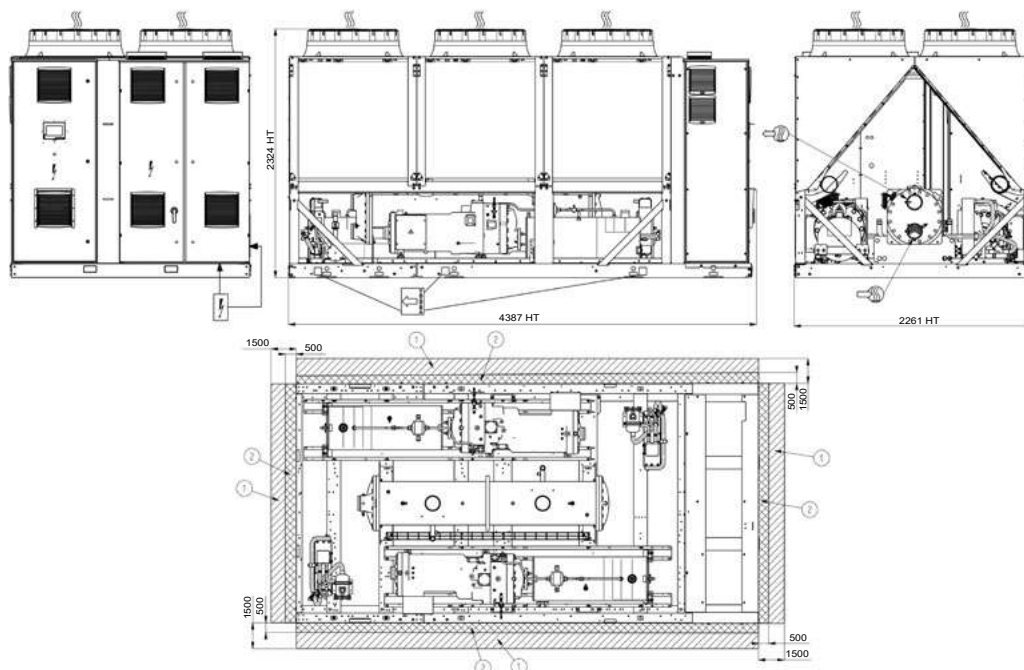
| Compressor 30KAVPZE | Circuit | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 750 | 800 |
|---------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 06ZCEAT3AA06013     | A       | 1   | 1   | 1   | 1   | 1   | -   | -   | -   | -   |
|                     | B       | 1   | 1   | 1   | 1   | 1   | 1   | 1   | -   | -   |
| 06ZFCBT3AA06013     | A       | -   | -   | -   | -   | -   | 1   | 1   | 1   | 1   |
|                     | B       | -   | -   | -   | -   | -   | -   | -   | 1   | 1   |

| Compressor 30KAVIZE | Circuit | 500 | 800 | 1100 | 1250 |
|---------------------|---------|-----|-----|------|------|
| 06ZCE1H3AA06013     | A       | 1   | -   | -    | -    |
|                     | B       | 1   | -   | -    | -    |
| 06ZFC2T3AA06013     | A       | -   | 1   | -    | -    |
|                     | B       | -   | 1   | -    | -    |
| 06ZJG3H3AA06013     | A       | -   | -   | 1    | -    |
|                     | B       | -   | -   | 1    | -    |
| 06ZJG3T3AA06013     | A       | -   | -   | -    | 1    |
|                     | B       | -   | -   | -    | 1    |

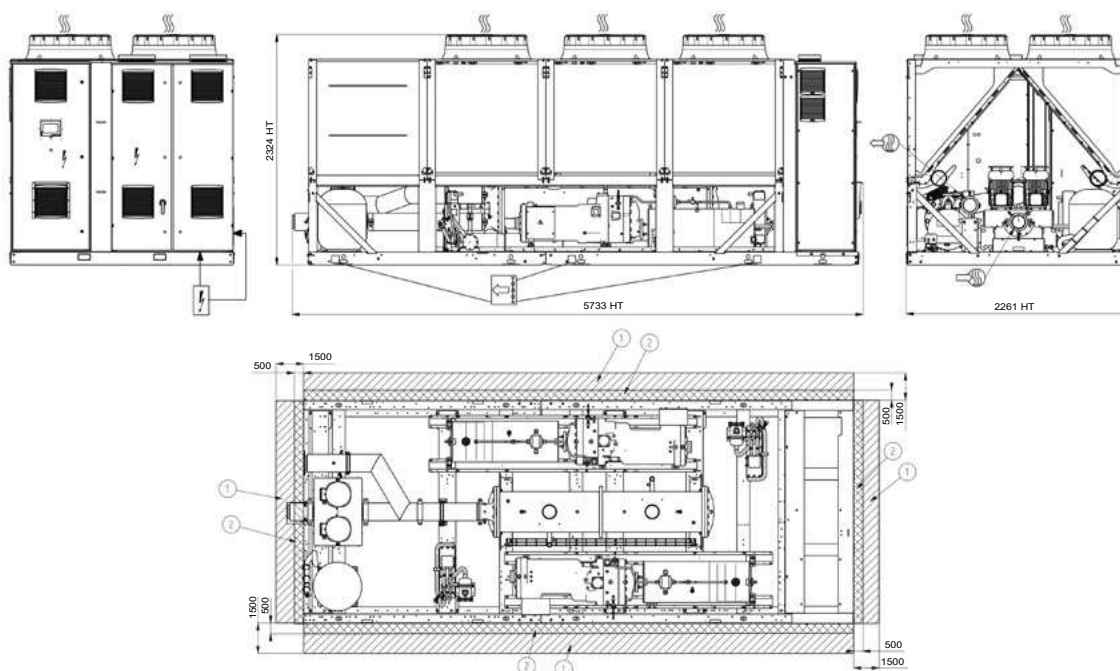


## DIMENSIONS/CLEARANCES

### 30KAV-ZE 350 & 400; 30KAVIZE 500; without hydraulic module



### 30KAV-ZE 350 & 400 with Hydraulic module



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

② Potentially flammable zone around the machine



Water inlet for standard unit



Water outlet for standard unit



Air outlet – do not obstruct



Power electrical connection

#### NOTES:

Drawings are not contractually binding.

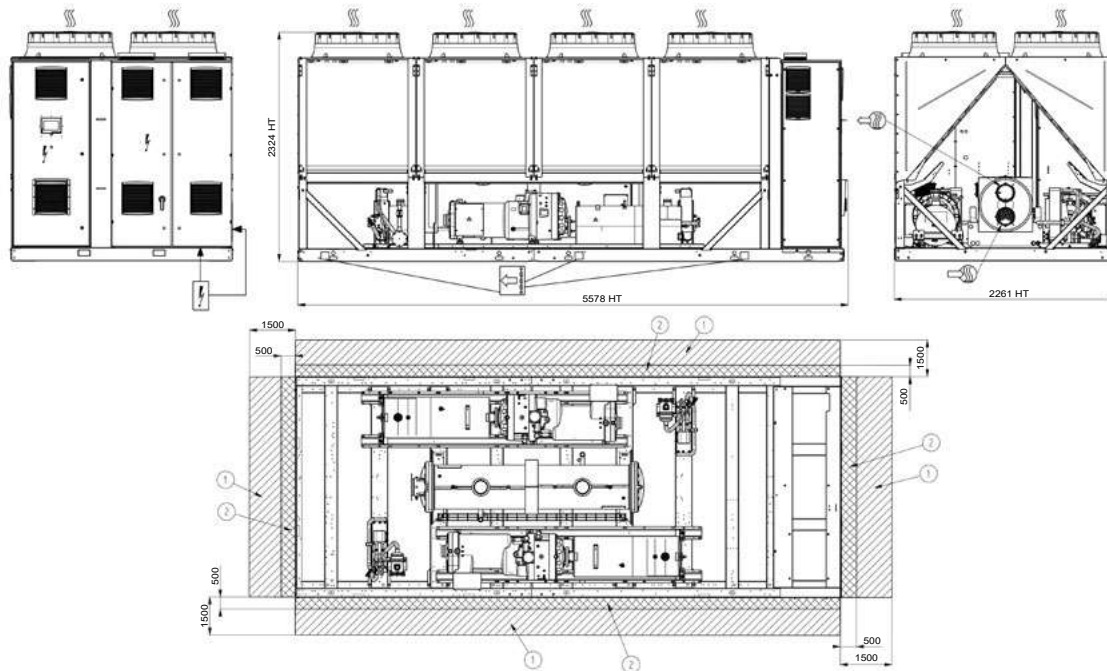
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

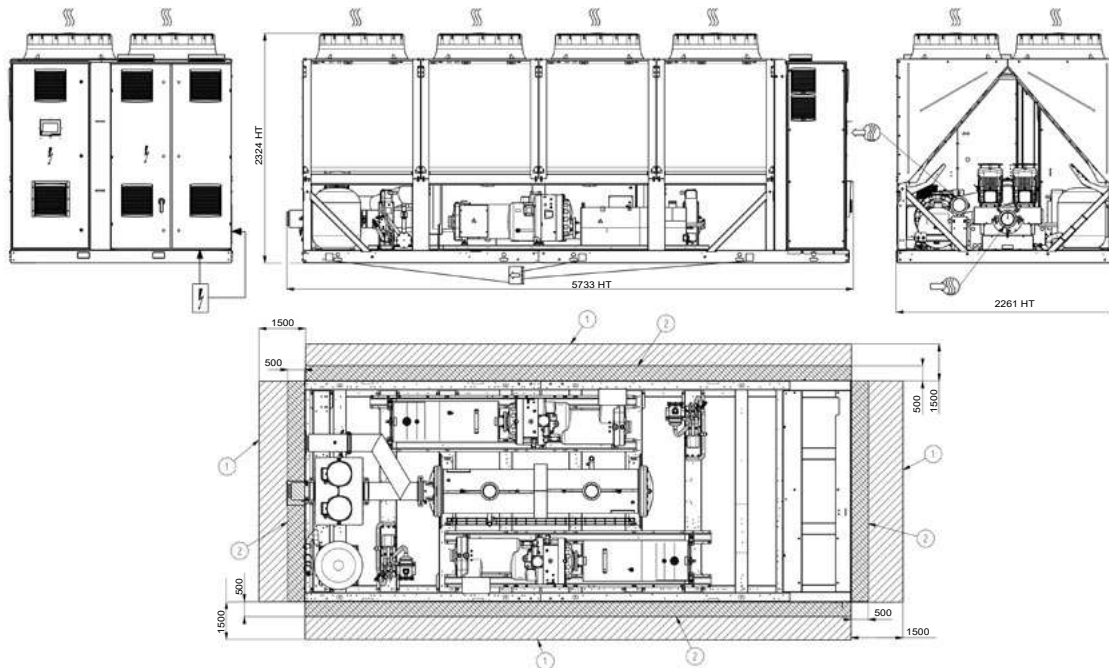
If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

## DIMENSIONS/CLEARANCES

### 30KAV-ZE 450 & 500, without hydraulic module



### 30KAV-ZE 450 & 500 with Hydraulic module



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Potentially flammable zone around the machine
- Water inlet for standard unit
- Water outlet for standard unit
- Air outlet – do not obstruct
- Power electrical connection

#### NOTES:

Drawings are not contractually binding.

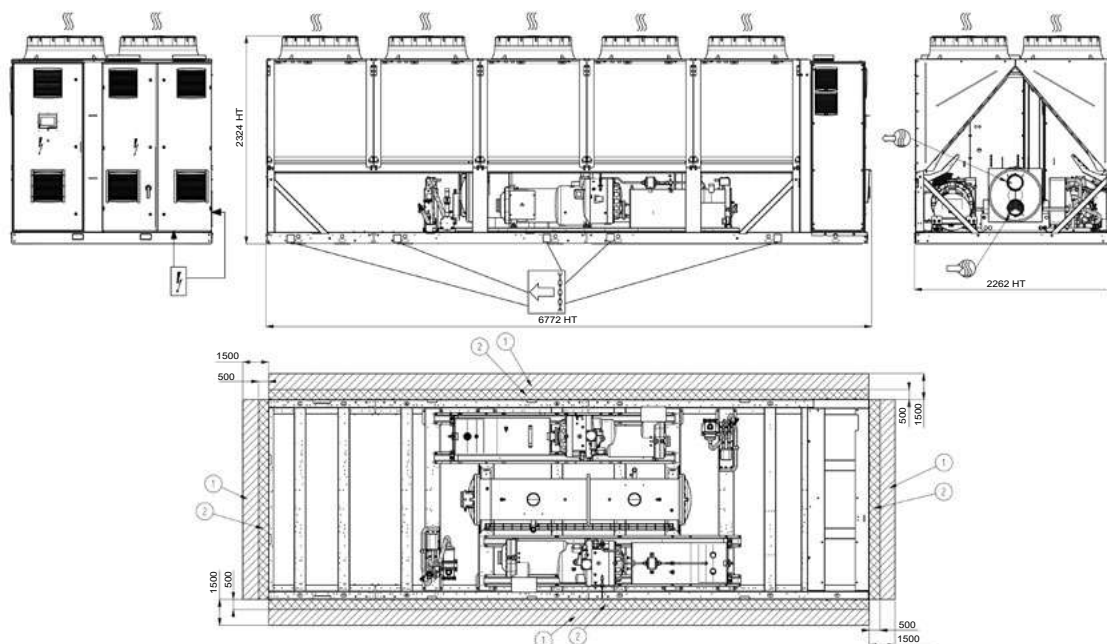
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

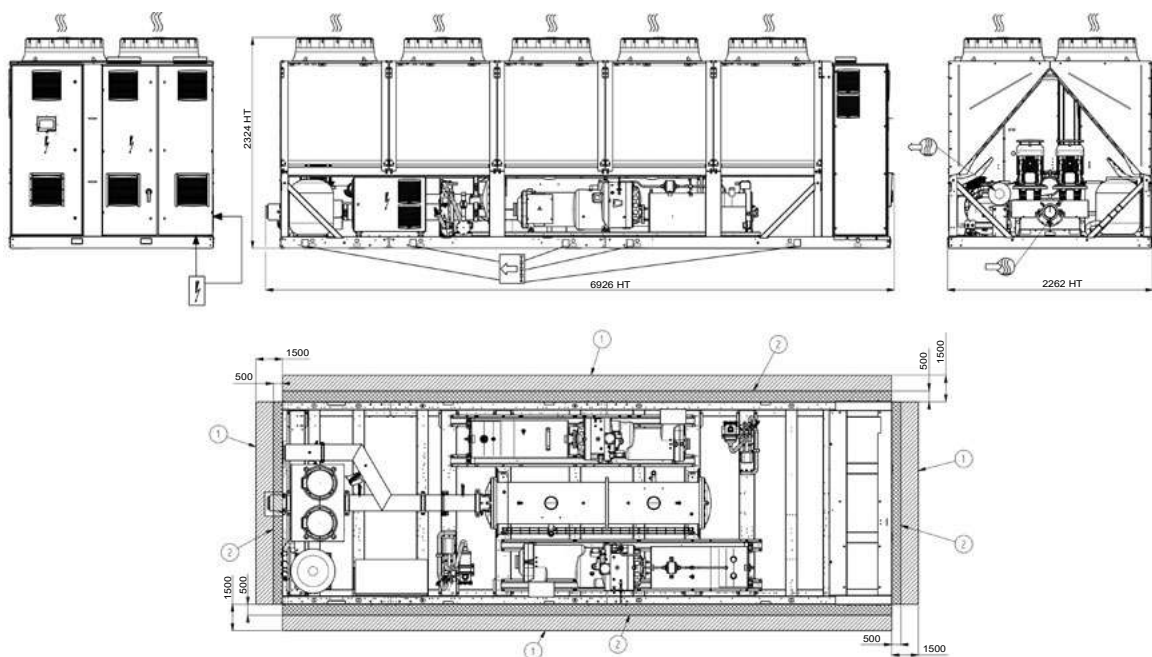
If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

## DIMENSIONS/CLEARANCES

30KAV-ZE 550 & 600; 30KAV-ZE 350, 400, 450, 500 - opt 119; 30KAVPZE 350, 400, 450, 500;  
30KAVIZE 800; without hydraulic module



30KAV-ZE 550 & 600; 30KAV-ZE 350, 400, 450, 500 - opt 119; 30KAVPZE 350, 400, 450, 500;  
with hydraulic module



### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

② Potentially flammable zone around the machine

Water inlet for standard unit

Water outlet for standard unit

Air outlet – do not obstruct

Power electrical connection

### NOTES:

Drawings are not contractually binding.

Before designing an installation, consult the certified dimensional drawings, available on request.

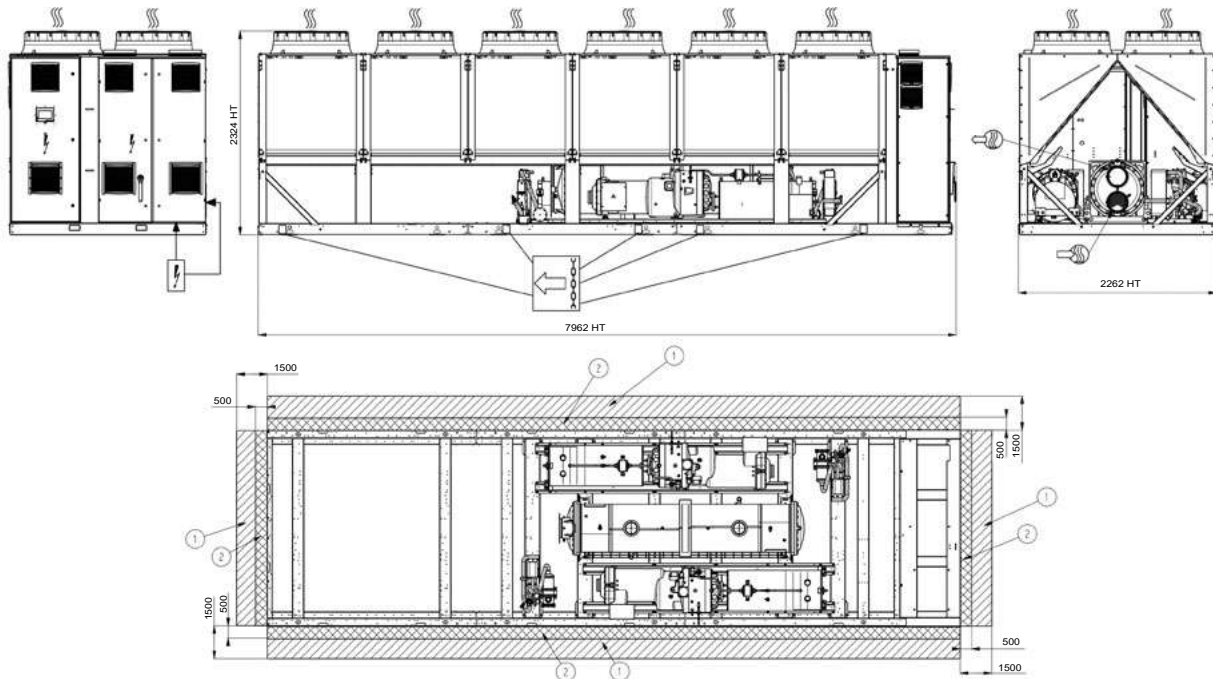
For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

If any unit(s) are close to walls, please refer to chapter "Distance to the wall" of this document to determine the space required.

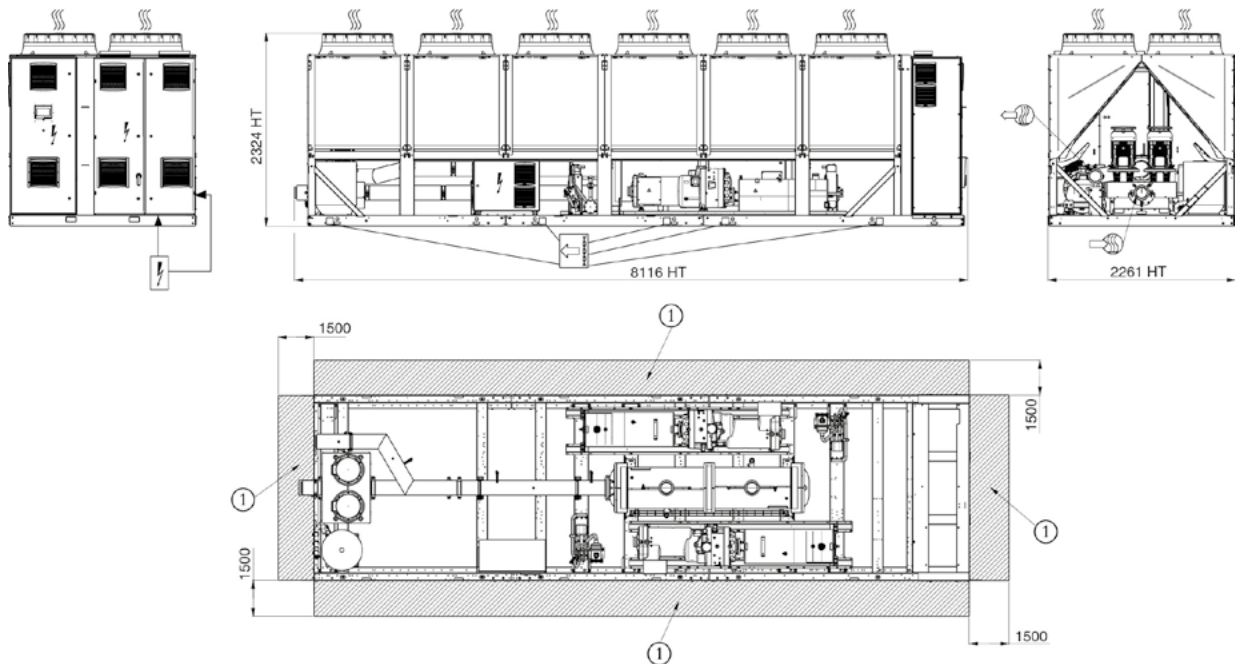


## DIMENSIONS/CLEARANCES

### 30KAV-ZE 650 & 750; 30KAV-ZE 550 - opt 119; 30KAVPZE 550; without hydraulic module



### 30KAV-ZE 550 - opt 119 & 30KAVPZE 550; with hydraulic module



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Potentially flammable zone around the machine
- Water inlet for standard unit
- Water outlet for standard unit
- Air outlet – do not obstruct
- Power electrical connection

#### NOTES:

Drawings are not contractually binding.

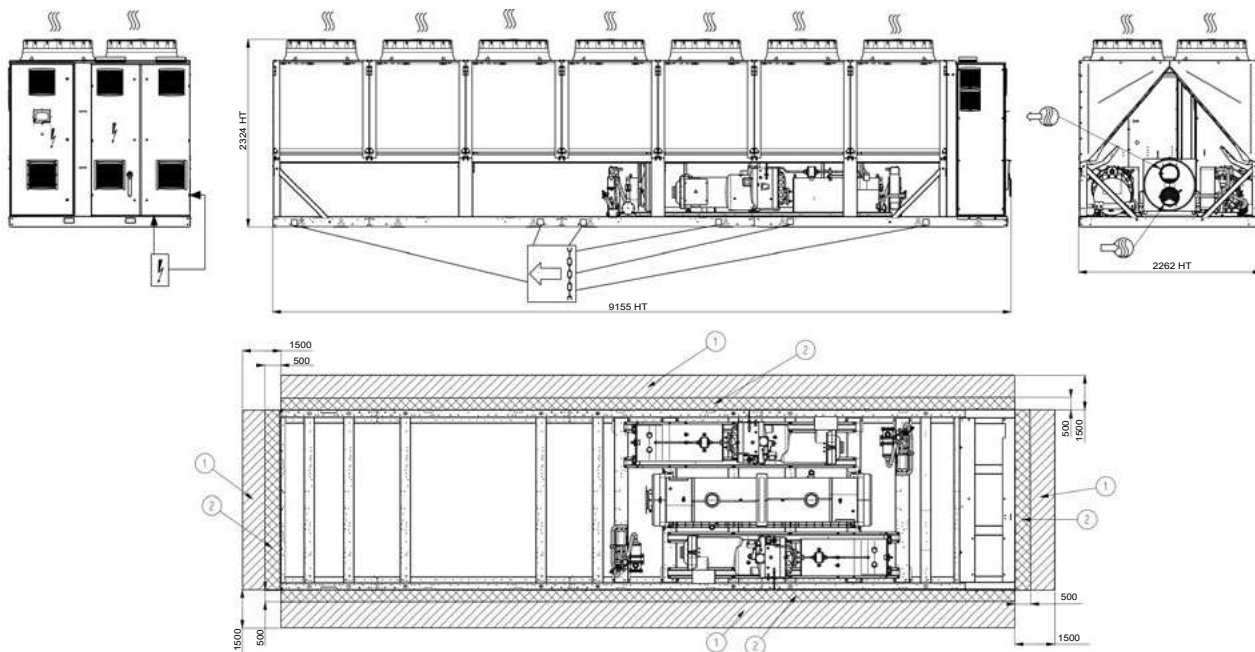
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

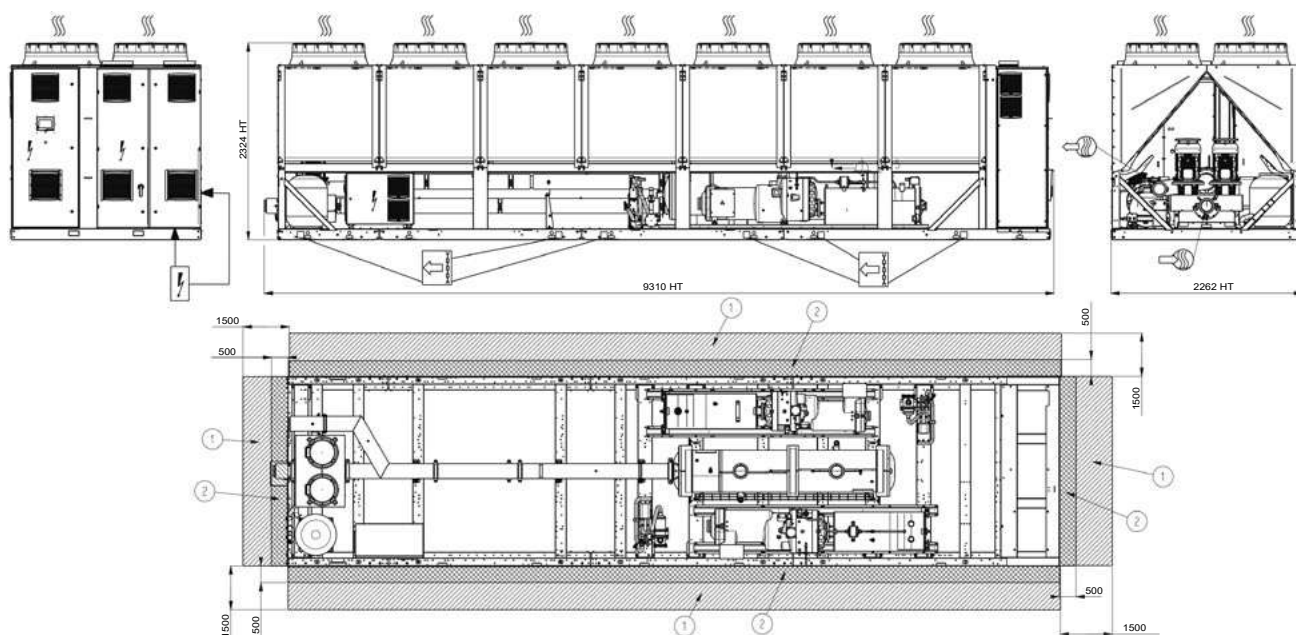
If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

## DIMENSIONS/CLEARANCES

### 30KAV-ZE 800; 30KAV-ZE 600 & 650 - opt 119; 30KAVPZE 600 & 650; without hydraulic module



### 30KAV-ZE 600 - opt 119; 30KAVPZE 600; with hydraulic module



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

② Potentially flammable zone around the machine

Water inlet for standard unit

Water outlet for standard unit

Air outlet – do not obstruct

Power electrical connection

#### NOTES:

Drawings are not contractually binding.

Before designing an installation, consult the certified dimensional drawings, available on request.

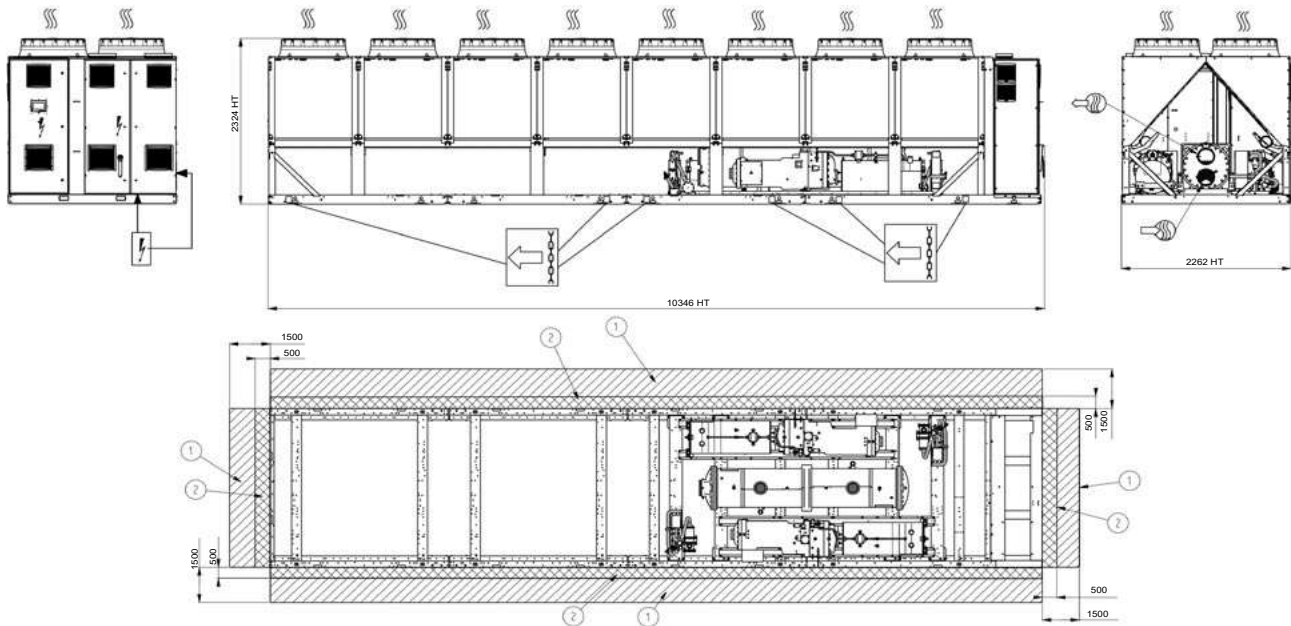
For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

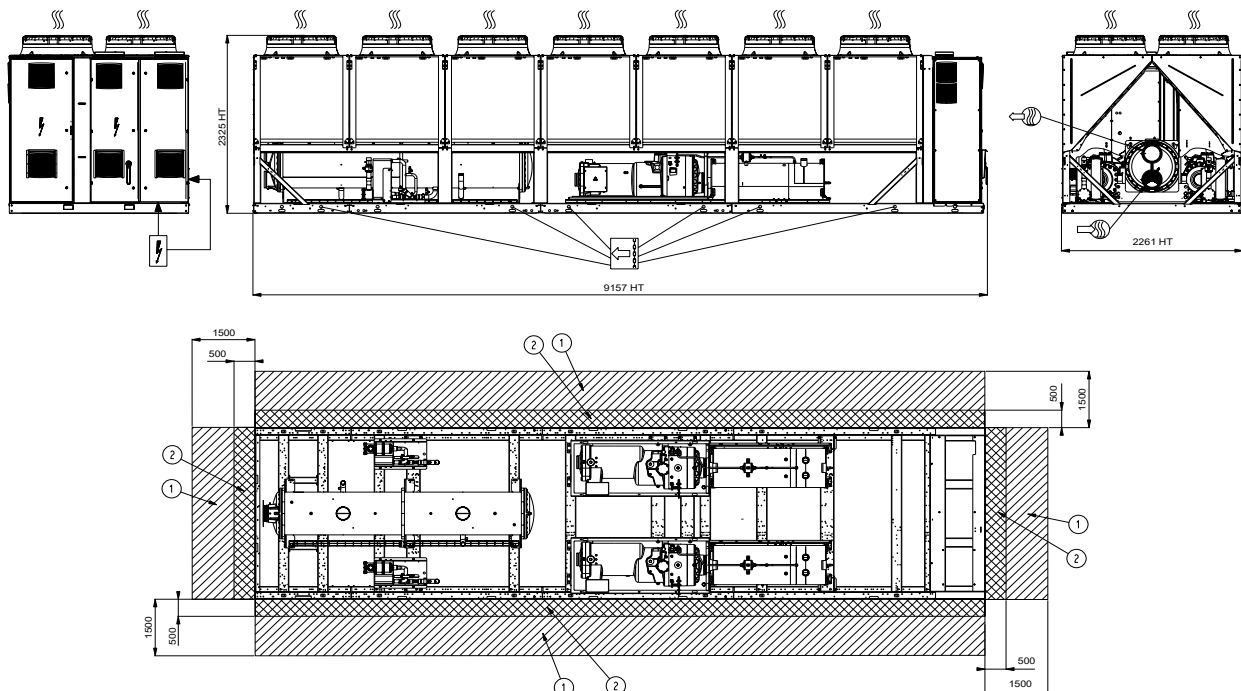


## DIMENSIONS/CLEARANCES

### 30KAV-ZE 750 & 800 - opt 119; 30KAVPZE 750 & 800



### 30KAV-ZE 900; 30KAVIZE 1100; 30KAVIZE 1250



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Potentially flammable zone around the machine
- Water inlet for standard unit
- Water outlet for standard unit
- Air outlet – do not obstruct
- Power electrical connection

#### NOTES:

Drawings are not contractually binding.

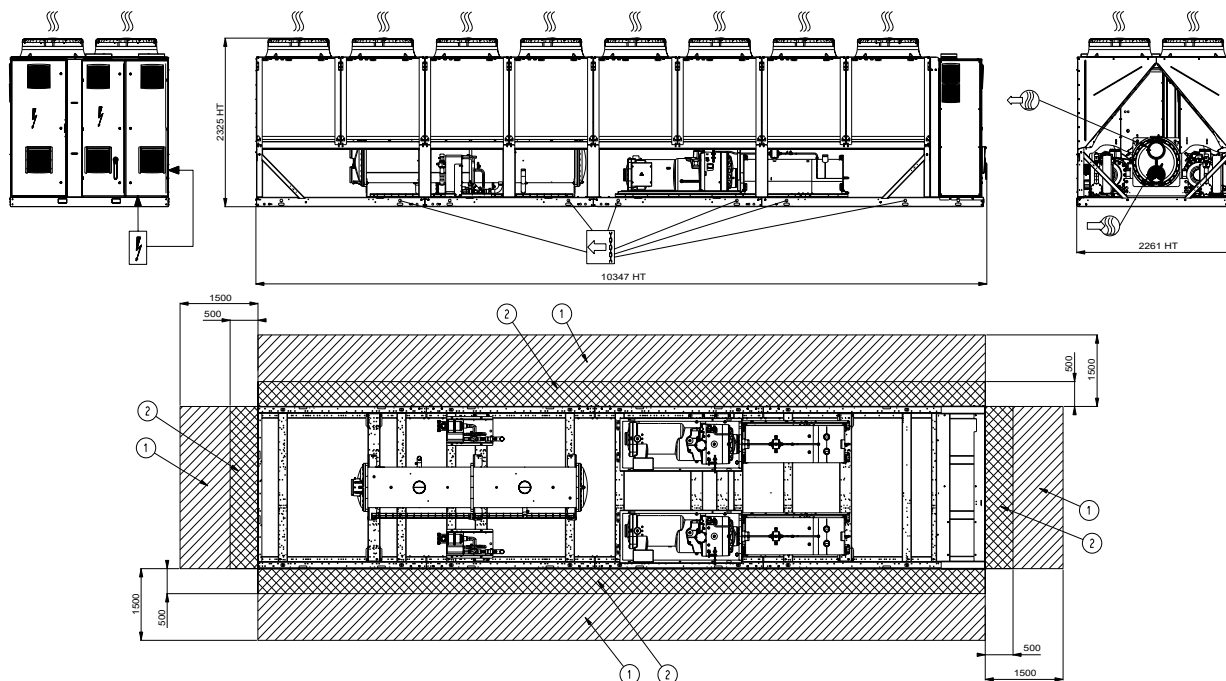
Before designing an installation, consult the certified dimensional drawings, available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

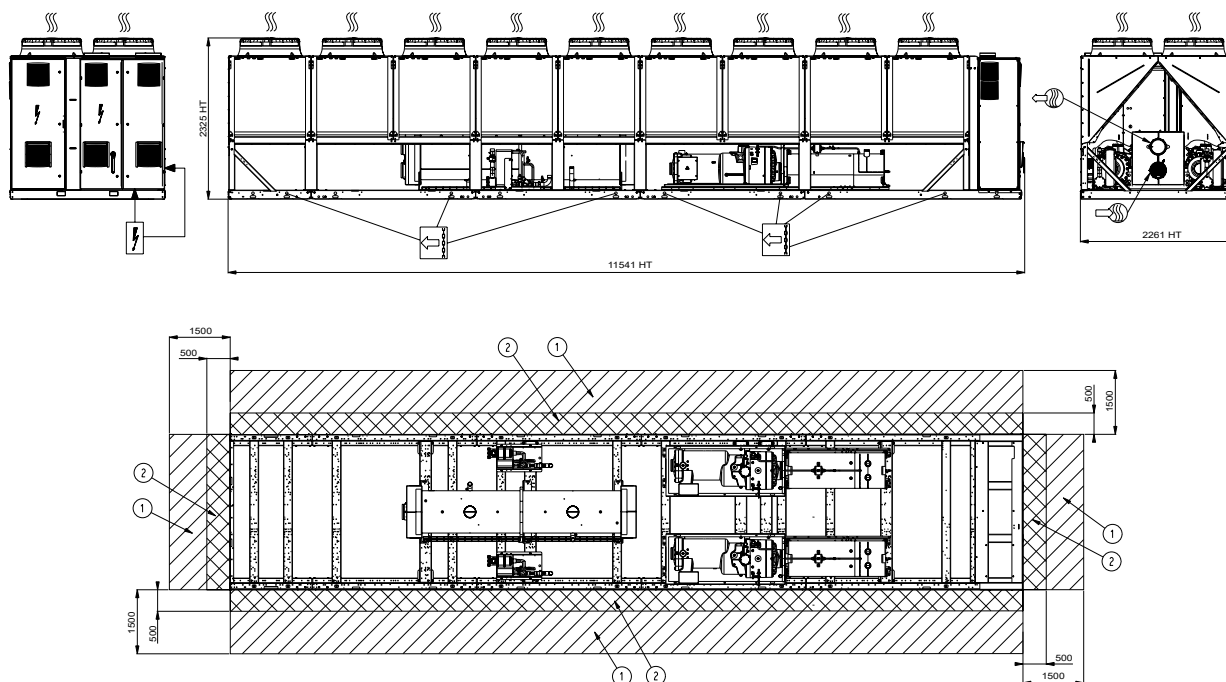
If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.

## DIMENSIONS/CLEARANCES

### 30KAV-ZE 1000



### 30KAV-ZE 1100; 30KAV-ZE 900 - opt 119



#### Legend

All dimensions are given in mm.

① Required clearances for maintenance (see note)

② Potentially flammable zone around the machine



Water inlet for standard unit



Water outlet for standard unit



Air outlet – do not obstruct



Power electrical connection

#### NOTES:

**Drawings are not contractually binding.**

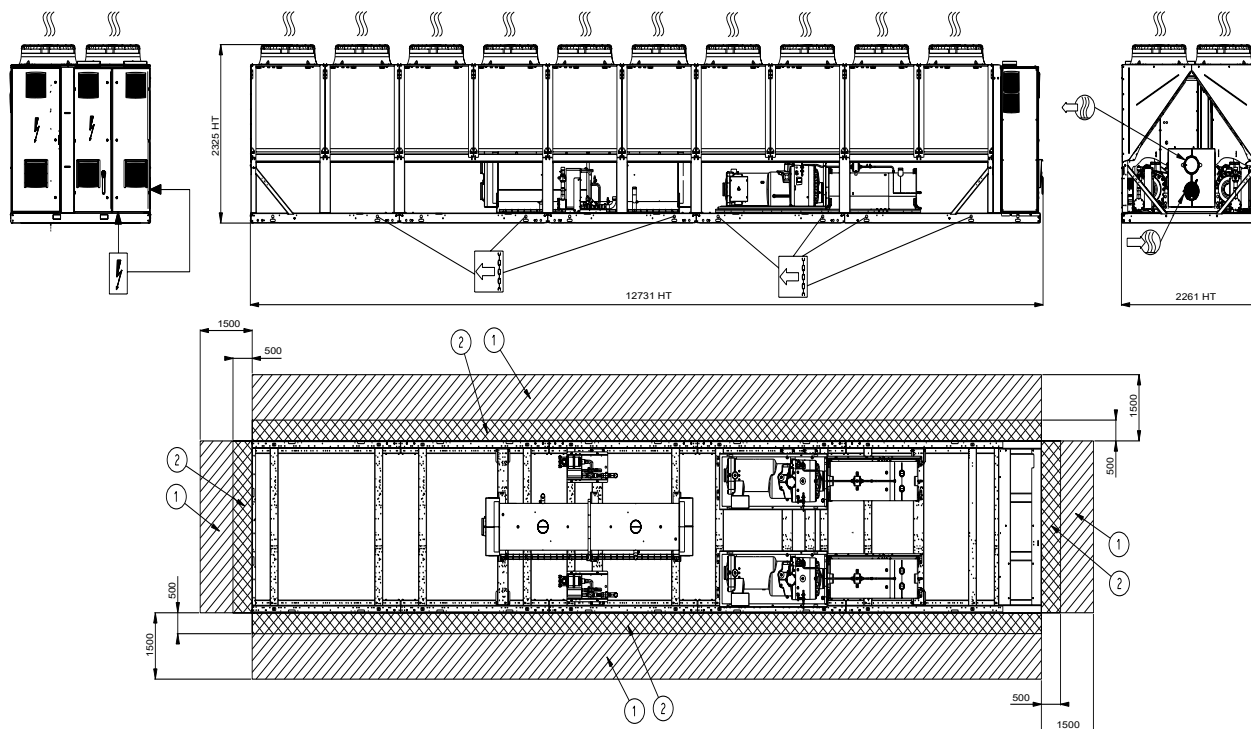
**Before designing an installation, consult the certified dimensional drawings, available on request.**

**For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.**

**If any unit(s) are close to walls, please refer to chapter “Distance to the wall” of this document to determine the space required.**

## DIMENSIONS/CLEARANCES

### 30KAV-ZE 1200 & 1300; 30KAV-ZE 1000 & 1100 - opt 119



#### Legend

All dimensions are given in mm.

- ① Required clearances for maintenance (see note)
- ② Potentially flammable zone around the machine
- Water inlet for standard unit
- Water outlet for standard unit
- Air outlet – do not obstruct
- Power electrical connection

#### Multiple chiller installation

It is recommended to install multiple chillers in a single row, arranged as shown in the example below, to avoid recycling of warm air from one unit to another.



If the situation at the site does not permit this arrangement, contact your Carrier distributor to evaluate the various possible arrangements. In certain situations an accessory (supplied loose at the time of purchase) can be added.

#### NOTES:

**Drawings are not contractually binding.**

**Before designing an installation, consult the certified dimensional drawings, available on request.**

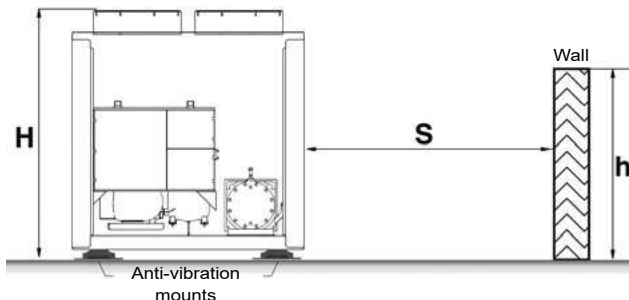
**For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.**

**If any unit(s) are close to walls, please refer to chapter "Distance to the wall" of this document to determine the space required.**

#### Distance to the wall

To ensure correct operation for most cases:

- If  $h < H$  (2,3 m),  $S$  minimum = 3 m
- If  $h > H$  ou  $S < 3$  m, contact your Carrier distributor to evaluate the various possible arrangements. In certain situations an accessory (supplied loose at the time of purchase) can be added.





## HEAT PUMPS AND LIQUID COOLERS WITH WATER COOLED CONDENSER



Cooling and heating  
application

High energy efficiency

Compact design

Low sound level

Broad field of application

## 30WI 700 V - 2400 V

**AQUASNAP**

Cooling capacity: 200-700 kW

Heating capacity: 230-800 kW

The new generation of AQUASNAP 30WI water cooled heat pumps and water chillers offers an optimal solution for all heating process or cooling applications.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

The new range has been optimised to use ozone-friendly HFC R410A refrigerant. The use of this refrigerant guarantees compliance with the most demanding requirements for environmental protection and increased seasonal energy efficiency.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## RANGE

### AQUASNAP 30WI

Cooling-only or heating-only models with water-cooled condenser.

Acoustic configuration:

- a - STANDARD version
- b - LOW NOISE version. Compressor casing
- c - VERY LOW NOISE version. Casing with compressor sound insulation

## DESCRIPTION

AQUASNAP series 30WI units are packaged machines supplied as standard with the following components:

- SCROLL hermetic compressors,
- Chilled water evaporator with brazed plates,
- Hot water condenser with brazed plates,
- Electrical power and remote control cabinet:
  - 400V-3ph-50Hz general electrical power supply (+10%/-10%) + earth,
  - Transformer fitted as standard on the machine for supplying the remote control circuit with 230V-1ph-50Hz,
- 30WI Control electronic control module.

The AQUASNAP 30WI range complies with the following European standards and directives:

- Machinery directive 2006/42/EC.
- Electromagnetic compatibility directive 2004/108/EC.
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2006/95/EC.
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 97/23/EC
- Machinery directive EN 60-204 -1

## DESCRIPTION OF THE MAIN COMPONENTS

### ■ Compressors

- Hermetic SCROLL type.
- Built-in electric motor cooled by intake gases.
- Motor protected by internal winding thermostat.
- Placed on anti-vibration mounts.

### ■ Evaporator

- Brazed plate exchanger.
- Stainless steel plates (AISI 316).
- Plate patterns optimised for high efficiency.
- Armaflex thermal insulation.

### ■ Condenser

- Brazed plate exchanger.
- Stainless steel plates (AISI 316).
- Plate patterns optimised for high efficiency.

### ■ Refrigerating accessories

- Dehumidifier filters with rechargeable cartridges.
- Hygroscopic sight glasses.
- Solenoid valves on refrigerant lines (700 V to 1200 V models).
- Electronic expansion valves.

### ■ Control and safety instruments

- High and low pressure sensors.
- High pressure safety valves.
- Water temperature control sensors.
- Evaporator frost protection sensor.
- Factory-assembled evaporator water flow controller.

### ■ Electrical box

- IP 21.
- 400V-3Ph-50 Hz power supply + Earth (+10%/-10%).
- Main safety switch with handle on front.
- Control circuit transformer.
- Circuit breaker for compressor motor.
- Compressor motor switches.
- 30WI Control microprocessor-controlled electronic control module.
- Wire numbering.
- Marking of the main electrical components.
- RAL 7035.

### ■ 30WI Control electronic control module.

The electronic control module performs the following main functions:

- Regulation of the chilled or hot water temperature
- Regulation of the water temperature based on the outdoor temperature (water law).
- Regulation for low temperature energy storage.
- Second setpoint management.
- Complete management of compressors with start-up sequence, metering and runtime balancing.
- Self-adjusting and proactive functions with adjustment of parameters on drift control.
- In-series staged capacity-reduction system on compressors based on cooling and heating demands.
- Management of compressor short cycle protection.
- Management of the machine operation limit according to outdoor temperature.
- Operating and fault status diagnostics.
- Management of a fault memory allowing a log of the last 20 incidents to be accessed, with operating readings taken when the fault occurs.
- Master/slave management of the two machines in parallel with runtime balancing and automatic changeover if a fault occurs on one machine.
- Machine time schedule.
- Display and access to the operating parameters via a multilingual LCD screen with 4 lines of 24 characters.

### ■ Remote management

30WI Control is equipped as standard with an RS485 serial port offering a range of remote management, monitoring and diagnostic options via the communication bus.

Several contacts are available as standard, enabling the AQUASNAP 30WI to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops.
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage mode, for example).
- Heating/cooling mode selector: this input switches from one operating mode to another. Contact closed = heating mode.

Contact open = cooling mode.

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in heating or cooling mode.
- Compressor load shedding: closing the contact(s) concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors.
- Water pump 1 and 2 control: these outputs control the switches for one or two water pumps.
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop.

### ■ Capacity control

In-series staged power control system on the compressors:

- 4 stages for 700 V to 1600 V models.
- 6 stages for 1800 V and 2400 V models.
- 8 stages for 2100 V models.

### ■ Casing

Casing made from RAL 7035 painted panels.

## OPTIONS

| Options                               | No.  | Description  | Advantages   | Use       |
|---------------------------------------|------|--|--|-----------|
| Soft Starter                          | 25   | Electronic starter on each compressor  | Reduced start-up current   | 0700-2400 |
| Master/slave operation                | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be fieldinstalled allowing master/slave operation of two units connected in parallel                         | Optimised operation of two units connected in parrallele operation with operating time equalisation  | 0700-2400 |
| Condenser insulation                  | 86   | Thermal condenser insulation   | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated) | 0700-2400 |
| Compressor suction valve              | 92   | Valve installed on the compressor suction side to isolate it in the refrigerant circuit  | Simplified service and maintenance   | 0700-2400 |
| Lon gateway                           | 148D | Two-directional communication board complying with Lon Talk protocol   | Connects the unit by communication bus to a building management system   | 0700-2400 |
| Bacnet over IP                        | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 0700-2400 |
| Dry contact board                     | 156C | Feedback board on the potential-free contact for the main statuses and faults  | Simple feedback of the diagnostics and unit state  | 0700-2400 |
| Phase controller                      | 159B | Phase controller on the power  | Reinforced protection of the compressors by monitoring rotation, the absence and asymmetry of the phases, and the over- or under-voltage of the electricity network                  | 0700-2400 |
| Compliance with Russian regulations   | 199  | EAC certification  | Conformance with Russian regulations   | 0700-2400 |
| Low noise level                       | 257  | Compressor sound enclosure   | Reduced sound emissions  | 0700-2400 |
| Very low sound level                  | 258  | Enhanced sound insulation of main noise sources (Material classified CD0S2 fire class according to Euroclass 13-501).  | 6 dB(A) quieter than standard . Refer to the physical data table for detailed values   | 0700-2400 |
| Welded evaporator connection kit      | 266  | Victaulic piping connections with welded joints  | Easy installation  | 0700-2400 |
| Welded condenser water connection kit | 267  | Victaulic piping connections with welded joints  | Easy installation  | 0700-2400 |
| Electric energy meter                 | 294  | MID certified electric energy meter (compliant with directive 2004/22/EC). Display of energy consumption, instantaneous (U, V, I) and cumulative (kWh), on the Touch Pilot interface | Permits the acquisition, (remote) monitoring and billing of energy used.   | 0700-2400 |
| External temperature sensor           | 312  | External temperature sensor control for using weather compensation   | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature  | 0700-2400 |
| Compliance with Morocco regulation    | 327  | Specifics documents according Morroco regulation   | Conformance with Morocco regulations   | 0700-2400 |

## TECHNICAL SPECIFICATIONS

| 30WI                                |     |  | 700 V                        | 800 V                | 900 V          | 1000 V               | 1100 V         | 1200 V               |                |
|-------------------------------------|-----|--|------------------------------|----------------------|----------------|----------------------|----------------|----------------------|----------------|
| Heating                             |     |  |                              |                      |                |                      |                |                      |                |
| Standard unit                       | HA1 | SCOP <sub>30/35°C</sub>                | kW / kW                      | 5,30                 | 5,53           | 5,45                 | 5,47           | 5,43                 | 5,49           |
| Seasonal energy efficiency**        |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %                            | 204                  | 213            | 210                  | 211            | 209                  | 212            |
|                                     |     | P <sub>rated</sub>                     | kW                           | 246                  | 293            | 335                  | 384            | 419                  | 463            |
| Cooling                             |     |  |                              |                      |                |                      |                |                      |                |
| Standard unit                       | CA1 | Net cooling capacity                   | kW                           | 203                  | 242            | 278                  | 320            | 348                  | 382            |
| Full load performances*             |     | Net power input                        | kW                           | 49                   | 56             | 64                   | 71             | 79                   | 86             |
|                                     |     | EER                                    | kW / kW                      | 4,18                 | 4,32           | 4,33                 | 4,5            | 4,42                 | 4,42           |
| Standard unit                       |     | SEPR <sub>-2/-8°C</sub>                | kWh/kWh                      | 3,89                 | 4,03           | 3,87                 | 4,18           | 3,97                 | 4,16           |
| Seasonal energy efficiency**        |     | Process medium temp ***                |                              |                      |                |                      |                |                      |                |
| Standard unit                       |     | SEER <sub>12/7°C</sub>                 | kW / kW                      | 5,22                 | 5,47           | 5,48                 | 5,42           | 5,41                 | 5,31           |
| Seasonal energy efficiency**        |     | Comfort Low temp.                      |                              |                      |                |                      |                |                      |                |
| Standard unit                       |     | Lw / Lp <sup>(1)</sup>                 | dB(A)                        | 89/57                | 90/58          | 90/58                | 89/57          | 90/58                | 91/59          |
| Unit + Low Noise option             |     | Lw / Lp <sup>(1)</sup>                 | dB(A)                        | 84/52                | 85/53          | 85/53                | 86/54          | 87/55                | 88/56          |
| Unit + Xtra Low Noise               |     | Lw / Lp <sup>(1)</sup>                 | dB(A)                        | 79/47                | 80/48          | 80/48                | 80/48          | 81/49                | 82/50          |
| Refrigerating circuit               |     |  |                              |                      |                |                      |                |                      |                |
| Refrigerant (GWP)                   |     |  | R410 (GWP=2088)              |                      |                |                      |                |                      |                |
| Number                              |     |  | 2                            |                      |                |                      |                |                      |                |
| Refrigerant circuit 1               |     |  | kg                           | 13,5                 | 15,5           | 16,4                 | 17             | 19,7                 | 21,3           |
| Refrigerant circuit 2               |     |  | kg                           | 14                   | 15             | 16,4                 | 17,2           | 19,7                 | 21,3           |
| Tonne of CO <sub>2</sub> equivalent |     |  | TCO <sub>2</sub> Eq          | 57,42                | 63,68          | 68,49                | 71,41          | 82,27                | 88,95          |
| Compressor                          |     |  |                              |                      |                |                      |                |                      |                |
| Type                                |     |  | Hermetic scroll (- 2900 rpm) |                      |                |                      |                |                      |                |
| Number                              |     |  | 4                            | 4                    | 4              | 4                    | 4              | 4                    |                |
| Start-up mode                       |     |  | Direct in line in series     |                      |                |                      |                |                      |                |
|                                     |     |  | Number of stages             | 6                    | 4              | 6                    | 4              | 6                    | 4              |
| Capacity control                    |     |  | %                            | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 | 100-78-71-50-28-21-0 | 100-75-50-25-0 |
| Type of oil for R410A               |     |  | Polyolester POE              |                      |                |                      |                |                      |                |
| Oil load per circuit                |     |  | l                            | 6,7+6,7              | 6,7+6,7        | 6,7+6,7              | 6,7+6,7        | 6,7+7,2              | 7,2+7,2        |
| Evaporator                          |     |  |                              |                      |                |                      |                |                      |                |
| Type/ Number                        |     |  | Braze-plate heat exchanger/1 |                      |                |                      |                |                      |                |
| Water capacity                      |     |  | l                            | 20                   | 23             | 26                   | 29             | 32                   | 37             |
| Victaulic connection                |     |  | Ø                            | DN100                | DN100          | DN100                | DN125          | DN125                | DN125          |
| Max. pressure, water end            |     |  | bar                          | 10 bar               |                |                      |                |                      |                |
| Min/max water flow                  |     |  | m³/h                         | 22/70                | 26/81          | 29/92                | 33/105         | 35/113               | 38/124         |
| Water-cooled condenser              |     |  |                              |                      |                |                      |                |                      |                |
| Type/ Number                        |     |  | Braze-plate heat exchanger/1 |                      |                |                      |                |                      |                |
| Water capacity                      |     |  | l                            | 23                   | 26             | 29                   | 32             | 37                   | 40             |
| Victaulic connection                |     |  | Ø                            | DN100                | DN100          | DN100                | DN125          | DN125                | DN125          |
| Max. pressure, water end            |     |  | bar                          | 10 bar               |                |                      |                |                      |                |
| Min/max water flow                  |     |  | m³/h                         | 19/64                | 22/74          | 25/84                | 28/95          | 31/103               | 33/112         |
| Dimensions                          |     |  |                              |                      |                |                      |                |                      |                |
| Length                              |     |  | mm                           | 2099                 | 2099           | 2099                 | 2099           | 2099                 | 2099           |
| Width                               |     |  | mm                           | 996                  |                |                      |                |                      |                |
| Height                              |     |  | mm                           | 1869                 | 1869           | 1869                 | 1869           | 1869                 | 1869           |
| Weight                              |     |  |                              |                      |                |                      |                |                      |                |
| Weight (empty)                      |     |  | kg                           | 1044                 | 1156           | 1189                 | 1312           | 1363                 | 1425           |
| Weight in operation                 |     |  | kg                           | 1088                 | 1205           | 1246                 | 1378           | 1436                 | 1510           |
| Max. storage temperature            |     |  | °C                           | +50°C                |                |                      |                |                      |                |

Outputs in accordance with EUROVENT standard EN 14511 conditions

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2018, average climate

\*\*\* With EG 30%.

HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W.CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/Wη<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications.SEER<sub>12/7°C</sub> Values calculated according to EN14825:2018.SEPR<sub>-2/-8°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for Process application

(1) Lw : overall power level in accordance with standard ISO3744

Lp : overall pressure level at 10 metres in a free field calculated using the formula Lp=LW-10logS



Eurovent certified values

## TECHNICAL SPECIFICATIONS

| 30WI  |     |  | 1400 V                       | 1600 V         | 1800 V               | 2100 V                     | 2400 V               |        |
|---|-----|--|------------------------------|----------------|----------------------|----------------------------|----------------------|--------|
| Heating                                       |     |  |                              |                |                      |                            |                      |        |
| Standard unit<br>Seasonal energy efficiency** | HA1 | SCOP <sub>30/35°C</sub>                            | kW / kW                      | 5,49           | 5,48                 | 5,44                       | 5,46                 | 5,24   |
|   |     | η <sub>s heat</sub> <sub>30/35°C</sub>             | %                            | 212            | 211                  | 210                        | 211                  | 202    |
|   |     | P <sub>rated</sub>                                 | kW                           | 530            | 593                  | 687                        | 795                  | 876    |
| Cooling                                       |     |  |                              |                |                      |                            |                      |        |
| Standard unit<br>Full load performances*      | CA1 | Net cooling capacity                               | kW                           | 439            | 495                  | 574                        | 651                  | 703    |
|   |     | Net power input                                    | kW                           | 97             | 108                  | 125                        | 145                  | 165    |
|   |     | EER  | kW / kW                      | 4,55           | 4,6                  | 4,6                        | 4,49                 | 4,27   |
| Standard unit<br>Seasonal energy efficiency** |     | SEPR <sub>-2/-8°C</sub><br>Process medium temp *** | kWh/kWh                      | 4,41           | 4,47                 | 4,51                       | 4,54                 | 4,69   |
| Standard unit<br>Seasonal energy efficiency** |     | SEER <sub>12/7°C</sub><br>Comfort Low temp.        | kW / kW                      | 5,34           | 5,24                 | 5,35                       | 5,23                 | 4,86   |
| Standard unit                                 |     | Lw / Lp <sup>(1)</sup>                             | dB(A)                        | 95/63          | 96/64                | 93/61                      | 95/63                | 97/65  |
| Unit + Low Noise option                       |     | Lw / Lp <sup>(1)</sup>                             | dB(A)                        | 90/58          | 91/59                | 89/57                      | 90/58                | 91/59  |
| Unit + Xtra Low Noise                         |     | Lw / Lp <sup>(1)</sup>                             | dB(A)                        | 85/53          | 86/54                | 85/53                      | 86/54                | 87/55  |
| Refrigerating circuit                         |     |  |                              |                |                      |                            |                      |        |
| Refrigerant (GWP)                             |     |  | R410 (GWP=2088)              |                |                      |                            |                      |        |
| Number  |     |  | 2                            |                |                      |                            |                      |        |
| Refrigerant circuit 1                         |     |  | kg                           | 21,5           | 23                   | 31                         | 33                   | 34     |
| Refrigerant circuit 2                         |     |  | kg                           | 21             | 22                   | 31                         | 34                   | 34     |
| Tonne of CO <sub>2</sub> equivalent           |     |  | TCO <sub>2</sub> Eq          | 88,74          | 93,96                | 129,46                     | 139,9                | 141,98 |
| Compressor                                    |     |  |                              |                |                      |                            |                      |        |
| Type  |     |  | Hermetic scroll (- 2900 rpm) |                |                      |                            |                      |        |
| Number  |     |  | 4                            | 4              | 6                    | 6                          | 6                    |        |
| Start-up mode                                 |     |  | Direct in line in series     |                |                      |                            |                      |        |
| Capacity control                              |     | Number of stages                                   | 6                            | 4              | 6                    | 8                          | 6                    |        |
|   |     | %  | 100-78-71-50-28-21-0         | 100-75-50-25-0 | 100-83-66-50-33-16-0 | 100-84-66-48-36-30-18-15-0 | 100-83-66-50-33-16-0 |        |
| Type of oil for R410A                         |     |  | Polyolester POE              |                |                      |                            |                      |        |
| Oil load per circuit                          |     |  | l                            | 6,3+6,3        | 6,3+6,3              | 3x6,3                      | 3x6,3                | 3x6,3  |
| Evaporator                                    |     |  |                              |                |                      |                            |                      |        |
| Type/ Number                                  |     |  | Brazed-plate heat exchanger  |                |                      |                            |                      |        |
| Water capacity                                |     |  | l                            | 50             | 57                   | 64                         | 77                   | 77     |
| Victaulic connection                          |     |  | Ø                            | DN125          | DN125                | DN150                      | DN150                | DN150  |
| Max. pressure, water end                      |     |  | bar                          | 10 bar         |                      |                            |                      |        |
| Min/max water flow                            |     |  | m³/h                         | 44/137         | 51/151               | 61/150                     | 68/150               | 74/150 |
| Water-cooled condenser                        |     |  |                              |                |                      |                            |                      |        |
| Type/ Number                                  |     |  | Brazed-plate heat exchanger  |                |                      |                            |                      |        |
| Water capacity                                |     |  | l                            | 55             | 61                   | 73                         | 77                   | 77     |
| Victaulic connection                          |     |  | Ø                            | DN125          | DN125                | DN150                      | DN150                | DN150  |
| Max. pressure, water end                      |     |  | bar                          | 10 bar         |                      |                            |                      |        |
| Min/max water flow                            |     |  | m³/h                         | 38/129         | 43/143               | 52/150                     | 59/150               | 66/163 |
| Dimensions                                    |     |  |                              |                |                      |                            |                      |        |
| Length  |     |  | mm                           | 2499           | 2499                 | 3350                       | 3350                 | 3350   |
| Width   |     |  | mm                           | 996            |                      |                            |                      |        |
| Height  |     |  | mm                           | 1887           | 1887                 | 1970                       | 1970                 | 1970   |
| Weight  |     |  |                              |                |                      |                            |                      |        |
| Weight (empty)                                |     |  | kg                           | 1613           | 1708                 | 2284                       | 2376                 | 2418   |
| Weight in operation                           |     |  | kg                           | 1713           | 1818                 | 2472                       | 2588                 | 2637   |
| Max. storage temperature                      |     |  | °C                           | +50°C          |                      |                            |                      |        |

Outputs in accordance with EUROVENT standard EN 14511 conditions

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2018, average climate

\*\*\* With EG 30%.

HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W.

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W

η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications.

SEER<sub>12/7°C</sub> Values calculated according to EN14825:2018.

SEPR<sub>-2/-8°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 2015/1095 for Process application

(1) Lw : overall power level in accordance with standard ISO3744

Lp : overall pressure level at 10 metres in a free field calculated using the formula Lp=LW-10logS



Eurovent certified values



## ELECTRICAL SPECIFICATIONS

| 30WI | 700 V | 800 V | 900 V | 1000 V | 1100 V | 1200 V | 1400 V | 1600 V | 1800 V | 2100 V | 2400 V |
|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|

### COMPRESSOR

| Voltage  | V | 400V - 3Ph - 50Hz (+10/- 10%) |     |     |     |     |     |     |     |     |     |
|--|---|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Maximum nominal current                                | A | 140                           | 160 | 182 | 205 | 218 | 232 | 266 | 295 | 356 | 443 |
| Starting current <sup>(1)</sup>                        | A | 316                           | 334 | 391 | 414 | 480 | 494 | 586 | 615 | 607 | 763 |
| Starting current with Soft Start option <sup>(1)</sup> | A | 230                           | 248 | 287 | 310 | 352 | 366 | 429 | 458 | 483 | 605 |

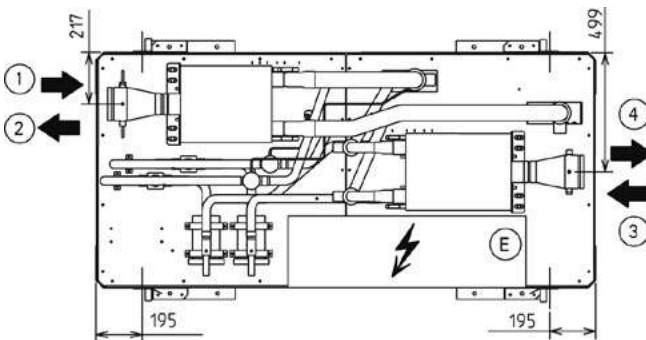
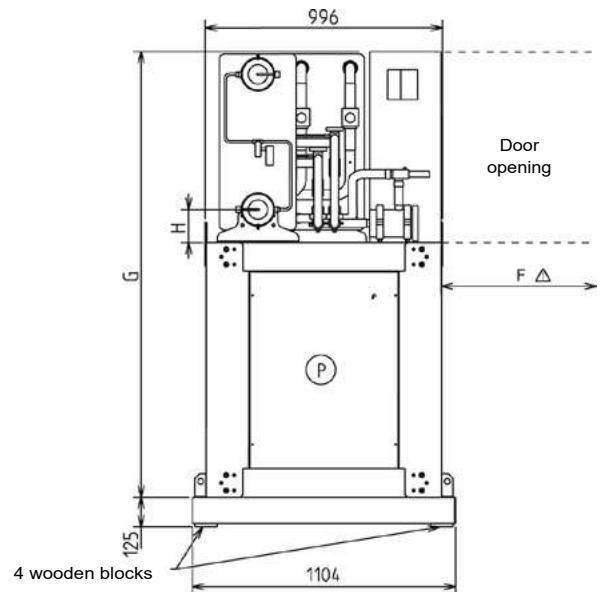
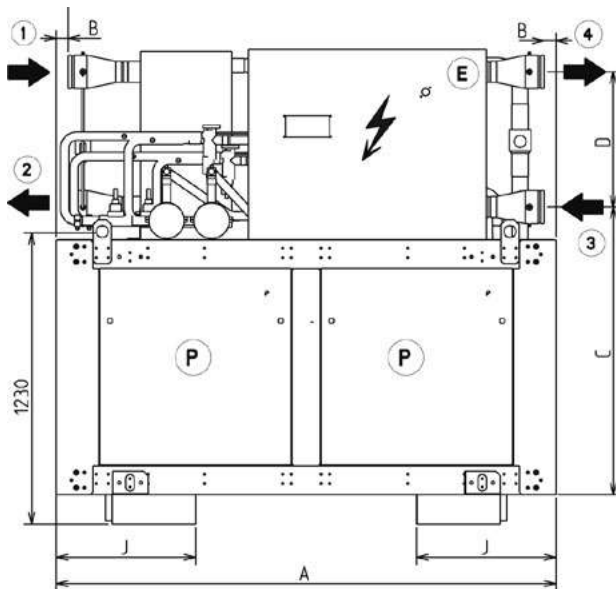
### REMOTE CONTROL AUXILIARY CIRCUIT

| Voltage                   | V  | 230V - 1Ph - 50Hz (+10/- 10%) |     |     |     |     |     |     |     |     |     |
|---------------------------|----|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Maximum nominal current   | A  | 0,8                           | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 1,3 | 1,3 | 1,3 | 1,3 |
| Transformer capacity      | VA | 160                           | 160 | 160 | 160 | 160 | 160 | 250 | 250 | 250 | 250 |
| Machine protection rating |    | IP 21                         |     |     |     |     |     |     |     |     |     |

- (1) Starting current of largest compressor + maximum current of other compressors under full load  
Cable selection nominal current = sum of maximum nominal currents in above tables

## DIMENSIONS

### 700 V to 1600 V models

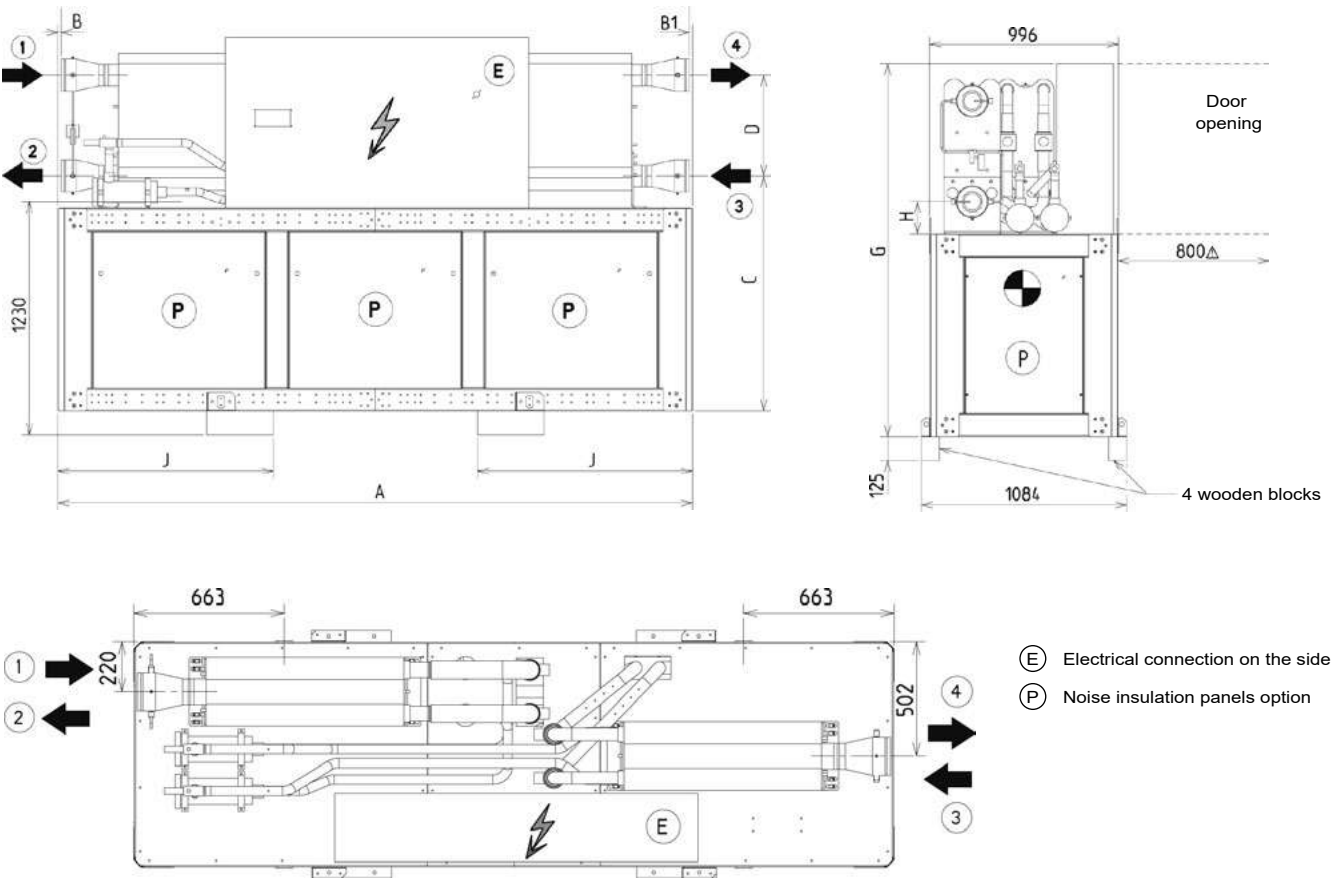


- Ⓔ Electrical connection on the side
- Ⓕ Noise insulation panels option

| Models | Dimensions (mm) |    |      |     |      |      |     |     | Chilled water       |          | Hot water |          | Weight (kg) |              |
|--------|-----------------|----|------|-----|------|------|-----|-----|---------------------|----------|-----------|----------|-------------|--------------|
|        | A               | B  | C    | D   | F    | G    | H   | J   | Inlet 1             | Outlet 2 | Inlet 3   | Outlet 4 | empty       | in operation |
| 700 V  | 2099            | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 | VICTAULIC<br>DN 100 |          |           |          | 1044        | 1088         |
| 800 V  | 2099            | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 |                     |          |           |          | 1156        | 1205         |
| 900 V  | 2099            | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 |                     |          |           |          | 1189        | 1246         |
| 1000 V | 2099            | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 | VICTAULIC<br>DN 125 |          |           |          | 1312        | 1378         |
| 1100 V | 2099            | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 |                     |          |           |          | 1363        | 1436         |
| 1200 V | 2099            | 49 | 1207 | 568 | 1000 | 1869 | 137 | 585 |                     |          |           |          | 1425        | 1510         |
| 1400 V | 2499            | 60 | 1240 | 532 | 600  | 1887 | 170 | 715 |                     |          |           |          | 1613        | 1713         |
| 1600 V | 2499            | 60 | 1240 | 532 | 600  | 1887 | 170 | 715 |                     |          |           |          | 1708        | 1818         |

# DIMENSIONS

## 1800 V to 2400 V models



| Models | Dimensions (mm) |    |    |      |     |      |     |      | Chilled water       |          | Hot water |          | Weight (kg) |              |
|--------|-----------------|----|----|------|-----|------|-----|------|---------------------|----------|-----------|----------|-------------|--------------|
|        | A               | B  | B1 | C    | D   | G    | H   | J    | Inlet 1             | Outlet 2 | Inlet 1   | Outlet 2 | empty       | in operation |
| 1800 V | 3350            | 63 | 63 | 1240 | 532 | 1970 | 170 | 1135 | VICTAULIC<br>DN 150 |          |           |          | 2284        | 2472         |
| 2100 V | 3350            | 15 | 15 | 1240 | 532 | 1970 | 170 | 1135 |                     |          |           |          | 2376        | 2588         |
| 2400 V | 3350            | 15 | 15 | 1240 | 532 | 1970 | 170 | 1135 |                     |          |           |          | 2418        | 2637         |



## WATER-COOLED SCREW CHILLERS



Low energy consumption

High reliability

Easy and fast installation

Low operating sound levels

Environmental care

## 30XW/30XW-P

**AQUAFORCE**

Nominal cooling capacity 273-1756 kW

Nominal heating capacity 317-1989 kW

The 30XW liquid chillers are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality.

The 30XW liquid chillers are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness. They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- Refrigerant R134a
- Flooded heat exchangers that are mechanically cleanable
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages

To meet to all environmental and economic requirements, the 30XW is available in two efficiency classes:

- Entry-level efficiency 30XW units that offer an optimised balance of technical and economical aspects,
- Premium-efficiency 30XW-P units that offer unequalled energy efficiency to satisfy the most stringent demands of building owners wanting to reduce operating costs to the minimum.

The 30XW Aquaforce range is also split into two versions:

- 30XW for air conditioning and refrigeration applications
- 30XWH for heating applications

As standard, the unit can provide an evaporator leaving temperature down to 3,3°C (-12°C optional), and when operating as a heat pump, it can deliver up to 50°C (63°C optional) on the condenser side.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## CUSTOMER BENEFITS

### Low energy consumption

- SEPR up to 9,1 and SEER up to 7,7
- The high energy efficiency is reached through:
  - Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
  - Economizer system with electronic expansion device for increased cooling capacity (30XW-P).

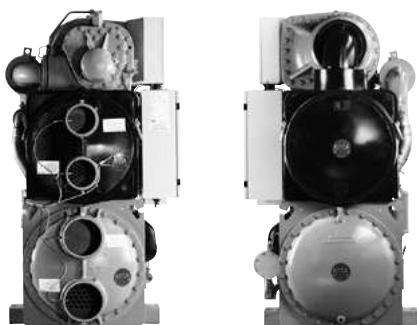
### Low operating sound levels

- Standard unit features include:
  - Silencers on the compressors discharge line.
  - Silencers on the economiser return line.
  - Acoustic insulation on the components that are most subjected to radiated noise.
  - Option 257 further reduces the global unit sound level.

### Easy and fast installation

- Compact design
  - The 30XW units are designed to offer the most compact dimensions on the market.
  - With a width of approximately 1 m up to 1600 kW the units can pass through standard door openings and only require minimum floor space in the plant room.

**Compact, accessible unit - side view -  
sizes up to 1600 KW**



- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V)
- Simplified hydraulic connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Environmental care

- R-134a refrigerant
  - HFC refrigerant with zero ozone depletion potential
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### High reliability and easy servicing

- The 30XW units offer increased global performance as well as Carrier's acclaimed product quality and reliability.
- Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuit
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features :
  - An intuitive and user-friendly, coloured, 4.3" interface
  - 1 languages available on choice: DE, EN, ES, FR, T, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features :
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote Management (Standard)

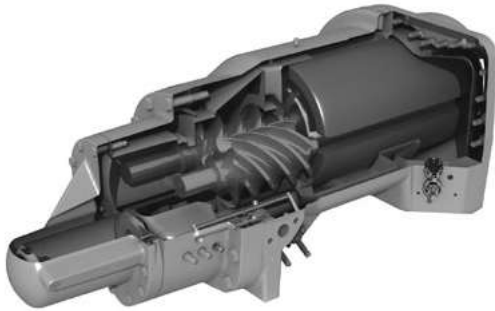
- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The 30XW/P also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
  - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output ( -1 gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

## TECHNICAL INSIGHTS

### 06T screw compressor



The new generation of the Carrier 06T screw compressors benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high water temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.

The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

## OPTIONS

| Options                                  | No.  | Description  | Advantages  | Use                      |
|--|------|--|---|--------------------------|
| Low Brine with turbulators down to -15°C | 6    | Redesigned evaporator including turbulators to allow chilled brine solution production with low pressure drops on the entire negative application range, down to -15°C (including turbulators, extra insulation and algorithms). | Covers specific applications such as ice storage and industrial processes   | -0254-P1762              |
| Light-brine solution, down to -3°C       | 8    | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements   | -0254-P1762              |
| IP44 electrical protection level         | 20   | Control box tightness reinforced<br>Electrical box enclosure and outside electrical component following IEC 60529 standard   | Permits unit installation in more severe environments   | -0254-P1762              |
| 90-10 Copper-Nickel condensers           | 33   | - Condenser tubes 90-10 Cu/Ni.<br>- Condenser tube sheets clad with 90-10 Cu/Ni.<br>- Waterboxes not treated against corrosion.  | Improved resistance to corrosion  | -0254-P1762              |
| Unit supplied in two assembled parts     | 51   | The unit is equipped with flanges that allow disassembly of the unit on site   | Facilitates installation in plant rooms with limited access   | -1652--1702, P1612-P1762 |
| Master/slave operation                   | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with operating time equalisation   | -0254-P1762              |
| Single power connection point            | 81   | Unit power connection via one main supply connection   | Quick and easy installation   | -1002--1702, P1012-P1762 |
| No disconnect switch                     | 82A  | Unit without disconnect switch, but with short-circuit protection device   | Permits an external electrical disconnect system for the unit (field-supplied), while ensuring unit short circuit protection  | -0254-P1762              |
| Evap. single pump power/control circuit  | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | -0254--1252, P0512-P1314 |
| Evap. dual pumps power/control circuit   | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | -0254--1252, P0512-P1314 |
| Cond. single pump power/control circuit  | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | -0254--1252, P0512-P1314 |
| Condenser insulation                     | 86   | Thermal condenser insulation   | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications)   | -0254-P1762              |
| Service valve set                        | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve   | Allow isolation of various refrigerant circuit components for simplified service and maintenance  | -0254-P1762              |
| Evaporator with one pass less            | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.   | Easy to install, depending on site. Reduced pressure drops  | -0254-P1762              |
| Condenser with one pass less             | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.   | Easy to install, depending on site. Reduced pressure drops  | -0254-P1762              |
| 21 bar evaporator                        | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column evaporator side (typically high buildings)   | -0254-P1762              |
| 21 bar condenser                         | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column condenser side (typically high buildings)  | -0254-P1762              |
| Reversed evaporator water connections    | 107  | Evaporator with reversed water inlet/outlet  | Easy installation on sites with specific requirements   | -0254-P1762              |
| Reversed condenser water connections     | 107A | Condenser with reversed water inlet/outlet   | Easy installation on sites with specific requirements   | -0254-P1762              |
| Lon gateway                              | 148D | Bi-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | -0254-P1762              |
| Bacnet over IP                           | 149  | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | -0254-P1762              |
| Modbus over IP and RS485                 | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | -0254-P1762              |
| High condensing temperature              | 150  | Optimized compressor for operation at high condensing temperature  | Increased condenser leaving water temperature up to 63°C. Allows applications with high condensing temperature (heat pumps, installations with not generously sized dry-coolers or more generally, installations with dry-coolers in hot climate). NOTE: to ens | -0254--0354, P0512-P1762 |

## OPTIONS

| Options                                      | No.  | Description   | Advantages   | Use         |
|--|------|---|--|-------------|
| Condensing temperature limitation            | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized  | -0254-P1762 |
| Control for low cond. temperature            | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | -0254-P1762 |
| Dry-cooler control                           | 154  | Adaptation of the control box for communication with the dry-cooler via a bus.<br>For dry cooler need to select the cabinet with option control cabinet manage by the chiller control | Easy system management, extended control capabilities of a remote dry-cooler   | -0254-P1762 |
| Energy Management Module                     | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | -0254-P1762 |
| 7" user interface                            | 158A | Control supplied with a 7 inch colour touch screen user interface   | Enhanced ease of use.  | -0254-P1762 |
| Input contact for Refrigerant leak detection | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)                                    | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | -0254-P1762 |
| Dual relief valves on 3-way valve            | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator  | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4   | -0254-P1762 |
| Compliance with Swiss regulations            | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications  | Conformance with Swiss regulations   | -0254-P1762 |
| Compliance with Russian regulations          | 199  | EAC certification   | Conformance with Russian regulations   | -0254-P1762 |
| Compliance with Australian regulations       | 200  | Unit approved to Australian code  | Conformance with Australian regulations  | -0254-P1762 |
| Low noise level                              | 257  | Evaporator sound insulation   | 3 dB(A) quieter than standard unit   | -0402-P1762 |
| Welded evaporator connection kit             | 266  | Victaulic piping connections with welded joints   | Easy installation  | -0254-P1762 |
| Welded condenser water connection kit        | 267  | Victaulic piping connections with welded joints   | Easy installation  | -0254-P1762 |
| Flanged evaporator water connection kit      | 268  | Victaulic piping connections with flanged joints  | Easy installation  | -0254-P1762 |
| Flanged condenser water connection kit       | 269  | Victaulic piping connections with flanged joints  | Easy installation  | -0254-P1762 |
| Thermal compressor insulation                | 271  | The compressor is covered with a thermal insulation layer   | Prevents air humidity to condensate on the compressor surface  | -0254-P1762 |
| 230V electrical plug                         | 284  | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8Amps)   | Permits connection of a laptop or an electrical device during unit commissioning or servicing  | -0254-P1762 |
| Free-cooling dry-cooler control              | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box  | Easy system management, Extended control capabilities to a dryccoler used in Free Cooling mode   | -0254-P1762 |
| Compliance with UAE regulation               | 318  | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590   | Compliance with ESMA standard UAE.S 5010-5:2019.   | -0254-P1762 |
| Compliance with Morocco regulation           | 327  | Specifics documents according Morocco regulation  | Conformance with Morocco regulations   | -0254-P1762 |



## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-  |         |   |         | 254   | 304   | 354   | 402   | 452   | 552   | 602   | 652   | 702   | 802   |
|--|---------|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating  |         |   |         |   |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*              | HW1     | Nominal capacity                          | kW      | 317   | 360   | 422   | 499   | 555   | 626   | 633   | 793   | 858   | 929   |
|  |         | COP                                       | kW/kW   | 5,96  | 5,98  | 5,93  | 5,98  | 6,04  | 5,84  | 5,81  | 6,06  | 5,96  | 5,79  |
|  | HW2     | Nominal capacity                          | kW      | 312   | 353   | 417   | 473   | 526   | 595   | 624   | 749   | 812   | 879   |
|  |         | COP                                       | kW/kW   | 4,51  | 4,50  | 4,55  | 4,54  | 4,56  | 4,42  | 4,46  | 4,54  | 4,48  | 4,40  |
| Seasonal energy<br>efficiency**                          | HW1     | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 5,98  | 6,02  | 5,99  | 6,45  | 6,60  | 6,58  | 6,31  | 6,16  | 6,15  | 6,13  |
|  |         | η <sub>s heat</sub> <sub>30/35°C</sub>    | %       | 231   | 233   | 231   | 250   | 256   | 255   | 245   | 238   | 238   | 237   |
|  |         | P <sub>rated</sub>                        | kW      | 414   | 426   | 500   | 595   | 660   | 742   | 750   | 945   | 1022  | 1095  |
| Cooling  |         |   |         |   |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*              | CW1     | Nominal capacity                          | kW      | 269   | 303   | 354   | 421   | 467   | 525   | 531   | 669   | 720   | 783   |
|  |         | EER                                       | kW/kW   | 5,25  | 5,23  | 5,17  | 5,22  | 5,28  | 5,12  | 5,11  | 5,32  | 5,23  | 5,13  |
|  | CW2     | Nominal capacity                          | kW      | 317   | 362   | 447   | 594   | 639   | 608   | 674   | 851   | 890   | 884   |
|  |         | EER                                       | kW/kW   | 6,46  | 6,25  | 6,86  | 7,04  | 6,97  | 5,84  | 6,38  | 6,55  | 6,27  | 5,68  |
| Seasonal energy<br>efficiency**                          |         | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 6,26  | 6,33  | 6,40  | 6,851 | 7,043 | 7,116 | 6,823 | 6,644 | 6,63  | 6,82  |
|  |         | η <sub>s cool</sub> <sub>12/7°C</sub>     | %       | 247   | 250   | 253   | 271   | 279   | 282   | 270   | 263   | 262   | 270   |
|  |         | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,60  | 8,16  | 8,80  | 8,12  | 8,28  | 7,72  | 7,90  | 8,83  | 8,25  | 8,01  |
| Integrated Part Load Value                               | IPLV.SI |   | kW/kW   | 6,791                                       | 6,845 | 6,850 | 6,861 | 7,165 | 7,430 | 7,110 | 7,185 | 7,168 | 7,212 |
| Sound levels - standard unit                             |         |   |         |   |       |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |         |   | dB(A)   | 95  | 95    | 95    | 99    | 99    | 99    | 99    | 99    | 99    | 99    |
| Sound pressure level at 1 m <sup>(2)</sup>               |         |   | dB(A)   | 78  | 78    | 78    | 82    | 82    | 82    | 82    | 82    | 82    | 82    |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |         |   |         |   |       |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |         |   | dB(A)   | -   | -     | -     | 96    | 96    | 96    | 96    | 96    | 96    | 96    |
| Sound pressure level at 1 m <sup>(2)</sup>               |         |   | dB(A)   | -   | -     | -     | 78    | 78    | 78    | 78    | 78    | 78    | 78    |
| Dimensions - standard unit                               |         |   |         |   |       |       |       |       |       |       |       |       |       |
| Length   |         |   | mm      | 2724  | 2724  | 2724  | 2741  | 2741  | 2741  | 2741  | 3059  | 3059  | 3059  |
| Width  |         |   | mm      | 928   | 928   | 928   | 936   | 936   | 936   | 936   | 1040  | 1040  | 1040  |
| Height   |         |   | mm      | 1567  | 1567  | 1567  | 1692  | 1692  | 1692  | 1692  | 1848  | 1848  | 1848  |
| Operating weight <sup>(4)</sup>                          |         |   | kg      | 2017  | 2036  | 2072  | 2575  | 2575  | 2613  | 2644  | 3247  | 3266  | 3282  |
| Compressors  |         |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |       |
| Circuit A  |         |   | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  |         |   | -       | -   | -     | -     | -     | -     | -     | -     | -     | -     | -     |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s cool</sub><sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level.

(4) Weight shown is guideline only. Please refer to the unit nameplate.



Eurovent certified values



AHRI certified values  
30XW-only

## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-                      |                    | 254   | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 84  | 80   | 78   | 92   | 92   | 92   | 92   | 145  | 135  | 125  |
|                                    | teqCO <sub>2</sub> | 120   | 114  | 112  | 132  | 132  | 132  | 132  | 207  | 193  | 179  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Oil - standard unit</b>         |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 23,5  | 23,5 | 23,5 | 32   | 32   | 32   | 32   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 20  | 20   | 25   | 30   | 30   | 30   | 30   | 20   | 20   | 20   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 50  | 56   | 61   | 70   | 70   | 70   | 70   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 55  | 55   | 55   | 76   | 76   | 76   | 76   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-  |         |   |         | 852   | 1002  | 1052  | 1154  | 1252  | 1352  | 1452  | 1552  | 1652  | 1702 |
|--|---------|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Heating  |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Standard unit<br>Full load<br>performances*              | HW1     | Nominal capacity                          | kW      | 981   | 1185  | 1237  | 1324  | 1457  | 1557  | 1689  | 1795  | 1913  | 2001 |
|  |         | COP                                       | kW/kW   | 5,98  | 5,77  | 5,67  | 5,79  | 6,12  | 5,96  | 5,76  | 5,61  | 5,94  | 5,92 |
|  | HW2     | Nominal capacity                          | kW      | 958   | 1123  | 1174  | 1297  | 1375  | 1466  | 1592  | 1687  | 1867  | 1948 |
|  |         | COP                                       | kW/kW   | 4,60  | 4,40  | 4,33  | 4,46  | 4,63  | 4,53  | 4,41  | 4,33  | 4,61  | 4,64 |
| Seasonal energy<br>efficiency**                          | HW1     | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 6,33  | 6,43  | 6,24  | 6,30  | 6,56  | 6,33  | 6,22  | 6,11  | 6,46  | 6,50 |
|  |         | ηs heat <sub>30/35°C</sub>                | %       | 245   | 249   | 242   | 244   | 254   | 245   | 241   | 236   | 251   | 252  |
|  |         | P <sub>rated</sub>                        | kW      | 1153  | 1411  | 1473  | 1569  | 1737  | 1856  | 2013  | 2140  | 2265  | 2371 |
| Cooling  |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Standard unit<br>Full load<br>performances*              | CW1     | Nominal capacity                          | kW      | 829   | 1005  | 1049  | 1128  | 1242  | 1327  | 1438  | 1532  | 1637  | 1712 |
|  |         | EER                                       | kW/kW   | 5,33  | 5,19  | 5,12  | 5,25  | 5,55  | 5,45  | 5,31  | 5,24  | 5,54  | 5,55 |
|  | CW2     | Nominal capacity                          | kW      | 936   | 1341  | 1505  | 1384  | 1733  | 1894  | 1981  | 2172  | 1949  | 2066 |
|  |         | EER                                       | kW/kW   | 5,91  | 6,64  | 6,91  | 6,28  | 7,31  | 7,29  | 6,86  | 6,88  | 6,47  | 6,43 |
| Seasonal energy<br>efficiency**                          |         | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 7,091                                       | 7,07  | 7,02  | 6,96  | 7,51  | 7,24  | 7,11  | 7,13  | 7,55  | 7,69 |
|  |         | ηs cool <sub>12/7°C</sub>                 | %       | 281   | 280   | 278   | 275   | 298   | 287   | 282   | 282   | 299   | 304  |
|  |         | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,01  | 8,29  | 8,11  | 7,96  | 8,97  | 9,09  | 8,34  | 8,13  | 8,45  | 8,50 |
| Integrated Part Load Value                               | IPLV.SI | kW/kW                                     | 7,289   | 7,478                                       | 7,367 | 7,435 | 7,804 | 7,725 | 7,666 | 7,504 | 8,000 | 8,020 |      |
| Sound levels - standard unit                             |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                         |         | dB(A)                                     | 99      | 102   | 102   | 102   | 102   | 102   | 102   | 102   | 102   | 102   | 102  |
| Sound pressure level at 1 m <sup>(2)</sup>               |         | dB(A)                                     | 82      | 84  | 84    | 84    | 83    | 83    | 83    | 83    | 83    | 83    | 83   |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                         |         | dB(A)                                     | 96      | 99  | 99    | 99    | 99    | 99    | 99    | 99    | 99    | 99    | 99   |
| Sound pressure level at 1 m <sup>(2)</sup>               |         | dB(A)                                     | 78      | 80  | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80   |
| Dimensions - standard unit                               |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Length   |         | mm  | 2780    | 4025  | 4025  | 4025  | 4730  | 4730  | 4730  | 4730  | 4790  | 4790  |      |
| Width  |         | mm  | 1042    | 1036  | 1036  | 1036  | 1156  | 1156  | 1156  | 1156  | 1902  | 1902  |      |
| Height   |         | mm  | 1898    | 1870  | 1870  | 1925  | 2051  | 2051  | 2051  | 2051  | 1515  | 1515  |      |
| Operating weight <sup>(4)</sup>                          |         | kg  | 3492    | 5370  | 5408  | 5698  | 7066  | 7267  | 7305  | 7337  | 8681  | 8699  |      |
| Compressors  |         |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |      |
| Circuit A  |         | -   | 1       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1    |
| Circuit B  |         | -   | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1    |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s heat 30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s cool 12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level.

(4) Weight shown is guideline only. Please refer to the unit nameplate.



Eurovent certified values



AHRI certified values  
30XW-only

## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-                      |                    | 852   | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 158   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | 226   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| Circuit B                          | kg                 | -   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | -   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| <b>Oil - standard unit</b>         |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 36  | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | 32   | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 20  | 15   | 15   | 15   | 15   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 98  | 182  | 182  | 205  | 301  | 301  | 301  | 301  | 354  | 354  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 137   | 193  | 193  | 193  | 340  | 340  | 340  | 340  | 426  | 426  |
| Water connections (Victaulic)      | in                 | 8   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## PHYSICAL DATA, STANDARD UNITS

### High-efficiency units

| 30XW-P/30XWHP  |     |   |         | 512   | 562   | 712   | 812   | 862   | 1012  | 1162  | 1314  | 1464  | 1612  | 1762  |
|--|-----|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating  |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Standard unit Full load performances*                    | HW1 | Nominal capacity                          | kW      | 586   | 667   | 851   | 912   | 995   | 1201  | 1327  | 1522  | 1680  | 1863  | 2019  |
|  |     | COP                                       | kW/kW   | 6,36  | 6,30  | 6,52  | 6,29  | 6,27  | 6,35  | 6,24  | 6,29  | 6,06  | 6,38  | 6,27  |
|  | HW2 | Nominal capacity                          | kW      | 573   | 654   | 836   | 896   | 970   | 1179  | 1296  | 1489  | 1643  | 1823  | 1964  |
|  |     | COP                                       | kW/kW   | 4,82  | 4,78  | 4,92  | 4,74  | 4,78  | 4,85  | 4,77  | 4,82  | 4,66  | 4,84  | 4,81  |
| Seasonal energy efficiency**                             | HW1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 6,58  | 6,59  | 6,48  | 6,27  | 6,48  | 6,72  | 6,85  | 6,75  | 6,38  | 6,73  | 6,71  |
|  |     | ηs heat <sub>30/35°C</sub>                | %       | 255   | 256   | 251   | 243   | 251   | 261   | 266   | 262   | 247   | 261   | 260   |
|  |     | P <sub>rated</sub>                        | kW      | 694   | 791   | 1009  | 1081  | 1180  | 1424  | 1572  | 1805  | 1993  | 2210  | 2395  |
| Cooling  |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Standard unit Full load performances*                    | CW1 | Nominal capacity                          | kW      | 502   | 569   | 727   | 776   | 850   | 1025  | 1143  | 1308  | 1435  | 1606  | 1736  |
|  |     | EER                                       | kW/kW   | 5,63  | 5,57  | 5,75  | 5,55  | 5,59  | 5,67  | 5,71  | 5,74  | 5,53  | 5,80  | 5,72  |
|  | CW2 | Nominal capacity                          | kW      | 617   | 727   | 890   | 971   | 1001  | 1375  | 1425  | 1772  | 1905  | 2034  | 2105  |
|  |     | EER                                       | kW/kW   | 6,88  | 6,94  | 7,20  | 6,98  | 6,83  | 7,46  | 6,90  | 7,55  | 7,28  | 7,34  | 7,11  |
| Seasonal energy efficiency**                             |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 7,00  | 7,12  | 7,05  | 6,82  | 7,24  | 7,34  | 7,78  | 7,69  | 7,29  | 7,79  | 7,86  |
|  |     | ηs cool <sub>12/7°C</sub>                 | %       | 277   | 282   | 279   | 270   | 287   | 291   | 308   | 304   | 289   | 309   | 311   |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,42  | 8,50  | 9,23  | 8,33  | 8,54  | 8,50  | 8,85  | 9,00  | 8,89  | 8,82  | 8,83  |
| Integrated Part Load Value                               |     | IPLV.SI                                   | kW/kW   | 7,391                                       | 7,473 | 7,556 | 7,301 | 7,538 | 7,639 | 8,053 | 8,150 | 7,485 | 7,757 | 8,089 |
| Sound levels - standard unit                             |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 99  | 99    | 99    | 99    | 99    | 102   | 102   | 102   | 102   | 102   | 102   |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 82  | 82    | 81    | 81    | 81    | 83    | 83    | 83    | 83    | 83    | 83    |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 96  | 96    | 96    | 96    | 96    | 99    | 99    | 99    | 99    | 99    | 99    |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 78  | 78    | 78    | 78    | 78    | 80    | 80    | 80    | 80    | 80    | 80    |
| Dimensions - standard unit                               |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Length   |     |   | mm      | 3059  | 3059  | 3290  | 3290  | 3290  | 4730  | 4730  | 4730  | 4730  | 4832  | 4832  |
| Width  |     |   | mm      | 936   | 936   | 1069  | 1069  | 1069  | 1039  | 1039  | 1162  | 1162  | 2129  | 2129  |
| Height   |     |   | mm      | 1743  | 1743  | 1950  | 1950  | 1950  | 1997  | 1997  | 2051  | 2051  | 1562  | 1562  |
| Operating weight <sup>(4)</sup>                          |     |   | kg      | 2981  | 3020  | 3912  | 3947  | 3965  | 6872  | 6950  | 7542  | 7752  | 10910 | 10946 |
| Compressors  |     |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |       |       |
| Circuit A  |     |   | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  |     |   | -       | -   | -     | -     | -     | -     | 1     | 1     | 1     | 1     | 1     | 1     |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s cool</sub><sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level.

(4) Weight shown is guideline only. Please refer to the unit nameplate.



Eurovent certified values



AHRI certified values  
30XW-only



## PHYSICAL DATA, STANDARD UNITS

### High-efficiency units

| 30XW-P/30XWHP                      |                    | 512   | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 130   | 130  | 180  | 175  | 177  | 120  | 120  | 130  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | 186   | 186  | 257  | 250  | 253  | 172  | 172  | 186  | 186  | 343  | 358  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | 120  | 120  | 150  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | 172  | 172  | 215  | 186  | 343  | 358  |
| <b>Oil - standard unit</b>         |                    |   |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 32  | 32   | 36   | 36   | 36   | 32   | 32   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | 32   | 32   | 32   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 30  | 30   | 20   | 20   | 20   | 15   | 15   | 15   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 101   | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  | 473  | 473  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 103   | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  | 623  | 623  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## ELECTRICAL DATA, STANDARD UNITS

## Standard-efficiency units

| 30XW--/30XWH-   |         | 254      | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|---|---------|----------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |          |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50 |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440  |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         |          |      |      |      |      |      |      |      |      |      |
| 24 V via the built-in transformer                     |         |          |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 233      | 233  | 303  | 414  | 414  | 414  | 414  | 587  | 587  | 587  |
| Circuit B   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 233      | 233  | 303  | 414  | 414  | 414  | 414  | 587  | 587  | 587  |
| Circuit B   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Cosine phi</b>                                     |         |          |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,83     | 0,85 | 0,83 | 0,87 | 0,88 | 0,89 | 0,89 | 0,88 | 0,89 | 0,90 |
| Maximum <sup>(4)</sup>                                |         | 0,89     | 0,89 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,91 | 0,92 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 76       | 89   | 97   | 128  | 135  | 151  | 151  | 184  | 200  | 223  |
| Circuit B   | kW      | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | kW      | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 84       | 96   | 113  | 136  | 144  | 162  | 162  | 193  | 214  | 232  |
| Circuit B   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un)†</b>                    |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 123      | 145  | 160  | 206  | 217  | 242  | 242  | 295  | 317  | 351  |
| Circuit B   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 138      | 162  | 178  | 218  | 230  | 260  | 260  | 304  | 340  | 358  |
| Circuit B   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum power input with option 150B†</b>          |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 67       | 79   | 87   | 114  | 118  | 133  | 134  | 173  | 183  | 205  |
| Circuit B   | kW      | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | kW      | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un) with option 150B†</b>   |         |          |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 109      | 129  | 142  | 183  | 191  | 212  | 212  | 278  | 290  | 325  |
| Circuit B   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-   |         | 852                               | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | 414  | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | 558  | 574  | 574  | 747  | 780  | 801  | 819  | 819  | 819  |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | 414  | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | 631  | 656  | 656  | 829  | 882  | 904  | 938  | 938  | 938  |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,90                              | 0,88 | 0,89 | 0,89 | 0,88 | 0,88 | 0,89 | 0,9  | 0,9  | 0,9  |
| Maximum <sup>(4)</sup>                                |         | 0,92                              | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,91 | 0,92 | 0,92 | 0,92 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 223                               | 150  | 151  | 151  | 184  | 184  | 200  | 223  | 223  | 223  |
| Circuit B   | kW      | -                                 | 135  | 151  | 151  | 151  | 184  | 200  | 223  | 202  | 223  |
| Option 81   | kW      | -                                 | 284  | 301  | 301  | 334  | 367  | 399  | 447  | 425  | 447  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 232                               | 162  | 162  | 162  | 193  | 193  | 214  | 232  | 232  | 232  |
| Circuit B   | A       | -                                 | 144  | 162  | 162  | 162  | 193  | 214  | 232  | 214  | 232  |
| Option 81   | A       | -                                 | 306  | 324  | 324  | 355  | 386  | 427  | 464  | 446  | 464  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 351                               | 242  | 242  | 242  | 295  | 295  | 317  | 351  | 351  | 351  |
| Circuit B   | A       | -                                 | 217  | 242  | 242  | 242  | 295  | 317  | 351  | 317  | 351  |
| Option 81   | A       | -                                 | 459  | 484  | 484  | 537  | 590  | 634  | 702  | 668  | 702  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 358                               | 260  | 260  | 260  | 304  | 304  | 340  | 358  | 358  | 358  |
| Circuit B   | A       | -                                 | 230  | 260  | 260  | 260  | 304  | 340  | 358  | 340  | 358  |
| Option 81   | A       | -                                 | 490  | 520  | 520  | 564  | 608  | 680  | 716  | 698  | 716  |
| <b>Maximum power input with option 150B†</b>          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 205                               | 133  | 133  | 133  | 173  | 173  | 183  | 207  | 207  | 207  |
| Circuit B   | kW      | -                                 | 118  | 133  | 133  | 133  | 173  | 183  | 207  | 185  | 207  |
| Option 81   | kW      | -                                 | 251  | 265  | 265  | 305  | 346  | 365  | 414  | 391  | 414  |
| <b>Maximum current drawn (Un) with option 150B†</b>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 325                               | 212  | 212  | 212  | 278  | 278  | 290  | 325  | 325  | 325  |
| Circuit B   | A       | -                                 | 191  | 212  | 212  | 212  | 278  | 290  | 325  | 290  | 325  |
| Option 81   | A       | -                                 | 403  | 424  | 424  | 490  | 556  | 580  | 650  | 615  | 650  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, STANDARD UNITS

## High-efficiency units

| 30XW-P/30XWHP   |         | 512                               | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 414                               | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 414  | 414  | 414  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 556  | 574  | 747  | 780  | 801  | 819  |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 414                               | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 414  | 414  | 414  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 631  | 656  | 829  | 882  | 904  | 938  |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,88                              | 0,89 | 0,88 | 0,89 | 0,90 | 0,86 | 0,87 | 0,88 | 0,88 | 0,89 | 0,90 |
| Maximum <sup>(4)</sup>                                |         | 0,90                              | 0,90 | 0,90 | 0,91 | 0,92 | 0,89 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 135                               | 151  | 184  | 200  | 223  | 134  | 151  | 184  | 184  | 200  | 223  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | 134  | 151  | 151  | 184  | 200  | 223  |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | 267  | 301  | 334  | 367  | 399  | 447  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 144                               | 162  | 193  | 214  | 232  | 144  | 162  | 193  | 193  | 214  | 232  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 144  | 162  | 162  | 193  | 214  | 232  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 288  | 324  | 355  | 386  | 427  | 464  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 217                               | 242  | 295  | 317  | 351  | 217  | 242  | 295  | 295  | 317  | 351  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 217  | 242  | 242  | 295  | 317  | 351  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 434  | 484  | 537  | 590  | 634  | 702  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 230                               | 260  | 304  | 340  | 358  | 230  | 260  | 304  | 304  | 340  | 358  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 230  | 260  | 260  | 304  | 340  | 358  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 460  | 520  | 564  | 608  | 680  | 716  |
| <b>Maximum power input with option 150B†</b>          |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 118                               | 133  | 173  | 183  | 207  | 118  | 133  | 173  | 173  | 183  | 207  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | 118  | 133  | 133  | 173  | 183  | 207  |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | 235  | 265  | 305  | 346  | 365  | 414  |
| <b>Maximum current drawn (Un) with option 150B†</b>   |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 191                               | 212  | 278  | 290  | 325  | 191  | 212  | 278  | 278  | 290  | 325  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 191  | 212  | 212  | 278  | 290  | 325  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 382  | 424  | 490  | 556  | 580  | 650  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW--/30XWH-   |     |   |         | 254   | 304   | 354   | 402   | 452   | 552   | 602   | 652   | 702   | 802   |      |
|---|-----|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Heating   |     |   |         |   |       |       |       |       |       |       |       |       |       |      |
| Unit + option 150<br>Full load performances*                    | HW1 | Nominal capacity                          | kW      | 328   | 366   | 413   | 502   | 536   | 597   | 618   | 756   | 845   | 869   |      |
|   |     | COP                                       | kW/kW   | 5,49  | 5,48  | 5,44  | 5,11  | 5,41  | 5,27  | 5,41  | 5,31  | 5,37  | 5,17  |      |
|   | HW2 | Nominal heating capacity                  | kW      | 319   | 356   | 402   | 470   | 501   | 559   | 599   | 706   | 789   | 812   |      |
|   |     | COP                                       | kW/kW   | 4,54  | 4,51  | 4,47  | 4,21  | 4,45  | 4,36  | 4,48  | 4,39  | 4,44  | 4,31  |      |
|   | HW3 | Nominal capacity                          | kW      | 310   | 347   | 391   | 440   | 469   | 523   | 582   | 659   | 738   | 760   |      |
|   |     | COP                                       | kW/kW   | 3,80  | 3,78  | 3,75  | 3,47  | 3,67  | 3,61  | 3,76  | 3,62  | 3,68  | 3,57  |      |
| Seasonal energy efficiency**                                    | HW1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 5,77  | 5,94  | 5,86  | 5,54  | 5,77  | 5,75  | 5,72  | 5,55  | 5,79  | 5,01  |      |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub>    | %       | 223   | 230   | 226   | 214   | 223   | 222   | 221   | 214   | 223   | 193   |      |
|   | HW3 | SCOP <sub>47/55°C</sub>                   | kWh/kWh | 4,58  | 4,63  | 4,56  | 4,20  | 4,42  | 4,45  | 4,50  | 4,26  | 4,45  | 3,86  |      |
|   |     | η <sub>s</sub> heat <sub>47/55°C</sub>    | %       | 175   | 177   | 175   | 160   | 169   | 170   | 172   | 163   | 170   | 146   |      |
|   |     | P <sub>rated</sub>                        | kW      | 411   | 415   | 467   | 535   | 571   | 637   | 697   | 803   | 898   | 926   |      |
|   |     |   |         |   |       |       |       |       |       |       |       |       |       |      |
| Cooling   |     |   |         |   |       |       |       |       |       |       |       |       |       |      |
| Unit + option 150<br>Full load performances*                    | CW1 | Nominal cooling capacity                  | kW      | 278   | 309   | 348   | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
|   |     | EER                                       | kW/kW   | 4,83  | 4,80  | 4,76  | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
| Seasonal energy efficiency**                                    |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 6,19  | 6,29  | 6,22  | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
|   |     | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 245   | 249   | 246   | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,67  | 6,72  | 6,57  | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
| Integrated Part Load Value                                      |     | IPLV.SI                                   | kW/kW   | 6,364                                       | 6,527 | 6,531 | 5,928 | 6,176 | 6,287 | 6,185 | 5,931 | 6,433 | 5,575 |      |
| Sound levels - unit with option 150                             |     |   |         |   |       |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                                |     |   |         | dB(A)                                       | 95    | 95    | 95    | 99    | 99    | 99    | 99    | 102   | 102   | 102  |
| Sound pressure level at 1 m <sup>(2)</sup>                      |     |   |         | dB(A)                                       | 78    | 78    | 78    | 82    | 82    | 82    | 82    | 84    | 84    | 84   |
| Sound levels - unit with option 150 + option 257 <sup>(3)</sup> |     |   |         |   |       |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                                |     |   |         | dB(A)                                       | -     | -     | -     | 96    | 96    | 96    | 96    | 100   | 100   | 100  |
| Sound pressure level at 1 m <sup>(2)</sup>                      |     |   |         | dB(A)                                       | -     | -     | -     | 78    | 78    | 78    | 78    | 82    | 82    | 82   |
| Dimensions - unit with option 150                               |     |   |         |   |       |       |       |       |       |       |       |       |       |      |
| Length  |     |   |         | mm  | 2724  | 2724  | 2724  | 2741  | 2741  | 2741  | 2741  | 3059  | 3059  | 3059 |
| Width   |     |   |         | mm  | 928   | 928   | 928   | 936   | 936   | 936   | 936   | 1090  | 1090  | 1090 |
| Height  |     |   |         | mm  | 1567  | 1567  | 1567  | 1692  | 1692  | 1692  | 1692  | 1858  | 1858  | 1858 |
| Operating weight <sup>(4)</sup>                                 |     |   |         | kg  | 2017  | 2036  | 2072  | 2575  | 2575  | 2613  | 2644  | 3407  | 3438  | 3462 |
| Compressors   |     |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |       |      |
| Circuit A   |     |   |         | -   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1    |
| Circuit B   |     |   |         | -   | -     | -     | -     | -     | -     | -     | -     | -     | -     | -    |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2016, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).
- NA Non Authorized for the specific application for CEE market
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Option 257 = Low noise level
- (4) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

AHRI certified values  
30XW-only



## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW--/30XWH-                      |                    | 254   | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 84  | 80   | 78   | 92   | 92   | 92   | 92   | 145  | 135  | 125  |
|                                    | teqCO <sub>2</sub> | 120   | 114  | 112  | 132  | 132  | 132  | 132  | 207  | 193  | 179  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Oil - unit with option 150</b>  |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 23,5  | 23,5 | 23,5 | 32   | 32   | 32   | 32   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 30  | 30   | 30   | 30   | 30   | 30   | 30   | 25   | 25   | 25   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 50  | 56   | 61   | 70   | 70   | 70   | 70   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 55  | 55   | 55   | 76   | 76   | 76   | 76   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW--/30XWH- | 852 | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|---------------|-----|------|------|------|------|------|------|------|------|------|
|---------------|-----|------|------|------|------|------|------|------|------|------|

## Heating

|  |     |  |         |      |      |      |      |      |      |      |      |      |      |
|--|-----|--|---------|------|------|------|------|------|------|------|------|------|------|
| Unit + option 150<br>Full load performances* | HW1 | Nominal capacity                       | kW      | 963  | 1163 | 1228 | 1338 | 1432 | 1551 | 1671 | 1776 | 1928 | 1991 |
|  |     | COP                                    | kW/kW   | 5,36 | 5,37 | 5,28 | 5,38 | 5,56 | 5,32 | 5,23 | 5,12 | 5,34 | 5,27 |
|  | HW2 | Nominal heating capacity               | kW      | 939  | 1085 | 1146 | 1290 | 1329 | 1445 | 1558 | 1649 | 1873 | 1936 |
|  |     | COP                                    | kW/kW   | 4,46 | 4,46 | 4,40 | 4,48 | 4,63 | 4,45 | 4,38 | 4,34 | 4,50 | 4,46 |
|  | HW3 | Nominal capacity                       | kW      | 915  | 1012 | 1068 | 1249 | 1244 | 1345 | 1452 | 1543 | 1821 | 1882 |
|  |     | COP                                    | kW/kW   | 3,73 | 3,71 | 3,66 | 3,77 | 3,83 | 3,68 | 3,64 | 3,63 | 3,81 | 3,77 |
| Seasonal energy efficiency**                 | HW1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 5,66 | 5,86 | 5,86 | 5,78 | 6,09 | 5,69 | 5,79 | 5,43 | 5,93 | 5,92 |
|  |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 218  | 226  | 226  | 223  | 236  | 220  | 224  | 209  | 229  | 229  |
|  | HW3 | SCOP <sub>47/55°C</sub>                | kWh/kWh | 4,47 | 4,73 | 4,73 | 4,61 | 4,68 | 4,38 | 4,45 | 4,35 | 4,74 | 4,76 |
|  |     | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 171  | 181  | 181  | 176  | 179  | 167  | 170  | 166  | 182  | 182  |
|  |     | P <sub>rated</sub>                     | kW      | 1094 | 1234 | 1303 | 1497 | 1518 | 1641 | 1770 | 1882 | 2179 | 2253 |
|  |     |  |         |      |      |      |      |      |      |      |      |      |      |

## Cooling

|  |         |   |         |       |       |       |       |       |       |       |       |       |    |
|--|---------|---|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| Unit + option 150<br>Full load performances* | CW1     | Nominal cooling capacity                  | kW      | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA |
|  |         | EER                                       | kW/kW   | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA |
|  |         | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA |
|  |         | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA |
| Seasonal energy efficiency**                 |         | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA |
|  |         |   |         |       |       |       |       |       |       |       |       |       |    |
| Integrated Part Load Value                   | IPLV.SI | kW/kW                                     | 6,351   | 6,572 | 6,595 | 6,522 | 6,873 | 6,211 | 6,615 | 6,366 | 6,939 | 7,136 |    |

## Sound levels - unit with option 150

|  |       |     |     |     |     |     |     |     |     |     |     |     |     |
|--|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 84  | 84  | 84  | 84  | 86  | 86  | 86  | 86  | 86  | 86  | 86  | 86  |

Sound levels - unit with option 150 + option 257<sup>(3)</sup>

|  |       |     |    |    |    |     |     |     |     |     |     |     |     |
|--|-------|-----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 100 | 99 | 99 | 99 | 103 | 103 | 103 | 103 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 82  | 80 | 80 | 80 | 84  | 84  | 84  | 84  | 84  | 84  | 84  | 84  |

## Dimensions - unit with option 150

|        |    |      |      |      |      |      |      |      |      |      |      |  |  |
|--------|----|------|------|------|------|------|------|------|------|------|------|--|--|
| Length | mm | 2780 | 4025 | 4025 | 4025 | 4730 | 4730 | 4730 | 4730 | 4790 | 4790 |  |  |
| Width  | mm | 1090 | 1036 | 1036 | 1036 | 1201 | 1201 | 1201 | 1201 | 1947 | 1947 |  |  |
| Height | mm | 1920 | 1870 | 1870 | 1925 | 2071 | 2071 | 2071 | 2071 | 1535 | 1535 |  |  |

|                                 |    |      |      |      |      |      |      |      |      |      |      |  |  |
|---------------------------------|----|------|------|------|------|------|------|------|------|------|------|--|--|
| Operating weight <sup>(4)</sup> | kg | 3672 | 5370 | 5408 | 5698 | 7233 | 7554 | 7622 | 7670 | 9006 | 9032 |  |  |
|---------------------------------|----|------|------|------|------|------|------|------|------|------|------|--|--|

## Compressors

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Semi-hermetic 06T screw compressors, 50 r/s |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Circuit A                                   | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B                                   | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

AHRI certified values  
30XW-only

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW--/30XWH-                      |                    | 852   | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 158   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | 226   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| Circuit B                          | kg                 | -   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | -   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| <b>Oil - unit with option 150</b>  |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 36  | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | 32   | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 25  | 15   | 15   | 15   | 15   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 98  | 182  | 182  | 205  | 301  | 301  | 301  | 301  | 354  | 354  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 137   | 193  | 193  | 193  | 340  | 340  | 340  | 340  | 426  | 426  |
| Water connections (Victaulic)      | in                 | 8   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW-P / 30XWHP | 512 | 562 | 712 | 812 | 862 | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|-----------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|
|-----------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|

## Heating

|   |     |  |         |      |      |      |      |      |      |      |      |      |      |      |
|---|-----|--|---------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Unit + option 150</b><br>Full load performances* | HW1 | Nominal capacity                       | kW      | 600  | 670  | 840  | 910  | 975  | 1188 | 1375 | 1514 | 1698 | 1890 | 1983 |
|   |     | COP                                    | kW/kW   | 5,89 | 5,90 | 5,72 | 5,58 | 5,72 | 5,61 | 5,77 | 5,55 | 5,40 | 5,78 | 5,73 |
|   | HW2 | Nominal heating capacity               | kW      | 580  | 646  | 815  | 885  | 950  | 1147 | 1322 | 1465 | 1648 | 1834 | 1929 |
|   |     | COP                                    | kW/kW   | 4,85 | 4,86 | 4,72 | 4,61 | 4,75 | 4,65 | 4,80 | 4,62 | 4,52 | 4,80 | 4,79 |
|   | HW3 | Nominal capacity                       | kW      | 561  | 625  | 790  | 862  | 925  | 1110 | 1275 | 1419 | 1598 | 1783 | 1874 |
|   |     | COP                                    | kW/kW   | 4,02 | 4,04 | 3,92 | 3,83 | 3,97 | 3,86 | 4,01 | 3,88 | 3,81 | 4,00 | 4,00 |
| Seasonal energy efficiency**                        | HW1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 6,15 | 6,22 | 6,40 | 6,11 | 5,99 | 5,97 | 6,24 | 6,18 | 6,18 | 6,50 | 6,21 |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 238  | 241  | 248  | 236  | 231  | 231  | 242  | 239  | 239  | 252  | 240  |
|   | HW3 | SCOP <sub>47/55°C</sub>                | kWh/kWh | 4,78 | 4,86 | 4,97 | 4,76 | 4,73 | 4,63 | 4,88 | 4,88 | 4,94 | 5,07 | 4,92 |
|   |     | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 183  | 186  | 191  | 182  | 181  | 177  | 187  | 187  | 189  | 195  | 189  |
|   |     | P <sub>rated</sub>                     | kW      | 673  | 749  | 947  | 1030 | 1106 | 1330 | 1531 | 1701 | 1915 | 2133 | 2243 |
|   |     |  |         |      |      |      |      |      |      |      |      |      |      |      |

## Cooling

|   |         |   |         |             |             |             |             |             |             |             |             |             |             |             |
|---|---------|---|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Unit + option 150</b><br>Full load performances* | CW1     | Nominal cooling capacity                  | kW      | 510         | 569         | 715         | 770         | 833         | 1011        | 1178        | 1287        | 1437        | 1613        | 1706        |
|   |         | EER                                       | kW/kW   | 5,14        | 5,17        | 5,02        | 4,88        | 5,09        | 4,98        | 5,23        | 4,96        | 4,84        | 5,15        | 5,21        |
| Seasonal energy efficiency**                        |         | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | <b>6,53</b> | <b>6,68</b> | <b>6,81</b> | <b>6,56</b> | <b>6,45</b> | <b>6,51</b> | <b>6,95</b> | <b>6,76</b> | <b>6,66</b> | <b>7,13</b> | <b>6,90</b> |
|   |         | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | <b>258</b>  | <b>264</b>  | <b>269</b>  | <b>259</b>  | <b>255</b>  | <b>258</b>  | <b>275</b>  | <b>267</b>  | <b>264</b>  | <b>282</b>  | <b>273</b>  |
|   |         | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,90        | 6,93        | 7,23        | 6,68        | 6,38        | 6,71        | 6,97        | 6,88        | 7,03        | 7,15        | 6,63        |
| Integrated Part Load Value                          | IPLV.SI | kW/kW                                     |         | 6,612       | 6,804       | 7,029       | 6,703       | 6,782       | 6,505       | 6,997       | 6,946       | 7,131       | 7,302       | 7,308       |

## Sound levels - unit with option 150

|  |       |    |    |     |     |     |     |     |     |     |     |     |     |     |
|--|-------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 99 | 99 | 102 | 102 | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 82 | 82 | 84  | 84  | 84  | 83  | 83  | 83  | 86  | 86  | 86  | 86  | 86  |

Sound levels - unit with option 150 + option 257<sup>(3)</sup>

|  |       |    |    |     |     |     |    |    |    |     |     |     |     |     |
|--|-------|----|----|-----|-----|-----|----|----|----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 96 | 96 | 100 | 100 | 100 | 99 | 99 | 99 | 103 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 78 | 78 | 82  | 82  | 82  | 80 | 80 | 80 | 84  | 84  | 84  | 84  | 84  |

## Dimensions - unit with option 150

|                                 |    |      |      |      |      |      |      |      |      |      |       |       |       |       |
|---------------------------------|----|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Length                          | mm | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4832  | 4832  | 4832  | 4832  |
| Width                           | mm | 936  | 936  | 1105 | 1105 | 1105 | 1039 | 1039 | 1039 | 1202 | 1202  | 2174  | 2174  | 2174  |
| Height                          | mm | 1743 | 1743 | 1970 | 1970 | 1970 | 1997 | 1997 | 1997 | 2071 | 2071  | 1585  | 1585  | 1585  |
| Operating weight <sup>(4)</sup> | kg | 2981 | 3020 | 4072 | 4117 | 4145 | 6872 | 6950 | 7721 | 8059 | 11225 | 11279 | 11279 | 11279 |

## Compressors

Semi-hermetic 06T screw compressors, 50 r/s

|           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Circuit A | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | - | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWHW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWHW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWCW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/Wη<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

AHRI certified values  
30XW-only

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW-P / 30XWHP                    |                    | 512   | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 130   | 130  | 180  | 175  | 177  | 120  | 120  | 130  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | 186   | 186  | 257  | 250  | 253  | 172  | 172  | 186  | 186  | 343  | 358  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | 120  | 120  | 150  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | 172  | 172  | 215  | 186  | 343  | 358  |
| <b>Oil - unit with option 150</b>  |                    |   |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 32  | 32   | 36   | 36   | 36   | 32   | 32   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | 32   | 32   | 32   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 30  | 30   | 20   | 20   | 20   | 15   | 15   | 15   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 101   | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  | 473  | 473  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 103   | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  | 623  | 623  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 10   | 10   | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

### Standard-efficiency 30XW/30XWH units (options 6)

| 30XW--/30XWH (reference)                |                    | 254                                  | 304    | 354    | 402    | 452    | 552    | 602    | 702    | 802    |
|---|--------------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Operating weight</b>                 | kg                 | 2041                                 | 2063   | 2102   | 2609   | 2609   | 2647   | 2678   | 3492   | 3516   |
| <b>Refrigerant charge<sup>(1)</sup></b> |                    | R-134a                               |        |        |        |        |        |        |        |        |
| Circuit A                               | kg                 | 91                                   | 86     | 84     | 99     | 99     | 99     | 99     | 146    | 135    |
|   | teqCO <sub>2</sub> | 129730                               | 123552 | 120463 | 142085 | 142085 | 142085 | 142085 | 208494 | 193050 |
| Circuit B                               | kg                 | 0                                    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
|   | teqCO <sub>2</sub> | 0                                    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Evaporator</b>                       |                    | Single pass, multi-pipe flooded type |        |        |        |        |        |        |        |        |
| Water volume                            | l                  | 50                                   | 56     | 61     | 70     | 70     | 70     | 70     | 109    | 109    |
| Water connections (Victaulic)           | in                 | 5                                    | 5      | 5      | 6      | 6      | 6      | 6      | 6      | 6      |
| Drain and vent connections (NPT)        | in                 | 3/8                                  | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    |
| Max. water-side operating pressure      | kPa                | 1000                                 | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   |
| 30XW--/30XWH (reference)                |                    | 852                                  | 1002   | 1052   | 1154   | 1252   | 1452   | 1552   | 1652   | 1702   |
| <b>Operating weight</b>                 | kg                 | 3720                                 | 5467   | 5505   | 5806   | 7392   | 7781   | 7829   | 9193   | 9219   |
| <b>Refrigerant charge<sup>(1)</sup></b> |                    | R-134a                               |        |        |        |        |        |        |        |        |
| Circuit A                               | kg                 | 171                                  | 92     | 92     | 113    | 130    | 119    | 113    | 211    | 211    |
|   | teqCO <sub>2</sub> | 244015                               | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301158 |
| Circuit B                               | kg                 | 0                                    | 92     | 92     | 113    | 130    | 119    | 113    | 211    | 211    |
|   | teqCO <sub>2</sub> | 0                                    | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301730 |
| <b>Evaporator</b>                       |                    | Single pass, multi-pipe flooded type |        |        |        |        |        |        |        |        |
| Water volume                            | l                  | 98                                   | 182    | 182    | 205    | 301    | 301    | 301    | 354    | 354    |
| Water connections (Victaulic)           | in                 | 6                                    | 6      | 6      | 8      | 8      | 8      | 8      | 8      | 8      |
| Drain and vent connections (NPT)        | in                 | 3/8                                  | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    |
| Max. water-side operating pressure      | kPa                | 1000                                 | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   |

(1) Weights are guidelines only. The refrigerant charge is given on the unit nameplate.



## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW--/30XWH-   |         | 254                               | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 303                               | 388  | 388  | 587  | 587  | 587  | 587  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 303                               | 388  | 388  | 587  | 587  | 587  | 587  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,79                              | 0,78 | 0,79 | 0,83 | 0,85 | 0,85 | 0,85 | 0,84 | 0,86 | 0,87 |
| Maximum <sup>(4)</sup>                                |         | 0,88                              | 0,87 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,90 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 97                                | 111  | 122  | 156  | 173  | 191  | 191  | 249  | 268  | 286  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 95                                | 109  | 125  | 150  | 162  | 171  | 171  | 193  | 214  | 232  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 160                               | 185  | 200  | 250  | 275  | 300  | 300  | 400  | 430  | 460  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 176                               | 206  | 224  | 270  | 300  | 330  | 330  | 419  | 455  | 476  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW--/30XWH-   |         | 852                               | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 772                               | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | 587  | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  |
| Option 81   | A       | -                                 | 757  | 757  | 757  | 943  | 965  | 986  | 1004 | 1004 | 1004 |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 772                               | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | 587  | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  |
| Option 81   | A       | -                                 | 887  | 887  | 887  | 1072 | 1172 | 1202 | 1232 | 1004 | 1232 |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,87                              | 0,85 | 0,85 | 0,85 | 0,86 | 0,85 | 0,86 | 0,87 | 0,86 | 0,87 |
| Maximum <sup>(4)</sup>                                |         | 0,90                              | 0,90 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 286                               | 191  | 191  | 191  | 252  | 252  | 271  | 290  | 290  | 290  |
| Circuit B   | kW      | -                                 | 173  | 191  | 191  | 191  | 252  | 271  | 290  | 271  | 290  |
| Option 81   | kW      | -                                 | 364  | 382  | 382  | 443  | 504  | 542  | 580  | 562  | 580  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 232                               | 171  | 171  | 171  | 210  | 210  | 230  | 250  | 250  | 250  |
| Circuit B   | A       | -                                 | 162  | 171  | 171  | 171  | 210  | 230  | 250  | 230  | 250  |
| Option 81   | A       | -                                 | 333  | 342  | 342  | 381  | 420  | 460  | 500  | 480  | 500  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 460                               | 300  | 300  | 300  | 400  | 400  | 430  | 460  | 460  | 460  |
| Circuit B   | A       | -                                 | 275  | 300  | 300  | 300  | 400  | 430  | 460  | 430  | 460  |
| Option 81   | A       | -                                 | 575  | 600  | 600  | 700  | 800  | 860  | 920  | 890  | 920  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 476                               | 330  | 330  | 330  | 419  | 419  | 455  | 476  | 476  | 476  |
| Circuit B   | A       | -                                 | 300  | 330  | 330  | 330  | 419  | 455  | 476  | 455  | 476  |
| Option 81   | A       | -                                 | 630  | 660  | 660  | 749  | 838  | 910  | 952  | 931  | 952  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### High-efficiency units (option 150)

| 30XW-P/30XWHP   |         | 512                               | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 587  | 772  | 772  | 772  | 587  | 587  | 772  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 587  | 587  | 587  | 772  | 772  | 772  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 749  | 757  | 943  | 965  | 986  | 1004 |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 587  | 772  | 772  | 772  | 587  | 587  | 772  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 587  | 587  | 587  | 772  | 772  | 772  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 862  | 887  | 1072 | 1172 | 1202 | 1232 |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,88                              | 0,88 | 0,84 | 0,86 | 0,87 | 0,87 | 0,88 | 0,86 | 0,85 | 0,86 | 0,87 |
| Maximum <sup>(4)</sup>                                |         | 0,91                              | 0,92 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 173                               | 191  | 252  | 271  | 290  | 173  | 191  | 252  | 252  | 271  | 290  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | 173  | 191  | 191  | 252  | 271  | 290  |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | 346  | 382  | 443  | 504  | 542  | 580  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 162                               | 171  | 210  | 230  | 250  | 162  | 171  | 210  | 210  | 230  | 250  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 162  | 171  | 171  | 210  | 230  | 250  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 324  | 342  | 381  | 420  | 460  | 500  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 275                               | 300  | 400  | 430  | 460  | 275  | 300  | 400  | 400  | 430  | 460  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 275  | 300  | 300  | 400  | 430  | 460  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 550  | 600  | 700  | 800  | 860  | 920  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 300                               | 330  | 419  | 455  | 476  | 300  | 330  | 419  | 419  | 455  | 476  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 300  | 330  | 330  | 419  | 455  | 476  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 600  | 660  | 749  | 838  | 910  | 952  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

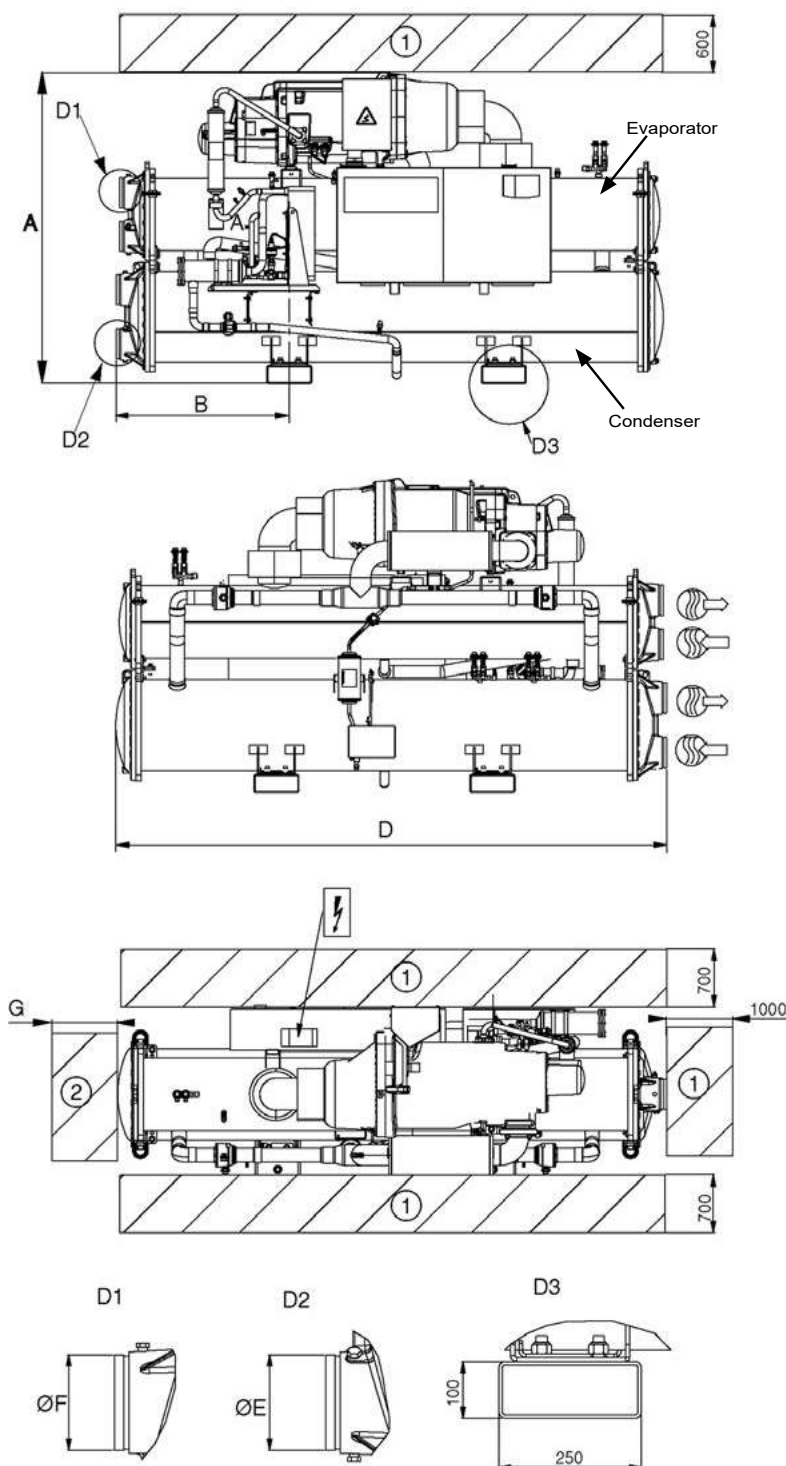
(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## DIMENSIONS/CLEARANCES

30XW--/30XWH- 254-852

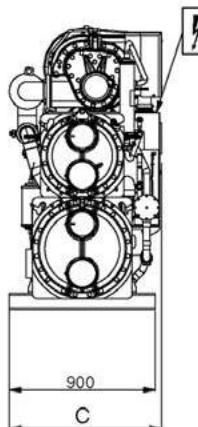
30XW-P/30XWHP 512-862



### Legend

All dimensions are given in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Air outlet – do not obstruct
- Power supply connection



|   | Dimensions in mm |      |      |      |       |       |      |
|---|------------------|------|------|------|-------|-------|------|
|   | A                | B    | C    | D    | E     | F     | G    |
| <b>Standard-efficiency units 30XW--/30XWH-</b>              |                  |      |      |      |       |       |      |
| 254   | 1567             | 800  | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 304   | 1567             | 800  | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 354   | 1567             | 800  | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 402   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 452   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 552   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 602   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 652   | 1848             | 968  | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 702   | 1848             | 968  | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 802   | 1848             | 968  | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 852   | 1898             | 828  | 1044 | 2780 | 219,1 | 168,3 | 2600 |
| <b>High-efficiency units 30XW-P/30XWHP</b>                  |                  |      |      |      |       |       |      |
| 512   | 1743             | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 562   | 1743             | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 712   | 1950             | 1083 | 1065 | 3290 | 219,1 | 219,1 | 3100 |
| 812   | 1950             | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| 862   | 1950             | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| <b>Standard-efficiency units 30XW--/30XWH- (option 150)</b> |                  |      |      |      |       |       |      |
| 254   | 1567             | 800  | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 304   | 1567             | 800  | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 354   | 1567             | 800  | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 402   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 452   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 552   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 602   | 1693             | 810  | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 652   | 1868             | 968  | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 702   | 1868             | 968  | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 802   | 1868             | 968  | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 852   | 1920             | 828  | 1090 | 2780 | 168,3 | 219,1 | 2600 |
| <b>High-efficiency units 30XW-P/30XWHP (option 150)</b>     |                  |      |      |      |       |       |      |
| 512   | 1743             | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 562   | 1743             | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 712   | 1970             | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 812   | 1970             | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 862   | 1970             | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |

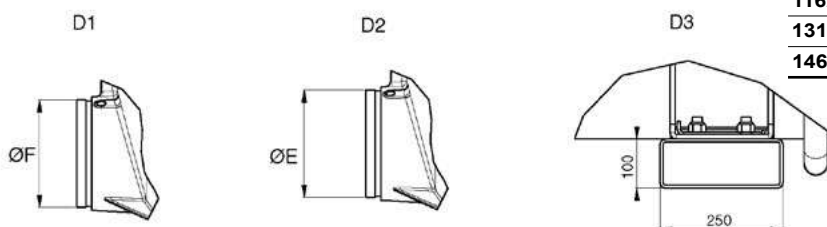
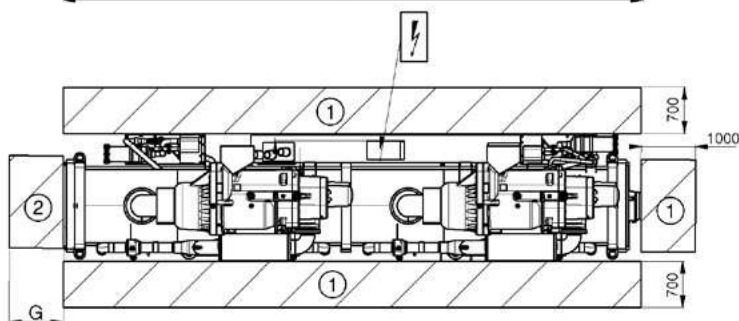
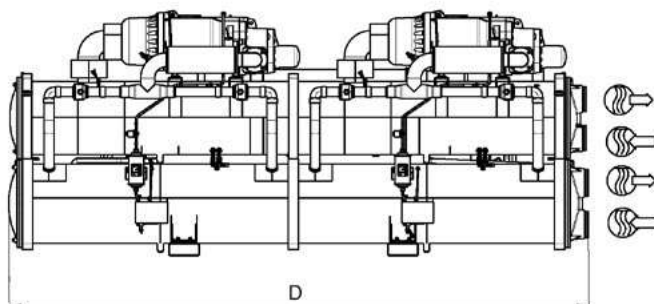
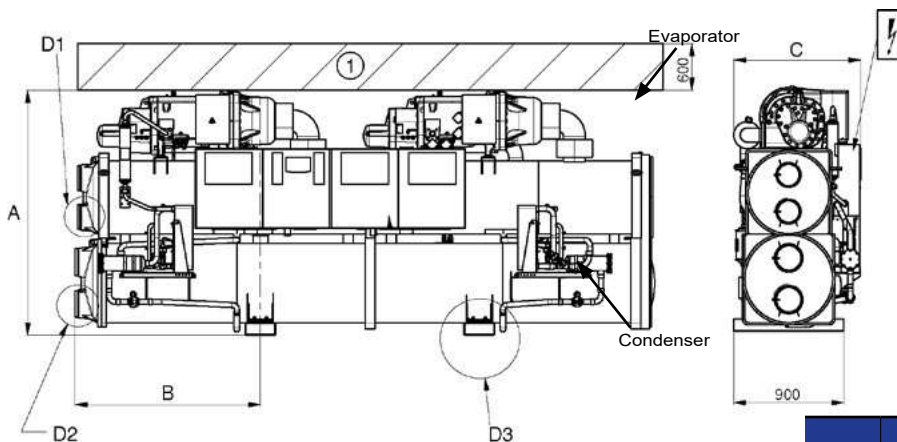
- Option 6 has same dimensions as option 150.
- Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

## DIMENSIONS/CLEARANCES

30XW--/30XWH- 1002-1552

30XW-P/30XWHP 1012-1464



### Legend

All dimensions are given in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Air outlet – do not obstruct
- Power supply connection

|   | Dimensions in mm |      |      |      |       |       |      |
|---|------------------|------|------|------|-------|-------|------|
|   | A                | B    | C    | D    | E     | F     | G    |
| <b>Standard-efficiency units 30XW--/30XWH-</b>              |                  |      |      |      |       |       |      |
| 1002  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1052  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1152  | 1925             | 950  | 1036 | 4025 | 219,1 | 219,1 | 3800 |
| 1252  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1352  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1452  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1552  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP</b>                  |                  |      |      |      |       |       |      |
| 1012  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1162  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1314  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1464  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| <b>Standard-efficiency units 30XW--/30XWH- (option 150)</b> |                  |      |      |      |       |       |      |
| 1002  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1052  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1154  | 2925             | 950  | 1036 | 4025 | 219,1 | 219,1 | 3800 |
| 1252  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1352  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1452  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1552  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP (option 150)</b>     |                  |      |      |      |       |       |      |
| 1012  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1162  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1314  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1464  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |

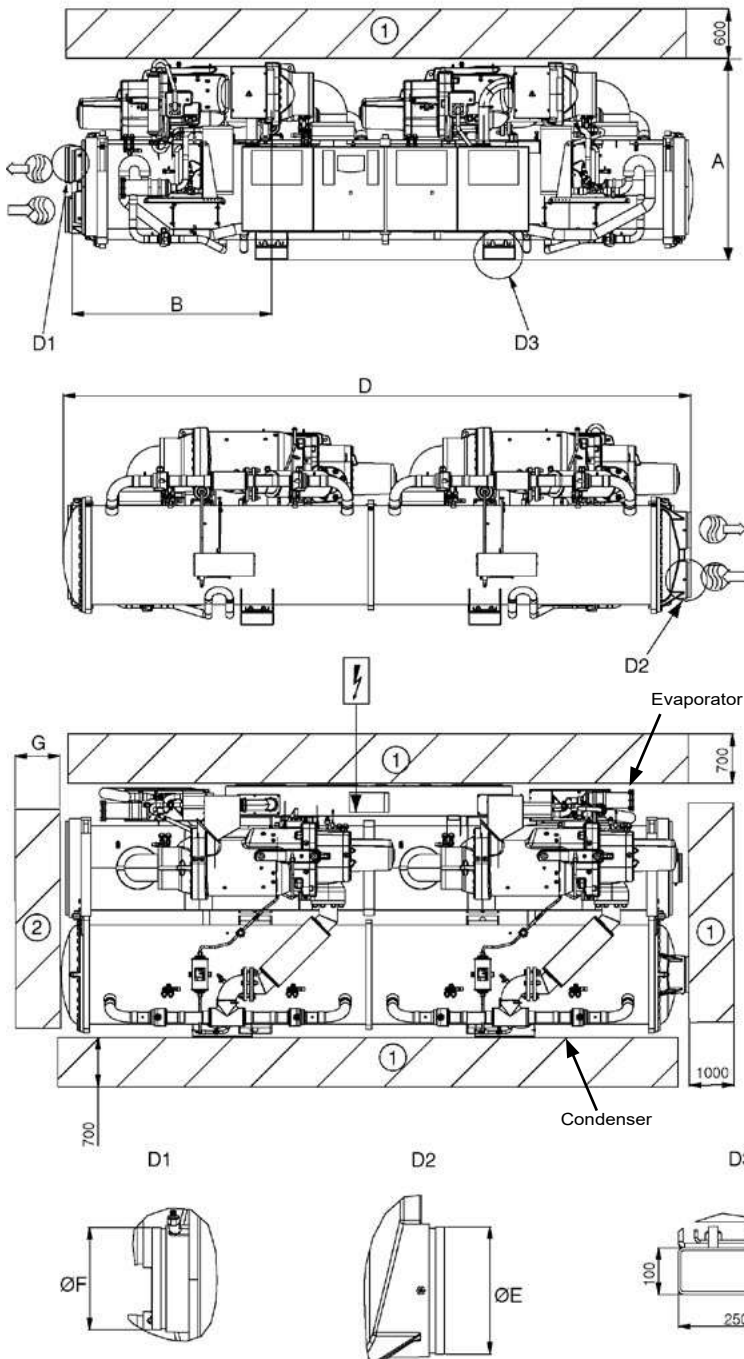
- Option 6 has same dimensions as option 150.
- Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.



## DIMENSIONS/CLEARANCES

30XW--/30XWH- 1652-1702  
30XW-P/30XWHP 1612-1762



|   | Dimensions in mm |      |      |      |       |       |      |
|---|------------------|------|------|------|-------|-------|------|
|   | A                | B    | C    | D    | E     | F     | G    |
| <b>Standard-efficiency units 30XW--/30XWH-</b>              |                  |      |      |      |       |       |      |
| <b>1652</b>   | 1515             | 1568 | 1902 | 4790 | 219,1 | 219,1 | 4500 |
| <b>1702</b>   | 1515             | 1568 | 1902 | 4790 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP</b>                  |                  |      |      |      |       |       |      |
| <b>1612</b>   | 1562             | 1591 | 2129 | 4832 | 273,1 | 273,1 | 4600 |
| <b>1762</b>   | 1562             | 1591 | 2129 | 4832 | 273,1 | 273,1 | 4600 |
| <b>Standard-efficiency units 30XW--/30XWH- (option 150)</b> |                  |      |      |      |       |       |      |
| <b>1652</b>   | 1535             | 1568 | 1947 | 4790 | 219,1 | 219,1 | 4500 |
| <b>1702</b>   | 1535             | 1568 | 1947 | 4790 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP (option 150)</b>     |                  |      |      |      |       |       |      |
| <b>1612</b>   | 1585             | 1591 | 2174 | 4832 | 273,1 | 273,1 | 4600 |
| <b>1762</b>   | 1585             | 1591 | 2174 | 4832 | 273,1 | 273,1 | 4600 |

### Legend

All dimensions are given in mm.

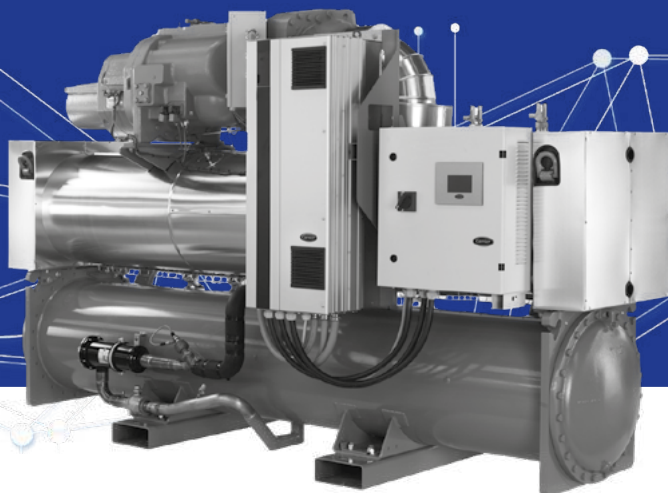
- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Air outlet – do not obstruct
- Power supply connection

- Option 6 has same dimensions as option 150.
- Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.



## WATER-COOLED VARIABLE-SPEED SCREW CHILLERS



- Low energy consumption
- High reliability
- Easy and fast installation
- Minimised operating sound levels
- Environmental care
- Designed to support green building design

## 30XW-V 580-1710

Nominal cooling capacity 587-1741 kW  
Nominal heating capacity 648-1932 kW

The 30XW-V water-sourced units are the premium solution for commercial and industrial applications where installers, consultants and building owners require maximum quality and optimal performances, especially at part load.

The 30XW-V units are designed to meet current and future requirements in terms of energy efficiency, versatility and compactness. They feature exclusive inverter-driven screw compressors - an evolution of the proven traditional Carrier twin-rotor screw compressor design. Other features include:

- the new SmartVu™ control
- mechanically cleanable flooded heat exchangers
- refrigerant R-134a

The 30XW-V/30XWHV range is split into two versions:

- 30XW-V for air conditioning applications
- 30XWHV for heating applications

As standard, the unit can provide an evaporator leaving water temperature down to 3.3°C, and when operating as a heat pump, it can deliver up to 50°C on the condenser side.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CUSTOMER BENEFITS

### Low energy consumption

- The 30XW-V was designed for high performance both at full load and at part load.
  - Eurovent certified values per EN14511-3:2013: SEPR up to 8.07 and SEER up to 8.43
- High energy efficiency
  - Inverter-driven twin-rotor screw compressors allow precise capacity matching of building load changes and significantly reduce unit power input, especially at part-load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permits operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
- Optimised electrical performance
  - All 30XW-V units comply with class 3 of standard EN61800-3. Category C3 refers to industrial environments. With option 282 category C2 compliance is possible.
  - Inverter-driven motors ensure negligible start-up current (value is lower than the maximum unit current draw)

### High reliability

- The 30XW-V ranges offer increased global performance as well as Carrier's acclaimed product quality and reliability. Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Inverter-driven screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - The inverter is optimised for each compressor motor to ensure reliable operation and easy maintenance.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuits
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling
  - Automatic compressor unloading in case of abnormally high condensing pressure or discharge temperature.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

### Easy and fast installation

- Compact design
  - The 30XW-V units are designed to offer compact dimensions for easy installation.
  - With a width of approximately 1.25 m up to 1000 kW the units can pass through standard door openings and only require minimum floor space in the plant room.
- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer supply to the integrated control circuit (400/24 V)
- Simplified water connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Minimised operating sound levels

- The inverter technology used for the compressor motors minimises noise levels at part load operation. In two-compressor units at 25% of the maximum load the unit sound power level is reduced by 10 dB(A).
- Standard unit features include:
  - Silencers on the compressor discharge line.
  - Sound insulation on the components that are most subjected to radiated noise.
- Option 257 further reduces the global unit sound level.

### Environmental care

- R-134a refrigerant
  - HFC-refrigerant with zero ozone depletion potential
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### Designed to support green building design

- A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment. The underlying principles of this approach: The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

## CUSTOMER BENEFITS

- The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year, 30XW-V units offer a solution to this important challenge.
- A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.
- The following example looks at how Carrier's new 30XW-V range helps customers involved in LEED® building certification.

### 30XW-V and LEED® certification

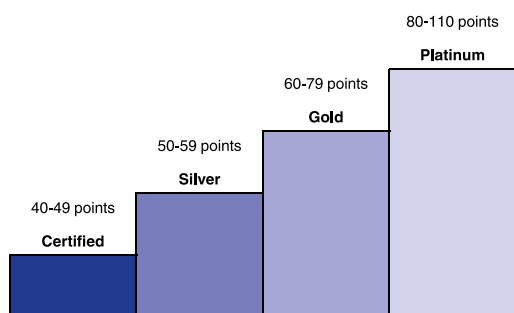
The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a pre-eminent programme to rate the design, construction and operation of green buildings with points assigned in seven credit categories:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain same, the point distribution varies to address different building types and application needs, for example according to New Construction, Schools, Core & Shell, Retail and Healthcare. All programmes now use the same point scale:

### 110 Possible LEED® points

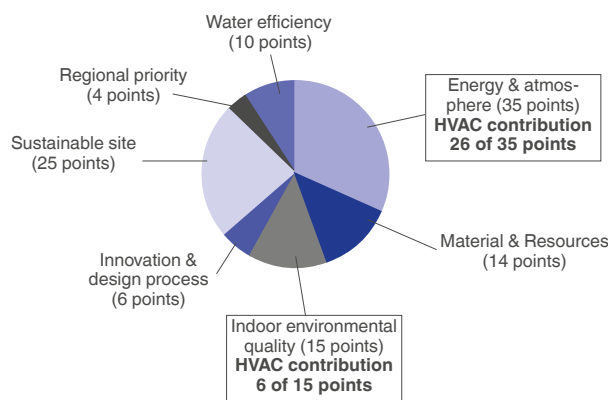


The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impacts of each component or sub-system to the overall building.

While the LEED® green building certification programs do not certify products or services, the selection of the right products, systems or service programs is critical to obtain LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilating and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

### Overview of LEED® for new construction and major renovations



The new 30XW-V units from Carrier can assist building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- **EA prerequisite 2: Minimum energy Performance**  
The 30XW-V exceeds the energy efficiency requirements of ASHRAE 90.1-2007; therefore it complies with the prerequisite standard.
- **EA prerequisite 3: Fundamental Refrigerant Management**  
The 30XW-V does not use chlorofluorocarbon (CFC) refrigerants thus satisfying the prerequisite statement.
- **EA credit 1: Optimise energy performance (1 to 19 points)**  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. The 30XW-V, which is designed for high performance especially during part load operation, contributes reducing the energy consumption of the building and therefore helps gaining points within this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used as an energy analyses program complying with the modeling requirements for this credit and produce reports that are easily transferable to LEED® templates.
- **EA credit 4: Enhanced refrigerant management (2 points)**  
With this credit, LEED® awards systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) of the system. The 30XW-V uses a reduced R134a charge and therefore contributes toward satisfying this credit under LEED®.

**NOTE: This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30XW-V. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the complete HVAC system.**

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: Fundamental commissioning of energy management system
- EA credit 3: Enhanced commissioning (2 points)
- EA credit 5: Measurements and verification (3 points).

**NOTE: Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).**



## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features :
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, T, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features :
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote Management (Standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The chiller also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
  - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

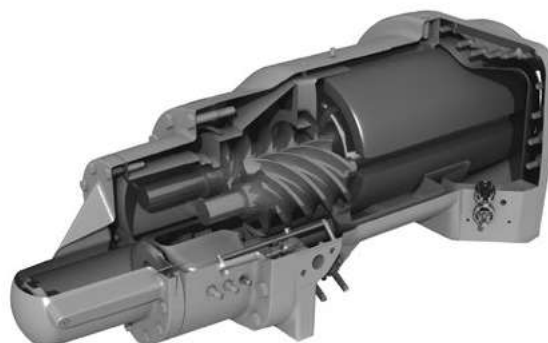
## TECHNICAL INSIGHTS

### Remote management (EMM option)

The Energy Management Module offers extended remote control possibilities:

- Room temperature: permits set-point reset based on the building indoor air temperature (with Carrier thermostat)
- Set point reset: ensures reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
- Demand limit: permits limitation of the maximum chiller power or current based on a 0-10 V signal
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller power or current to two predefined values
- User safety: this contact can be used for any customer safety loop; opening the contact generates a specific alarm
- Ice storage end: when ice storage has finished, this input permits return to the second set-point (unoccupied mode)
- Time schedule override: closing of this contact cancels the time schedule effects
- Out of service: this signal indicates that the chiller is completely out of service
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity
- Alert indication: this volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status : set of outputs (as many as the compressors number) indicating which compressors are running.

### New inverter-driven Thunderbolt screw compressor



- The new generation of Carrier inverter-driven screw compressors benefits from Carrier's long experience in the development of twin-rotor screw compressors. The design of the Thunderbolt compressors is based on the successful 06T screw compressor, core of the well-known Aquaforce series.
- Advanced control algorithms combine inverter frequency output with motor input logic to minimise mechanical part stress, resulting in best compression performance and high chiller reliability. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.
- Screw compressors use positive displacement principle to compress gases at higher pressure. As a result, in case of exceptional high temperature condenser side (due for example to water-pipes fouling or operation in harsh climate with an external dry-cooler) the compressor does not switch off, but continues operation at reduced capacity (unloaded mode).
- The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.
- The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

## OPTIONS

| Options  | No.  | Description   | Advantages   | Use                                |
|--|------|---|--|------------------------------------|
| Light-brine solution, down to -3°C                       | 8    | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements  | 580-1710 (see dedicated paragraph) |
| Master/slave operation                                   | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two chillers connected in parallel with operating time equalisation   | 580-1710                           |
| Single power connection point                            | 81   | Unit power connection via one main supply connection  | Quick and easy installation  | 1150-1710                          |
| Evap. pump power/control circuit                         | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Evaporator dual pumps electrical power / control circuit | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Cond. pump power/control circuit                         | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Cond. dual pumps power/control circuit                   | 84T  | Unit equipped with an electrical power and control circuit for two pumps condenser side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Condenser insulation                                     | 86   | Thermal condenser insulation  | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)   | 580-1710                           |
| Service valve set  | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve  | Allow isolation of various refrigerant circuit components for simplified service and maintenance   | 580-1710                           |
| Evaporator with one pass less                            | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 580-1710                           |
| Condenser with one pass less                             | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 580-1710                           |
| 21 bar evaporator  | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)  | 580-1710                           |
| 21 bar condenser   | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)   | 580-1710                           |
| Reversed evaporator water connections                    | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements  | 580-1710                           |
| Reversed condenser water connections                     | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements  | 580-1710                           |
| LON gateway  | 148D | Two-directional communication board complying with LON protocol   | Connects the unit by communication bus to a building management system   | 580-1710                           |
| Bacnet over IP gateway                                   | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 580-1710                           |
| Modbus over IP and RS485                                 | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 580-1710                           |
| Condensing temperature limitation                        | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized  | 580-1710                           |
| Control for low condensing temperature systems           | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | 580-1710                           |
| Energy Management Module EMM                             | 156  | Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | 580-1710                           |
| Leak detection   | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)            | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 580-1710                           |

## OPTIONS

| Options                                  | No. | Description  | Advantages   | Use      |
|--|-----|--|--|----------|
| Dual relief valves on 3-way valve        | 194 | Three-way valve upstream of dual relief valves on the evaporator and the oil separator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4   | 580-1710 |
| Compliance with Swiss regulations        | 197 | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Conformance with Swiss regulations   | 580-1710 |
| Compliance with Russian regulations      | 199 | EAC certification  | Conformance with Russian regulations   | 580-1710 |
| Compliance with Australian regulations   | 200 | Unit approved to Australian code   | Conformance with Australian regulations  | 580-1710 |
| Low noise level                          | 257 | Evaporator sound insulation  | 3 dB(A) quieter than standard unit   | 580-1710 |
| Welded evaporator water connection kit   | 266 | Victaulic piping connections with welded joints  | Easy installation  | 580-1710 |
| Welded condenser water connection kit    | 267 | Victaulic piping connections with welded joints  | Easy installation  | 580-1710 |
| Flanged evaporator water connection kit  | 268 | Victaulic piping connections with flanged joints   | Easy installation  | 580-1710 |
| Flanged condenser water connection kit   | 269 | Victaulic piping connections with flanged joints   | Easy installation  | 580-1710 |
| Thermal compressor insulation            | 271 | The compressor is covered with a thermal insulation layer  | Prevents air humidity to condensate on the compressor surface  | 580-1710 |
| EMC classification C2, as per EN 61800-3 | 282 | Additional RFI filters on the unit power line  | Reduces electromagnetic interferences. Increase the variable frequency drive (VFD) immunity level according to first environment (so called, residential environment) requirements and allow its compliancy with emissions level required in category C2 | 580-1710 |
| Compliance with UAE regulation           | 318 | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590                                      | Compliance with ESMA standard UAE.S 5010-5:2019.   | 580-1710 |
| Compliance with Morocco regulation       | 327 | Specifics documents according Morocco regulation   | Conformance with Morocco regulations   | 580-1710 |

## PHYSICAL DATA, 30XW-V UNITS

| 30XW-V   |     |   |         | 580   | 630   | 810   | 880   | 1150  | 1280  | 1470  | 1570  | 1710  |
|--|-----|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating  |     |   |         |   |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances *             | HW1 | Nominal capacity                          | kW      | 649   | 719   | 890   | 974   | 1261  | 1428  | 1594  | 1761  | 1932  |
|  |     | COP                                       | kW/kW   | 4,64  | 4,53  | 4,56  | 4,43  | 4,62  | 4,61  | 4,55  | 4,33  | 4,16  |
|  | HW2 | Nominal capacity                          | kW      | 687   | 767   | 956   | 1021  | 1335  | 1524  | 1712  | 1898  | 2067  |
|  |     | COP                                       | kW/kW   | 6,15  | 5,98  | 5,96  | 5,81  | 6,05  | 6,00  | 5,82  | 5,49  | 5,34  |
| Standard unit<br>Seasonal energy<br>efficiency **        | HW2 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 7,32  | 7,05  | 7,21  | 6,96  | 6,95  | 6,66  | 6,37  | 6,13  | 5,87  |
|  |     | η <sub>s</sub> heat <sub>30/35°C</sub>    | %       | 285   | 274   | 280   | 270   | 270   | 259   | 247   | 237   | 227   |
|  |     | P <sub>rated</sub>                        | kW      | 818   | 913   | 1134  | 1216  | 1589  | 1815  | 2041  | 2263  | 2463  |
| Cooling  |     |   |         |   |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*              | CW1 | Nominal capacity                          | kW      | 587   | 652   | 812   | 858   | 1140  | 1305  | 1461  | 1604  | 1741  |
|  |     | EER                                       | kW/kW   | 5,44  | 5,31  | 5,25  | 5,07  | 5,45  | 5,50  | 5,38  | 5,05  | 4,94  |
|  |     | Eurovent class                            |         | A   | A     | A     | A     | A     | A     | A     | A     | B     |
|  | CW2 | Nominal capacity                          | kW      | 791   | 846   | 1023  | 970   | 1528  | 1688  | 1703  | 2093  | 2272  |
|  |     | EER                                       | kW/kW   | 6,96  | 6,50  | 6,22  | 5,63  | 6,86  | 6,64  | 5,99  | 5,99  | 5,99  |
|  |     | Eurovent class                            |         | A   | A     | A     | A     | A     | A     | A     | A     | A     |
| Standard unit<br>Seasonal energy<br>efficiency**         |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 7,94  | 7,62  | 8,43  | 7,93  | 8,31  | 8,19  | 7,74  | 7,70  | 7,34  |
|  |     | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 315   | 302   | 334   | 314   | 329   | 325   | 307   | 305   | 290   |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,07  | 8,02  | 7,73  | 6,76  | 8,04  | 8,07  | 7,96  | 7,89  | 7,49  |
| Integrated Part Load Value                               |     | IPLV.SI                                   | kW/kW   | 9,060                                       | 9,120 | 9,450 | 8,950 | 9,240 | 9,300 | 9,170 | 9,300 | 8,980 |
| Sound levels - standard unit                             |     |   |         |   |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 105   | 105   | 105   | 105   | 106   | 106   | 106   | 106   | 106   |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 87  | 87    | 87    | 87    | 87    | 87    | 87    | 87    | 87    |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |     |   |         |   |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 102   | 102   | 102   | 102   | 103   | 103   | 103   | 103   | 103   |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 84  | 84    | 84    | 84    | 84    | 84    | 84    | 84    | 84    |
| Dimensions - standard unit                               |     |   |         |   |       |       |       |       |       |       |       |       |
| Length   |     | mm  | 3059    | 3059  | 3290  | 3290  | 4730  | 4730  | 4730  | 4730  | 4730  | 4730  |
| Width  |     | mm  | 1087    | 1087  | 1237  | 1237  | 1164  | 1164  | 1255  | 1255  | 1255  | 1255  |
| Height   |     | mm  | 1743    | 1743  | 1950  | 1950  | 1997  | 1997  | 2051  | 2051  | 2051  | 2051  |
| Operating weight <sup>(4)</sup>                          |     | kg  | 3152    | 3190  | 4157  | 4161  | 7322  | 7398  | 7574  | 7770  | 7808  | 7808  |
| Compressors  |     |   |         | Semi-hermetic 06T screw compressors, 60 r/s |       |       |       |       |       |       |       |       |
| Circuit A  |     | -   | 1       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  |     | -   | -       | -   | -     | -     | 1     | 1     | 1     | 1     | 1     | 1     |

- \* In accordance with standard EN14511-3:2013.
- \*\* In accordance with standard EN14825:2016, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W
- CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) in dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Option 257 = Low noise level
- (4) Weight shown is guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016
- NA Non Authorized for the specific application for CEE market
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).



Eurovent certified values

AHRI certified values  
30XW-only



## PHYSICAL DATA, 30XW-V UNITS

| 30XW-V                             |                    | 580  | 630  | 810  | 880  | 1150 | 1280 | 1470 | 1570 | 1710 |
|------------------------------------|--------------------|--|------|------|------|------|------|------|------|------|
| <b>Oil - standard unit</b>         |                    |  |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 32   | 32   | 36   | 36   | 32   | 32   | 36   | 36   | 36   |
| Circuit B                          | l                  | -  | -    | -    | -    | 32   | 32   | 32   | 36   | 36   |
| <b>Refrigerant - standard unit</b> |                    | R-134a, GWP=1430 following ARI4  |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 130  | 130  | 180  | 175  | 120  | 120  | 115  | 115  | 110  |
|                                    | teqCO <sub>2</sub> | 186  | 186  | 257  | 250  | 172  | 172  | 164  | 164  | 157  |
| Circuit B                          | kg                 | -  | -    | -    | -    | 120  | 120  | 120  | 115  | 110  |
|                                    | teqCO <sub>2</sub> | -  | -    | -    | -    | 172  | 172  | 172  | 164  | 157  |
| <b>Capacity control</b>            |                    | SmartVu™, inverter-driven compressor, electronic expansion valve (EXV) |      |      |      |      |      |      |      |      |
| Minimum capacity                   | %                  | 20   | 20   | 20   | 20   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 106  | 106  | 154  | 154  | 297  | 297  | 297  | 297  | 297  |
| Water connections (Victaulic)      | in                 | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 112  | 112  | 165  | 165  | 340  | 340  | 340  | 340  | 340  |
| Water connections (Victaulic)      | in                 | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

## ELECTRICAL DATA

| 30XW-V   |         | 580                               | 630       | 810       | 880       | 1150      | 1280      | 1470      | 1570      | 1710      |
|--|---------|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Power circuit</b>                                 |         |                                   |           |           |           |           |           |           |           |           |
| Nominal power supply                                 | V-ph-Hz | 400-3-50                          |           |           |           |           |           |           |           |           |
| Voltage range  | V       | 360-440                           |           |           |           |           |           |           |           |           |
| <b>Control circuit</b>                               |         | 24 V via the built-in transformer |           |           |           |           |           |           |           |           |
| Start-up current*                                    | A       | Lower than the operating current  |           |           |           |           |           |           |           |           |
| Maximum power factor**                               |         | 0,91-0,93                         | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 |
| Cosine phi   |         | >0,98                             | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     |
| Total harmonic distortion†                           | %       | 35-45                             | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     |
| <b>Maximum power input***</b>                        |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | kW      | 155                               | 193       | 222       | 246       | 155       | 193       | 222       | 222       | 246       |
| Circuit B  | kW      | -                                 | -         | -         | -         | 155       | 193       | 193       | 222       | 246       |
| With option 81                                       | kW      | -                                 | -         | -         | -         | 310       | 386       | 415       | 444       | 492       |
| <b>Eurovent current draw****</b>                     |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 175                               | 200       | 240       | 265       | 175       | 200       | 240       | 240       | 265       |
| Circuit B  | A       | -                                 | -         | -         | -         | 175       | 200       | 200       | 240       | 265       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 350       | 400       | 440       | 480       | 530       |
| <b>Maximum current draw (Un)***</b>                  |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 245                               | 300       | 346       | 383       | 245       | 300       | 346       | 346       | 383       |
| Circuit B  | A       | -                                 | -         | -         | -         | 245       | 300       | 300       | 346       | 383       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 490       | 600       | 646       | 692       | 766       |
| <b>Maximum current draw (Un -10%)***</b>             |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 270                               | 330       | 380       | 421       | 270       | 330       | 380       | 380       | 421       |
| Circuit B  | A       | -                                 | -         | -         | -         | 270       | 330       | 330       | 380       | 421       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 540       | 660       | 710       | 760       | 842       |
| <b>Maximum power input with option 150B***</b>       |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | kW      | 141                               | 173       | 199       | 221       | 141       | 173       | 199       | 199       | 221       |
| Circuit B  | kW      | -                                 | -         | -         | -         | 141       | 173       | 173       | 199       | 221       |
| With option 81                                       | kW      | -                                 | -         | -         | -         | 282       | 346       | 372       | 398       | 442       |
| <b>Maximum current draw (Un) with option 150B***</b> |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 222                               | 272       | 314       | 348       | 222       | 272       | 314       | 314       | 348       |
| Circuit B  | A       | -                                 | -         | -         | -         | 222       | 272       | 272       | 314       | 348       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 444       | 544       | 586       | 628       | 696       |
| Dissipated power†                                    | W       | 3000                              | 4200      | 4700      | 5300      | 6000      | 8400      | 8900      | 9400      | 10600     |

\* Instantaneous start-up current

\*\* This can vary as a function of the short-circuit current/maximum current ratio of the system transformer. Values obtained at operation with maximum unit power input.

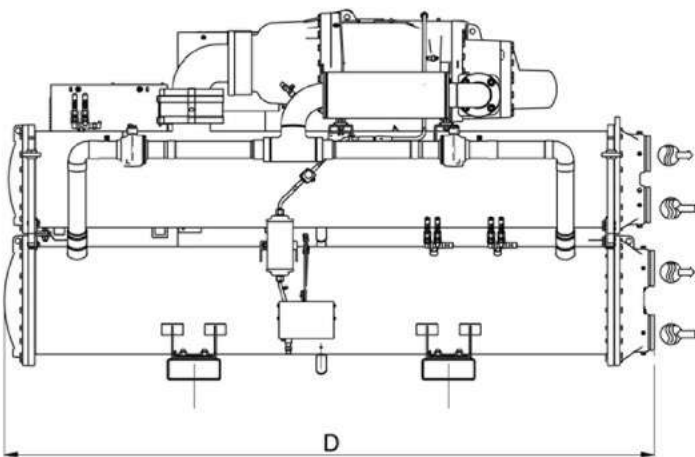
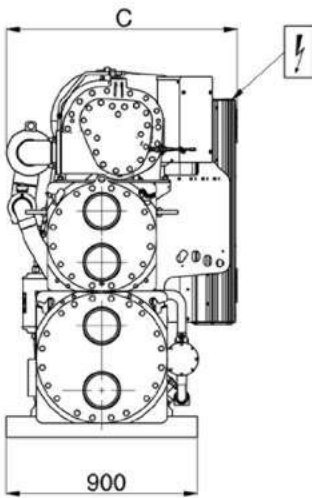
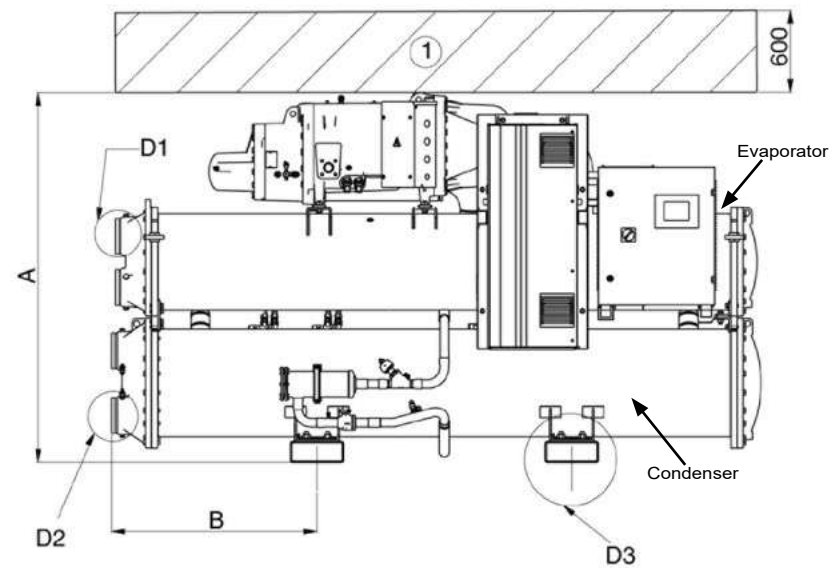
\*\*\* Values obtained at operation with maximum unit power input. Values given on the unit name plate.

\*\*\*\* Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C. Gross performances, not in accordance with EN14511-3:2013. These performances do not take into account the correction for the proportional heating capacity and power input generated by the water pump to overcome the internal pressure drop in the heat exchanger.

† Values obtained at operation with maximum unit power input.

# DIMENSIONS/CLEARANCES

## 30XW-V 580-880



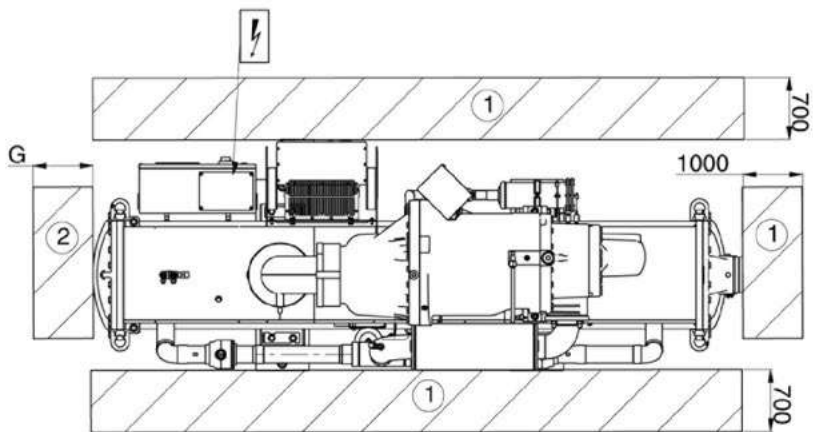
| Dimensions in mm |      |      |      |      |       |       |      |
|------------------|------|------|------|------|-------|-------|------|
|                  | A    | B    | C    | D    | E     | F     | G    |
| <b>30XW-V</b>    |      |      |      |      |       |       |      |
| <b>580</b>       | 1743 | 968  | 1087 | 3059 | 168,3 | 168,3 | 2900 |
| <b>630</b>       | 1743 | 968  | 1087 | 3059 | 168,3 | 168,3 | 2900 |
| <b>810</b>       | 1950 | 1083 | 1237 | 3290 | 219,1 | 219,1 | 3100 |
| <b>880</b>       | 1950 | 1083 | 1237 | 3290 | 219,1 | 219,1 | 3100 |

### Legend:

All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Power supply connection

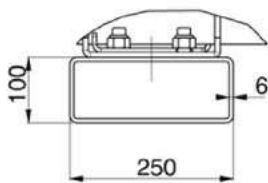
**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.



D1



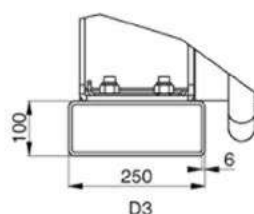
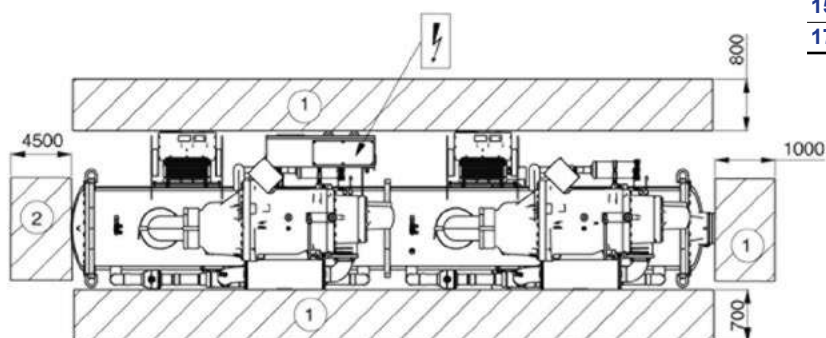
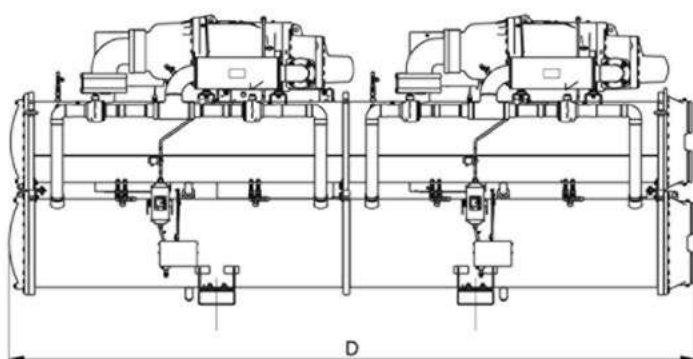
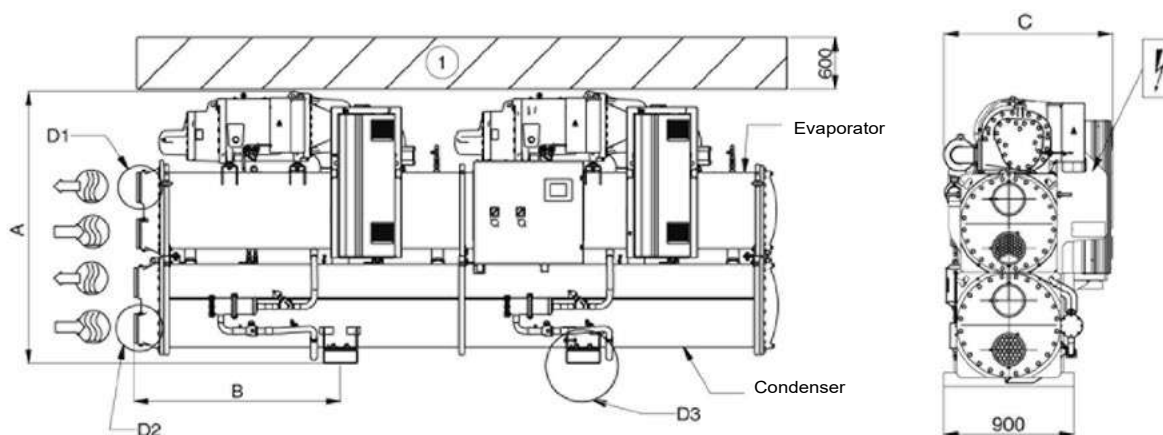
D2



D3

## DIMENSIONS/CLEARANCES

### 30XW-V 1150-1710



| Dimensions in mm |      |      |      |      |       |       |
|------------------|------|------|------|------|-------|-------|
|                  | A    | B    | C    | D    | E     | F     |
| <b>30XW-V</b>    |      |      |      |      |       |       |
| <b>1150</b>      | 1997 | 1514 | 1164 | 4730 | 219,1 | 219,1 |
| <b>1280</b>      | 1997 | 1514 | 1164 | 4730 | 219,1 | 219,1 |
| <b>1470</b>      | 2051 | 1514 | 1255 | 4730 | 219,1 | 219,1 |
| <b>1570</b>      | 2051 | 1514 | 1255 | 4730 | 219,1 | 219,1 |
| <b>1710</b>      | 2051 | 1514 | 1255 | 4730 | 219,1 | 219,1 |

#### Legend:

All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Power supply connection

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

## WATER-COOLED SCREW CHILLERS



Low energy consumption

High reliability

Safe Design

Easy and fast installation

Minimised operating sound levels

Environmental care

## 30XW-PZE

**AQUAFORCE**  
PUREtec

Nominal cooling capacity 269-1110 kW  
Nominal heating capacity 319-1296 kW

The 30XW-PZE liquid chillers are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality.

The 30XW-PZE liquid chillers are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness. They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- R-1234ze refrigerant or R-515B
- Flooded heat exchangers that are mechanically cleanable
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages

The AquaForce PUREtec range is splitted into two versions:

- 30XW-PZE for air conditioning and refrigeration applications
- 30XWHPZE for heating applications

As standard, the unit can provide an evaporator leaving temperature down to 3,3°C, and when operating as a heat pump, it can deliver up to 55°C (70°C optional) on the condenser side.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## CUSTOMER BENEFITS

### Low energy consumption

- 30XW-PZE range is compliant with EU Eco-design Minimum Efficiency Performance Standards (MEPS) in cooling that apply from January 2021
- SEER 12/7°C up to 7.6 and SEPR 12/7°C up to 9.3
- 30XWHPZE range is compliant with EU Eco-design Minimum Efficiency Performance Standards (MEPS) in heating that apply from September 2015
- COP of up to 6.7 and SCOP up to 7.2
- The high energy efficiency is reached through:
  - Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
  - Economizer system with electronic expansion device for increased cooling capacity.

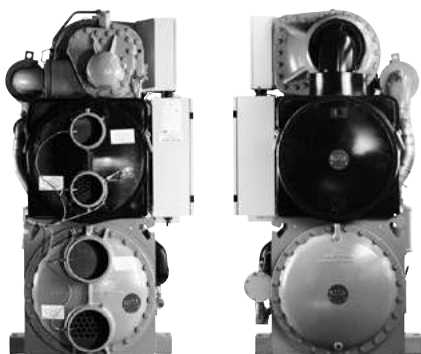
### Low operating sound levels

- Standard unit features include:
  - Silencers on the compressors discharge line.
  - Silencers on the economiser return line.
  - Acoustic insulation on the components that are most subjected to radiated noise.
  - Option 257 further reduces the global unit sound level.

### Easy and fast installation

- Compact design
  - The 30XW units are designed to offer the most compact dimensions on the market.
  - With a width of approximately 1 m up to 1300 kW the units can pass through standard door openings and only require minimum floor space in the plant room.

### Compact, accessible unit - side view - sizes up to 1300 KW



- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V)
- Simplified hydraulic connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Environmental care



- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity air-conditioning equipment.
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

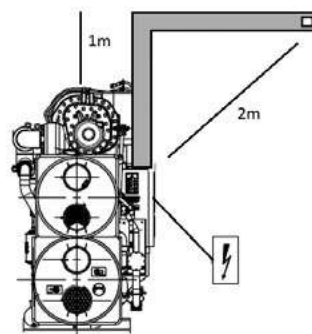
### High reliability and easy servicing

- The 30XW units offer increased global performance as well as Carrier's acclaimed product quality and reliability.
- Major components are selected and tested with R-1234ze and R-515B refrigerant to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Non flammable use possible when selecting option 330, Low GWP A1 R-515 Refrigerant
- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuit
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

## CUSTOMER BENEFITS

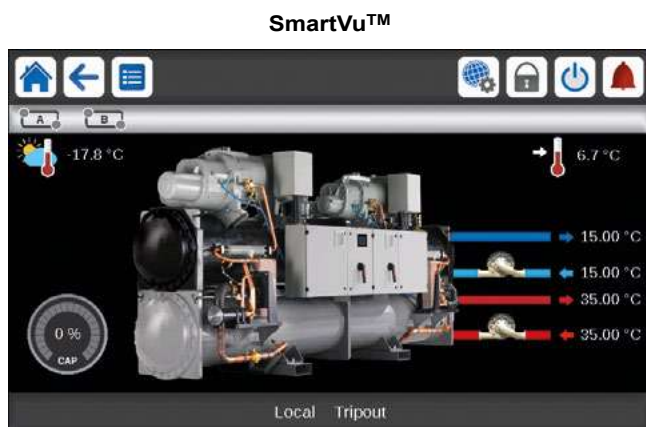
### Safe Design

- Specific polyol ester oil qualified by Carrier for using with HFO-1234ze or R-515B to guarantee and maintain reliable bearing lubrication.
- Specific compressor gaskets compatible with HFO-1234ze or R-515B, tested and validated by Carrier.
- New relief valves designed for operation with HFO-1234ze or R-515B
- Specific electrical box with increased tightness and integrated blower that maintains positive air pressure to avoid any risk of ignition when using R-1234ze refrigerant.
- No need of ducted electrical cabinet fresh air supply when using option 330 - LOW GWP A1 R-515B refrigerant
- New control algorithms
- Specific documentation that contains all the installation, operation, maintenance and safety Instructions.



## TECHNICAL INSIGHTS

### SmartVu™ Control



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation
- Energy management:
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.

- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - aintenance alert can be configured to days, months or hours of operation
- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters

### Remote Management (Standard)

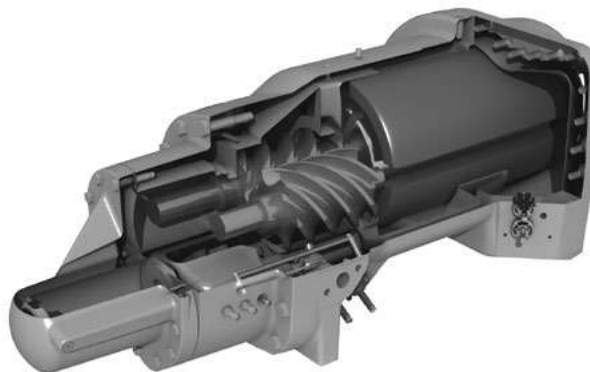
- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional)
- The 30XWZE/30XWPZE also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: ndication if the unit is operating or if it is in stand-by (no cooling load).
  - Alarm visualisation.

## TECHNICAL INSIGHTS

### Remote management (EMM option)

- The Energy management module (EMM) offers extended remote control possibilities:
- Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
- Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
- Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
- Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
- User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
- Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
- Time schedule override: Closing of this contact cancels the programmed time schedule.
- Out of service: This signal indicates that the chiller is completely out of service.
- Chiller capacity: This analogue output (0-10 gives an immediate indication of the chiller capacity.
- Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running

### 06T screw compressor



The Carrier 06T screw compressor designed for operation with HFO-1234ze and R-515B refrigerant benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high water temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.

The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

## OPTIONS

| Options                                   | N°   | Description   | Advantages  | Use      |
|---|------|---|---|----------|
| Light-brine solution, down to -3°C        | 8    | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements   | 301-1101 |
| Master/slave operation                    | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parrallele operation with operating time equalisation   | 301-1101 |
| Single power connection point             | 81   | Unit power connection via one main supply connection  | Quick and easy installation   | 801-1101 |
| Evap. pump power/control circuit          | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | 301-1001 |
| Evap. dual pumps power/control circuit    | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | 301-1001 |
| Cond. pump power/control circuit          | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | 301-1001 |
| Condenser insulation                      | 86   | Thermal condenser insulation  | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)  | 301-1101 |
| Service valve set                         | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve  | Allow isolation of various refrigerant circuit components for simplified service and maintenance  | 301-1101 |
| Evaporator with one pass less             | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops  | 301-1101 |
| Condenser with one pass less              | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops  | 301-1101 |
| 21 bar evaporator                         | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)   | 301-1101 |
| 21 bar condenser                          | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)  | 301-1101 |
| Reversed evaporator water connections     | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements   | 301-1101 |
| Reversed condenser water connections      | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements   | 301-1101 |
| Lon gateway                               | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 301-1101 |
| Bacnet over IP                            | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 301-1101 |
| Modbus over IP and RS485                  | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 301-1101 |
| High condensing temperature               | 150  | Optimized compressor for operation at high condensing temperature   | Increased condenser leaving water temperature up to 70°C. Allows applications with high condensing temperature (heat pumps, installations with not generously sized dry-coolers or more generally, installations with dry-coolers in hot climate). NOTE: to ensure control of the condenser leaving water temperature, this option must be fitted with 30XWH units. | 301-1101 |
| Condensing temperature limitation         | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized   | 301-1101 |
| Control for low cond. temperature systems | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values  | 301-1101 |

## OPTIONS

| Options                                 | N°   | Description  | Advantages   | Use      |
|---|------|--|--|----------|
| Dry-cooler control                      | 154  | Adaptation of the control box for communication with the dry-cooler via a bus. For dry cooler need to select the cabinet with option control cabinet manage by the chiller control | Easy system management, extended control capabilities of a remote dry-cooler                                     | 301-1101 |
| Energy Management Module                | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter  | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...) | 301-1101 |
| SmartVu™control, 7" user interface      | 158A | SmartVu™control supplied with a 7 inch colour touch screen user interface  | Enhanced ease of use.  | 301-1101 |
| Dual relief valves on 3-way valve       | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4 | 301-1101 |
| Compliance with Swiss regulations       | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications   | Conformance with Swiss regulations   | 301-1101 |
| Compliance with Australian regulations  | 200  | Unit approved to Australian code   | Conformance with Australian regulations  | 301-1101 |
| Low noise level                         | 257  | Evaporator sound insulation  | 3 dB(A) quieter than standard unit   | 401-1101 |
| Welded evaporator connection kit        | 266  | Victaulic piping connections with welded joints  | Easy installation  | 301-1101 |
| Welded condenser water connection kit   | 267  | Victaulic piping connections with welded joints  | Easy installation  | 301-1101 |
| Flanged evaporator water connection kit | 268  | Victaulic piping connections with flanged joints   | Easy installation  | 301-1101 |
| Flanged condenser water connection kit  | 269  | Victaulic piping connections with flanged joints   | Easy installation  | 301-1101 |
| Thermal compressor insulation           | 271  | The compressor is covered with a thermal insulation layer  | Prevents air humidity to condensate on the compressor surface  | 301-1101 |
| Free-cooling dry-cooler control         | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box   | Easy system management, Extended control capabilities to a dryccoler used in Free Cooling mode                   | 301-1101 |
| Low GWP A1 R-515B refrigerant           | 330  | Unit delivered with R-515B refrigerant charge (A1, GWP 299)  | Reduced CO <sub>2</sub> footprint (GWP < 300)<br>A1 safety class<br>Reduced installed cost in technical room     | 301-1101 |



## PHYSICAL DATA, STANDARD UNITS

| 30XW-PZE / 30XWHPZE | 301 | 401 | 451 | 551 | 601 | 651 | 801 | 901 | 1001 | 1101 |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|

## Heating

|  |     |                            |       |      |      |      |      |      |      |      |      |      |      |
|--|-----|----------------------------|-------|------|------|------|------|------|------|------|------|------|------|
| Standard unit<br>Full load<br>performances*      | HW1 | Nominal capacity           | kW    | 322  | 448  | 509  | 657  | 698  | 758  | 916  | 1012 | 1168 | 1297 |
|  |     | COP                        | kW/kW | 6,12 | 6,55 | 6,47 | 6,63 | 6,48 | 6,47 | 6,52 | 6,49 | 6,50 | 6,30 |
|  | HW2 | Nominal capacity           | kW    | 318  | 439  | 500  | 646  | 686  | 741  | 900  | 991  | 1146 | 1271 |
|  |     | COP                        | kW/kW | 4,66 | 4,94 | 4,88 | 4,99 | 4,85 | 4,89 | 4,95 | 4,92 | 4,95 | 4,80 |
|  | HW3 | Nominal capacity           | kW    | 315  | 433  | 494  | 638  | 678  | 725  | 890  | 976  | 1129 | 1251 |
|  |     | COP                        | kW/kW | 3,65 | 3,82 | 3,80 | 3,84 | 3,74 | 3,80 | 3,83 | 3,82 | 3,86 | 3,73 |
| Standard unit<br>Seasonal energy<br>efficiency** | HW1 | SCOP <sub>30/35°C</sub>    | kW/kW | 6,20 | 6,74 | 6,81 | 6,48 | 6,53 | 6,57 | 6,79 | 6,97 | 6,88 | 6,51 |
|  |     | ηs heat <sub>30/35°C</sub> | %     | 240  | 262  | 264  | 251  | 253  | 255  | 264  | 271  | 267  | 252  |
|  | HW3 | SCOP <sub>47/55°C</sub>    | kW/kW | 4,43 | 5,04 | 4,99 | 4,49 | 4,60 | 4,73 | 5,07 | 5,09 | 4,95 | 4,62 |
|  |     | ηs heat <sub>47/55°C</sub> | %     | 169  | 194  | 192  | 171  | 176  | 181  | 195  | 195  | 190  | 177  |
|  |     | P <sub>rated</sub>         | kW    | 411  | 540  | 615  | 795  | 845  | 908  | 1108 | 1218 | 1408 | 1562 |
|  |     |                            |       |      |      |      |      |      |      |      |      |      |      |

## Cooling

|  |     |   |         |             |             |             |             |             |             |             |             |             |             |
|--|-----|---|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Standard unit<br>Full load<br>performances*      | CW1 | Nominal capacity                          | kW      | 271         | 385         | 435         | 561         | 595         | 648         | 783         | 874         | 1001        | 1111        |
|  |     | EER                                       | kW/kW   | 5,28        | 5,75        | 5,66        | 5,80        | 5,66        | 5,69        | 5,74        | 5,83        | 5,80        | 5,65        |
|  | CW2 | Nominal capacity                          | kW      | 375         | 538         | 610         | 764         | 813         | 880         | 1086        | 1220        | 1383        | 1522        |
|  |     | EER                                       | kW/kW   | 8,00        | 8,15        | 7,99        | 8,55        | 8,17        | 8,33        | 8,10        | 8,13        | 8,27        | 8,13        |
| Standard unit<br>Seasonal energy<br>efficiency** |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | <b>6,43</b> | <b>7,03</b> | <b>7,35</b> | <b>6,54</b> | <b>6,65</b> | <b>6,97</b> | <b>7,10</b> | <b>7,59</b> | <b>7,61</b> | <b>7,14</b> |
|  |     | ηs cool <sub>12/7°C</sub>                 | %       | <b>254</b>  | <b>278</b>  | <b>291</b>  | <b>259</b>  | <b>263</b>  | <b>276</b>  | <b>281</b>  | <b>301</b>  | <b>301</b>  | <b>283</b>  |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | <b>9,27</b> | <b>8,76</b> | <b>8,75</b> | <b>9,36</b> | <b>8,78</b> | <b>8,84</b> | <b>8,76</b> | <b>9,06</b> | <b>9,26</b> | <b>9,19</b> |

\* In accordance with standard EN14511-3:2018

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

ηs heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

ηs heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016

ηs cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**



Eurovent certified values

## PHYSICAL DATA, STANDARD UNITS

| 30XW-PZE / 30XWHPZE   |                     | 301  | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|---|---------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Sound levels - standard unit</b>                             |                     |      |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                                | dB(A)               | 93   | 97   | 97   | 97   | 97   | 97   | 100  | 100  | 100  | 100  |
| Sound pressure level at 1 m <sup>(2)</sup>                      | dB(A)               | 76   | 80   | 80   | 79   | 79   | 79   | 81   | 81   | 81   | 81   |
| <b>Sound levels - standard unit + option 257 <sup>(3)</sup></b> |                     |      |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                                | dB(A)               | -    | 94   | 94   | 94   | 94   | 94   | 97   | 97   | 97   | 97   |
| Sound pressure level at 1 m <sup>(1)</sup>                      | dB(A)               | -    | 76   | 76   | 76   | 76   | 76   | 78   | 78   | 78   | 78   |
| <b>Dimensions - standard unit</b>                               |                     |      |      |      |      |      |      |      |      |      |      |
| Length  | mm                  | 2724 | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 |
| Width   | mm                  | 928  | 936  | 936  | 1069 | 1069 | 1069 | 1039 | 1039 | 1162 | 1162 |
| Height  | mm                  | 1567 | 1743 | 1743 | 1950 | 1950 | 1950 | 1997 | 1997 | 2051 | 2051 |
| <b>Operating weight <sup>(4)</sup></b>                          | kg                  | 2157 | 3050 | 3050 | 3942 | 3977 | 3995 | 6932 | 7010 | 7665 | 7875 |
| <b>Compressors</b>  |                     |      |      |      |      |      |      |      |      |      |      |
| Semi-hermetic 06T screw compressors, 50 r/s                     |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | -                   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B   | -                   | -    | -    | -    | -    | -    | -    | 1    | 1    | 1    | 1    |
| <b>Refrigerant - standard unit</b>                              |                     |      |      |      |      |      |      |      |      |      |      |
| R-1234ze  |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kg                  | 78   | 130  | 130  | 180  | 175  | 170  | 120  | 120  | 130  | 130  |
|   | teq CO <sub>2</sub> | 0,5  | 0,9  | 0,9  | 1,3  | 1,2  | 1,2  | 0,8  | 0,8  | 0,9  | 0,9  |
| Circuit B   | kg                  | -    | -    | -    | -    | -    | -    | 120  | 120  | 150  | 130  |
|   | teq CO <sub>2</sub> | -    | -    | -    | -    | -    | -    | 0,8  | 0,8  | 1,1  | 0,9  |
| <b>Refrigerant - option 330</b>                                 |                     |      |      |      |      |      |      |      |      |      |      |
| R-515B  |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kg                  | 79   | 132  | 132  | 183  | 178  | 173  | 122  | 122  | 132  | 132  |
|   | teq CO <sub>2</sub> | 23,1 | 38,7 | 38,7 | 53,6 | 52,2 | 50,7 | 35,7 | 35,7 | 38,7 | 38,7 |
| Circuit B   | kg                  | -    | -    | -    | -    | -    | -    | 122  | 122  | 152  | 132  |
|   | teq CO <sub>2</sub> | -    | -    | -    | -    | -    | -    | 35,7 | 35,7 | 44,5 | 38,7 |
| <b>Oil - standard unit</b>                                      |                     |      |      |      |      |      |      |      |      |      |      |
| HATCOL-4496   |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | l                   | 20   | 20   | 20   | 25   | 25   | 25   | 20   | 20   | 25   | 25   |
| Circuit B   | l                   | -    | -    | -    | -    | -    | -    | 20   | 20   | 20   | 25   |
| <b>Capacity control</b>   |                     |      |      |      |      |      |      |      |      |      |      |
| SmartVu™, electronic expansion valves (EXV)                     |                     |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity  | %                   | 25   | 30   | 30   | 15   | 15   | 20   | 15   | 15   | 15   | 10   |
| <b>Evaporator</b>   |                     |      |      |      |      |      |      |      |      |      |      |
| Multi-pipe flooded type   |                     |      |      |      |      |      |      |      |      |      |      |
| Water volume  | l                   | 61   | 101  | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  |
| Water connections (Victaulic)                                   | in                  | 5    | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)                                | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                              | kPa                 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>  |                     |      |      |      |      |      |      |      |      |      |      |
| Multi-pipe flooded type   |                     |      |      |      |      |      |      |      |      |      |      |
| Water volume  | l                   | 55   | 103  | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  |
| Water connections (Victaulic)                                   | in                  | 5    | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)                                | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                              | kPa                 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate

## ELECTRICAL DATA, STANDARD UNITS

| 30XW-PZE / 30XWHPZE  |         | 301                               | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|--|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Nom. power supply  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| <b>Voltage range</b>   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>   |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| Nominal start-up current <sup>(1)</sup>                          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 303                               | 414  | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 414  | 414  | 414  | 587  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 529  | 543  | 716  | 751  |
| <b>Maximum start-up current<sup>(2)</sup></b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 303                               | 414  | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 414  | 414  | 414  | 587  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 597  | 621  | 794  | 855  |
| <b>Cosine phi</b>  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>   |         | 0,79                              | 0,86 | 0,87 | 0,85 | 0,87 | 0,89 | 0,86 | 0,87 | 0,85 | 0,85 |
| Maximum <sup>(4)</sup>   |         | 0,90                              | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 |
| Total harmonic distortion <sup>(4)</sup>                         | %       | Closed to 0% (negligible)         |      |      |      |      |      |      |      |      |      |
| <b>Maximum power input<sup>(5)</sup></b>                         |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | kW      | 86                                | 112  | 126  | 148  | 165  | 174  | 112  | 126  | 148  | 148  |
| Circuit B  | kW      | -                                 | -    | -    | -    | -    | -    | 112  | 126  | 126  | 148  |
| Option 81  | kW      | -                                 | -    | -    | -    | -    | -    | 224  | 252  | 274  | 296  |
| <b>Nominal current drawn<sup>(3)</sup></b>                       |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 91                                | 115  | 129  | 164  | 177  | 194  | 115  | 129  | 164  | 164  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 115  | 129  | 129  | 164  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 230  | 258  | 293  | 328  |
| <b>Maximum current drawn (Un)<sup>(5)</sup></b>                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 140                               | 180  | 205  | 240  | 268  | 282  | 180  | 205  | 240  | 240  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 180  | 205  | 205  | 240  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 360  | 410  | 445  | 480  |
| <b>Maximum current drawn (Un -10%)<sup>(4)</sup></b>             |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 153                               | 196  | 223  | 261  | 292  | 307  | 196  | 223  | 261  | 261  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 196  | 223  | 223  | 261  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 392  | 446  | 484  | 522  |
| <b>Maximum power input with option 150B<sup>(5)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | kW      | 76                                | 97   | 110  | 129  | 146  | 153  | 97   | 110  | 129  | 129  |
| Circuit B  | kW      | -                                 | -    | -    | -    | -    | -    | 97   | 110  | 110  | 129  |
| Option 81  | kW      | -                                 | -    | -    | -    | -    | -    | 195  | 220  | 239  | 258  |
| <b>Maximum current drawn (Un) with option 150B<sup>(5)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 123                               | 158  | 179  | 209  | 237  | 249  | 158  | 179  | 209  | 209  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 158  | 179  | 179  | 209  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 316  | 358  | 388  | 418  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

(5) Values obtained at operation with maximum unit power input. Values given on the unit nameplate.

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES (OPTION 150)

| 30XW-ZE / 30XWHZE | 301 | 401 | 451 | 551 | 601 | 651 | 801 | 901 | 1001 | 1101 |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|

### Heating

|   |     |  |         |      |      |      |      |      |      |      |      |      |      |
|---|-----|--|---------|------|------|------|------|------|------|------|------|------|------|
| Unit + option 150<br>Full load performances*      | HW1 | Nominal capacity                       | kW      | 319  | 462  | 516  | 642  | 697  | 771  | 912  | 1057 | 1159 | 1297 |
|   |     | COP                                    | kW/kW   | 5,61 | 6,01 | 6,05 | 5,83 | 5,71 | 5,93 | 5,76 | 5,98 | 5,73 | 5,61 |
|   | HW2 | Nominal capacity                       | kW      | 310  | 446  | 498  | 623  | 678  | 753  | 880  | 1018 | 1123 | 1260 |
|   |     | COP                                    | kW/kW   | 4,59 | 4,93 | 4,97 | 4,8  | 4,7  | 4,91 | 4,74 | 4,93 | 4,74 | 4,66 |
|   | HW3 | Nominal capacity                       | kW      | 302  | 433  | 482  | 605  | 661  | 734  | 853  | 983  | 1089 | 1223 |
|   |     | COP                                    | kW/kW   | 3,78 | 4,05 | 4,09 | 3,95 | 3,88 | 4,06 | 3,89 | 4,06 | 3,94 | 3,88 |
|   | HW4 | Nominal capacity                       | kW      | 293  | 420  | 467  | 585  | 645  | 715  | 828  | 950  | 1057 | 1186 |
|   |     | COP                                    | kW/kW   | 3,07 | 3,29 | 3,32 | 3,21 | 3,16 | 3,29 | 3,15 | 3,29 | 3,21 | 3,18 |
| Unit + option 150<br>Seasonal energy efficiency** | HW1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 5,8  | 6,18 | 6,25 | 6,38 | 6,28 | 6,29 | 6,21 | 6,31 | 6,26 | 6,3  |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 224  | 239  | 242  | 247  | 243  | 244  | 240  | 244  | 242  | 244  |
|   | HW3 | SCOP <sub>47/55°C</sub>                | kWh/kWh | 4,7  | 4,77 | 4,83 | 4,86 | 4,84 | 4,9  | 4,77 | 4,87 | 4,84 | 4,89 |
|   |     | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 180  | 183  | 185  | 186  | 186  | 188  | 183  | 187  | 186  | 187  |
|   |     | P <sub>rated</sub>                     | kW      | 421  | 544  | 607  | 761  | 829  | 922  | 1073 | 1240 | 1371 | 1539 |
|   |     |  |         |      |      |      |      |      |      |      |      |      |      |

### Cooling

|   |   |                  |         |             |             |             |             |             |            |             |            |             |            |
|---|---|------------------|---------|-------------|-------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|
| Unit + option 150<br>Full load performances*      | CW1                                       | Nominal capacity | kW      | 269         | 393         | 439         | 547         | 591         | 656        | 776         | 910        | 985         | 1101       |
|   |   | EER              | kW/kW   | 4,86        | 5,2         | 5,27        | 5,07        | 4,95        | 5,18       | 5,05        | 5,34       | 5,03        | 4,94       |
|   | CW2                                       | Nominal capacity | kW      | 352         | 538         | 605         | 725         | 782         | 877        | 1057        | 1251       | 1332        | 1466       |
|   |   | EER              | kW/kW   | 5,58        | 6,44        | 6,4         | 6,24        | 6,12        | 6,42       | 6,23        | 6,45       | 6,16        | 6,06       |
| Unit + option 150<br>Seasonal energy efficiency** | SEER <sub>12/7°C</sub> Comfort low temp.  |                  | kWh/kWh | <b>6,24</b> | <b>6,57</b> | <b>6,65</b> | <b>6,52</b> | <b>6,57</b> | <b>6,5</b> | <b>6,67</b> | <b>6,8</b> | <b>6,63</b> | <b>6,6</b> |
|   | η <sub>s</sub> cool <sub>12/7°C</sub>     |                  | %       | <b>247</b>  | <b>260</b>  | <b>263</b>  | <b>258</b>  | <b>260</b>  | <b>257</b> | <b>264</b>  | <b>269</b> | <b>262</b>  | <b>261</b> |
|   | SEPR <sub>12/7°C</sub> Process high temp. |                  | kWh/kWh | 6,80        | 7,01        | 7,07        | 7,39        | 6,97        | 6,99       | 6,96        | 7,23       | 7,11        | 7,30       |

\* In accordance with standard EN14511-3:2018

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW4 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 55°C/65°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fouling factor 0 m<sup>2</sup>.K/W

η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016



Eurovent certified values

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES (OPTION 150)

| 30XWHPZE   |                     | 301   | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|--|---------------------|---|------|------|------|------|------|------|------|------|------|
| Sound levels - unit with option 150                      |                     |   |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                         | dB(A)               | 93  | 97   | 97   | 100  | 100  | 100  | 100  | 100  | 103  | 103  |
| Sound pressure level at 1 m <sup>(2)</sup>               | dB(A)               | 76  | 80   | 80   | 82   | 82   | 82   | 81   | 81   | 84   | 84   |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |                     |   |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                         | dB(A)               | -   | 94   | 94   | 98   | 98   | 98   | 97   | 97   | 101  | 101  |
| Sound pressure level at 1 m <sup>(2)</sup>               | dB(A)               | -   | 76   | 76   | 80   | 80   | 80   | 78   | 78   | 82   | 82   |
| Operating weight <sup>(4)</sup>                          | kg                  | 2157  | 3050 | 3050 | 4102 | 4147 | 4175 | 6932 | 7010 | 7844 | 8182 |
| Compressors  |                     | Semi-hermetic 06T screw compressors, 50 r/s |      |      |      |      |      |      |      |      |      |
| Circuit A  | -                   | 1   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B  | -                   | -   | -    | -    | -    | -    | -    | 1    | 1    | 1    | 1    |
| Refrigerant - unit with option 150                       |                     | R-1234ze                                    |      |      |      |      |      |      |      |      |      |
| Circuit A  | kg                  | 78  | 130  | 130  | 180  | 175  | 170  | 120  | 120  | 130  | 130  |
|  | teq CO <sub>2</sub> | 0,5   | 0,9  | 0,9  | 1,3  | 1,2  | 1,2  | 0,8  | 0,8  | 0,9  | 0,9  |
| Circuit B  | kg                  | -   | -    | -    | -    | -    | -    | 120  | 120  | 150  | 130  |
|  | teq CO <sub>2</sub> | -   | -    | -    | -    | -    | -    | 0,8  | 0,8  | 1,1  | 0,9  |
| Refrigerant - option 330                                 |                     | R-515B                                      |      |      |      |      |      |      |      |      |      |
| Circuit A  | kg                  | 79  | 132  | 132  | 183  | 178  | 173  | 122  | 122  | 132  | 132  |
|  | teq CO <sub>2</sub> | 23,1  | 38,7 | 38,7 | 53,6 | 52,2 | 50,7 | 35,7 | 35,7 | 38,7 | 38,7 |
| Circuit B  | kg                  | -   | -    | -    | -    | -    | -    | 122  | 122  | 152  | 132  |
|  | teq CO <sub>2</sub> | -   | -    | -    | -    | -    | -    | 35,7 | 35,7 | 44,5 | 38,7 |
| Oil - unit with option 150                               |                     | HATCOL-4496                                 |      |      |      |      |      |      |      |      |      |
| Circuit A  | l                   | 20  | 20   | 20   | 25   | 25   | 25   | 20   | 20   | 25   | 25   |
| Circuit B  | l                   | -   | -    | -    | -    | -    | -    | 20   | 20   | 20   | 25   |
| Capacity control   |                     | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity   | %                   | 30  | 30   | 30   | 20   | 20   | 25   | 15   | 15   | 15   | 10   |
| Evaporator   |                     | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume   | l                   | 61  | 101  | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  |
| Water connections (Victaulic)                            | in                  | 5   | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)                         | in                  | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                       | kPa                 | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser  |                     | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume   | l                   | 55  | 103  | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  |
| Water connections (Victaulic)                            | in                  | 5   | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)                         | in                  | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                       | kPa                 | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate



## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES (OPTION 150)

| 30XW-PZE / 30XWHPZE                         |         | 301                               | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| Power circuit                               |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                        | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range                               | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| Control circuit                             |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| Nominal start-up current <sup>(1)</sup>     |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 388                               | 587  | 587  | 629  | 629  | 629  | 587  | 587  | 629  | 629  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 587  | 587  | 587  | 629  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 712  | 725  | 767  | 815  |
| Maximum start-up current <sup>(2)</sup>     |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 388                               | 587  | 587  | 629  | 629  | 629  | 587  | 587  | 629  | 629  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 587  | 587  | 587  | 629  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 833  | 860  | 902  | 972  |
| Cosine phi nominal <sup>(3)</sup>           |         | 0,75                              | 0,80 | 0,81 | 0,80 | 0,81 | 0,83 | 0,80 | 0,81 | 0,80 | 0,80 |
| Cosine phi maximum <sup>(4)</sup>           |         | 0,90                              | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 |
| Total harmonic distortion <sup>(4)</sup>    | %       | Closed to 0% (negligible)         |      |      |      |      |      |      |      |      |      |
| Maximum power input <sup>(5)</sup>          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | kW      | 107                               | 144  | 158  | 202  | 219  | 228  | 144  | 158  | 202  | 202  |
| Circuit B                                   | kW      | -                                 | -    | -    | -    | -    | -    | 144  | 158  | 158  | 202  |
| Option 81                                   | kW      | -                                 | -    | -    | -    | -    | -    | 288  | 317  | 360  | 404  |
| Nominal current drawn <sup>(3)</sup>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 102                               | 125  | 138  | 186  | 197  | 213  | 125  | 138  | 186  | 186  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 125  | 138  | 138  | 186  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 250  | 276  | 324  | 372  |
| Maximum current drawn (Un) <sup>(5)</sup>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 174                               | 234  | 257  | 328  | 356  | 371  | 234  | 257  | 328  | 328  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 234  | 257  | 257  | 328  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 468  | 514  | 585  | 656  |
| Max. current drawn (Un -10%) <sup>(4)</sup> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 190                               | 255  | 280  | 357  | 387  | 404  | 255  | 280  | 357  | 357  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 255  | 280  | 280  | 357  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 510  | 560  | 637  | 714  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

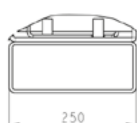
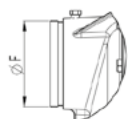
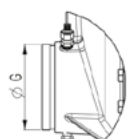
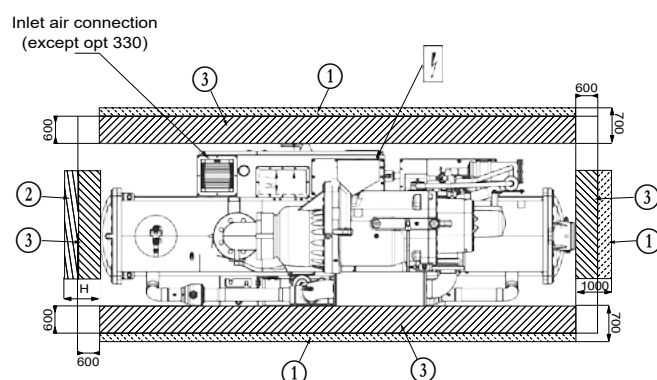
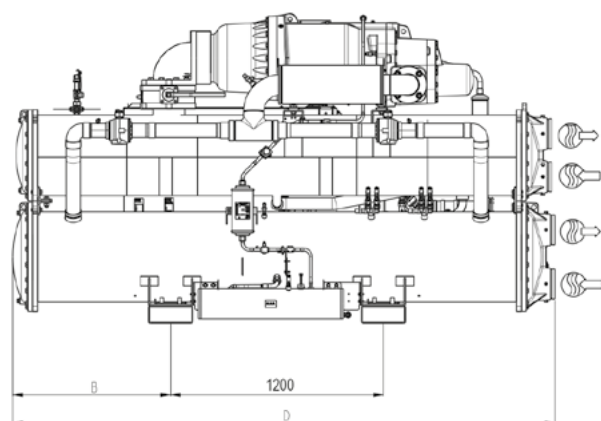
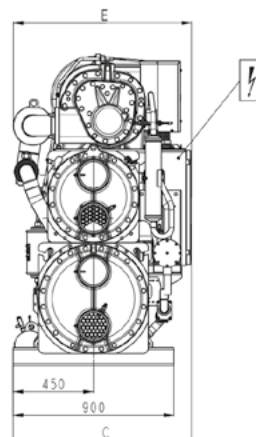
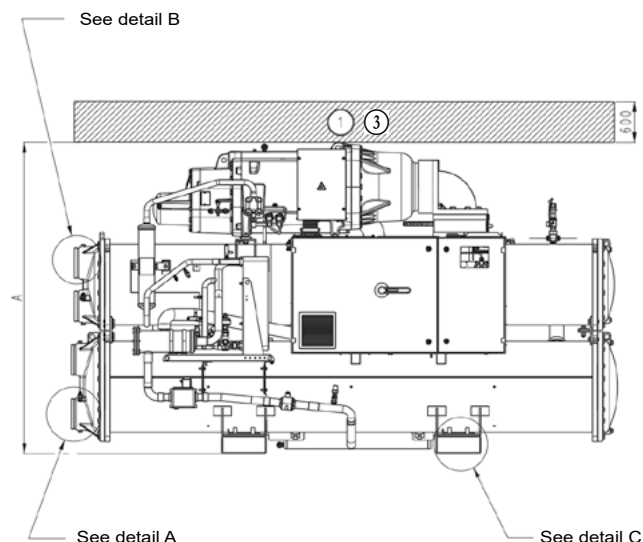
(3) Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C

(4) Values obtained at operation with maximum unit power input.

(5) Values obtained at operation with maximum unit power input. Values given on the unit nameplate.

## DIMENSIONS/CLEARANCES

**30XW-PZE 301-651**



### Detail A




### Detail B

### Detail C

| Dimensions in mm      |      |      |      |      |      |       |       |      |
|-----------------------|------|------|------|------|------|-------|-------|------|
| A                     | B    | C    | D    | E    | F    | G     | H     |      |
| 30XW-PZE              |      |      |      |      |      |       |       |      |
| 301                   | 1612 | 800  | 982  | 2724 | 983  | 141,3 | 141,3 | 2600 |
| 401                   | 1743 | 968  | 980  | 3059 | 982  | 168,3 | 168,3 | 2800 |
| 451                   | 1743 | 968  | 980  | 3059 | 982  | 168,3 | 168,3 | 2800 |
| 551                   | 1950 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| 601                   | 1950 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| 651                   | 1950 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| 30XW-PZE (option 150) |      |      |      |      |      |       |       |      |
| 301                   | 1612 | 800  | 982  | 2724 | 983  | 141,3 | 141,3 | 2600 |
| 401                   | 1743 | 968  | 980  | 3059 | 982  | 168,3 | 168,3 | 2800 |
| 451                   | 1743 | 968  | 1040 | 3059 | 1042 | 168,3 | 168,3 | 2800 |
| 551                   | 1968 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| 601                   | 1968 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| 651                   | 1968 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |

### Legend

All dimensions are given in mm

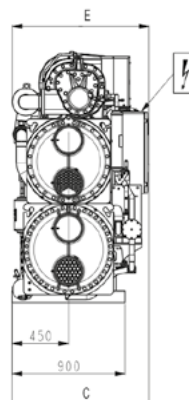
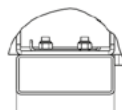
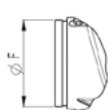
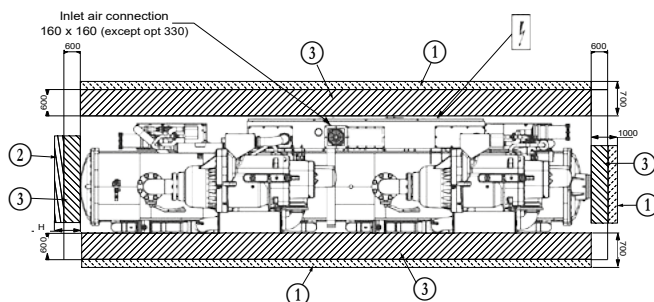
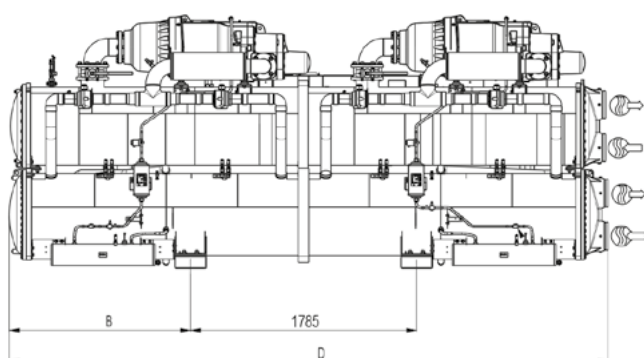
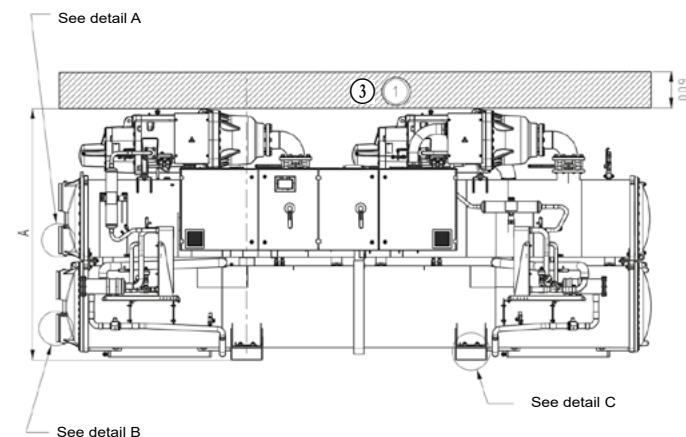
- ① Services clearances required
- ② Space required to remove cooler tubes
- ③ Zone ATEX
-  Inlet water
-  Outlet water
-  Electrical supply entry

**NOTES:**

- Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.
- For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

## DIMENSIONS/CLEARANCES

### 30XW-PZE 801-1101



| Dimensions in mm             |      |      |      |      |      |       |       |      |
|------------------------------|------|------|------|------|------|-------|-------|------|
|                              | A    | B    | C    | D    | E    | F     | G     | H    |
| <b>30XW-PZE</b>              |      |      |      |      |      |       |       |      |
| <b>801</b>                   | 1998 | 1512 | 1121 | 4730 | 1124 | 219,1 | 219,1 | 4500 |
| <b>901</b>                   | 1998 | 1512 | 1125 | 4730 | 1124 | 219,1 | 219,1 | 4500 |
| <b>1001</b>                  | 2051 | 1512 | 1238 | 4730 | 1238 | 219,1 | 219,1 | 4500 |
| <b>1101</b>                  | 2051 | 1512 | 1238 | 4730 | 1238 | 219,1 | 219,1 | 4500 |
| <b>30XW-PZE (option 150)</b> |      |      |      |      |      |       |       |      |
| <b>801</b>                   | 1998 | 1512 | 1121 | 4730 | 1124 | 219,1 | 219,1 | 4500 |
| <b>901</b>                   | 1998 | 1512 | 1125 | 4730 | 1124 | 219,1 | 219,1 | 4500 |
| <b>1001</b>                  | 2070 | 1512 | 1238 | 4730 | 1238 | 219,1 | 219,1 | 4500 |
| <b>1101</b>                  | 2051 | 1512 | 1238 | 4730 | 1238 | 219,1 | 219,1 | 4500 |

#### Legend

All dimensions are given in mm

- ① Services clearances required
- ② Space required to remove cooler tubes
- ③ Zone ATEX
- Inlet water
- Outlet water
- Electrical supply entry

#### NOTES:

- Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.
- For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

## WATER-COOLED VARIABLE-SPEED SCREW CHILLERS



Low energy consumption  
High reliability  
Safe Design  
Easy and fast installation  
Minimised operating sound levels  
Environmental care  
Designed to support green building design

## 30XW-VZE-A

**AQUAFORCE**  
PUREtec

Nominal cooling capacity 448-1243 kW  
Nominal heating capacity 524-1485 kW

The 30XW-VZE water-sourced units are the premium solution for commercial and industrial applications where installers, consultants and building owners require maximum quality and optimal performances, especially at part load.

The 30XW-VZE units are designed to meet current and future requirements in terms of energy efficiency, versatility and compactness. They feature exclusive inverter-driven screw compressors - an evolution of the proven traditional Carrier twin-rotor screw compressor design. Other features include:

- the new SmartVu™ control
- mechanically cleanable flooded heat exchangers
- refrigerant R-1234ze or R-515B

The 30XW-VZE/30XWHVZE range is splitted into two versions:

- 30XW-VZE for air conditioning applications
- 30XWHVZE for heating applications

As standard, the unit can provide an evaporator leaving water temperature down to 3.3°C, and when operating as a heat pump, it can deliver up to 55°C on the condenser side.

\* Evaporator with aluminium jacket shown in the picture not standard - available as special order only



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CUSTOMER BENEFITS

### Low energy consumption

- The 30XW-VZE are designed for high performance both at full load and at part load.
  - Eurovent certified values per EN14511-3:2013: SEPR up to 10.7 and SEER up to 8.8
- High energy efficiency
  - Inverter-driven twin-rotor screw compressors allow precise capacity matching of building load changes and significantly reduce unit power input, especially at part-load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permits operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
- Optimised electrical performance
  - All 30XW-VZE units comply with class 3 of standard EN61800-3. Category C3 refers to industrial environments. With option 282 category C2 compliance is possible.
  - Inverter-driven motors ensure negligible start-up current (value is lower than the maximum unit current draw)

### High reliability

- The 30XW-VZE ranges offer increased global performance as well as Carrier's acclaimed product quality and reliability. Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Inverter-driven screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - The inverter is optimised for each compressor motor to ensure reliable operation and easy maintenance.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuits
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
  - All components have been selected and tested with R-1234ze refrigerant and R-515B
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling
  - Automatic compressor unloading in case of abnormally high condensing pressure or discharge temperature.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard)

### Safe Design

- Specific polyol ester oil qualified by Carrier for using with HFO-1234ze and R-515B to guarantee and maintain reliable bearing lubrication.
- Specific compressor gaskets compatible with HFO-1234ze and R-515B, tested and validated by Carrier.
- New relief valves designed for operation with HFO-1234ze and R-515B
- New control algorithms
- Specific documentation that contains all the installation, operation, maintenance and safety Instructions.
- No need of electrical cabinet ducted fresh air supply

### Easy and fast installation

- Compact design
  - The 30XW-VZE units are designed to offer compact dimensions for easy installation.
  - With a width of approximately 1.25 m up to 1000 kW the units can pass through standard door openings and only require minimum floor space in the plant room.
- Simplified electrical connections
  - Transformer supply to the integrated control circuit (400/24 V)
- Simplified water connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.
  - Non flammable use possible when selecting option 330, Low GWP A1 R-515B Refrigerant

### Minimised operating sound levels

- The inverter technology used for the compressor motors minimises noise levels at part load operation. In two-compressor units at 25% of the maximum load the unit sound power level is reduced by 10 dB(A).
- Standard unit features include:
  - Silencers on the compressor discharge line.
  - Sound insulation on the components that are most subjected to radiated noise.
- Option 257 further reduces the global unit sound level.



## CUSTOMER BENEFITS

### Environmental care



- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity air-conditioning equipment.
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### Designed to support green building design

- A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment. The underlying principles of this approach: The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.
- The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year 30XWVZE units offers a solution to this important challenge.
- A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.
- The following example looks at how Carrier's new 30XWVZE range helps customers involved in LEED® building certification.

#### 30XWVZE and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a pre-eminent programme to rate the design, construction and operation of green buildings with points assigned in seven credit categories:

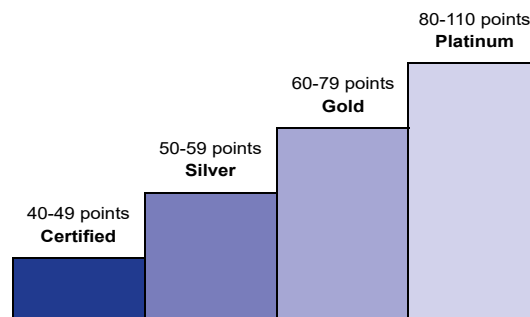
- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain same, the point distribution varies to address different building types and application needs, for example according to New Construction, Schools, Core & Shell, Retail and Healthcare.

All programmes now use the same point scale:

#### 110 Possible LEED® points

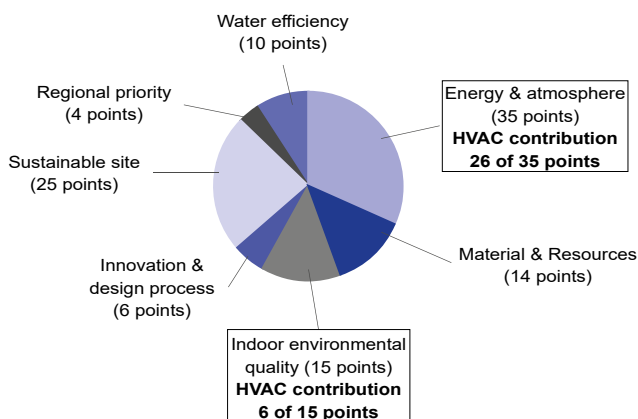


The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impacts of each component or sub-system to the overall building.

While the LEED® green building certification programs do not certify products or services, the selection of the right products, systems or service programs is critical to obtain LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilating and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

#### Overview of LEED® for new construction and major renovations



The new 30XWVZE units from Carrier can assist building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- **EA prerequisite 2: Minimum energy Performance**  
The 30XWVZE exceeds the energy efficiency requirements of ASHRAE 90.1-2007; therefore it complies with the prerequisite standard.
- **EA prerequisite 3: Fundamental Refrigerant Management**  
The 30XWVZE does not use chlorofluorocarbon (CFC) refrigerants thus satisfying the prerequisite statement.

## CUSTOMER BENEFITS

- **EA credit 1: Optimise energy performance (1 to 19 points)**  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90,1-2007 reference. The 30XW-VZE, which is designed for high performance especially during part load operation, contributes reducing the energy consumption of the building and therefore helps gaining points within this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used as an energy analyses program complying with the modeling requirements for this credit and produce reports that are easily transferable to LEED® templates.
- **EA credit 4: Enhanced refrigerant management (2 points)**  
With this credit, LEED® awards systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) of the system. The 30XWVZE uses HFO-1234ze refrigerant with Global Warming Potential Index below 1 and therefore contributes toward satisfying this credit under LEED®.

**NOTE: This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30XWVZE. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the complete HVAC system.**

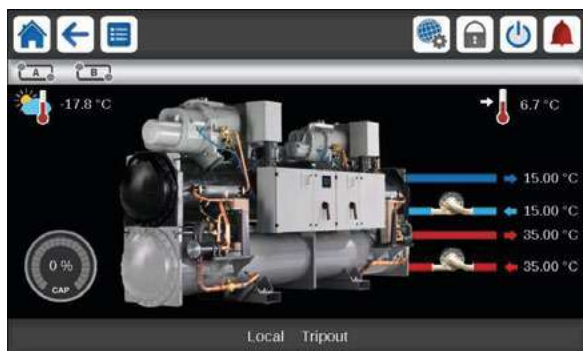
i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: Fundamental commissioning of energy management system
- EA credit 3: Enhanced commissioning (2 points)
- EA credit 5: Measurements and verification (3 points).

**NOTE: Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).**

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features :
  - An intuitive and user-friendly, coloured, 7" interface
  - 1 languages available on choice :DE, EN, ES,FR,T,NL,PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation

- Advanced communication features :
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote Management (Standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The chiller also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

## TECHNICAL INSIGHTS

### Remote management (EMM option)

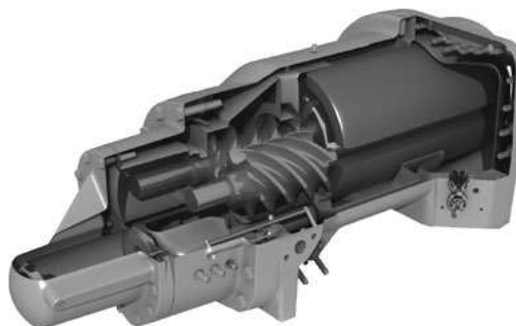
- The Energy management module (EMM) offers extended remote control possibilities:
- Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
- Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
- Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
- Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
- User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
- Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
- Time schedule override: Closing of this contact cancels the programmed time schedule.
- Out of service: This signal indicates that the chiller is completely out of service.
- Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
- Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

### Remote management (EMM option)

The Energy Management Module offers extended remote control possibilities:

- Room temperature: permits set-point reset based on the building indoor air temperature (with Carrier thermostat)
- Set point reset: ensures reset of the cooling set-point based on a 0-10 V signal
- Demand limit: permits limitation of the maximum chiller power or current based on a 0-10 V signal
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller power or current to two predefined values
- User safety: this contact can be used for any customer safety loop; opening the contact generates a specific alarm
- Ice storage end: when ice storage has finished, this input permits return to the second set-point (unoccupied mode)
- Time schedule override: closing of this contact cancels the time schedule effects
- Out of service: this signal indicates that the chiller is completely out of service
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity
- Alert indication: this volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status : set of outputs (as many as the compressors number) indicating which compressors are running.

### New inverter-driven Thunderbolt screw compressor



- The Carrier 06T screw compressor designed for operation with HFO-1234ze refrigerant benefits from Carrier's long experience in the development of twin-rotor screw compressors. The design of the Thunderbolt compressors is based on the successful 06T screw compressor, core of the well-known Aquaforce series.
- Advanced control algorithms combine inverter frequency output with motor input logic to minimise mechanical part stress, resulting in best compression performance and high chiller reliability. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.
- Screw compressors use positive displacement principle to compress gases at higher pressure. As a result, in case of exceptional high temperature condenser side (due for example to water-pipes fouling or operation in harsh climate with an external dry-cooler) the compressor does not switch off, but continues operation at reduced capacity (unloaded mode).
- The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.
- The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

## OPTIONS

| Options                                      | N°   | Description   | Advantages   | Use                                |
|--|------|---|--|------------------------------------|
| Light-brine solution, down to -3°C           | 8    | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements  | 451-1301 (see dedicated paragraph) |
| Master/slave operation                       | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parrallele operation with operating time equalisation  | 451-1301                           |
| Condenser insulation                         | 86   | Thermal condenser insulation  | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)   | 451-1301                           |
| Service valve set                            | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve  | Allow isolation of various refrigerant circuit components for simplified service and maintenance   | 451-1301                           |
| Evaporator with one pass less                | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 451-1301                           |
| Condenser with one pass less                 | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 451-1301                           |
| 21 bar evaporator                            | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)  | 451-1301                           |
| 21 bar condenser                             | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)   | 451-1301                           |
| Reversed evaporator water connections        | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements  | 451-1301                           |
| Reversed condenser water connections         | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements  | 451-1301                           |
| Lon gateway                                  | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system   | 451-1301                           |
| Bacnet over IP                               | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 451-1301                           |
| Modbus over IP and RS485                     | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 451-1301                           |
| Condensing temperature limitation            | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized  | 451-1301                           |
| Control for low cond. temperature systems    | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | 451-1301                           |
| Energy Management Module                     | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | 451-1301                           |
| Input contact for Refrigerant leak detection | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)            | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 451-1301                           |
| Dual relief valves on 3-way valve            | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator  | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4   | 451-1301                           |
| Compliance with Swiss regulations            | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications                        | Conformance with Swiss regulations   | 451-1301                           |

## OPTIONS

| Options                                  | N°    | Description   | Advantages   | Use      |
|--|-------|---|--|----------|
| Compliance with Russian regulations      | 199   | EAC certification   | Conformance with Russian regulations   | 451-1301 |
| Compliance with Australian regulations   | 200   | Unit approved to Australian code  | Conformance with Australian regulations  | 451-1301 |
| Low noise level                          | 257   | Evaporator sound insulation   | 3 dB(A) quieter than standard unit   | 451-1301 |
| Welded evaporator connection kit         | 266   | Victaulic piping connections with welded joints   | Easy installation  | 451-1301 |
| Welded condenser water connection kit    | 267   | Victaulic piping connections with welded joints   | Easy installation  | 451-1301 |
| Flanged evaporator water connection kit  | 268   | Victaulic piping connections with flanged joints  | Easy installation  | 451-1301 |
| Flanged condenser water connection kit   | 269   | Victaulic piping connections with flanged joints  | Easy installation  | 451-1301 |
| Thermal compressor insulation            | 271   | The compressor is covered with a thermal insulation layer   | Prevents air humidity to condensate on the compressor surface  | 451-1301 |
| EMC classification C2, as per EN 61800-3 | 282   | Additional RFI filters on the unit power line   | Reduces electromagnetic interferences. Increase the variable frequency drive (VFD) immunity level according to first environment (so called, residential environment) requirements and allow its compliancy with emissions level required in category C2 | 451-1301 |
| Fast Capacity Recovery                   | QM295 | New software algorithms to allow quick restart and fast loading while preserving unit-reliability | Full capacity recovery in less than 5 minutes after power failure. Matches requirements of typical critical missions applications  | 451-1301 |
| Compliance with Morocco regulation       | 327   | Specifics documents according Morocco regulation  | Conformance with Morocco regulations   | 451-1301 |
| Low GWP A1 R-515B refrigerant            | 330   | Unit delivered with R-515B refrigerant charge (A1, GWP 299)                                       |  | 451-1301 |



## PHYSICAL DATA, 30XW-VZE UNITS

| 30XW-V ZE / 30XWHVZE | 451 | 501 | 601 | 651 | 851 | 1001 | 1101 | 1201 | 1301 |
|----------------------|-----|-----|-----|-----|-----|------|------|------|------|
|----------------------|-----|-----|-----|-----|-----|------|------|------|------|

## Heating

|   |     |  |         |      |      |      |      |      |      |      |      |      |
|---|-----|--|---------|------|------|------|------|------|------|------|------|------|
| <b>Standard unit</b><br>Full load performances*       | HW1 | Nominal capacity                       | kW      | 523  | 581  | 730  | 780  | 1017 | 1157 | 1304 | 1450 | 1555 |
|   |     | COP                                    | kW/kW   | 6,3  | 6,14 | 6,04 | 5,92 | 6,27 | 6,29 | 6,12 | 5,74 | 5,61 |
|   | HW2 | Nominal capacity                       | kW      | 491  | 544  | 677  | 730  | 955  | 1081 | 1211 | 1344 | 1452 |
|   |     | COP                                    | kW/kW   | 4,74 | 4,6  | 4,55 | 4,39 | 4,73 | 4,73 | 4,67 | 4,42 | 4,28 |
|   | HW3 | Nominal capacity                       | kW      | 466  | 508  | 628  | 689  | 906  | 1007 | 1122 | 1242 | 1367 |
|   |     | COP                                    | kW/kW   | 3,52 | 3,41 | 3,42 | 3,24 | 3,51 | 3,5  | 3,52 | 3,39 | 3,22 |
| <b>Standard unit</b><br>Seasonal energy efficiency ** | HW1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 7,64 | 7,39 | 7,62 | 7,57 | 7,45 | 7,4  | 7,17 | 6,64 | 6,56 |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 298  | 288  | 297  | 295  | 290  | 288  | 279  | 257  | 254  |
|   |     | SCOP <sub>47/55°C</sub>                | kWh/kWh | 5,34 | 5,3  | 5,26 | 5,21 | 5,31 | 5,39 | 5,46 | 5,17 | 5,11 |
|   | HW3 | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 206  | 204  | 202  | 201  | 204  | 207  | 210  | 199  | 197  |
|   |     | P <sub>rated</sub>                     | kW      | 559  | 614  | 761  | 827  | 1086 | 1217 | 1361 | 1507 | 1645 |
|   |     |  |         |      |      |      |      |      |      |      |      |      |

## Cooling

|   |     |   |         |       |       |       |       |       |       |      |      |      |
|---|-----|---|---------|-------|-------|-------|-------|-------|-------|------|------|------|
| <b>Standard unit</b><br>Full load performances*       | CW1 | Nominal capacity                          | kW      | 448   | 496   | 620   | 660   | 870   | 991   | 1115 | 1227 | 1312 |
|   |     | EER                                       | kW/kW   | 5,53  | 5,39  | 5,26  | 5,14  | 5,57  | 5,6   | 5,47 | 5,14 | 5,05 |
|   |     | Eurovent class                            |         | A     | A     | A     | A     | A     | A     | A    | A    | A    |
|   | CW2 | Nominal capacity                          | kW      | 670   | 728   | 915   | 970   | 1301  | 1455  | 1296 | 1423 | 1521 |
|   |     | EER                                       | kW/kW   | 7,88  | 7,49  | 7,26  | 7,14  | 7,9   | 7,74  | 6,19 | 5,76 | 5,7  |
|   |     | Eurovent class                            |         | A     | A     | A     | A     | A     | A     | A    | A    | A    |
| <b>Standard unit</b><br>Seasonal energy efficiency ** |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 8,12  | 8,15  | 8,77  | 8,37  | 8,41  | 8,48  | 7,48 | 7,33 | 7,13 |
|   |     | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 322   | 323   | 348   | 332   | 333   | 336   | 296  | 290  | 282  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 10,49 | 10,23 | 10,42 | 10,03 | 10,71 | 10,71 | 9,66 | 9,12 | 9,10 |

## Sound levels - standard unit

|  |       |     |     |     |     |     |     |     |     |     |
|--|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 103 | 103 | 103 | 103 | 104 | 104 | 104 | 104 | 104 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 85  | 85  | 85  | 85  | 85  | 85  | 85  | 85  | 85  |

Sound levels - standard unit + option 257<sup>(3)</sup>

|  |       |     |     |     |     |     |     |     |     |     |
|--|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 100 | 100 | 100 | 100 | 101 | 101 | 101 | 101 | 101 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  |

## Dimensions - standard unit

|        |    |      |      |      |      |      |      |      |      |      |
|--------|----|------|------|------|------|------|------|------|------|------|
| Length | mm | 3059 | 3059 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4730 |
| Width  | mm | 1087 | 1087 | 1237 | 1237 | 1164 | 1164 | 1264 | 1264 | 1264 |
| Height | mm | 1743 | 1743 | 1948 | 1948 | 1997 | 1997 | 2051 | 2051 | 2051 |

\* In accordance with standard EN14511-3:2018

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWHW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWHW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWCW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/WCW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/Wη<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) in dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate



Eurovent certified values

## PHYSICAL DATA, 30XW-VZE UNITS

| 30XW-V ZE / 30XWHVZE                  |                     | 451  | 501  | 601  | 651  | 851  | 1001 | 1101 | 1201 | 1301 |
|---------------------------------------|---------------------|--|------|------|------|------|------|------|------|------|
| <b>Operating weight<sup>(4)</sup></b> | kg                  | 3223   | 3261 | 4263 | 4267 | 7477 | 7553 | 7731 | 7932 | 7970 |
| <b>Compressors</b>                    |                     | Semi-hermetic 06T screw compressors, 60 r/s                            |      |      |      |      |      |      |      |      |
| Circuit A                             | -                   | 1  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B                             | -                   | -  | -    | -    | -    | 1    | 1    | 1    | 1    | 1    |
| <b>Oil - standard unit</b>            |                     | HATCOL-4496  |      |      |      |      |      |      |      |      |
| Circuit A                             | l                   | 20   | 20   | 25   | 25   | 20   | 20   | 25   | 25   | 25   |
| Circuit B                             | l                   | -  | -    | -    | -    | 20   | 20   | 20   | 25   | 25   |
| <b>Refrigerant - standard unit</b>    |                     | R1234ze (E)  |      |      |      |      |      |      |      |      |
| Circuit A                             | kg                  | 130  | 130  | 180  | 175  | 120  | 120  | 115  | 115  | 110  |
|                                       | teq CO <sub>2</sub> | 0,9  | 0,9  | 1,3  | 1,2  | 0,8  | 0,8  | 0,8  | 0,8  | 0,8  |
| Circuit B                             | kg                  | -  | -    | -    | -    | 120  | 120  | 120  | 115  | 110  |
|                                       | teq CO <sub>2</sub> | -  | -    | -    | -    | 0,8  | 0,8  | 0,8  | 0,8  | 0,8  |
| <b>Capacity control</b>               |                     | SmartVu™, inverter-driven compressor, electronic expansion valve (EXV) |      |      |      |      |      |      |      |      |
| Minimum capacity                      | %                   | 20   | 20   | 20   | 20   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                     |                     | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                          | l                   | 106  | 106  | 154  | 154  | 297  | 297  | 297  | 297  | 297  |
| Water connections (Victaulic)         | in                  | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)      | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure    | kPa                 | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                      |                     | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                          | l                   | 112  | 112  | 165  | 165  | 340  | 340  | 340  | 340  | 340  |
| Water connections (Victaulic)         | in                  | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)      | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure    | kPa                 | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate

## ELECTRICAL DATA

| 30XW-VZE / 30XWHVZE   |         | 451   | 501       | 601       | 651       | 851       | 1001      | 1101      | 1201      | 1301      |
|---|---------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Power circuit</b>  |         |   |           |           |           |           |           |           |           |           |
| Nominal power supply  | V-ph-Hz | 400-3-50                                      |           |           |           |           |           |           |           |           |
| Voltage range   | V       | 360-440                                       |           |           |           |           |           |           |           |           |
| <b>Control circuit</b>  |         | 24 V via the built-in transformer             |           |           |           |           |           |           |           |           |
| <b>Start-up current<sup>(1)</sup></b>                           | A       | Negligible (lower than maximum current drawn) |           |           |           |           |           |           |           |           |
| <b>Maximum power factor<sup>(2)</sup></b>                       |         | 0,91-0,93                                     | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 |
| <b>Cosine phi</b>   |         | > 0,98  | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    |
| <b>Harmonic distortion rate<sup>(3)</sup></b>                   | %       | 35-45   | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     |
| <b>Maximum power input<sup>(4)</sup></b>                        |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | kW      | 125   | 157       | 189       | 208       | 125       | 157       | 189       | 189       | 208       |
| Circuit B   | kW      | -   | -         | -         | -         | 125       | 157       | 157       | 189       | 208       |
| With option 81  | kW      | -   | -         | -         | -         | 250       | 314       | 346       | 378       | 416       |
| <b>Eurovent current draw*</b>                                   |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 129   | 148       | 180       | 197       | 129       | 149       | 180       | 180       | 197       |
| Circuit B   | A       | -   | -         | -         | -         | 129       | 149       | 149       | 180       | 197       |
| With option 81  | A       | -   | -         | -         | -         | 258       | 298       | 329       | 360       | 394       |
| <b>Maximum current draw (Un)<sup>(4)</sup></b>                  |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 195   | 245       | 295       | 325       | 195       | 245       | 295       | 295       | 325       |
| Circuit B   | A       | -   | -         | -         | -         | 195       | 245       | 245       | 295       | 325       |
| With option 81  | A       | -   | -         | -         | -         | 390       | 490       | 540       | 590       | 650       |
| <b>Maximum current draw (Un -10%)<sup>(3)</sup></b>             |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 206   | 260       | 313       | 345       | 206       | 260       | 313       | 313       | 345       |
| Circuit B   | A       | -   | -         | -         | -         | 206       | 260       | 260       | 313       | 345       |
| With option 81  | A       | -   | -         | -         | -         | 412       | 520       | 573       | 626       | 690       |
| <b>Maximum power input with option 150B<sup>(4)</sup></b>       |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | kW      | 106   | 134       | 161       | 177       | 106       | 134       | 161       | 161       | 177       |
| Circuit B   | kW      | -   | -         | -         | -         | 106       | 134       | 134       | 161       | 177       |
| With option 81  | kW      | -   | -         | -         | -         | 212       | 268       | 295       | 322       | 354       |
| <b>Maximum current draw (Un) with option 150B<sup>(4)</sup></b> |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 169   | 213       | 257       | 283       | 169       | 213       | 257       | 257       | 283       |
| Circuit B   | A       | -   | -         | -         | -         | 169       | 213       | 213       | 257       | 283       |
| With option 81  | A       | -   | -         | -         | -         | 338       | 426       | 470       | 514       | 566       |
| <b>Dissipated power<sup>(3)</sup></b>                           | W       | 3000  | 4200      | 4700      | 5300      | 6000      | 8400      | 8900      | 9400      | 10600     |

(1) Instantaneous start-up current.

(2) May vary, based on the short-circuit current/max. current draw ratio of the system transformer. Values obtained at operation with maximum unit power input.

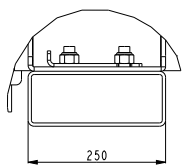
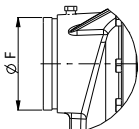
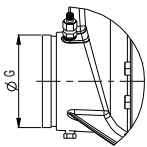
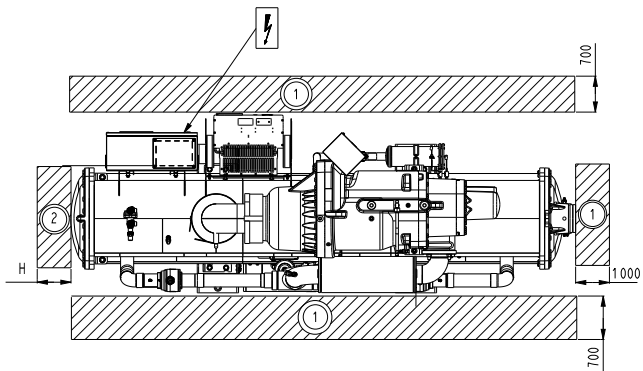
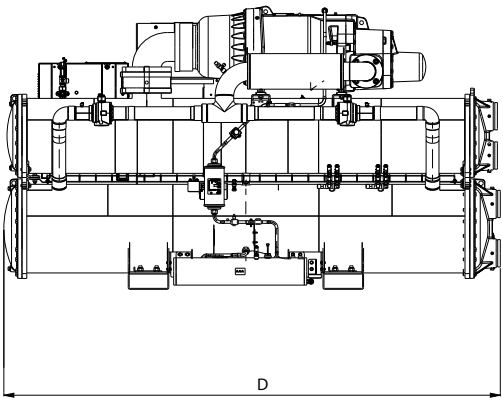
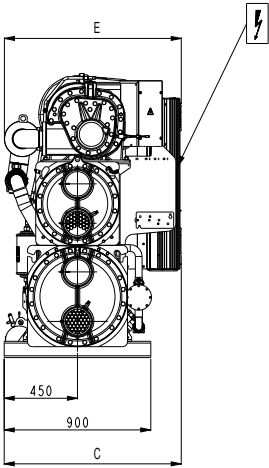
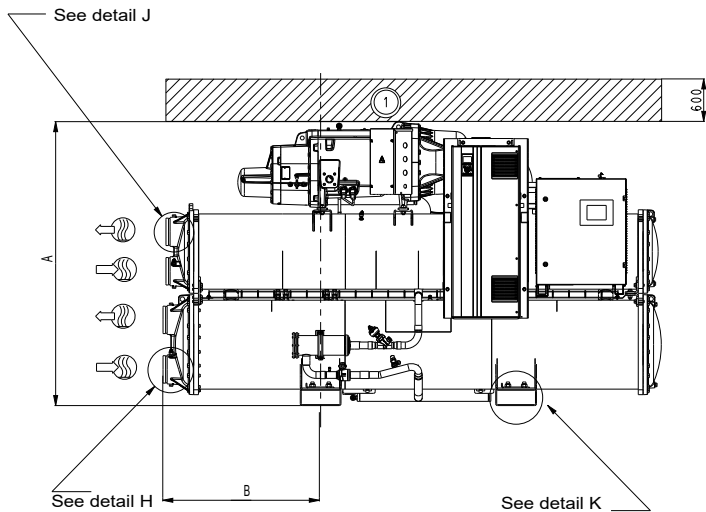
(3) Values obtained at operation with maximum unit power input.

(4) Values obtained at operation with maximum unit power input. Values given on the unit name plate.

\* Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C. Gross performances, not in accordance with EN14511-3:2013. These performances do not take into account the correction for the proportional heating capacity and power input generated by the water pump to overcome the internal pressure drop in the heat exchanger.

# DIMENSIONS/CLEARANCES

## 30XW-VZE 451-651



Detail H

Detail J

Detail K

Dimensions in mm

|                 | A    | B    | C    | D    | E    | F     | G     | H    |
|-----------------|------|------|------|------|------|-------|-------|------|
| <b>30XW-VZE</b> |      |      |      |      |      |       |       |      |
| <b>451</b>      | 1743 | 968  | 1087 | 3059 | 1086 | 168,3 | 168,3 | 2800 |
| <b>501</b>      | 1743 | 968  | 1087 | 3059 | 1086 | 168,3 | 168,3 | 2800 |
| <b>601</b>      | 1948 | 1083 | 1137 | 3290 | 1237 | 219,1 | 219,1 | 3100 |
| <b>651</b>      | 1948 | 1083 | 1137 | 3290 | 1237 | 219,1 | 219,1 | 3100 |

### Legend

All dimensions are given in mm

- ① → Services clearances required
- ② → Space required to remove
- Inlet water
- Outlet water
- Electrical supply entry

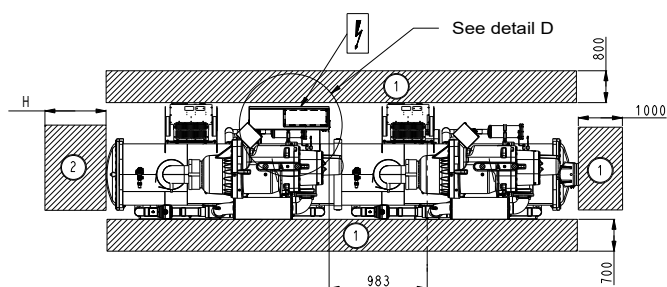
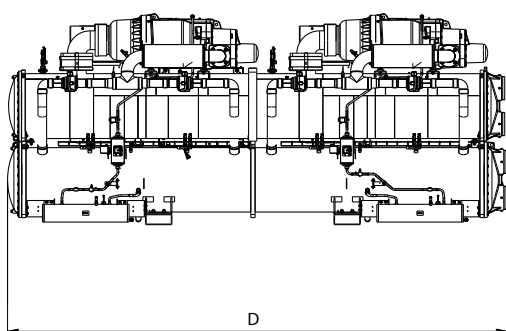
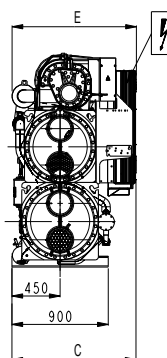
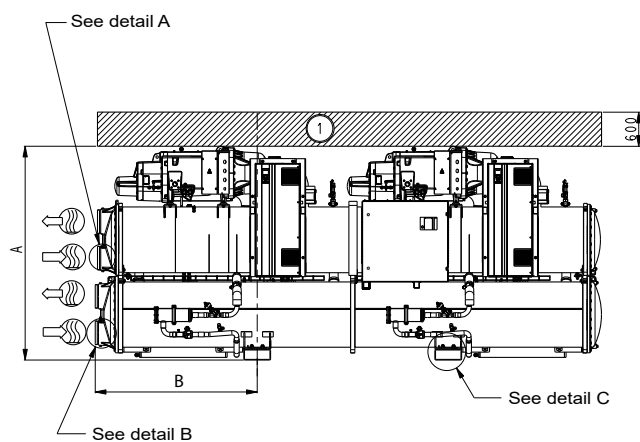
### NOTES:

Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

## DIMENSIONS/CLEARANCES

## 30XW-VZE 851-1301



| Dimensions in mm |      |      |      |      |      |       |       |      |
|------------------|------|------|------|------|------|-------|-------|------|
|                  | A    | B    | C    | D    | E    | F     | G     | H    |
| <b>30XW-VZE</b>  |      |      |      |      |      |       |       |      |
| <b>851</b>       | 1998 | 1514 | 1164 | 4730 | 1162 | 219,1 | 219,1 | 4500 |
| <b>1001</b>      | 1998 | 1514 | 1164 | 4730 | 1162 | 219,1 | 219,1 | 4500 |
| <b>1101</b>      | 2051 | 1514 | 1164 | 4730 | 1264 | 219,1 | 219,1 | 4500 |
| <b>1201</b>      | 2051 | 1514 | 1164 | 4730 | 1264 | 219,1 | 219,1 | 4500 |
| <b>1301</b>      | 2051 | 1514 | 1164 | 4730 | 1264 | 219,1 | 219,1 | 4500 |

## Legend

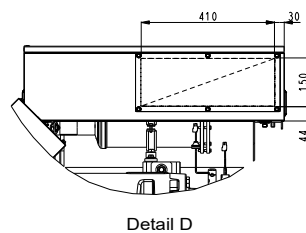
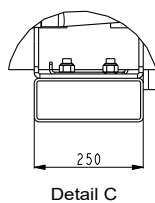
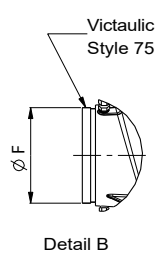
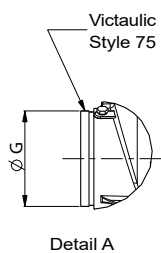
All dimensions are given in mm

- ① → Services clearances required
- ② → Space required to remove
- Inlet water
- Outlet water
- Electrical supply entry

## NOTES:

Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.





# CERAMIC BEARING CENTRIFUGAL LIQUID CHILLER WITH PURETEC™ REFRIGERANT AND GREENSPEED® INTELLIGENCE



Reliability  
Efficiency  
Acoustic comfort  
Flexibility  
Footprint

**AQUAEDGE** greenspeed  
**PUREtec**

## 19DV3/4/5\*

Nominal cooling capacity: 1200 - 3600 kW

Designed to perfectly meet the new requirements in terms of energy performance, acoustic comfort, refrigerant sustainability, low maintenance and total cost of ownership, the 19DV is the new standard for the medium cooling capacity centrifugal chiller market.

\* 19DV5 3000-3800 kW available Q4/2022



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## FEATURES AND BENEFITS

### Reliable

Advanced back-to-back two-stage compressor naturally balances both radial and axial thrust on shaft.

Simple and robust ceramic bearing system enables refrigerant lubrication that doesn't request oil lubrication which is requested by conventional chillers. Customers won't be troubled by oil related failures as well as maintenance cost and efforts.

High tier variable speed starter equipped with harmonic filter(optional), total harmonic distortion (THD)  $\leq 5\%$  and fully complies with IEEE519 standard.

Swift restart - 19DV can restart within 30 seconds (with UPS) after power recovery and achieve to required cooling load more rapidly, especially reliable for data center application.

### Efficient

Carrier back-to-back two-stage compressor integrated with inter-stage economizer which improves both cooling capacity and efficiency.

High speed direct drive motor reduces mechanical loss by 75% resulting from the removal of gear driven system.

By application of refrigerant lubricated ceramic bearings, the efficiency decline by oil in heat exchangers is not existed in 19DV.

Pioneer falling film evaporator is designed for low pressure refrigerant, which performs a significantly enhanced heat transfer efficiency by mitigating submergence effect especially at part load conditions.

High performance tubing with internally and externally enhanced fins improves chiller efficiency by reducing overall resistance to heat transfer.

Greenspeed® variable speed control gives a moment-to-moment control of compressor speed to adapt building load changes perfectly, which ensures the chiller always operating efficiently at both full load and part load.

19DV chillers can achieve up to 7.0 full load COP and 11.8 IPLV at AHRI conditions.

### Sustainable

R-1233zd(E) is new non-Ozone Depletion Substances, the ultra low Global Warming Potential of  $\sim 1$ , non-flammability and non-toxicity refrigerant that provides a safe and environmentally steward solution to centrifugal chillers.

Carrier pioneer falling film evaporator design helps reduce the refrigerant charge significantly.

The industry leading energy efficiency of 19DV chiller leads to lower electrical power consumption and significant reduction of related CO<sub>2</sub> emissions.

### Flexible

System layout of 19DV chillers is well optimized and specific crescent shape economizer is designed to best leverage the space between evaporator and condenser that brings up to -15% smaller footprint versus legacy R-123 unit.

Patented re-locatable control panel could be installed at any of the four corners of the chiller, which makes the layout of chillers more flexible to fit the site conditions.

Bolt together modular design is ideal for retrofit project or installation in limited place.

Miscellaneous optional offerings (such as marine water box) help to facilitate daily maintenance on jobsite.

### Quiet

Refrigerant-cooled hermetic motor, no gear driven, optimized flow channel and 60% impeller speed of legacy design, all these features contribute to reduce refrigerant airflow noise.

Greenspeed® variable speed control adaptively turns down impeller speed at part load for better acoustic performance.

19DV chillers can meet 18001 standard recommended by Occupational Health and Safety Advisory Services (OHSAS).

### Smart

PIC6+ intelligent control - color touch screen, intuitive menu, animated component level interface, graphic trending, auto pushed alarm mail, smart password and more than 10 languages for choice.

Multiple remote access methods present the users a flexible way to monitor and control the chillers.

Carrier lifecycle data management system supports online data management and analysis, daily and key performance reports, prognostics and preventative maintenance, which will help the users continuously optimize the chiller and system operation.

### Carrier PIC6+ Control System - Intelligent Colorful Touch Screen

Carrier two-stage centrifugal chiller equips the latest PIC6+ control system with strong control and monitoring function during chiller operation. The control system applies a 10.4 inch high resolution touch screen, which can support more than ten language choices for customer, real time display of operation parameters with pictures makes it more human friendly and comfortable interface for operation. The control system simulates and monitors chiller operation, adjusts cooling or heating capacity according to load change and provides various protections during operation.



## FEATURES AND BENEFITS

### Reliable Start-up and Operation

PIC6+ control system provides customer the smart password to avoid any setting change without authorization.

When chiller receives start-up order, controller will conduct following pre-start safety checking, to ensure parameters like condensing pressure, bearing temperature, motor winding temperature, discharge temperature, evaporator saturated temperature and average line voltage etc. are normal.

During chiller operation, except for the function of monitoring main operation parameters the control system also has capability to record and display trend curve, which is real time trend of key components during operation. It ensures effective and reliable operation of chiller by optimized intelligent and dynamic control algorithm.

The control system has comprehensive protection during operation, such as surge protection, overvoltage and overcurrent protection, discharge temperature overheat protection, bearing temperature overheat protection, evaporator and condenser anti-freeze protection, low discharge superheat protection etc. in order to ensure chiller long time reliable operation.

The optional envelope stability control is advanced parametric solution to control both chiller system and compressor to best balance the chiller efficiency and reliability. In real time, the controller optimizes compressor speed, guide vane position and stabilizer valve position to find the most efficient operating point throughout the operating range, without comprising the chiller stability.

### Effective Failure Diagnostic

The PIC6+ control system has failure diagnostic function and can be easily accessed via touch screen for detail chiller operation parameters. If control system detects failure the alarm will be initiated and related code will be recorded in alarm menu. The alarm records can be automatically saved by control system. Carrier service technician can read and delete alarm records by Carrier service/PCDCT tools.

The control system has additional pre-diagnostic function. Different with diagnostic function, information displayed from this function is mainly for maintenance purpose. For an example, to inform customer periodically replace filter from this function.

The control system has email alarm function. The control system can automatically send out an email with one or more alarm information to customer or service people through effective email address when alarm exists.

### Flexible Interface and Connection

The installation of Carrier colorful touch screen is very flexible. It greatly improves the convenience that customer can install touch screen at any corner of the chiller.

The customer can not only directly operate on touch screen but also use the port to connect with BMS system. The control system facilitates various accesses, such as CCN to meet customer requirements. PIC6+ is compatible with Carrier i-Vu control network and integrated BACnet/IP protocol. PIC6+ also facilitates protocol such as native Modbus and converter for LonWorks to simplify the seamless connection with building automation systems.

Carrier LDMS (Lifecycle Data Management System) is based on "Big Data Processing" and supports more value-added customer service such as online data management and analysis, daily and key performance reports, prognostics and preventative maintenance. The enhanced data management and analysis will help the users to achieve continuous optimization of the chiller and system operation.

### Main Page

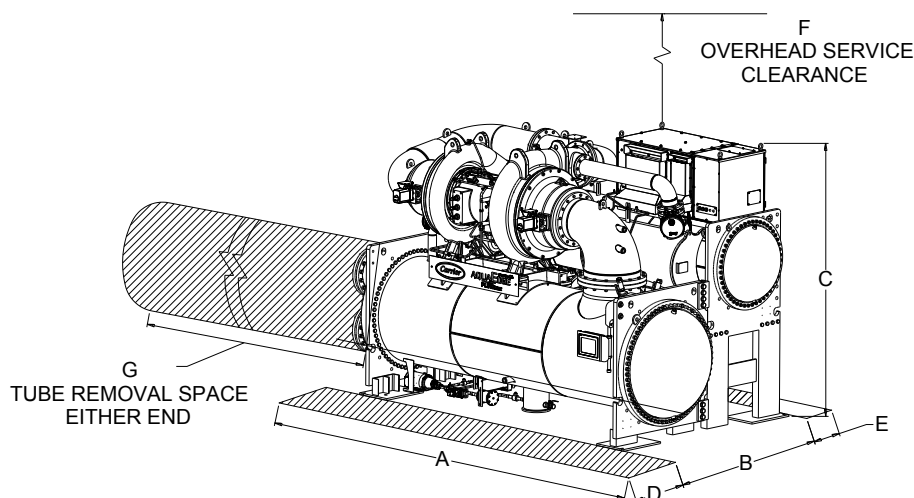
Control system main page operation and primary parameters monitored:

- Main page button
- Menu page button
- Log in/Language button
- Start-up/Stop page button
- Alarm menu button
- Setting point
- Chiller load percentage
- Inlet Guide Vane position percentage
- Condensing water pump status
- Chilled water pump status
- Condenser water inlet/outlet temperature
- Evaporator water inlet/outlet temperature
- Condenser saturated temperature and pressure
- Evaporator saturated temperature and pressure

Customer can easily read the primary information of chiller, components status and access to other interfaces from this page. They are:

- General parameter page
- Temperature/Pressure page
- Input/Output parameter page
- Water system parameter page
- Operation time
- Mode
- Graphic data trend

## DIMENSIONS/CLEARANCE



## NOTES:

1. Dished head waterbox shown.
2. Service areas shown are minimum space required. For major compressor service, it is desirable to have an 2.4m wide service area on the cooler or condenser side to allow the compressor to be positioned on the floor next to the chiller, unless arrangements are made that allow for rigging the compressor elsewhere.
3. Refer to Table 1 for A, B and C.

Table 1-1— 19DV Chiller Dimensions (Nozzle-In-Head Waterbox)

| 19DV Dimensions (Nozzle-In-Head Waterbox) |                                     |                                  |              |               |
|---|-------------------------------------|----------------------------------|--------------|---------------|
| Cooler<br>heat exchanger<br>size          | Condenser<br>heat exchanger<br>size | A (length, dished head waterbox) | B<br>(width) | C<br>(height) |
|   |                                     | 2-Pass                           |              |               |
|   |                                     | mm                               |              |               |
| F2*                                       | F2*                                 | 4595                             | 2478         | 2827          |
| F4*                                       | F4*                                 | 5116                             | 2478         | 2827          |
| G2*                                       | G2*                                 | 4779                             | 2596         | 3055          |
| G4*                                       | G4*                                 | 5299                             | 2596         | 3055          |
| H2*                                       | H2*                                 | 4619                             | 2793         | 3229          |
| H4*                                       | H4*                                 | 5140                             | 2793         | 3229          |

\*Assumes both cooler and condenser nozzle on same end of chiller.

## NOTES:

1. Service access should be provided per American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 15, latest edition, National Fire Protection Association (NFPA) 70, and local safety code.
2. Overhead clearance for service rigging 19DV compressor should be at least 1524 mm.
3. Dimensions are approximate. Certified drawings available upon request.
4. Marine waterboxes typically add to the width of the machine. See certified drawings for details.
5. 'A' length dimensions shown are for standard 1034kPa design and flanges connections. The 2068kPa design and flanges will add length. See certified drawings.
6. Table contains heat exchanger dimensions. For arrangements where the compressor motor housing extends past the waterbox, consult the 19DV certified drawings.
7. Consult factory for configurations not listed in the above table.



DIMENSIONS/CLEARANCE

Table 1-2— 19DV Chiller Dimensions (Marine Waterbox)

| 19DV Dimensions (Marine Waterbox) |                                     |                                  |              |               |
|-----------------------------------|-------------------------------------|----------------------------------|--------------|---------------|
| Cooler<br>heat exchanger<br>size  | Condenser<br>haet exchanger<br>size | A (length, dished head waterbox) | B<br>(width) | C<br>(height) |
|                                   |                                     | 2-Pass                           |              |               |
|                                   |                                     | mm                               |              |               |
| G2*                               | G2*                                 | 5344                             | 2596         | 2928          |
| G4*                               | G4*                                 | 5864                             | 2596         | 2928          |
| H2*                               | H2*                                 | 5549                             | 2832         | 3229          |
| H4*                               | H4*                                 | 6070                             | 2832         | 3229          |

\*Assumes both cooler and condenser nozzle on same end of chiller.

**NOTES:**

1. Service access should be provided per American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 15, latest edition, National Fire Protection Association (NFPA) 70, and local safety code.
2. Overhead clearance for service rigging 19DV compressor should be at least 1524 mm.
3. Dimensions are approximate. Certified drawings available upon request.
4. 'A' length dimensions shown are for standard 1034kPa design and flanges connections. The 2068kPa design and flanges will add length. See certified drawings.
5. Table contains heat exchanger dimensions. For arrangements where the compressor motor housing extends past the waterbox, consult the 19DV certified drawings.
6. Consult factory for configurations not listed in the above table.



## PHYSICAL DATA

### Air-conditioning (380V-3Ph-50Hz)

| Model             | Cooling Capacity | Input Power | Chiller Line Amps | Footprint |       |        |
|-------------------|------------------|-------------|-------------------|-----------|-------|--------|
|                   |                  |             |                   | Length    | Width | Height |
|                   | kW               | kW          | A                 | mm        | mm    | mm     |
| 19DV-F24F243345B9 | 1300             | 199,6       | 302               | 4600      | 2480  | 2570   |
| 19DV-F24F243545D9 | 1650             | 256,9       | 388               | 4600      | 2480  | 2570   |
| 19DV-F24F243645F9 | 2000             | 319,1       | 482               | 4600      | 2480  | 2570   |
| 19DV-G24G234425B9 | 2110             | 321,2       | 523               | 4762      | 2508  | 2882   |
| 19DV-G24G244525D9 | 2462             | 377,9       | 616               | 4762      | 2508  | 2882   |
| 19DV-G44G444625D9 | 2813             | 434,8       | 688               | 5284      | 2508  | 2882   |

**Note:**

1. The above selections are based on entering/leaving chilled water temperature 12/7°C, entering/leaving cooling water temperature 32/37°C, evaporator fouling factor 0.0176 m<sup>2</sup>°C/kW and condenser fouling factor 0.044 m<sup>2</sup>°C/kW.
2. Carrier will select specific models using E-Cat on different requests for tonnage, lift, and efficiency. For details, please contact local agencies.
3. Standard evaporator and condenser water side pressure is 1.0MPa. For more requirements, please contact local agencies.
4. For more details or customized selections, please contact local agencies.

## SINGLE-STAGE CENTRIFUGAL LIQUID CHILLERS



Single-stage compressor

Industry-leading Efficiency with VFD

Standard or high-tier VFD on choice

Wide Application

Stable Operation

Low Sound Level

Modular Construction

## 19XR/XRV Single-stage

**AQUAEDGE**

Nominal cooling capacity 1000-5300 kW

The Carrier 19XR/19XRV centrifugal chillers provide exceptional value by achieving energy efficiency levels as high as 6.8 (COP<sub>r</sub>) utilising proven technology designed specifically for chlorine-free refrigerants:

- Unique concept of the hermetic compressor:
  - Single-stage aerodynamic impeller
  - Tunnel diffusers, based on aircraft engine technology
  - Motor cooled by refrigerant gas injection
- Possibility to control the compressors using a variable frequency drive (19XRV) to maximise machine energy efficiency.
- Use of high-efficiency evaporator and condenser tubes
- Expansion sub-cooler integrated into the condenser
- Patented float valve technology for optimised sub-cooling and refrigerant level in the evaporator
- Refrigerant R-134a or R-513A

These advantages, together with the modularity of the units and their efficiency, economical operation and dimensional constraints allow the use of the Carrier 19XR/19XRV centrifugal chillers in any high-capacity water cooling applications.

## PHYSICAL DATA

| heat exchanger frame size | Compressor frame size | Dimensions (mm) |      |       |      |        |      |
|---------------------------|-----------------------|-----------------|------|-------|------|--------|------|
|                           |                       | Length          |      | Width |      | Height |      |
|                           |                       | Min             | Max  | Min   | Max  | Min    | Max  |
| 3                         | XR3                   | 4230            | 4820 | 1670  | 1800 | 2055   | 2465 |
| 4                         | XR3                   | 4365            | 4950 | 1880  | 1880 | 2140   | 2550 |
| 5                         | XR3                   | 4390            | 4980 | 1995  | 1995 | 2150   | 2720 |
| 5                         | XR4                   | 4390            | 4980 | 2055  | 2301 | 2250   | 2915 |
| 6                         | XR4                   | 4415            | 5005 | 2145  | 2480 | 2365   | 2970 |
| 7                         | XR4                   | 5050            | 5210 | 2430  | 2935 | 2850   | 3283 |
| 7                         | XR5                   | 5160            | 5210 | 2470  | 2935 | 3015   | 3283 |
| 8                         | XR5                   | 5200            | 5845 | 2710  | 3165 | 3040   | 3335 |

| heat exchanger frame size | Compressor frame size | Weight (kg)           |       |                         |       |       |      |
|---------------------------|-----------------------|-----------------------|-------|-------------------------|-------|-------|------|
|                           |                       | net (chiller + R134a) |       | operating (net + water) |       | R134a |      |
|                           |                       | Min                   | Max   | Min                     | Max   | Min   | Max  |
| 3                         | XR3                   | 6780                  | 8100  | 7200                    | 8700  | 277   | 390  |
| 4                         | XR3                   | 7180                  | 9180  | 7985                    | 10200 | 381   | 508  |
| 5                         | XR3                   | 8090                  | 10890 | 9145                    | 12160 | 493   | 674  |
| 5                         | XR4                   | 8950                  | 12680 | 10000                   | 13950 | 493   | 674  |
| 6                         | XR4                   | 9500                  | 13430 | 10785                   | 14995 | 546   | 740  |
| 7                         | XR4                   | 13045                 | 16835 | 14950                   | 18700 | 836   | 1168 |
| 7                         | XR5                   | 15500                 | 20420 | 17400                   | 22760 | 836   | 1168 |
| 8                         | XR5                   | 18035                 | 23800 | 20725                   | 26870 | 984   | 1309 |

Data for unit with two-pass nozzle-in-head water boxes being at the same end (compressor end / DS code)

## FEATURES AND ADVANTAGES

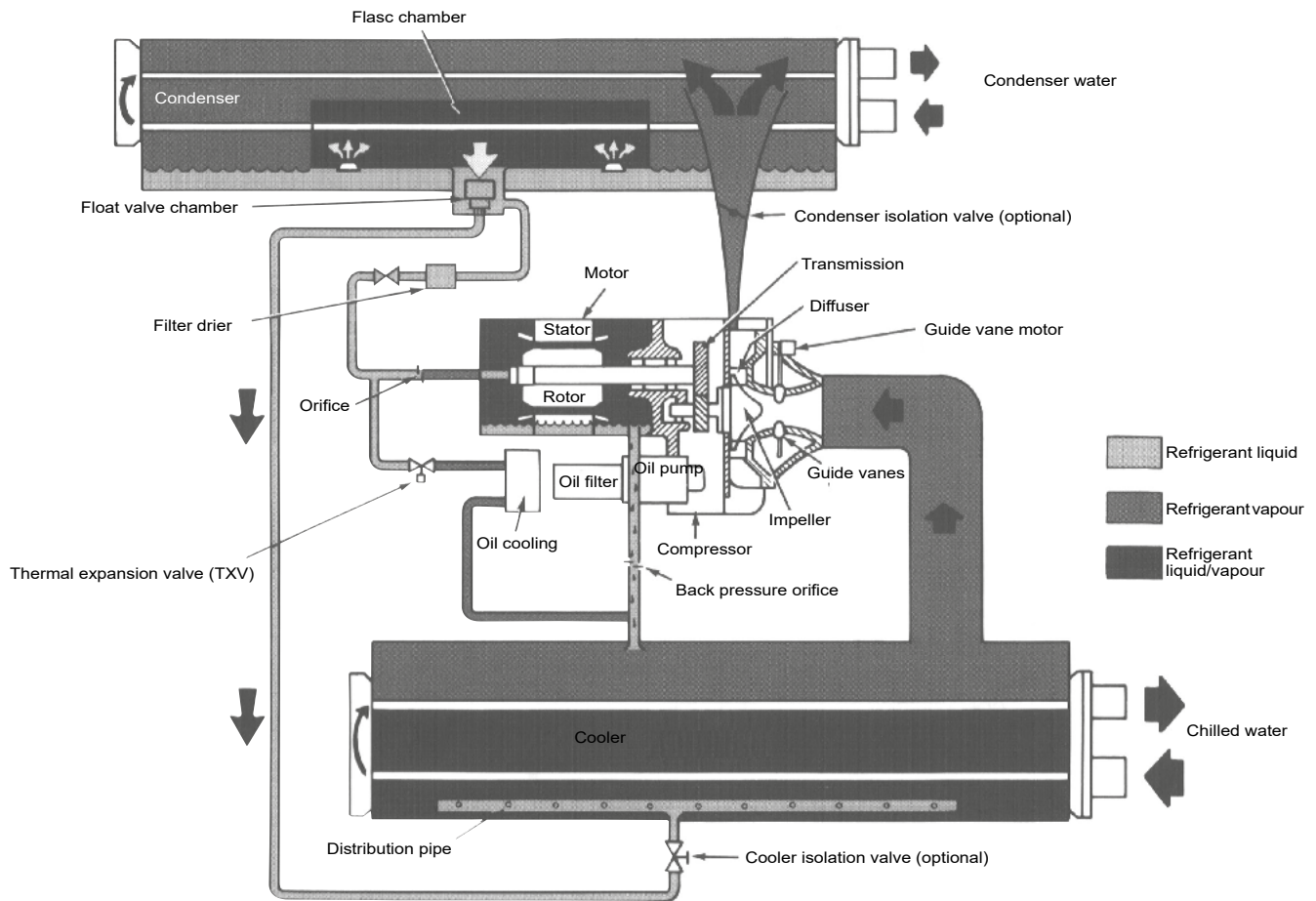
- Nominal cooling capacities from 1000 to 5300 kW.
- Mix-match capabilities – a complete line of compressors and heat exchangers to ensure the optimal combination of machine components regardless of capacity, lift and efficiency specifications.
- Hermetic compressor – elimination of leak risks from the compressor/motor shaft sealing in an open compressor.
- Single-stage compressor with special features – aerodynamically contoured impellers, variable inlet guide vanes and movable diffusers for better compressor part and full-load operating efficiency.
- Variable speed compressor capability – improvement of part load efficiency and electrical performance.
- Heat exchangers certified by the European pressure vessels code (PED), and all marine code certifications.
- International Chiller Visual Control (ICVC) -a large english LCD (liquid crystal display) features 4 menu-specific soft keys. The default display offers all in one glance review of key chiller operation data, simplifying the interaction between chiller and user.

## OPTIONS/ACCESSORIES

- Two types of unit-mounted variable frequency drives (VFDs): standard and high tier, to match different customer requirements in terms of cost and electrical performances
- Refrigerant isolation valves allow the refrigerant to be stored inside the chiller during service
- Hot gas by-pass for surge prevention during operation at high condensing temperature or for optimized operation at low load conditions
- Spring isolators adapted for all chiller configurations
- Unit-mounted starter reduces machine installation time and expense
- High-voltage motors available: 3000 V, 3300V, 5500V, 6300V, 10 kV, 11 kV, 50 Hz or 60 Hz
- CCN/JBus or CCN/BACnet: remote connection
- 21 bar water heat exchanger
- Waterbox with flanges and counterflanges
- Delivered in multiple sections to facilitate the installation
- Refrigerant leak detector module : unit-mounted sensor (not compatible with 19XRV VFD)
- Tailor maid request Marine, Oil & Gas, Chemical, other customization

## OPTIONS/ACCESSORIES

### 19XR refrigeration cycle



## CONTROLS

Touch Pilot control system with strong control and monitoring function during chiller operation. The Touch Pilot control system applies a 10.5 inch high resolution touch screen, which can support more than ten language choices for customer, real time display of operation parameters with pictures makes it more human friendly and comfortable interface for operation.







## TWO-STAGE CENTRIFUGAL LIQUID CHILLERS



Interstage economizer  
Two-stage compressor  
Industry-leading Efficiency with VFD  
Wide Application  
Stable Operation  
Low Sound Level  
Modular Construction

## 19XR/XRV Two-stage

**AQUAEDGE**

Nominal cooling capacity 2800 - 10500 kW

The Carrier 19XR/19XRV with a COP up to 6.5 (AHRI conditions) and an IPLV up to 7.4 or up to 10.5 with VFD centrifugal chillers provide exceptional value by achieving energy efficiency levels as high as 6.8 (COP<sub>r</sub>) utilising proven technology designed specifically for chlorine-free refrigerants:

- Interstage economizer to improve efficiency and increase capacity.
- Unique concept of the hermetic compressor:
  - Dual-stage aerodynamic impeller
  - Vane-less diffuser to meet high lift application requirement with stable operation
  - Motor cooled by spraying liquid refrigerant on the motor windings.
- Possibility to control the compressors using a variable frequency drive (19XRV) to maximise machine energy efficiency.
- Use of high-efficiency evaporator and condenser tubes
- Expansion sub-cooler integrated into the condenser
- Patented float valve technology for optimised sub-cooling and refrigerant level in the evaporator
- Refrigerant R-134a or R-513A

These advantages, together with the modularity of the units and their efficiency, economical operation and dimensional constraints allow the use of the Carrier 19XR/19XRV two-stage centrifugal chillers in any high-capacity water cooling applications such as air-conditioning, heat-pump, energy recovery, ice thermal storage, marine, VFD and high-voltage applications.

## PHYSICAL DATA

| Heat exchanger frame size | Compressor frame size | Dimensions (mm) |      |       |      |        |      |
|---------------------------|-----------------------|-----------------|------|-------|------|--------|------|
|                           |                       | Length          |      | Width |      | Height |      |
|                           |                       | Min             | Max  | Min   | Max  | Min    | Max  |
| 7                         | XRE                   | 5160            | 5210 | 2470  | 2935 | 3015   | 3283 |
| 8                         | XRE                   | 5200            | 5845 | 2710  | 3165 | 3040   | 3335 |

| Heat exchanger frame size | Compressor frame size | Weight (kg) |       |           |       |       |      |
|---------------------------|-----------------------|-------------|-------|-----------|-------|-------|------|
|                           |                       | net         |       | operating |       | R134a |      |
|                           |                       | Min         | Max   | Min       | Max   | Min   | Max  |
| 7                         | XRE                   | 16015       | 20815 | 17920     | 23155 | 836   | 1168 |
| 8                         | XRE                   | 18505       | 24270 | 21195     | 27340 | 984   | 1309 |

| heat exchanger frame size |                      | Compressor frame size | Dimensions (mm) |       |        |
|---------------------------|----------------------|-----------------------|-----------------|-------|--------|
| cooler frame size         | condenser frame size |                       | Length          | Width | Height |
| A4                        | A4                   | XR6                   | 5175            | 3130  | 3485   |
| A6                        | A6                   | XR6                   | 5785            | 3130  | 3485   |
| A4                        | B4                   | XR6                   | 5195            | 3255  | 3485   |
| A6                        | B6                   | XR6                   | 5805            | 3255  | 3485   |
| B6                        | C6                   | XR7                   | 5925            | 3670  | 3745   |
| C6                        | C6                   | XR7                   | 5975            | 3800  | 3815   |
| C6                        | D6                   | XR7                   | 5975            | 4015  | 3815   |

| heat exchanger frame size |                      | Compressor frame size | Weight (kg) |           |       |
|---------------------------|----------------------|-----------------------|-------------|-----------|-------|
|                           |                      |                       | net         | operating | R134a |
| cooler frame size         | condenser frame size |                       | Max         | Max       | Max   |
| A4                        | A4                   | XR6                   | 30830       | 35466     | 1277  |
| A6                        | A6                   | XR6                   | 32330       | 37580     | 1465  |
| A4                        | B4                   | XR6                   | 33080       | 38432     | 1416  |
| A6                        | B6                   | XR6                   | 34900       | 40813     | 1623  |
| B6                        | C6                   | XR7                   | 44270       | 52132     | 1709  |
| C6                        | C6                   | XR7                   | 49110       | 58055     | 1997  |
| C6                        | D6                   | XR7                   | 54190       | 64647     | 2218  |

Data for unit with two-pass nozzle-in-head water boxes being at the same end (compressor end / DS code)

## FEATURES AND ADVANTAGES

- Nominal cooling capacities from 2800-10500 kW.
- Mix-match capabilities – a complete line of compressors and heat exchangers to ensure the optimal combination of machine components regardless of capacity, lift and efficiency specifications.
- Hermetic compressor – elimination of leak risks from the compressor/motor shaft sealing in an open compressor.
- Dual stage compressor with non-blade diffuser designed, combined with inner-stage economizer for chiller performance improvement and high lift application. The innovative two-stage compressor provides a dramatic range of capabilities. With a maximum LWT of 65°C and a minimum LCWT of -6°C, the 19XR two-stage centrifugal chiller is ideal wherever energy conservation and environmental protection are required.
- Variable speed compressor capability on 19XRV-E AquaEdge chiller - Improvement of part load efficiency and electrical performance.
- 19XRV/XR(V)-E equipped with a LF2 VFD that designs with total harmonic distortion (THD)<5% and fully meets IEEE519-1992 requirement. The 19XRV/XR(V)-E becomes a more cost-effective choice for installations with a high percentage of time operating at part load.

- Heat exchangers certified by the European pressure vessels code (PED), and all marine code certifications.
- Touch Pilot control system with strong control and monitoring function during chiller operation. The Touch Pilot control system applies a 10.5 inch high resolution touch screen, which can support more than ten language choices for customer, real time display of operation parameters with pictures makes it more human friendly and comfortable interface for operation.



## OPTIONS/ACCESSORIES

- Two types of unit-mounted variable frequency drives (VFDs): standard and high tier, to match different customer requirements in terms of cost and electrical performances (VFD available on 19XRE only)
- Refrigerant isolation valves allow the refrigerant to be stored inside the chiller during service
- Hot gas by-pass for surge prevention during operation at high condensing temperature or for optimized operation at low load conditions
- Spring isolators adapted for all chiller configurations
- Unit-mounted starter reduces machine installation time and expense (VFD available on 19XRE only)
- High-voltage motors available: 400V (19XRE only), 3kV, 3.3kV, 6.3kV, 10kV, 11kV
- CCN/JBus or CCN/BACnet: remote connection
- 21 bar water heat exchanger
- Waterbox with flanges and counterflanges
- Nozzle with flanges (water inlet/outlet with flanges)
- Delivered in multiple sections sections to facilitate the installation
- Refrigerant leak detector module : unit-mounted sensor (not compatible with 19XRE with unit-mounted VFD)



## DRYCOOLERS



Performance  
Flexibility  
Intelligence  
Energy optimisation  
Acoustic optimisation

## 09PE

From 10 to 1100 kW

The 09PE range is particularly suited to tertiary, industrial and healthcare applications. Drycoolers in the 09PE range are mainly designed for cooling water or glycol/water mix for:

- Condensers for water chillers,
- Free cooling,

These devices are designed to be installed outdoors.



CARRIER participates in the ECP programme for HE  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## DESCRIPTION

### Excellent resistance to corrosion

The casing boasts 480 h resistance to ISO 9227 salt fog tests, corrosivity category C3 Long service life greater than 15 years or C4 Medium service life between 5 and 15 years, in line with ISO standard 12944-2 – RAL 7035 (light grey)



- ① **Coil**  
Copper tubing and manifolds, high-performance aluminium fins, resistant to fouling.  
Anti-shear system for bundle tubing.  
Piping: ISO PN16 02A type rotating flanges as per DIN 2642 in 304L stainless steel (1 or 2 inlets/outlets depending on flow rate).
- ② **Fan motor assemblies**  
Profiled collars in galvanised steel with RAL7035 polyester powder paint or RAL9005 composite depending on the motor reference.  
Aluminium and polypropylene impeller.  
Class F motor - IP54 - three-phase 400 V +/-10 % 50 Hz +/-2 % - Standard connection to the motor terminal boxes.  
Black protective grille compliant with standard NF ISO 12499.  
Individual partitioning.  
EC motors can be used in 50 or 60 Hz and from 380 to 480V +/- 10%.
- ③ **Casing**  
Galvanised steel with polyester powder paint. Assembly using stainless rivets and LANTHANUM nuts and bolts for the feet.
- ④ **Feet**  
Galvanised steel with polyester powder paint.
- ⑤ **Protective enclosures on the elbows and manifolds**

Each device is tested:

- The coil sealing is subjected to an underwater airtightness test.
- For devices with the terminal strip or electrical cabinet option: rotation tests, dielectric tests, current measurement.

The 09PE range complies with the following European directives:

- Machinery directive 2006/42/EC,
- EMC directive 2014/30/EU,
- Pressure Equipment Directive (PED) 2014/68 EU.

## RANGE

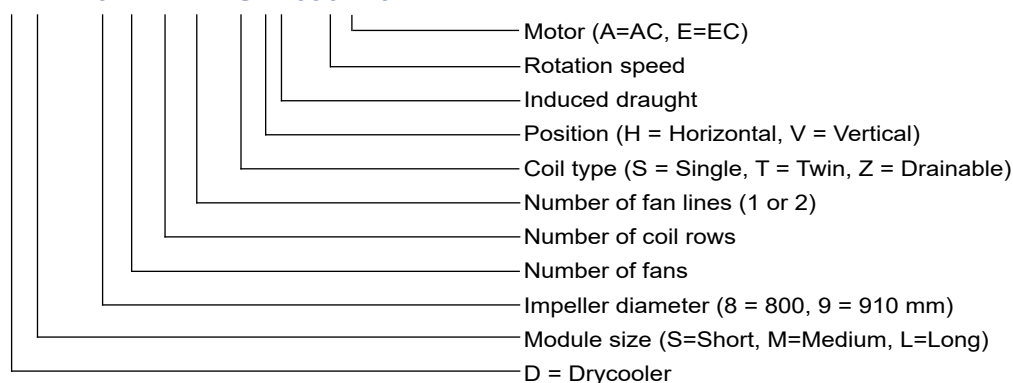
09PE is a large modular range, which offers:

- 3 casing lengths (S, M or L module), allowing either the dimensions, the capacity or the power consumption to be optimised.
- A range of sizes, from 1 to 14 fans.
- 2 impeller diameters, 800 or 910 mm.
- Adaptation of the rotation speed (EC motor).
- Configuration: horizontal or vertical unit.

Various combinations of these elements, as well as the choice of a number of options, allow us to provide devices that are adapted to a range of applications and environments.

## DESCRIPTION

**09PE DLN 9 12 4-2 SHI 690A 9A**

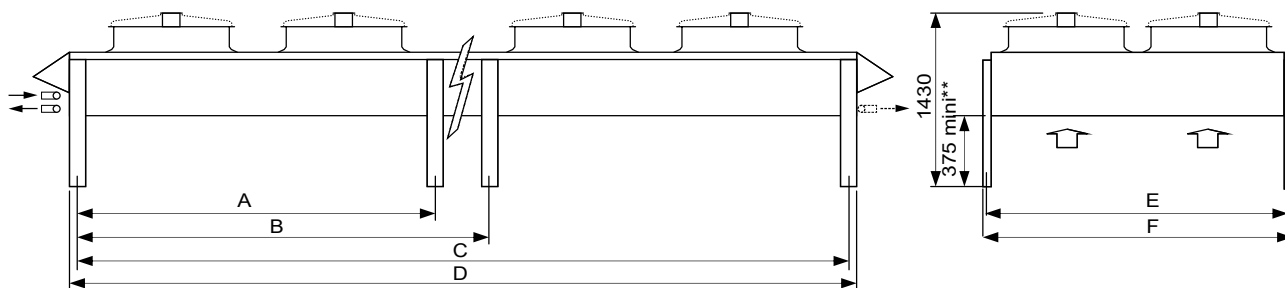


## OPTIONS FOR EACH APPLICATION

|   | Options  | Description/Advantages   |
|---|--|--|
| <b>Protection adapted for the environment</b> | Pre-coated aluminium fins  | Improves the resistance of the fins to corrosion. For applications in coastal areas, industrial areas or highly populated areas.                     |
|   | High-efficiency coating on fins: ALUCOAT®507/HERESITE (on request) | Improves the resistance of the fins to corrosion. For corrosive environments.  |
|   | Stainless steel tubing bundle                                      | For corrosive fluids.  |
|   | Corrosiveness resistance category C5M                              | Casing and fan motor assemblies for corrosive environments.  |
|   | ATEX II 2G/3G  | For explosive atmospheres.   |
| <b>Quick, simple installation</b>             | Terminal box   | Connection to the terminals of each motor on the front panel of the device.  |
|   | Protection cabinet   | Protected by a thermal-magnetic circuit breaker on each motor.   |
|   | Control cabinet  | Motor and control protection, either by electronic board, depending on the temperature, or by the chiller if compatible.                             |
|   | Maintenance switch   | For stopping individual motors.  |
|   | Counter-flanges  | In stainless steel, with gaskets, bolts and collar.  |
|   | Raised feet  | To ensure a good flow of air depending on how the units are installed: against a wall, side by side, etc.  |
|   | Blade protective screen  | Protection against hail, impacts, etc. For vertical position.  |
| <b>Installation surface constraints</b>       | Vertical position  | For narrow terraces.   |
| <b>Optimised, secure transport</b>            | Stacking of 2 identical devices                                    |  |
|   | Skid for transport by container                                    | Secure transport and easy loading/unloading.   |
| <b>Application for water without glycol</b>   | Drainable coil   | Device located on a slope to prevent frost - drainage by gravity   |
| <b>Free cooling application</b>               | Free cooling valve kit   | Valves with motor, controlled by the control cabinet. Controlled according to the operation of the drycooler or chiller.                             |
| <b>Adiabatic cooling application</b>          | ADIABATIC COOLER (water misting into the air flow)                 | Size of the unit reduced by cooling of the ambient air. Operates completely safely due to the antibacterial treatment applied to the water (Option). |

## DIMENSIONS

### Horizontal Position - Induced Draught



Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

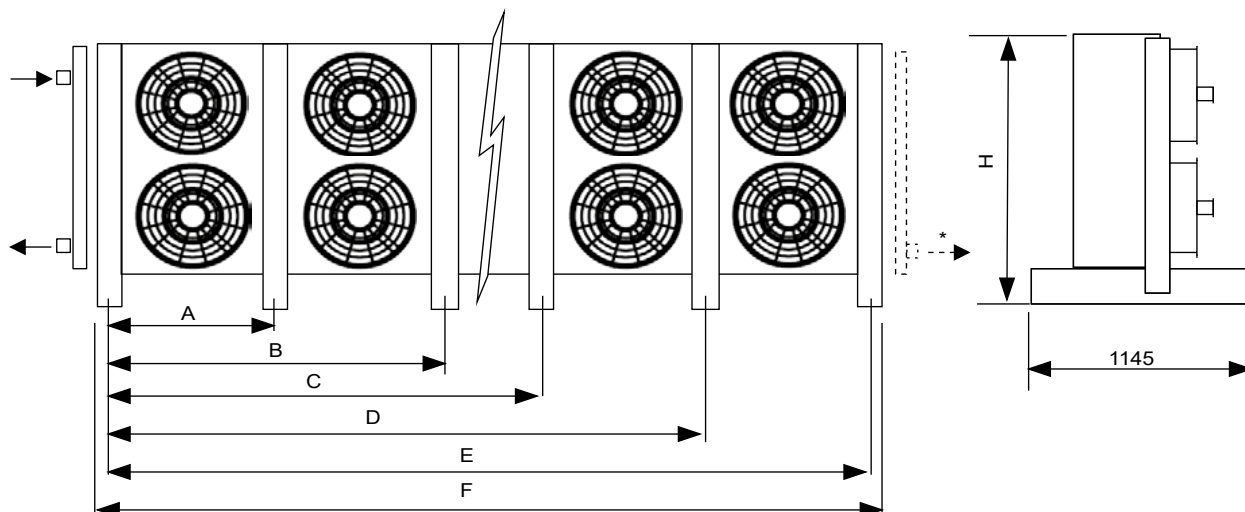
\* for units with input/output piping on the opposite side

\*\* standard feet

| No. of motors      |  | 1   | 2    | 3    | 4    | 5    | 6    | 4    | 6    | 8    | 10   | 12    | 14    |
|--------------------|--|---|------|------|------|------|------|------|------|------|------|-------|-------|
| DSN<br>S<br>module | A  | -   | -    | -    | -    | 1840 | 1840 | -    | -    | -    | 1840 | 1840  | 1840  |
|                    | B  | -   | -    | -    | -    | 2790 | 3740 | -    | -    | -    | 2790 | 3740  | 4690  |
|                    | C  | 830   | 1780 | 2730 | 3680 | 4630 | 5580 | 1780 | 2730 | 3680 | 4630 | 5580  | 6530  |
|                    | D  | 950   | 1900 | 2850 | 3800 | 4750 | 5700 | 1900 | 2850 | 3800 | 4750 | 5700  | 6650  |
|                    | H  | 1388 max  |      |      |      |      |      |      |      |      |      |       |       |
| DMN<br>M<br>module | Max empty weight without options +/-10% (kg) | 233   | 369  | 503  | 666  | 809  | 928  | 638  | 875  | 1135 | 1393 | 1617  | 1874  |
|                    | A  | -   | -    | -    | 3140 | 3140 | -    | -    | 3140 | 3140 | 4740 | 4740  | 3140  |
|                    | B  | -   | -    | -    | -    | 4740 | -    | -    | -    | -    | 4740 | -     | 7940  |
|                    | C  | 1480  | 3080 | 4680 | 6280 | 7880 | -    | 3080 | 4680 | 6280 | 7880 | 9480  | 11080 |
|                    | D  | 1600  | 3200 | 4800 | 6400 | 8000 | -    | 3200 | 4800 | 6400 | 8000 | 9600  | 11200 |
| DLN<br>L<br>module | H  | IMPELLER ø 800: 1388 max - IMPELLER ø 910: 1483 max |      |      |      |      |      |      |      |      |      |       |       |
|                    | Max empty weight without options +/-10% (kg) | 314   | 523  | 712  | 958  | 1183 | -    | 918  | 1298 | 1645 | 2029 | 2388  | 2772  |
|                    | A  | -   | -    | -    | 3740 | 3740 | -    | -    | 3740 | 3740 | 5640 | 5640  | -     |
|                    | B  | -   | -    | -    | -    | 5640 | -    | -    | -    | -    | 5640 | -     | -     |
|                    | C  | 1780  | 3680 | 5580 | 7480 | 9380 | -    | 3680 | 5580 | 7480 | 9380 | 11280 | -     |
| All                | D  | 1900  | 3800 | 5700 | 7600 | 9500 | -    | 3800 | 5700 | 7600 | 9500 | 11400 | -     |
|                    | H  | IMPELLER ø 800: 1388 max - IMPELLER ø 910: 1483 max |      |      |      |      |      |      |      |      |      |       |       |
|                    | Max empty weight without options +/-10% (kg) | 352   | 599  | 846  | 1110 | 1373 | -    | 1036 | 1474 | 1929 | 2384 | 2806  | -     |
|                    | E  | 1240  |      |      |      |      |      | 2360 |      |      |      |       |       |
|                    | F  | 1280  |      |      |      |      |      | 2400 |      |      |      |       |       |

Dimensions in mm, excluding options













### Vertical position



Unit shown has 2 fan lines - no. of motors between the feet is not contractually binding

\* for units with input/output piping on the opposite side

## DIMENSIONS

|                 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------|--|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of motors   |  | 1   | 2   | 3   | 4   | 5   | 6   | 4   | 6   | 8   | 10  | 12  | 14  |
| DSN<br>S module | A  | -   | -   | -   | 1840  | 1840  | 1840  | -   | -   | 1840  | 1840  | 1840  | 1840  |
|                 | B  | -   | -   | -   | -   | 2790  | 3740  | -   | -   | -   | 2790  | 3740  | 4690  |
|                 | C  | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |
|                 | D  | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |
|                 | E  | 830   | 1780  | 2730  | 3680  | 4630  | 5580  | 1780  | 2730  | 3680  | 4630  | 5580  | 6530  |
|                 | F  | 950   | 1900  | 2850  | 3800  | 4750  | 5700  | 1900  | 2850  | 3800  | 4750  | 5700  | 6650  |
|                 | Max empty weight without options +/-10% (kg) | 282   | 419   | 554   | 705   | 915   | 1039  | 684   | 922   | 1181  | 1497  | 1727  | 1983  |
| DMN<br>M module | A  | -   | -   | 1540  | 1540  | 1540  |   | -   | 1540  | 1540  | 1540  | 3140  | 3140  |
|                 | B  | -   | -   | 3140  | 4740  | 3140  |   | -   | 3140  | 4740  | 3140  | 6340  | 4740  |
|                 | C  | -   | -   | -   | -   | 4740  |   | -   | -   | -   | 4740  | -   | 6340  |
|                 | D  | -   | -   | -   | -   | 6340  |   | -   | -   | -   | 6340  | -   | 7940  |
|                 | E  | 1480  | 3080  | 4680  | 6280  | 7880  |   | 3080  | 4680  | 6280  | 7880  | 9480  | 11080   |
|                 | F  | 1600  | 3200  | 4800  | 6400  | 8000  |   | 3200  | 4800  | 6400  | 8000  | 9600  | 11200   |
|                 | Max empty weight without options +/-10% (kg) | 356   | 558   | 835   | 1046  | 1339  |   | 927   | 1383  | 1734  | 2187  | 2464  | 2920  |
| DLN<br>L module | A  | -   | -   | 1840  | 1840  | 1840  |   | -   | 1840  | 1840  | 1840  | 3740  |   |
|                 | B  | -   | -   | 3740  | 5640  | 3740  |   | -   | 3740  | 5640  | 3740  | 7540  |   |
|                 | C  | -   | -   | -   | -   | 5640  |   | -   | -   | -   | 5640  | -   |   |
|                 | D  | -   | -   | -   | -   | 7540  |   | -   | -   | -   | 7540  | -   |   |
|                 | E  | 1780  | 3680  | 5580  | 7480  | 9380  |   | 3680  | 5580  | 7480  | 9380  | 11280   |   |
|                 | F  | 1900  | 3800  | 5700  | 7600  | 9500  |   | 3800  | 5700  | 7600  | 9500  | 11400   |   |
|                 | Max empty weight without options +/-10% (kg) | 399   | 639   | 972   | 1204  | 1537  |   | 1053  | 1572  | 1986  | 2501  | 2842  |   |
| All             | H  | 1370  |   |   |   |   |   | 2490  |   |   |   |   |   |

Dimensions (mm)

## INSTALLATION RECOMMENDATIONS

- These units are designed to operate outside. When starting up, frost and snow could adversely affect the operation of horizontal units.

As a general measure, all steps should be taken to avoid the risk of air recycling. This is especially important when the installation comprises several units.

It is not recommended to install units near the hot air extraction duct outlet or close to deciduous plants (this could cause fouling).

- A horizontal unit must have a surrounding clearance of 1.5 m. Where the use of anti-vibration mounts is required, use a rigid frame which locks the feet together.

- A vertical unit should preferably be placed parallel to the direction of the wind. It is not recommended for use with low fan rotation speeds. In addition, we recommend that these units be stabilised using braces connecting their two upper ends to fixed supports (wall or framework).

- The use of **variable speed drives** should be avoided, the EC motor solution should be preferred.

- **Commissioning and maintenance:** refer to the instruction manual.

- These units **comply with the European directives**. The installer is responsible for ensuring the compliance of the installation. The installer must ensure safety and protective devices (emergency stop, shut-off valves, lightning protection, etc.) are put in place and are accessible.





## DRYCOOLERS



Compact design  
Acoustic comfort  
40% smaller footprint

## 09VE

From 100 to 1870 kW

Drycoolers in this range are mainly designed for cooling water or glycol/water mix for:

- Condensers for water chillers,
- Free cooling.

These devices are designed to be installed outdoors.

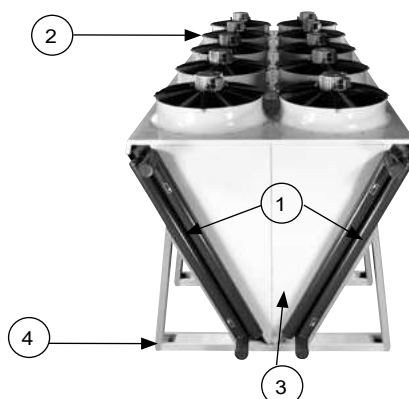


CARRIER participates in the ECP programme for HE  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## DESCRIPTION

### Excellent resistance to corrosion

Casing with corrosiveness resistance category as per ISO 12944-2.



#### ① 2 Coils

Copper tubes and high-performance aluminium fins, resistant to fouling.  
Manifolds and piping: unpainted copper except for diameter 125 which are RAL 7024 graphite grey painted steel.

#### ② Fan motor assemblies

Profiled collars in galvanised steel with RAL7035 polyester powder paint or RAL7035 composite depending on the motor reference.

Aluminium + polypropylene propeller.

Class F motors - IP54 - TRI400V +/-10% 50Hz +/-2% - Standard connection to motor terminal boxes

Black protective grille compliant with standard NF ISO 12499.

Partitioning in pairs.

#### ③ Casing

Galvanised steel with polyester powder paint in RAL7035 light grey.

#### ④ Feet

Galvanised steel with polyester powder paint in RAL7035 light grey

Each device is tested:

- The coil sealing is subjected to an underwater airtightness test.
- For devices with the terminal strip or electrical cabinet option: rotation tests, dielectric tests, current measurement.

The entire range complies with the following European directives:

- Machinery directive 2006/42/EC,
- EMC directive 2014/30/EU,
- Pressure Equipment Directive (PED) 2014/68 EU.

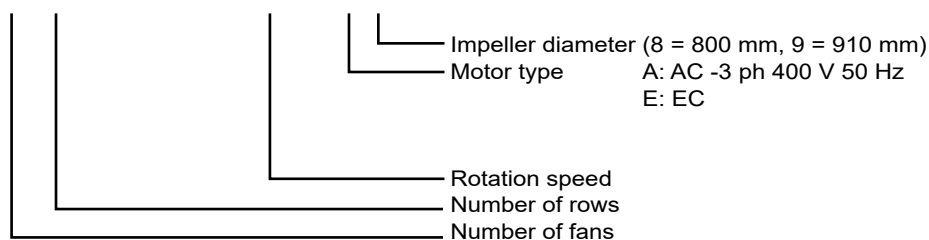
## RANGE

- A range of sizes, from 6 to 20 fans.
- 2 impeller diameters, 800 or 910 mm.
- Adaptation of the rotation speed (EC motor).

Various combinations of these elements, as well as the choice of a number of options, allow us to provide devices that are adapted to a range of applications and environments.

## DESCRIPTION

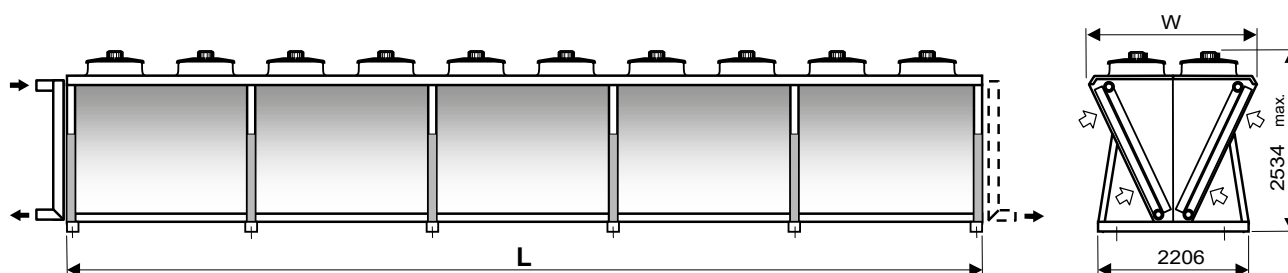
09VE 1 16 4 UI 690 A 9A











## OPTIONS FOR EACH APPLICATION

|   | Options  | Description/advantages   |
|---|--|--|
| <b>Protection adapted for the environment</b> | Pre-coated aluminium fins  | Improves the resistance of the fins to corrosion. For applications in coastal areas, industrial areas or highly populated areas.                     |
|   | High-efficiency coating on fins: ALUCOAT®507/HERESITE (on request) | Improves the resistance of the fins to corrosion. For relatively corrosive environments.   |
|   | Stainless steel tubing bundle                                      | For corrosive fluids.  |
|   | Corrosiveness resistance category C5M                              | Casing and fan motor assemblies for corrosive environments.  |
| <b>Quick, simple installation</b>             | Terminal box   | Connection to the terminals of each motor on the front panel of the device.  |
|   | Protection cabinet   | Protected by a thermal-magnetic circuit breaker on each motor.   |
|   | Control cabinet  | Motor and control protection, either by electronic board, depending on the temperature, or by the chiller if compatible.                             |
|   | Flanges  | ISO PN16 02A type rotating flanges as per DIN 2642 in 304L stainless steel up to DN100 and steel flange NFEN 1092-1 for DN125                        |
|   | Counter-flanges  | In 304L stainless steel up to DN100 and steel for DN125, with gaskets and bolts.   |
|   | Blade protective screen  | Impact protection  |
| <b>Application for water without glycol</b>   | Drainable coil   | Device located on a slope to prevent frost - drainage by gravity   |
| <b>Free cooling application</b>               | Free cooling valve kit   | Valves with motors controlled by the control cabinet. Controlled according to the operation of the drycooler or water chiller.                       |
| <b>Adiabatic cooling application</b>          | ADIABATIC COOLER (water misting into the air flow)                 | Size of the unit reduced by cooling of the ambient air. Operates completely safely due to the antibacterial treatment applied to the water (Option). |

## DIMENSIONS



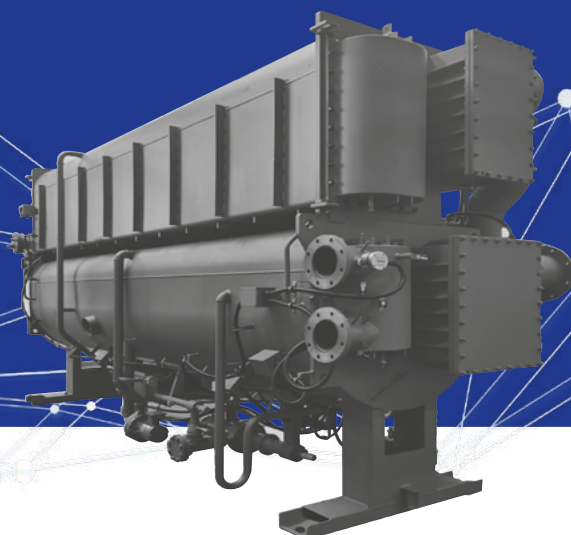
|        | 1060  | 1080  | 1100  | 1120  | 1140  | 1160  | 1180  | 1200  |
|--------|---|---|---|---|---|---|---|---|
|        |  |  |  |  |  |  |  |  |
| L (mm) | 3550  | 4700  | 5850  | 7000  | 8150  | 9300  | 10450   | 11660   |
| w (mm) | 2305 to 2420 depending on the model   |   |   |   |   |   |   |   |

Up to size 1180, these units can be transported by container.  
Dimensions without options

## INSTALLATION RECOMMENDATIONS

- These units are designed to operate outside. When starting up, frost and snow could adversely impair its operation.  
As a general measure, all steps should be taken to avoid the risk of air recycling. This is especially important when the installation comprises several units.  
It is not recommended to install units near the hot air extraction duct outlet or close to deciduous plants (this could cause clogging).
- Allow a clearance of 1.5 m around the device. Where the use of anti-vibration mounts is required, use a rigid frame which locks the feet together.
- The use of **variable speed drives** should be avoided, the EC motor solution should be preferred.
- **Commissioning and maintenance:** refer to the instruction manual.
- These units **comply with the European directives**. The installer is responsible for ensuring the compliance of the installation. The installer must ensure safety and protective devices (emergency stop, shut-off valves, lightning protection, etc.) are put in place and are accessible.

## SINGLE-EFFECT HOT WATER-FIRED ABSORPTION CHILLERS



# 16LJ01-03 16LJ-F11- 83 NEW

Nominal cooling capacity 83-3956 kW

The Carrier Corporation has more than 100 years experience in providing HVAC systems and equipment around the world and offers a complete product solutions for many different type of applications: From residential to industrial.

For all cases where power grid is not available on site or either not extensively developed, or where thermal energy sources (water or steam) are available on site, Carrier offers a complete range of absorption chillers.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## FEATURES

- The Carrier 16LJ & 16LJ-F single-effect absorption chillers are designed to provide chilled water from waste heat sources generated from industrial processes and cogeneration systems.
- Carrier absorption chillers allow diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input.
- They allow smaller emergency generators compared to an electrical driven chiller.
- The units are ozone-safe and CFC-free. Cooling requirements are met without chlorine-based refrigerants.
- They reduce the contribution to global warming and minimise the global impact by greatly reducing electricity consumption and production of greenhouse gases.
- The solution inhibitor has no impact on the environment.
- An absorption chiller does not utilise mechanical moving parts, and this leads to quiet, vibration-free operation.
- The use of high-efficiency heat transfer surface has reduced the space required for installation of the absorption chiller, resulting in a smaller footprint.

## NEW FEATURES OF 16LJ-F

### Enhanced durability by Stainless steel generator tubes

- New Carrier 16LJ-F single-effect hot water absorption chillers uses stainless steel tubes (SUS436L) for the generator in order to achieve enhanced durability.

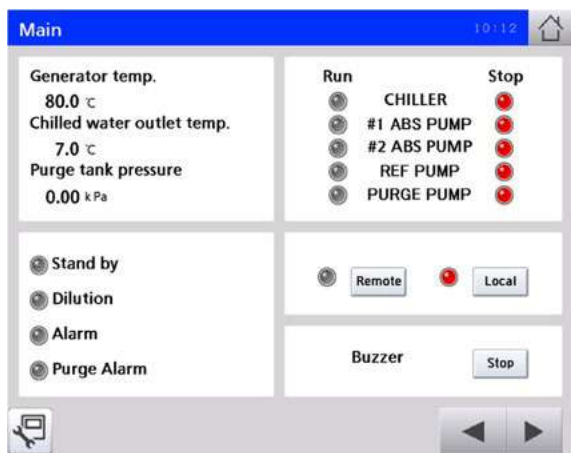
### Falling film type generator

- Falling film type generator is applied for New Carrier 16LJ-F single-effect hot water absorption chiller and it reduces amount of Lithium bromide solution and it resulted in quick start-up and quick response for load changes.

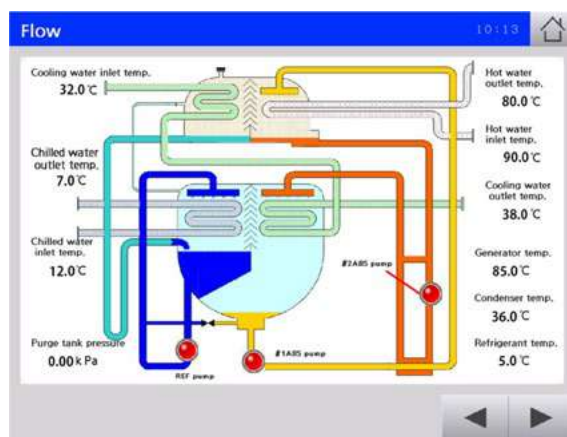
### Touch screen

- Carrier New 16LJ-F single-effect hot water absorption chiller is equipped with 8.4 inch Touch screen for easy operation and monitoring.

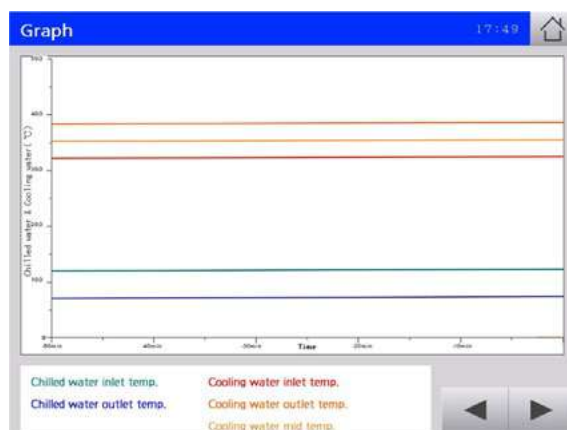
Main screen



Flow chart screen



Trend screen



### Modbus communication

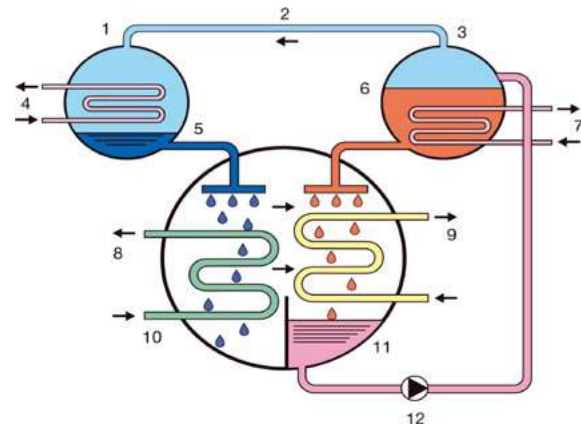
- New 16LJ-F has a capability to communication via Modbus protocol as standard. Communication via BACnet is also possible (optional).

## THE ABSORPTION CYCLE

The absorption cooling cycle, like the mechanical vapour compression refrigeration cycle, utilizes the latent heat of evaporation of a refrigerant to remove heat from the entering chilled water. Vapour compression refrigeration systems use a chlorine-based refrigerant and a compressor to transport the refrigerant vapour to be condensed in the condenser. The absorption cycle, however, uses water as the refrigerant and an absorbent lithium bromide solution to absorb the vaporised re-frigerant. Heat is then applied to the solution to release the re-frigerant vapour from the absorber. The refrigerant vapour is then condensed in the condenser.

The basic single-effect absorption cycle (see Figure 1) includes generator, condenser, evaporator and absorber with refrigerant (liquid) and lithium bromide as the working solutions. The generator utilizes a heat source (steam or hot water) to vaporise the diluted lithium bromide solution. The water vapour that is released travels to the condenser where it is condensed back into a liquid, transferring the heat to the cooling tower water. Once condensed, the liquid refrigerant is distributed over the evaporator tubes, removing the heat from the chilled water and vaporising the liquid refrigerant. The concentrated lithium bromide solution from the generator passes into the absorber, absorbs the refrigerant vapour solution from the evaporator and dilutes itself. The diluted lithium bromide solution is then pumped back to the generator where the cycle is started again.

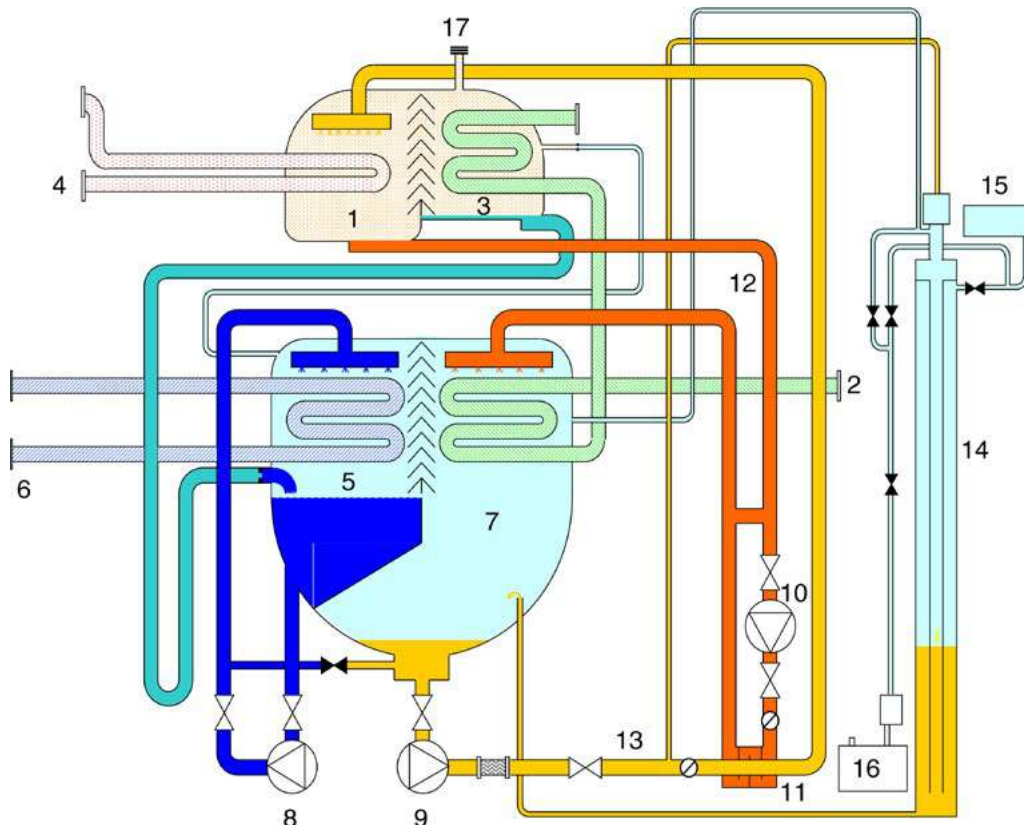
Figure 1 - Simplified absorption cycle



**Legend**

1. Condenser
2. Refrigerant vapour
3. Generator
4. Cooling water
5. Liquid refrigerant
6. Concentrated solution
7. Heat source
8. Chilled water
9. Cooling water
10. Evaporator
11. Absorber
12. Absorbent pump

Figure 2 – Cooling cycle schematic  
16LJ - F 11 - 82



**Legend**

1. Generator
2. Cooling water
3. Condenser
4. Hot water
5. Evaporator
6. Chilled water
7. Absorber
8. Refrigerant pump
9. Absorbent pump No. 1
10. Absorbent pump No. 2
11. Heat exchanger
12. Concentrated solution
13. Diluted solution
14. Purge unit
15. Purge tank
16. Purge pump
17. Rupture disk

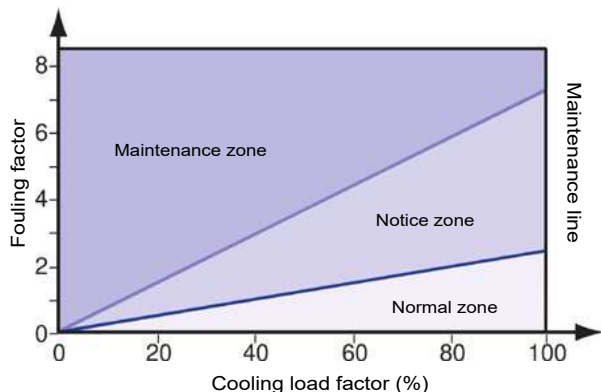
## CHILLER FEATURES

### Expert self-diagnosis function

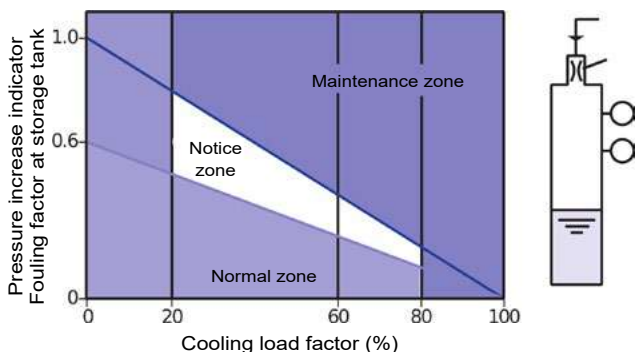
- The expert function is provided to monitor operating conditions, predict chiller information and maintain stable operation.

### Predictive maintenance information

**Graph 1 - Fouling of heat transfer tubes in coolin water system**



**Graph 2 - Vacuum condition monitoring**



#### Legend

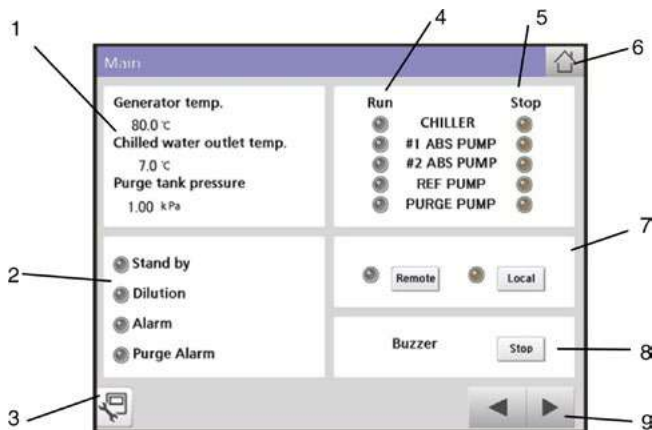
- Storage tank
- Diluted solution
- Purge nozzle
- Palladium cell
- Pressure sensor

### Control system

- The Carrier control system surpasses other proportional only control systems available today. The digital PID (proportional plus integral plus derivative) control maximises unit performance by maintaining a  $\pm 0.5$  K variance in leaving chilled-water temperature from the setpoint. Proportional controls can typically only maintain a  $\pm 1$  K variance from the setpoint. The controller's innovative design also incorporates the ability to start and stop the system chilled/hot and cooling water pumps. During shutdown these pumps are sequenced to ensure a complete dilution cycle.
- The leaving chilled-water temperature is measured every five seconds and steam input is changed according to the gradient of the leaving chilled-water temperature curve. System temperatures, setpoints, and operational records are displayed along with indicator lights for the chiller and pumps.
- The Carrier control system offers its users selfdiagnostics by constantly monitoring the chiller status and will automatically shut the chiller down if a fault occurs. The cause of shutdown will be retained in the memory and can be displayed for immediate operator review. The controller's memory will also retain and display the cause of the last three system fault conditions. This method of retaining fault conditions is extremely useful for maintaining an accurate record of unit performance and fault history.

### Touch Panel

**Figure 3 - Touch Panel Screen**



#### Legend

- Data display area
- Status display area
- Setting menu
- Operation indication lamp
- Stop indication lamp
- Main menu key
- Remote/local select key
- Alarm/Buzzer stop key
- Display switching ley

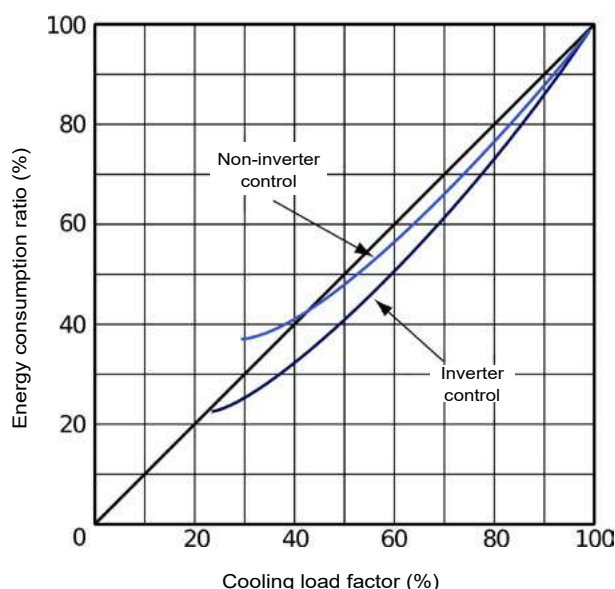
## CHILLER FEATURES

### Fast digital PID control

The introduction of new digital PID control stabilises the chilled/hot water temperature with high accuracy. It quickly responds to the load fluctuation and supplies stable chilled/hot water temperature. It is suitable for air-conditioning intelligent buildings which require sophisticated control.

### Saving energy with the inverter (option)

Balancing the load and flow rate with the absorbent pump's inverter control enables efficient and energy-saving operation. As a result, it reduces input energy and electric power consumption. Running cost is decreased by 5% compared to non-inverter control.



#### Notes

1. Chilled water leaving temperature : 7 °C constant
2. Cooling water entering temperature

| Load factor (%) | Temperature ( °C ) |
|-----------------|--------------------|
| 100             | 32                 |
| 50              | 27                 |
| 30              | 25                 |

### Purge system

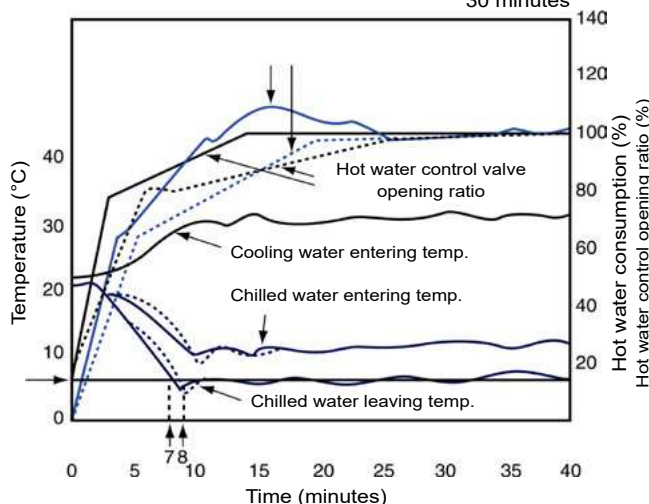
- The high-performance purge system maintains the required operating pressure, preserves chiller performance characteristics, minimises chiller maintenance to one purge operation per season (for year-round operation).

### Hot water control valve

- At the start-up, the opening angle of the hot-water control valve is controlled in three stages, reducing the amount of hot water and the time needed to reach the desired level, compared with the previous model.
- Adjusting the opening speed of the hot-water control valve at the second and third stage, it is possible to set up the most suitable conditions for the site auxiliary equipment.

### Graph 4 - Hot water valve opening control

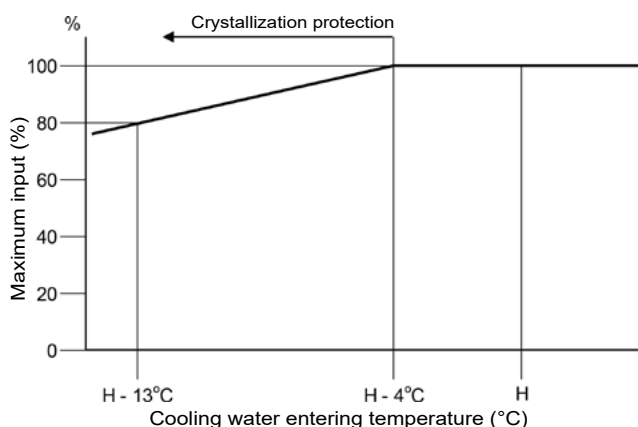
Variable (5-30 minutes)

Example  
15 minutes  
30 minutes


### Expansion of safe operating zone

- This ensures quick response to rapid changes and maintains stable operation.
- The safe operating zone is between 19 °C and 34 °C cooling water temperature (for a nominal cooling water entering temperature of 32 °C).

### Graph 5 - Safe operating zone chart



### Crystallisation protection

- A microprocessor monitors the absorbent concentration. Steam supply is stopped, and the unit is returned to normal operation, when the concentration is over a certain limit, to prevent the crystallisation of absorbent

## PERFORMANCES

| Model name                                 | 16LJ           |          |       | 16LJ-F |          |       |       |       |       |       |       |       |        |
|--|----------------|----------|-------|--------|----------|-------|-------|-------|-------|-------|-------|-------|--------|
| Size                                       | 01             | 02       | 03    | 11     | 12       | 13    | 14    | 21    | 22    | 23    | 24    | 31    | 32     |
| Capacity                                   | 88             | 140      | 176   | 264    | 316      | 387   | 475   | 545   | 633   | 738   | 844   | 949   | 1055   |
| <b>Chilled water system <sup>(1)</sup></b> |                |          |       |        |          |       |       |       |       |       |       |       |        |
| Flow rate                                  | l/sec          | 3,50     | 5,61  | 7,00   | 12,6     | 15,1  | 18,5  | 22,7  | 26    | 30,3  | 35,3  | 40,3  | 45,3   |
| Pressure drop                              | kPa            | 71       | 60    | 59     | 72       | 78    | 48    | 53    | 47    | 50    | 101   | 105   | 50     |
| Connection (DIN)                           | inch           | 2        | 2 1/2 | 2 1/2  | 3        | 3     | 4     | 4     | 5     | 5     | 5     | 5     | 6      |
| Retention volume                           | m <sup>3</sup> | 0,06     | 0,08  | 0,08   | 0,11     | 0,13  | 0,15  | 0,17  | 0,22  | 0,25  | 0,28  | 0,30  | 0,35   |
| <b>Cooling water system <sup>(1)</sup></b> |                |          |       |        |          |       |       |       |       |       |       |       |        |
| Flow rate                                  | l/sec          | 10,1     | 16,2  | 20,2   | 20,8     | 25,0  | 30,6  | 37,5  | 43,1  | 50,0  | 58,3  | 66,7  | 75,0   |
| Pressure drop                              | kPa            | 77       | 48    | 49     | 62       | 64    | 72    | 80    | 74    | 78    | 83    | 84    | 114    |
| Connection (DIN)                           | inch           | 3        | 4     | 4      | 5        | 5     | 5     | 5     | 6     | 6     | 8     | 8     | 8      |
| Retention volume                           | m <sup>3</sup> | 0,13     | 0,18  | 0,23   | 0,38     | 0,42  | 0,48  | 0,54  | 0,68  | 0,74  | 0,82  | 0,90  | 1,12   |
| <b>Hot water system <sup>(1)</sup></b>     |                |          |       |        |          |       |       |       |       |       |       |       |        |
| Flow rate                                  | l/sec          | 3,06     | 4,89  | 6,11   | 8,4      | 10,1  | 12,3  | 15,1  | 17,3  | 20,1  | 23,4  | 26,8  | 30,1   |
| Pressure drop                              | kPa            | 52       | 31    | 36     | 54       | 54    | 74    | 78    | 74    | 76    | 71    | 71    | 96     |
| Connection (DIN)                           | inch           | 2        | 2 1/2 | 2 1/2  | 3        | 3     | 4     | 4     | 4     | 4     | 5     | 5     | 5      |
| Retention volume                           | m <sup>3</sup> | 0,04     | 0,06  | 0,07   | 0,20     | 0,22  | 0,26  | 0,29  | 0,38  | 0,41  | 0,46  | 0,50  | 0,57   |
| <b>Rupture disk connection</b>             | inch           | 2        | 2     | 2      | 2        | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2      |
| <b>Dimmensions</b>                         |                |          |       |        |          |       |       |       |       |       |       |       |        |
| Length (L)                                 | mm             | 1 745    | 2 450 | 2 450  | 2 640    | 2 640 | 3 650 | 3 650 | 3 690 | 3 690 | 4 770 | 4 770 | 5 300  |
| Height (H)                                 | mm             | 2 115    | 2 115 | 2 115  | 2 430    | 2 430 | 2 430 | 2 430 | 2 600 | 2 600 | 2 600 | 2 600 | 2 840  |
| Width (W)                                  | mm             | 1 255    | 1 255 | 1 435  | 1 400    | 1 400 | 1 400 | 1 400 | 1 500 | 1 500 | 1 500 | 1 500 | 1 580  |
| Tube removal                               | mm             | 900      | 1 350 | 1 350  | 2 400    | 2 400 | 3 400 | 3 400 | 3 400 | 3 400 | 4 500 | 4 500 | 5 000  |
| <b>Weight</b>                              |                |          |       |        |          |       |       |       |       |       |       |       |        |
| Operation weight                           | kg             | 2 070    | 2 680 | 3 150  | 4 100    | 4 300 | 5 200 | 5 600 | 6 900 | 7 300 | 8 400 | 8 800 | 11 000 |
| Max shipping weight                        | kg             | 1 820    | 2 380 | 2 720  | 3 400    | 3 500 | 4 400 | 4 600 | 5 700 | 5 900 | 6 800 | 7 100 | 9 000  |
| Shipping method                            | u              | 1        | 1     | 1      | 1        | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1      |
| <b>Power supply</b>                        | V-ph-Hz        | 400-3-50 |       |        | 400-3-50 |       |       |       |       |       |       |       |        |
| Apparent power                             | kVA            | 3,5      | 3,5   | 3,5    | 4,6      | 4,6   | 4,6   | 6,5   | 6,9   | 6,9   | 7,2   | 7,2   | 8,6    |
| Total electric current                     | A              | 5,3      | 5,3   | 5,3    | 7,1      | 7,1   | 7,1   | 9,8   | 10,3  | 10,3  | 10,8  | 10,8  | 12,8   |
| Absorbent pump N°1, power input            | kW             | 0,75     | 0,75  | 0,75   | 1,1      | 1,1   | 1,1   | 2,2   | 2,2   | 2,2   | 2,2   | 2,2   | 3,0    |
| Absorbent pump N°1, electric current       | A              | 2,2      | 2,2   | 2,2    | 2,8      | 2,8   | 2,8   | 5,5   | 5,5   | 5,5   | 5,5   | 5,5   | 7,5    |
| Absorbent pump N°2, power input            | kW             | /        | /     | /      | 0,2      | 0,2   | 0,2   | 0,2   | 0,4   | 0,4   | 0,4   | 0,4   | 0,4    |
| Absorbent pump N°2, electric current       | A              | /        | /     | /      | 1,1      | 1,1   | 1,1   | 1,1   | 1,6   | 1,6   | 1,6   | 1,6   | 1,6    |
| Refrigerant pump, power input              | kW             | 0,2      | 0,2   | 0,2    | 0,2      | 0,2   | 0,2   | 0,2   | 0,2   | 0,2   | 0,4   | 0,4   | 0,4    |
| Refrigerant pump, electric current         | A              | 1,1      | 1,1   | 1,1    | 1,1      | 1,1   | 1,1   | 1,1   | 1,1   | 1,1   | 1,6   | 1,6   | 1,6    |
| Purge pump, power input                    | kW             | 0,4      | 0,4   | 0,4    | 0,4      | 0,4   | 0,4   | 0,4   | 0,4   | 0,4   | 0,4   | 0,4   | 0,4    |
| Purge pump, electric current               | A              | 1,2      | 1,2   | 1,2    | 1,2      | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   | 1,2   | 1,2    |
| PD cell heater                             | kW             | 0,038    | 0,038 | 0,038  | 0,038    | 0,038 | 0,038 | 0,038 | 0,038 | 0,038 | 0,038 | 0,038 | 0,038  |
| Control circuit                            | kW             | 0,3      | 0,3   | 0,3    | 0,3      | 0,3   | 0,3   | 0,3   | 0,3   | 0,3   | 0,3   | 0,3   | 0,3    |

- \* Condition for 16LJ Chilled water temperature 12/6°C (Fouling factor = 0,018 m<sup>2</sup>C/kW)  
Cooling water temperature 29/34°C (Fouling factor = 0,044 m<sup>2</sup>C/kW)  
Hot water temperature 90/80°C (Fouling factor = 0,018 m<sup>2</sup>C/kW)
- \* Condition for 16LJ-F Chilled water temperature 12/7°C (Fouling factor = 0,018 m<sup>2</sup>C/kW)  
Cooling water temperature 29.4/36.3°C (Fouling factor = 0,044 m<sup>2</sup>C/kW)  
Hot water temperature 90/80°C (Fouling factor = 0,018 m<sup>2</sup>C/kW)



## PERFORMANCES

| Model name                                 | 16LJ-F         |          |        |        |        |        |        |        |        |        |        |        |        |
|--|----------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Size                                       | 41             | 42       | 51     | 52     | 53     | 61     | 62     | 63     | 71     | 72     | 73     | 81     | 82     |
| Capacity                                   | KW             | 1 178    | 1 319  | 1 477  | 1 653  | 1 846  | 2 110  | 2 373  | 2 637  | 2 901  | 3 165  | 3 428  | 3 692  |
| <b>Chilled water system <sup>(1)</sup></b> |                |          |        |        |        |        |        |        |        |        |        |        |        |
| Flow rate                                  | l/sec          | 56,4     | 63,1   | 70,6   | 78,9   | 88,3   | 100,8  | 113,3  | 126,1  | 138,6  | 151,1  | 163,9  | 176,4  |
| Pressure drop                              | kPa            | 45       | 42     | 97     | 47     | 62     | 58     | 77     | 106    | 61     | 93     | 94     | 91     |
| Connection (DIN)                           | inch           | 8        | 8      | 8      | 8      | 8      | 10     | 10     | 10     | 12     | 12     | 12     | 14     |
| Retention volume                           | m <sup>3</sup> | 0,48     | 0,54   | 0,75   | 0,81   | 0,87   | 0,98   | 1,04   | 1,17   | 1,41   | 1,49   | 1,59   | 1,77   |
| <b>Cooling water system <sup>(1)</sup></b> |                |          |        |        |        |        |        |        |        |        |        |        |        |
| Flow rate                                  | l/sec          | 93,1     | 104,2  | 116,7  | 130,6  | 145,8  | 166,7  | 187,5  | 208,3  | 229,2  | 250,0  | 270,8  | 291,7  |
| Pressure drop                              | kPa            | 117      | 120    | 102    | 84     | 110    | 140    | 71     | 96     | 130    | 91     | 95     | 96     |
| Connection (DIN)                           | inch           | 10       | 10     | 12     | 12     | 12     | 14     | 14     | 14     | 16     | 16     | 16     | 16     |
| Retention volume                           | m <sup>3</sup> | 1,39     | 1,50   | 2,37   | 2,53   | 2,70   | 2,94   | 3,11   | 3,44   | 3,47   | 3,69   | 3,92   | 4,31   |
| <b>Hot water system <sup>(1)</sup></b>     |                |          |        |        |        |        |        |        |        |        |        |        |        |
| Flow rate                                  | l/sec          | 37,4     | 41,8   | 46,8   | 52,4   | 58,5   | 66,9   | 75,2   | 83,6   | 91,9   | 101    | 109    | 117    |
| Pressure drop                              | kPa            | 97       | 98     | 88     | 37     | 49     | 46     | 61     | 83     | 61     | 93     | 94     | 93     |
| Connection (DIN)                           | inch           | 6        | 6      | 6      | 8      | 8      | 10     | 10     | 10     | 10     | 10     | 10     | 10     |
| Retention volume                           | m <sup>3</sup> | 0,74     | 0,8    | 1,02   | 1,09   | 1,17   | 1,42   | 1,51   | 1,69   | 1,98   | 2,08   | 2,20   | 2,50   |
| Rupture disk connection                    | inch           | 2        | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      | 2      |
| <b>Dimensions</b>                          |                |          |        |        |        |        |        |        |        |        |        |        |        |
| Length (L)                                 | mm             | 5 330    | 5 330  | 5 500  | 5 950  | 6 480  | 6 710  | 7 210  | 8 230  | 7 230  | 8 220  | 8 220  | 8 320  |
| Height (H)                                 | mm             | 3 080    | 3 080  | 3 450  | 3 450  | 3 450  | 3 680  | 3 680  | 3 680  | 4 000  | 4 000  | 4 000  | 4 180  |
| Width (W)                                  | mm             | 1 690    | 1 690  | 2 000  | 2 000  | 2 000  | 2 230  | 2 230  | 2 230  | 2 730  | 2 730  | 2 730  | 3 010  |
| Tube removal                               | mm             | 5 000    | 5 000  | 5 100  | 5 700  | 6 200  | 6 200  | 6 700  | 7 700  | 6 700  | 7 700  | 7 700  | 7 700  |
| <b>Weight</b>                              |                |          |        |        |        |        |        |        |        |        |        |        |        |
| Operation weight                           | kg             | 13 700   | 14 300 | 20 200 | 21 500 | 22 800 | 28 300 | 30 100 | 33 500 | 39 100 | 42 400 | 43 700 | 46 300 |
| Max shipping weight                        | kg             | 11 100   | 11 500 | 16 000 | 17 100 | 18 100 | 11 200 | 11 800 | 12 900 | 14 600 | 15 800 | 16 200 | 17 900 |
| Shipping method                            | u              | 1        | 1      | 1      | 1      | 1      | 2      | 2      | 2      | 2      | 2      | 2      | 2      |
| <b>Power supply</b>                        |                |          |        |        |        |        |        |        |        |        |        |        |        |
|  | V-ph-Hz        | 400-3-50 |        |        |        |        |        |        |        |        |        |        |        |
| Apparent power                             | kVA            | 8,6      | 8,6    | 10,2   | 10,2   | 9,4    | 18,8   | 18,8   | 18,8   | 19,3   | 20,9   | 22,0   | 22,0   |
| Total electric current                     | A              | 12,8     | 12,8   | 15,1   | 15,1   | 13,9   | 27,5   | 27,5   | 27,5   | 28,2   | 30,5   | 32,2   | 32,2   |
| Absorbent pump N°1, power input            | kW             | 3,0      | 3,0    | 3,0    | 3,0    | 3,0    | 7,5    | 7,5    | 7,5    | 7,5    | 7,5    | 7,5    | 7,5    |
| Absorbent pump N°1, electric current       | A              | 7,5      | 7,5    | 7,5    | 7,5    | 7,5    | 19,0   | 19,0   | 19,0   | 19,0   | 19,0   | 19,0   | 19,0   |
| Absorbent pump N°2, power input            | kW             | 0,4      | 0,4    | 1,3    | 1,3    | 0,75   | 1,5    | 1,5    | 1,5    | 1,5    | 1,5    | 2,2    | 2,2    |
| Absorbent pump N°2, electric current       | A              | 1,6      | 1,6    | 3,9    | 3,9    | 2,7    | 4,8    | 4,8    | 4,8    | 4,8    | 4,8    | 6,5    | 6,5    |
| Refrigerant pump, power input              | kW             | 0,4      | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,75   | 0,75   | 1,2    | 1,2    |
| Refrigerant pump, electric current         | A              | 1,6      | 1,6    | 1,6    | 1,6    | 1,6    | 1,6    | 1,6    | 1,6    | 3,9    | 3,9    | 3,9    | 3,9    |
| Purge pump, power input                    | kW             | 0,4      | 0,4    | 0,4    | 0,4    | 0,4    | 0,4    | 0,4    | 0,4    | 0,75   | 0,75   | 0,75   | 0,75   |
| Purge pump, electric current               | A              | 1,2      | 1,2    | 1,2    | 1,2    | 1,2    | 1,2    | 1,2    | 1,2    | 1,9    | 1,9    | 1,9    | 1,9    |
| PD cell heater                             | kW             | 0,038    | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  | 0,038  |
| Control circuit                            | kW             | 0,3      | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    | 0,3    |

\* Condition for 16LJ-F Chilled water temperature 12/7°C (Fouling factor = 0,018 m<sup>2</sup>°C/kW)  
Cooling water temperature 29.4/36.3°C (Fouling factor = 0,044 m<sup>2</sup>°C/kW)  
Hot water temperature 90/80°C (Fouling factor = 0,018 m<sup>2</sup>°C/kW)

## SCOPE OF ORDER 16LJ SIZE 01-02-03

| Item                                   | Standard   | Option   |
|--|--|--|
| Standard                               | CE marking   | No option  |
| <b>Chilled water</b>                   |  |  |
| Temperature                            | Inlet : 12°C<br>Outlet : 6°C   | Outlet : 5°C through 12°C<br>Temperature difference 3K through 10K |
| Flow rate                              | 0,504m³/h x RT   | Changes depending on chilled water temperature<br>Difference.      |
| Max. working pressure                  | 0,784 MPa  | No option  |
| Hydraulic test pressure                | Max. working pressure x 1,5  | No option  |
| Fouling factor                         | 0,018m²°C/kW   | Max. 0,18m²°C/kW   |
| Material of tube                       | Copper tube  | No option  |
| Water quality                          | Refer to JRA-GL02E-1994  | No option  |
| Structure of water header              | Welded type  | No option  |
| Manufacturing standard of water header | Carrier standard, DIN flange   | No option  |
| <b>Cooling water</b>                   |  |  |
| Temperature                            | Inlet : 29°C<br>Outlet : 34°C  | Inlet : 20°C through 40°C  |
| Flow rate                              | 1,457m³/h x RT   | Within water flow range of each model                              |
| Max. working pressure                  | 0,784 MPa  | No option  |
| Hydraulic test pressure                | Max. working pressure x 1,5  | No option  |
| Fouling factor                         | 0,044m²°C/kW   | Max. 0,18m²°C/kW   |
| Material of tube                       | Copper tube  | No option  |
| Water quality                          | Refer to JRA-GL02E-1994  | No option  |
| Structure of water header              | Marine type  | No option  |
| Manufacturing standard of water header | Carrier standard, DIN flange   | No option  |
| <b>Hot water</b>                       |  |  |
| Temperature                            | Inlet : 90°C<br>Outlet : 80°C  | Inlet : 80°C through 110°C<br>Outlet : Min. 70°C                   |
| Flow rate                              | 0,122 l/s x RT   | Within water flow range of each model                              |
| Max. working pressure                  | 0,784 MPa  | No option  |
| Hydraulic test pressure                | Max. working pressure x 1,5  | No option  |
| Fouling factor                         | 0,018m²°C/kW   | Max. 0,18m²°C/kW   |
| Material of tube                       | Copper tube  | No option  |
| Water quality                          | Refer to JRA-GL02E-1994  | No option  |
| Structure of water header              | Marine type  | No option  |
| Manufacturing standard of water header | Carrier standard, DIN flange   | No option  |
| <b>Electricity</b>                     |  |  |
| Power supply                           | 400 V - 3 phase - 50Hz<br>(Voltage within ±10%, Frequency within ±5%)                                    | No option  |
| <b>Shipment</b>                        | One section  | No option  |
| <b>Control</b>                         |  |  |
| Safety functions                       | Refrigerant temperature  | Cooling water flow switch  |
|  | Chilled water freeze protection  |  |
|  | Chilled water flow switch  |  |
|  | Cooling water temperature  |  |
|  | Generator temperature  |  |
|  | Chrystallization protection  |  |
| Capacity control                       | Motor protection   |  |
|  | Digital PID control by Chilled water temperature<br>Chilled water temperature remote control (4 - 20 mA) |  |

## SCOPE OF ORDER 16LJ SIZE 01-02-03

| Item   | Standard                                     | Option                        |
|--|--|-------------------------------|
| <b>Control panel</b>                                   |  |                               |
| Paint finish   | Munsell 1Y-8,5/0,5                           | No option                     |
| Indication lamps                                       | Operation: Green                             | No option                     |
|  | Stop: Orange                                 |                               |
|  | Alarm: Red                                   |                               |
| Display  | LED  | No option                     |
| External terminals<br>(No-voltage normal open contact) | Operation indication                         | No option                     |
|  | Stop indication                              |                               |
|  | Alarm indication                             |                               |
|  | Answer back indication                       |                               |
|  | Cooling mode indication                      |                               |
|  | Purge alarm indication                       |                               |
| Structure  | Indoor type                                  | No option                     |
| <b>External panel painting</b>                         | Munsell 1Y-8,5/0,5                           | No option                     |
| <b>Insulation</b>                                      | Factory insulated                            | No option                     |
| <b>Electrical wiring</b>                               | 600V polyvinyl grade chloride insulated wire | No option                     |
| <b>Installation condition</b>                          |  |                               |
| Place  | Indoor                                       | No option                     |
| Ambient temperature                                    | 5°C through 40°C                             | No option                     |
| Ambient humidity                                       | Relative humidity: Max. 90% at 45°C          | No option                     |
| Atmosphere   | Be sure the followings are not present       | No option                     |
|  | - Corrosive gas                              |                               |
|  | - Explosive gas                              |                               |
|  | - Poisonous gas                              |                               |
| <b>Factory test</b>                                    |  |                               |
|  | Vacuum-side leak test                        | Performance test at full load |
|  | Electric insulation resistance test          |                               |
|  | Dielectric breakdown test                    |                               |
|  | Function test of electric circuit            |                               |

## SCOPE OF ORDER 16LJ-F SIZE 11-82

| Item                                   | Standard   | Option   |
|--|--|--|
| Standard                               | CE marking   | No option  |
| <b>Chilled water</b>                   |  |  |
| Temperature                            | Inlet : 12°C<br>Outlet : 7°C   | Outlet : 5°C through 12°C<br>Temperature difference 3K through 10K |
| Flow rate                              | 0,605m <sup>3</sup> /h x RT  | Changes depending on chilled water temperature<br>Difference.      |
| Max. working pressure                  | 1,0 MPa  | Max. 2,0 MPa   |
| Hydraulic test pressure                | Max. working pressure x 1,5  | No option  |
| Fouling factor                         | 0,018m <sup>2</sup> °C/kW  | Max. 0,18m <sup>2</sup> °C/kW                                      |
| Material of tube                       | Copper tube  | Contact Carrier  |
| Water quality                          | Refer to JRA-GL02E-1994  | No option  |
| Structure of water header              | Removal type, Epoxy treated  | No option  |
| Manufacturing standard of water header | Carrier standard, DIN flange   | No option  |
| <b>Cooling water</b>                   |  |  |
| Temperature                            | Inlet : 29,4°C<br>Outlet : 36,3°C  | Inlet : 20°C through 40°C  |
| Flow rate                              | 1,0m <sup>3</sup> /h x RT  | Within water flow range of each model                              |
| Max. working pressure                  | 1,0 MPa  | Max. 2,0 MPa   |
| Hydraulic test pressure                | Max. working pressure x 1,5  | No option  |
| Fouling factor                         | 0,044m <sup>2</sup> °C/kW  | Max. 0,18m <sup>2</sup> °C/kW                                      |
| Material of tube                       | Absorber: Copper, Condenser: Stainless steel   | Contact Carrier  |
| Water quality                          | Refer to JRA-GL02E-1994  | No option  |
| Structure of water header              | Marine type, Epoxy treated   | No option  |
| Manufacturing standard of water header | Carrier standard, DIN flange   | No option  |
| <b>Hot water</b>                       |  |  |
| Temperature                            | Inlet : 90°C<br>Outlet : 80°C  | Inlet: Max. 110°C<br>Outlet : Min. 70°C                            |
| Flow rate                              | 0,122 l/s x RT   | Within water flow range of each model                              |
| Max. working pressure                  | 1,0 MPa  | Max. 2,0 MPa   |
| Hydraulic test pressure                | Max. working pressure x 1,5  | No option  |
| Fouling factor                         | 0,018m <sup>2</sup> °C/kW  | Max. 0,18m <sup>2</sup> °C/kW                                      |
| Material of tube                       | Stainless steel (SUS436L)  | Contact Carrier  |
| Water quality                          | Refer to JRA-GL02E-1994  | No option  |
| Structure of water header              | 16LJ-F11-63: Removal type, 71 - 82: Marine type  | Marine type for 16LJ-F11-63  |
| Manufacturing standard of water header | Carrier standard, DIN flange   | No option  |
| <b>Electricity</b>                     |  |  |
| Power supply                           | 400 V - 3 phase - 50Hz<br>(Voltage within ±10%, Frequency within ±5%)                                    | No option  |
| <b>Shipment</b>                        | 16LJ-F11- 53: One section, 61 - 82: Two section  | Two section shipment for 16LJ-F11 - 53                             |
| <b>Control</b>                         |  |  |
| Safety functions                       | Refrigerant temperature  | Cooling water flow switch  |
|  | Chilled water freeze protection  |  |
|  | Chilled water flow switch  |  |
|  | Cooling water temperature  |  |
|  | Generator temperature  |  |
|  | Chrystallization protection  |  |
| Capacity control                       | Motor protection   |  |
|  | Digital PID control by Chilled water temperature<br>Chilled water temperature remote control (4 - 20 mA) |  |

## SCOPE OF ORDER 16LJ-F SIZE 11-82

| Item   | Standard                                      | Option                        |
|--|---|-------------------------------|
| <b>Control panel</b>                                   |   |                               |
| Paint finish   | Munsell 5Y-7/1                                | No option                     |
| Indication lamps                                       | Operation: Green                              | No option                     |
|  | Stop: Orange                                  |                               |
|  | Alarm: Red                                    |                               |
| Display  | 8,4 inch color touch panel                    | No option                     |
| External terminals<br>(No-voltage normal open contact) | Operation indication                          | No option                     |
|  | Stop indication                               |                               |
|  | Alarm indication                              |                               |
|  | Answer back indication                        |                               |
|  | Cooling mode indication                       |                               |
|  | Purge alarm indication                        |                               |
| BMS  | Modbus  | BACnet                        |
| Structure  | Indoor type                                   | No option                     |
| <b>Electrical wiring</b>                               | 600V polyvinyl grade chloride insulated wires | No option                     |
| <b>Insulation condition</b>                            |   |                               |
| Place  | Be sure the followings are not present        | No option                     |
| Ambient temperature                                    | Corrosive gas                                 | No option                     |
| Ambient humidity                                       | Relative humidity: Max. 90% at 45°C           | No option                     |
| Atmosphere   | Be sure the followings are not present        | No option                     |
|  | - Corrosive gas                               |                               |
|  | - Explosive gas                               |                               |
|  | - Poisonous gas                               |                               |
| <b>Factory test</b>                                    |   |                               |
|  | Vacuum-side leak test                         | Performance test at full load |
|  | Electric insulation resistance test           |                               |
|  | Dielectric breakdown test                     |                               |
|  | Function test of electric circuit             |                               |



## SCOPE OF SUPPLY

### 1. Standards met

The units comply with the following standards:

- ARI560 - 2000
- 2006/42/EC (machine directive)
- 2014/35/EU (low-voltage directive)
- 2014/30/EU (electromagnetic compatibility directive)
- 2014/68/EU (pressure equipment directive)

### 2. Absorption chiller, comprising:

1. Lower shell
  - Evaporator and refrigerant dispersion tray
  - Absorber and absorbent dispersion tray
  - Eliminators
  - Bases.
2. Upper shell
  - Generator with eliminators
  - Condenser with eliminators
  - Rupture disk.
3. Heat exchangers with refrigerant drain heat reclaimers
4. Pumps
  - Absorbent pump No. 1 with isolating valves
  - Absorbent pump No. 2 with isolating valves (16LJ-F only)
  - Refrigerant pump with isolating valves (isolating valves only on 16LJ-F31 or above)
  - Purge pump.
5. Purge unit
  - Purge tank with ejector device
  - Diaphragm valves and piping with liquid trap
  - Pressure sensor
  - Palladium cell with heater
6. Control panel
  - Controller with data display
  - LEDs and operation buttons
  - Inverter for absorbent pump (option)
  - Circuit breaker
  - Transformer
  - Relays and terminal blocks
  - Purge pump operation switch
7. Locally mounted parts
  - Temperature sensors
  - Chilled-water flow switch
8. Interconnecting piping and wiring
  - Refrigerant and absorbent piping
  - Internal power and control wiring
9. Initial charge
  - Absorbent (lithium bromide)
  - Refrigerant (water)
  - Inhibitor (lithium molybdate).

### 10. Painting

- Main unit: Rust-preventive paint
- Control panel: Finish paint.

### 11. Accessories

- Operation manual
- Washer (for fixing foundation bolts)
- Gasket and sealant for rupture disk
- Purge pump oil

### 12. External panel (16LJ-01 to 03 only)

### 13. Thermal insulation (16LJ-01 to 03 only)

- Evaporator
- Generator
- Heat exchanger

### 3. Factory test

1. Check of external dimensions
2. Hydraulic pressure test of water headers  
Test pressure is 1.5 times of maximum working pressure
3. Vacuum-side leak test
4. Electric insulation resistance test
5. Dielectric breakdown test
6. Function test of electric circuit and safety devices

### 4. Scope of supply of the purchaser

1. Building and foundations
2. External chilled water, cooling water and hot water piping work including various safety valves, isolation valves, mating flanges, gasket, bolts and nuts, etc.
3. External wiring and piping for the chillers including necessary parts
4. Insulation for the chillers including necessary parts. (16LJ-F)
5. Finish painting of the chillers (if needed)
6. Cooling water entering temperature control device
7. Cooling water treatment device
8. Various temperature/pressure gauges for water lines.
9. Cooling tower(s), chilled-water pump(s), hot water pump(s) and cooling water pump(s)
10. Electric power supply (as specified)
11. Supply of chilled water, cooling water, hot water at rated conditions
12. Maintenance of the chiller
13. Necessary tools, labour and materials for installation and site test operation
14. Any other item not specifically mentioned in the scope of supply.

## PASS AND NOZZLES ARRANGEMENT

## 16LJ-F11-82

|    | Chilled water |     |        |     |        |     |        |     |        |     | Cooling water 6 pass |     |          |     |          |     |          |     |          |     |          |     |
|----|---------------|-----|--------|-----|--------|-----|--------|-----|--------|-----|----------------------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|
|    | 6 pass        |     | 5 pass |     | 4 pass |     | 3 pass |     | 2 pass |     | 4+3 pass             |     | 4+2 pass |     | 3+2 pass |     | 3+1 pass |     | 2+2 pass |     | 2+1 pass |     |
|    | In            | Out | In     | Out | In     | Out | In     | Out | In     | Out | In                   | Out | In       | Out | In       | Out | In       | Out | In       | Out | In       | Out |
| 11 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 12 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 13 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 14 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 21 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 22 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 23 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 24 | L             | L   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 31 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | R                    | L   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 32 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 41 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 42 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 51 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 52 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 53 | -             | -   | R      | L   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 61 | -             | -   | -      | -   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 62 | -             | -   | -      | -   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 63 | -             | -   | -      | -   | L      | L   | R      | L   | L      | L   | -                    | -   | L        | L   | L        | R   | R        | R   | L        | L   | R        | L   |
| 71 | -             | -   | -      | -   | -      | -   | L      | R   | R      | R   | -                    | -   | -        | -   | R        | L   | L        | L   | R        | R   | L        | R   |
| 72 | -             | -   | -      | -   | -      | -   | L      | R   | R      | R   | -                    | -   | -        | -   | R        | L   | L        | L   | R        | R   | L        | R   |
| 73 | -             | -   | -      | -   | -      | -   | L      | R   | R      | R   | -                    | -   | -        | -   | R        | L   | L        | L   | R        | R   | L        | R   |
| 81 | -             | -   | -      | -   | -      | -   | L      | R   | R      | R   | -                    | -   | -        | -   | R        | L   | L        | L   | R        | R   | L        | R   |
| 82 | -             | -   | -      | -   | -      | -   | L      | R   | R      | R   | -                    | -   | -        | -   | R        | L   | L        | L   | R        | R   | L        | R   |

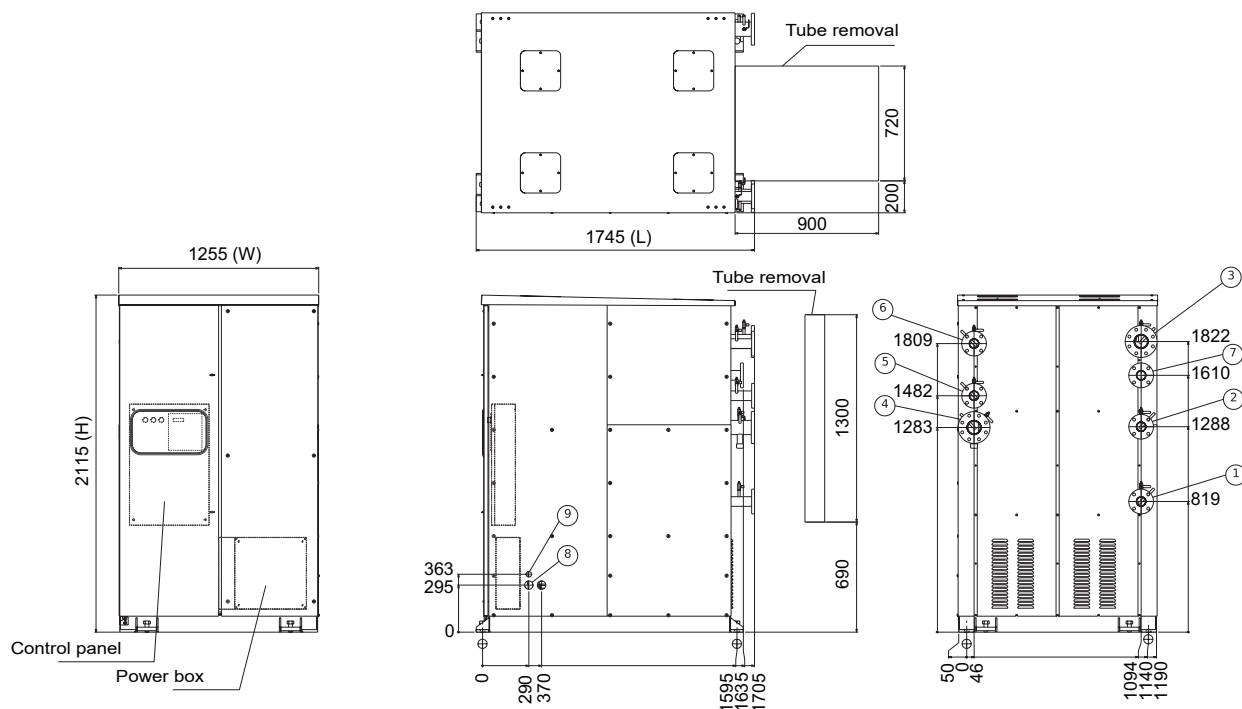
|    | Hot water |     |         |     |         |     |        |     |        |     |        |     |        |     |
|----|-----------|-----|---------|-----|---------|-----|--------|-----|--------|-----|--------|-----|--------|-----|
|    | 14 pass   |     | 12 pass |     | 10 pass |     | 8 pass |     | 6 pass |     | 4 pass |     | 2 pass |     |
|    | In        | Out | In      | Out | In      | Out | In     | Out | In     | Out | In     | Out | In     | Out |
| 11 | R         | R   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 12 | R         | R   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 13 | R         | R   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 14 | R         | R   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 21 | -         | -   | R       | R   | -       | -   | R      | R   | R      | R   | R      | R   | -      | -   |
| 22 | -         | -   | R       | R   | -       | -   | R      | R   | R      | R   | R      | R   | -      | -   |
| 23 | -         | -   | R       | R   | -       | -   | R      | R   | R      | R   | R      | R   | -      | -   |
| 24 | -         | -   | R       | R   | -       | -   | R      | R   | R      | R   | R      | R   | -      | -   |
| 31 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 32 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 41 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 42 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 51 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 52 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 53 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 61 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 62 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 63 | -         | -   | -       | -   | R       | R   | -      | -   | R      | R   | R      | R   | -      | -   |
| 71 | -         | -   | -       | -   | -       | -   | -      | -   | R      | R   | R      | R   | R      | R   |
| 72 | -         | -   | -       | -   | -       | -   | -      | -   | R      | R   | R      | R   | R      | R   |
| 73 | -         | -   | -       | -   | -       | -   | -      | -   | R      | R   | R      | R   | R      | R   |
| 81 | -         | -   | -       | -   | -       | -   | -      | -   | R      | R   | R      | R   | R      | R   |
| 82 | -         | -   | -       | -   | -       | -   | -      | -   | R      | R   | R      | R   | R      | R   |

## Legende

- L Nozzle location on **LEFT** end (when facing control panel)  
R Nozzle location on **RIGHT** end (when facing controlpanel)  
 Standard pass arrangement

## DIMENSIONS/CLEARANCES

### 16LJ-01



- ① Chilled water inlet
- ② Chilled water outlet
- ③ Cooling water inlet
- ④ Cooling water outlet
- ⑤ Hot water inlet
- ⑥ Hot water outlet
- ⑦ Rupture disk
- ⑧ Hole for power supply
- ⑨ Hole for signal wire

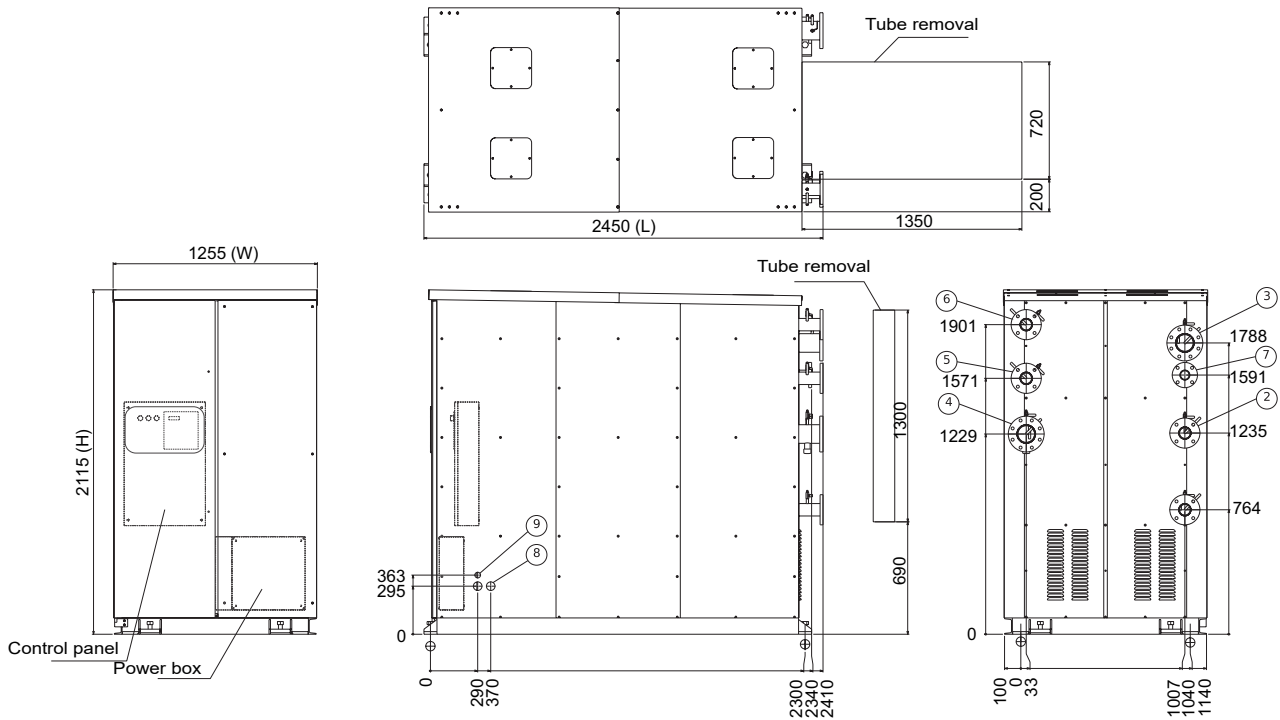
#### NOTES:

- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

## DIMENSIONS/CLEARANCES

### 16LJ-02



- ① Chilled water inlet
- ② Chilled water outlet
- ③ Cooling water inlet
- ④ Cooling water outlet
- ⑤ Hot water inlet
- ⑥ Hot water outlet
- ⑦ Rupture disk
- ⑧ Hole for power supply
- ⑨ Hole for signal wire

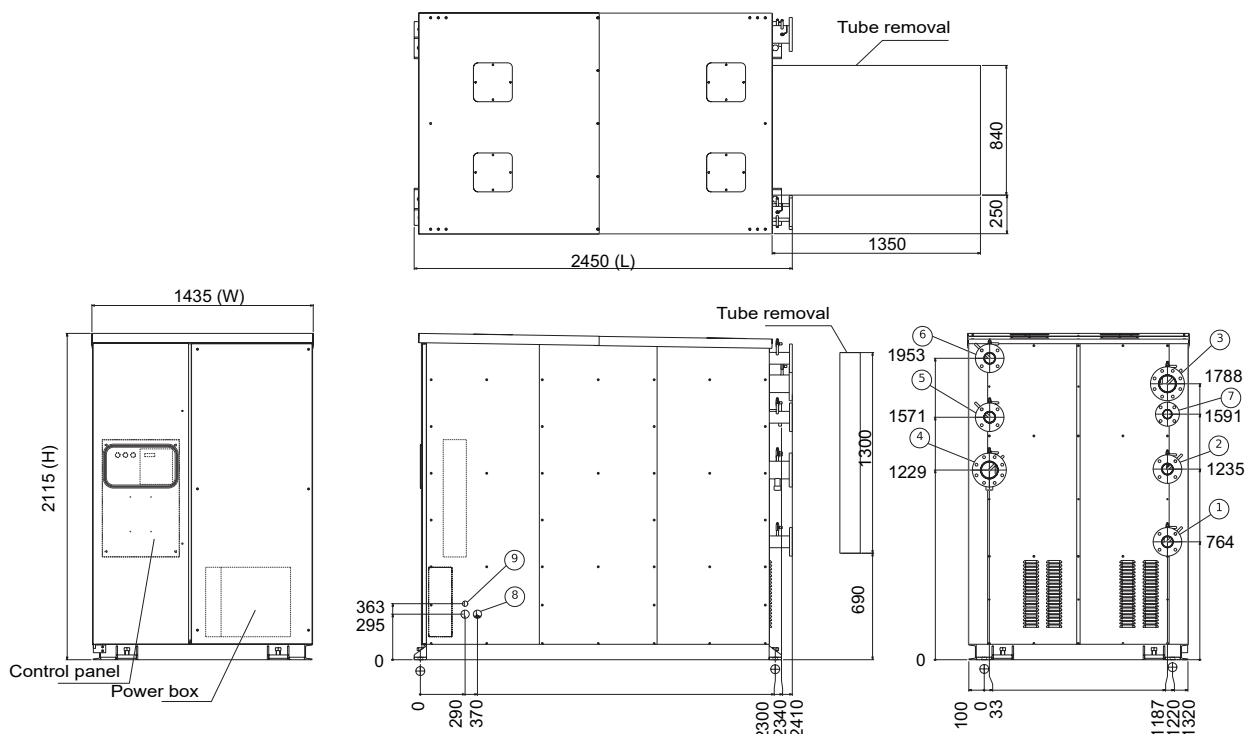
#### NOTES:

- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⚡ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
  - Longitudinal distance 1000 mm
  - Top 200 mm
  - Others 500 mm

NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-03



- ① Chilled water inlet
- ② Chilled water outlet
- ③ Cooling water inlet
- ④ Cooling water outlet
- ⑤ Hot water inlet
- ⑥ Hot water outlet
- ⑦ Rupture disk
- ⑧ Hole for power supply
- ⑨ Hole for signal wire

#### NOTES:

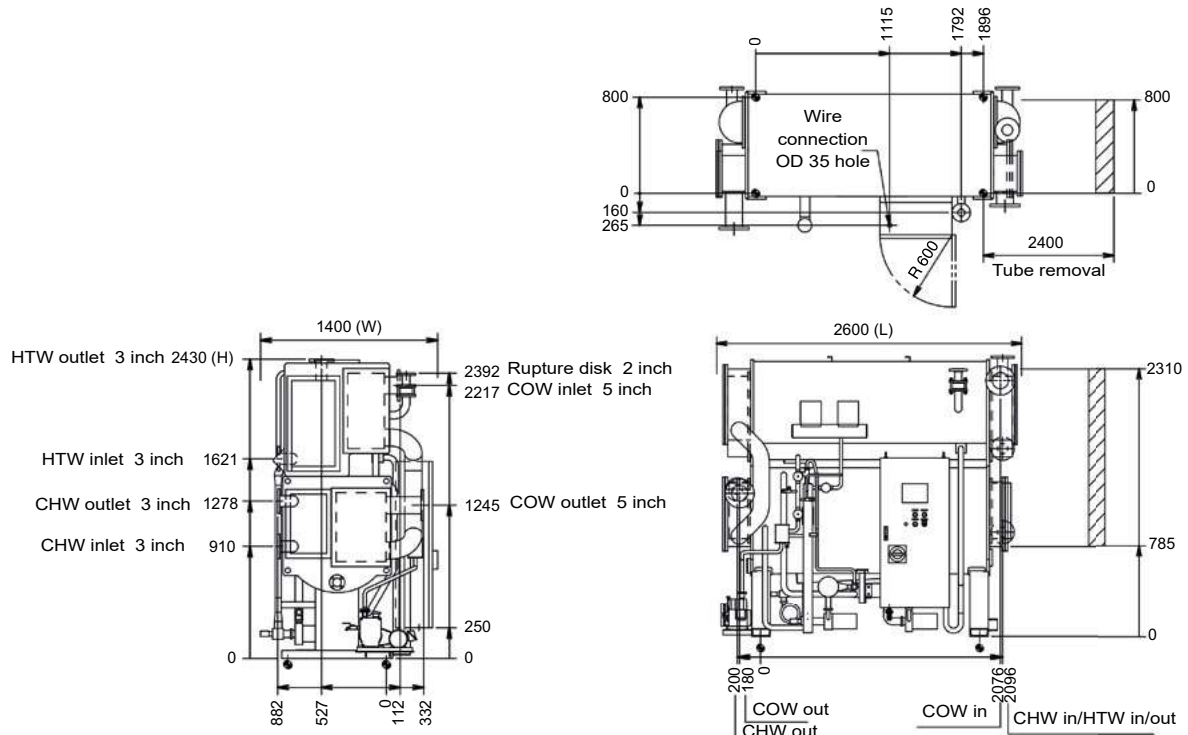
- (1) Dimensions (L), (W), (H), are for standard machine.  
The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⚡ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
  - Longitudinal distance 1000 mm
  - Top 200 mm
  - Others 500 mm

NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

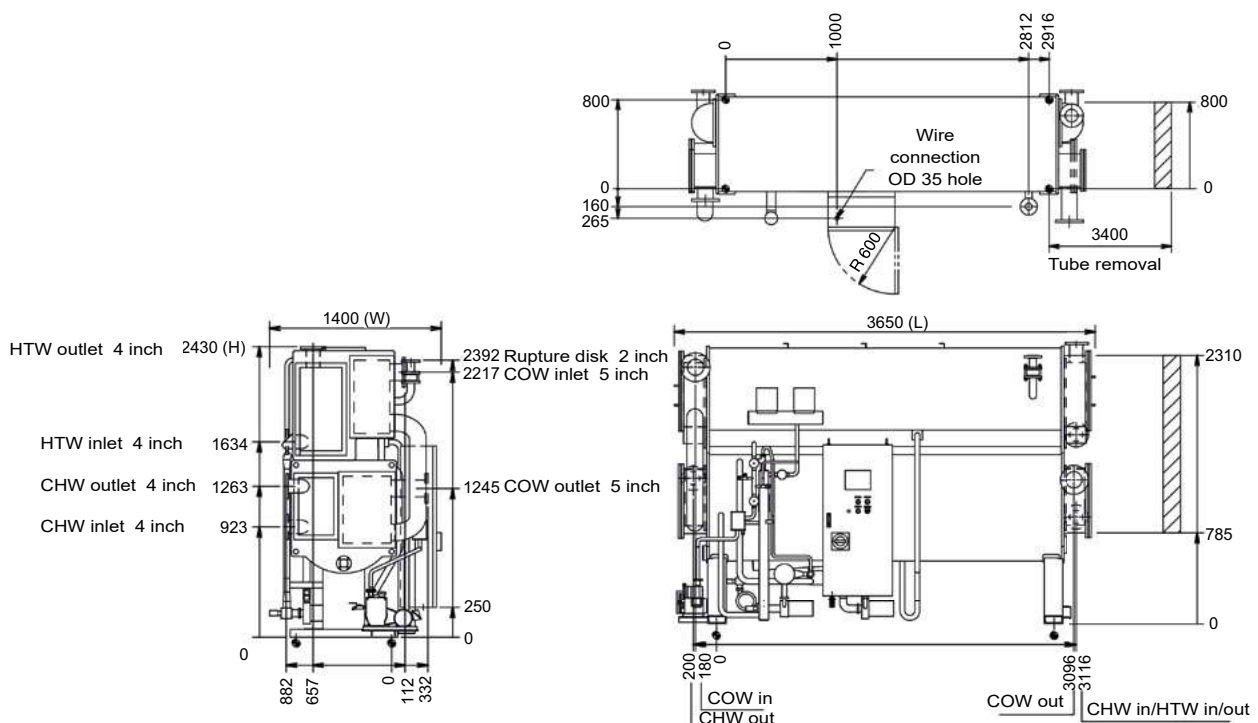


## DIMENSIONS/CLEARANCES

### 16LJ-F11 through 16LJ-F12



### 16LJ-F13 through 16LJ-F14



#### NOTES:

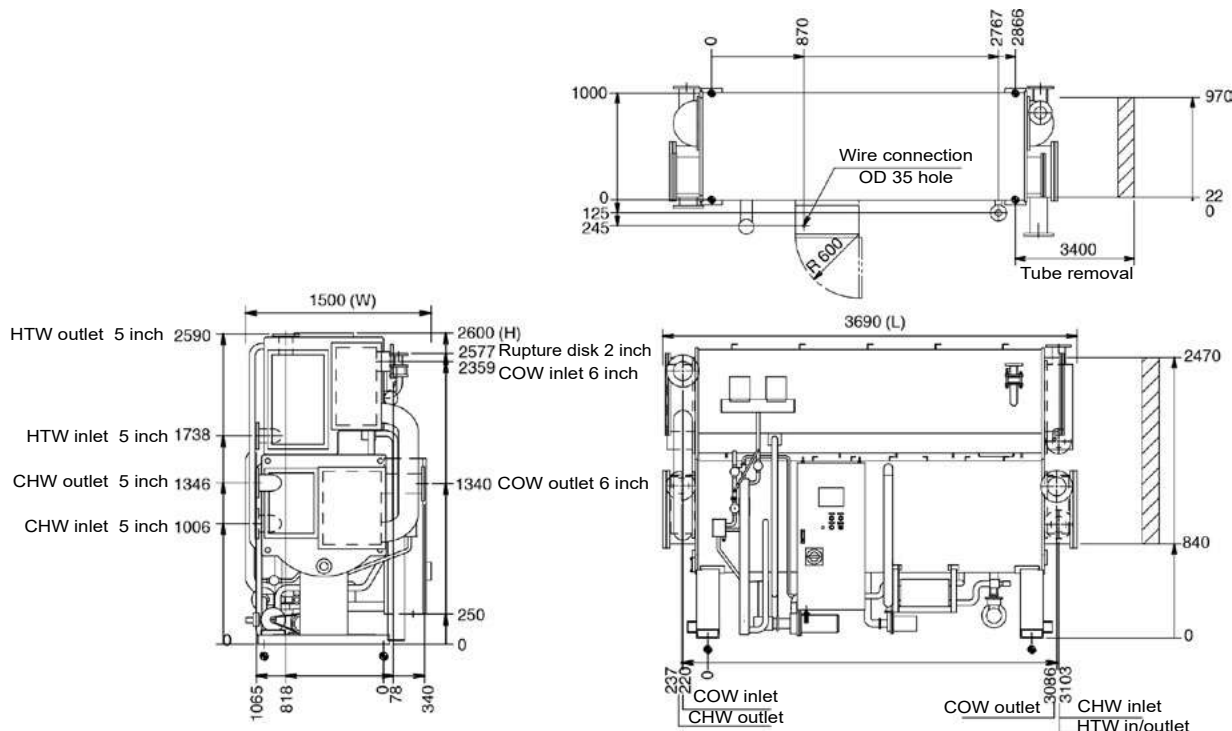
- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

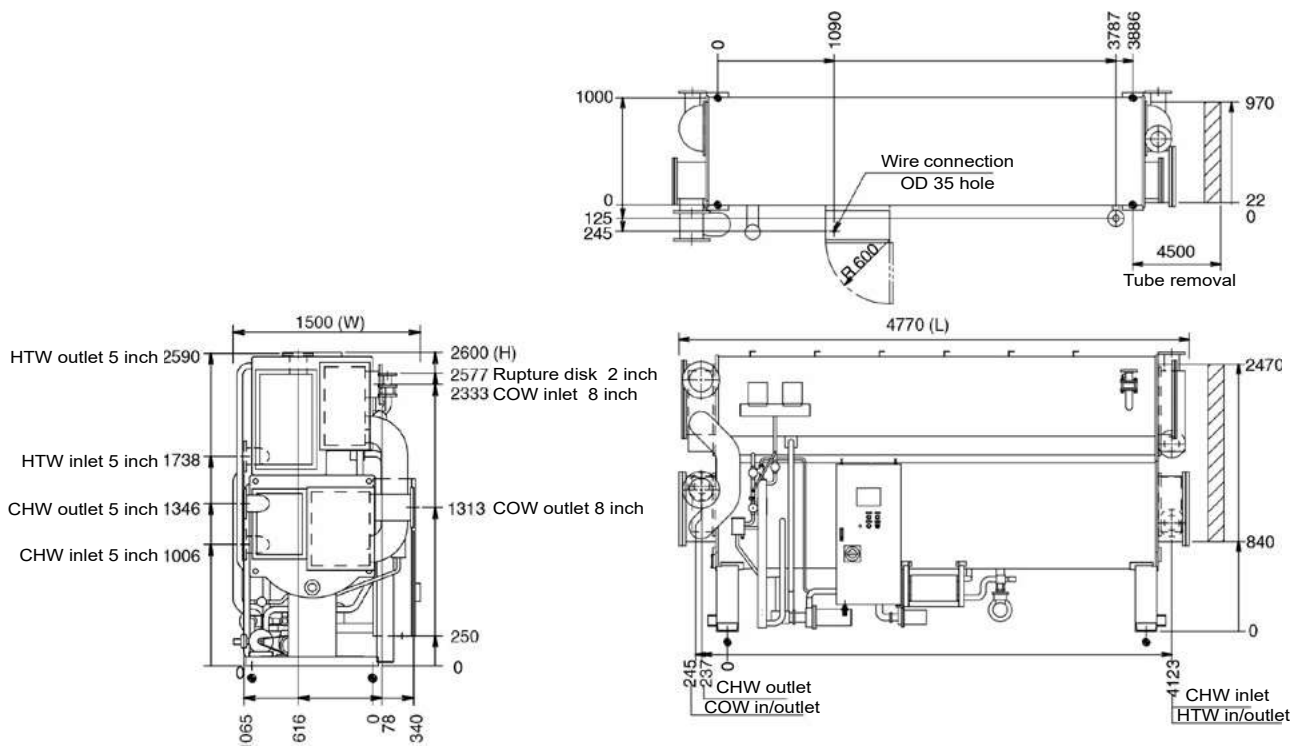
NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-F21 through 16LJ-F22



### 16LJ-F23 through 16LJ-F24



#### NOTES:

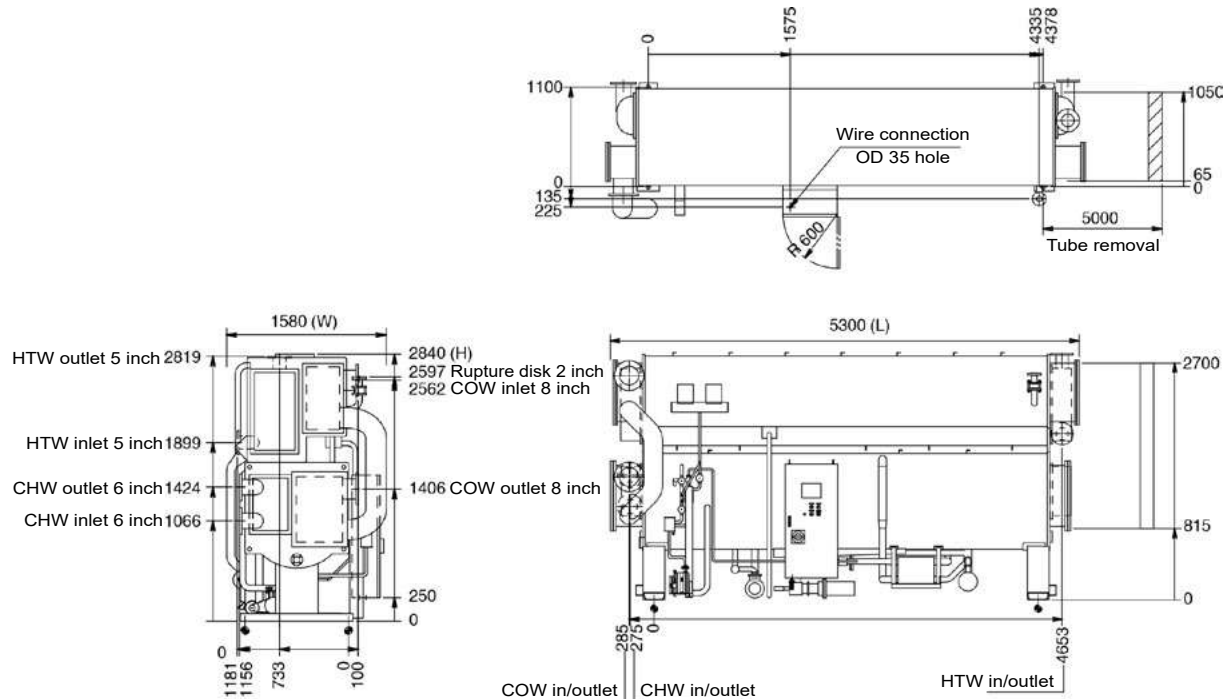
- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚙ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

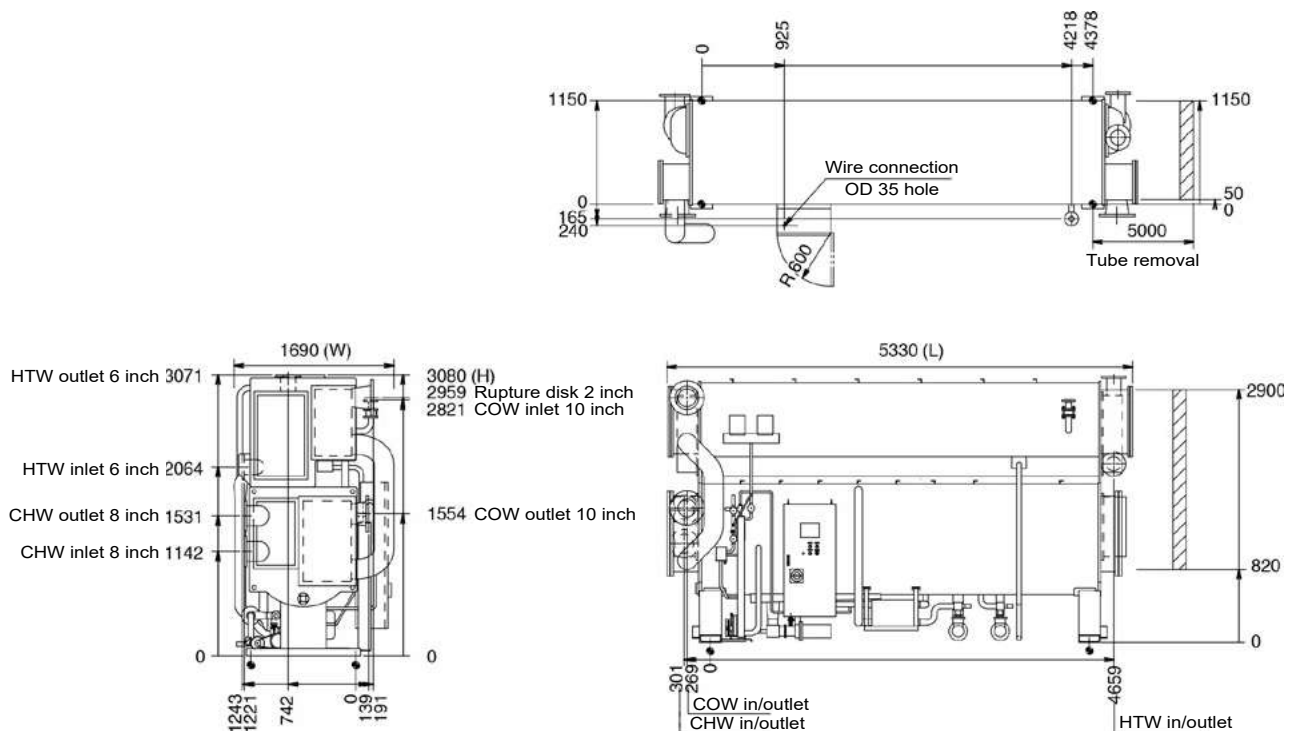
NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-F31 through 16LJ-F32



### 16LJ-F41 through 16LJ-F42



#### NOTES:

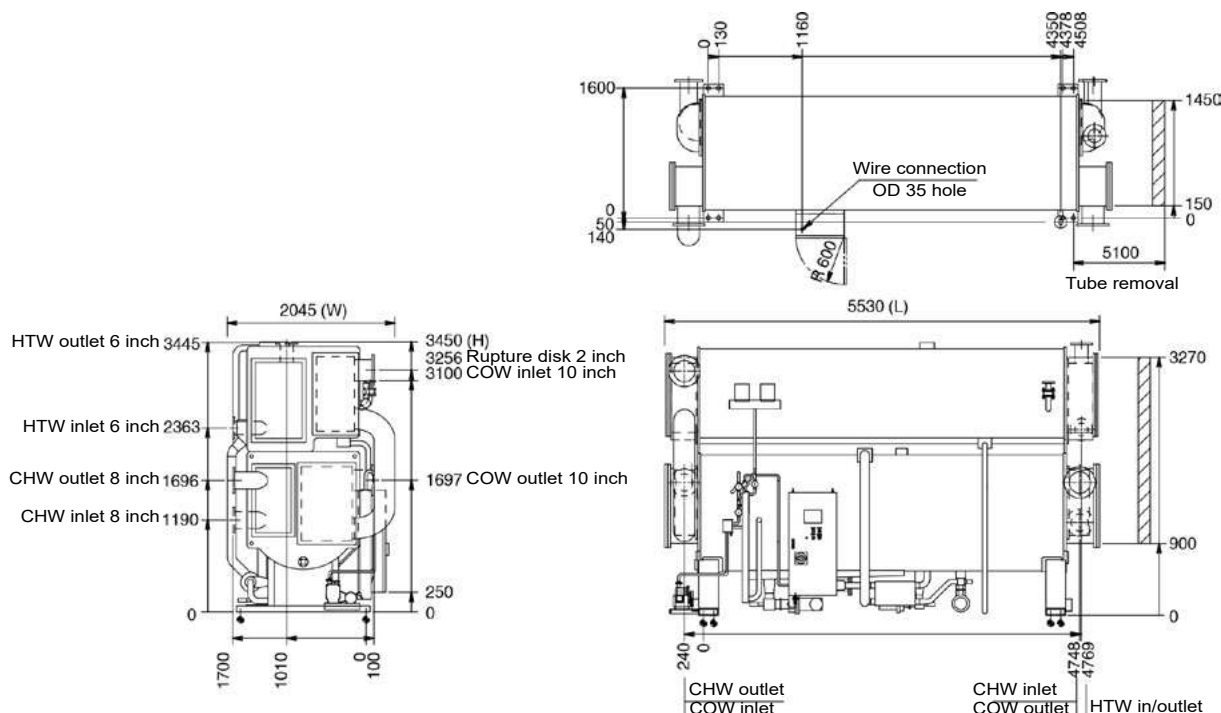
- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

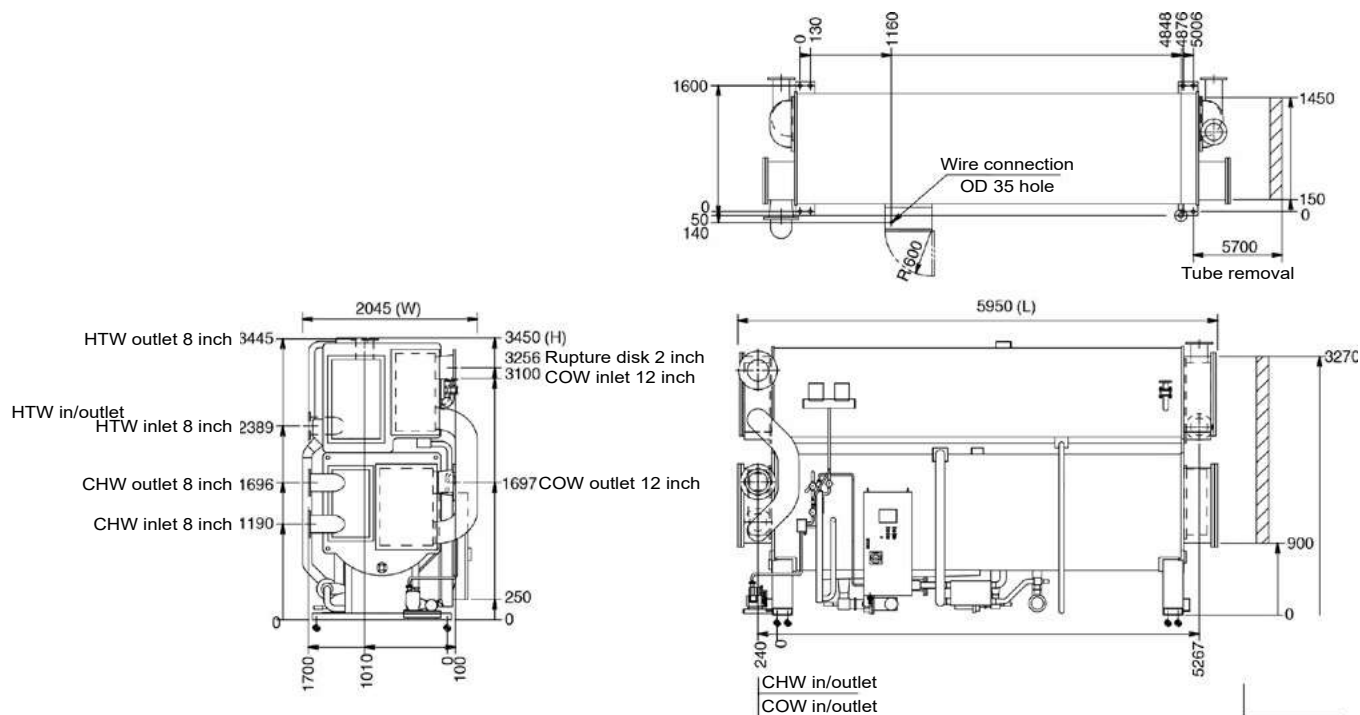
NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-F51



### 16LJ-F52



#### NOTES:

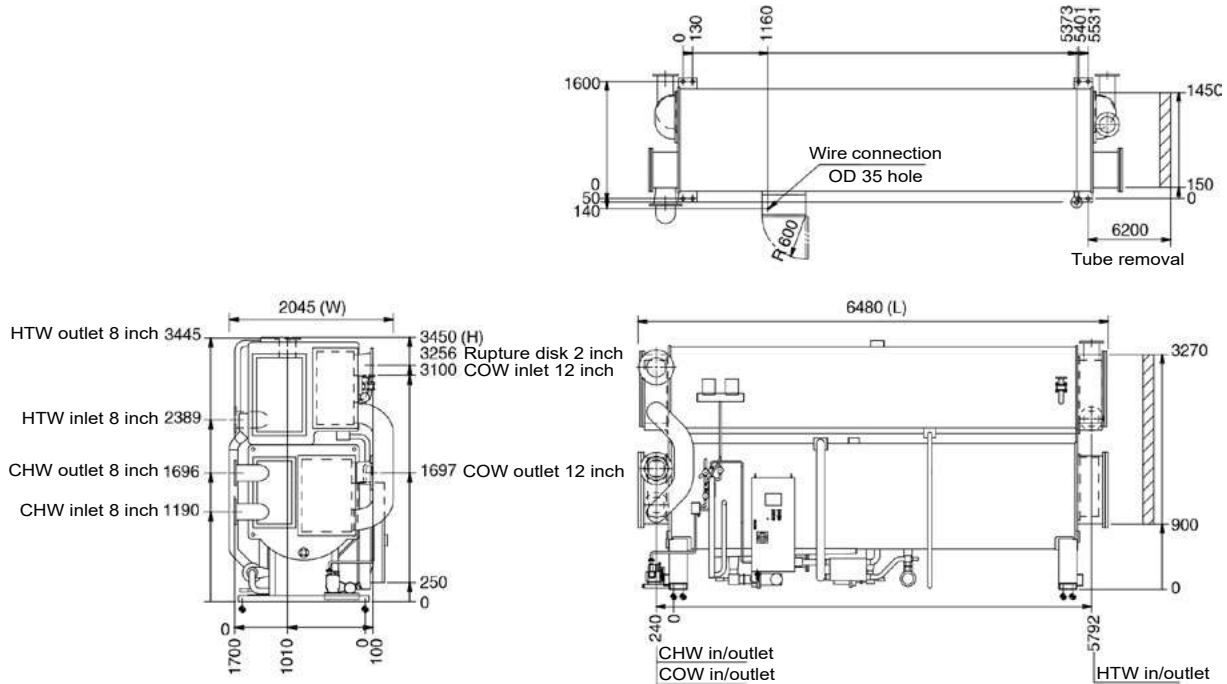
- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚙ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⚡ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

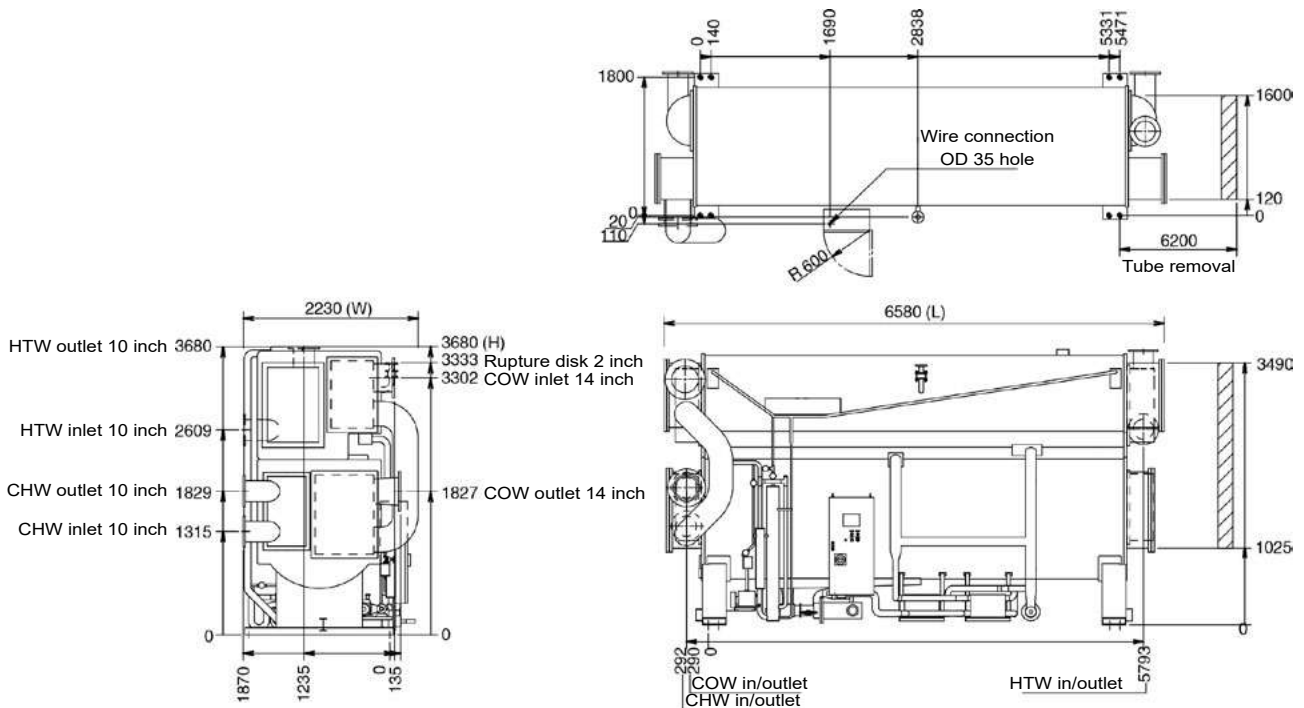
NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-F53



### 16LJ-F61



#### NOTES:

- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

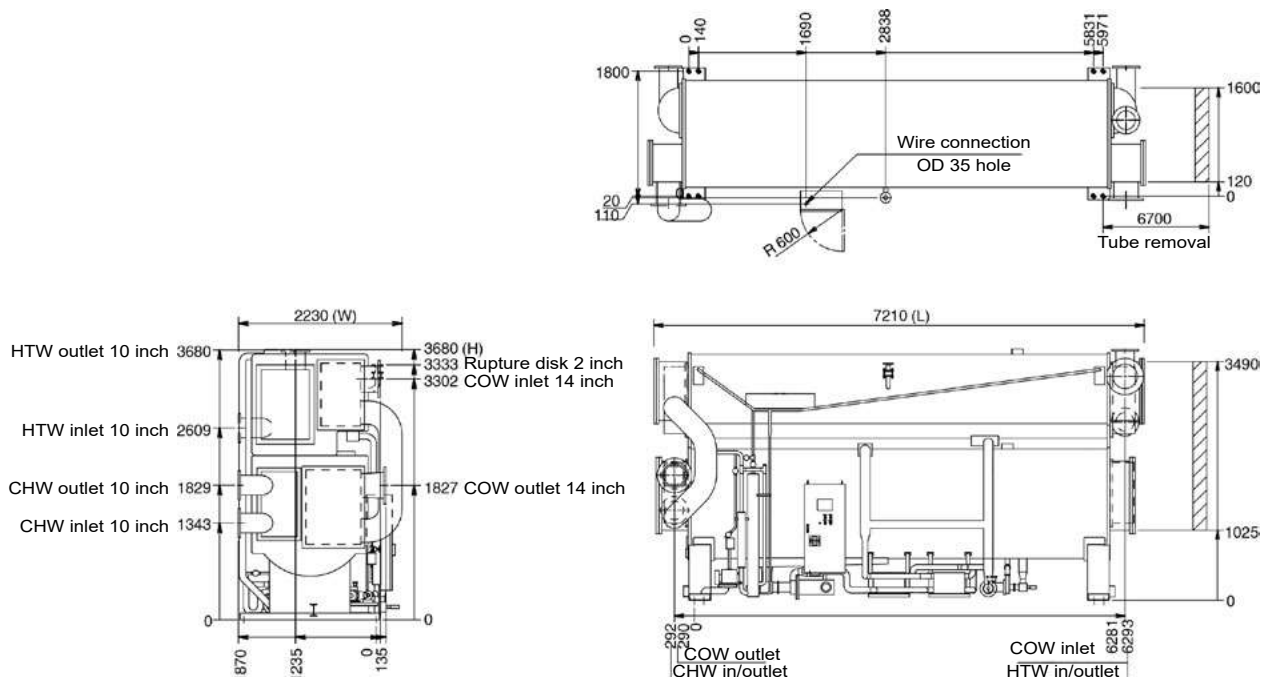
|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

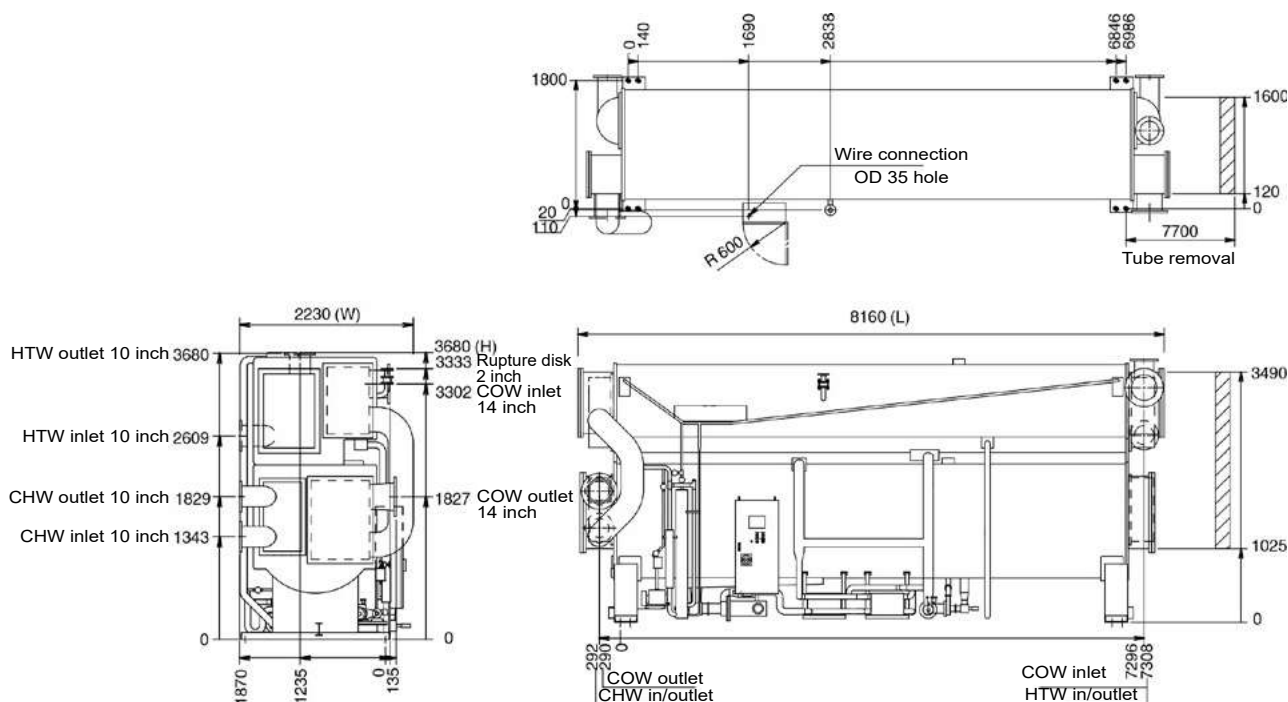


## DIMENSIONS/CLEARANCES

### 16LJ-F62



### 16LJ-F63



#### NOTES:

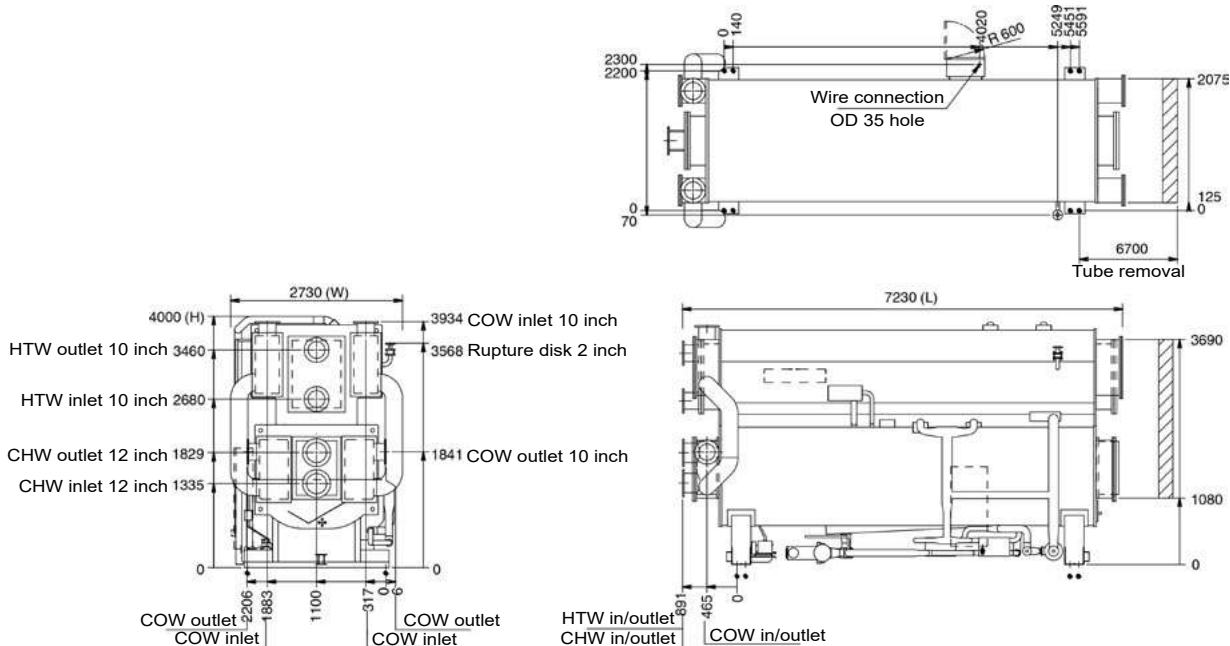
- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⬆ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

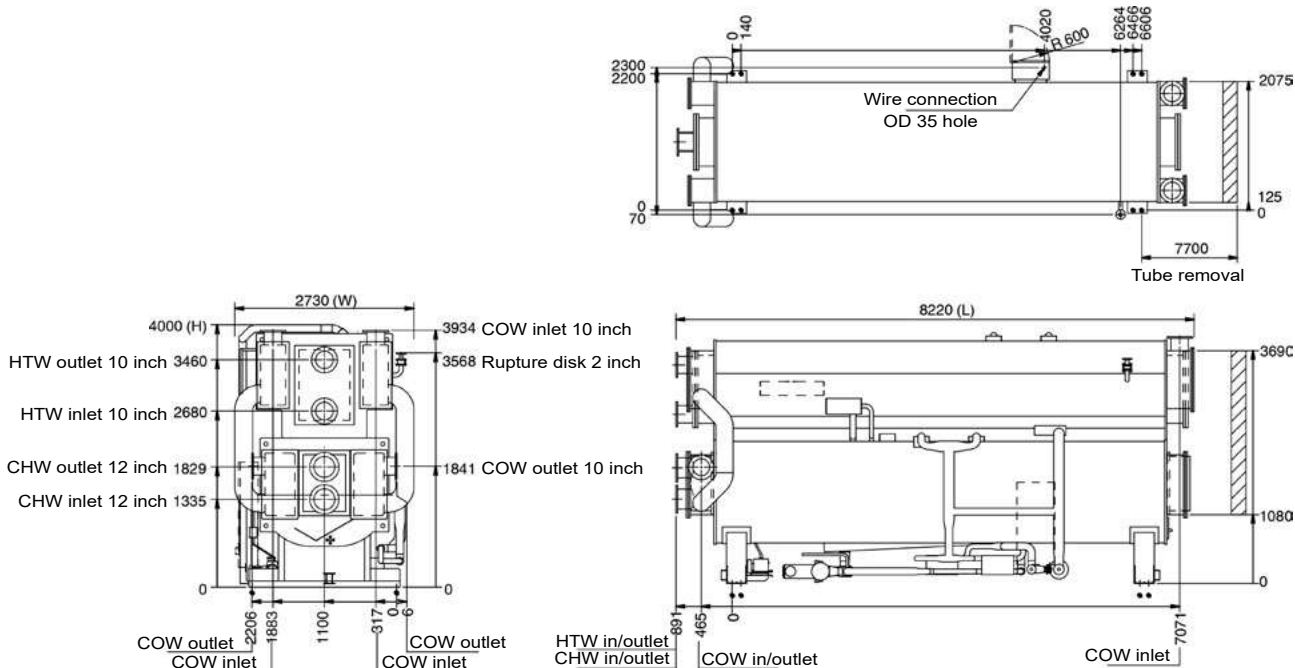
NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-F71



### 16LJ-F72/73



#### NOTES:

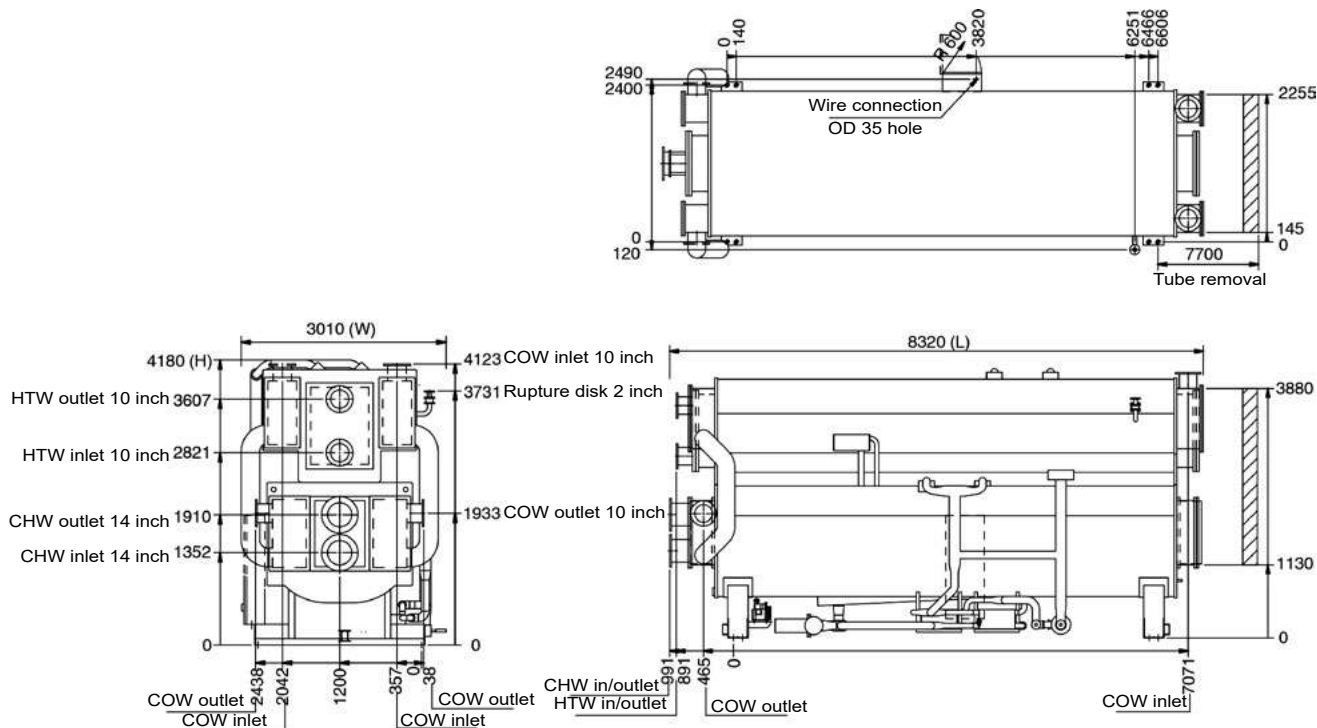
- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⚡ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## DIMENSIONS/CLEARANCES

### 16LJ-F81/82



#### NOTES:

- (1) Dimensions (L), (W), (H), are for standard machine. The dimensions are changed by parts added.
- (2) ⬤ indicates the position of anchor bolts.
- (3) Clearance space must be saved either side of the chiller.
- (4) Connecting flange of all external water piping are DIN 10 flange.
- (5) ⬆ indicates the position of the power supply connection on control panel. (Dia. 35 mm).
- (6) Installation clearance
 

|                         |         |
|-------------------------|---------|
| - Longitudinal distance | 1000 mm |
| - Top                   | 200 mm  |
| - Others                | 500 mm  |

NOTE: Dimensions are for guidance only. Always refer to the certified drawings supplied upon request when designing an installation.

## FOUNDATION DIMENSIONS

Figure 4 - 16LJ-01

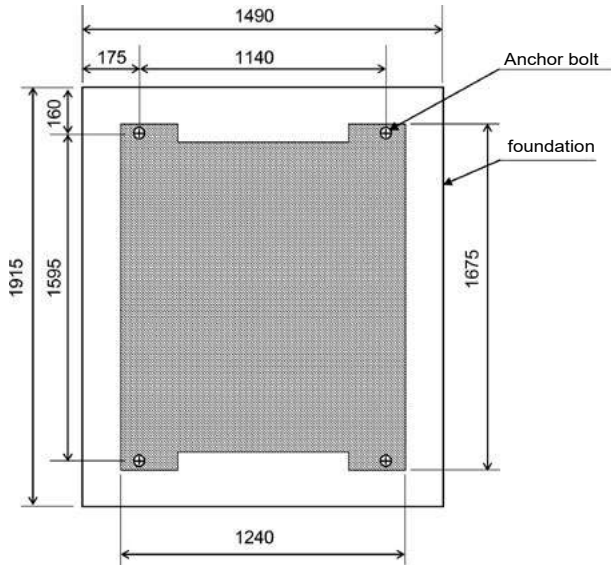


Figure 5 - 16LJ-02

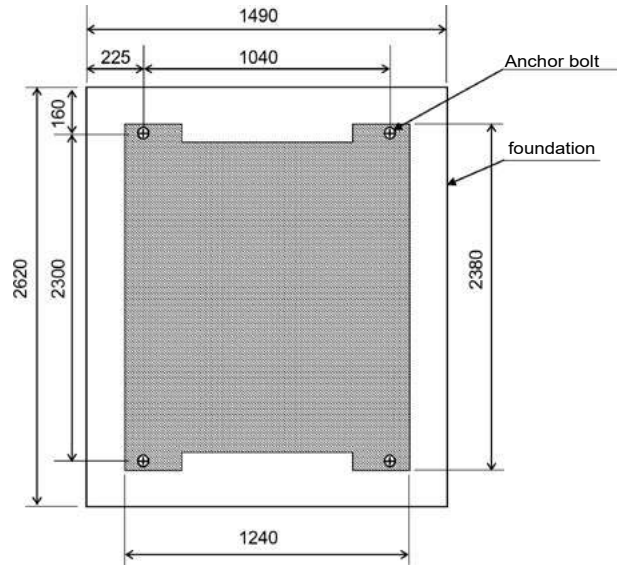
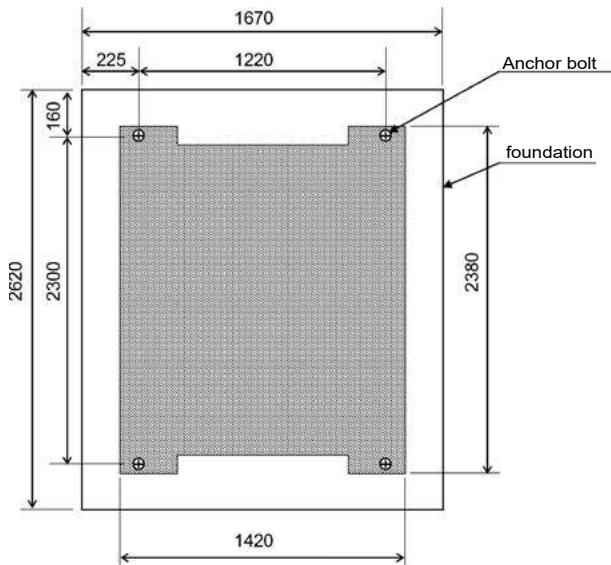
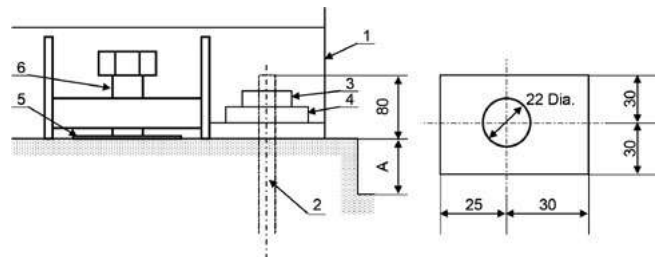


Figure 6 - 16LJ-03



Washer



**Legend :**

1. Base of the chiller
  2. Anchor bolt
  3. Nut
  4. Washer\*
  5. Plate
  6. Bolt for level adjustment\*
- \* Shipped with chiller

A = 200mm or more

Material : Steel  
Thickness : 9 mm

**NOTES**

1. indicates the machine base. The machine base has a 30 mm diameter hole for the anchor bolt.
2. The anchor bolt should be fixed as shown in the detail drawing.
3. There should be a drain channel around the foundation.
4. The floor surface should be made waterproof to facilitate maintenance work.
5. The surface of the foundation should be made flat (Leveling tolerance is 1 mm for 1000 mm)
6. Anchor bolts and nuts are to be supplied by the customer.

## FOUNDATION DIMENSIONS

Figure 7 - 16LJ-F11 to 16LJ-F42

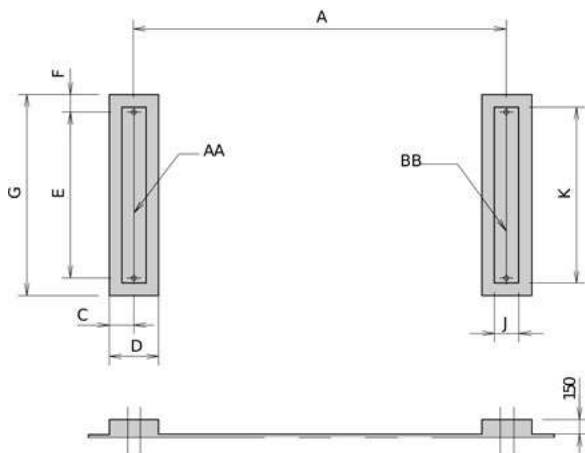


Figure 8 - 16LJ-F51 to 16LJ-F82

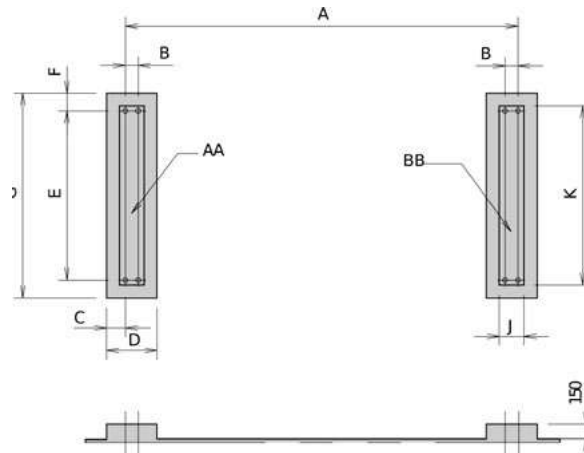
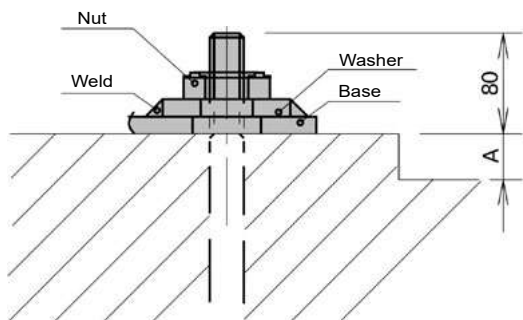


Figure 9 - Detail of base plate



A = 150 mm or more

### NOTES

1. ■ indicates the machine base. The machine base has a 30 mm diameter hole for the anchor bolt.
2. The anchor bolt should be fixed as shown in the detail drawing.
3. There should be a drain channel around the foundation.
4. The floor surface should be made waterproof to facilitate maintenance work.
5. The surface of the foundation should be made flat (Leveling tolerance is 1 mm for 1000 mm)
6. Anchor bolts and nuts are to be supplied by the customer.

### 16LJ-F Foundation dimensions

| Size | Weight (kg) |       |       | Dimensions (mm) |     |     |     |      |     |      |     |      |
|------|-------------|-------|-------|-----------------|-----|-----|-----|------|-----|------|-----|------|
|      | AA+BB       | AA    | BB    | A               | B   | C   | D   | E    | F   | G    | J   | K    |
| 11   | 4100        | 2050  | 2050  | 1896            | -   | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 12   | 4300        | 2150  | 2150  | 1896            | -   | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 13   | 5300        | 2650  | 2650  | 2916            | -   | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 14   | 5600        | 2800  | 2800  | 2916            | -   | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 21   | 6900        | 3450  | 3450  | 2866            | -   | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 22   | 7300        | 3650  | 3650  | 2866            | -   | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 23   | 8400        | 4200  | 4200  | 3886            | -   | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 24   | 8800        | 4400  | 4400  | 3886            | -   | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 31   | 11000       | 5500  | 5500  | 4378            | -   | 225 | 450 | 1100 | 150 | 1400 | 250 | 1200 |
| 32   | 11500       | 5750  | 5750  | 4378            | -   | 225 | 450 | 1100 | 150 | 1400 | 250 | 1200 |
| 41   | 13800       | 6900  | 6900  | 4378            | -   | 225 | 450 | 1150 | 150 | 1450 | 250 | 1250 |
| 42   | 14400       | 7200  | 7200  | 4378            | -   | 225 | 450 | 1150 | 150 | 1450 | 250 | 1250 |
| 51   | 20200       | 10100 | 10100 | 4508            | 130 | 190 | 510 | 1600 | 180 | 1960 | 250 | 1700 |
| 52   | 21600       | 10800 | 10800 | 5006            | 130 | 190 | 510 | 1600 | 180 | 1960 | 250 | 1700 |
| 53   | 22800       | 11400 | 11400 | 5531            | 130 | 190 | 510 | 1600 | 180 | 1960 | 250 | 1700 |
| 61   | 28300       | 14150 | 14150 | 5471            | 140 | 220 | 580 | 1800 | 180 | 2160 | 320 | 1900 |
| 62   | 30100       | 15050 | 15050 | 5971            | 140 | 220 | 580 | 1800 | 180 | 2160 | 320 | 1900 |
| 63   | 33500       | 16750 | 16750 | 6986            | 140 | 220 | 580 | 1800 | 180 | 2160 | 320 | 1900 |
| 71   | 39100       | 19550 | 19550 | 5591            | 140 | 220 | 580 | 2200 | 180 | 2560 | 320 | 2300 |
| 72   | 42400       | 21200 | 21200 | 6606            | 140 | 220 | 580 | 2200 | 180 | 2560 | 320 | 2300 |
| 73   | 43700       | 21850 | 21850 | 6606            | 140 | 220 | 580 | 2200 | 180 | 2560 | 320 | 2300 |
| 81   | 46300       | 23150 | 23150 | 6606            | 140 | 220 | 580 | 2400 | 180 | 2760 | 320 | 2500 |
| 82   | 49200       | 24600 | 24600 | 6606            | 140 | 220 | 580 | 2400 | 180 | 2760 | 320 | 2500 |



CONTROL PANEL DIMENSION (16LJ-01, 02, 03)

Figure 10 - Control panel

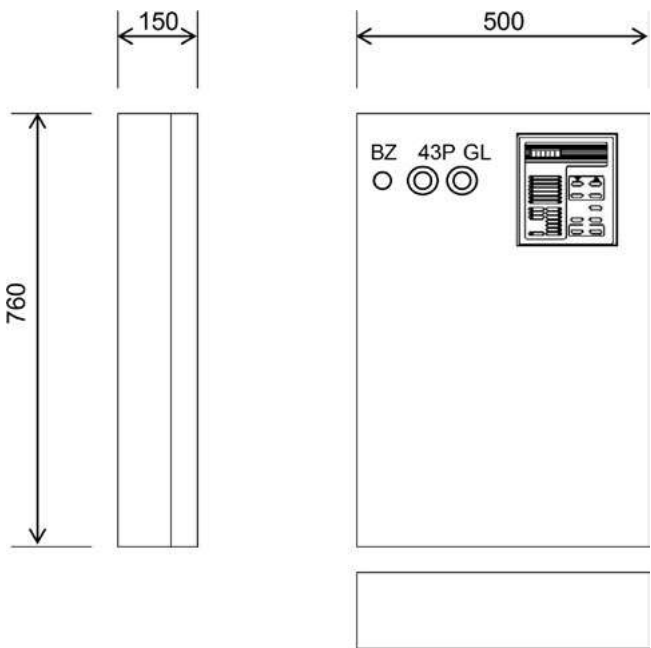
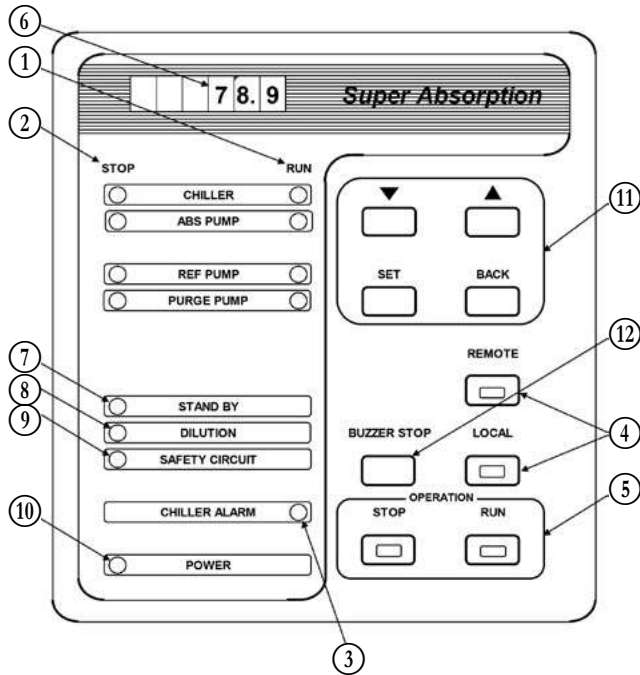


Figure 11 - Display panel

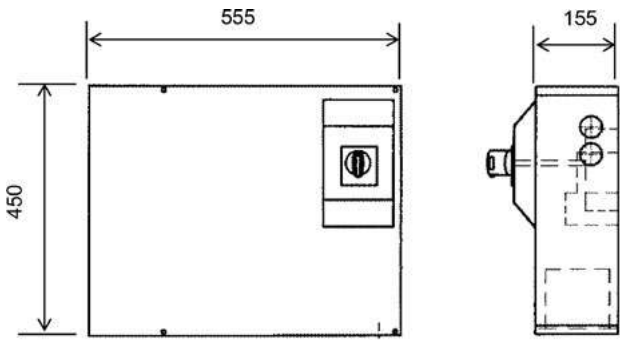


Thickness:      Body    2.0 mm  
                         Door    2.0 mm

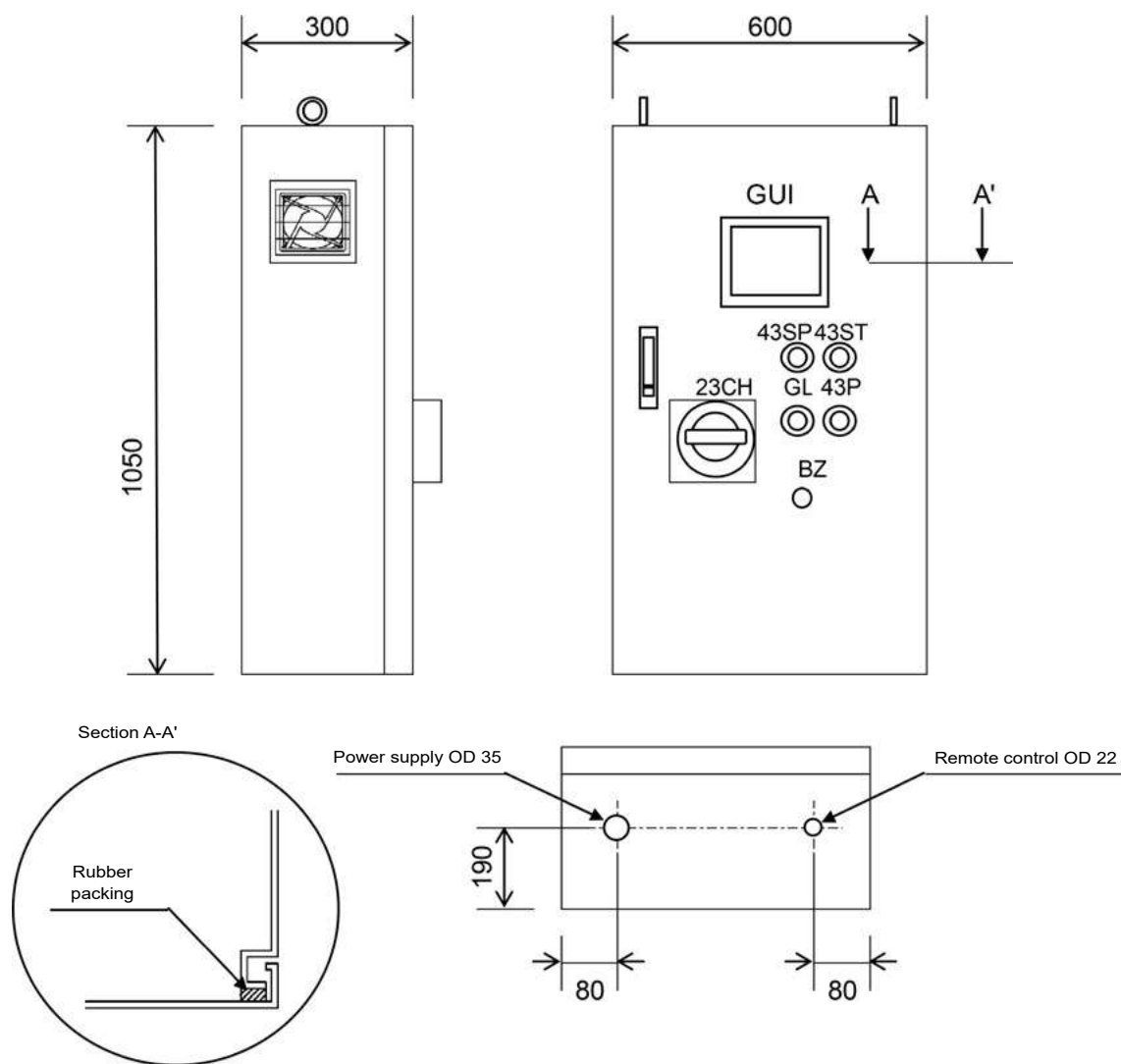
| Symbol | Name                  | Lamp color |
|--------|-----------------------|------------|
| BZ     | Alarm buzzer          |            |
| GL     | Purge indication lamp | Green      |
| 43P    | Purge on-off switch   |            |

| Number | Name                              | Lamp color |
|--------|-----------------------------------|------------|
| 1      | Operation indication lamp         | Green      |
| 2      | Stop indication lamp              | Orange     |
| 3      | Alarm indication lamp             | Red        |
| 4      | Remote/Local select key with lamp | Green      |
| 5      | Operation select key with lamp    | Green      |
| 6      | Data display (7 segments)         | LED        |
| 7      | Stand by indication lamp          | Green      |
| 8      | Dilution indication lamp          | Green      |
| 9      | Safety circuit indication lamp    | Green      |
| 10     | Power indication lamp             | Orange     |
| 11     | Data select key                   |            |
| 12     | Alarm buzzer stop key             |            |

Figure 12 - Power panel



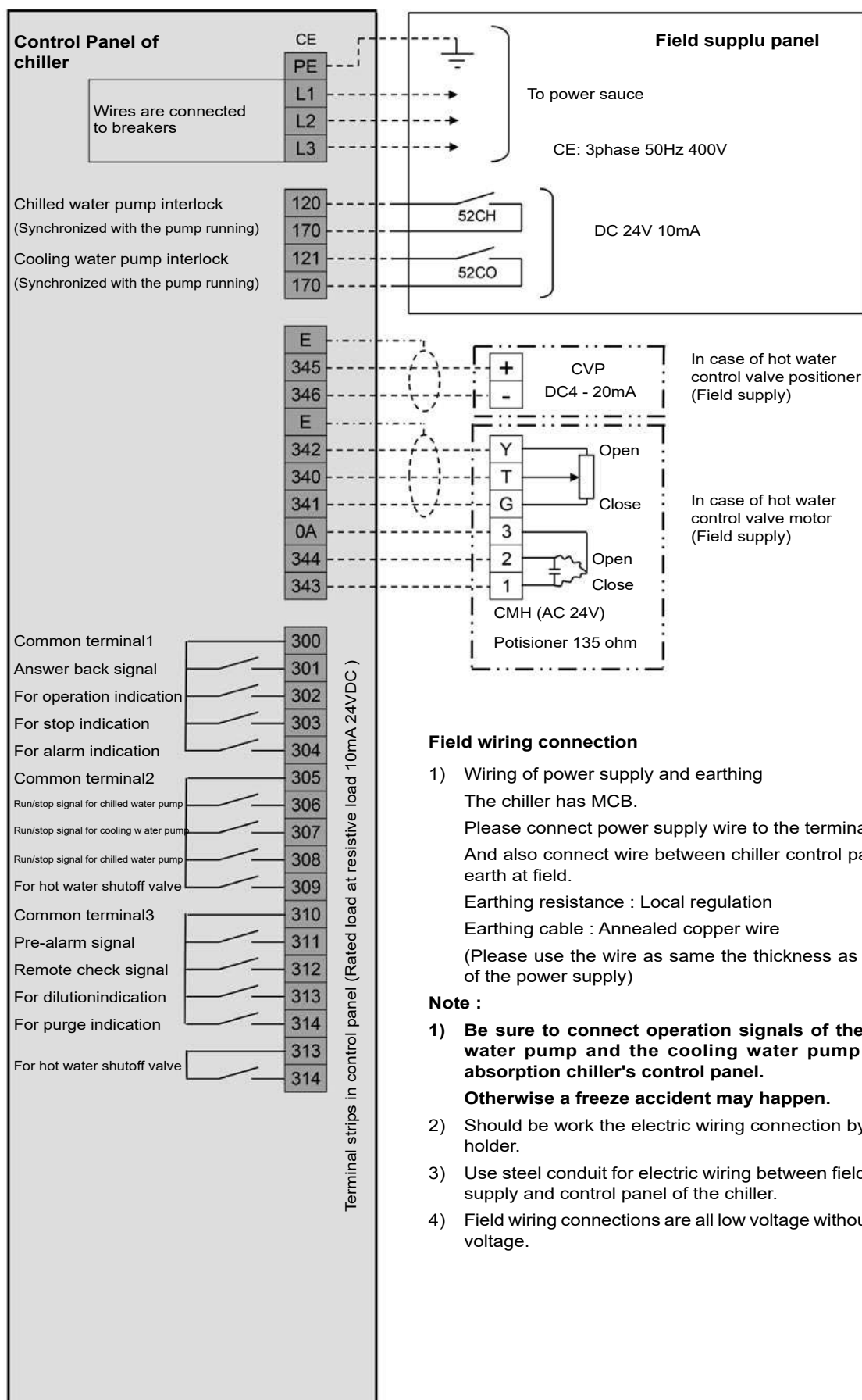
## CONTROL PANEL DIMENSION (16LJ-F)



|             |                   |        |
|-------------|-------------------|--------|
| Thickness:  | Body              | 2.0 mm |
|             | Door              | 2.0 mm |
|             | Mid plate         | 3.0 mm |
| Paint color | Munsell No. 5Y7/1 |        |

| Symbol | Name                              | Lamp color |
|--------|-----------------------------------|------------|
| GUI    | Alarm buzzer                      |            |
| 43SP   | Stop key and Stop indication lamp | Red        |
| 43ST   | Run key and Run indication lamp   | Green      |
| GL     | Local operation stand by lamp     | Green      |
| 43P    | Purge pump indication key         |            |
| BZ     | Alarm buzzer                      |            |

## FIELD WIRING (16LJ-F)



### Field wiring connection

#### 1) Wiring of power supply and earthing

The chiller has MCB.

Please connect power supply wire to the terminal block.

And also connect wire between chiller control panel and earth at field.

Earthing resistance : Local regulation

Earthing cable : Annealed copper wire

(Please use the wire as same the thickness as the wire of the power supply)

#### Note :

#### 1) Be sure to connect operation signals of the chilled water pump and the cooling water pump on the absorption chiller's control panel.

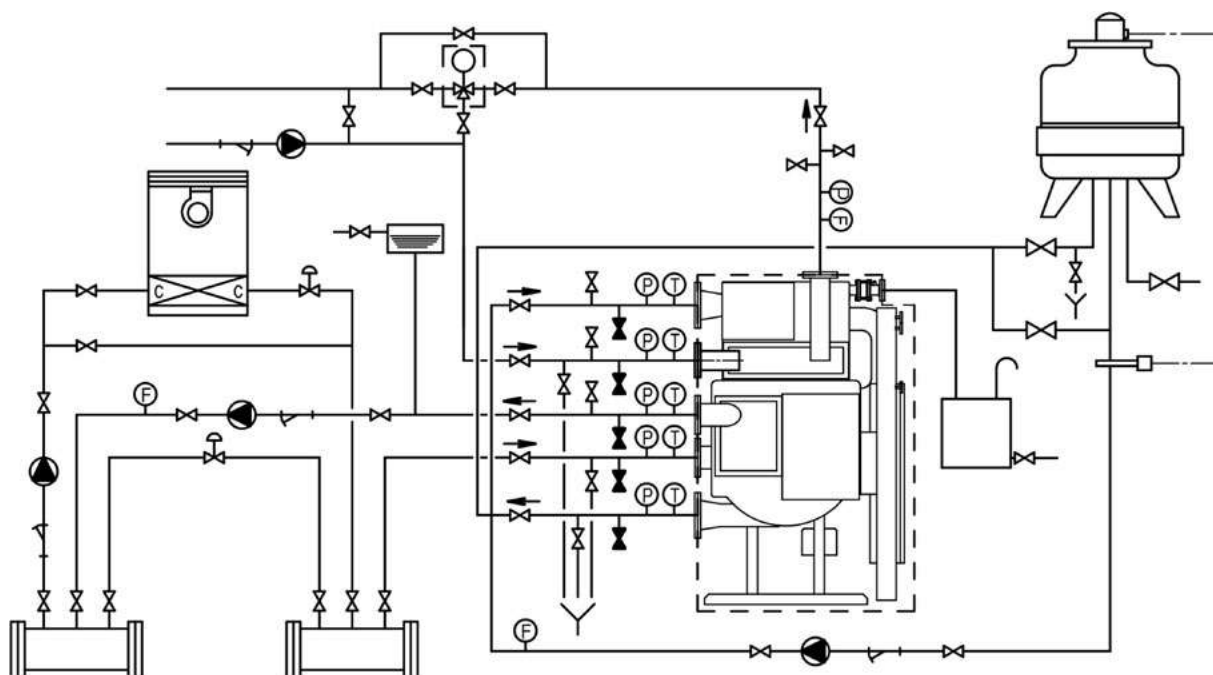
Otherwise a freeze accident may happen.

#### 2) Should be work the electric wiring connection by license holder.

#### 3) Use steel conduit for electric wiring between field electric supply and control panel of the chiller.

#### 4) Field wiring connections are all low voltage without supply voltage.

## TYPICAL PIPING DIAGRAM



### Legend

- |                                  |                      |                                   |
|----------------------------------|----------------------|-----------------------------------|
| ① Cooling load                   | ⑦ Expansion tank     | ⑬ Make up water supply            |
| ② Chilled water pump (primary)   | ⑧ Hot water supply   | ⑭ Minimum tank capacity 1 m3      |
| ③ Chilled water pump (secondary) | ⑨ Cooling tower      | ⑮ Hot water return                |
| ④ Bypass valve                   | ⑩ Cooling water pump | ⑯ Hot water control 3 way valve   |
| ⑤ Supply header                  | ⑪ Blow down valve    | ⑰ To drain channel                |
| ⑥ Return header                  | ⑫ Bypass valve       |                                   |
| (P) Thermometer                  | Water pump           | ▶ Connection for cleaning process |
| (T) Pressure gauge               | Strainer             | Thermostat                        |
| (F) Flow meter                   | Manual valve         |                                   |

- Equipment and parts outside the area surrounded by the broken line are not supplied by Carrier.
- For pipe connections and diameter refer to the dimensional drawings and specification tables.
- Ensure that chilled water flow rate, cooling water flow rate are in conformity with the standard value.  
If the chilled water flow rate sinks to under 50% of the standard value, the chiller will stop.  
Please secure the chilled water's retention volume at least 11 liter / kW.
- Position the chilled water pump, cooling water pump, hot pump and expansion tank correctly so that the chiller pressure does not exceed the set value.
- For cooling water temperature control refer to the drawing "Cooling water temperature control method".
- Separate chilled, cooling and hot water pumps should be provided for each chiller.
- Provide a cooling water blow-down valve in the cooling tower inlet for water quality control.
- Install a filter in the chilled water, cooling water and hot water pipes (10 mesh).
- Install stop valves on the chilled, cooling and hot water inlet and outlet.
- Provide a thermometer and pressure gauge at the chilled, cooling and hot water inlet and outlet.
- Provide an air vent valve in each of the chilled, cooling and hot water line at point higher than the header.
- Install drain valves at the lowest positions between absorption chiller and the stop valves of the chilled water, cooling water and hot water, and pipe them to the drain channel.
- Provide an expansion tank at highest position in the chilled water line.
- Install a cooling tower away from any exhaust gas outlet.
- Connect the pipe from rupture disk to tank.
- Install stop valves between the absorption chiller and stop valves of all inlets and outlets for chemical cleaning of the water circuit system.
- When two way valve is used, there is the case that hot water outlet temperature is different from the specifications.

## GUIDE SPECIFICATIONS

Single-Effect Hot Water Absorption Chillers

Size Range: 75 to 1125 Tons

Carrier Model Number: 16LJ-F

### Part 1 — General

#### 1.01 SYSTEM DESCRIPTION

Electronically controlled, single effect (one-stage) absorption liquid chiller utilizing hermetic refrigerant and absorbent pumps, lithium bromide solution as the absorbent, and water as the refrigerant. Low temperature hot water shall be supplied to the generator as the heat source.

#### 1.02 QUALITY ASSURANCE

- A. Chiller performance shall be rated in accordance with ARI Standard 560-2000.
- B. Chiller shall be designed and constructed to meet applicable CE requirements and shall bear the CE marking.
- C. Each chiller shall undergo a series of standard factory tests to ensure that the unit is leak tight, that all electrical components operate as intended, and that every aspect of unit fabrication meets stringent quality standards in accordance with good practice and the manufacturer's quality assurance requirements.
  1. The shellside of each chiller shall be leak tested by pressurizing to 48 kPaG with nitrogen and then checked by spraying a soap and water mixture on all welds, tube joints and/or gasketed joints to identify any major leaks. Afterward, a mass spectrometer test shall be performed by evacuating the unit to 1 Pa absolute, cover-ing the machine with a vinyl tent and introducing helium gas under the tent. Any remaining leaks will allow the helium to be drawn into the shellside of the machine. The acceptable total leak rate as measured by the mass spectrometer test shall not exceed  $2.0 \times 10^{-7}$  Pa m<sup>3</sup> / sec .
  2. The tubeside of the evaporator, absorber, con-denser and generator shall be hydrostatically tested at 1.5 times rated design pressure and held for 1 hour.
  3. All machine wiring shall undergo an insulation resistance test. The machine control panel and all electrical components shall also be function-ally tested to verify continuity and proper electrical operation.
  4. Final assembly inspection shall consist of verifying that all valves, controls, instrumentation, pumps, purge components and all other machine components have been properly installed on the machine.
  5. Each unit shall be checked for overall appearance and dimensional accuracy.
  6. Final inspection shall be performed on each unit to check that the nameplate data is correct and that all accessories are furnished as required.

#### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be stored and handled in accordance with the manufacturer's recommendations.
- B. Unit shall be factory-charged with lithium bromide solution if the machine is configured to ship in one piece. For shipments of multiple pieces, charging of lithium bromide solution shall be performed at the jobsite in accordance with the manufacturer's writ-ten instructions.
- C. All units shall be shipped with 20 kPaG nitrogen pressure.
- D. Chiller shall be shipped with nameplates indicating name of manufacturer, model size, serial number and all other pertinent machine data.

### Part 2 — Products

#### 2.01 EQUIPMENT

##### A. General:

Absorption liquid chiller shall include evaporator, absorber, condenser, generator, solution heat exchanger, refrigerant/ absorbent pumps, purge system, piping, wiring, controls and auxiliaries. Standard shipment of the machine shall be in one piece. Initial charge of lithium bromide shall be shipped inside the machine for all single-piece shipments. For multiple-piece shipments, initial charge of lithium bromide shall be shipped separately for charging at the jobsite. Generator shall be designed for operation on low temperature hot water as specified on the equipment schedule. A rupture disk shall be provided as standard on all machines.

##### B. Operating Characteristics:

1. Chiller operation shall be characteristic of a single - effect absorption cycle. The weak solution pumped from the absorber to the generator shall initially pass through a solution heat exchanger to improve operating efficiency by preheating the weak solution on the tube side with the strong solution returning from the generator on the shellside.
2. Unit shall be capable of continuous operation from 100 to 10% capacity, with entering condenser water temperatures as low as 18oC without the need for a cooling tower bypass valve. Thermostat on/off control of the cooling tower fan is recommended when cooling water temperature falls below 18oC.

##### C. Heat Exchangers:

1. All heat exchangers shall be of shell and tube construction with shells, tube sheets, tube support sheets and waterboxes fabricated of carbon steel. All heat exchangers shall incorporate straight tubes. Tube material for the generator and condenser shall be stainless steel. For the evaporator and absorber, tube material shall be copper. The evaporator, absorber, condenser and generator tubes shall be rolled into grooved tubesheets and expanded into tube support sheets, and shall be individually replaceable.
2. The evaporator, absorber and condenser water-boxes shall be designed for 1034 kPaG working pressure. The absorber and condenser water-boxes shall be hinged to permit access to all tubes from either end. Nozzle-in-head (NIH) type waterboxes shall be supplied on the evaporator while the absorber-condenser water-boxes shall be marine type. Waterboxes shall be provided with vent and drain connections. Epoxy painting of the waterboxes and tube sheets shall be provided for corrosion protection. DIN PN10 flanges shall be furnished on all waterbox nozzle connections.



## GUIDE SPECIFICATIONS

3. The generator tube side shall be designed for 1034 kPaG working pressure for use with low temperature hot water.
4. A solution heat exchanger shall be an integral part of the machine to increase cycle efficiency by preheating the weak solution on its way to the generator while pre-cooling the strong solution returning from the generator.
5. Dispersion trays shall evenly distribute refrigerant over the evaporator tubes and lithium bromide over the absorber tubes. These trays shall be fabricated of stainless steel to ensure continuous, corrosion-free, high-efficiency operation.
6. Generator structure shall be falling file type.

**D. Pump/Motors:**

Refrigerant and absorbent pump/motor assemblies shall be of the self contained, leakproof, hermetic type, without an external seal water system to minimize air leakage into the machine. Lubrication and cooling shall be accomplished by the fluid being pumped; auxiliary water piping for cooling and lubrication shall not be acceptable. Each pump casing shall be welded into the piping at the factory and shall be furnished with isolation valves on the suction and discharge side. Each pump shall include spring-loaded, wear-compensating tapered carbon bearings to ensure long life and reliability. Pump/motor assemblies shall be designed for 25,000 hours of normal operation between inspections.

**E. Purge System:**

An automatic purge system shall be furnished to provide a continuous purging action whenever the chiller is in operation to assure long machine life and efficient performance. Noncondensables shall be removed from the absorber by a liquid eductor, which shall use flow from the absorbent pump to create a suction. Noncondensables shall be stored external to the unit and shall be prevented from diffusing back into the machine when the unit is not operating. A palladium cell shall be provided to automatically vent hydrogen gas from the purge chamber to the atmosphere. It shall be continuously energized, even during machine shutdown. Further evacuation of the external storage chamber shall be accomplished with a factory-mounted purge pump, piped and wired to the machine. The need to operate the purge pump shall be indicated on the front of the control panel.

**F. Controls, Safeties and Diagnostics:**

1. Controls:
  - a. The chiller shall be provided with a factory-installed and factory-wired microprocessor control system with modular component construction. The controls shall be of the PID type and shall continuously monitor the operation of the chiller and perform self-diagnostic checks to ensure that all control limits are satisfied and maintained. The system shall include a control center, power supply, temperature sensors, pressure sensors and all necessary auxiliary devices required for safe and proper chiller operation housed in a NEMA-1 enclosure with a hinged, lockable door. Control power shall be AC24V, Single-phase, 50Hz.  
  
The chiller control system shall have the ability to interface and communicate with a building management system through Modbus protocol as standard, BACnet as option.  
  
The control system shall include Touch Screen GUI (Graphical User Interface), PLC, functional keys, emergency stop button (connected to a circuit breaker) and indication lamps and an alarm buzzer. Touch screen GUI shall be configurable to display either English or metric units.

- b. The control panel touch screen shall allow an operator to easily set and display the operating mode and configurable settings of the machine. The display shall indicate chiller run status, alarm status, remote/local operation, standby mode and dilution cycle operation. Data input and machine settings shall be done via a touch screen and shall allow scrolling through the individual chiller parameter settings.
- c. Monitoring the operation of the chiller shall be done on a continuous basis. The touch screen GUI shall indicate all pertinent system operating parameters and alarms, as necessary, including the following:
  - 1) Chiller operating hours.
  - 2) Chilled water inlet temperature.
  - 3) Chilled water outlet temperature.
  - 4) Chilled water temperature set point.
  - 5) Cooling water inlet temperature.
  - 6) Condenser temperature.
  - 7) Generator temperature.
  - 8) Hot water inlet temperature.
  - 9) Hot water outlet temperature.
  - 10) Absorbent pump No. 1 start counter and operating hours.
  - 11) Absorbent pump No.2 start counter and operating hours.
  - 12) Refrigerant pump start counter and operating hours.
  - 13) Purge pump start counter and operating hours.
  - 14) Chiller start counter.
  - 15) Purge tank pressure.
- d. Capacity control shall be by means of electronically modulating the hot water control valve to maintain the temperature of the chilled water. Load modulation shall be from 100% to 10% of machine full load under normal ARI conditions. The hot water control valve shall be positioned by a PID control algorithm to ensure precise control of desired chilled water temperature without hunting or overshooting the set point.
- e. The microprocessor control system shall include a programmed sequence to ensure machine readiness prior to machine start-up. The microprocessor shall automatically enable and interlock the chilled water pump, cooling water pump and cooling tower fans upon chiller activation.
- f. Upon request to start the chiller, the control system shall start the chilled water pump and verify chilled water flow. The controller shall then start the cooling water pump and verify interlock signal, before starting tower fan(s), absorbent pump No.1, absorbent pump No.2 and refrigerant pump.
- g. The control system shall automatically sense impending abnormalities in the absorption operating cycle and take the following actions to either self-correct and/or limit the machine from approaching cycle crystallization line:
  - 1) Close hot water control valve for a set period.
  - 2) Stop the operation of the machine after performing a dilution cycle if the solution concentration is still over the pre-set level.
- h. The rate at which the hot water control valve is opened shall be precisely controlled.

## GUIDE SPECIFICATIONS

- i. The control system shall automatically cycle the refrigerant pump whenever the leaving chilled water temperature falls below the desired set point. The chilled water pump shall remain on and when the leaving chilled water temperature rises above the set point, the refrigerant pump shall automatically restart.
  - j. The control center shall allow reset of the chilled water temperature set point based upon any one of the following criteria:
    - 1) Chilled water reset based on an external 4 to 20 mA signal.
    - 2) Chilled water reset based on cooling water inlet temperature.
  - k. When the stop button is pressed or remote contacts open the control center shall immediately drive the hot water control valve to the closed position and initiate the normal shutdown sequence including dilution cycle. The display shall indicate that the machine is in the dilution cycle.
2. Safeties:
- a. Unit shall automatically shut down when any of the following conditions occur. In addition, the chiller goes into alarm mode and indicates the reason for the shutdown on the chiller data display.
    - 1) Absorbent pump No.1 motor overload.
    - 2) Absorbent pump No.2 motor overload
    - 3) Refrigerant pump motor overload.
    - 4) Purge pump motor overload.
    - 5) Low chilled water temperature.
    - 6) Low cooling water temperature.
    - 7) Generator high temperature.
    - 8) Loss of chilled water flow.
    - 9) (Optional) loss of cooling water flow.
    - 10) Loss of chilled water pump interlock.
    - 11) Loss of cooling water pump interlock.
    - 12) High solution concentration.
  - b. The control system shall detect conditions that approach protective limits and take self-corrective action prior to an alarm occur-ring. The system shall automatically reduce chiller capacity when any of the following parameters are outside their normal operating range:
    - 1) Low cooling water inlet temperature.
    - 2) High cooling water inlet temperature.
    - 3) High solution concentration.
3. Diagnostics and Service:
- a. The chiller control system shall execute a series of self-diagnostic checks whenever power is first turned on to determine if temperatures are within pre-start limits, thereby allowing start-up to proceed. If any of the limits are exceeded, an alert message will be displayed, informing the operator of the cause of the pre-start alert.
  - b. The control system shall provide an alarm display on the front of the panel for any sensor that has failed. These sensors include:
    - 1) Chilled water inlet temperature.
    - 2) Chilled water outlet temperature.
    - 3) Cooling water inlet temperature.
    - 4) Cooling water outlet temperature.
    - 5) Cooling water intermediate temperature.
    - 6) Hot water inlet temperature.
    - 7) Hot water outlet temperature.
    - 8) Condenser temperature.
    - 9) Refrigerant temperature.
    - 10) Diluted solution temperature.
    - 11) Generator temperature.
    - 12) Purge tank pressure.
  - c. The chiller controls shall display maintenance messages and alarms when efficient operation of the chiller is in jeopardy or when immediate attention is necessary. When operating conditions are predicted to be problematic, the following messages shall be displayed on the panel:
    - 1) Purge tank high pressure.
    - 2) Cooling water tubes excessive fouling.
    - 3) Cooling water high temperature.
    - 4) Power failure.
4. Building Control System Interface:
- The chiller control system shall have the ability to interface and communicate directly to the building control system through Modbus as standard, BACnet as option without additional field-installed hardware and software.
- G. Electrical Requirements:**
1. Power supply to the unit shall be 3 ph, 50 Hz with voltages of 400 as specified on the equipment schedule. A control transformer shall provide 24-volt single-phase secondary power for the control panel.
  2. Contractor/owner shall supply and install the electrical power line and all auxiliary electrical protection devices per local code requirements and as indicated necessary by the chiller manufacturer.
  3. Contractor/owner shall supply and install electrical wiring and devices required to interface the chiller controls with the building controls system if applicable.
- H. Piping Requirements:**
1. Piping and instrumentation for the chilled water, cooling water and hot water shall be supplied and installed by the contractor/owner.
  2. Absorber-condenser crossover piping shall be furnished by the chiller manufacturer.
  3. Cooling water flow switch shall be supplied by either the chiller manufacturer or the contractor/owner.
  4. Piping from the rupture disk shall be provided and installed by the contractor/owner and piped in accordance with the chiller manufacturer's written instructions and any local jurisdictional requirements.

## GUIDE SPECIFICATIONS

### I. Thermal Insulation:

Insulation of the evaporator, refrigerant pump, sump, piping and chilled water headers, in addition to any hot surfaces shall be field supplied and installed on the machine. Chiller manufacturer shall recommend the material and specify surface area to be insulated.

### J. Sound Level:

The overall sound pressure level of the chiller shall not exceed 80 dbA when measured per ARI Standard 575-1994.

### K. Start-up:

1. Unit manufacturer shall provide a factory-trained service representative, employed by the chiller manufacturer, to perform and/or super-vised chiller pressure test (when required), charge chiller with refrigerant (water) and lithium bromide solution, place unit into operation, and calibrate all controls in accordance with the manufacturer's written start-up, operating and maintenance instructions.
2. After unit start-up has been performed, the same factory representative shall be available for a period of instruction not to exceed 4 hours to instruct the owner's personnel in the proper start-up, operating and maintenance procedures.
3. Manufacturer shall provide the following documentation and literature:
  - a. Installation Instructions.
  - b. Start-Up, Operating and Maintenance Instructions.
  - c. Dimensional Drawing.
  - d. Foundation Drawing.
  - e. Field Wiring Diagram.

### L. Options and Accessories:

1. Marine Waterboxes:  
Marine waterboxes with removable covers to facilitate tube cleaning and maintenance shall be furnished when specified on the equipment schedule.
2. High-Pressure Waterboxes:  
Waterboxes rated for 2000 kPaG working pressure with removable covers shall be furnished when specified on the equipment schedule.
3. Special Tubing:  
Tubing of non-standard materials, geometry or wall thickness shall be provided when specified on the equipment schedule.
4. Shipping Configuration:  
Chiller shall ship either fully assembled or in multiple pieces as specified on the equipment schedule.
5. Victaulic Nozzle Connections:  
Victaulic grooves shall be provided on all water-box nozzle connections when specified on the equipment schedule.
6. Cooling Water Flow Switch:  
Cooling water flow switch, rated for either 1034 kPaG or 2000 kPaG, shall be factory supplied when specified on the equipment schedule.
7. Isolation Package:  
A vibration isolation package consisting of neoprene isolation pads shall be furnished when specified on the equipment

## SAFETY CONSIDERATIONS

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### Before operating the unit

- Before operating the unit be sure to read the operation manual carefully.
- Installation should conform to all applicable local codes and regulations.

### During the installation

- Read the installation manual carefully before offloading and installing the unit.
- All work must be carried out by qualified personnel to prevent injuries and damage to the equipment.
- Waterproof the unit foundation and provide a drain channel to prevent water damage to the surrounding equipment.
- Provide adequate space around the unit for maintenance work to ensure safe working conditions.

### Maintenance

- In addition to daily inspection periodical maintenance is required. Insufficient or incorrect maintenance may cause fire, electric shock and injuries.
- Please consult your local service office for further guidance.

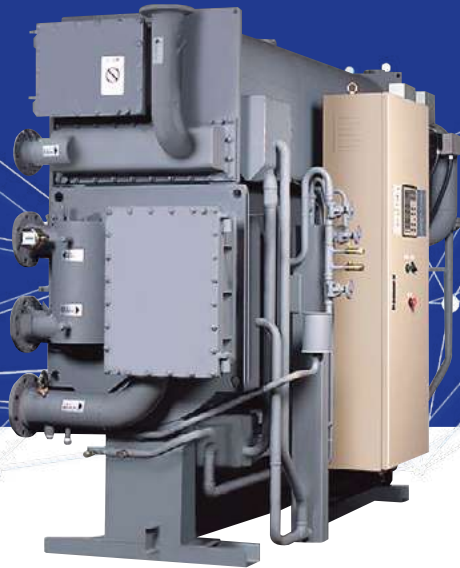
### Avoiding hazardous places

- Keep the units away from dangerous inflammable substances such as gasoline, thinner and combustible gases, as these may result in a fire.





# SINGLE-EFFECT STEAM-FIRED ABSORPTION CHILLERS SUPER ABSORPTION



Complete range  
350 to 2500 kW

HFC-refrigerant free

Steam supply pressure  
50 to 100 kPa

## 16TJ

Nominal cooling capacity 350-2500 kW

The Carrier Corporation has more than 100 years experience in providing HVAC systems and equipment around the world and offers a complete product solutions for many different type of applications: From residential to industrial.

For all cases where power grid is not available on site or either not extensively developed, or where thermal energy sources (water or steam) are available on site, Carrier offers a complete range of absorption chillers.

## PHYSICAL DATA

### Single effect steam-fired absorption chillers

| 16TJ                               |                | 11       | 12    | 13    | 14    | 21    | 22    | 23    | 24    |
|------------------------------------|----------------|----------|-------|-------|-------|-------|-------|-------|-------|
| <b>Cooling capacity</b>            | kW             | 352      | 422   | 527   | 633   | 738   | 844   | 985   | 1125  |
| <b>Chilled water system*</b>       |                |          |       |       |       |       |       |       |       |
| Flow rate                          | l/s            | 15.1     | 18.2  | 22.7  | 27.3  | 31.7  | 36.4  | 42.5  | 48.3  |
| Pressure drops                     | kPa            | 50       | 51    | 64    | 67    | 60    | 64    | 42    | 45    |
| Connection (ANSI)                  | in             | 4        | 4     | 4     | 4     | 5     | 5     | 6     | 6     |
| Retention volume                   | m <sup>3</sup> | 0.12     | 0.13  | 0.15  | 0.17  | 0.22  | 0.25  | 0.29  | 0.31  |
| <b>Cooling water system*</b>       |                |          |       |       |       |       |       |       |       |
| Flow rate                          | l/s            | 22.7     | 27.3  | 34.2  | 40.8  | 47.8  | 54.4  | 63.6  | 72.8  |
| Pressure drops                     | kPa            | 34       | 37    | 32    | 36    | 32    | 35    | 65    | 70    |
| Connection (ANSI)                  | in             | 5        | 5     | 5     | 5     | 6     | 6     | 8     | 8     |
| Retention volume                   | m <sup>3</sup> | 0.33     | 0.37  | 0.41  | 0.45  | 0.58  | 0.63  | 0.69  | 0.76  |
| <b>Steam system</b>                |                |          |       |       |       |       |       |       |       |
| Consumption                        | kg/h           | 780      | 940   | 1170  | 1410  | 1640  | 1880  | 2190  | 2500  |
| Steam inlet (ANSI)                 | in             | 5        | 5     | 5     | 5     | 6     | 6     | 8     | 8     |
| Drain outlet (ANSI)                | in             | 1-1/2    | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 |
| Control valve                      | in             | 2        | 2     | 2-1/2 | 2-1/2 | 2-1/2 | 3     | 3     | 4     |
| Shutoff valve                      | in             | 2        | 2     | 2-1/2 | 2-1/2 | 2-1/2 | 3     | 3     | 4     |
| <b>Dimensions</b>                  |                |          |       |       |       |       |       |       |       |
| Length                             | mm             | 2690     | 2690  | 3690  | 3690  | 3790  | 3790  | 4850  | 4850  |
| Height                             | mm             | 2200     | 2200  | 2200  | 2200  | 2350  | 2350  | 2370  | 2370  |
| Width                              | mm             | 1400     | 1400  | 1400  | 1400  | 1560  | 1560  | 1560  | 1560  |
| Tube removal space                 | mm             | 2400     | 2400  | 3400  | 3400  | 3400  | 3400  | 4500  | 4500  |
| <b>Weight</b>                      |                |          |       |       |       |       |       |       |       |
| Operating weight                   | kg             | 4000     | 4300  | 5100  | 5400  | 6700  | 6900  | 7900  | 8300  |
| Max shipping weight**              | kg             | 3500     | 3700  | 4500  | 4700  | 5800  | 6000  | 6900  | 7200  |
| <b>Power supply</b>                | V-ph-Hz        | 400-3-50 |       |       |       |       |       |       |       |
| Apparent power                     | kVA            | 4.0      | 4.0   | 4.0   | 4.0   | 5.8   | 5.8   | 5.9   | 5.9   |
| Total electric current             | A              | 6.1      | 6.1   | 6.1   | 6.1   | 8.8   | 8.8   | 8.9   | 8.9   |
| Absorbent pump, power input        | kW             | 1.1      | 1.1   | 1.1   | 1.1   | 2.2   | 2.2   | 2.2   | 2.2   |
| Absorbent pump, electric current   | A              | 2.8      | 2.8   | 2.8   | 2.8   | 5.5   | 5.5   | 5.5   | 5.5   |
| Refrigerant pump, power input      | kW             | 0.2      | 0.2   | 0.2   | 0.2   | 0.2   | 0.2   | 0.3   | 0.3   |
| Refrigerant pump, electric current | A              | 1.3      | 1.3   | 1.3   | 1.3   | 1.3   | 1.3   | 1.4   | 1.4   |
| Purge pump, power input            | kW             | 0.4      | 0.4   | 0.4   | 0.4   | 0.4   | 0.4   | 0.4   | 0.4   |
| Purge pump, electric current       | A              | 1.1      | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   |
| PD cell heater                     | kW             | 0.038    | 0.038 | 0.038 | 0.038 | 0.038 | 0.038 | 0.038 | 0.038 |
| Control circuit                    | kW             | 0.3      | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   |

\* In accordance with ARI 560 - 2000  
 12.2 / 6.7 °C (fouling factor = 0.0176 m<sup>2</sup> K/kW)  
 29.4 / 38.4 °C (fouling factor = 0.044 m<sup>2</sup> K/kW)  
 Saturated steam 100 kPa

\*\* All sizes shipped as one-piece

Notes: These performance data are provided to support early design activity. For selection outside ARI operating conditions contact Carrier.

## PHYSICAL DATA

| 16TJ                               |                | 31       | 32    | 41    | 42    | 51    | 52    | 53    |
|------------------------------------|----------------|----------|-------|-------|-------|-------|-------|-------|
| <b>Cooling capacity</b>            | kW             | 1266     | 1407  | 1582  | 1758  | 1969  | 2215  | 2461  |
| <b>Chilled water system*</b>       |                |          |       |       |       |       |       |       |
| Flow rate                          | l/s            | 54.4     | 60.6  | 68.1  | 75.8  | 84.7  | 95.3  | 106.1 |
| Pressure drops                     | kPa            | 48       | 51    | 44    | 39    | 35    | 47    | 61    |
| Connection (ANSI)                  | in             | 6        | 6     | 8     | 8     | 8     | 8     | 8     |
| Retention volume                   | m <sup>3</sup> | 0.35     | 0.38  | 0.49  | 0.56  | 0.7   | 0.77  | 0.83  |
| <b>Cooling water system*</b>       |                |          |       |       |       |       |       |       |
| Flow rate                          | l/s            | 81.7     | 90.8  | 102.2 | 113.6 | 127.2 | 143.1 | 158.9 |
| Pressure drops                     | kPa            | 54       | 57    | 59    | 63    | 39    | 52    | 68    |
| Connection (ANSI)                  | in             | 8        | 8     | 10    | 10    | 12    | 12    | 12    |
| Retention volume                   | m <sup>3</sup> | 0.98     | 1.05  | 1.31  | 1.41  | 1.98  | 2.13  | 2.28  |
| <b>Steam system</b>                |                |          |       |       |       |       |       |       |
| Consumption                        | kg/h           | 2810     | 3120  | 3510  | 3900  | 4370  | 4920  | 5460  |
| Steam inlet (ANSI)                 | in             | 8        | 8     | 8     | 8     | 10    | 10    | 10    |
| Drain outlet (ANSI)                | in             | 2        | 2     | 2-1/2 | 2-1/2 | 2-1/2 | 2-1/2 | 2-1/2 |
| Control valve                      | in             | 4        | 4     | 4     | 4     | 4     | 5     | 5     |
| Shutoff valve                      | in             | 4        | 4     | 4     | 4     | 4     | 5     | 5     |
| <b>Dimensions</b>                  |                |          |       |       |       |       |       |       |
| Length                             | mm             | 4940     | 4940  | 4990  | 4990  | 5060  | 5600  | 6100  |
| Height                             | mm             | 2610     | 2610  | 2860  | 2860  | 3210  | 3210  | 3210  |
| Width                              | mm             | 1630     | 1630  | 1700  | 1700  | 1990  | 1990  | 1990  |
| Tube removal space                 | mm             | 4500     | 4500  | 4500  | 4500  | 4600  | 5200  | 5700  |
| <b>Weight</b>                      |                |          |       |       |       |       |       |       |
| Operating weight                   | kg             | 10300    | 10600 | 12500 | 12800 | 17500 | 18900 | 20200 |
| Max shipping weight**              | kg             | 8900     | 9100  | 10700 | 10900 | 14800 | 16000 | 17100 |
| <b>Power supply</b>                | V-ph-Hz        | 400-3-50 |       |       |       |       |       |       |
| Apparent power                     | kVA            | 7.3      | 7.3   | 7.3   | 7.3   | 7.3   | 7.3   | 7.3   |
| Total electric current             | A              | 10.9     | 10.9  | 10.9  | 10.9  | 10.9  | 10.9  | 10.9  |
| Absorbent pump, power input        | kW             | 3        | 3     | 3     | 3     | 3     | 3     | 3     |
| Absorbent pump, electric current   | A              | 7.5      | 7.5   | 7.5   | 7.5   | 7.5   | 7.5   | 7.5   |
| Refrigerant pump, power input      | kW             | 0.3      | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   |
| Refrigerant pump, electric current | A              | 1.4      | 1.4   | 1.4   | 1.4   | 1.4   | 1.4   | 1.4   |
| Purge pump, power input            | kW             | 0.4      | 0.4   | 0.4   | 0.4   | 0.4   | 0.4   | 0.4   |
| Purge pump, electric current       | A              | 1.1      | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   |
| PD cell heater                     | kW             | 0.038    | 0.038 | 0.038 | 0.038 | 0.038 | 0.038 | 0.038 |
| Control circuit                    | kW             | 0.3      | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   | 0.3   |

\* In accordance with ARI 560 - 2000  
12.2 / 6.7 °C (fouling factor = 0.0176 m<sup>2</sup> K/kW)  
29.4 / 38.4°C (fouling factor = 0.044 m<sup>2</sup> K/kW)  
Saturated steam 100 kPa

\*\* All sizes shipped as one-piece

Notes: These performance data are provided to support early design activity. For selection outside ARI operating conditions contact Carrier.

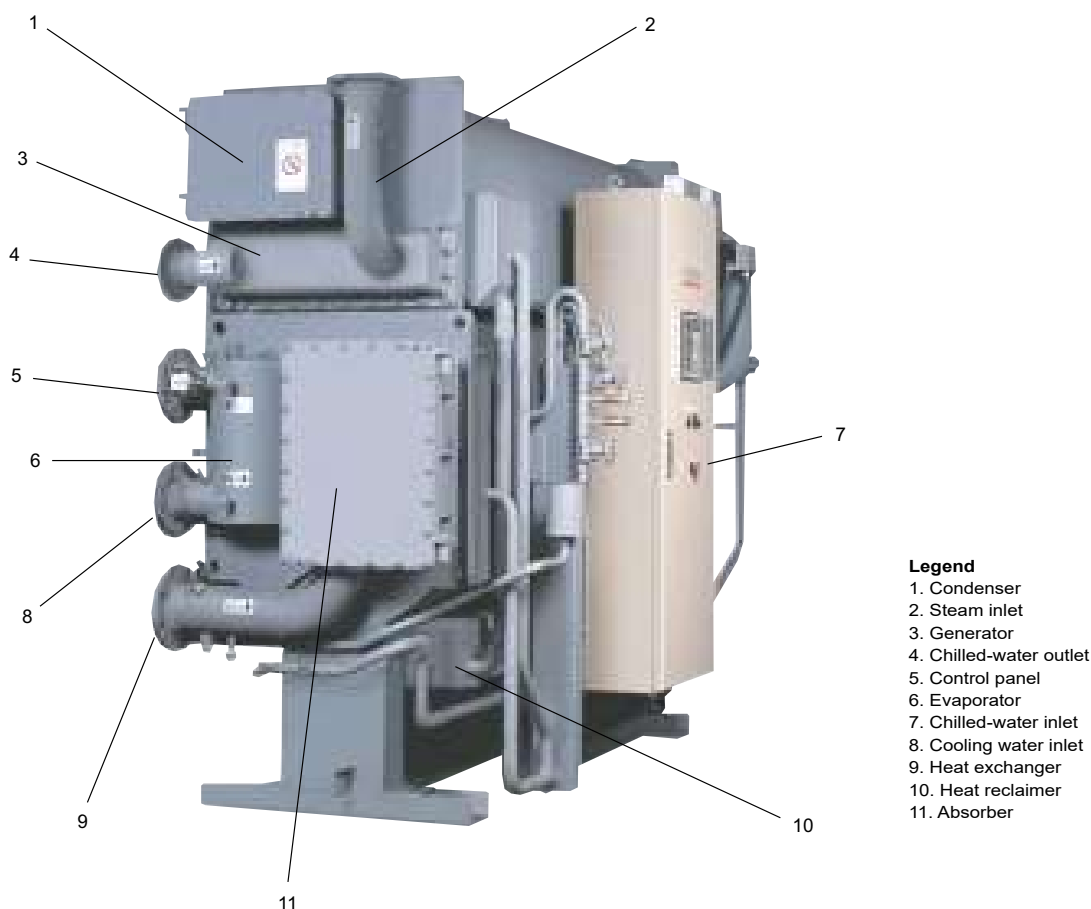
## NOMENCLATURE

16TJ - 11

Capacity code

Unit type: Single-effect, steam-fired absorption chillers

## COMPONENT IDENTIFICATION



### Legend

1. Condenser
2. Steam inlet
3. Generator
4. Chilled-water outlet
5. Control panel
6. Evaporator
7. Chilled-water inlet
8. Cooling water inlet
9. Heat exchanger
10. Heat reclaimer
11. Absorber

## SCOPE OF SUPPLY

### 1. Standards met

The units comply with the following standards:

- ARI 560-2000
- 2006/42/EC (machine directive)
- 2006/95/EC (low-voltage directive)
- 2004/108/EC (electromagnetic compatibility directive)
- 97/23/EC (pressure equipment directive).

### 2. Absorption chiller, comprising:

#### 1. Lower shell

- Evaporator and refrigerant dispersion tray
- Absorber and absorbent dispersion tray with eliminators
- Bases.

#### 2. Upper shell

- Generator with eliminators
- Condenser with eliminators
- Rupture disk.

#### 3. Heat exchangers with refrigerant drain heat reclaimer

#### 4. Pumps

- Absorbent pump with isolating valves
- Refrigerant pump with isolating valves
- Purge pump.

#### 5. Purge unit

- Purge tank with ejector device
- Diaphragm valves and piping with liquid trap
- Pressure sensor
- Palladium cell with heater.

#### 6. Control panel

- Controller with data display
- LEDs and operation buttons
- Inverter for absorbent pump (option)
- Circuit breaker
- Transformer
- Relays and terminal blocks
- Purge pump operation switch.

#### 7. Locally mounted parts

- Temperature sensors
- Chilled-water flow switch.

#### 8. Interconnecting piping and wiring

- Refrigerant and absorbent piping
- Internal power and control wiring.

#### 9. Initial charge

- Absorbent (lithium bromide)
- Refrigerant (water)
- Inhibitor (lithium molybdate).

#### 10. Painting

- Main unit: Rust-preventive paint
- Control panel: Finish paint.

#### 11. Accessories

- Operation manual
- Washer (for fixing foundation bolts)
- Gasket and sealant for rupture disk
- Purge pump oil
- Matching flanges, gaskets, bolts and nuts.

## SCOPE OF SUPPLY

### 3. Factory test

1. Check of external dimensions
2. Hydraulic pressure test of water headers Test pressure is 1.5 times of maximum working pressure
3. Vacuum-side leak test
4. Electric insulation resistance test
5. Dielectric breakdown test
6. Function test of electric circuit and safety devices

### 4. Scope of supply of the purchaser

1. Building and foundations
2. External chilled water, cooling water and steam piping work including various safety valves, isolation valves, mating flanges, gaskets, bolts and nuts, etc.
3. External wiring and piping for the chillers including necessary parts
4. Insulation for the chillers including necessary parts.

5. Finish painting of the chillers (if needed)
6. Cooling water entering temperature control device
7. Cooling water treatment device
8. Various temperature/pressure gauges for steam and water lines.
9. Cooling tower(s), chilled-water pump(s) and steam control valve and steam shut-off valve
10. Electric power supply (as specified)
11. Supply of chilled water, cooling water, steam and air\* at rated conditions
12. Maintenance of the chiller
13. Necessary tools, labour and materials for installation and site test operation
14. Any other item not specifically mentioned in the scope of supply

\* If pneumatic steam valve control is used.

## SCOPE OF ORDER

| Item                                   | Standard   | Option                             |
|--|--|------------------------------------|
| <b>Chilled water</b>                   |  |                                    |
| Temperature                            | Entering: 12.2 °C, leaving: 5 °C through 12 °C<br>Leaving: 6.7 °C, temperature difference 3 K through 10 K |                                    |
| Flow rate                              | 0.043 l/s x kW - Changes depending on chilled water temperature difference (min 50%)                       |                                    |
| Max. working pressure                  | 1034 kPa   | 1540 kPa, 2068 kPa                 |
| Hydraulic test pressure                | Max. working pressure x 1.5  | Max working pressure x 1.5         |
| Fouling factor                         | 0.018 m <sup>2</sup> K/kW Max. 0.18 m <sup>2</sup> K/kW  |                                    |
| Tube material                          | Copper tube  | Cu Ni tube                         |
| Water quality                          | Refer to JRA-GL02E-1994  | No option                          |
| Structure of water header              | Removable type and epoxy treated   | No option                          |
| Manufacturing standard of water header | Flanged ANSI   | No option                          |
| <b>Cooling water</b>                   |  |                                    |
| Temperature                            | Entering: 29.4 °C<br>Leaving: 38.4 °C, entering: 20 °C through 33 °C                                       |                                    |
| Flow rate                              | 0.065 l/s per kW. Within the water flow rate range of each model   |                                    |
| Max. working pressure                  | 1034 kPa   | 1540 kPa, 2068 kPa                 |
| Hydraulic test pressure                | Max. working pressure x 1.5  |                                    |
| Fouling factor                         | 0.044 m <sup>2</sup> K/kW. Max. 0.18 m <sup>2</sup> K/kW   |                                    |
| Tube material                          | Copper tube  | Cu Ni tube                         |
| Water quality                          | Refer to JRA-GL02E-1994  | No option                          |
| Structure of water header              | Hinged type and epoxy treated  | No option                          |
| Manufacturing standard of water header | Flanges ANSI   | No option                          |
| <b>Steam</b>                           |  |                                    |
| Supply pressure                        | 100 kPa, 50 kPa through 100 kPa, max. 5 K superheat  |                                    |
| Specific steam consumption             | 2.22 kg/h/kW. Changes depend on the specifications.  |                                    |
| Max. working pressure                  | 146 kPa  | No option                          |
| Hydraulic test pressure                | Max. working pressure x 1.5  | No option                          |
| Tube material                          | 9/1 Copper nickel tube   | No option                          |
| Steam quality                          | Refer to JIS-B-8223  | No option                          |
| Manufacturing standard of water header | Flanged ANSI   | No option                          |
| <b>Electricity</b>                     |  |                                    |
| Power supply                           | 400 V - 3 phase - 50Hz<br>(Voltage control within ±10%, frequency control within ±5%)                      | Contact the Carrier representative |
| <b>Shipment</b>                        |  |                                    |
|  | One section  | Multi-shipment                     |



## SCOPE OF ORDER

| Item  | Standard   | Option                                |
|---|--|---------------------------------------|
| <b>Control</b>  |  |                                       |
| Safety functions  | Refrigerant temperature<br>Chilled water freeze protection<br>Chilled water flow switch<br>Cooling water temperature<br>HT generator temperature<br>HT generator pressure<br>HT generator solution level<br>Crystallisation protection<br>Motor protection | Cooling water flow switch             |
| Capacity control  | Digital PID control by chilled-water temperature   | Inverter control of #1 absorbent pump |
| Parts   | Selected by Carrier  | No option                             |
| <b>Control panel</b>                                    |  |                                       |
| Painting  | Munsell 5Y-7/1   | No option                             |
| Indication lights                                       | Operation<br>Stop<br>Alarm   | No option<br>No option<br>No option   |
| Display   | LED  | No option                             |
| External terminals<br>(volt-free normally open contact) | Operation indication<br>Stop indication<br>Alarm indication<br>Feedback indication<br>Cooling mode indication  | No option                             |
| Structure   | Indoor type  | No option                             |
| Parts   | Selected by Carrier  | No option                             |
| <b>Electrical wiring and piping</b>                     | Wire: 600 V polyvinyl grade (chloride-insulated wires)<br>Pipe: Plicatube (flexible metal conduits)  | No option<br>No option                |
| <b>Insulation condition</b>                             |  |                                       |
| Place   | Indoor   | No option                             |
| Ambient temperature                                     | 5 °C through 40 °C   | No option                             |
| Ambient humidity  | Relative humidity: Max. 90 % at 45 °C  | No option                             |
| Atmosphere  | Be sure the following are not present:<br>- Corrosive gas<br>- Explosive gas<br>- Poisonous gas  | No option                             |

## FEATURES AND ADVANTAGES

- The Carrier 16TJ single-effect absorption chillers are designed for cooling applications where low-pressure steam is available as waste heat.
- They can tie into district steam systems.
- Carrier absorption chillers allow diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input.
- They allow smaller emergency generators compared to an electrical driven chiller.
- The units are ozone-safe and CFC-free. Cooling requirements are met without chlorine-based refrigerants.
- They reduce the contribution to global warming and minimise the global impact by greatly reducing electricity consumption and production of greenhouse gases.
- The solution inhibitor has no impact on the environment.
- An absorption chiller does not utilise mechanical moving parts, and this leads to quiet, vibration-free operation.
- The use of high-efficiency heat transfer surfaces has reduced the space required for installation of the absorption chiller, resulting in a smaller footprint.

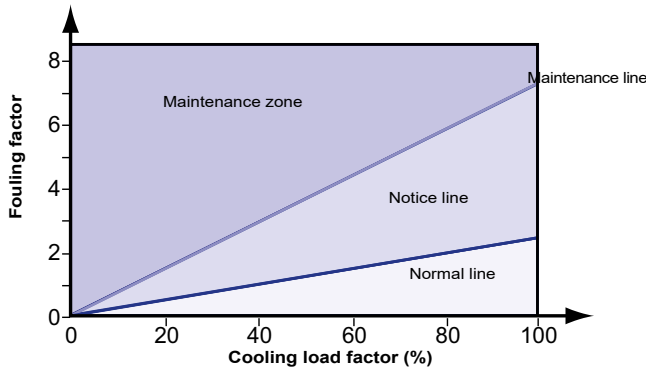
## CONTROLS

### Expert self-diagnosis function

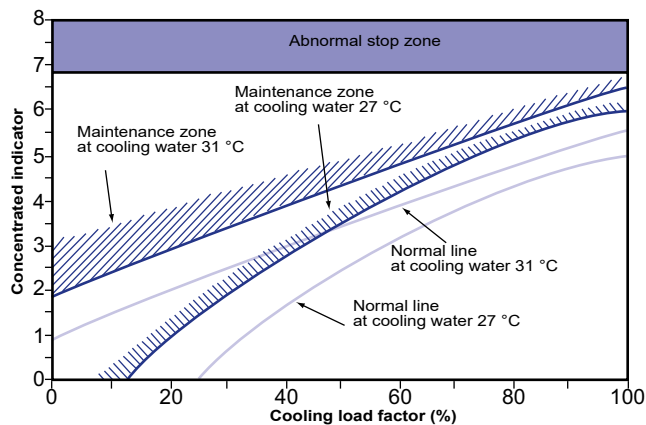
- The expert function is provided to monitor operating conditions, predict chiller information and maintain stable operation.

### Predictive maintenance information

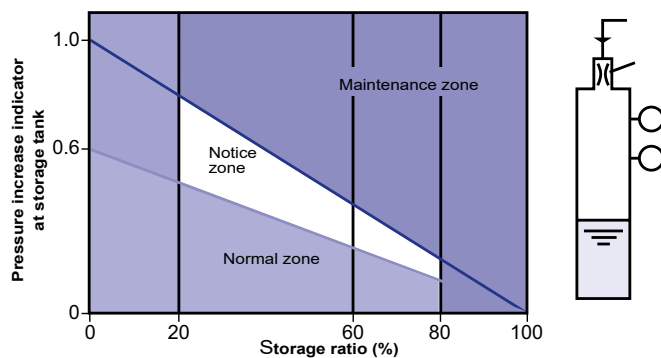
**Graph 1 - Fouling of heat transfer tubes in cooling water system**



**Graph 2 - Trend of absorbent concentration**



**Graph 3 - Vacuum condition monitoring**



#### Legend

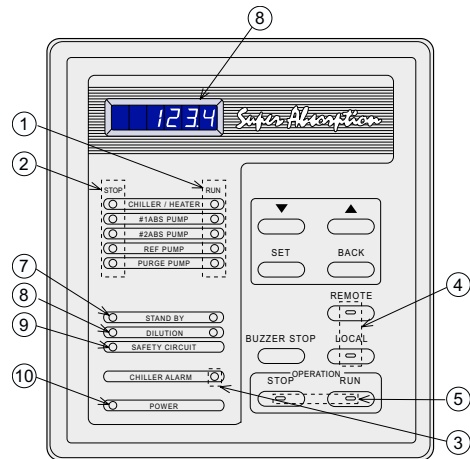
1. Storage tank
2. Diluted solution
3. Purge nozzle
4. Pd cell
5. Pressure sensor

### Carrier control system

- The Carrier control system surpasses other proportional only control systems available today. The digital PID (proportional plus integral plus derivative) control maximises unit performance by maintaining a  $\pm 0.5$  K variance in leaving chilled-water temperature from the set-point. Proportional controls can typically only maintain a  $\pm 1$  K variance from the set-point. The controller's innovative design also incorporates the ability to start and stop the system chilled and cooling water pumps. During shutdown these pumps are sequenced to ensure a complete dilution cycle.
- The leaving chilled-water temperature is measured every five seconds and steam input is changed according to the gradient of the leaving chilled-water temperature curve. System temperatures, set-points, and operational records are displayed along with indicator lights for the chiller and pumps.
- The Carrier control system offers its users selfdiagnostics by constantly monitoring the chiller status and will automatically shut the chiller down if a fault occurs. The cause of shutdown will be retained in the memory and can be displayed for immediate operator review. The controller's memory will also retain and display the cause of the last three system fault conditions. This method of retaining fault conditions is extremely useful for maintaining an accurate record of unit performance and fault history.

### Display and control board

**Figure 2 - Indication lights**



#### Legend

- | Legend Name                           | LED colour          |
|---------------------------------------|---------------------|
| ① Operation indication light          | Green               |
| ② Stop indication light               | Orange              |
| ③ Alarm indication light              | Red                 |
| ④ Remote/local select button with LED | Green               |
| ⑤ Operation select button with LED    | Green               |
| ⑥ Data display                        | 7 segment LED (red) |
| ⑦ Stand-by indication light           | Green               |
| ⑧ Dilution indication light           | Green               |
| ⑨ Safety circuit indication light     | Green               |
| ⑩ Power indication light              | Orange              |
| GL. Purge indication light            | Green               |
| 43P. Purge pump on-off switch         |                     |
| 43ES. Emergency stop switch           |                     |

## CONTROLS

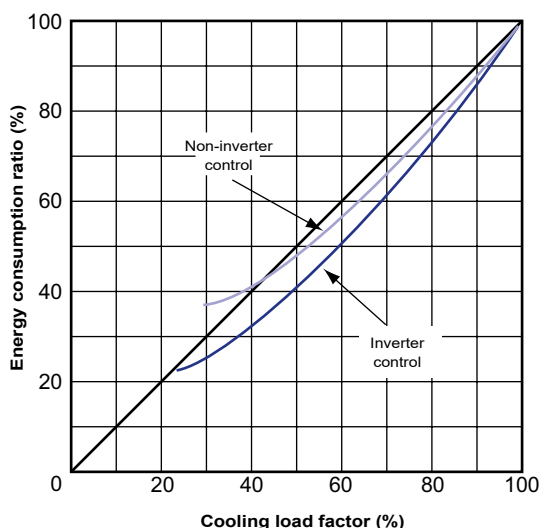
### Fast digital PID control

The introduction of new digital PID control stabilises the chilled water temperature with high accuracy. It quickly responds to the load fluctuation and supplies stable chilled water temperature. It is suitable for air-conditioning intelligent buildings which require sophisticated control.

### Saving energy with the inverter (option)

Balancing the load and flow rate with the absorbent pump's inverter control enables efficient and energy-saving operation. As a result, it reduces input energy and electric power consumption. Running cost is decreased by 5% compared to non-inverter control.

Graph 4 - Running cost curve



Notes:

1. Chilled-water leaving temperature 7 °C constant
2. Cooling water entering temperature:

| Load factor (%) | Temperature (°C) |
|-----------------|------------------|
| 100             | 32               |
| 50              | 27               |
| 30              | 25               |

### Purge system

- The high-performance purge system maintains the required operating pressure, preserves chiller performance characteristics, minimises chiller maintenance to one purge operation per season (for year-round operation).

### Steam valve opening control

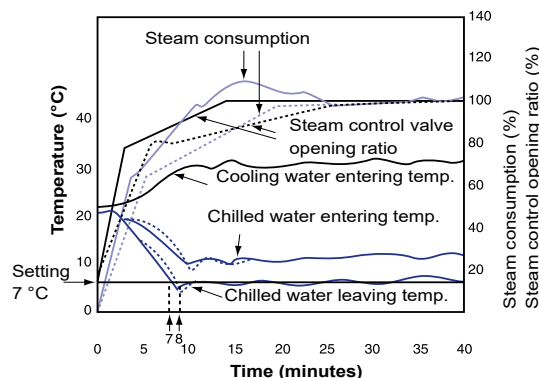
- At the start-up, the opening angle of the steam control valve is controlled in three stages, reducing the amount of steam and the time needed to reach the desired level, compared with the previous model.
- Adjusting the opening speed of the steam control valve at the second and third stage, it is possible to set up the most suitable conditions for the site auxiliary equipment.

Graph 5 - Steam valve opening control

Variable (5-30 minutes)

Example:

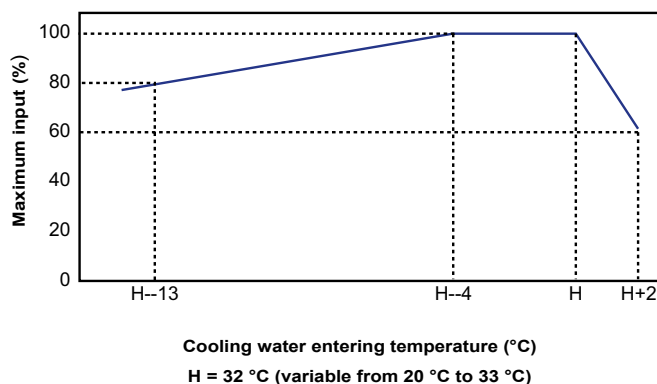
15 minutes  
30 minutes



### Expansion of safe operating zone

- This ensures quick response to rapid changes and maintains stable operation.
- The safe operating zone is between 19 °C and 34 °C cooling water temperature (for a nominal cooling water entering temperature of 32 °C).

Graph 6 - Safe operating zone chart



Cooling water entering temperature (°C)  
H = 32 °C (variable from 20 °C to 33 °C)

### Crystallisation protection

- A microprocessor monitors the absorbent concentration. Steam supply is stopped, and the unit is returned to normal operation, when the concentration is over a certain limit, to prevent the crystallisation of absorbent.

## FOUNDATION DIMENSIONS, MM

Figure 3 - 16TJ-11 through 16TJ-42

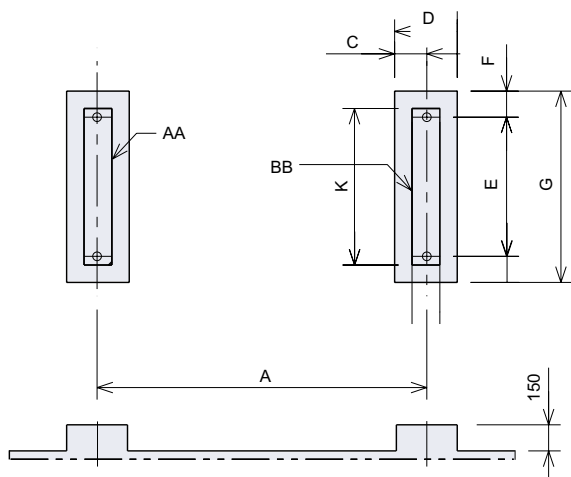


Figure 5 - 16TJ-51 through 16TJ-53

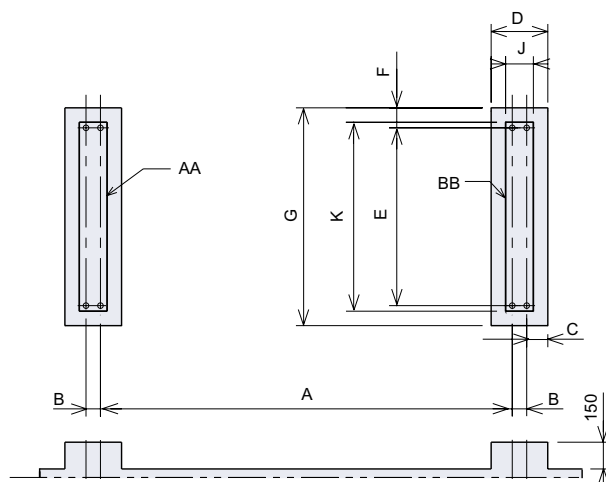
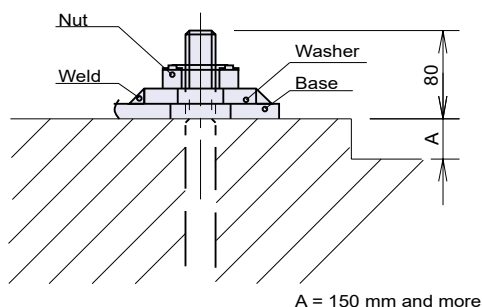


Figure 4 - Details of weld



**Notes:**

1. The machine base has ø50-mm hole for the anchor bolt.
2. The anchor bolt should be fixed as shown in the detail drawing. Washer should be welded to the base (see Fig. 4)
3. There should be a drain channel around the foundation.
4. The floor surface should be made waterproof to facilitate maintenance work.
5. The surface of the foundation should be made flat.
6. Anchor bolts and nuts are to be supplied by customer.

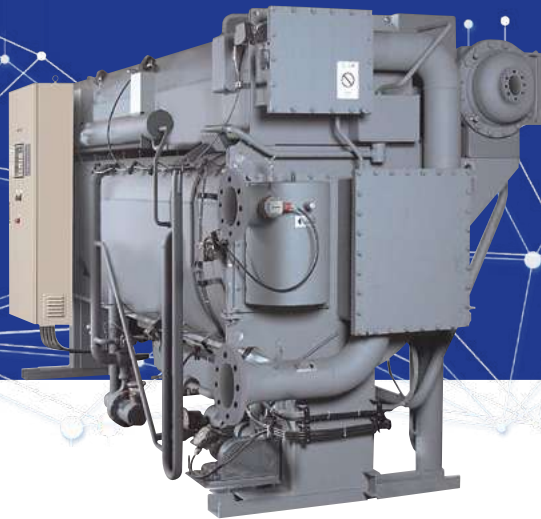
### Dimensional data

| 16TJ | Weight, kg |      |      | Dimensions, mm |     |     |     |      |     |      |     |      |
|------|------------|------|------|----------------|-----|-----|-----|------|-----|------|-----|------|
|      | AA + BB    | AA   | BB   | A              | B   | C   | D   | E    | F   | G    | J   | K    |
| 11   | 3800       | 1900 | 1900 | 1890           | --  | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 12   | 4000       | 2000 | 2000 | 1890           | --  | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 13   | 4900       | 2450 | 2450 | 2916           | --  | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 14   | 5100       | 2550 | 2550 | 2916           | --  | 175 | 360 | 800  | 150 | 1100 | 160 | 900  |
| 21   | 6200       | 3100 | 3100 | 2866           | --  | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 22   | 6500       | 3250 | 3250 | 2866           | --  | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 23   | 7600       | 3800 | 3800 | 3886           | --  | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 24   | 8000       | 4000 | 4000 | 3886           | --  | 200 | 400 | 1000 | 150 | 1300 | 200 | 1100 |
| 31   | 9800       | 4900 | 4900 | 3836           | --  | 225 | 450 | 1100 | 150 | 1400 | 250 | 1200 |
| 32   | 10200      | 5100 | 5100 | 3836           | --  | 225 | 450 | 1100 | 150 | 1400 | 250 | 1200 |
| 41   | 11800      | 5900 | 5900 | 3836           | --  | 225 | 450 | 1150 | 150 | 1450 | 250 | 1250 |
| 42   | 12300      | 6150 | 6150 | 3836           | --  | 225 | 450 | 1150 | 150 | 1450 | 250 | 1250 |
| 51   | 16900      | 8450 | 8450 | 3706           | 130 | 190 | 510 | 1600 | 180 | 1960 | 250 | 1700 |
| 52   | 18300      | 9150 | 9150 | 4248           | 130 | 190 | 510 | 1600 | 180 | 1960 | 250 | 1700 |
| 53   | 19600      | 9800 | 9800 | 4746           | 130 | 190 | 510 | 1600 | 180 | 1960 | 250 | 1700 |





## DOUBLE-EFFECT STEAM-FIRED ABSORPTION CHILLERS



SUPER ABSORPTION

# 16NK

Nominal cooling capacity 345 to 4652 kW

Eighteen sizes with nominal cooling capacities from 345 to 4652 kW.

The 16NK absorption chillers are designed for cooling applications where low-pressure steam is available as waste heat.

Minimises global warming effect by greatly reducing power consumption and eliminating the generation of greenhouse gases.

Allows diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input.

Allows use of smaller emergency generators since the electrical load associated with an absorption chiller is minimal.

## PHYSICAL DATA

| 16NK                         |                | 11                      | 12   | 13   | 21   | 22   | 31    | 32    | 41    | 42    |
|------------------------------|----------------|-------------------------|------|------|------|------|-------|-------|-------|-------|
| <b>Cooling capacity</b>      | kW             | 345                     | 447  | 549  | 689  | 861  | 1034  | 1238  | 1378  | 1551  |
| <b>Chilled water system*</b> |                |                         |      |      |      |      |       |       |       |       |
| Flow rate                    | l/s            | 14.8                    | 19.2 | 23.6 | 29.7 | 37.2 | 44.4  | 53.3  | 59.4  | 66.7  |
| Pressure drop                | kPa            | 44                      | 64   | 64   | 57   | 42   | 41    | 49    | 46    | 41    |
| Connection (ANSI)            | in             | 4                       | 4    | 4    | 5    | 6    | 6     | 6     | 8     | 8     |
| Retention volume             | m <sup>3</sup> | 0.13                    | 0.15 | 0.17 | 0.24 | 0.28 | 0.34  | 0.36  | 0.46  | 0.48  |
| <b>Cooling water system*</b> |                |                         |      |      |      |      |       |       |       |       |
| Flow rate                    | l/s            | 24.7                    | 31.9 | 39.4 | 49.4 | 61.9 | 74.2  | 88.9  | 98.9  | 111.4 |
| Pressure drop                | kPa            | 68                      | 40   | 49   | 109  | 74   | 53    | 65    | 67    | 73    |
| Connection (ANSI)            | in             | 5                       | 5    | 5    | 6    | 8    | 8     | 8     | 10    | 10    |
| Retention volume             | m <sup>3</sup> | 0.34                    | 0.38 | 0.42 | 0.58 | 0.63 | 0.89  | 0.95  | 1.11  | 1.9   |
| <b>Steam system</b>          |                | Saturated steam 784 kPa |      |      |      |      |       |       |       |       |
| Consumption                  | kg/h           | 400                     | 510  | 630  | 790  | 980  | 1180  | 1410  | 1570  | 1770  |
| <b>Dimensions</b>            |                | mm                      |      |      |      |      |       |       |       |       |
| Length A                     |                | 2810                    | 3850 | 3850 | 3880 | 4920 | 5040  | 5040  | 5100  | 5100  |
| Height B                     |                | 2200                    | 2200 | 2200 | 2250 | 2250 | 2390  | 2390  | 2600  | 2600  |
| Width C                      |                | 2050                    | 1910 | 1910 | 2240 | 2070 | 2170  | 2170  | 2400  | 2400  |
| <b>Operating weight</b>      | kg             | 4600                    | 5800 | 6100 | 7500 | 8800 | 11200 | 11800 | 13900 | 14500 |
| <b>Power supply</b>          |                | V-ph-Hz                 |      |      |      |      |       |       |       |       |
|                              |                | 400-3-50                |      |      |      |      |       |       |       |       |
| Total current drawn          | A              | 10.8                    | 10.8 | 10.8 | 13.3 | 13.3 | 13.6  | 13.6  | 20.7  | 20.7  |

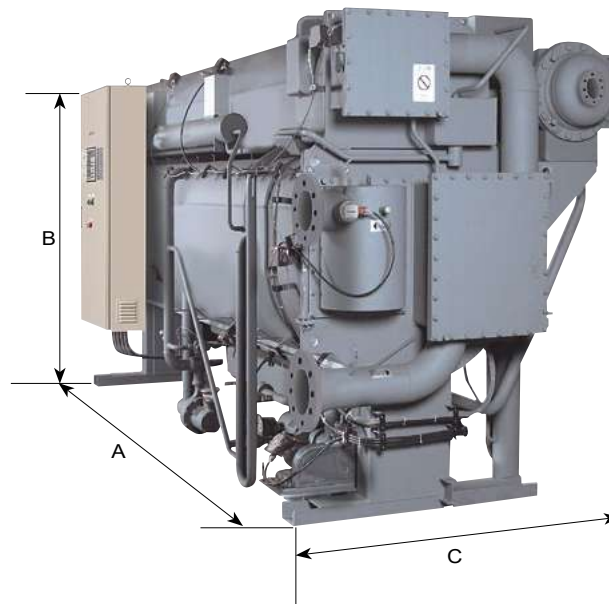
| 16NK                         |                | 51                      | 52    | 53    | 61    | 62    | 63    | 71    | 72    | 81    |
|------------------------------|----------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Cooling capacity</b>      | kW             | 1723                    | 1927  | 2170  | 2412  | 2757  | 3101  | 3446  | 3963  | 4652  |
| <b>Chilled water system*</b> |                |                         |       |       |       |       |       |       |       |       |
| Flow rate                    | l/s            | 74.2                    | 83.1  | 93.9  | 103.9 | 118.6 | 133.6 | 148.3 | 170.6 | 200.3 |
| Pressure drop                | kPa            | 98                      | 46    | 61    | 123   | 83    | 78    | 54    | 81    | 84    |
| Connection (ANSI)            | in             | 8                       | 8     | 8     | 10    | 10    | 10    | 12    | 12    | 14    |
| Retention volume             | m <sup>3</sup> | 0.65                    | 0.71  | 0.77  | 0.99  | 1.06  | 1.13  | 1.41  | 1.61  | 1.94  |
| <b>Cooling water system*</b> |                |                         |       |       |       |       |       |       |       |       |
| Flow rate                    | l/s            | 123.6                   | 138.3 | 155.6 | 173.1 | 197.8 | 222.5 | 247.2 | 284.4 | 333.9 |
| Pressure drop                | kPa            | 53                      | 71    | 94    | 61    | 83    | 111   | 77    | 113   | 122   |
| Connection (ANSI)            | in             | 12                      | 12    | 12    | 14    | 14    | 14    | 16    | 16    | 16    |
| Retention volume             | m <sup>3</sup> | 1.87                    | 2.01  | 2.14  | 2.79  | 2.97  | 3.15  | 3.67  | 4.11  | 4.76  |
| <b>Steam system</b>          |                | Saturated steam 784 kPa |       |       |       |       |       |       |       |       |
| Consumption                  | kg/h           | 1960                    | 2200  | 2470  | 2750  | 3140  | 3530  | 3920  | 4510  | 5300  |
| <b>Dimensions</b>            |                | mm                      |       |       |       |       |       |       |       |       |
| Length A                     |                | 5330                    | 5870  | 6370  | 6100  | 6190  | 6710  | 6440  | 7460  | 7460  |
| Height B                     |                | 2900                    | 2900  | 2900  | 3330  | 3330  | 3330  | 3450  | 3450  | 3650  |
| Width C                      |                | 2770                    | 2800  | 2800  | 2970  | 3000  | 3000  | 3300  | 3300  | 3500  |
| <b>Operating weight</b>      | kg             | 18800                   | 20800 | 22300 | 26500 | 30000 | 32100 | 38000 | 42300 | 47300 |
| <b>Power supply</b>          |                | V-ph-Hz                 |       |       |       |       |       |       |       |       |
|                              |                | 400-3-50                |       |       |       |       |       |       |       |       |
| Total current drawn          | A              | 22.7                    | 24.5  | 24.5  | 25.5  | 25    | 25    | 33.5  | 33.5  | 33.5  |

Cooling per ARI 560 2000:

\* 12.2 → 6.7°C (fouling factor = 0.0176 m<sup>2</sup> K/kW)\*\* 29.4 → 35.4°C (fouling factor = 0.044 m<sup>2</sup> K/kW)

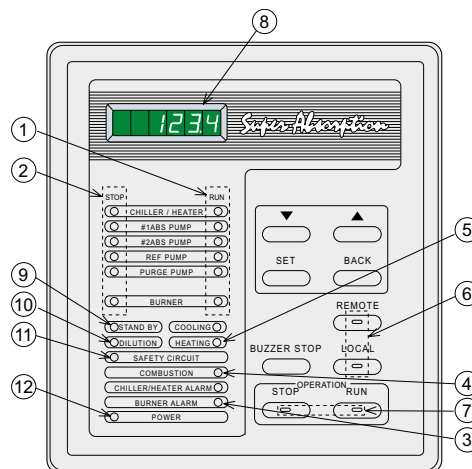
## FEATURES AND ADVANTAGES

- Eighteen sizes with nominal cooling capacities from 345 to 4652 kW.
- The 16NK absorption chillers are designed for cooling applications where low-pressure steam is available as waste heat.
- Can tie into district steam systems.
- Allows diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input.
- Allows use of smaller emergency generators since the electrical load associated with an absorption chiller is minimal.
- Environmentally balanced and CFC-free.
- Minimises global warming effect by greatly reducing power consumption and eliminating the generation of greenhouse gases.
- Reduced noise and vibration levels. The absorption chiller does not use a large motor-compressor, leading to quiet, vibration-free operation.
- Small footprint. The high efficiency associated with double-effect chillers results in a reduction of the required installation space.
- Auto-diagnosis system monitors operating conditions, predicts chiller information and maintains stable operation.
- Advanced high-precision control system.
- Absorption pump with inverter control for efficient, energy-saving operation.
- High-performance purge system minimises maintenance requirements.
- State-of-the-art protection devices guarantee enhanced operating safety.



## CONTROLS

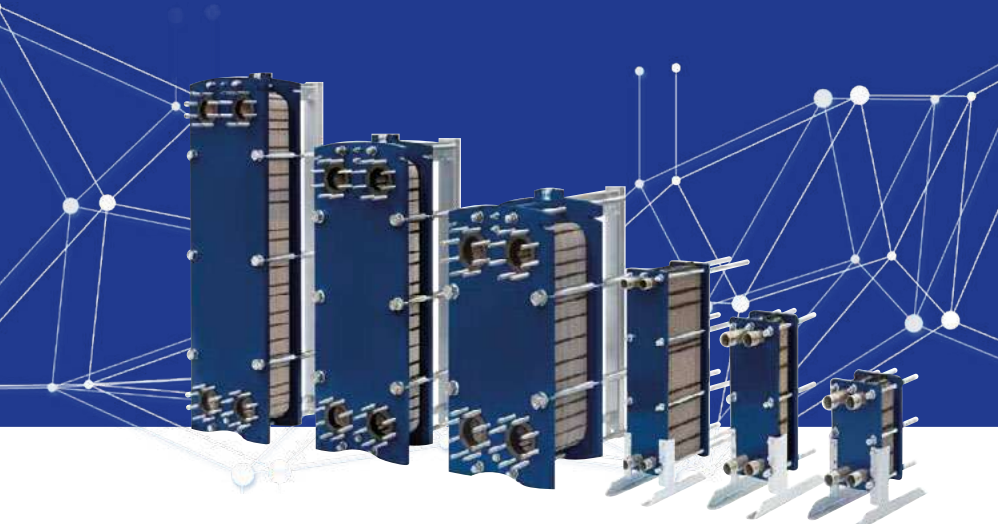
Display and control board



- |                              |                              |
|------------------------------|------------------------------|
| 1 Operation indication       | 7 Operation mode selection   |
| 2 Stop indication            | 8 Data display               |
| 3 Alarm indication           | 9 Stand-by indication        |
| 4 Combustion indication      | 10 Dilution indication       |
| 5 Cooling/heating indication | 11 Safety circuit indication |
| 6 Remote/local select button | 12 Power indication          |



## GASKETED PLATE HEAT EXCHANGERS



Decoupling of the machines to the system

Cost efficient design

Qualified and reliable

High heat transfer coefficient

Close temperature approach

## 10TE

Large range capable to handle water flow rate up to 800m<sup>3</sup>/h

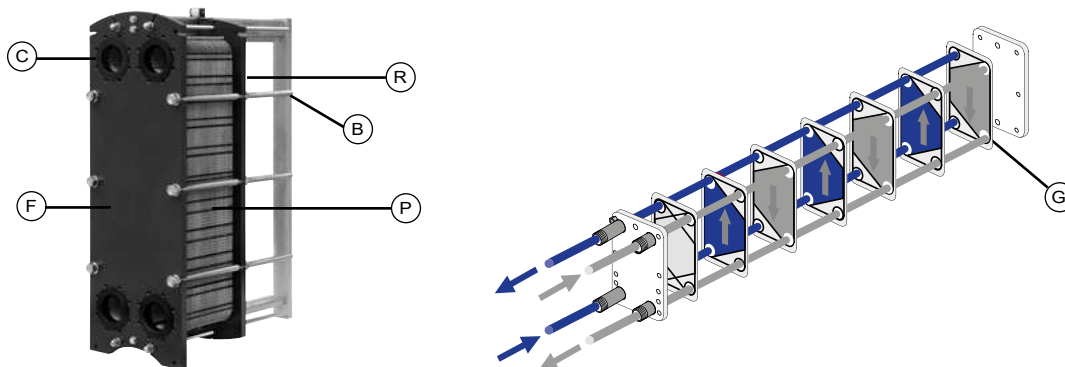
10TE gasketed plate heat exchangers are particularly well-suited for a wide range of applications:

- Heat pump installations
- Water cooled chillers
- Heat recovery
- Heating and cooling sub-stations
- Domestic water heating
- Swimming pool heating
- Recovery on corrosive waste
- Geothermal energy recovery
- Industrial processes



## DESCRIPTION

Gasketed plate heat exchanger consists of a number of corrugated heat transfer plates (P) compressed by means of tightening bolts (B) between a front fixed frame plate (F) and a rear moveable frame plate (R). Specific rubber gaskets (G) fastened on each plates generates two alternating independent circuits where the heat transfer between the two fluids take place in parallel and countercurrent flow. The unit is connected with the pipe system by nozzles or flanged connections (C).



## SELECTION

Due to the range's extreme modularity, the thermal selection must be optimised on the thermal requirements and the allowable pressure drops of each circuit. The importance of pressure drops must not be underestimated when selecting an heat exchanger, as it influences the choice of model and number of plates and thus the heat transfer area.

The heat transfer area is also influenced by other factors, such as the height to width ratio, the angle and depth of the chevron patterns.

## ADVANTAGES

- Excellent heat transfer coefficient
- Very low pinch point temperatures possible
- High corrosion resistance
- Compact footprint
- Easy to install and to maintain
- Low-capacity circuits and fluid retention volume
- Possibility of heat transfer area extension
- Maximum differential pressure equal to maximum operating pressure

## PRECAUTIONS

- Do not damage the exchanger gaskets:
  - Avoid water hammering, overpressure/temperature and limit on/off cycles.
  - Do not use 1/4-turn valves.
  - Use with steam between 0 and 3 bar (effective).
  - Provide a control system adapted to the requirements and which takes the low capacity of the circuits into account.
- Ensure the plates are kept clean so they maintain their thermal efficiency:
  - Filter fluids containing suspended particles.
  - Ensure the fluids are constantly circulating in the exchanger to prevent any build-up or scale.
  - Install nozzles on the pipes for cleaning in place.

## RANGE

|                               | 10TEE020+  | 10TEE040+ | 10TEE080+ | 10TEE070+ | 10TEE160+ | 10TEE260+ | 10TEE110+  | 10TEE210+ | 10TEE410+ |
|-------------------------------|------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|
| Width mm                      | 145        |           |           | 245       |           |           | 320        |           |           |
| Height mm                     | 305        | 455       | 740       | 527       | 857       | 1202      | 584        | 848       | 1375      |
| Connections diameter          | DN32 1"1/4 |           |           | DN50 2"   |           |           | DN65 2"1/2 |           |           |
| Corrugation angle             | H/L        |           |           | H/L       |           |           | H/L        |           |           |
| Max. water flowrate m³/h      | 19         |           |           | 63        |           |           | 80         |           |           |
| PS=> Max working pressure bar | 10         | 16        | 25        | 10        | 16        | 25        | 10         | 16        | 25        |

|                               | 10TEE270+ | 10TEE300+ | 10TEE450+ | 10TEE700+ | 10TEE400+ | 10TEE600+ | 10TEE900+ | 10TEE650+ | 10TEE990+ |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Width mm                      | 320       | 425       |           |           | 500       |           |           | 678       | 668       |
| Height mm                     | 1071      | 877       | 1322      | 1767      | 1055      | 1503      | 1951      | 1340      | 1825      |
| Connections diameter          | DN80 3"   | DN100 4"  |           |           | DN150 6"  |           |           | DN200 8"  |           |
| Corrugation angle             | H/L       | H/L       |           |           | H/L       |           |           | H/L       |           |
| Max. water flowrate m³/h      | 110       | 240       |           |           | 380       |           |           | 800       | 730       |
| PS=> Max working pressure bar | 10        | 16        | 25        | 10        | 16        | 10        | 16        | 10        | 16        |

- Plate thickness : 0,4mm - 0,5mm - 0,6mm - 0,7mm - availability according to model, material, pressure
- Plate material : 304 stainless steel - 316L stainless steel - 254 SMO (except 10TEE990+) - Titanium
- Gasket material : NBR - EPDM Prx - FPM
- Frame material : Carbon steel - Stainless steel

## OPTIONS

### Double wall plates section

10TEE040+ 10TEE080+ 10TEE160+

#### Description

Double-wall plates consist of two identical heat transfer plates embossed together and then joined by laser welding around the inlet and outlet portholes. Such kind of coupling generates a thin air gap between the two plates that, in case of welding or plate's failure, prevents fluids intermixing and brings to an external leakage visually detectable. Suitable for all the heat transfer processes where cross contamination is to avoid, the double-wall plates are the right solution for all those HVAC applications where a higher level of safety is recommendable and/or required by local rules.

#### Benefits

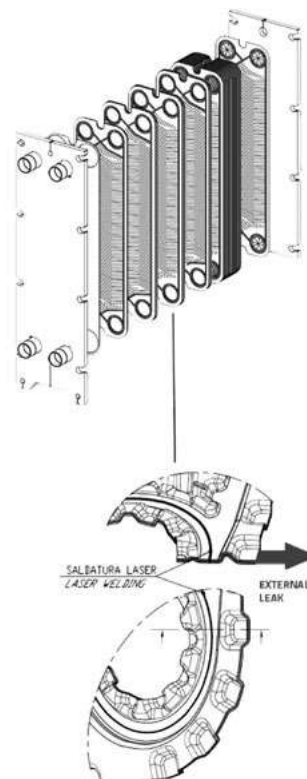
Minimize the risk of fluids intermixing.

Allow visual detection from the outside of any internal leak.  
Offer all the advantages of Gasketed Plate Heat Exchanger technology: maximum heat transfer, compact design and easy maintenance.

#### Technical data

Material of plates: AISI 316L

Design standard: PED 2014/68/EU up to risk cat. IV Pressure design / test (g): up to 16 / 26 bar



## ACCESSORIES

### TF insulation (DN 32, DN 50 and DN 65 models)

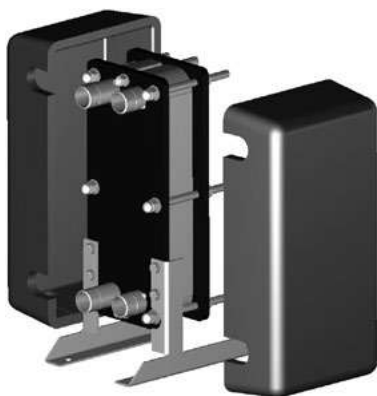
#### Description

TF is the thermal insulation specifically designed for HVAC applications of our small size plate heat exchangers.

TF is a thermoformed and semi-rigid prefabricated case easy to install and to adjust to the specific configuration of the heat exchanger and to eventual particular customer needs.

The special "double-layered" structure, comprising two different expanded elastomers (thickness up to 30 mm), makes it suitable for heating and cooling applications.

Supplied as a kit, it can be easily and quickly assembled with no need for special tools (only a cutter is required) supported by the assembly instruction sheet and the templates pre-marked on each case.



#### Advantages

- Heat exchanger completely contained inside the insulation: minimized energy losses and condensation, higher level of safety and comfort for those who work around the heat exchanger.
- Easy to adapt on site to all product's configurations (single or multi-pass, with or without mounting brackets, with or without drip tray, etc.) and to adjust to different customer's needs (specific installation supports or devices, non-standard position of connections, etc.).
- Low installation costs.
- Lightweight and resilient.

#### Technical specifications

- Exterior finish: semi-rigid high density dark greys foam.
- Insulating materials: cross-linked, closed-cell, polyolefin (PO) foam with a density of 84 kg/m<sup>3</sup> (outer layer) and cross-linked, closed-cell, polyolefin (PO) foam with a density of 35 kg/m<sup>3</sup> (inner layer).
- Thermal conductivity coefficient ( $\lambda$ -value) of the insulating materials at 40°C: 0,0372 W/mk (outer layer) and 0,038 W/mk (inner layer).
- Operating temperature limits: -10°C / + 130°C.
- Classification of fire resistance of the insulating materials: conform to the FMVSS 302 standard of flame containment at less than 100 mm/min

## ACCESSORIES

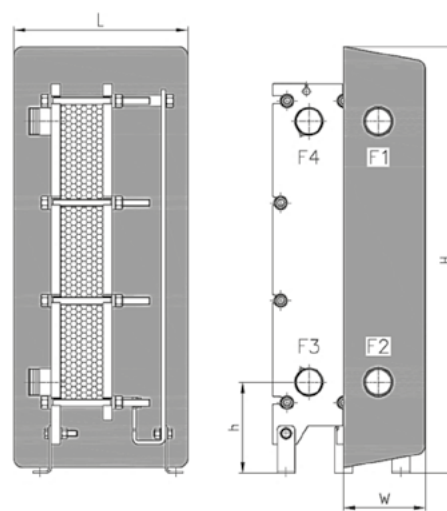
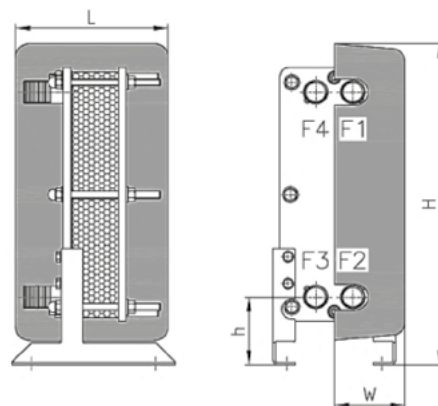
### Dimensions

| DN 32       |     |     |     |     |
|-------------|-----|-----|-----|-----|
| 10TEE020+   | L   | H   | W   | h   |
| Max. 29 p.  | 280 | 450 | 130 | 125 |
| Max. 49 p.  | 380 | 450 | 130 | 125 |
| Max. 75 p.  | 580 | 450 | 130 | 125 |
| 10TEE040+   | L   | H   | W   | h   |
| Max. 29 p.  | 280 | 595 | 130 | 125 |
| Max. 49 p.  | 380 | 595 | 130 | 125 |
| Max. 75 p.  | 580 | 595 | 130 | 125 |
| 10TEE080+   | L   | H   | W   | h   |
| Max. 29 p.  | 280 | 865 | 130 | 125 |
| Max. 49 p.  | 380 | 865 | 130 | 125 |
| Max. 75 p.  | 580 | 865 | 130 | 125 |
| Max. 101 p. | 580 | 865 | 130 | 125 |

| DN 50       |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE070+   | L    | H    | W   | h   |
| Max. 41 p.  | 472  | 858  | 185 | 250 |
| Max. 71 p.  | 612  | 858  | 185 | 250 |
| Max. 101 p. | 752  | 858  | 185 | 250 |
| Max. 151 p. | 982  | 858  | 185 | 250 |
| 10TEE160+   | L    | H    | W   | h   |
| Max. 41 p.  | 472  | 1188 | 185 | 250 |
| Max. 71 p.  | 612  | 1188 | 185 | 250 |
| Max. 101 p. | 752  | 1188 | 185 | 250 |
| Max. 151 p. | 982  | 1188 | 185 | 250 |
| Max. 251 p. | 1442 | 1188 | 185 | 250 |
| 10TEE260+   | L    | H    | W   | h   |
| Max. 41 p.  | 472  | 1533 | 185 | 250 |
| Max. 71 p.  | 612  | 1533 | 185 | 250 |
| Max. 101 p. | 752  | 1533 | 185 | 250 |
| Max. 151 p. | 982  | 1533 | 185 | 250 |
| Max. 251 p. | 1442 | 1533 | 185 | 250 |

| DN 65       |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE110+   | L    | H    | W   | h   |
| Max. 41 p.  | 490  | 900  | 233 | 251 |
| Max. 71 p.  | 630  | 900  | 233 | 251 |
| Max. 101 p. | 770  | 900  | 233 | 251 |
| Max. 151 p. | 1000 | 900  | 233 | 251 |
| 10TEE210+   | L    | H    | W   | h   |
| Max. 41 p.  | 490  | 1160 | 233 | 251 |
| Max. 71 p.  | 630  | 1160 | 233 | 251 |
| Max. 101 p. | 770  | 1160 | 233 | 251 |
| Max. 151 p. | 1000 | 1160 | 233 | 251 |

All dimensions are given in mm. The dimensional tolerance is compatible with the accuracy permitted by the thermoforming process.





## ACCESSORIES

### PB insulation (DN 65, DN 80, DN 100, DN 150 and DN 200 models)

#### Description

PB is the thermal insulation specifically designed for HVAC applications of our larger size plate heat exchangers.

PB is a self-supporting modular structure made with insulating panels (thickness 45 mm) anchored together by means of locking hooks and coupled in such a way as to minimize the thermal bridges.

The particular sandwich structure of the insulating panels, obtained by coupling two Aluminum foils to the polyurethane foam, ensures to the case high thermal insulation, good structural rigidity and appropriate surface finish.

Supplied as a kit, it is easily and quickly assembled without the use of special tools.



#### Advantages

- Heat exchanger completely contained inside the insulation: minimized energy losses and condensation, higher level of safety and comfort for those who work around the heat exchanger.
- Low installation costs.
- Quick and easy access to the heat exchanger for inspection.

#### Technical specifications

- Exterior finish of the panels: smooth sheet of pre-painted Aluminum RAL 2306 (thickness 0,5 mm).
- Insulating material: rigid foam of polyurethane with a high percentage of closed cells (above 95%) and a density of 48 kg/m<sup>3</sup>.
- Initial thermal conductivity coefficient ( $\lambda$ -value) of the insulating material: 0,024 W/m °C (measured at an average temperature of 10°C according to ISO 8302).
- Operating temperature: -10°C / + 130°C.
- Classification of fire resistance of the insulating material: B - 2s, d0 (according to EN 13501-1: 2007).

## ACCESSORIES

### Dimensions

| DN 65       |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE410+   | L    | H    | W   | h   |
| Max. 41 p.  | 842  | 1637 | 554 | 171 |
| Max. 71 p.  | 842  | 1637 | 554 | 171 |
| Max. 101 p. | 982  | 1637 | 554 | 171 |
| Max. 151 p. | 1212 | 1637 | 554 | 171 |
| Max. 251 p. | 1701 | 1637 | 554 | 171 |

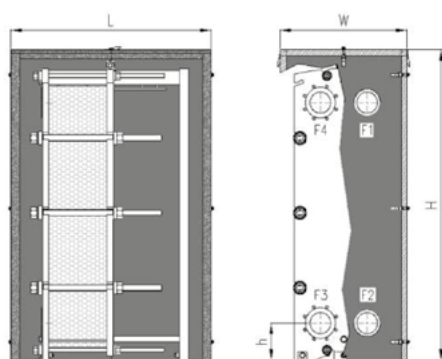
| DN 80       |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE270+   | L    | H    | W   | h   |
| Max. 41 p.  | 842  | 1357 | 554 | 198 |
| Max. 71 p.  | 842  | 1357 | 554 | 198 |
| Max. 101 p. | 982  | 1357 | 554 | 198 |
| Max. 151 p. | 1212 | 1357 | 554 | 198 |
| Max. 251 p. | 1701 | 1357 | 554 | 198 |

| DN 100      |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE300+   | L    | H    | W   | h   |
| Max. 101 p. | 1074 | 1180 | 678 | 198 |
| Max. 201 p. | 1574 | 1180 | 678 | 198 |
| Max. 301 p. | 2074 | 1180 | 678 | 198 |
| Max. 401 p. | 2574 | 1180 | 678 | 198 |
| 10TEE450+   | L    | H    | W   | h   |
| Max. 101 p. | 1074 | 1625 | 678 | 198 |
| Max. 201 p. | 1574 | 1625 | 678 | 198 |
| Max. 301 p. | 2074 | 1625 | 678 | 198 |
| Max. 401 p. | 2574 | 1625 | 678 | 198 |
| 10TEE700+   | L    | H    | W   | h   |
| Max. 101 p. | 1074 | 2070 | 678 | 198 |
| Max. 201 p. | 1574 | 2070 | 678 | 198 |
| Max. 301 p. | 2074 | 2070 | 678 | 198 |
| Max. 401 p. | 2574 | 2070 | 678 | 198 |

| DN 150      |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE400+   | L    | H    | W   | h   |
| Max. 101 p. | 1074 | 1433 | 757 | 256 |
| Max. 201 p. | 1574 | 1433 | 757 | 256 |
| Max. 301 p. | 2074 | 1433 | 757 | 256 |
| Max. 401 p. | 2574 | 1433 | 757 | 256 |
| Max. 551 p. | 3374 | 1433 | 757 | 256 |
| 10TEE600+   | L    | H    | W   | h   |
| Max. 101 p. | 1074 | 1881 | 757 | 256 |
| Max. 201 p. | 1574 | 1881 | 757 | 256 |
| Max. 301 p. | 2074 | 1881 | 757 | 256 |
| Max. 401 p. | 2574 | 1881 | 757 | 256 |
| Max. 551 p. | 3374 | 1881 | 757 | 256 |
| 10TEE900+   | L    | H    | W   | h   |
| Max. 101 p. | 1074 | 2374 | 757 | 256 |
| Max. 201 p. | 1574 | 2374 | 757 | 256 |
| Max. 301 p. | 2074 | 2374 | 757 | 256 |
| Max. 401 p. | 2574 | 2374 | 757 | 256 |
| Max. 551 p. | 3374 | 2374 | 757 | 256 |
| Max. 701 p. | 4204 | 2374 | 757 | 256 |

| DN 200      |      |      |     |     |
|-------------|------|------|-----|-----|
| 10TEE650+   | L    | H    | W   | h   |
| Max. 151 p. | 1504 | 1764 | 957 | 285 |
| Max. 251 p. | 2104 | 1764 | 957 | 285 |
| Max. 351 p. | 2504 | 1764 | 957 | 285 |
| Max. 551 p. | 3404 | 1764 | 957 | 285 |
| 10TEE990+   | L    | H    | W   | h   |
| Max. 151 p. | 1504 | 2263 | 957 | 285 |
| Max. 251 p. | 2104 | 2263 | 957 | 285 |
| Max. 351 p. | 2504 | 2263 | 957 | 285 |
| Max. 551 p. | 3404 | 2263 | 957 | 285 |

All dimensions are given in mm. The dimensional tolerance is compatible with the accuracy permitted by the thermoforming process. The dimensions shown do not include the dimensions of the locking hooks. Total size:  $W + 30 \text{ mm} / 30 \text{ mm } L + / H + 15 \text{ mm}$ .



## ACCESSORIES

### Drip tray (all models)

#### Description

The drip tray is a safeguard device specifically designed to collect water or other fluids in case of unexpected fluid leakage or when the heat exchanger is open for maintenance.

Strongly recommended in case of hazardous media and when further protection for the outside environment is required, it is also used in cooling applications to collect condensate formed on the outside of the heat exchanger.

Designed to be positioned under the heat exchanger and fixed by fastening bolts on the anchor brackets, the drip tray is dimensioned to hold the entire plate pack and the two frame plates. In this way all eventual fluids coming from the heat exchanger can be collected in the drip tray and drained by mean of the apposite draining pipe.

#### Advantages

- Reduced risk of flooding in case of condensate, unexpected fluid leakage or when the heat exchangers is open for maintenance.
- Possibility to adjust tilt to facilitate drainage.
- Low installation costs.

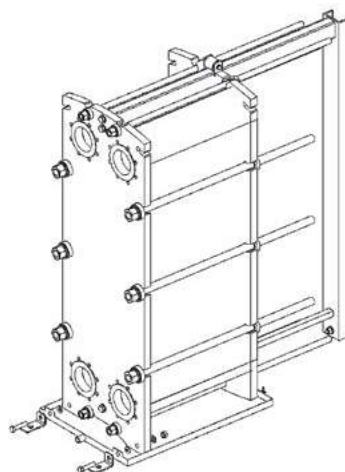
#### Technical specifications

Material of construction: Stainless steel AISI 304 (thickness 1mm).

Draining pipe: 3/4" sleeve internally threaded

#### Main dimensions

The drip trays are available in various sizes to be fitted to all models of the standard range of gasketed plate heat exchangers.



## ACCESSORIES

### Plate pack protection

#### All models

##### Description

The Plate Pack Protection is a safeguard device specifically designed to protect personnel in case of unexpected leakage. Strongly recommended in case of hazardous services, it should be always used when temperatures are over 60°C also when handling uncritical media.

The Plate Pack Protection consists of two or more metal sheets shaped to cover the plate pack and to fit the plate heat exchangers. On smaller units the sheets cover the plate pack enveloping the frame plates. On larger units the sheets are fitted between the tightening bolts and the plate pack.

Supplied as a kit, it is easily and quickly assembled without the use of tools nor screws or bolts.

##### Benefits

Higher level of safety for those who work around the heat exchanger.

Protection of the plate pack in case of aggressive or polluted environment.

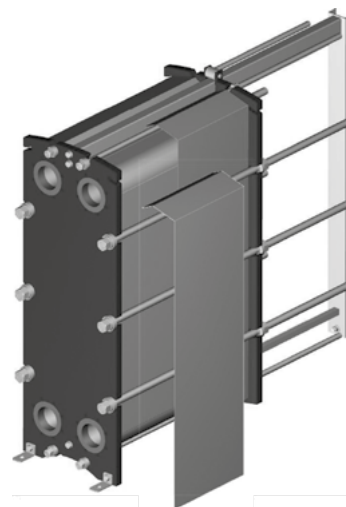
Quick and easy access to the heat exchanger for inspection.  
Low installation costs.

##### Technical data

Material of construction: Stainless steel AISI 304 (thickness 1 mm).

##### Main dimensions

Each Plate Pack Protection is factory-tailor-made to fit to the specific plate heat exchanger.











# Heating

435

| Type                                      | Range                 | Refrigerant | Cooling capacity, kW | Heating capacity, kW | Page |
|---|-----------------------|-------------|----------------------|----------------------|------|
| <hr/>                                     |                       |             |                      |                      |      |
| <b>Air-to-water heat pumps, axial fan</b> |                       |             |                      |                      |      |
| With scroll or rotary compressors         |                       |             |                      |                      |      |
|   | 61AF 014-019          | R-410A      | -                    | 14-20                | 437  |
|   | 30RQ 017-040          | R-410A      | 16-39                | 17-41                | 445  |
|   | 61AF 030-105          | R-410A      | -                    | 26-102               | 455  |
| NEW                                       | 30RQ 040R-160R        | R32         | 40-160               | 40-160               | 467  |
| NEW                                       | 30RQ-/30RQP 165-1040R | R32         | 160-1040             | 170-940              | 489  |
| <hr/>                                     |                       |             |                      |                      |      |
| <b>Water-to-water heat pumps</b>          |                       |             |                      |                      |      |
| with scroll compressors                   |                       |             |                      |                      |      |
|   | 61WG                  | R-410A      | 25-190               | 29-230               | 515  |
|   | 30WG / 30WGA          | R-410A      | 25-190               | 29-230               | 535  |
| with screw compressors                    |                       |             |                      |                      |      |
|   | 30XWH / 30XWHP        | R-410A      | 273-1756             | 317-1989             | 569  |
|   | 30XWHV                | R-410A      | 587-1741             | 648-1932             | 597  |
|   | 30XWHP-ZE             | R-1234ze    | 269-1110             | 319-1296             | 609  |
|   | 30XWH-VZE             | R-1234ze    | 448-1243             | 524-1485             | 623  |
|   | 61XWH-ZE              | R-1234ze    | -                    | 200-2500             | 635  |





## HIGH-TEMPERATURE MONOBLOC AIR-TO-WATER HEAT PUMPS WITH INTEGRATED HYDRAULIC MODULE



Hot water up to 65°C  
High energy efficiency level  
Hydraulic module with  
Class A circulator  
Superior reliability

# 61AF 014-019

Nominal heating capacity 14-20 kW

The AquaSnap high-temperature heat pump range was designed for commercial applications such as the heating of offices, apartments and hotels as well as domestic hot water production in new and refurbished buildings.

**AQUASNAP.**  
Heating



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## FEATURES AND BENEFITS

### Features

The main features of this product range are:

- **Energy savings**  
The 61AF range is certified to the Eurovent energy efficiency class A with a coefficient of performance (COP) of over 4. This complies with the COP required by the Ecolabel certification.
- **Ease-of-installation**  
The high-temperature AquaSnap heat pumps incorporate a hydraulic module with a variable speed pump, in option.
- **Easy integration**  
The low noise levels of the 61AF heat pump and its very compact chassis reduce the noise disturbance from the unit.
- **Application flexibility**  
The operating range allows outside temperatures down to -20°C and leaving water temperatures up to 65°C for domestic hot water applications.
- **Availability**
  - Intelligent unit control permits unit operation in extreme conditions, minimising unit shut-down times.
  - Hot water production at 65°C is available continuously.

Carrier quality is your guarantee for the safety and durability of the installation.

The high-temperature heat pump range incorporates the latest technological features:

- scroll compressors with vapour injection
- low-noise fans made of a composite material
- auto-adaptative microprocessor control
- electronic expansion valve
- variable speed pump.

The high-temperature AquaSnap heat pumps can be equipped with a hydraulic module that is integrated into the heat pump chassis, limiting the installation to straight-forward operations like the wiring and the connection of the hot water supply and return piping.

### Quiet operation

- **Compressors**
  - Low-noise scroll compressors with low vibration level.
  - The compressor assembly is installed on an independent chassis and supported by anti-vibration mountings.
  - Dynamic suction and discharge piping supports, minimising vibration transmission (Carrier patent).
- **Evaporator section**
  - Vertical evaporator coils
  - Protection grilles on anti-vibration mountings to protect the heat exchanger against possible shocks.
  - Latest-generation low-noise Flying Bird fans are now even quieter and do not generate intrusive low-frequency noise.
  - Rigid fan installation for reduced start-up noise.

### Easy and fast installation

- **Integrated hydraulic module (option)**
  - Variable speed water pump.
  - Water filter protects the water pump against circulating debris (option).
  - Overpressure valve, set to 3 bar for the 61AF 014 and to 4 bar for the 61AF 019.
  - Thermal insulation and frost protection down to -20°C, using an electric resistance heater.
- **Physical features**
  - The unit has a small footprint and a low height (1103 mm for the 61AF 014 and 1550 mm for the 61AF 019), allowing it to blend in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except condensers and fans).
- **Simplified electrical connections**
  - Single power supply point with neutral.
  - Main disconnect switch with high trip capacity (standard only for 61AF 019).
  - Transformer for safe 24 V control circuit supply included.
- **Fast commissioning**
  - Systematic factory operation test before shipment.
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors.

### Economical operation

- **Seasonal heating performance optimized**
  - In accordance with standard EN 14825/2013 in average climate, the Seasonal Coefficient of performance (SCOP) reaches 2.83 for an energy label of A+.
  - The electronic expansion device (EXV) allows operation at a lower condensing pressure (COP optimisation).
  - Dynamic superheat management for better utilisation of the condenser surface.
  - Specific Free Defrost algorithm is present to optimise performance and comfort even during defrost period.
- **Reduced maintenance costs**
  - Maintenance-free scroll compressors with vapour injection.
  - Pro-Dialog+ control offers fast diagnosis of possible incidents and their history.

### Environmental care

- **Non-ozone depleting R-407C refrigerant**
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential.
  - Very efficient - ensures an increased energy efficiency ratio (COP).
- **Leak-tight refrigerant circuit**
  - Brazed refrigerant connections for increased leak-tightness.
  - Reduction of leaks due to elimination of capillary tubes (TXVs).
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge.

## FEATURES AND BENEFITS

### Superior reliability

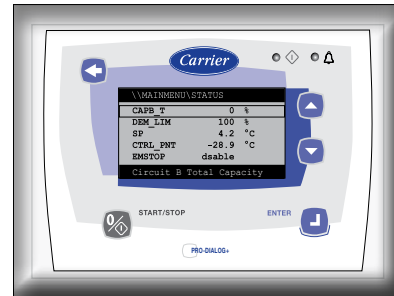
- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling.
- Exceptional endurance tests
  - Corrosion resistance tests in salt mist in the laboratory.
  - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports.
  - Transport simulation test in the laboratory on a vibrating table.

### Pro-Dialog+ control

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the condenser water pump for optimum energy efficiency.

- Energy management
  - Seven-day internal time schedule clock: permits unit on/off control and operation at a second set-point.
  - Set-point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T.
  - Master/slave control of two heat pumps operating in parallel with operating time equalisation and automatic change-over in case of a unit fault (option).
  - Start/stop based on the outside air temperature.
- Ease-of-use
  - The new backlighted LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
  - The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult Carrier).
  - The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet browsers. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set-point, air temperature, entering/leaving water temperature.
  - As standard the unit includes a board for the control of a boiler and four electric resistance heater stages.

### Pro-Dialog+ operator interface



### Remote operating mode with volt-free contacts (standard)

A simple two-wire communication bus between the RS485 port of the AquaSnap high-temperature heat pumps and the Carrier Comfort Network offers multiple remote control, monitoring and diagnostic possibilities.

Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of a heating system. Please consult your Carrier representative for more information on these products.

- Start/stop: opening of this contact will shut down the heat pump.
- Dual set-point: closing of this contact activates a second heating set-point (example: unoccupied mode).
- Demand limit: closing of this contact limits the maximum heat pump capacity to a predefined value.
- User safety: this contact is connected in series with the water flow switch and can be used for any customer safety loop.
- Water pump control.
- Alert indication: this volt-free contact indicates the presence of a minor fault.
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of the refrigerant circuit.

### Remote interface (accessory)

This accessory includes a box that can be mounted inside the building. The power supply is provided via a 220 V/24 V transformer supplied. This interface allows access to the same menus as the unit interface and can be installed up to 300 m from the 61AF unit.



## TYPE KEY

|   |               |          |             |          |          |          |          |          |          |          |          |  |
|---|---------------|----------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|--|
|   | <b>61 A F</b> | <b>-</b> | <b>0 14</b> | <b>P</b> | <b>7</b> | <b>B</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>A</b> |  |
| Range   |               |          |             |          |          |          |          |          |          |          |          | - - Revision status                          |
| Standard version  |               |          |             |          |          |          |          |          |          |          |          | - - New option (Not used)                    |
| Nominal capacity  |               |          |             |          |          |          |          |          |          |          |          | - - New option (Not used)                    |
| X - Without hydraulic module                              |               |          |             |          |          |          |          |          |          |          |          | - - Standard                                 |
| P - With variable speed circulator without expansion tank |               |          |             |          |          |          |          |          |          |          |          | A - Master/Slave (lead/lag)                  |
| 7 - Single phase power supply (230/1+N/50) (Only size 14) |               |          |             |          |          |          |          |          |          |          |          | - - Standard                                 |
| 9 - Power supply with neutral cable (400/3+N/50)          |               |          |             |          |          |          |          |          |          |          |          | A - Remote User Interface HMI (as accessory) |
| - - Without gateway                                       |               |          |             |          |          |          |          |          |          |          |          |  |
| B - CCN Jbus gateway                                      |               |          |             |          |          |          |          |          |          |          |          |  |
| C - CCN Bacnet gateway                                    |               |          |             |          |          |          |          |          |          |          |          |  |
| D - CCN LONtalk gateway                                   |               |          |             |          |          |          |          |          |          |          |          |  |

## ACCESSORIES

| Accessories  | Description                                   | Advantages                                       | Use          |
|--------------|---|--|--------------|
| Water filter | External water filter on the hydraulic module | Water pump protection against circulating debris | 61AF 014-019 |

## PHYSICAL DATA

| 61AF   |                                       |                            |  | 014-7    | 014-9    | 019-9                    |
|--|---------------------------------------|----------------------------|--|----------|----------|--------------------------|
| Heating  |                                       |                            |  |          |          |                          |
| Standard unit<br>Full load performances *                            | HA1                                   | Nominal capacity           | kW   | 13,8     | 13,4     | 19,9                     |
|  |                                       | COP                        | kW/kW  | 3,88     | 4,14     | 4,23                     |
|  | HA2                                   | Nominal capacity           | kW   | 14,0     | 13,6     | 19,6                     |
|  |                                       | COP                        | kW/kW  | 3,31     | 3,49     | 3,45                     |
|  | HA3                                   | Nominal capacity           | kW   | 14,0     | 13,6     | 19,5                     |
|  |                                       | COP                        | kW/kW  | 2,89     | 2,99     | 2,93                     |
|  | HA4                                   | Nominal capacity           | kW   | 13,8     | 13,5     | 19,8                     |
|  |                                       | COP                        | kW/kW  | 2,41     | 2,47     | 2,41                     |
| Standard unit<br>Seasonal energy efficiency**                        | HA1                                   | SCOP <sub>30/35°C</sub>    | kWh/kWh  | 3,35     | 3,57     | 3,49                     |
|  |                                       | ηs heat <sub>30/35°C</sub> | %  | 131      | 140      | 137                      |
|  |                                       | P <sub>rated</sub>         | kWh/kWh  | 14       | 13       | 13                       |
|  | HA3                                   | SCOP <sub>47/55°C</sub>    | %  | 2,92     | 3,05     | 3,08                     |
|  |                                       | ηs heat <sub>47/55°C</sub> | kW   | 114      | 119      | 120                      |
|  |                                       | P <sub>rated</sub>         |  | 14       | 13       | 14                       |
|  | Operating weight <sup>(1)</sup>       |                            |  |          |          |                          |
|  | Standard unit (without hydraulic kit) |                            |  | kg       | 159      | 159                      |
| Standard unit (plus hydraulic module option)                         |                                       |                            | kg   | 169      | 169      | 216                      |
| Sound levels   |                                       |                            |  |          |          |                          |
| Sound power level <sup>(2)</sup>                                     |                                       |                            | dB(A)  | 71       | 71       | 72                       |
| Sound pressure level at 10 m <sup>(3)</sup>                          |                                       |                            | dB(A)  | 40       | 40       | 41                       |
| Dimensions   |                                       |                            |  |          |          |                          |
| Length   |                                       |                            | mm   | 1103     | 1103     | 1135                     |
| Depth  |                                       |                            | mm   | 333      | 333      | 559                      |
| Height   |                                       |                            | mm   | 1278     | 1278     | 1579                     |
| Compressor   |                                       |                            | One, hermetic scroll, 48,3 r/s, one capacity stage |          |          |                          |
| Refrigerant  |                                       |                            | R-407C   |          |          |                          |
| Charge   |                                       |                            | kg   | 4,0      | 4,0      | 8,0                      |
|  |                                       |                            | teqCO <sub>2</sub>                                 | 7,1      | 7,1      | 14,2                     |
| Capacity control   |                                       |                            | Pro-Dialog+  |          |          |                          |
| Minimum capacity   |                                       |                            | %  | 100      | 100      | 100                      |
| Condenser  |                                       |                            | Direct-expansion plate heat exchanger              |          |          |                          |
| Water volume   |                                       |                            | l  | 3,7      | 3,7      | 3,9                      |
| Max. water-side operating pressure with and without hydraulic module |                                       |                            | kPa  | 300      | 300      | 400                      |
| Fan  |                                       |                            | Two, axial twin-speed fans                         |          |          |                          |
| Total air flow (high speed)  |                                       |                            | l/s  | 2050     | 2050     | 2000                     |
| Speed  |                                       |                            | r/s  | 11,7     | 11,7     | 14,5                     |
| Evaporator   |                                       |                            | Grooved copper tubes and aluminium fins            |          |          |                          |
| Pump   |                                       |                            | Variable speed pump                                |          |          |                          |
| Water connections with/without hydraulic module                      |                                       |                            | Victaulic  |          |          |                          |
| Connections  |                                       |                            | inch   | 1 female | 1 female | 1 male in/1-1/4 male out |
| Outside diameter   |                                       |                            | mm   | 25       | 25       | 25 in/32 out             |
| Chassis paint colour   |                                       |                            | Colour code: RAL 7035                              |          |          |                          |

- \* In accordance with standard EN14511-3:2013
- \*\* In accordance with standard EN14825:2016, average climate
- HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- HA4 Heating mode conditions: Water heat exchanger water entering/leaving temperature 55°C/65°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub>
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (3) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).



Eurovent certified values

## ELECTRICAL DATA

| 61AF - standard unit                                       |         | 014-7                          | 014-9    | 019      | 014-7                          | 014-9    | 019      |
|--|---------|--------------------------------|----------|----------|--------------------------------|----------|----------|
|  |         | Without pump                   |          |          | With pump                      |          |          |
| <b>Power circuit</b>                                       |         |                                |          |          |                                |          |          |
| Nominal power supply                                       | V-ph-Hz | 230-1-50                       | 400-3-50 | 400-3-50 | 230-1-50                       | 400-3-50 | 400-3-50 |
| Voltage range  | V       | 207-253                        | 360-440  | 360-440  | 207-253                        | 360-440  | 360-440  |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer |          |          | 24 V, via internal transformer |          |          |
| <b>Maximum start-up current (Un)<sup>(1)</sup></b>         |         |                                |          |          |                                |          |          |
| Standard unit  | A       | -                              | 66       | 102      | -                              | 67       | 103      |
| Unit with electronic starter option                        | A       | 47                             | -        | -        | 48                             | -        | -        |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,82                           | 0,82     | 0,82     | 0,82                           | 0,82     | 0,82     |
| <b>Maximum unit power input<sup>(2)</sup></b>              | kW      | 6,4                            | 5,9      | 8,8      | 6,5                            | 6,0      | 8,9      |
| <b>Nominal unit current draw<sup>(3)</sup></b>             | A       | 22,9                           | 7,9      | 12,4     | 24,0                           | 9,0      | 13,5     |
| <b>Maximum unit current draw (Un)<sup>(4)</sup></b>        | A       | 30,7                           | 10,8     | 16,0     | 31,8                           | 11,9     | 17,1     |
| <b>Maximum unit current draw (Un-10%)*</b>                 | A       | 36,4                           | 11,9     | 16,6     | 37,5                           | 13,0     | 17,7     |

(1) Maximum instantaneous start-up current (maximum operating current of the compressor + fan current + locked rotor current of the compressor).

(2) Power input, compressor and fan, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

(3) Standardised Eurovent conditions: condenser entering/leaving water temperature = 40°C/45°C, outside air temperature db/wb = 7°C/6°C.

(4) Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

\* Maximum unit operating current at maximum unit power input and 360 V.

**Electrical data and operating conditions notes:**

- 61AF 014-019 units have a single power connection point located immediately upstream of the main disconnect switch.
- The control box includes the following standard features:
  - a main disconnect switch (size 019 only),
  - starter and motor protection devices for the compressor, the fan and the pump,
  - the control devices.
- Field connections:  
All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Carrier 61AF units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (machine safety - electrical machine components - part 1: general regulations - corresponds to IEC 60204-1) are specifically taken into account, when designing the electrical equipment.

**Notes:**

- Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives. Conformance with EN 60204-1 is the best means of ensuring compliance with the Machinery Directive § 1.5.1.
- Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.

The operating environment for the 61AF units is specified below:

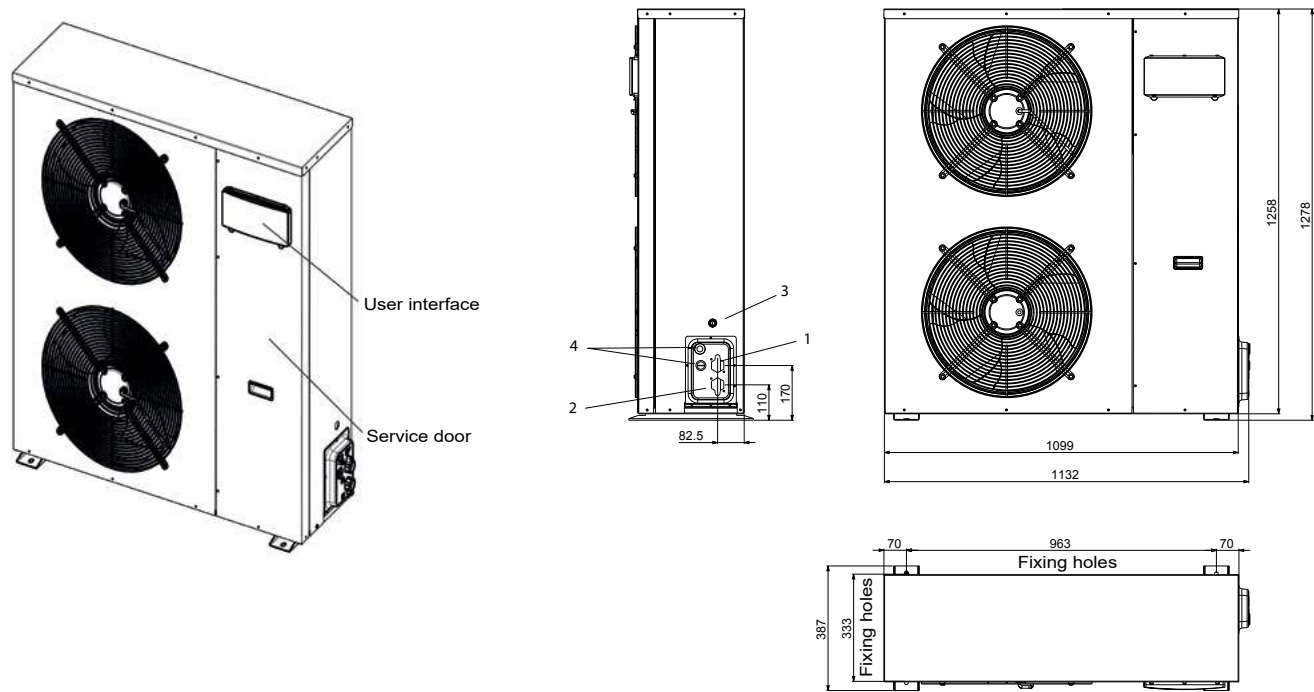
- Environment<sup>(1)</sup> - Environment as classified in EN 60721 (corresponds to IEC 60721):
  - outdoor installation<sup>(1)</sup>
  - ambient temperature range: -20°C to +40°C, class 4K4H
  - altitude: ≤ 2000 m
  - presence of hard solids, class 4S2 (no significant dust present)
  - presence of corrosive and polluting substances, class 4C2 (negligible)
- Power supply frequency variation: ± 2 Hz.
- The neutral (N) conductor must not be connected directly to the unit (if necessary use a transformer).
- Overcurrent protection of the power supply conductors is not provided with the unit.
- The factory-installed disconnect switch is of a type suitable for power interruption in accordance with EN 60947-3 (corresponds to IEC 60947-3)
- The units are designed for connection to TN networks (IEC 60364). For IT networks the earth connection must not be at the network earth. Provide a local earth, consult competent local organisations to complete the electrical installation.

**Caution: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.**

(1) The required protection level for this class is IP43BW (according to reference document IEC 60529). All 61AF units are protected to IP44CW and fulfil this protection condition.

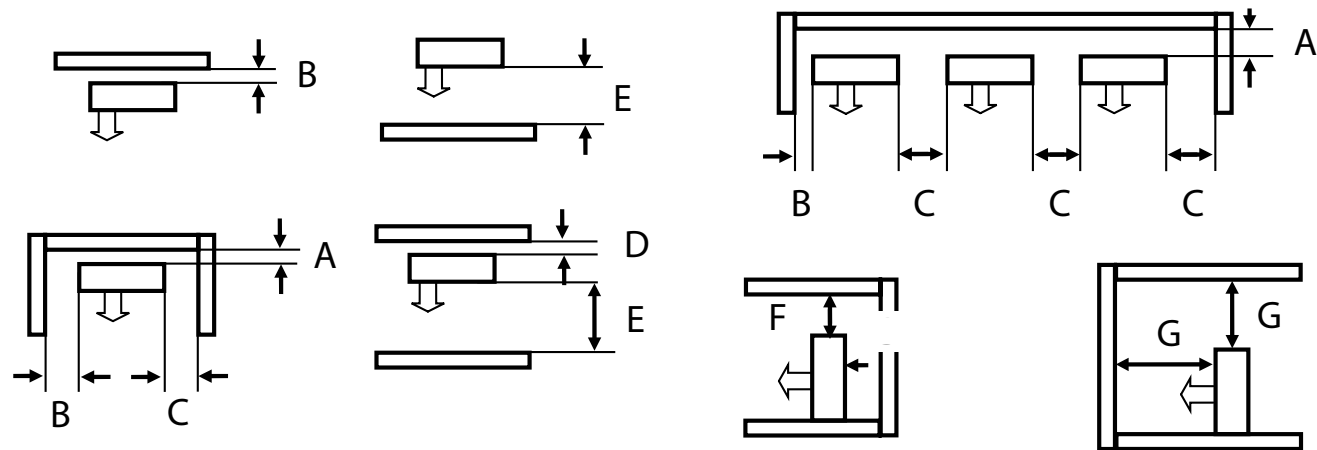
# DIMENSIONS, MM

## 61AF 014 unit with and without hydraulic module



1. Water outlet
2. Water inlet
3. Relief valve outlet
4. Electrical connections

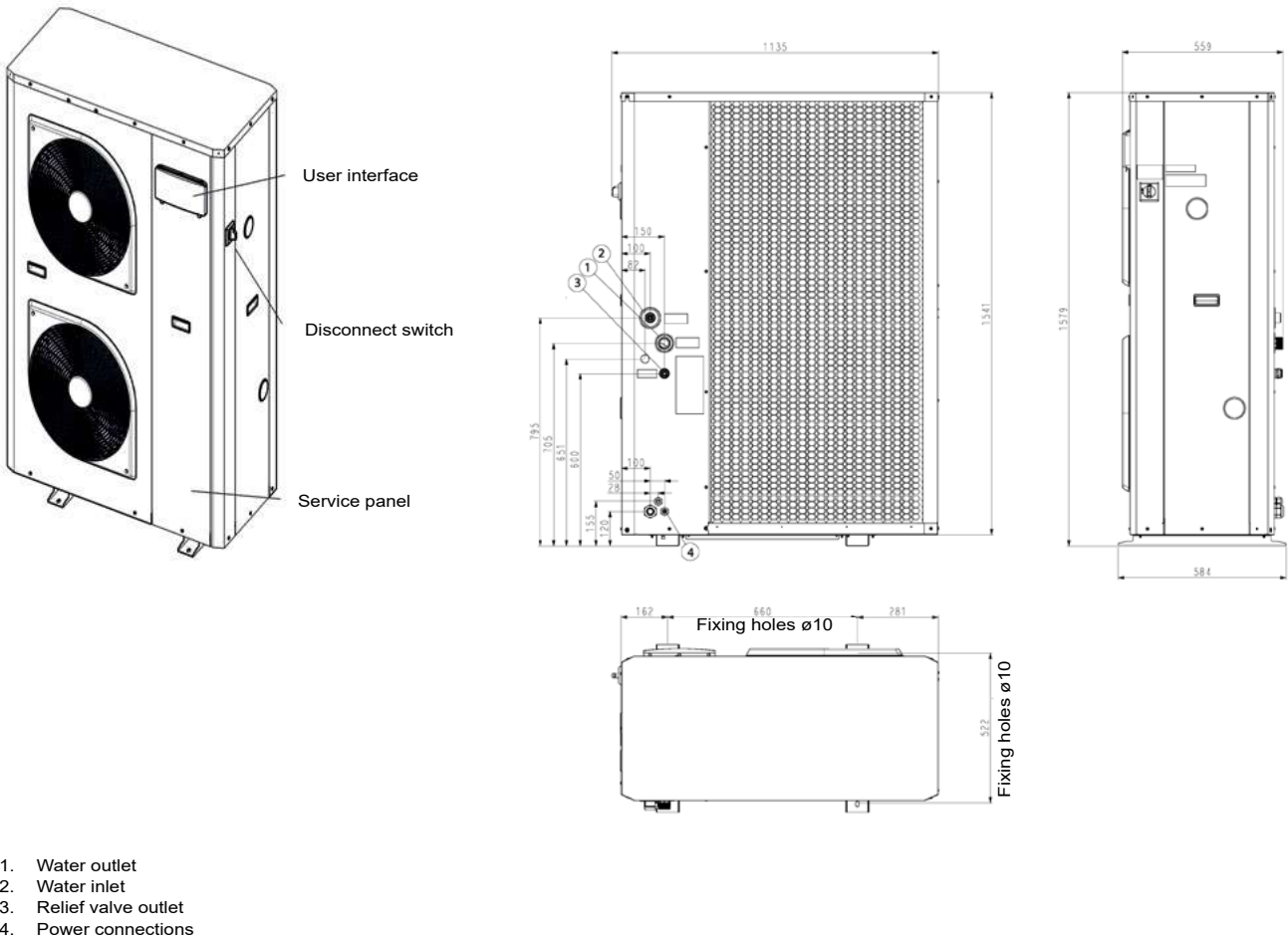
# CLEARANCES, MM



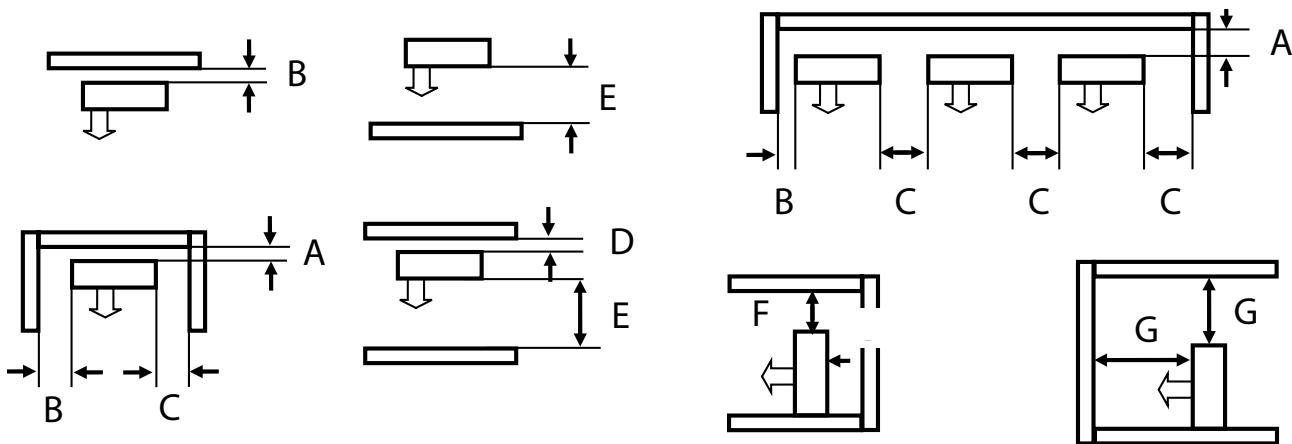
| 61AF 014 | A   | B   | C   | D   | E   | F   | G   |
|----------|-----|-----|-----|-----|-----|-----|-----|
|          | 100 | 250 | 500 | 100 | 670 | 400 | 670 |

DIMENSIONS, MM

61AF 019 unit with and without hydraulic module



CLEARANCES, MM



| 61AF 019 | A   | B   | C   | D   | E   | F   | G    |
|----------|-----|-----|-----|-----|-----|-----|------|
|          | 300 | 200 | 400 | 200 | 700 | 500 | 1000 |

## AIR-TO-WATER HEAT PUMPS



Easy and fast installation  
Hydraulic module available  
Economical operation  
Superior reliability

## 30RQ 017-040 A

**AQUASNAP**  
Reversible

Nominal heating capacity 30RQ: 17-41 kW  
Nominal cooling capacity 30RQ: 16-39 kW

The Aquasnap liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices and hotels etc.

The new Aquasnap units integrate the latest technological innovations:

- Ozone-friendly refrigerant R410A
- Scroll compressors
- Low-noise fans
- Auto-adaptive microprocessor control

The Aquasnap units are equipped with a hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply and the water supply and return piping.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## FEATURES

### Quiet operation

- Compressors
  - Low-noise scroll compressors with low vibration levels
  - The compressor assembly is supported by anti-vibration mountings
- Air heat exchanger section
  - Vertical air heat exchanger coils
  - The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise
  - Rigid fan installation for reduced start-up noise.

### Easy and fast installation

- Integrated hydraulic module
  - Fixed speed circulator
  - Water filter protecting the water pump against circulating debris
  - High-capacity membrane expansion tank ensures pressurisation of the water circuit
  - Overpressure valve, set to 4 bar
  - Automatic purge valve positioned at the highest point of the hydraulic module to remove air from the system.
  - Thermal insulation and frost protection down to -10°C, using an electric resistance heater and pump cycling.
  - Integrated water fill system to ensure correct water pressure (option)
- Physical features
  - With its small footprint the unit blends in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- Simplified electrical connections
  - A single power supply point (power supply without neutral available as an option and in standard for units size 40kW)
  - Main disconnect switch with high trip capacity
  - Transformer for safe 24 V control circuit supply included
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors.

### Economical operation

- Increased energy efficiency at part load
  - In accordance with standard EN 14825/2013 in average climate, the Seasonal Coefficient of performance (SCOP) reaches 3.01 for an energy label of A.
  - Specific Free Defrost algorithm is present to optimise performance and comfort even during defrost period.
- Reduced maintenance costs
  - Maintenance-free scroll compressors
  - Fast diagnosis of possible incidents and their history via the Pro-Dialog+ control
  - R410A refrigerant is easier to use than other refrigerant blends

### Environmental care

- Ozone-friendly R410A refrigerant
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
  - Very efficient - gives an increased energy efficiency ratio (EER)
- Leak-tight refrigerant circuit
  - Brazed refrigerant connections for increased leak-tightness
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge

#### Hydraulic module, sizes 026-040



### Superior reliability

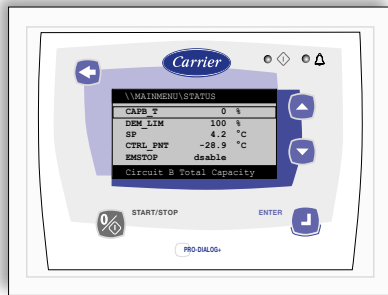
- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit (Carrier patent)
- Exceptional endurance tests
  - Corrosion resistance tests in salt mist in the laboratory
  - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports
  - Transport simulation test in the laboratory on a vibrating table.

## FEATURES

### Pro-Dialog+ control

Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

#### Pro-Dialog+ interface



- **Energy management**
  - Seven-day internal time schedule clock: Permits unit on/off control and operation at a second set point
  - Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T
  - Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault.
  - Change-over based on the outside air temperature
- **Integrated features**
  - Night mode: Capacity and fan speed limitation for reduced noise level
- **Ease-of-use**
  - The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
  - The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult Carrier)
  - The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

### Remote operating mode with volt-free contacts (standard)

A simple two-wire communication bus between the RS485 port of the Aquasnap and the Carrier Comfort Network offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information on these products.

- Start/stop: Opening of this contact will shut down the unit
- Dual set point: Closing of this contact activates a second set point (example: Unoccupied mode)
- Alert indication: This volt-free contact indicates the presence of a minor fault
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of the unit
- User safety: This contact can be used for any customer safety loop, closing of the contact generates a specific alarm
- Out of service: This signal indicates that the unit is completely out of service
- Unit capacity: This analogue output (0-10 V) gives an immediate indication of the unit capacity
- Compressor operation: This contact signals that the compressor is in operation

## FEATURES

### Remote interface (option)

This interface allows access to the same menus as the unit interface and can be installed up to 300 m away. It includes a box that can be mounted inside the building. The power supply is provided via a 220 V/24V transformer supplied.

### Interface access, sizes 026-040



## TYPE KEY

|  |          |          |            |          |          |          |          |          |          |           |  |
|--|----------|----------|------------|----------|----------|----------|----------|----------|----------|-----------|--|
| <b>30R</b>   | <b>Q</b> | <b>-</b> | <b>021</b> | <b>C</b> | <b>H</b> | <b>E</b> | <b>-</b> | <b>B</b> | <b>A</b> | <b>--</b> | <b>-</b>                                     |
| Range  |          |          |            |          |          |          |          |          |          |           | Revision status                              |
| B - Cooling  |          |          |            |          |          |          |          |          |          |           | Not used                                     |
| Q - Heat pump  |          |          |            |          |          |          |          |          |          |           |  |
| -- Standard  |          |          |            |          |          |          |          |          |          |           | -- Standard                                  |
| Y - High static fan  |          |          |            |          |          |          |          |          |          |           | A - Remote user Interface HMI (As accessory) |
| 017 - nominal size 17 kW   |          |          |            |          |          |          |          |          |          |           | -- Without gateway                           |
| 021 - nominal size 21 kW   |          |          |            |          |          |          |          |          |          |           | B -CCN JBus gateway                          |
| 026 - nominal size 26 kW   |          |          |            |          |          |          |          |          |          |           | C - CCN Bacnet gateway                       |
| 033 - nominal size 33 kW   |          |          |            |          |          |          |          |          |          |           | D -CCN LONtalk gateway                       |
| 040 - nominal size 40 kW   |          |          |            |          |          |          |          |          |          |           | -- Standard                                  |
| C - Power supply with neutral cable (only sizes 017-033)               |          |          |            |          |          |          |          |          |          |           | -- Without coil protection                   |
| D - Power supply without neutral                                       |          |          |            |          |          |          |          |          |          |           | E - Epoxy coil protection (Gold-fin)         |
| X - Without hydraulic module   |          |          |            |          |          |          |          |          |          |           |  |
| H - With hydraulic module with expansion tank                          |          |          |            |          |          |          |          |          |          |           |  |
| F - With hydraulic module with expansion tank and water filling system |          |          |            |          |          |          |          |          |          |           |  |
| R - With hydraulic and without expansion tank                          |          |          |            |          |          |          |          |          |          |           |  |
| Z - With hydraulic, w/o expansion tank and with water filling system   |          |          |            |          |          |          |          |          |          |           |  |

## PHYSICAL DATA, 30RQ UNITS

| 30RQ  |         |                                   |                    | 017                            | 021   | 026   | 033   | 040  |
|---|---------|-----------------------------------|--------------------|--------------------------------|-------|-------|-------|------|
| Heating                                       |         |                                   |                    |                                |       |       |       |      |
| Standard unit<br>Full load performances*      | HA1     | Nominal capacity                  | kW                 | 17,6                           | 22,0  | 30,8  | 34,3  | 38,6 |
|   |         | COP                               | kW/kW              | 4,03                           | 3,98  | 3,98  | 3,98  | 3,52 |
|   | HA2     | Nominal capacity                  | kW                 | 17,0                           | 21,5  | 29,6  | 33,0  | 40,7 |
|   |         | COP                               | kW/kW              | 3,21                           | 3,28  | 3,21  | 3,19  | 3,16 |
| Standard unit<br>Seasonal energy efficiency** | HA1     | SCOP 30/35°C                      | kW/kW              | 3,23                           | 3,20  | 3,26  | 3,27  | 3,25 |
|   |         | ηs heat 30/35°C                   | %                  | 126                            | 125   | 127   | 128   | 127  |
|   |         | P <sub>rated</sub>                | kW                 | 13                             | 13    | 21    | 23    | 31   |
|   |         | Energy labelling                  |                    | A+                             | A+    | A+    | A+    | A+   |
| Cooling                                       |         |                                   |                    |                                |       |       |       |      |
| Standard unit<br>Full load performances*      | CA1     | Nominal capacity                  | kW                 | 15,8                           | 19,9  | 26,3  | 32,3  | 39,2 |
|   |         | EER                               | kW/kW              | 3,10                           | 3,03  | 2,94  | 3,14  | 2,85 |
|   |         | Eurovent class                    |                    | A                              | B     | B     | A     | C    |
|   | CA2     | Nominal capacity                  | kW                 | 21,9                           | 26,9  | 34,0  | 42,9  | 54,2 |
|   |         | EER                               | kW/kW              | 3,93                           | 3,68  | 3,56  | 3,88  | 3,44 |
|   |         | Eurovent class                    |                    | A                              | B     | C     | A     | D    |
| Standard unit<br>Seasonal energy efficiency** |         | SEER 12/7°C Comfort low temp.     | kWh/kWh            | 3,42                           | 3,28  | 3,25  | 3,45  | 3,32 |
|   |         | SEER 23/18°C Comfort medium temp. | kWh/kWh            | 4,08                           | 3,78  | 3,74  | 3,96  | 3,85 |
|   |         | SEPR 12/7°C Process high temp.    | kWh/kWh            | 5,43                           | 5,20  | 4,95  | 5,10  | 3,94 |
| Integrated Part Load Value                    | IPLV.SI | kW/kW                             | 4,400              | 4,172                          | 4,068 | 4,352 | 3,846 |      |
| Operating weight <sup>(1)</sup>               |         |                                   |                    |                                |       |       |       |      |
| Standard unit, with hydraulic module          |         |                                   | kg                 | 206                            | 223   | 280   | 295   | 305  |
| Standard unit, without hydraulic module       |         |                                   | kg                 | 191                            | 208   | 262   | 277   | 287  |
| Sound power level <sup>(2)</sup>              |         |                                   | dB(A)              | 72                             | 74    | 78    | 78    | 80   |
| Sound pressure level at 10 m <sup>(3)</sup>   |         |                                   | dB(A)              | 40                             | 42    | 46    | 46    | 48   |
| Dimensions                                    |         |                                   |                    |                                |       |       |       |      |
| Length  |         | mm                                | 1136               |                                |       | 1002  |       |      |
| Depth   |         | mm                                | 584                |                                |       | 824   |       |      |
| Height  |         | mm                                | 1579               |                                |       | 1790  |       |      |
| Compressor                                    |         |                                   |                    | One hermetic scroll compressor |       |       |       |      |
| Refrigerant charge R-410A                     |         |                                   | kg                 | 6,4                            | 7,7   | 7,6   | 9,5   | 9,8  |
|   |         |                                   | teqCO <sub>2</sub> | 13,4                           | 16,1  | 15,9  | 19,8  | 20,5 |
| Control                                       |         |                                   |                    | Pro-Dialog+                    |       |       |       |      |

- \* In accordance with standard EN14511-3:2013
- \*\* In accordance with standard EN14825:2016, average climate
- HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator frosting factor 0 m².K/W
- HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator frosting factor 0 m².K/W
- CA1 Cooling mode conditions: evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W
- CA2 Cooling mode conditions: evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator frosting factor 0 m².K/W
- ηs heat 30/35°C & SCOP 30/35°C** Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application
- SEER 12/7°C & SEPR 12/7°C Values calculated in accordance with EN14825:2016
- SEER 23/18°C Values calculated in accordance with EN14825:2016
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (3) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).



Eurovent certified values

## PHYSICAL DATA, 30RQ UNITS

| 30RQ                              |     | 017   | 021   | 026                                | 033   | 040   |
|-----------------------------------|-----|---|-------|------------------------------------|-------|-------|
| <b>Fans</b>                       |     | Two twin-speed axial fans, 3 blades   |       | One twin-speed axial fan, 7 blades |       |       |
| Diameter                          | mm  | 495   | 495   | 710                                | 710   | 710   |
| Air flow                          | l/s | 2217  | 1978  | 3530                               | 3530  | 3530  |
| Speed                             | r/s | 14,5  | 14,5  | 15                                 | 15    | 15    |
| <b>Water heat exchanger</b>       |     | Plate heat exchanger, maximum operating pressure 1000 kPa   |       |                                    |       |       |
| <b>Water volume</b>               | l   | 1,52  | 1,9   | 2,28                               | 2,85  | 3,8   |
| <b>Air heat exchanger</b>         |     | Copper tubes and aluminum fins  |       |                                    |       |       |
| Pipe diameter                     | in  | 3/8   | 3/8   | 3/8                                | 3/8   | 3/8   |
| Number of rows                    |     | 2,5   | 3     | 2,5                                | 3     | 3     |
| Number of pipes per row           |     | 60  | 60    | 60                                 | 60    | 60    |
| Fin spacing                       | mm  | 1,69  | 1,69  | 1,69                               | 1,69  | 1,69  |
| <b>Standard unit</b>              |     |   |       |                                    |       |       |
| Water connections (MPT gas)       | in  | 1   | 1     | 1-1/4                              | 1-1/4 | 1-1/4 |
| <b>Unit with hydraulic module</b> |     | Pump, screen filter, expansion tank, flow switch, pressure gauge, automatic air purge valve, relief valve |       |                                    |       |       |
| Pump                              |     | One single-speed pump, maximum water-side operating pressure 400 kPa                                      |       |                                    |       |       |
| Expansion tank capacity           | l   | 5   | 5     | 8                                  | 8     | 8     |
| Entering water connection         | in  | 1-1/4   | 1-1/4 | 1-1/4                              | 1-1/4 | 1-1/4 |
| Leaving water connection          | in  | 1   | 1     | 1-1/4                              | 1-1/4 | 1-1/4 |
| Nominal operating current         | A   | 1,3   | 1,4   | 2,4                                | 2,6   | 2,8   |
| <b>Chassis paint colour</b>       |     | Beige   |       |                                    |       |       |

## ELECTRICAL DATA, 30RQ UNITS

| 30RQ                                     |         | 017   | 021  | 026  | 033  | 040                           |
|--|---------|---|------|------|------|-------------------------------|
| <b>Power circuit</b>                     |         |   |      |      |      |                               |
| Nominal power supply                     | V-ph-Hz | 400-3+N-50 (power supply option C)<br>or 400-3-50 (power supply option D) |      |      |      | 400-3-50<br>(STD - no option) |
| Voltage range                            | V       | 340-460   |      |      |      | 360-440                       |
| <b>Control circuit supply</b>            |         | 24 V via internal transformer   |      |      |      |                               |
| Maximum start-up current (Un)*           | A       | 75  | 95   | 118  | 118  | 176                           |
| Unit power factor at nominal capacity**  |         | 0.84  | 0.79 | 0.77 | 0.81 | 0.9                           |
| Maximum operating power input**          | kW      | 7.8   | 9.1  | 11   | 13.8 | 17.5                          |
| Nominal current drawn***                 | A       | 8   | 12   | 16   | 17   | 25                            |
| Maximum operating current draw (Un)****  | A       | 13  | 16   | 20   | 24   | 30                            |
| Maximum operating current draw (Un-15%)† | A       | 15  | 18   | 23   | 27   | 36                            |

\* Maximum instantaneous start-up current (locked rotor current of the compressor).

\* Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

\*\*\* Standardised Eurovent conditions: Water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

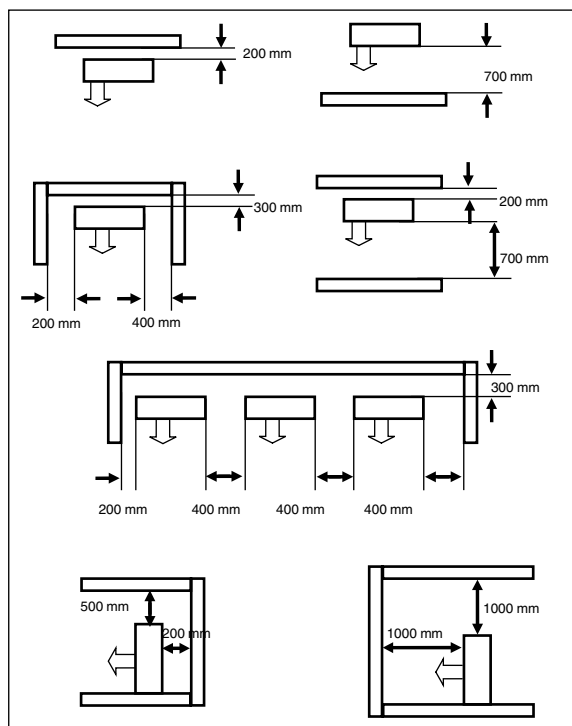
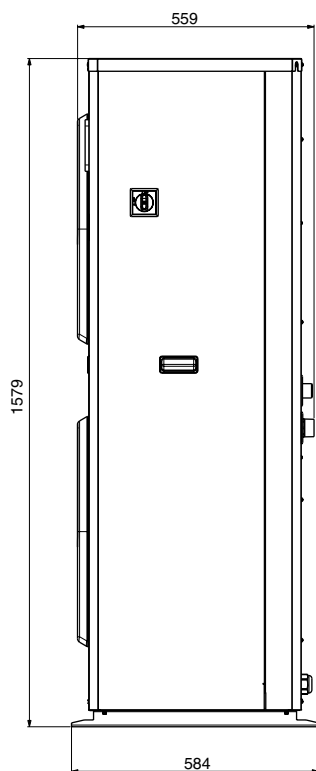
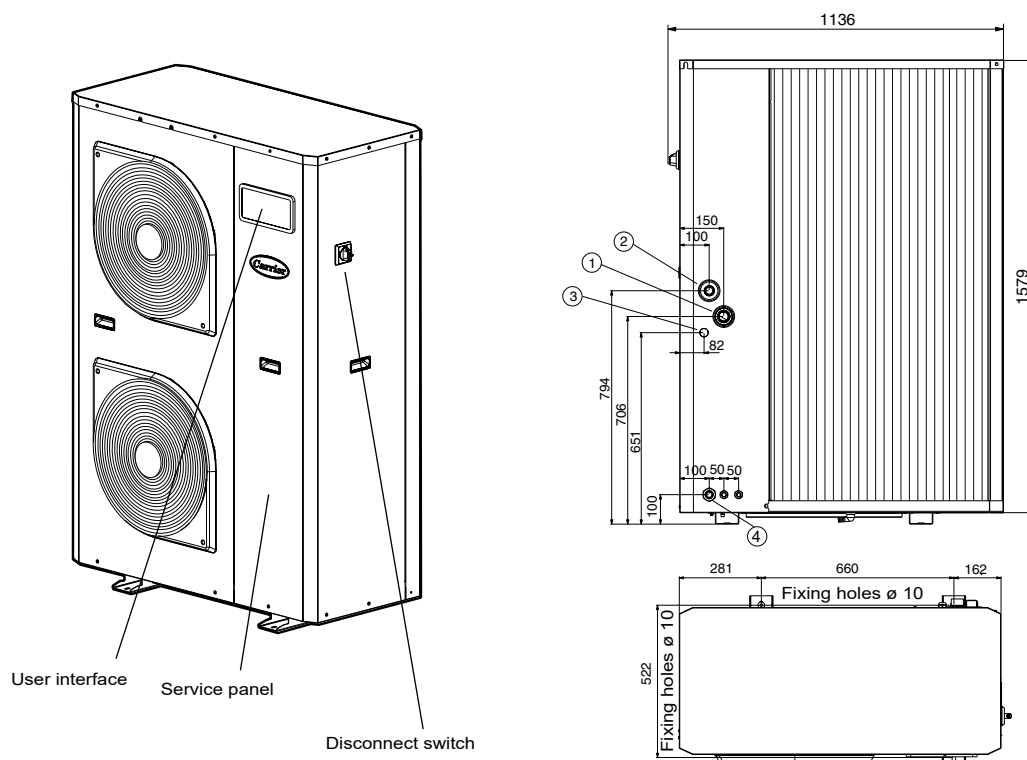
\*\*\*\* Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

† Maximum unit operating current at maximum unit power input and 340-460V for sizes 017 to 033 or 360-440V for size 040.



## DIMENSIONS/CLEARANCES

### 30RQ 017-021



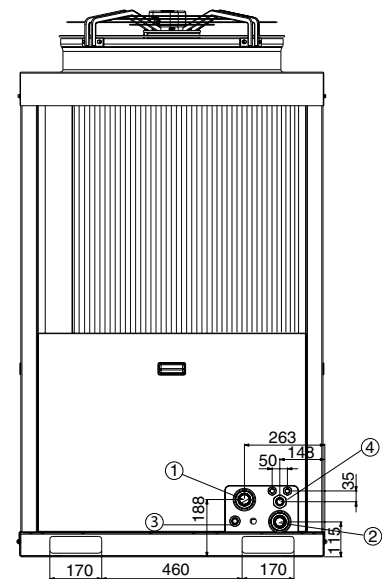
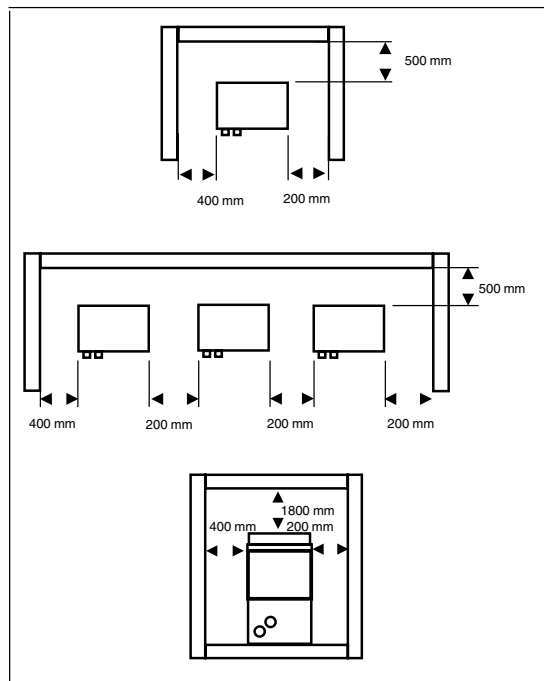
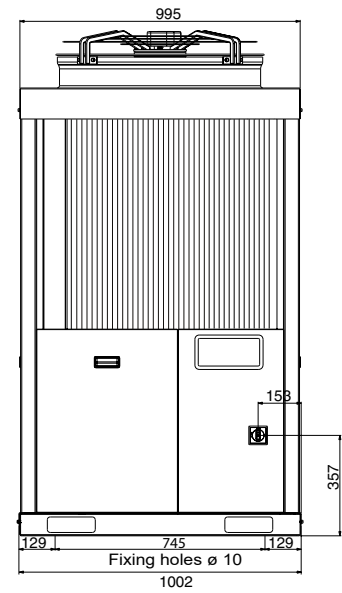
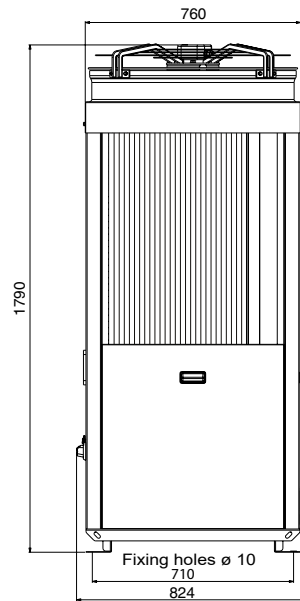
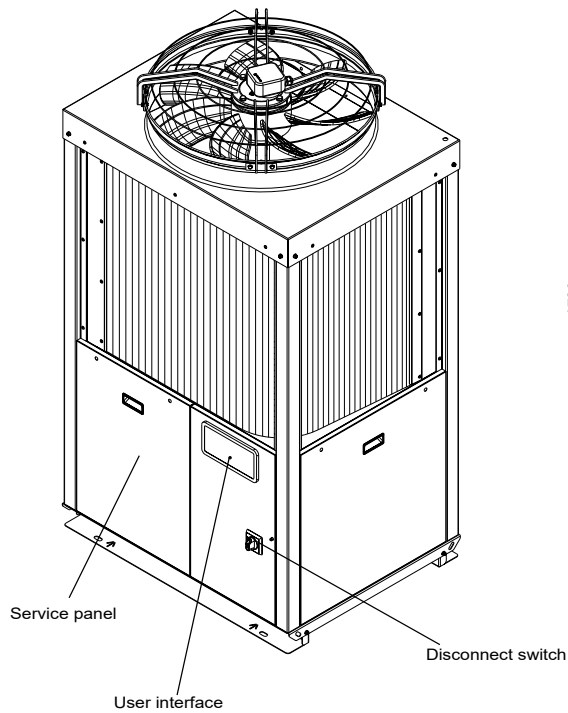
#### Legend

All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Power connections

## DIMENSIONS/CLEARANCES

### 30RQ 026-040



#### Legend

All dimensions are in mm

1. Water inlet
2. Water outlet
3. Water fill kit connection (option)
4. Power connections



## HIGH-TEMPERATURE MONOBLOC AIR-TO-WATER HEAT PUMPS WITH INTEGRATED HYDRAULIC MODULE



Unit with protection grille option



Heating system control (accessory)

61AF optimized for heating  
Compact design  
Plug & play approach  
High temperature 65°C

# 61AF 030-105

**AQUASNAP**  
Heating

Nominal heating capacity 26-102 kW 50 Hz

The AquaSnap high-temperature heat pump range was designed for commercial applications such as the heating of offices, apartments and hotels as well as domestic hot water production in new and refurbished buildings.

The main features of this product range are:

- Ease-of-installation

The high-temperature AquaSnap heat pumps incorporate an optional hydraulic module with a variable speed pump.

- Easy integration

The low noise levels of the 61AF heat pump and its very compact chassis reduce the noise disturbance from the unit.

- Application flexibility

The operating range allows outside temperatures down to -20°C and leaving water temperatures up to 65°C for domestic hot water applications.

- Availability

- Intelligent unit control permits unit operation in extreme conditions, minimising unit shut-down times.
- Hot water production at 65°C is available continuously.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## FEATURES AND BENEFITS

Carrier quality is your guarantee for the safety and durability of the installation.

The AquaSnap high-temperature heat pumps incorporate the latest technological features:

- Scroll compressors with vapour injection
- Low-noise fans made of a composite material
- Auto-adaptative microprocessor control
- Electronic expansion valve
- Variable speed.

The AquaSnap high-temperature heat pumps can be equipped with a hydraulic module that is integrated into the heat pump chassis, limiting the installation to straight-forward operations like the wiring and the connection of the hot water supply and return piping.

### Quiet operation

- Compressors
  - Low-noise scroll compressors with low vibration level.
  - The compressor assembly is installed on an independent chassis and supported by anti-vibration mountings.
  - Dynamic suction and discharge piping supports, minimising vibration transmission (Carrier patent).
- Evaporator section
  - Vertical evaporator coils
  - Anti-vibration mountings and optional grilles to protect the heat exchanger against possible shocks.
  - Latest-generation low-noise Flying Bird fans, made of a composite material (Carrier patent), are now even quieter and do not generate intrusive low-frequency noise.
  - Rigid fan installation for reduced start-up noise (Carrier patent).

### Easy and fast installation

- Integrated hydraulic module (option)
  - Variable speed pump, based on the pressure loss of the hydraulic installation.
  - Water filter protects the water pump against circulating debris.
  - Pump protected against cavitation by a pressure transducer that measures the entering water pressure.
  - Overpressure valve, set to 4 bar.
  - Thermal insulation and frost protection down to -20°C, using an electric resistance heater (see table of options).
- Physical features
  - The unit has a small footprint and a low height (1329 mm) allowing it to blend in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except condensers and fans).
- Simplified electrical connections
  - Single power supply point without neutral.
  - Main disconnect switch with high trip capacity.
  - Transformer for safe 24 V control circuit supply included.
- Fast commissioning
  - Systematic factory operation test before shipment.
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors.

### Economical operation

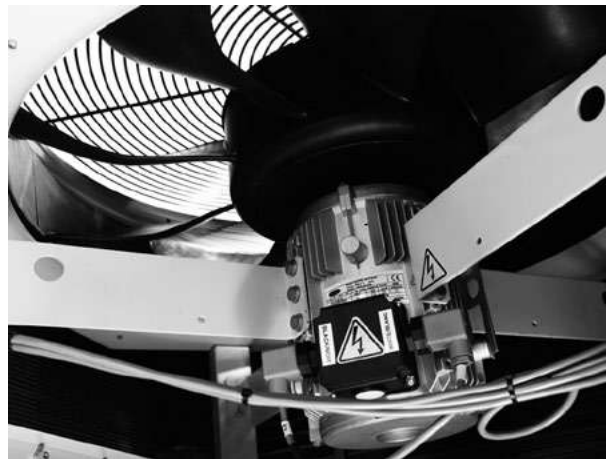
- Increased energy efficiency
  - The exceptional energy efficiency level (COP /SCOP) of the high-temperature AquaSnap heat pumps in the heating mode is the result of a long qualification and optimisation process.
  - The electronic expansion device (EXV) allows operation at a lower condensing pressure (COP optimisation).

- Dynamic superheat management for better utilisation of the condenser surface.
- Patented FreeDefrost algorithm without reverse the circuit in order to optimised energy during defrost and increase energy performance.

- Reduced maintenance costs
  - Maintenance-free scroll compressors with vapour injection.
  - SmartVu™ control offers fast diagnosis of possible incidents and their history.

### Environmental care

- Non-ozone depleting R-407C refrigerant
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential.
  - Very efficient - ensures an increased energy efficiency ratio (COP).
  - Flying Bird IV fan



- Leak-tight refrigerant circuit
  - Brazed refrigerant connections for increased leak-tightness.
  - Reduction of leaks due to elimination of capillary tubes (TXVs).
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge.



Unit with protection grille option

## FEATURES AND BENEFITS

### Superior reliability

#### ■ State-of-the-art concept

Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.

#### ■ Auto-adaptive control

Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit (Carrier patent).

#### ■ Exceptional endurance tests

- Corrosion resistance tests in salt mist in the laboratory.
- Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports.
- Transport simulation test in the laboratory on a vibrating table.

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced communication technology over Ethernet (IP) and a user-friendly and intuitive user interface with 4.3-inch colour touch screen.

#### ■ Energy management configuration

- Internal timer: Controls chiller on/off times and operation at a second setpoint
- Setpoint offset based on the outdoor air temperature
- Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault.
- For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.

#### ■ Integrated features

- Night mode: Capacity and fan speed limitation for reduced noise level
- With hydraulic module: Water pressure display and water flow rate calculation.

#### ■ Advanced communication features

- Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
- Access to multiple unit parameters.
- Maintenance functions
- F-Gas regulation leak check reminder alert
- Maintenance alert can be configured to days, months or hours of operation
- Storage of maintenance manual, wiring diagram and spare parts list
- Display of trend curves for the main values
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory

#### ■ 4"3 SmartVu™ user interface



- Intuitive and user-friendly 4"3 inch touch screen interface
- Concise and clear information is available in local languages
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantage for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit
- Dual setpoint: Closing of this contact activates a second setpoint (e.g. unoccupied mode).
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value.
- Operation indication: This volt-free contact indicates that the chiller is operating (cooling load).
- Alarm indication: This volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits.
- Setpoint adjustable via 4-20 mA signal



## OPTIONS AND ACCESSORIES

| Options                                 | No.  | Description   | Advantages  | Use                           |
|---|------|---|---|-------------------------------|
| Corrosion protection, traditional coils | 3A   | Fins made of pre-treated aluminium (polyurethane and epoxy)   | Improved corrosion resistance, recommended for moderate marine and urban environments   | 61AF 030-105                  |
| Unit with ductable fans                 | 11   | Fans with 100 Pa maximum available pressure   | Allows connection to discharge ducts in order to facilitate air evacuation  | 61AF 035-105                  |
| Low noise level                         | 15   | Aesthetic and sound absorbing compressor enclosure  | Noise level reduction by 1 to 2 dB(A)   | 61AF 030-105                  |
| Very low noise level                    | 15LS | Aesthetic and sound absorbing compressor enclosure associated with low-speed fans   | Noise level reduction for sensible site   | 61AF 035-105                  |
| Protection grilles                      | 23   | Metallic protection grilles   | Coil protection against possible impact   | 61AF 030-105                  |
| Soft Starter                            | 25   | Electronic starter on each compressor   | Reduced start-up current  | 61AF 030-105                  |
| Water Exchanger frost protection        | 42   | Electric heater on the hydraulic module   | hydraulic module frost protection at low outside temperatures down to -20°C   | 61AF 030-105 with option 116X |
| Master/slave operation                  | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation   | 61AF 030-105                  |
| LP VSD single-pump                      | 116X | Variable speed single pump, For more details, refer to the dedicated chapter (expansion tank not included)  | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | 61AF 030-105                  |
| J-Bus gateway                           | 149B | Two-directional communication board complying with JBus protocol  | Connects the unit by communication bus to a building management system  | 61AF 030-105                  |
| Lon gateway                             | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 61AF 030-105                  |
| Bacnet over IP                          | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 61AF 030-106                  |
| Compliance with Russian regulations     | 199  | EAC certification   | Conformance with Russian regulations  | 61AF 030-105                  |
| Condenser screw connection sleeves kit  | 265  | Condenser inlet/outlet screw connection sleeves   | Allows unit connection to a screw connector   | 61AF 030-105                  |
| Welded condenser water connection kit   | 267  | Victaulic piping connections with welded joints   | Easy installation   | 61AF 035-105                  |
| Set-point adjustment by 4-20mA signal   | 311  | Connections to allow a 4-20mA signal input  | Easy energy management, allow to adjust set-point by a 4-20mA external signal   | 61AF 030-105                  |
| Plastic tarp                            | 331  | Plastic sheeting covering the units, with strapping securing it on the wooden pallet.   | Allow unit to avoid dust and dirt from the outside environment during stocking and shipping.  | 61AF 030-105                  |

| Accessories  | Description   | Advantages                         | Use          |
|--|---|------------------------------------|--------------|
| 00PPG000488000- Heating System Manager type A: controls one heat emitter type with an auxiliary electric heater or boiler  | Additional control box not supplied with the unit, to be installed remotely | Heating system control facilitated | 61AF 030-105 |
| 00PPG000488100- Heating System Manager type B: controls two heat emitter types (or independent zones) and domestic hot water production with an auxiliary electric heater or boiler        | Additional control box not supplied with the unit, to be installed remotely | Heating system control facilitated | 61AF 030-105 |
| 00PPG000488200- Heating System Manager type C: controls two heat emitter types (or independent zones) and domestic hot water production with a district heating system as auxiliary source | Additional control box not supplied with the unit, to be installed remotely | Heating system control facilitated | 61AF 030-105 |

## OPTIONS AND ACCESSORIES

Units with fans with available pressure for indoor installation (option 11)

This option applies to 61AF units installed inside the building in a plant room. For this type of installation the cold air leaving the air-cooled evaporators is discharged by the fans to the outside of the building, using a duct system.

The installation of a duct system at the air evaporator discharge line causes a pressure drop due to the resistance caused by the air flow.

Therefore more powerful fan motors than those used for the standard units are installed in the units with this option. For each installation of a unit installed inside a plant room the duct pressure drops differ, depending on the duct length, duct section and direction changes.

61AF units equipped with fans with available pressure are designed to operate with air discharge ducts with maximum pressure drops of 100 Pa.

### Fan discharge connection

A square flange is supplied mounted on the unit. An available standard round flange can easily be installed at the fan discharge, if the installer prefers the use of a round connection duct.

The unit is supplied with a grille on the discharge side. This grille has to be removed before connection to the duct system.

It is advisable to make the connection to the duct system with a flexible sleeve. If this recommendation is not observed, a lot of vibration and noise may be transmitted to the building structure.

Applicable rules for units incorporated into an air duct system

Ensure that the suction or discharge inlets are not accidentally obstructed by the panel positioning (e.g. low return or open doors etc.).

### Electrical data for 61AF units with option 11

| 61AF - unit with option 11 (without hydraulic module)      |         | 035   | 045  | 055  | 075  | 105  |
|--|---------|---|------|------|------|------|
| <b>Power circuit</b>                                       |         |   |      |      |      |      |
| Nominal power supply                                       | V-ph-Hz | 400-3-50  |      |      |      |      |
| Voltage range  | V       | 360-440   |      |      |      |      |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer                    |      |      |      |      |
| <b>Maximum start-up current (Un)<sup>(1)</sup></b>         |         |   |      |      |      |      |
| Standard unit  | A       | 131   | 171  | 203  | 160  | 244  |
| Unit with electronic starter option                        | A       | 70  | 91   | 103  | 99   | 147  |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,83  | 0,87 | 0,87 | 0,83 | 0,87 |
| <b>Maximum unit power input<sup>(2)</sup></b>              | kW      | 16  | 20   | 24   | 33   | 49   |
| <b>Nominal unit current draw<sup>(3)</sup></b>             | A       | 22  | 25   | 29   | 43   | 58   |
| <b>Maximum unit current draw (Un)<sup>(4)</sup></b>        | A       | 29  | 34   | 40   | 57   | 81   |
| <b>Maximum unit current draw (Un-10%) *</b>                | A       | 31  | 37   | 44   | 62   | 87   |
| <b>Customer-side unit power reserve</b>                    |         | Customer reserve at the 24V control power circuit |      |      |      |      |
| <b>Short-circuit stability and protection</b>              |         | See table on page 12                              |      |      |      |      |

(1) Maximum instantaneous start-up current (maximum operating current of the compressor + fan current + locked rotor current of the compressor).

(2) Power input, compressor and fan, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400V (data given on the unit nameplate).

(3) Standardised Eurovent conditions: evaporator entering/leaving water temperature 40°C/45°C, outside air temperature db/wb = 7°C/6°C.

(4) Maximum unit operating current at maximum unit power input and 400V (values given on the unit nameplate).

\* Maximum unit operating current at maximum unit power input and 360V.

## PHYSICAL DATA

| 61AF  |     |  |         | 030                                   | 035   | 045   | 055   | 075   | 105    |      |
|---|-----|--|---------|---------------------------------------|-------|-------|-------|-------|--------|------|
| Heating                                       |     |  |         |                                       |       |       |       |       |        |      |
| Standard unit<br>Full load performances*      | HA1 | Nominal capacity                       | kW      | 25,9                                  | 32,3  | 43,5  | 51,6  | 64,8  | 102    |      |
|   |     | COP                                    | kW/kW   | 3,99                                  | 3,99  | 4,32  | 4,36  | 3,99  | 4,26   |      |
|   | HA2 | Nominal capacity                       | kW      | 25,4                                  | 32,0  | 43,0  | 51,7  | 66,8  | 102    |      |
|   |     | COP                                    | kW/kW   | 3,34                                  | 3,32  | 3,60  | 3,67  | 3,43  | 3,59   |      |
|   | HA3 | Nominal capacity                       | kW      | 25,00                                 | 31,50 | 42,70 | 52,30 | 68,00 | 102,00 |      |
|   |     | COP                                    | kW/kW   | 2,90                                  | 2,88  | 3,14  | 3,19  | 3,01  | 3,13   |      |
|   | HA4 | Nominal capacity                       | kW      | 24,50                                 | 31,30 | 42,70 | 53,30 | 68,00 | 103,00 |      |
|   |     | COP                                    | kW/kW   | 2,43                                  | 2,42  | 2,64  | 2,68  | 2,54  | 2,64   |      |
| Standard unit<br>Seasonal energy efficiency** | HA1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 3,33                                  | 3,44  | 3,58  | 3,66  | 3,57  | 3,62   |      |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 130                                   | 135   | 140   | 143   | 140   | 142    |      |
|   | HA3 | SCOP <sub>47/55°C</sub>                | kWh/kWh | 2,93                                  | 2,94  | 3,10  | 3,15  | 3,00  | 3,16   |      |
|   |     | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 114                                   | 115   | 121   | 123   | 117   | 123    |      |
|   |     | P <sub>rated</sub>                     | kW      | 19,00                                 | 31,00 | 43,00 | 55,00 | 63,00 | 94,00  |      |
|   |     | Energy labelling                       |         | A+                                    | A+    | A+    | A+    | A+    | -      |      |
| Operating weight <sup>(1)</sup>               |     |  |         |                                       |       |       |       |       |        |      |
| Standard unit (without hydraulic module)      |     |  |         | kg                                    | 409   | 426   | 540   | 564   | 904    | 1024 |
| Standard unit (with hydraulic module option)  |     |  |         | kg                                    | 418   | 435   | 555   | 579   | 919    | 1039 |
| Sound levels                                  |     |  |         |                                       |       |       |       |       |        |      |
| Sound power level <sup>(2)</sup>              |     |  |         | dB(A)                                 | 78    | 83    | 82    | 84    | 84     | 85   |
| Sound pressure level at 10 m <sup>(3)</sup>   |     |  |         | dB(A)                                 | 46    | 51    | 51    | 53    | 52     | 53   |
| Dimensions                                    |     |  |         |                                       |       |       |       |       |        |      |
| Lenght  |     |  |         | mm                                    | 1110  |       | 1114  |       | 2273   |      |
| Depth   |     |  |         | mm                                    | 1327  |       | 2100  |       | 2100   |      |
| Height  |     |  |         | mm                                    | 1330  |       | 1330  |       | 1330   |      |
| Compressor                                    |     |  |         | Hermetic scroll compressors, 48,3 r/s |       |       |       |       |        |      |
| Quantity                                      |     |  |         |                                       | 1     | 1     | 1     | 1     | 2      | 2    |
| Number of capacity stages                     |     |  |         |                                       | 1     | 1     | 1     | 1     | 2      | 2    |
| Refrigerant                                   |     |  |         | R407C GWP = 1800 following AR4        |       |       |       |       |        |      |
| Charge  |     |  |         | kg                                    | 8,8   | 9,7   | 10    | 13,2  | 22     | 26,5 |
|   |     |  |         | teqCO <sub>2</sub>                    | 15,6  | 17,2  | 17,7  | 23,4  | 39,0   | 47,0 |
| Capacity control                              |     |  |         | SmartVu™                              |       |       |       |       |        |      |
| Minimum capacity                              |     |  |         | %                                     | 100   | 100   | 100   | 100   | 50     | 50   |

- \* In accordance with standard EN14511-3:2018
- \*\* In accordance with standard EN14825:2018, average climate
- HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- HA4 Heating mode conditions: Water heat exchanger water entering/leaving temperature 55°C/65°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2018
- η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**
- Not applicable
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (3) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).



Eurovent certified values

## PHYSICAL DATA

| 61AF  |      | 030  | 035   | 045   | 055   | 075  | 105  |
|---|------|--|-------|-------|-------|------|------|
| <b>Condenser</b>  |      | Direct expansion, plate heat exchanger   |       |       |       |      |      |
| Water volume  | l    | 6,4  | 8,2   | 9,6   | 12,1  | 16,4 | 22,7 |
| Max. water-side operating pressure without hydraulic module | kPa  | 1000   | 1000  | 1000  | 1000  | 1000 | 1000 |
| Max. water-side operating pressure plus hydraulic module    | kPa  | 400  | 400   | 400   | 400   | 400  | 400  |
| <b>Fan</b>  |      | Axial Flying Bird IV with rotating shroud  |       |       |       |      |      |
| Quantity  |      | 1  | 1     | 1     | 1     | 2    | 2    |
| Maximum total air flow                                      | l/s  | 3748   | 3736  | 4035  | 4036  | 7479 | 8072 |
| Max speed, standard unit                                    | tr/s | 12   | 12    | 12    | 12    | 12   | 12   |
| Max speed, unit with option 11                              | tr/s | -  | 16    | 16    | 16    | 16   | 16   |
| <b>Evaporator</b>   |      | Grooved copper tubes and aluminium fins  |       |       |       |      |      |
| <b>Hydraulic module (option 116)</b>                        |      |  |       |       |       |      |      |
| Variable speed pump   |      | Pump, Victaulic screen filter, relief valve, purge valves (water and air), cavitation pressure sensors |       |       |       |      |      |
| <b>Water connections with / without hydraulic module</b>    |      | Victaulic  |       |       |       |      |      |
| Connections   | inch | 1"1/4  | 1"1/2 | 1"1/2 | 1"1/2 | 2    | 2    |
| Outside diameter  | mm   | 42,4   | 48,3  | 48,3  | 48,3  | 60,3 | 60,3 |
| <b>Chassis paint colour</b>                                 |      | Colour code RAL7035  |       |       |       |      |      |

## ELECTRICAL DATA

| 61AF - standard unit (without hydraulic module)      |         | 030  | 035  | 045  | 055  | 075  | 105  |
|--|---------|--|------|------|------|------|------|
| Power circuit  |         |  |      |      |      |      |      |
| Nominal power supply                                 | V-ph-Hz | 400-3-50   |      |      |      |      |      |
| Voltage range  | V       | 360-440  |      |      |      |      |      |
| Control circuit supply                               |         | 24 V, via internal transformer                     |      |      |      |      |      |
| Maximum start-up current (Un) <sup>(1)</sup>         |         |  |      |      |      |      |      |
| Standard unit  | A       | 101  | 129  | 169  | 201  | 157  | 241  |
| Unit with electronic starter option                  | A       | 54   | 68   | 89   | 101  | 94   | 142  |
| Unit power factor at maximum capacity <sup>(2)</sup> |         | 0,82   | 0,83 | 0,87 | 0,87 | 0,83 | 0,87 |
| Maximum unit power input <sup>(2)</sup>              | kW      | 11   | 15   | 19   | 23   | 30   | 46   |
| Nominal unit current draw <sup>(3)</sup>             | A       | 16   | 19   | 23   | 28   | 39   | 55   |
| Maximum unit current draw (Un) <sup>(4)</sup>        | A       | 20   | 26   | 32   | 38   | 53   | 76   |
| Maximum unit current draw (Un-10%) *                 | A       | 22   | 29   | 35   | 42   | 57   | 83   |
| Customer-side unit power reserve                     |         | Customer reserve at the 24 V control power circuit |      |      |      |      |      |
| Short-circuit stability and protection               |         | See table below.                                   |      |      |      |      |      |

- (1) Maximum instantaneous start-up current (maximum operating current of the compressor + fan current + locked rotor current of the compressor).  
 (2) Power input, compressor and fan, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400V (data given on the unit nameplate).  
 (3) Standardised Eurovent conditions: evaporator entering/leaving water temperature 40°C/45°C, outside air temperature db/wb = 7°C/6°C.  
 (4) Maximum unit operating current at maximum unit power input and 400V (values given on the unit nameplate).  
 \* Maximum unit operating current at maximum unit power input and 360V.

Short-circuit stability current, main disconnect without fuse (TN system<sup>(1)</sup>)

| 61AF - standard unit (main disconnect switch)                    |        | 030       | 035       | 045       | 055       | 075       | 105       |
|--|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Value with unspecified upstream protection</b>                |        |           |           |           |           |           |           |
| Short-term current at 1 s (I <sub>scw</sub> )                    | kA rms | 0,6       | 0,6       | 1,26      | 1,26      | 1,26      | 2         |
| Admissible peak current (I <sub>pk</sub> )                       | kA pk  | 4,5       | 4,5       | 6         | 6         | 6         | 10        |
| <b>Maximum value with upstream protection by circuit breaker</b> |        |           |           |           |           |           |           |
| Conditional short-circuit current (I <sub>cc</sub> )             | kA rms | 7         | 7         | 7,7       | 7,7       | 6,1       | 10        |
| Circuit breaker - Compact range                                  |        | 40        | 40        | 50        | 63        | 80        | 100       |
| Reference number <sup>(2)</sup>                                  |        | 5SY6340-7 | 5SY6340-7 | 5SY4350-7 | 5SY4363-8 | 5SP4380-7 | 5SP4391-7 |
| <b>Maximum value with upstream protection by fuses (gL/gG)</b>   |        |           |           |           |           |           |           |
| Conditional short-circuit current (I <sub>cc</sub> )             | kA rms | 50        | 50        | 50        | 50        | 14,5      | 22        |
| Fuse (gL/gG)   |        | 40        | 40        | 63        | 63        | 80        | 125       |

- (1) Earthing system type  
 (2) If another current limitation protection system is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended circuit breaker.  
 The short-circuit stability current values above are suitable with the TN system.

## Electrical data and operating conditions notes:

- 61AF 030-105 units have a single power connection point located immediately upstream of the main disconnect switch.
- The control box includes the following standard features:
  - A main disconnect switch,
  - Starter and motor protection devices for each compressor, the fans and the pump,
  - The control devices.
- Field connections:**  
All connections to the system and the electrical installations must be in full accordance with all applicable local codes.
- The Carrier 61AF units are designed and built to ensure conformance with these codes. The recommendations of European standard EN 60204-1 (machine safety - electrical machine components - part 1: general regulations - corresponds to IEC 60204-1) are specifically taken into account, when designing the electrical equipment.

## NOTES:

- Generally the recommendations of IEC 60364 are accepted as compliance with the requirements of the installation directives. Conformance with EN 60204-1 is the best means of ensuring compliance with the Machines Directive § 1.5.1.
- Annex B of EN 60204-1 describes the electrical characteristics used for the operation of the machines.

- The operating environment for the 61AF units is specified below:

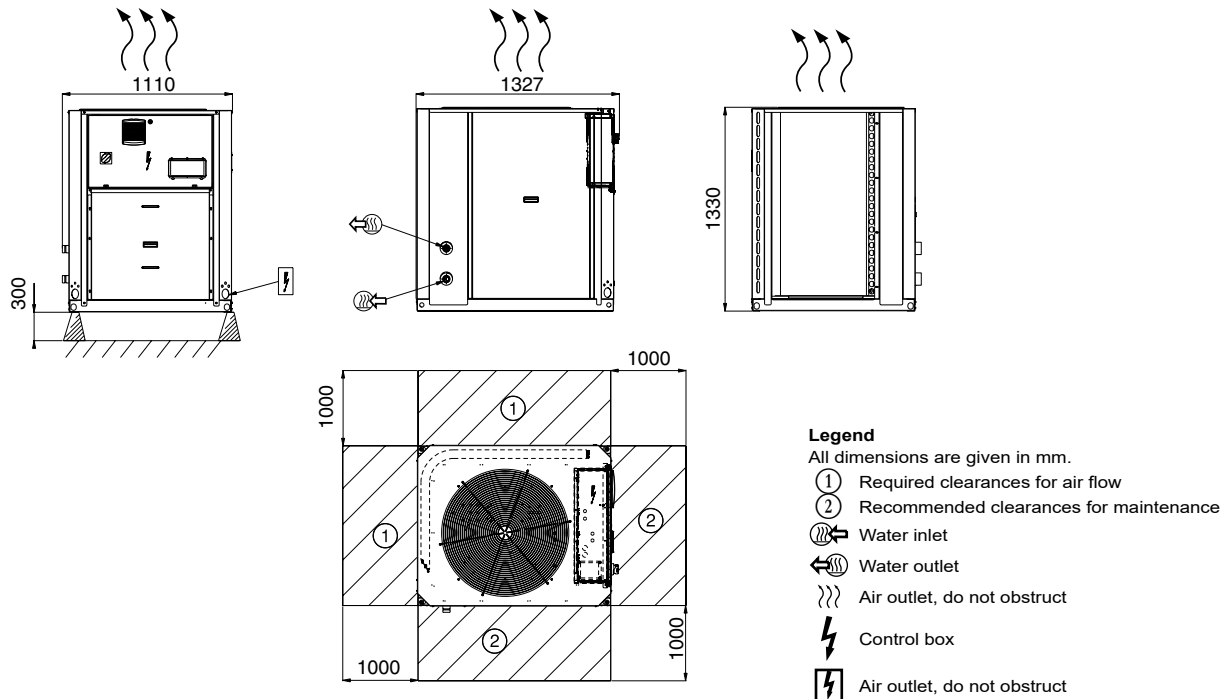
- Environment<sup>(1)</sup> - Environment as classified in EN 60721 (corresponds to IEC 60721):
  - Outdoor installation<sup>(1)</sup>
  - Ambient temperature range: -20°C to +40°C, class 4K4H
  - Altitude: ≤ 2000 m
  - Presence of hard solids, class 4S2 (no significant dust present)
  - Presence of corrosive and polluting substances, class 4C2 (negligible)
- Power supply frequency variation: ± 2 Hz.
- The neutral (N) conductor must not be connected directly to the unit (if necessary use a transformer).
- Overcurrent protection of the power supply conductors is not provided with the unit.
- The factory-installed disconnect switch is of a type suitable for power interruption in accordance with EN 60947.
- The units are designed for connection to TN networks (IEC 60364). For IT networks the earth connection must not be at the network earth. Provide a local earth, consult competent local organisations to complete the electrical installation. Units delivered with speed drive (options 116) are not compatible with IT network.

**Caution: If particular aspects of an actual installation do not conform to the conditions described above, or if there are other conditions which should be considered, always contact your local Carrier representative.**

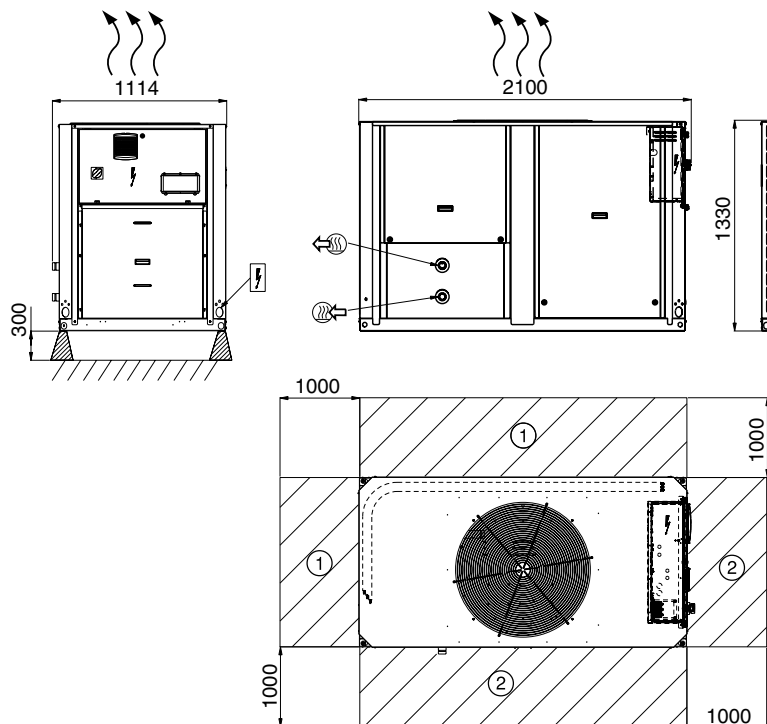
- (1) The required protection level for this class is IP43BW (according to reference document IEC 60529). All 61AF units are protected to IP44CW and fulfil this protection condition.

## DIMENSIONS/CLEARANCES

### 61AF 030-035 units with and without hydraulic module



### 61AF 045-055 units with and without hydraulic module



#### NOTES:

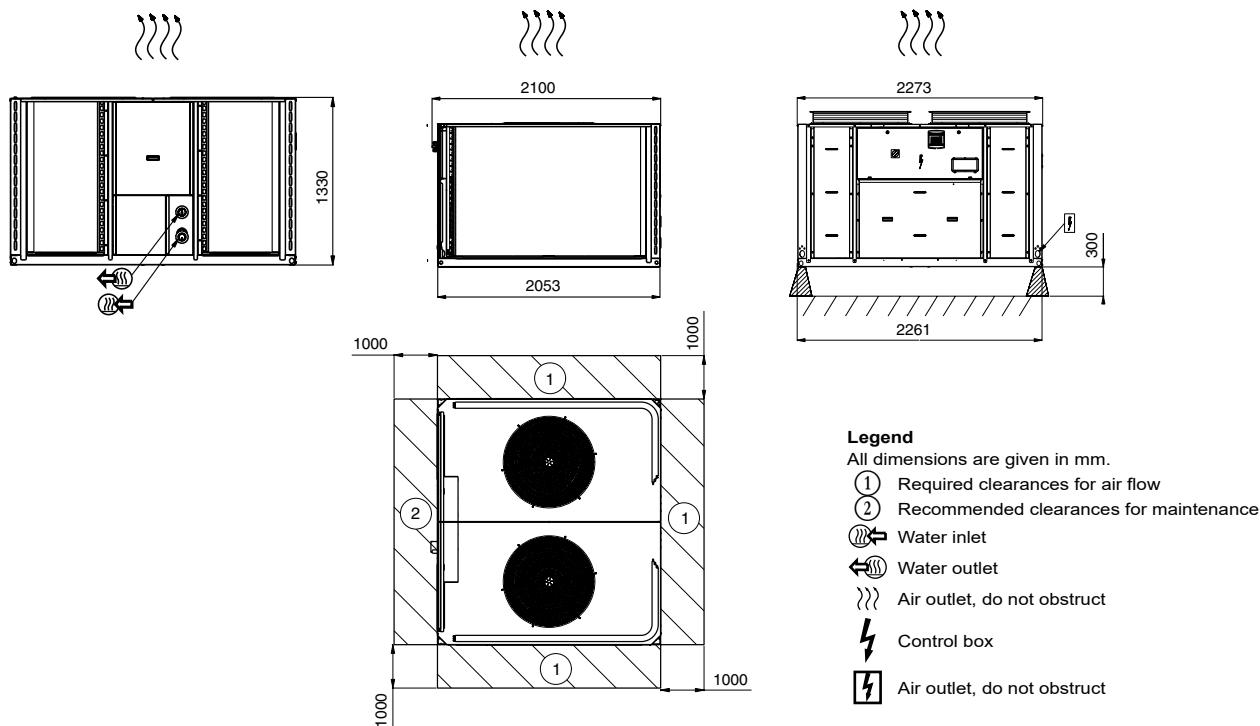
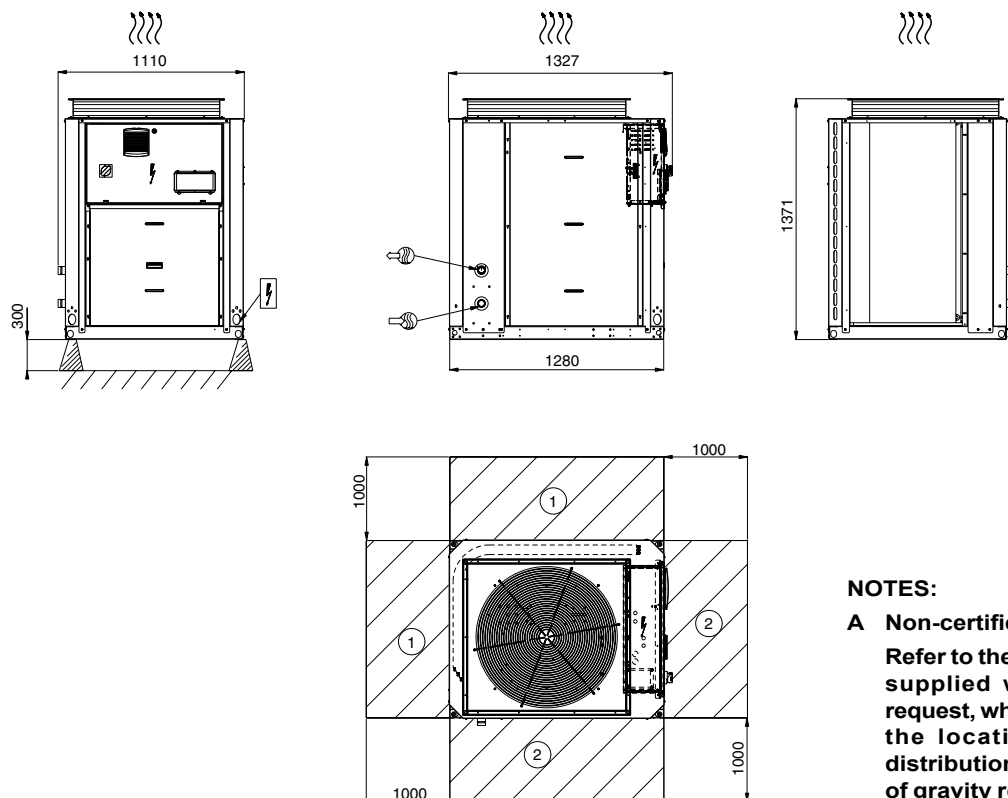
##### A Non-certified drawings.

Refer to the certified dimensional drawings supplied with the unit or available on request, when designing an installation. For the location of fixing points, weight distribution and coordinates of the centre of gravity refer to the certified dimensional drawings.

##### B In multiple-unit installations (maximum four units), the side clearance between the units should be increased from 1000 to 2000 mm.

##### C The height of the solid surface must not exceed 2 m.



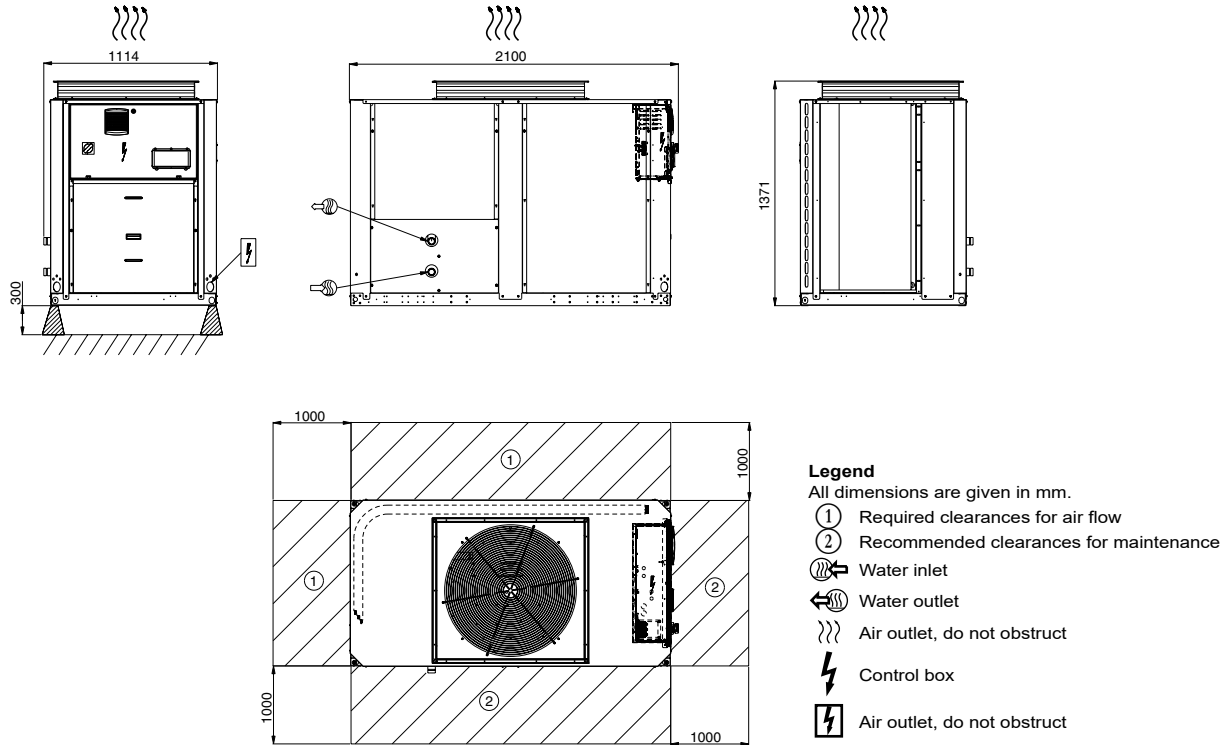
**DIMENSIONS/CLEARANCES****61AF 075-105 units with and without hydraulic module****61AF 035 with option 11, units with and without hydraulic module****NOTES:****A Non-certified drawings.**

Refer to the certified dimensional drawings supplied with the unit or available on request, when designing an installation. For the location of fixing points, weight distribution and coordinates of the centre of gravity refer to the certified dimensional drawings.

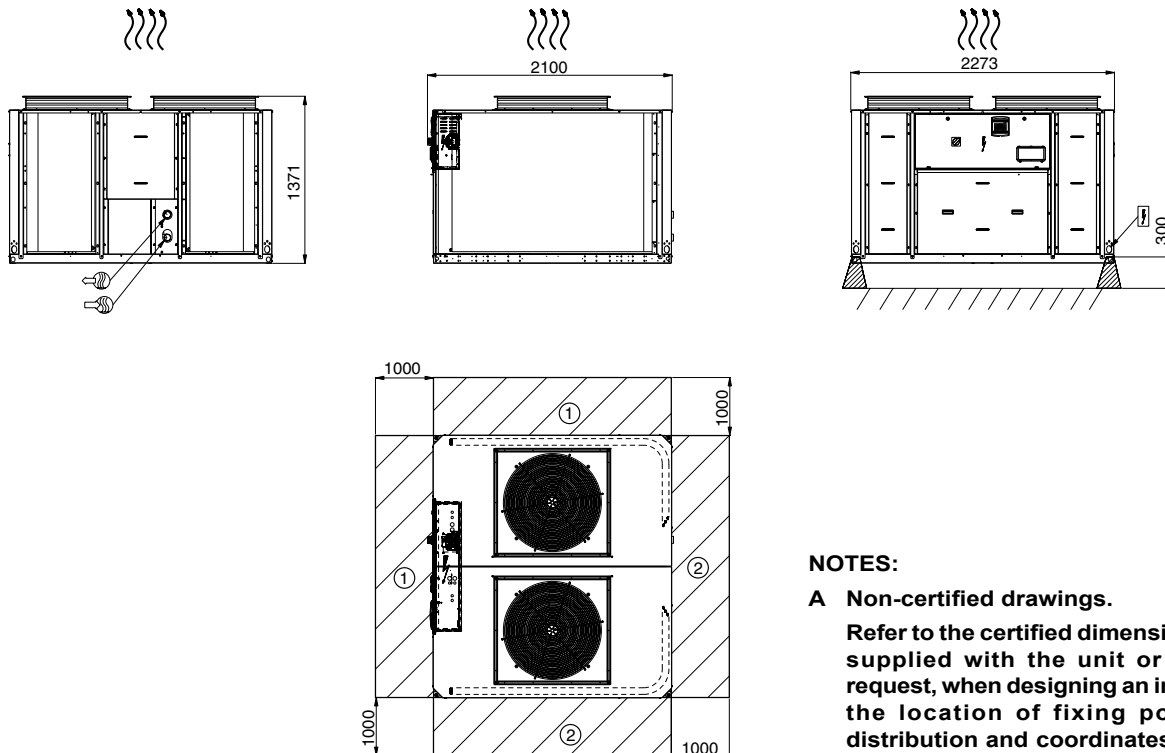
**B In multiple-unit installations (maximum four units), the side clearance between the units should be increased from 1000 to 2000 mm.****C The height of the solid surface must not exceed 2 m.**

## DIMENSIONS/CLEARANCES

### 61AF 045-055 with option 11, units with and without hydraulic module



### 61AF 075-105 with option 11, units with and without hydraulic module



#### NOTES:

##### A Non-certified drawings.

Refer to the certified dimensional drawings supplied with the unit or available on request, when designing an installation. For the location of fixing points, weight distribution and coordinates of the centre of gravity refer to the certified dimensional drawings.

##### B In multiple-unit installations (maximum four units), the side clearance between the units should be increased from 1000 to 2000 mm.

##### C The height of the solid surface must not exceed 2 m.



**NEW**

## HEAT PUMPS WITH GREENSPEED® INTELLIGENCE



Low environmental impact

High full and part load efficiency

Compact and simple to install

Low refrigerant charge

Superior reliability

## 30RQ 040R-160R

Heating capacity 40-160 kW

Cooling capacity 40-160 kW

Aquasnap® heat pumps and liquid chillers are the best solution for commercial and industrial applications where installers, engineering and design departments and building owners require reduced installation costs, optimal performances and maximum quality.

- AquaSnap® (30RQ) is a compact all-in-one package optimised for applications which require reduced investment and installation costs (low CapEx).
- The large options panel allows for configurations that suit user requirements.
- Optional variable-speed fans and pumps with Carrier Greenspeed® intelligence control logic make this a product which is optimised for part load applications where a high SEPR, SCOP or IPLV value is required.

In this configuration, AquaSnap® provides premium part load efficiency to reduce maintenance costs over the lifespan of the chiller. In addition, the sound levels achieved under the part load conditions are particularly low. Besides operating efficiently and quietly, the AquaSnap® range with Greenspeed® intelligence operates from -20 °C up to +46 °C as standard.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## R-32: THE BEST SOLUTION FOR SCROLL HEAT PUMPS

Carrier was the first to introduce the R-1234ze HFO with ultra-low GWP in screw chillers, as far back as early 2016. Today, having examined its main properties, Carrier has chosen R-32 refrigerant to replace high-GWP R-410A refrigerant in its Scroll heat pumps, for its lower environmental impact, high energy efficiency, good availability and ease of use.

R-32 is currently the ideal refrigeration solution for units equipped with Scroll compressors. By using R-32 refrigerants, Carrier has reduced the carbon footprint of its AquaSnap® range of heat pumps by 77%. This is the result of a much lower GWP and a significant reduction in the system's cooling charge compared to the previous generation that used R-410A.

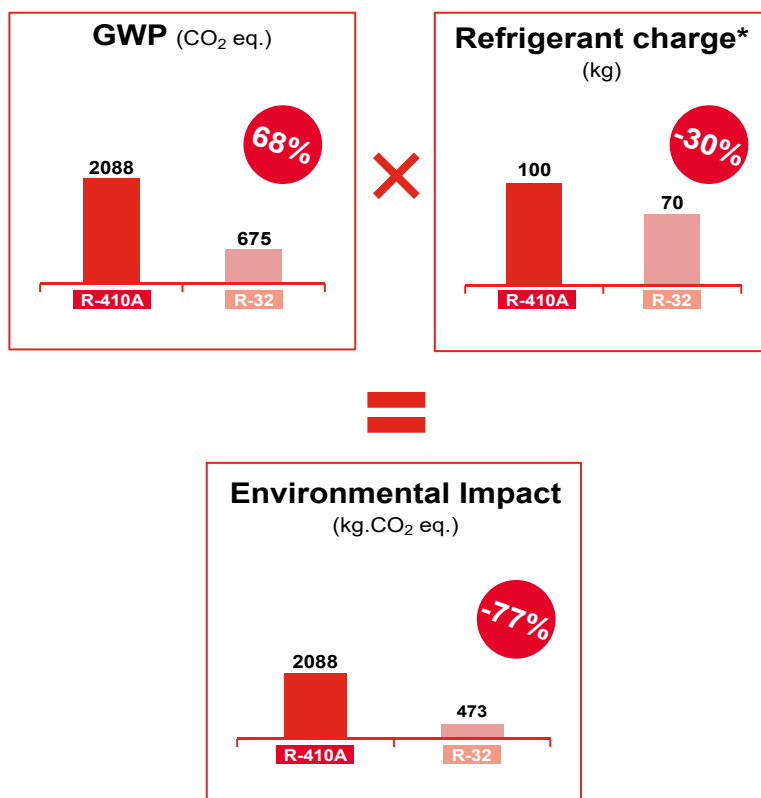
R-32 is also the right choice economically, reducing the locally imposed tax burden on HFCs based on the CO<sub>2</sub> impact.



**CO<sub>2</sub> FOOTPRINT**  
REDUCED BY UP TO **77%**

### Lower environmental impact (77% compared to R410A)

- R-32 has zero ozone depletion potential (ODP)
- The Global Warming Potential (GWP) of R-32 is 675, i.e. approximately one third of that of R-410A (PRP 2088)
- The AquaSnap® R-32 cooling charge is reduced by 30% compared to the previous version using R-410A\*
- The carbon footprint of AquaSnap® R-32 is therefore 473 (675 x 0.7), i.e. 77% lower than the version using R-410A (2088 x 1)



\* Reduced refrigerant charge in Carrier heat pumps thanks to the use of R-32 and a new coil design.

## R-32: THE BEST SOLUTION FOR SCROLL HEAT PUMPS

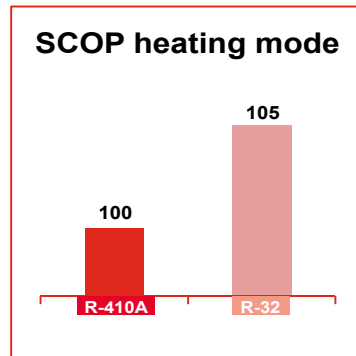


**SCOP** up to **+5%**

### High energy efficiency

The seasonal efficiency of AquaSnap® R-32 is higher than that of the previous R-410A version by:

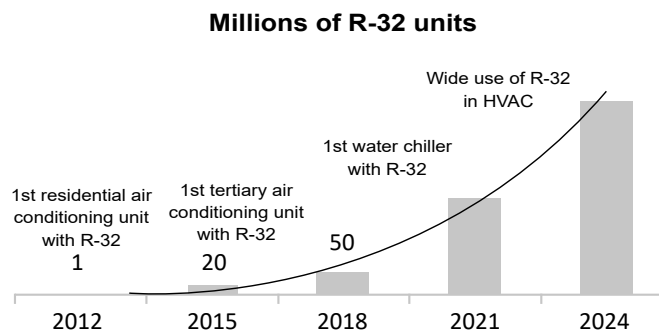
- +5% on average in heating mode



**SIMPLICITY**

### Widely available and easy to use

More than 50 million R-32 air conditioning units are in circulation on the global market. While R-32 has been used for some time in residential and commercial air conditioning units, most manufacturers now use R-32 in VRF systems, heat pumps, which means R-32 is widely available around the world.



R-32 has been widely available for over 15 years, as it comprises 50% of the composition of R-410A.

R-32 is easy to use: It is a pure refrigerant, therefore it is not necessary to drain the entire circuit in the event of a leak.



**SAFETY**

R-32 is an A2L classified refrigerant thanks to its low flammability.

- **No specific safety requirements** for transporting chillers by road or for outdoor installation.
- The service tools must be **certified** for **A2L** refrigerants in accordance with standard ISO 817 or EN378.
- Service technicians **must be qualified for brazing components** on PED 2 fluid units.



## AQUASNAP® - CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed fans (VSD or EC optional) and optional variable-speed pumps, Carrier's AquaSnap® 30RQ range with Greenspeed® intelligence automatically adjusts the cooling capacity and water flow to perfectly adapt to the building's requirements or load variations. The result is optimum operation at both full load and part load. The 30RQ offers energy efficiency up to 10% higher than the previous range with the same or a smaller footprint.

The range is already fully compliant with current Ecodesign regulations.



SCOP up to 3.84

### ■ Extensive field of application

The AquaSnap® range is suitable for a very wide range of applications from tertiary to industrial processes. The range can operate at outdoor temperatures from -20 °C to +44 °C (Optional 46 °C) and with negative water temperatures (-8 °C). From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaSnap® 30RQ units meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate or application.

### ■ Easy installation & maintenance

Thanks to the variable-speed pumps, automatic adjustment of the nominal water flow rate via electronic control and automatic measurement of the unit's energy performance under real conditions, pumping energy consumption is reduced by almost two thirds: These new features guarantee peace of mind for installers and maintenance companies and lower energy bills for users.



BETWEEN  
**-20 °C**  
and **46 °C**



Pumping energy  
reduced  
by up to **66%**

## AQUASNAP® - CUSTOMER BENEFITS

AquaSnap® liquid chillers and heat pumps are designed to meet current and future Ecodesign and F-Gas European regulation requirements in terms of energy efficiency and reduced CO<sub>2</sub> emissions. They use the best technologies available today:

- Reduced refrigerant charge of non-ozone depleting R-32A refrigerant with low GWP,
- Scroll compressors,
- Greenspeed® variable-speed fans option,
- Brazed-plate heat exchangers with reduced pressure drops,
- Self-regulating microprocessor control with Greenspeed® intelligence,
- Colour touch screen with web connectivity options.

AquaSnap® can be equipped with a built-in hydraulic module, limiting the installation to conventional operations such as connection of the power supply and the supply and return piping (plug & play), according to the dimensions of the standard unit.

Recommended by Carrier, the AquaSnap® can be equipped with one or two Greenspeed® variable-speed pumps to significantly reduce energy costs linked to pumping (reduction of more than two-thirds), ensure optimum water flow rate control, and improve overall system reliability.



### Very economical operation

- High unit full- and part-load energy efficiency and efficient design of the water side:
  - SCOP<sub>35 °C</sub> up to 3.84
  - Multiple scroll compressors equipped with a high-efficiency motor which can exactly match the cooling capacity to the load required
  - Electronic expansion valve enabling operation at a lower condensing pressure and improved use of the evaporator heat transfer area (superheat control)
  - Aluminium micro-channel heat exchangers and Greenspeed® variable-speed fans (optional)
  - Low pressure drop brazed plate heat exchangers (< 45 kPa under Eurovent conditions).

- Specific control functions to reduce unit cooling energy use during occupied and unoccupied periods:
  - Internal timer: Switches the chiller on/off and controls operation at a second setpoint,
  - Setpoint automatically offset based on the outdoor air temperature or room air temperature (via an option),
  - Floating high pressure (HP) management,
  - Variable-speed fan control,
  - Cooling demand limitation.

Refer to the control chapter for more information.

- Greenspeed® variable-speed pump to reduce pumping energy consumption by up to two-thirds (option recommended by Carrier):
  - Eliminate energy losses through the water flow rate control valve by electronically setting the nominal water flow rate,
  - Save energy during stand-by periods or part-load operation by automatically reducing the water pump speed. The energy consumption of the pump motor varies according to the cube of the speed, so that a reduction in speed of just 40% can reduce energy consumption by 80%,
  - Improved unit part-load performance (increased SCOP value with variable water flow according to standard EN14825).

Refer to the hydraulic option chapter for more information.

- Extra energy savings through multiple options:
  - Carrier drycooler Free cooling mode management,
  - Partial heat recovery.
- Reduced maintenance costs:
  - Fast diagnosis of possible incidents and their history via the control,
  - Programmable maintenance alert,
  - Programmable F-Gas leak monitoring alert

## AQUASNAP® - CUSTOMER BENEFITS

### Low noise level

- Condenser with fixed-speed fans (30RQ):
  - Optional low-speed and variable-speed fans (700 rpm) and compressor enclosure to reduce full-load noise level by up to -9 dB(A)
  - Low noise 6th generation Flying Bird™ fans, made of a composite material (Carrier patent)
  - Rigid fan installation for reduced noise (Carrier patent).
- Condenser with Greenspeed® variable-speed fans (optional) recommended by Carrier for even quieter operation:
  - Optional factory setting of the fan at low speed, with compressor enclosure to reduce full-load noise level by up to -9 dB(A),
  - Exceptional acoustic signature during part-load operation through smooth fan speed variation.
- Specific control functions or features to reduce noise level during the night or unoccupied periods:
  - Night-time sound control with cooling capacity and fan speed limitation,
  - Low-noise scroll compressors with low vibration level,
  - The compressor assembly is installed on an independent chassis and supported by flexible anti-vibration mountings,
  - Dynamic suction and discharge piping support, minimising vibration transmission (Carrier patent),
  - Acoustic compressor enclosure, reducing radiated noise emissions (optional).

### Quick and easy installation

- Compact design:
  - AquaSnap® units are designed with compact dimensions for easy installation.
  - With a length of approximately 4.8 m for 550 kW and a width of 2.25 m, the units require minimal floor space.
- Integrated hydraulic module (option):
  - Low- or high-pressure water pump (as required),
  - Single or dual pump (as required) with runtime balancing and automatic changeover to the back-up pump if a fault develops

- Built-in variable-speed pumps with automatic nominal water flow adjustment via electronic control on the user display.
- Water filter protects the water pump against circulating debris,
- Pressure sensors for direct numerical display of the water flow rate and water pressures,
- Thermal insulation and frost protection down to -20 °C, using a heater (option),
- High-capacity membrane expansion tank (option).
- Built-in hydraulic module with Greenspeed® variable-speed pump (option recommended by Carrier):
  - Quick and easy electronic setting of the nominal water flow rate when the unit is commissioned, thus eliminating the need to adjust the water flow rate control valve,
  - Automatic control of the pump speed based on constant speed, constant pressure difference or constant temperature difference.
- Simplified electrical connections
  - A single power supply point without neutral,
  - Main disconnect switch with high trip capacity,
  - 24 V control circuit using an integrated transformer.
- Simplified hydraulic connections:
  - Victaulic type couplings on the exchanger;
  - Clearly identified and practical reference marks for entering and leaving water connections;
- Fast unit commissioning
  - Systematic factory test before shipment,
  - Quick-test function for step-by-step verification of the sensors, electrical components and motors.

### Reduced installation costs

- Optional Greenspeed® variable-speed pump with hydraulic module (option recommended by Carrier)
  - Cut costs relating to the water flow control valve,
  - The design of the water system with variable primary flow (VPF) can provide significant installation cost savings compared with traditional constant primary systems with variable secondary circuits; elimination of the secondary distribution pump, etc.
  - Water system design with fan coils fitted with 2-way valves instead of 3-way valves.
- No buffer tank required thanks to Carrier's advanced control algorithm
  - Minimum water loop volume reduced to 2.5 l/kW.

## AQUASNAP® - CUSTOMER BENEFITS

### Environmentally responsible

AquaSnap® liquid chillers with Greenspeed® intelligence (With optional variable-speed fans and pumps) are a boost for green cities and contribute to a sustainable future. Combining a refrigerant charge up to 30% lower, with R-32 refrigerant with a GWP 70% lower than that of the previous version using R410A, and exceptional energy efficiency, this chiller significantly reduces energy consumption while reducing carbon dioxide emissions throughout its life cycle.

- Pumping energy consumption can be reduced by up to 2/3 using Greenspeed® variable-speed pumps,
- 40% lower refrigerant charge: The micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Sealed refrigerant circuits:
  - Leaks are eliminated thanks to the absence of capillary tubes and the use of flare connections,
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge,
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance,
  - Qualified Carrier maintenance personnel to provide refrigerant servicing,
  - ISO 14001 production plant.

### Superior reliability

- State-of-the-art concept
  - Two self-contained refrigerant circuits; the second one automatically takes over if the first one develops a fault, maintaining partial cooling in all circumstances,
  - All compressor components are easily accessible on site, minimising downtime,
  - V-coil design to protect the coils against hail impact,
  - Optional Enviro-shield® anti-corrosion coil coating for use in moderately corrosive environments. Coating applied through conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Immersion in a bath to ensure 100% coverage. No heat transfer variation, tested for 4000 hours in salt spray per ASTM B117,
  - Optional Super Enviro-shield® anti-corrosion coil coating for use in extremely corrosive environments. Extremely durable and flexible epoxy polymer coating applied on micro-channel heat exchangers by electro coating process with a final UV protective topcoat. Minimal heat transfer variation, tested for 6000 hours in salt spray per ASTM B117, superior impact resistance per ASTM D2794

- Electronic flow switch. Auto-setting according to cooler size and fluid type.

- Self-regulating control
  - The control algorithm prevents excessive compressor cycling and reduces the quantity of water in the water loop (Carrier patent),
  - Automatic compressor unloading in case of abnormally high condensing pressure,
  - Smooth fan start to increase unit lifetime (optionals include variable-speed fans).
- Exceptional endurance tests:
  - To design critical components and sub-assemblies to minimise the risk of failure on site, Carrier uses specialised laboratories and advanced dynamic simulation tools.
  - To ensure that the units reach customer sites in the same condition as they are when tested in the factory, Carrier tests the machine behaviour during transportation over 250 km. The road test is based on a military standard and is the equivalent to 5000 km by truck on a normal road.
  - To guarantee the coil corrosion resistance, salt spray corrosion resistance tests are performed in the group's laboratory.
  - In addition, to maintain the unit's performance throughout its operating life whilst minimising maintenance costs, end users can access the "Connected Services" remote monitoring service.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and is designed, constructed and operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Choosing the right air conditioning system is one of the main considerations when designing a green building. For buildings with a load that varies throughout the year, the AquaSnap® 30RQ unit offers a solution to this important challenge.

A number of green building certification programmes exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new AquaSnap® range helps customers affected by LEED® building certification.

## AQUASNAP® - CUSTOMER BENEFITS

### Energy saving certificate

The AquaSnap® 30RQ unit is eligible for energy saving certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and speed)
- Floating Low pressure control
- Variable speed on asynchronous fan motor (optional)
- Variable speed on asynchronous pump motor (optional)
- Partial heat recovery (option)

For more details about financial incentives in France, please refer to the "CEE product sheet".

### The AquaSnap® range and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a major initiative set up to assess the design, construction and operation of green buildings with points assigned in seven credit categories:

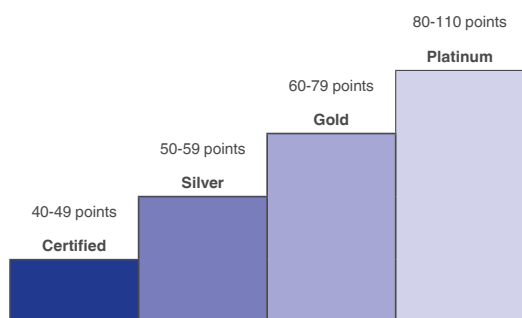
- Sustainable Sites (SS),
- Water efficiency (WE),
- Energy and atmosphere (EA),
- Materials and resources (MR),
- Indoor environmental quality (IEQ),
- Innovation in design (ID),
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain the same, the distribution of points varies depending on the type of building and the requirements of the application, based on whether it is a new construction, school, core & shell, retail or healthcare.

All programmes now use the same point scale:

#### 110 LEED® points available



The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impact of each component or sub-system on the building as a whole.

While the LEED® green building certification programmes do not certify products or services, choosing the right products, systems or service programmes is critical to obtaining LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilation and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

### EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential,
2. Impact on the ozone layer,
3. Acidification of soil and water,
4. Eutrophication of water,
5. Photochemical ozone creation,
6. Abiotic resource depletion,
7. Fresh water consumption,
8. Total use of primary energy during the life cycle.

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

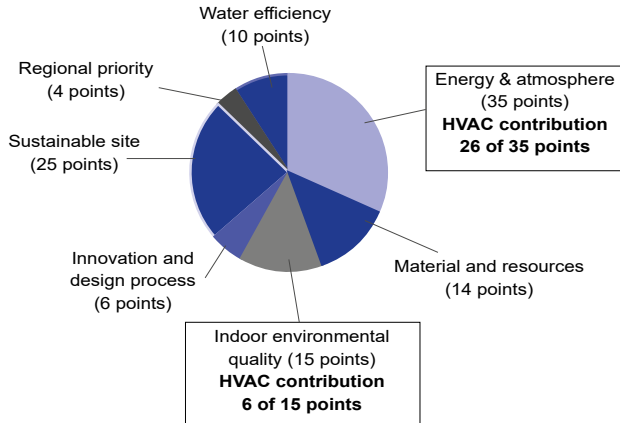
Carrier is the first HVAC manufacturer to provide PEPs for liquid chillers and heat pumps with, not only the 8 mandatory indicators, but all 27 indicators.

The AquaSnap® PEP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

## AQUASNAP® - CUSTOMER BENEFITS

### Designed to support Green Building Design

#### Overview of LEED® for new construction and major renovations



The new AquaSnap® units from Carrier can help building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- EA prerequisite 2: Minimum energy performance
- 30RQ units exceed the energy efficiency requirements of ASHRAE 90.1-2007; therefore they satisfy the prerequisites.
- EA prerequisite 3: Fundamental refrigerant management  
30RQ units do not use chlorofluorocarbon (CFC) refrigerants, thus satisfying the prerequisites.
- EA credit 1: Optimise energy performance (1 to 19 points)  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. 30RQ units, which are designed for high performance especially during part load operation, help to reduce the building's energy consumption and therefore to gain points for this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used to analyse energy. It meets the modelling requirements for this credit and produces reports which can be easily transferred to LEED® charts.
- EA credit 4: Enhanced refrigerant management (2 points)  
With this credit, LEED® awards systems that minimise the installed system's Ozone Depletion Potential (ODP) and Global Warming Potential (GWP). 30RQ units use a reduced R-32 charge and therefore help satisfy the requirements of this LEED® credit.

**NOTE:** This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30RQ units. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the HVAC system as a whole.

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: fundamental commissioning of energy management systems;
- EA credit 3: enhanced commissioning (2 points);
- EA credit 5: measurements and verification (3 points).

**NOTE:** Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).



## 30RQ TECHNICAL OVERVIEW



### SIXTH GENERATION FLYING BIRD™ FIXED-SPEED FANS

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with AC motor technology
- Variable speed option:
  - Patented algorithm to control the fan speed.
  - Dedicated variator or EC type motor.
  - Night mode operation.



### SmartVu™ control

- 6 languages available
- 4.3" user-friendly touch screen
- All main parameters displayed on one screen
- Direct access to the unit's technical drawings and the main service documents
- Very easy online monitoring
- Easy and secure access to unit parameters
- Optional Bacnet, J-Bus or LON communication interfaces



### VARIABLE-SPEED PUMP

- Water flow electronic control and reading
- Automatic protection of the pump against low pressure
- Multiple control options:
  - Constant flow with low speed mode on standby
  - Variable flow based on pressure difference or constant temperature



### SCROLL COMPRESSORS



### REDUCED REFRIGERANT CHARGE



### HIGH-EFFICIENCY BRAZED PLATE HEAT EXCHANGER

- Latest generation asymmetrical type (unit with 2 circuits)
- Low pressure drop

### PUMP SPEED REGULATOR



## TECHNICAL INSIGHTS

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced communication technology over Ethernet (IP) and a user-friendly and intuitive user interface with 4.3 inch colour touch screen.

- **Energy management configuration**
  - Internal timer: Controls chiller on/off times and operation at a second setpoint,
  - Setpoint offset based on the outdoor air temperature,
  - Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault,
  - For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.
- **Integrated features**
  - Night mode: Capacity and fan speed limitation for reduced noise level,
  - With hydraulic module: Water pressure display and water flow rate calculation.
- **Advanced communication features**
  - Easy, high-speed communication technology over Ethernet (IP) to a centralised building management system,
  - Access to multiple unit parameters.
- **Maintenance functions**
  - F-Gas regulation leak check reminder alert,
  - Maintenance alert can be configured to days, months or hours of operation,
  - Storage of maintenance manual, wiring diagram and spare parts list,
  - Display of trend curves for the main values,
  - Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs,
  - Blackbox memory.

### ■ 4.3" SmartVu™ user interface



- Intuitive and user-friendly 4.3" inch touch screen interface,
- Concise and clear information is available in local languages,
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit,
- Dual setpoint: closing of this contact activates a second setpoint (e.g.: unoccupied mode),
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value,
- Operation indication: This volt-free contact indicates that the chiller is operating (cooling load),
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits,
- Setpoint adjustable via 4-20 mA signal.

## TECHNICAL INSIGHTS

### New generation of Flying Bird VI™ fans with AC or EC motors (optional)



The 30RQ unit uses Carrier's sixth generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and a wide operating range. The fans use Carrier patented rotating shroud technology and back-swept blades with a wave-serration trailing edge inspired by nature.

It was designed and optimised for the 30RQ air management system configuration and heat exchanger technology.

The fans and their impellers use Carrier's robust and proven injection moulded composite thermoplastic construction.

On the 30RQ with option 17, the fans are driven by an EC motor, also known as brushless DC, with dedicated electronics to manage commutation. This offers high precision for fans that require higher efficiency and variable speed. The fans meet the latest European Ecodesign requirements for fan efficiency.

#### EC motor (option 17)



## OPTIONS

| Options   | No.  | Description  | Advantages   | Aquasnap 30RQ |
|---|------|--|--|---------------|
| Low-temperature brine solution                      | 6B   | Low temperature chilled water production down to -8 °C with ethylene glycol and propylene glycol.  | Covers specific applications such as ice storage and industrial processes  | 040-160       |
| High static fans                                    | 12   | Unit equipped with high-pressure static variable-speed fans (maximum 200 Pa), each fan being equipped with a connection flange for connection to the ducting system.   | Ducted fan discharge, optimised temperature control, based on the operating conditions and system characteristics  | 040-160       |
| Return air connection frame                         | 12A  | Unit equipped with a connection frame at the heat exchange coil inlet  | Facilitates channelling of the air at the unit inlet.  | 040-080       |
| Very low noise level                                | 15LS | Acoustic compressor enclosure and low-speed fans   | Noise level reduction for sensitive sites  | 040-160       |
| High ambient temperature                            | 16   | Unit equipped with a higher speed fan  | Unit operating range extended to higher ambient temperatures   | 040-160       |
| EC fans   | 17   | Unit equipped with EC fans   | Improves the unit's energy efficiency  | 040-160       |
| Protection grilles                                  | 23   | Metallic protection grilles  | Coil protection against possible impact  | 040-160       |
| Air filter and return air connection frame          | 23B  | Unit equipped with a connection frame at the heat exchange coil inlet and washable G2 efficiency filter in accordance with EN 779  | Facilitates channelling of the air at the unit inlet and protects the air exchanger against pollution  | 040-080       |
| Soft starter per compressor                         | 25   | Electronic starter on each compressor  | Reduced start-up current   | 040-160       |
| Winter operation down to -20 °C                     | 28   | Fan speed control via frequency converter  | Stable unit operation when the outdoor air temperature is between -10 °C and -20 °C  | 040-160       |
| Water exchanger frost protection                    | 41   | Electric heater on the water type heat exchanger and the water duct  | Water type heat exchanger module frost protection for an outdoor air temperature between 0 °C and -20 °C   | 040-160       |
| Hydronic module antifreeze protection               | 42   | Electric heater on the hydronic module   | Antifreeze protection of the hydronic module for outdoor temperatures down to -20 °C   | 040-160       |
| Exchanger and hydronic module antifreeze protection | 42B  | Electric heaters on the water heat exchanger, water pipes, hydronic module, optional expansion tank and buffer tank  | Water type heat exchanger and hydronic module frost protection down to an outdoor air temperature of -20 °C  | 040-160       |
| Partial heat recovery                               | 49   | Unit equipped with one desuperheater on each refrigerant circuit   | Simultaneous production of free high-temperature hot water and chilled water production (or hot water for the heat pump)   | 040-160       |
| Master/slave operation                              | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with runtime balancing  | 040-160       |
| Evaporator single HP pump                           | 116R | High-pressure fixed-speed water pump, drain valve, air vent and pressure sensors. (optional expansion vessel and built-in safety hydraulic components available)   | Quick and easy installation (plug & play)  | 040-160       |
| Evaporator dual HP pump                             | 116S | Dual high-pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available)   | Quick and easy installation (plug & play)  | 040-160       |
| Variable-speed single HP pump                       | 116V | Single low-pressure water pump, water filter, electronic water flow control, pressure sensors. Multiple variable water flow control options (optional expansion tank and built-in hydraulic safety components available)   | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.  | 040-160       |
| Variable-speed dual high-pressure pump              | 116W | Dual high-pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated chapter.  | Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | 040-160       |
| Variable-speed single LP pump                       | 116X | Single low-pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. (optional expansion vessel and built-in hydraulic safety components available)  | Quick and easy installation (plug & play), significant pumping energy cost savings (up to 2/3), tighter water flow control.  | 040-160       |
| Variable-speed dual LP pump                         | 116Y | Evaporator hydronic module equipped with a variable-speed low-pressure pump, a drain valve, an air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability | 040-160       |
| Evaporator single LP pump                           | 116T | Single low-pressure fixed-speed water pump, electronic water flow control, pressure sensors. (optional expansion tank and built-in hydraulic safety components available)  | Quick and easy installation (plug & play)  | 040-160       |

## OPTIONS

| Options   | No.  | Description   | Advantages  | Aquasnap 30RQ |
|---|------|---|---|---------------|
| LP dual-pump hydronic module                                | 116U | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components) | Quick and easy installation (plug & play)   | 040-160       |
| Lon gateway   | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 040-160       |
| Bacnet over IP  | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by Ethernet line to a BMS. Allows access to multiple unit parameters                           | 040-160       |
| ModBus over IP and RS485 communication gateway              | 149B | Two-directional high-speed communication using the ModBus over Ethernet network (IP) protocol   | Easy, quick connection via Ethernet line to a building technical management system. Allows access to several unit parameters. | 040-160       |
| Refrigerant leak detector                                   | 159C | Unit equipped with refrigerant leak detector  | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions                   | 040-160       |
| Compliance with Russian regulations                         | 199  | EAC certification   | Compliance with Russian regulations   | 040-160       |
| Insulation of the evaporator inlet/outlet refrigerant lines | 256  | Thermal insulation of the evaporator inlet/outlet refrigerant lines, with flexible and UV-resistant insulation  | Prevents condensation on the evaporator inlet/outlet refrigerant lines  | 040-160       |
| Evaporator screw connection sleeves kit                     | 264  | Evaporator inlet/outlet screw connection sleeves  | Allows unit connection to a screw connector   | 040-160       |
| Evaporator sleeve kit (to be welded)                        | 266  | Victaulic piping connections with welded joints   | Easy installation   | 040-160       |
| Reinforced ECM filtration for fan VFD                       | 282A | Fan variable frequency drive compliant with IEC 61800-3 class C1  | Allows unit installation in domestic residential environment by reducing electromagnetic interferences                        | 040-160       |
| Reinforced ECM filtration for pump VFD                      | 282B | Pump variable frequency drive compliant with IEC 61800-3 class C1   | Allows unit installation in domestic residential environment by reducing electromagnetic interferences                        | 040-160       |
| Expansion tank  | 293  | 6-bar expansion tank integrated in the hydraulic module (requires hydraulic module option)  | Easy and fast installation (plug & play), and protection of closed water systems from excessive pressure                      | 040-160       |
| Water buffer tank module                                    | 307  | Built-in water buffer tank module   | Avoid short cycle on compressors and ensure a stable water in the loop  | 040-160       |
| Free cooling mode drycooler management                      | 313  | Control and connections to a free cooling drycooler 09PE or 09VE fitted with option FC control box  | Easy system management, control capacity extended to a drycooler used in free cooling mode                                    | -             |
| Compliance with UAE regulations                             | 318  | Additional label on the unit with rated power input, rated current and EER in accordance with AHRI 550/590  | Compliance with ESMA standard UAE 5010-5:2016.  | -             |
| Compliance with Qatar regulations                           | 319  | Specific name plate on the unit with 415 V +/-6% power supply   | Compliance with KAHRAMAA regulations in Qatar   | -             |
| Installation or application process outside Europe          | 326  | Specific management of option compatibility   | Permits non-standard option compatibility for HVAC application in the EU  | 040-160       |
| Compliance with Moroccan regulations                        | 327  | Specific regulatory documentation   | Compliance with Moroccan regulations  | 040-160       |
| Plastic cover   | 331  | Unit wrapped in a plastic cover and strapped onto a wooden pallet.  | Protects against dust and external soiling of the unit during storage and transport.  | 040-160       |

# PHYSICAL DATA, SIZES 040R TO 160R

| 30RQ  |     |  |         | 040R | 045R | 050R | 060R | 070R | 080R | 090R | 100R  | 120R  | 140R  | 160R  |
|---|-----|--|---------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Heating                                     |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Standard unit<br>Full load<br>performances* | HA1 | Nominal capacity                           | kW      | 44,1 | 47,9 | 54,3 | 61,6 | 68,2 | 61,8 | 93,3 | 106,6 | 119,1 | 136,8 | 123,0 |
|   |     | COP  | kW/kW   | 3,91 | 3,97 | 3,89 | 3,80 | 3,80 | 3,03 | 3,80 | 3,75  | 3,74  | 3,80  | 3,03  |
|   | HA2 | Nominal capacity                           | kW      | 42,7 | 47,0 | 53,5 | 59,5 | 67,2 | 75,7 | 91,7 | 104,5 | 117,6 | 134,9 | 150,2 |
|   |     | COP  | kW/kW   | 3,07 | 3,16 | 3,12 | 3,01 | 3,08 | 3,01 | 3,10 | 3,09  | 3,09  | 3,08  | 3,00  |
| Seasonal energy<br>efficiency**             |     | SCOP <sub>30/35°C</sub>                    | kWh/kWh | 3,82 | 3,85 | 3,81 | 3,57 | 3,67 | 3,64 | 3,60 | 3,55  | 3,79  | 3,76  | 3,78  |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub>     | %       | 150  | 151  | 149  | 140  | 144  | 143  | 141  | 139   | 149   | 147   | 148   |
|   | HA1 | P <sub>rated</sub>                         | kW      | 31,6 | 33,5 | 36,4 | 42,7 | 49,8 | 55,0 | 59,9 | 68,4  | 87,0  | 99,6  | 109,3 |
|   |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Cooling                                     |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Standard unit<br>Full load<br>performances* | CA1 | Nominal capacity                           | kW      | 41,0 | 43,1 | 50,3 | 60,2 | 65,2 | 74,3 | 87,0 | 99,9  | 114,2 | 131,6 | 147,2 |
|   |     | EER  | kW/kW   | 2,89 | 2,69 | 2,66 | 2,97 | 2,90 | 2,66 | 2,88 | 2,84  | 2,93  | 2,85  | 2,66  |
| Seasonal energy<br>efficiency**             |     | SEER <sub>12/7 °C</sub> Comfort low temp.  | kWh/kWh | 4,19 | 4,23 | 4,18 | 4,34 | 4,25 | 4,03 | 4,48 | 4,86  | 4,88  | 4,20  | 4,09  |
|   |     | SEPR <sub>12/7 °C</sub> Process high temp. | kWh/kWh | 6,01 | 5,85 | 5,62 | 6,06 | 5,81 | 5,34 | 5,74 | 5,71  | 5,76  | 5,41  | 5,15  |
| Sound levels                                |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Unit + option 16                            |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Sound power <sup>(1)</sup>                  |     |  | dB(A)   | 82   | 83   | 84   | 89   | 89,5 | 89,5 | 92   | 92    | 92    | 92,5  | 92    |
| Sound pressure at 10 m <sup>(2)</sup>       |     |  | dB(A)   | 50   | 52   | 53   | 58   | 58   | 58   | 60   | 61    | 60    | 61    | 60,0  |
| Standard unit                               |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Sound power <sup>(1)</sup>                  |     |  | dB(A)   | 82   | 83   | 84   | 89   | 89,5 | 89,5 | 92   | 92    | 92    | 92,5  | 92    |
| Sound pressure at 10 m <sup>(2)</sup>       |     |  | dB(A)   | 50   | 52   | 53   | 58   | 58   | 58   | 60   | 61    | 60    | 61    | 60,0  |
| Unit + option 15LS <sup>(3)</sup>           |     |  |         |      |      |      |      |      |      |      |       |       |       |       |
| Sound power <sup>(1)</sup>                  |     |  | dB(A)   | 78,5 | 79   | 80,5 | 80,5 | 80,5 | 80,5 | 83,5 | 83,5  | 83,5  | 83,5  | 83,5  |
| Sound pressure at 10 m <sup>(2)</sup>       |     |  | dB(A)   | 47   | 48   | 49   | 49   | 49   | 49   | 52   | 52    | 52    | 52    | 52    |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with EN14825:2018, average climatic conditions.
- HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W
- HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outdoor air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
- SEER<sub>12/7 °C</sub> & SEPR<sub>12/7 °C</sub> Applicable Ecodesign regulation (EU) No. 2016/2281
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L<sub>w</sub>(A).
- (3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module



Eurovent certified values



## PHYSICAL DATA, SIZES 040R TO 160R

| 30RQ   |                    | 040R  | 045R | 050R | 060R | 070R | 080R | 090R  | 100R  | 120R  | 140R  | 160R  |
|--|--------------------|---|------|------|------|------|------|-------|-------|-------|-------|-------|
| <b>Dimensions</b>  |                    |   |      |      |      |      |      |       |       |       |       |       |
| <b>Standard unit</b>                                       |                    |   |      |      |      |      |      |       |       |       |       |       |
| Length   | mm                 | 1090  | 1090 | 1090 | 1090 | 1090 | 1090 | 2125  | 2125  | 2125  | 2125  | 2125  |
| Width  | mm                 | 2109  | 2109 | 2109 | 2109 | 2109 | 2109 | 2275  | 2275  | 2275  | 2275  | 2275  |
| Height   | mm                 | 1330  | 1330 | 1330 | 1330 | 1330 | 1330 | 1330  | 1330  | 1330  | 1330  | 1330  |
| Unit height (option 12)                                    | mm                 | 1372  | 1372 | 1372 | 1372 | 1372 | 1372 | 1372  | 1372  | 1372  | 1372  | 1372  |
| Unit height (option 307)                                   | mm                 | 1931  | 1931 | 1931 | 1931 | 1931 | 1931 | 1931  | 1931  | 1931  | 1931  | 1931  |
| Unit height (option 12 +307)                               | mm                 | 1973  | 1973 | 1973 | 1973 | 1973 | 1973 | 1973  | 1973  | 1973  | 1973  | 1973  |
| <b>Operating weight<sup>(4)</sup></b>                      |                    |   |      |      |      |      |      |       |       |       |       |       |
| Standard unit  | kg                 | 444   | 446  | 469  | 496  | 506  | 515  | 759   | 818   | 866   | 996   | 1000  |
| Unit + single high-pressure pump option                    | kg                 | 464   | 466  | 489  | 516  | 526  | 535  | 779   | 838   | 891   | 1021  | 1025  |
| Unit + dual high-pressure pump option                      | kg                 | 491   | 493  | 516  | 543  | 553  | 562  | 805   | 864   | 923   | 1054  | 1058  |
| Unit + single high-pressure pump and buffer tank options   | kg                 | 816   | 818  | 841  | 868  | 878  | 887  | 1197  | 1256  | 1309  | 1439  | 1443  |
| Unit + dual high-pressure pump and buffer tank options     | kg                 | 843   | 845  | 868  | 895  | 905  | 914  | 1223  | 1282  | 1341  | 1472  | 1476  |
| <b>Compressors</b>   |                    | Hermetic Scroll 48,3 r/s  |      |      |      |      |      |       |       |       |       |       |
| Circuit A  |                    | 2   | 2    | 2    | 2    | 2    | 2    | 2     | 3     | 3     | 2     | 2     |
| Circuit B  |                    |   |      |      |      |      |      |       |       |       | 2     | 2     |
| No. of power stages  |                    | 2   | 2    | 2    | 2    | 2    | 2    | 2     | 3     | 3     | 4     | 4     |
| <b>Refrigerant<sup>(4)</sup></b>                           |                    | R-32 / A2L/ PRP= 675 in accordance with AR4   |      |      |      |      |      |       |       |       |       |       |
| Circuit A  | kg                 | 7,30  | 7,30 | 7,80 | 8,70 | 8,95 | 9,20 | 15,20 | 15,70 | 19,60 | 8,95  | 9,15  |
|  | tCO <sub>2</sub> e | 4,9   | 4,9  | 5,3  | 5,9  | 6,0  | 6,2  | 10,3  | 10,6  | 13,3  | 6,0   | 6,2   |
| Circuit B  | kg                 |   |      |      |      |      |      |       |       |       | 8,95  | 9,15  |
|  | tCO <sub>2</sub> e |   |      |      |      |      |      |       |       |       | 6,0   | 6,2   |
| <b>Oil</b>   |                    | Oil type  |      |      |      |      |      |       |       |       |       |       |
| Circuit A  | l                  | 6,0   | 6,0  | 6,6  | 6,6  | 7,2  | 7,2  | 7,2   | 10,8  | 10,8  | 7,2   | 7,2   |
| Circuit B  | l                  |   |      |      |      |      |      |       |       |       | 7,2   | 7,2   |
| <b>Capacity control</b>                                    |                    | SmartVu™  |      |      |      |      |      |       |       |       |       |       |
| Minimum capacity   | %                  | 50  | 50   | 50   | 50   | 50   | 50   | 50    | 33    | 33    | 25    | 25    |
| <b>PED category</b>  |                    | III   |      |      |      |      |      |       |       |       |       |       |
| <b>Condenser</b>   |                    | Grooved copper tubes and aluminium fins   |      |      |      |      |      |       |       |       |       |       |
| <b>Fans</b>  |                    | Axial Flying Bird 6 with rotating shroud  |      |      |      |      |      |       |       |       |       |       |
| <b>Standard unit</b>                                       |                    |   |      |      |      |      |      |       |       |       |       |       |
| Quantity   |                    | 1   | 1    | 1    | 1    | 1    | 1    | 2     | 2     | 2     | 2     | 2     |
| Maximum total air flow                                     | l/s                | 4034  | 4034 | 4034 | 5613 | 5613 | 5613 | 10904 | 10904 | 10904 | 11226 | 11226 |
| Maximum rotation speed                                     | r/s                | 12  | 12   | 12   | 16   | 16   | 16   | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>  |                    | Dual-circuit plate heat exchanger   |      |      |      |      |      |       |       |       |       |       |
| Water volume   | l                  | 3,55  | 4    | 4,44 | 5,18 | 6,07 | 6,96 | 7,4   | 8,44  | 9,92  | 12,69 | 14,31 |
| Max. water-side operating pressure without hydronic module | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydronic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                 |      |      |      |      |      |       |       |       |       |       |
| <b>Pump</b>  |                    | Centrifugal pump, monocoil, 48,3 r/s, low- or high-pressure (as required), single or dual (as required) |      |      |      |      |      |       |       |       |       |       |
| Expansion tank volume (Option 293)                         | l                  | 12  | 12   | 12   | 12   | 12   | 12   | 35    | 35    | 35    | 35    | 35    |
| Buffer tank volume (Option 307)                            | l                  | 208   | 208  | 208  | 208  | 208  | 208  | 208   | 208   | 208   | 208   | 208   |
| Max. water-side operating pressure with hydronic module    | kPa                | 400   | 400  | 400  | 400  | 400  | 400  | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydronic module</b>   |                    | Victaulic® type   |      |      |      |      |      |       |       |       |       |       |
| Connections  | inches             | 2   | 2    | 2    | 2    | 2    | 2    | 2     | 2     | 2     | 2     | 2     |
| External diameter  | mm                 | 60,3  | 60,3 | 60,3 | 60,3 | 60,3 | 60,3 | 60,3  | 60,3  | 60,3  | 60,3  | 60,3  |
| <b>Casing paint colour</b>                                 |                    | Colour code RAL 7035 & 7024   |      |      |      |      |      |       |       |       |       |       |

(3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module,

(4) Values are guidelines only. Refer to the unit name plate.

## ELECTRICAL SPECIFICATIONS

| 30RQ  |         | 040R                          | 045R | 050R | 055R | 060R | 070R | 080R | 090R | 100R | 120R | 140R | 160R |
|---|---------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit supply</b>                                     |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |      |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360 - 440                     |      |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |      |      |      |      |      |      |      |      |      |      |      |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Circuit A&B   | kW      | 19                            | 21   | 24   | 24   | 28   | 31   | 36   | 41   | 48   | 55   | 63   | 71   |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Displacement Power Factor (Cos Phi), standard unit              |         | 0,81                          | 0,82 | 0,82 | 0,82 | 0,84 | 0,84 | 0,85 | 0,82 | 0,84 | 0,85 | 0,84 | 0,85 |
| <b>Nominal unit current draw<sup>(4)</sup></b>                  |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 26                            | 29   | 35   | 35   | 36   | 46   | 52   | 59   | 71   | 81   | 91   | 104  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 34                            | 37   | 42   | 42   | 48   | 54   | 60   | 72   | 84   | 93   | 108  | 121  |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 37                            | 39   | 44   | 44   | 51   | 58   | 65   | 77   | 89   | 99   | 115  | 129  |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit   | A       | 116                           | 118  | 165  | 165  | 169  | 177  | 191  | 238  | 206  | 223  | 231  | 251  |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

(4) Standardised EUROVENT conditions, water-cooled exchanger inlet/outlet = 12 °C/7 °C, outdoor air temperature = 35 °C.

### Short-circuit withstand current (TN system)<sup>(1)</sup>

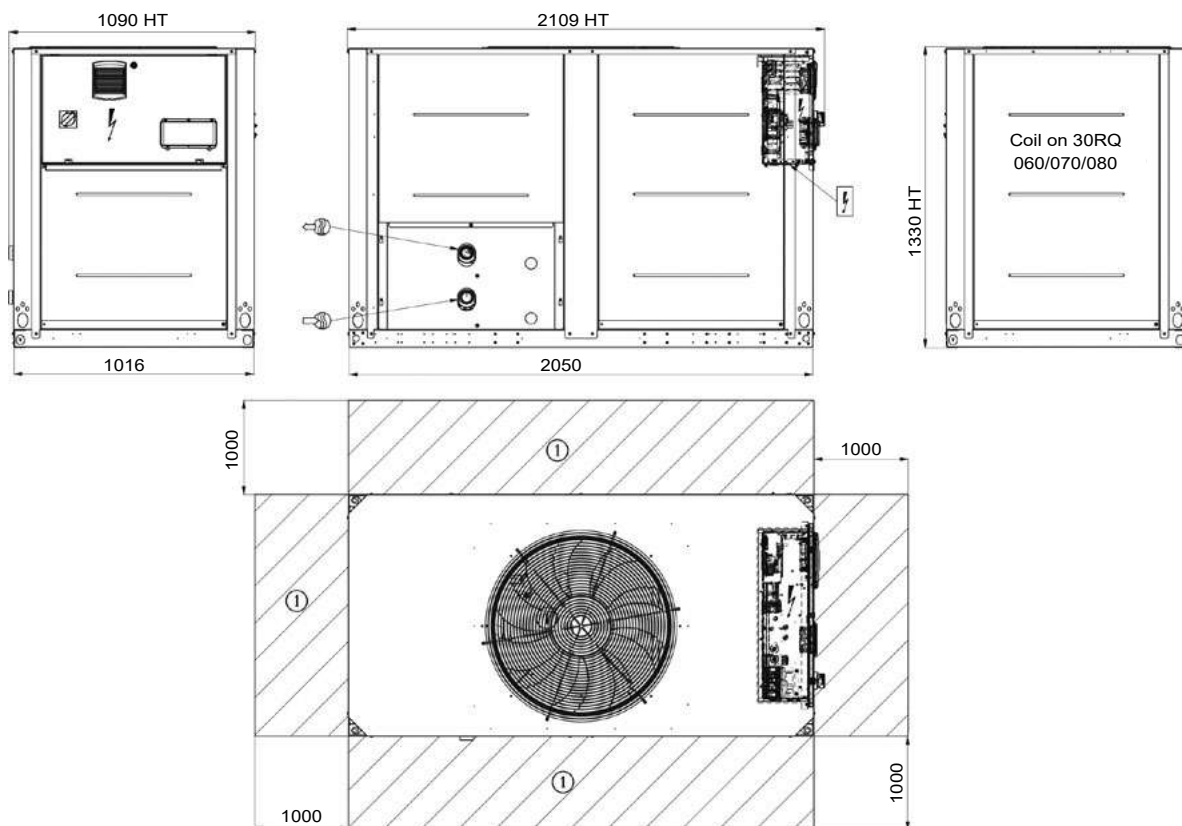
| 30RQ   |        | 040R                      | 045R   | 050R   | 055R   | 060R   | 070R   | 080R   | 090R   | 100R   | 120R   | 140R   | 160R   |
|--|--------|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Rated short-circuit withstand currents</b>                  |        |                           |        |        |        |        |        |        |        |        |        |        |        |
| Rated short time (1s) current - I <sub>cw</sub>                | kA eff | 3,36                      | 3,36   | 3,36   | 3,36   | 3,36   | 3,36   | 5,62   | 5,62   | 5,62   | 5,62   | 5,62   | 5,62   |
| Rated peak current - I <sub>pk</sub>                           | kA pk  | 20                        | 20     | 20     | 20     | 20     | 20     | 15     | 20     | 20     | 15     | 20     | 15     |
| <b>Value with upstream electrical protection<sup>(1)</sup></b> |        |                           |        |        |        |        |        |        |        |        |        |        |        |
| Rated conditional short circuit current I <sub>cc</sub>        | kA eff | 40                        | 40     | 40     | 40     | 40     | 40     | 40     | 40     | 40     | 40     | 30     | 30     |
| Associated protection - type/supplier                          |        | Circuit breaker/Schneider |        |        |        |        |        |        |        |        |        |        |        |
| Associated protection - rating/reference                       |        | NS100H                    | NS100H | NS100H | NS100H | NS100H | NS100H | NS100H | NS100H | NS160H | NS160H | NS250H | NS250H |

(1) If another current limitation protection device is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended protection.

Note: The short circuit current withstand capability values above have been established for the TN system.

## DIMENSIONS/CLEARANCES

### 30RQ 040R-080R, units without water buffer tank module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Control box

#### NOTE: Non-contractual drawings.

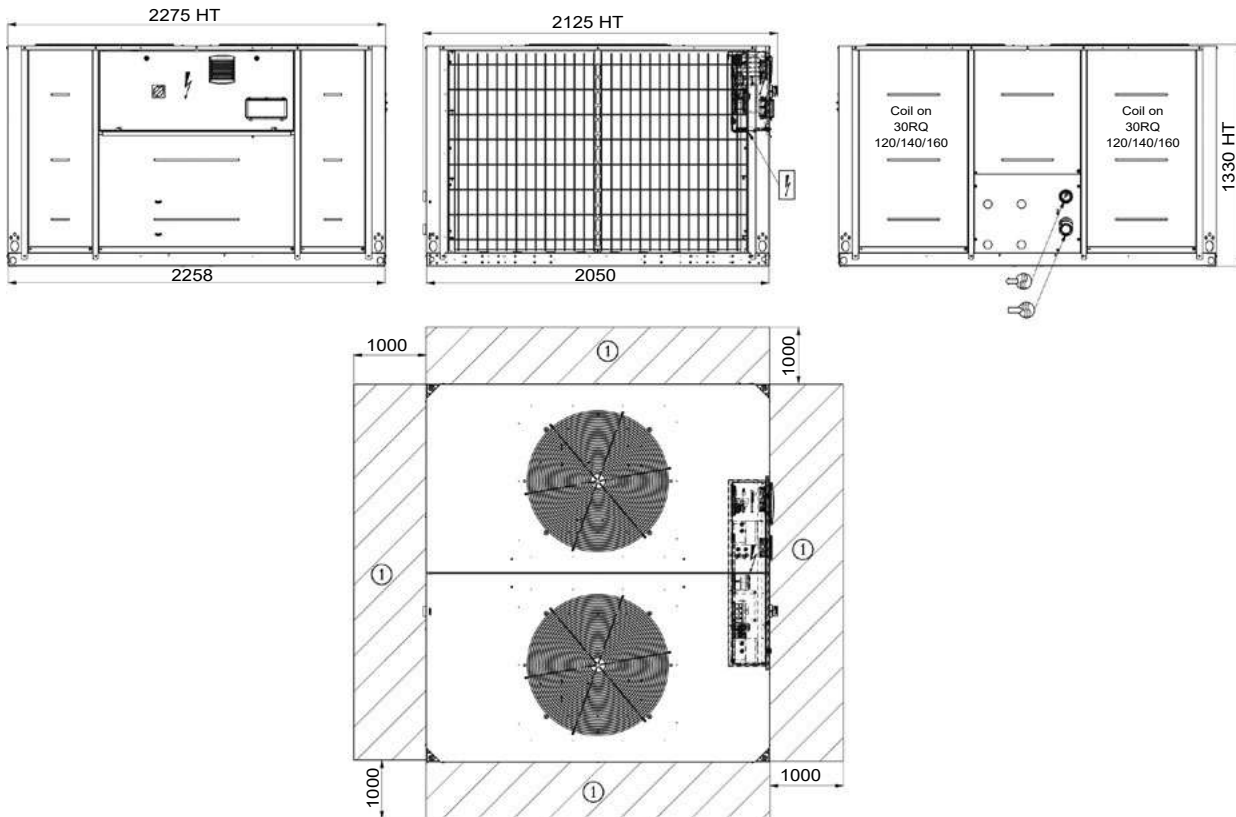
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of the 12/12A/23B option connections.

## DIMENSIONS/CLEARANCES

### 30RQ 090R-160R, units without water buffer tank module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Control box

#### NOTE: Non-contractual drawings.

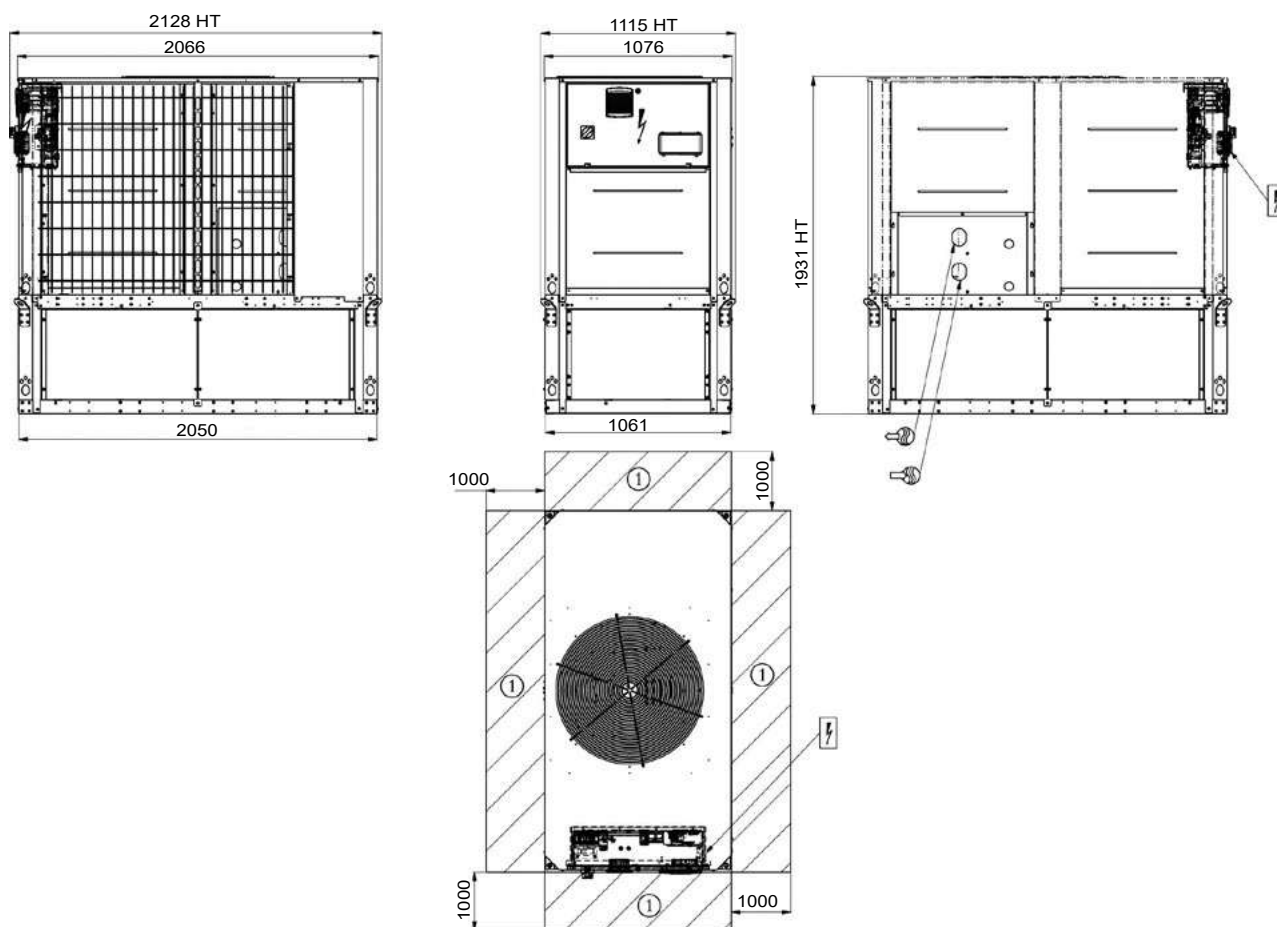
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of option 12 connections.

## DIMENSIONS/CLEARANCES

### 30RQ 040R-080R, units with water buffer tank module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for coil removal
- ⊞ Water inlet
- ⊞ Water outlet
- ⋋ Air outlet, do not obstruct
- ⚡ Control box

#### NOTE: Non-contractual drawings.

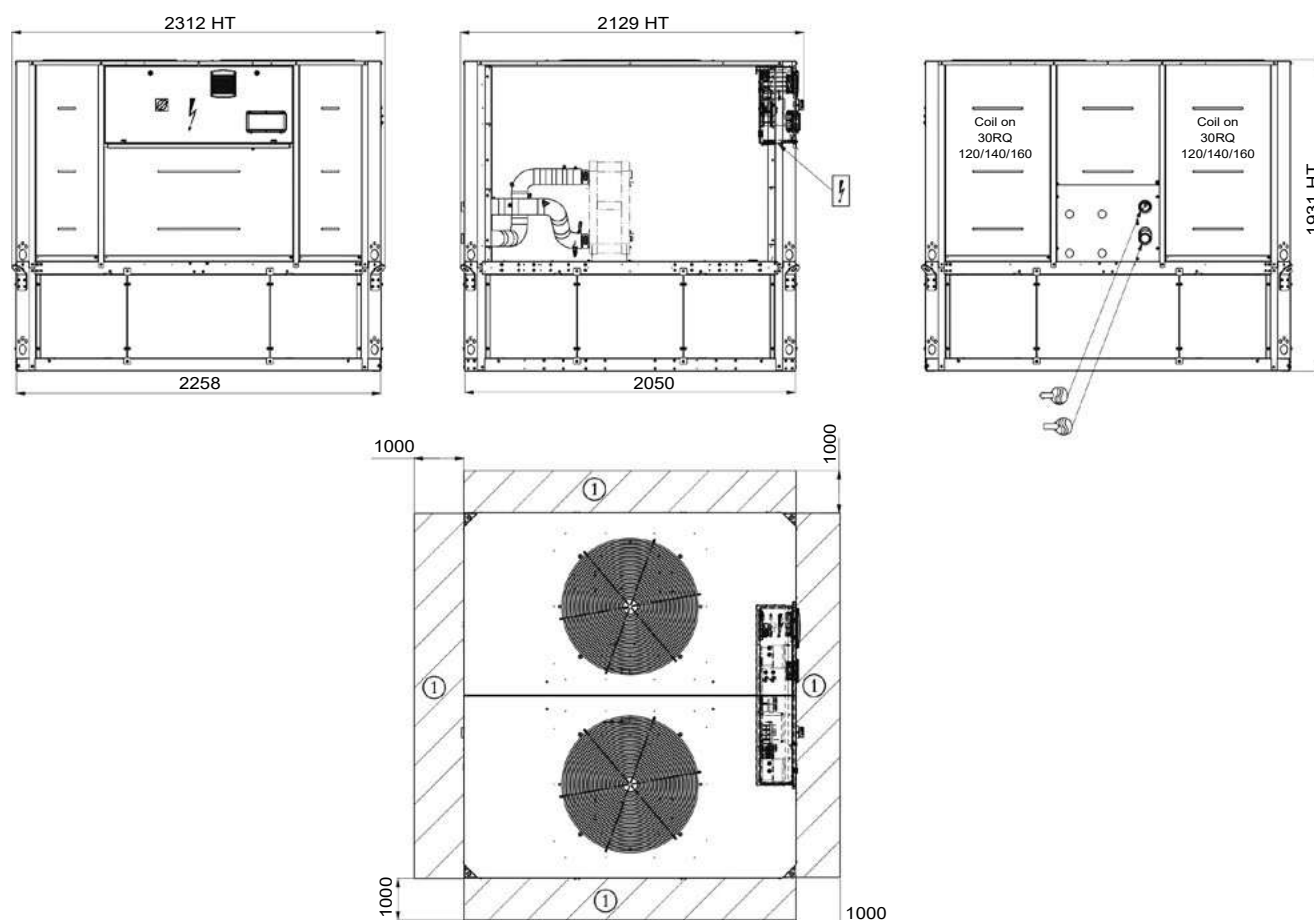
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of the 12/12A/23B option connections.

## DIMENSIONS/CLEARANCES

### 30RQ 090R-160R, units with water buffer tank module



#### Key:

All dimensions are given in mm.

① Clearances required for maintenance and air flow

② Clearance recommended for coil removal

Water inlet

Water outlet

Air outlet, do not obstruct

Control box

#### NOTE: Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

Refer to the certified dimensional drawings for:

- The location of the fixing points,
- The weight distribution,
- The coordinates of the centre of gravity, hydraulic and electrical connections,
- Details of option 12 connections.





**NEW**

## HEAT PUMPS WITH GREENSPEED® INTELLIGENCE



Low environmental impact  
High full and part load efficiency  
Compact and simple to install  
Low refrigerant charge  
Superior reliability

## 30RQ/30RQP 165R-1040R

Heating capacity 170-940 kW  
Cooling capacity 160-1040 kW



Aquasnap® heat pumps and liquid chillers are the best solution for commercial and industrial applications where installers, engineering and design departments and building owners require reduced installation costs, optimal performances and maximum quality.

The latest generation AquaSnap® is available in two new versions:

- The AquaSnap® (30RQ) version is a compact all-in-one package optimised for full-load applications where reduced investment cost (low CapEx) is required.
- The premium AquaSnap® version with Greenspeed® intelligence (30RQP) is optimised for part load applications where a high SEPR, SCOP or IPLV value is required. This version is equipped with a variable-speed pump and fans, providing premium part load efficiency to reduce maintenance costs over the lifespan of the chiller. In addition, the sound levels achieved under the part load conditions are particularly low. Besides operating efficiently and quietly, the AquaSnap® range with Greenspeed® intelligence operates from -20 °C up to +48 °C as standard.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## R-32: THE BEST SOLUTION FOR SCROLL HEAT PUMPS

Carrier was the first to introduce the R-1234ze HFO with ultra-low GWP in screw chillers, as far back as early 2016. Today, having examined its main properties, Carrier has chosen R-32 refrigerant to replace high-GWP R-410A refrigerant in its Scroll heat pumps, for its lower environmental impact, high energy efficiency, good availability and ease of use.

R-32 is currently the ideal refrigeration solution for units equipped with Scroll compressors. By using R-32 refrigerants, Carrier has reduced the carbon footprint of its AquaSnap® range of heat pumps by 77%. This is the result of a much lower GWP and a significant reduction in the system's cooling load compared to the previous generation that used R-410A.

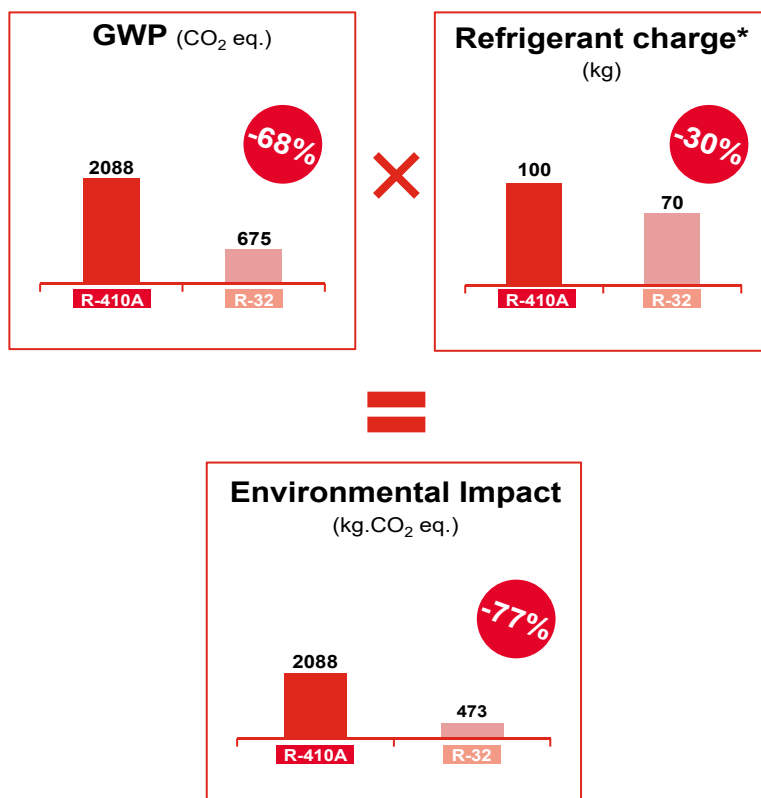
R-32 is also the right choice economically, reducing the locally imposed tax burden on HFCs based on the CO<sub>2</sub> impact.



**CO<sub>2</sub> FOOTPRINT**  
REDUCED BY UP TO **-77%**

### Lower environmental impact (-77% compared to R410A)

- R-32 has zero ozone depletion potential (ODP)
- The Global Warming Potential (GWP) of R-32 is 675, i.e. approximately one third of that of R-410A (PRP 2088)
- The AquaSnap® R-32 cooling load is reduced by 30% compared to the previous version using R-410A\*
- The carbon footprint of AquaSnap® R-32 is therefore 473 (675 x 0.7), i.e. 77% lower than the version using R-410A (2088 x 1)



\* Reduced refrigerant charge in Carrier heat pumps thanks to the use of R-32 and a new coil design.

## R-32: THE BEST SOLUTION FOR SCROLL HEAT PUMPS

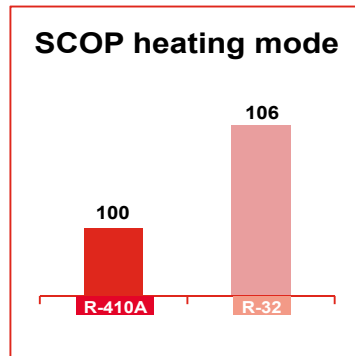


**SCOP** up to +6%

### High energy efficiency

The seasonal efficiency of AquaSnap® R-32 is higher than that of the previous R-410A version by:

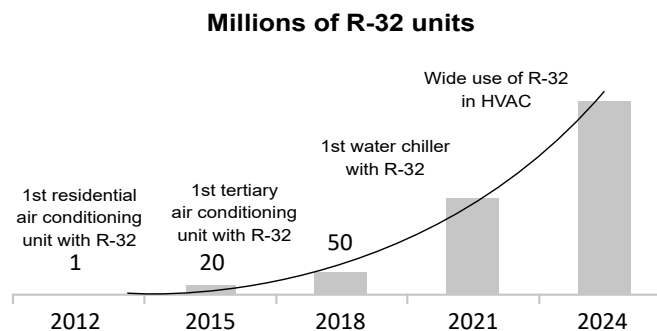
- Approximately +6% in heating mode



**SIMPLICITY**

### Widely available and easy to use

More than 50 million R-32 air conditioning units are in circulation on the global market. While R-32 has been used for some time in residential and commercial air conditioning units, most manufacturers now use R-32 in VRF systems, heat pumps, which means R-32 is widely available around the world.



R-32 has been widely available for over 15 years, as it comprises 50% of the composition of R-410A.

R-32 is easy to use: It is a pure refrigerant, therefore it is not necessary to drain the entire circuit in the event of a leak.



**SAFETY**

R-32 is an A2L classified refrigerant thanks to its low flammability.

- **No specific safety requirements** for transporting chillers by road.
- **Easy outdoor installation** in line with the requirements of standard EN 378.
- The service tools must be **certified** for **A2L** refrigerants in accordance with standard ISO 817 or EN378.
- Service technicians **must be qualified for brazing components** on PED 2 fluid units.

## AQUASNAP® - CUSTOMER BENEFITS

### ■ Outstanding performance

Equipped with variable-speed fans (VSD as standard and EC optional) and optional variable-speed pumps, Carrier's AquaSnap® 30RQP range with Greenspeed® intelligence automatically adjusts the cooling capacity and water flow to perfectly adapt to the building's requirements or load variations. The result is optimum operation at both full load and part load (SCOP of 3.9). The 30RQP offers energy efficiency up to 10% higher than the previous range with the same or a smaller footprint.

The range is already fully compliant with the 2021 Ecodesign regulations.



SCOP up to **3.9**

### ■ Intelligence and connectivity

The advanced SmartVu™ intelligent control system displays operating parameters in real time, making it intuitive and particularly user-friendly. The AquaSnap® 30RQP range is also characterised by a brand new smart energy monitoring function which provides users with smart data such as electrical energy consumption in real time, supplied cooling and heating energy and instantaneous and average seasonal energy efficiency values. For even greater energy savings, the AquaSnap® 30RQP can be monitored remotely by Carrier experts to further optimise the energy consumption level.



SMART ENERGY  
MONITORING

### ■ Extensive field of application

The AquaSnap® range is suitable for a very wide range of applications from tertiary to industrial processes. The range can operate at outdoor temperatures from -20 °C to +48 °C and with negative water temperatures (-8 °C). From high-end office buildings and hotels to healthcare facilities, data centers and industrial projects, AquaSnap® 30RQP units meets the most demanding expectations in terms of energy efficiency and savings, whatever the climate or application.



BETWEEN  
**-20 °C**  
and **48 °C**

### ■ Easy installation & maintenance

Thanks to the variable-speed pumps up to 950 kW, automatic adjustment of the nominal water flow rate via electronic control and automatic measurement of the unit's energy performance under real conditions, the pumping energy consumption is reduced by almost two thirds: these new features guarantee peace of mind for installers and maintenance companies and lower energy bills for users.



Pumping energy  
reduced by  
up to **66%**

## AQUASNAP® - CUSTOMER BENEFITS

AquaSnap® liquid chillers and heat pumps are designed to meet current and future Ecodesign and F-Gas European regulation requirements in terms of energy efficiency and reduced CO<sub>2</sub> emissions. They use the best technologies available today:

- Reduced refrigerant charge of non-ozone depleting R-32A refrigerant with low GWP
- Scroll compressors
- Greenspeed® variable-speed fans (30RQP model)
- Brazed-plate heat exchangers with reduced pressure drops
- Self-regulating microprocessor control with Greenspeed® intelligence
- Colour touch screen with web connectivity options

Both AquaSnap® versions can be equipped with a built-in hydraulic module, limiting the installation to conventional operations such as connection of the power supply and the supply and return piping (plug & play), according to the dimensions of the standard unit.

Recommended by Carrier, the AquaSnap® can be equipped with one or two Greenspeed® variable-speed pumps to significantly reduce energy costs linked to pumping (reduction of more than two-thirds), ensure optimum water flow rate control, and improve overall system reliability.



### Very economical operation

- High unit full- and part-load energy efficiency and efficient design of the water side:
  - SCOP 35 °C up to 3.9 (30RQP version).
  - Multiple scroll compressors equipped with a high-efficiency motor which can exactly match the cooling capacity to the load required
  - Electronic expansion valve enabling operation at a lower condensing pressure and improved use of the evaporator heat transfer area (superheat control)
  - Aluminium micro-channel heat exchangers and Greenspeed® variable-speed fans (30RQP version)
  - Low pressure drop brazed plate heat exchangers (< 45 kPa under Eurovent conditions).

- Specific control functions to reduce unit cooling energy use during occupied and unoccupied periods:
  - Internal timer: Switches the chiller on/off and controls operation at a second setpoint
  - Setpoint automatically offset based on the outdoor air temperature or room air temperature (via an option)
  - Floating high pressure (HP) management
  - Variable-speed fan control
  - Cooling demand limitation.

Refer to the control chapter for more information.

- Greenspeed® variable-speed pump to reduce pumping energy consumption by up to two-thirds (option recommended by Carrier):
  - Eliminate energy losses through the water flow rate control valve by electronically setting the nominal water flow rate
  - Save energy during stand-by periods or part-load operation by automatically reducing the water pump speed. The energy consumption of the pump motor varies according to the cube of the speed, so that a reduction in speed of just 40% can reduce energy consumption by 80%
  - Improved unit part-load performance (increased SEER/SCOP value with variable water flow according to standard EN14825).

Refer to the hydraulic option chapter for more information.



- Extra energy savings through multiple options:
  - Carrier drycooler free cooling mode management
  - Partial or total heat recovery.
- Reduced maintenance costs:
  - Fast diagnosis of possible incidents and their history via the control
  - Programmable maintenance alert
  - Programmable F-Gas leak monitoring alert



## AQUASNAP® - CUSTOMER BENEFITS

### Low noise level

- Condenser with fixed-speed fans (30RQ):
  - Optional low-speed fans (700 rpm) and compressor enclosure to reduce full-load noise level by 6 to 7 dB(A)
  - Condenser coils in V-shape with an open angle, allowing quieter air flow across the coil
  - Low noise 6th generation Flying Bird™ fans, made of a composite material (Carrier patent)
  - Rigid fan installation for reduced noise (Carrier patent).
- Condenser with Greenspeed® variable-speed fans (30RQP) recommended by Carrier for even quieter operation):
  - Optional factory setting of the fan at low speed, with compressor enclosure to reduce full-load noise level by 6 to 7 dB(A)
  - Exceptional acoustic signature during part-load operation through smooth fan speed variation.
- Specific control functions or features to reduce noise level during the night or unoccupied periods:
  - Night-time sound control with cooling capacity and fan speed limitation
  - Low-noise scroll compressors with low vibration level
  - The compressor assembly is installed on an independent chassis and supported by flexible anti-vibration mountings
  - Dynamic suction and discharge piping support, minimising vibration transmission (Carrier patent)
  - Acoustic compressor enclosure, reducing radiated noise emissions (optional).



### Quick and easy installation

- Compact design:
  - AquaSnap® units are designed with compact dimensions for easy installation.
  - With a length of approximately 4.8 m for 550 kW and a width of 2.25 m, the units require minimal floor space.
- Built-in hydraulic module (option):
  - Low or high pressure water pump (as required)
  - Single or dual pump (as required) with operation time balancing and automatic changeover to the back-up pump if a fault develops
  - Built-in variable-speed pumps with automatic nominal water flow adjustment via electronic control on the user display.
  - Water filter protects the water pump against circulating debris
  - Pressure sensors for direct numerical display of the water flow rate and water pressures
  - Thermal insulation and frost protection down to -20 °C, using a heater (optional)
  - High-capacity membrane expansion tank (option).

- Built-in hydraulic module with Greenspeed® variable-speed pump (option recommended by Carrier):
  - Quick and easy electronic setting of the nominal water flow rate when the unit is commissioned, thus eliminating the need to adjust the water flow rate control valve
  - Automatic control of the pump speed based on constant speed, constant pressure difference or constant temperature difference.
- Simplified electrical connections
  - A single power connection point without neutral
  - Main disconnect switch with high trip capacity
  - 24 V control circuit using a built-in transformer.
- Simplified hydraulic connections:
  - Victaulic type couplings on the exchanger;
  - Clearly identified and practical reference marks for water outlet and inlet connections;
- Fast unit commissioning
  - Systematic factory test before shipment
  - Quick-test function for step-by-step verification of the sensors, electrical components and motors.

### Reduced installation costs

- Optional Greenspeed® variable-speed pump with hydraulic module (option recommended by Carrier)
  - Cut costs relating to the water flow control valve
  - The design of the water system with variable primary flow (VPF) can provide significant installation cost savings compared with traditional constant primary systems with variable secondary circuits; elimination of the secondary distribution pump, etc.
  - Water system design with fan coil units fitted with 2-way valves instead of 3-way valves.
- No buffer tank required thanks to Carrier's advanced control algorithm
  - Minimum water loop volume reduced to 2.5 l/kW.

### Environmentally responsible

- AquaSnap® liquid chillers with Greenspeed® intelligence are a boost for green cities and contribute to a sustainable future. Combining a refrigerant charge up to 30% lower, with R-32 refrigerant with a GWP 70% lower than that of the previous version using R410A, and exceptional energy efficiency, this chiller significantly reduces energy consumption while reducing carbon dioxide emissions throughout its life cycle.
- The AquaSnap® liquid chiller is equipped with an automatic energy meter that indicates the instantaneous and overall cooling energy at the outlet, the instantaneous and overall electrical energy consumption, the instantaneous and average seasonal energy efficiency for monitoring and a unit performance check.
  - Pumping energy consumption can be reduced by up to 2/3 using Greenspeed® variable-speed pumps

## AQUASNAP® - CUSTOMER BENEFITS

- lower refrigerant charge: the micro-channel technology used for condenser coils optimises heat transfer while minimising the refrigerant volume.
- Sealed refrigerant circuits:
  - Leaks are eliminated thanks to the absence of capillary tubes and the use of flare connections
  - Verification of pressure transducers and temperature sensors without transferring the refrigerant charge
  - Discharge line shut-off valve and liquid duct service valve for simplified maintenance
  - Qualified Carrier maintenance personnel to provide refrigerant servicing
  - ISO 14001 production plant
- Refrigerant leak detection: available as an option, this additional dry contact allows reporting of possible leaks. The leak detector (supplied externally) should be mounted in the most likely leak location.

### Superior reliability

- State-of-the-art concept
  - Two self-contained refrigerant circuits; the second one automatically takes over if the first one develops a fault, maintaining partial cooling in all circumstances
  - All compressor components are easily accessible on site, minimising downtime
  - V-coil design to protect the coils against hail impact
  - Optional Enviro-shield® anti-corrosion coil coating for use in moderately corrosive environments. Coating applied through conversion process which modifies the surface of the aluminium producing a coating that is integral to the coil. Immersion in a bath to ensure 100% coverage. No heat transfer variation, tested for 4000 hours in salt spray per ASTM B117
  - Optional Super Enviro-shield® anti-corrosion coil coating for use in extremely corrosive environments. Extremely durable and flexible epoxy polymer coating applied on the outer surface of the coil using an electro coating process with a final UV protective topcoat. Minimal heat transfer variation, tested for 6000 hours in salt spray per ASTM B117, superior impact resistance per ASTM D2794
  - Electronic flow switch. Auto-setting according to cooler size and fluid type.

- Self-regulating control
  - The control algorithm prevents excessive compressor cycling and reduces the quantity of water in the water loop (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure
  - Automatic fan speed adjustment in case of coil fouling (30RQP model)
  - Soft fan start to increase unit lifetime (30RQP model).
- Exceptional endurance tests:
  - To design critical components and sub-assemblies to minimise the risk of failure on site, Carrier uses specialised laboratories and advanced dynamic simulation tools.
  - To ensure that the units reach customer sites in the same condition as they are when tested in the factory, Carrier tests the machine behaviour during transportation over 250 km. The road test is based on a military standard and is the equivalent to 5000 km by truck on a normal road.
  - To guarantee the coil corrosion resistance, salt spray corrosion resistance tests are performed in the group's laboratory.
  - In addition, to maintain the unit's performance throughout its operating life whilst minimising maintenance costs, end users can access the "Connected Services" remote monitoring service.

### Designed to support Green Building Design

A green building is a building that is environmentally sustainable and is designed, constructed and operated to minimise the total impact on the environment.

The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

The air conditioning system can use between 30 and 40% of the annual building energy consumption. Choosing the right air conditioning system is one of the main considerations when designing a green building. For buildings with a load that varies throughout the year, the AquaSnap® 30RQP unit offers a solution to this important challenge.

A number of green building certification programmes exist in the market and offer third-party assessment of green building measures for a wide variety of building types.

The following example looks at how Carrier's new AquaSnap® range helps customers affected by the LEED® building certification.

## AQUASNAP® - CUSTOMER BENEFITS

### Energy saving certificate

The AquaSnap® 30RQP unit is eligible for energy saving certificates in France (CEE) in comfort, industrial and agriculture applications:

- Floating High pressure control (by modulating the air flow through fan activation and speed)
- Floating Low pressure control
- Variable speed on asynchronous fan motor
- Variable speed on asynchronous pump motor
- Partial or total recovery of energy

For more details about financial incentives in France, please refer to the "CEE product sheet".

### AquaSnap® and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a major initiative set up to assess the design, construction and operation of green buildings with points assigned in seven credit categories:

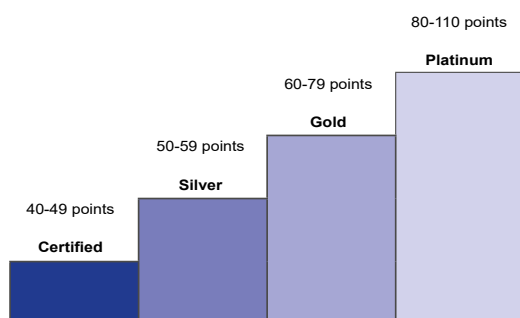
- Sustainable Sites (SS),
- Water efficiency (WE),
- Energy and atmosphere (EA),
- Materials and resources (MR)
- Indoor environmental quality (IEQ)
- Innovation in design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain the same, the distribution of points varies depending on the type of building and the requirements of the application, based on whether it is a new construction, school, core & shell, retail or healthcare.

All programmes now use the same point scale:

#### 110 LEED® points available



The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impact of each component or sub-system on the building as a whole.

While the LEED® green building certification programmes do not certify products or services, choosing the right products, systems or service programmes is critical to obtaining LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilation and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

### EcoPassport®

The PEP ecopassport® programme provides an international reference framework for procedures enabling manufacturers to report the environmental specifications of their products in the form of an environmental claim known as a Product Environmental Profile (PEP).

The PEP ecopassport® programme guarantees that PEPs are correctly drawn up, verified and reported in line with the requirements of the ISO 14025 and IEC/PAS 62545 standards.

The Life Cycle Analysis (LCA) PEP is the environmental identity card for an item of equipment which details the environmental impacts of the product during its life cycle according to eight mandatory indicators:

1. Global Warming Potential
2. Impact on the ozone layer
3. Acidification of soil and water
4. Eutrophication of water
5. Photochemical ozone creation
6. Abiotic resource depletion
7. Fresh water consumption
8. Total use of primary energy during the life cycle

Products with certified environmental profiles are used to support methods to assess building sustainability such as BREEAM, LEED. BREEAM, LEED gives additional recognition for materials with robust environmental product declaration types using manufacturer data.

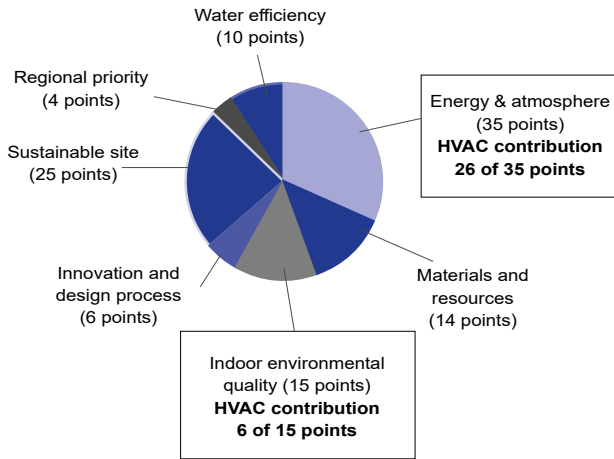
Carrier is the first HVAC manufacturer to provide PEPs for liquid chillers and heat pumps with not only the 8 mandatory indicators, but all 27 indicators.

The PEP for the AquaSnap® 30RBP can be downloaded from the PEP ecopassport® website: <http://www.pep-ecopassport.org/fr/>

## AQUASNAP® - CUSTOMER BENEFITS

### Designed to support Green Building Design

#### Overview of LEED® for new construction and major renovations



**NOTE:** This section describes the prerequisites and credit requirements in LEED® for new construction and is directly related to 30RQP unit. Other prerequisites and credit requirements are not directly and purely related to the air conditioning unit itself, but more to the control of the HVAC system as a whole.

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: fundamental commissioning of energy management systems;
- EA credit 3: enhanced commissioning (2 points);
- EA credit 5: measurements and verification (3 points).

**NOTE:** Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).

The new AquaSnap® units from Carrier can help building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- EA prerequisite 2: minimum energy performance
- 30RQP unit exceed the energy efficiency requirements of ASHRAE 90.1-2007; therefore they satisfy the prerequisites.
- EA prerequisite 3: fundamental refrigerant management  
30RQP unit do not use chlorofluorocarbon (CFC) refrigerants, thus satisfying the prerequisites.
- EA credit 1: Optimise energy performance (1 to 19 points)  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. 30RQP unit, which are designed for high performance especially during part load operation, help to reduce the building's energy consumption and therefore to gain points for this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used to analyse energy. It meets the modelling requirements for this credit and produces reports which can be easily transferred to LEED® charts.
- EA credit 4: Enhanced refrigerant management (2 points)  
With this credit, LEED® awards systems that minimise the installed system's Ozone Depletion Potential (ODP) and Global Warming Potential (GWP). 30RQP unit use a reduced R-32 charge and therefore help satisfy the requirements of this LEED® credit.

## 30RQ TECHNICAL OVERVIEW

### COPPER/ALUMINIUM COILS (30RQ)

- Protective heat shrink sleeves around the distribution sections
- Coil heaters to prevent frost formation and help drain condensate during defrosting



### SIXTH GENERATION FLYING BIRD™ FIXED-SPEED FANS

- Exclusive Carrier design
- Fan blade design inspired by nature
- High efficiency version with AC motor technology



### SmartVu™ control

- 9 languages available
- 4.3" user-friendly touch screen
- All main parameters displayed on one screen
- Direct access to the unit's technical drawings and the main service documents
- Very easy online monitoring
- Easy and secure access to unit parameters
- Optional BACnet, J-Bus or LON communication interfaces

### SMART ENERGY CONSUMPTION MONITORING

- Real time energy consumption estimation (kWh)
- Estimation of the supplied cooling/heating energy (kWh)
- Instantaneous and average energy efficiency values under real operating conditions
- Remote monitoring with "Connected service"

### SCROLL COMPRESSORS



### REDUCED REFRIGERANT CHARGE



### HIGH-EFFICIENCY BRAZED PLATE HEAT EXCHANGER

- Latest generation asymmetrical type
- Low pressure drop



## 30RQP TECHNICAL OVERVIEW



**FAN SPEED  
REGULATOR**



**SIXTH GENERATION FLYING  
BIRD™ VARIABLE-SPEED  
FANS**

- Carrier fan blade design inspired by nature
- Patented algorithm to control the fan speed
- Dedicated variator or EC type motor
- Night mode operation



**VARIABLE-SPEED PUMP**

- Water flow electronic control and reading
- Automatic protection of the pump against low pressure
- Multiple control options:
  - Constant flow with low speed mode on standby
  - Variable flow based on pressure difference or constant temperature

**PUMP SPEED REGULATOR**





## TECHNICAL INSIGHTS

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced Ethernet-based communication technology (IP) and a user-friendly and intuitive user interface with 4.3-inch colour touch screen.

- Energy management configuration
  - Internal timer: Controls chiller on/off times and operation at a second setpoint
  - Setpoint offset based on the outdoor air temperature
  - Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault.
  - Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and cooling capacity, and instantaneous and average energy efficiency values.
  - For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.
- Integrated features
  - Night mode: Capacity and fan speed limitation for reduced noise level
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Advanced communication features
  - Easy, high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
  - Storage of maintenance manual, wiring diagram and spare parts list
  - Display of trend curves for the main values
  - Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
  - Blackbox memory

### ■ 4"3 SmartVu™ user interface



- Intuitive and user-friendly 4"3 inch touch screen interface
- Concise and clear information is available in local languages
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit
- Dual setpoint: closing of this contact activates a second setpoint (e.g.: unoccupied mode).
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value.
- Operation indication: This volt-free contact indicates that the chiller is operating (refrigeration).
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits.

## TECHNICAL INSIGHTS

### Energy management module (option)

The Energy Management Module offers extended remote control possibilities:

- Room temperature: enables the setpoint to be reset based on the indoor air temperature of the building (with Carrier thermostat).
- Setpoint reset: the cooling setpoint is reset based on a 4-20 mA signal.
- Demand limit: enables the maximum chiller power to be limited based on a 4-20 mA signal.
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller power or current to two predefined values.
- User safety: this contact can be used for any customer safety loop; opening the contact generates a specific alarm.
- Ice storage end: when ice storage has finished, this input is used to return to the second setpoint (unoccupied mode).
- Time schedule override: closing of this contact cancels the effects of the time schedule.
- Out of service: this signal indicates that the chiller is completely out of service.
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity.
- Alert indication: this volt-free contact indicates the need to carry out a maintenance operation or the presence of a minor fault.
- Boiler control: this on/off output controls an independent boiler to provide hot water.

## TECHNICAL INSIGHTS

### New generation of Flying Bird VI™ fans with AC or EC motors (optional)



The 30RQ-RQP unit uses Carrier's sixth generation Flying Bird™ fan technology, engineered for maximum efficiency, super low noise, and a wide operating range. The fans use Carrier patented rotating shroud technology and back-swept blades with a wave-serration trailing edge inspired by nature.

They were designed and optimised for the air management system configuration and heat exchanger technology used in the 30RQ-RQP unit.

The fans and their impellers use Carrier's robust and proven injection moulded composite thermoplastic construction.

On the 30RQP with option 17, the fans are driven by an EC motor, also known as brushless DC, with dedicated electronics to manage commutation. This offers high precision for fans that require higher efficiency and variable speed. The fans meet the latest European Ecodesign requirements for fan efficiency.

#### EC motor (option 17)



## OPTIONS

| Options   | No.  | Description  | Advantages  | 30RQ/RQP<br>165R-1040R   |
|---|------|--|---|--------------------------|
| Corrosion protection, traditional coils         | 3A   | Fins made of pre-treated aluminium (polyurethane and epoxy)  | Improved corrosion resistance, recommended for moderate marine and urban environments                                   | 165R-1040R               |
| High-pressure static fans                       | 12   | Unit equipped with high-pressure variable-speed static fans (maximum 200 Pa), each fan being equipped with a connection flange for connection to the ducting system.   | Ducted fan discharge, optimised fan speed control, based on the operating conditions and system characteristics         | 30RQP<br>165R-1040R      |
| Very low noise level                            | 15LS | Acoustic compressor enclosure and low-speed fans   | Noise level reduction for sensitive sites   | 165R-1040R               |
| EC fans   | 17   | Unit equipped with EC fans   | Improves the unit's energy efficiency   | 30RQP<br>165R-1040R      |
| Protection grilles                              | 23   | Metallic protection grilles  | Coil protection against possible impact   | 165R-1040R               |
| Soft starter per circuit                        | 25E  | Soft starter on each circuit   | Economical solution for reduced start-up current  | 165R-1040R               |
| Soft starter per compressor                     | 25   | Electronic starter on each compressor  | Reduced start-up current  | 165R-400R /<br>620R-800R |
| Water exchanger frost protection                | 41   | Electric heater on the water type heat exchanger and the water duct  | Water type heat exchanger module frost protection for an outdoor air temperature between 0 °C and -20 °C                | 165R-1040R               |
| Water manifold antifreeze protection            | 41D  | Electric heater on the water manifold pipe system  | Water manifold antifreeze protection down to an outdoor temperature of -20 °C   | 620R-1040R               |
| Exchanger and hydraulic module frost protection | 42A  | Electrical heaters on the water type heat exchanger, water pipes, hydraulic module and expansion tank  | Water type heat exchanger and hydraulic module frost protection down to an outdoor air temperature of -20 °C            | 165R-1040R               |
| Exchanger and hydraulic module frost protection | 42B  | Electrical heater on the water type heat exchanger, water pipes, hydraulic module and optional expansion tank & buffer tank  | Water type heat exchanger and hydraulic module frost protection down to an outdoor air temperature of -20 °C            | 165R-520R                |
| Partial heat recovery                           | 49   | Unit equipped with one desuperheater on each refrigerant circuit   | Production of free high-temperature hot water simultaneously with chilled water production (or hot water for heat pump) | 165R-1040R               |
| Total heat recovery                             | 50   | Unit equipped with additional heat exchanger in series with the condenser coils.   | Production of free hot water, adjustable on demand  | No                       |
| Master/slave operation                          | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with runtime balancing                                 | 165R-520R                |
| Compressor suction and discharge valves         | 92A  | Shut-off valves on the common compressor suction and discharge pipes   | Simplified maintenance. Possibility to store the refrigerant charge in the cooler or condenser side during servicing    | 165R-1040R               |
| Evaporator single HP pump                       | 116R | Evaporator hydraulic module equipped with high-pressure fixed-speed pump, drain valve, air vent and pressure sensors. Please refer to the dedicated chapter for more details (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play)   | 165R-520R                |
| Dual HP pump hydraulic module                   | 116S | Dual high pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)                          | Quick and easy installation (plug & play)   | 165R-520R                |
| LP single-pump hydraulic module                 | 116T | Single low pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components)                                   | Quick and easy installation (plug & play)   | 165R-520R                |
| LP dual-pump hydraulic module                   | 116U | Dual low pressure water pump, water filter, electronic water flow control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components)  | Quick and easy installation (plug & play)   | 165R-520R                |

## OPTIONS

| Options   | No.  | Description  | Advantages   | 30RQ/RQP<br>165R-1040R |
|---|------|--|--|------------------------|
| Variable-speed single HP pump                                 | 116V | Single low pressure water pump, water filter, electronic water flow rate control, pressure sensors. For more details, refer to the dedicated chapter (expansion tank included; option with built-in hydraulic safety components available)                 | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | 165R-1040R             |
| Variable-speed dual high-pressure pump.                       | 116W | Dual high pressure water pump with speed regulator, pressure sensors. Multiple water flow rate control options. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available) | Quick and easy installation (plug & play), significant reduction in pumping energy consumption level (more than two-thirds), precise water flow control, improved system reliability | 165R-1040R             |
| High energy efficiency underfloor heating/cooling application | 119C | Optimisation of the refrigerant and control circuit for the underfloor heating/cooling system application  | Improvement of performances and reduction of energy costs for the underfloor heating/cooling application   | 165R-1040R             |
| Lon communication gateway                                     | 148D | Two-directional communication board complying with Lon Talk protocol   | Connects the unit by communication BUS to a centralised building management system   | 165R-1040R             |
| ModBus over IP and RS485 communication gateway                | 149B | Two-directional high-speed communication using the ModBus over Ethernet network (IP) protocol  | Easy, quick connection via Ethernet line to a building technical management system. Allows access to several unit parameters.  | 165R-1040R             |
| Bacnet over IP  | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)  | Easy and high-speed connection by Ethernet line to a BMS. Allows access to multiple unit parameters  | 165R-1040R             |
| Energy management module                                      | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module section   | Extended remote control capabilities (setpoint reset, ice storage end, demand limits, boiler on/off command...)  | 165R-1040R             |
| Contact for refrigerant leak detection                        | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly (the leak detector itself must be supplied by the customer)   | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 165R-1040R             |
| Phase controller  | 159B | Phase controller on the power supply   | Reinforced protection of the compressors by monitoring rotation, the absence and asymmetry of the phases, and the over- or under-voltage of the electricity network                  | Dec. 2022              |
| Compliance with Russian regulations                           | 199  | EAC certification  | Compliance with Russian regulations  | 165R-1040R             |
| Coil defrost resistance heaters                               | 252  | Electric heaters under the coils and the condensate pans   | Prevents frost formation on the coils; compulsory in heating mode if the outdoor temperature is below 0 °C   | 165R-1040R             |
| Insulation of the evaporator inlet/outlet refrigerant lines   | 256  | Thermal insulation of the evaporator inlet/outlet refrigerant lines, with UV-resistant flexible connection and insulation  | Prevents condensation on the evaporator inlet/outlet refrigerant lines   | 165R-1040R             |
| Welded evaporator connection kit                              | 266  | Victaulic piping connections with welded joints  | Easy installation  | 165R-1040R             |
| Compressor enclosure  | 279a | Compressor with enclosure  | Improved aesthetics, compressor protection against external elements (dust, sand, water...)  | 165R-1040R             |
| EMC class. C2, as per EN 61800-3                              | 282  | Additional RFI filters on the unit power line  | Reduces electromagnetic interferences in compliance with the emissions level required in category C2 to enable it to be used in the first environment ("residential environment")    | 165R-1040R             |
| 230 V electrical plug   | 284  | 230 VAC power source provided with plug socket and transformer (180 VA, 0.8 A)   | Enables connection of a laptop or an electrical device during system start-up or maintenance   | 165R-1040R             |
| Expansion tank  | 293  | 6-bar expansion tank built into the hydraulic module (requires hydraulic module option)  | Easy and fast installation (plug & play), & protection of closed water systems from excessive pressure   | 165R-1040R             |
| Electric energy meter   | 294  | Electric energy meter. Display of energy consumption, instantaneous (U, V, I) and cumulative (kWh), on the machine interface, data available on the communication bus  | Permits the acquisition and monitoring (remotely via the CMS/BMS) of the energy used.  | Dec. 2022              |
| Ultra fast capacity recovery                                  | 295+ | Built-in battery to allow an ultra-rapid restart whilst maintaining the unit's reliability.  | Full capacity recovery in less than one minute after a power failure. Meets the requirements of typical critical missions applications. (process, data centres)                      | No                     |
| Screwed water connection sleeves for desuperheater            | 303  | DSH connections with screw connection sleeves  | Easy to install. Allows unit connection to a screw connector   | 165R-1040R             |

## OPTIONS

| Options                                    | No.  | Description   | Advantages   | 30RQ/RQP<br>165R-1040R |
|--|------|---|--|------------------------|
| Welded connection sleeve for desuperheater | 304  | DSH inlet/outlet welded connection sleeves  | Easy installation  | 165R-1040R             |
| Free cooling (total)                       | 305A | Free cooling hydraulic coils on the two refrigerant circuits  | Energy savings for applications which require cooling all year round (e.g.: industrial processes, data centres)  | No                     |
| Free cooling (partial)                     | 305B | Free cooling hydraulic coils on a refrigerant circuit   | Energy savings for applications with reduced demand for cooling in the winter (e.g. office space with computer room, meeting rooms)                                    | No                     |
| Water buffer tank module                   | 307  | Built-in water buffer tank module   | Avoids short cycle on compressors and ensures stable water in the loop   | 165R-1040R             |
| Free cooling dry cooler management         | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box                      | Easy system management, control capabilities extended to a drycooler used in Free Cooling mode   | No                     |
| Compliance with UAE regulations            | 318  | Additional label on the unit with input power, current and EER under rated conditions in accordance with AHRI 550/590 | Compliance with ESMA standard UAE 5010-5:2016.   | No                     |
| Compliance with Qatar regulations          | 319  | Specific name plate on the unit with 415 V +/-6% power supply   | Compliance with KAHRAMAA regulations in Qatar  | No                     |
| Water manifold                             | 325A | Pipe system ensuring a single hydraulic connection point  | Easy installation  | 620R-1040R             |
| Compliance with Moroccan regulations       | 327  | Specific regulatory documentation   | Compliance with Moroccan regulations   | 165R-1040R             |
| Delivered wrapped in plastic film          | 331  | Unit wrapped in a plastic cover and strapped onto a wooden pallet.  | Protects against dust and external soiling of the unit during storage and transport.   | 165R-1040R             |
| IT neutral system                          | 333  | Specific earthing which insulates the earth neutral point.  | The device continues to operate after the first electrical insulation fault thereby ensuring continuity of operations (industrial processes, data centres, hospitals). | Dec. 2022              |



# PHYSICAL DATA, SIZES 165R TO 520R

| 30RQ   |     |   |         | 165R | 180R | 210R | 230R | 270R | 310R | 330R | 370R | 400R | 430R | 470R | 520R |
|--|-----|---|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Heating  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load<br>performances*                  | HA1 | Nominal capacity                          | kW      | 178  | 197  | 237  | 256  | 275  | 317  | 336  | 387  | 406  | 441  | 467  | 537  |
|  |     | COP                                       | kW/kW   | 3,88 | 3,80 | 3,84 | 3,84 | 3,82 | 3,82 | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
|  | HA2 | Nominal capacity                          | kW      | 173  | 192  | 231  | 250  | 269  | 310  | 329  | 378  | 397  | 431  | 458  | 526  |
|  |     | COP                                       | kW/kW   | 3,16 | 3,09 | 3,14 | 3,12 | 3,11 | 3,10 | 3,09 | 3,10 | 3,09 | 3,10 | 3,03 | 3,09 |
| Seasonal energy<br>efficiency**                              | HA1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 3,44 | 3,45 | 3,39 | 3,47 | 3,48 | 3,57 | 3,58 | 3,55 | 3,57 | 3,54 | 3,53 | 3,57 |
|  |     | η <sub>s heat</sub> <sub>30/35°C</sub>    | %       | 135  | 135  | 133  | 136  | 136  | 140  | 140  | 139  | 140  | 139  | 138  | 140  |
|  |     | P <sub>rated</sub>                        | kW      | 139  | 155  | 186  | 200  | 217  | 250  | 266  | 305  | 321  | 349  | 371  | 400  |
| Cooling  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load<br>performances*                  | CA1 | Nominal capacity                          | kW      | 164  | 181  | 215  | 236  | 254  | 302  | 324  | 362  | 381  | 413  | 439  | 500  |
|  |     | EER                                       | kW/kW   | 2,87 | 2,73 | 2,86 | 2,81 | 2,76 | 2,85 | 2,80 | 2,82 | 2,76 | 2,82 | 2,74 | 2,74 |
| Seasonal energy<br>efficiency**                              |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 3,91 | 3,81 | 3,88 | 3,88 | 3,84 | 4,15 | 4,21 | 4,14 | 4,07 | 4,04 | 4,03 | 4,05 |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 4,62 | 4,47 | 4,54 | 4,48 | 4,46 | 4,69 | 4,64 | 4,77 | 4,70 | 4,76 | 4,66 | 4,70 |
| Unit + option 15LS<br>Full load<br>performances*             | CA1 | Nominal capacity                          | kW      | 155  | 171  | 204  | 223  | 239  | 285  | 305  | 341  | 358  | 389  | 414  | 470  |
|  |     | EER                                       | kW/kW   | 2,73 | 2,55 | 2,73 | 2,63 | 2,56 | 2,66 | 2,59 | 2,64 | 2,57 | 2,64 | 2,55 | 2,55 |
| Seasonal energy<br>efficiency**                              |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 4,17 | 4,01 | 4,18 | 4,08 | 4,04 | 4,48 | 4,50 | 4,46 | 4,33 | 4,44 | 4,38 | 4,32 |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 4,68 | 4,51 | 4,64 | 4,52 | 4,50 | 4,83 | 4,76 | 4,93 | 4,79 | 4,94 | 4,82 | 4,83 |
| Sound levels   |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                   |     |   | dB(A)   | 90,5 | 91,0 | 91,5 | 92,0 | 92,0 | 93,0 | 93,5 | 94,0 | 94,0 | 94,5 | 94,5 | 95,0 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |   | dB(A)   | 58,0 | 58,5 | 59,5 | 60,0 | 60,0 | 60,5 | 61,0 | 61,5 | 61,5 | 62,0 | 62,0 | 62,5 |
| Unit + option 15LS <sup>(3)</sup>                            |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                   |     |   | dB(A)   | 85,0 | 86,0 | 86,5 | 87,0 | 87,0 | 88,0 | 88,0 | 89,0 | 89,0 | 89,5 | 90,0 | 90,0 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |   | dB(A)   | 53,0 | 53,5 | 54,0 | 54,5 | 54,5 | 55,5 | 55,5 | 56,5 | 56,5 | 57,0 | 57,5 | 57,5 |
| Dimensions - standard unit                                   |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Length   |     |   | mm      | 2410 | 2410 | 2410 | 2410 | 2410 | 3604 | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 |
| Width  |     |   | mm      | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height   |     |   | mm      | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + option 307 <sup>(3)</sup>                             |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Length   |     |   | mm      | 3604 | 3604 | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 4798 | 5992 | 5992 | 5992 |
| Operating weight <sup>(4)</sup>                              |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   | kg      | 1569 | 1575 | 1784 | 1811 | 1817 | 2394 | 2452 | 2672 | 2678 | 3154 | 3180 | 3430 |
| Unit + option 15LS <sup>(3)</sup>                            |     |   | kg      | 1652 | 1658 | 1892 | 1920 | 1926 | 2520 | 2579 | 2817 | 2823 | 3317 | 3343 | 3611 |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |     |   | kg      | 1787 | 1793 | 2039 | 2067 | 2073 | 2715 | 2774 | 3051 | 3057 | 3551 | 3614 | 3882 |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |     |   | kg      | 2771 | 2777 | 3022 | 3049 | 3055 | 3725 | 3783 | 4060 | 4066 | 4551 | 4614 | 4882 |

- \* In accordance with EN14511-3:2018.
- \*\* In accordance with EN14825:2018, average climate conditions
- HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W
- HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W
- CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W
- η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications
- SEER<sub>12/7°C</sub> & SEPR<sub>12/7°C</sub> Applicable Ecodesign regulation (EU) No. 2016/2281.
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. Cooling mode.
- (2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).
- (3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module.
- (4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL DATA, SIZES 165R TO 520R

| 30RQ  |                    | 165R   | 180R  | 210R  | 230R  | 270R  | 310R  | 330R  | 370R  | 400R  | 430R  | 470R  | 520R  |
|---|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A/C   |                    | 1  | 1     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 3     | 3     | 4     |
| Circuit B/D   |                    | 2  | 2     | 2     | 2     | 2     | 3     | 3     | 4     | 4     | 4     | 4     | 4     |
| Number of power stages                                      |                    | 3  | 3     | 4     | 4     | 4     | 5     | 5     | 6     | 6     | 7     | 7     | 8     |
| <b>Unit PED category</b>                                    |                    | III  | III   | III   | III   | III   | III   | IV    | IV    | IV    | IV    | IV    | IV    |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L /GWP= 675 as per AR4   |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A/C   | kg                 | 10,5   | 10,5  | 16,0  | 16,0  | 16,0  | 16,0  | 18,0  | 18,0  | 18,0  | 29,0  | 29,0  | 35,0  |
|   | tCO <sub>2</sub> e | 7,1  | 7,1   | 10,8  | 10,8  | 10,8  | 10,8  | 12,2  | 12,2  | 12,2  | 19,6  | 19,6  | 23,6  |
| Circuit B/D   | kg                 | 16,0   | 16,0  | 16,0  | 16,0  | 16,0  | 28,5  | 28,5  | 34,0  | 34,0  | 34,5  | 35,0  | 35,0  |
|   | tCO <sub>2</sub> e | 10,8   | 10,8  | 10,8  | 10,8  | 10,8  | 19,2  | 19,2  | 23,0  | 23,0  | 23,3  | 23,6  | 23,6  |
| <b>Oil</b>  |                    |  |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A/C   |                    | 6,6  | 6,6   | 13,2  | 13,2  | 13,2  | 13,2  | 13,2  | 13,2  | 13,2  | 22,8  | 22,8  | 30,4  |
| Circuit B/D   |                    | 13,2   | 13,2  | 13,2  | 13,2  | 13,2  | 22,8  | 22,8  | 30,4  | 30,4  | 30,4  | 30,4  | 30,4  |
| <b>Capacity control</b>                                     |                    | SmartVu™   |       |       |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 33   | 33    | 25    | 25    | 25    | 20    | 20    | 17    | 17    | 14    | 14    | 13    |
| <b>Condenser</b>  |                    | Grooved copper tubes and aluminium fins  |       |       |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |       |       |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |  |       |       |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 3  | 3     | 4     | 4     | 4     | 5     | 5     | 6     | 6     | 7     | 7     | 8     |
| Maximum total air flow                                      | l/s                | 14460  | 14460 | 19280 | 19280 | 19280 | 24100 | 24100 | 28920 | 28920 | 33740 | 33740 | 38560 |
| Maximum rotation speed                                      | r/s                | 16   | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |       |       |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 16,2   | 16,2  | 16,2  | 20,7  | 20,7  | 38,7  | 48,6  | 48,6  | 48,6  | 48,6  | 52,2  | 58,5  |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |       |       |       |       |       |       |       |       |       |       |       |
| Pump  |                    | Centrifugal pump, monocell, 48.3 r/s, low or high pressure (as required), single or dual (as required) |       |       |       |       |       |       |       |       |       |       |       |
| Expansion tank volume (option)                              | l                  | 50   | 50    | 50    | 50    | 50    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |
| Buffer tank volume (option)                                 | l                  | 550  | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |       |       |       |
| Connections   | inches             | 3  | 3     | 3     | 3     | 3     | 4     | 4     | 4     | 4     | 4     | 4     | 4     |
| External diameter   | mm                 | 88,5   | 88,6  | 88,7  | 88,8  | 88,9  | 114,3 | 114,4 | 114,5 | 114,6 | 114,7 | 114,8 | 114,9 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.

## PHYSICAL DATA, SIZES 165R TO 520R

| 30RQP  |     |   |         | 165R | 180R | 210R | 230R | 270R | 310R | 330R | 370R | 400R | 430R | 470R | 520R |
|--|-----|---|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| Heating  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load performances*                     | HA1 | Nominal capacity                          | kW      | 178  | 197  | 237  | 256  | 275  | 317  | 336  | 387  | 406  | 441  | 467  | 537  |
|  |     | COP                                       | kW/kW   | 3,88 | 3,80 | 3,84 | 3,84 | 3,82 | 3,82 | 3,81 | 3,82 | 3,81 | 3,80 | 3,73 | 3,80 |
|  | HA2 | Nominal capacity                          | kW      | 173  | 192  | 231  | 250  | 269  | 310  | 329  | 378  | 397  | 431  | 458  | 526  |
|  |     | COP                                       | kW/kW   | 3,16 | 3,09 | 3,14 | 3,13 | 3,11 | 3,10 | 3,09 | 3,10 | 3,09 | 3,10 | 3,03 | 3,10 |
| Seasonal energy<br>efficiency**                              | HA1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 3,67 | 3,66 | 3,74 | 3,77 | 3,80 | 3,87 | 3,86 | 3,90 | 3,91 | 3,92 | 3,89 | 3,96 |
|  |     | η <sub>s</sub> heat <sub>30/35°C</sub>    | %       | 144  | 143  | 147  | 148  | 149  | 152  | 151  | 153  | 153  | 154  | 153  | 155  |
|  |     | P <sub>rated</sub>                        | kW      | 138  | 155  | 185  | 200  | 216  | 250  | 265  | 305  | 320  | 348  | 370  | 399  |
| Cooling  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load performances*                     | CA1 | Nominal capacity                          | kW      | 164  | 181  | 215  | 236  | 254  | 302  | 324  | 362  | 381  | 413  | 439  | 500  |
|  |     | EER                                       | kW/kW   | 2,87 | 2,72 | 2,86 | 2,80 | 2,76 | 2,85 | 2,80 | 2,82 | 2,76 | 2,81 | 2,74 | 2,73 |
| Seasonal energy<br>efficiency**                              |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 4,41 | 4,23 | 4,48 | 4,41 | 4,34 | 4,78 | 4,81 | 4,88 | 4,87 | 4,81 | 4,75 | 4,81 |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 5,47 | 5,23 | 5,41 | 5,23 | 5,15 | 5,49 | 5,34 | 5,60 | 5,40 | 5,60 | 5,43 | 5,47 |
| Unit + option 15LS<br>Full load performances*                | CA1 | Nominal capacity                          | kW      | 155  | 171  | 204  | 223  | 239  | 285  | 305  | 341  | 358  | 389  | 414  | 470  |
|  |     | EER                                       | kW/kW   | 2,73 | 2,55 | 2,69 | 2,61 | 2,56 | 2,66 | 2,59 | 2,63 | 2,56 | 2,64 | 2,55 | 2,54 |
| Seasonal energy<br>efficiency**                              |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 4,38 | 4,23 | 4,41 | 4,37 | 4,35 | 4,73 | 4,76 | 4,91 | 4,78 | 4,94 | 4,86 | 4,75 |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 5,39 | 5,17 | 5,23 | 5,12 | 5,10 | 5,51 | 5,37 | 5,62 | 5,39 | 5,65 | 5,47 | 5,52 |
| Sound levels   |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                   |     |   | dB(A)   | 90,5 | 91,0 | 91,5 | 92,0 | 92,0 | 93,0 | 93,5 | 94,0 | 94,0 | 94,5 | 94,5 | 95,0 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |   | dB(A)   | 58,0 | 58,5 | 59,5 | 60,0 | 60,0 | 60,5 | 61,0 | 61,5 | 61,5 | 62,0 | 62,0 | 62,5 |
| Unit + option 15LS <sup>(3)</sup>                            |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Sound power <sup>(1)</sup>                                   |     |   | dB(A)   | 85,0 | 86,0 | 86,5 | 87,0 | 87,0 | 88,0 | 88,0 | 89,0 | 89,0 | 89,5 | 90,0 | 90,0 |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |   | dB(A)   | 53,0 | 53,5 | 54,0 | 54,5 | 54,5 | 55,5 | 55,5 | 56,5 | 56,5 | 57,0 | 57,5 | 57,5 |
| Dimensions - standard unit                                   |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Length   |     |   | mm      | 2410 | 2410 | 2410 | 2410 | 2410 | 3604 | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 |
| Width  |     |   | mm      | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 | 2253 |
| Height   |     |   | mm      | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 | 2324 |
| Unit + option 307 <sup>(3)</sup>                             |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Length   |     |   | mm      | 3604 | 3604 | 3604 | 3604 | 3604 | 4798 | 4798 | 4798 | 4798 | 5992 | 5992 | 5992 |
| Operating weight <sup>(4)</sup>                              |     |   |         |      |      |      |      |      |      |      |      |      |      |      |      |
| Standard unit  |     |   | kg      | 1569 | 1575 | 1784 | 1811 | 1817 | 2394 | 2452 | 2672 | 2678 | 3154 | 3180 | 3430 |
| Unit + option 15LS <sup>(3)</sup>                            |     |   | kg      | 1652 | 1658 | 1892 | 1920 | 1926 | 2520 | 2579 | 2817 | 2823 | 3317 | 3343 | 3611 |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |     |   | kg      | 1787 | 1793 | 2039 | 2067 | 2073 | 2715 | 2774 | 3051 | 3057 | 3551 | 3614 | 3882 |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |     |   | kg      | 2771 | 2777 | 3022 | 3049 | 3055 | 3725 | 3783 | 4060 | 4066 | 4551 | 4614 | 4882 |

\* In accordance with EN14511-3:2018.

\*\* In accordance with EN14825:2018, average climate conditions

HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/WHA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/WCA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W**η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub>** Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applicationsSEER<sub>12/7 °C</sub> & SEPR<sub>12/7 °C</sub> Applicable Ecodesign regulation (EU) No. 2016/2281.(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. Cooling mode.(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power L<sub>w</sub>(A).

(3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module.

(4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL DATA, SIZES 165R TO 520R

| 30RQP   |                    | 165R   | 180R  | 210R  | 230R  | 270R  | 310R  | 330R  | 370R  | 400R  | 430R  | 470R  | 520R  |
|---|--------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A/C   |                    | 1  | 1     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 3     | 3     | 4     |
| Circuit B/D   |                    | 2  | 2     | 2     | 2     | 2     | 3     | 3     | 4     | 4     | 4     | 4     | 4     |
| Number of power stages                                      |                    | 3  | 3     | 4     | 4     | 4     | 5     | 5     | 6     | 6     | 7     | 7     | 8     |
| <b>Unit PED category</b>                                    |                    | III  | III   | III   | III   | III   | III   | IV    | IV    | IV    | IV    | IV    | IV    |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L /GWP= 675 as per AR4   |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A/C   | kg                 | 10,5   | 10,5  | 16,0  | 16,0  | 16,0  | 16,0  | 18,0  | 18,0  | 18,0  | 29,0  | 29,0  | 35,0  |
|   | tCO <sub>2</sub> e | 7,1  | 7,1   | 10,8  | 10,8  | 10,8  | 10,8  | 12,2  | 12,2  | 12,2  | 19,6  | 19,6  | 23,6  |
| Circuit B/D   | kg                 | 16,0   | 16,0  | 16,0  | 16,0  | 16,0  | 28,5  | 28,5  | 34,0  | 34,0  | 34,5  | 35,0  | 35,0  |
|   | tCO <sub>2</sub> e | 10,8   | 10,8  | 10,8  | 10,8  | 10,8  | 19,2  | 19,2  | 23,0  | 23,0  | 23,3  | 23,6  | 23,6  |
| <b>Oil</b>  |                    |  |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A/C   | l                  | 6,6  | 6,6   | 13,2  | 13,2  | 13,2  | 13,2  | 13,2  | 13,2  | 13,2  | 22,8  | 22,8  | 30,4  |
| Circuit B/D   | l                  | 13,2   | 13,2  | 13,2  | 13,2  | 13,2  | 22,8  | 22,8  | 30,4  | 30,4  | 30,4  | 30,4  | 30,4  |
| <b>Capacity control</b>                                     |                    | SmartVu™   |       |       |       |       |       |       |       |       |       |       |       |
| Minimum capacity  | %                  | 33   | 33    | 25    | 25    | 25    | 20    | 20    | 17    | 17    | 14    | 14    | 13    |
| <b>Condenser</b>  |                    | Grooved copper tubes and aluminium fins  |       |       |       |       |       |       |       |       |       |       |       |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |       |       |       |       |       |       |       |       |       |       |       |
| <b>Standard unit</b>  |                    |  |       |       |       |       |       |       |       |       |       |       |       |
| Quantity  |                    | 3  | 3     | 4     | 4     | 4     | 5     | 5     | 6     | 6     | 7     | 7     | 8     |
| Maximum total air flow                                      | l/s                | 14460  | 14460 | 19280 | 19280 | 19280 | 24100 | 24100 | 28920 | 28920 | 33740 | 33740 | 38560 |
| Maximum rotation speed                                      | r/s                | 16   | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    | 16    |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |       |       |       |       |       |       |       |       |       |       |       |
| Water volume  | l                  | 16,2   | 16,2  | 16,2  | 20,7  | 20,7  | 38,7  | 48,6  | 48,6  | 48,6  | 48,6  | 52,2  | 58,5  |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |       |       |       |       |       |       |       |       |       |       |       |
| <b>Pump</b>   |                    | Centrifugal pump, monocell, 48.3 r/s, low or high pressure (as required), single or dual (as required) |       |       |       |       |       |       |       |       |       |       |       |
| Expansion tank volume (option)                              | l                  | 50   | 50    | 50    | 50    | 50    | 80    | 80    | 80    | 80    | 80    | 80    | 80    |
| Buffer tank volume (option)                                 | l                  | 550  | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   | 550   |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   | 400   |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |       |       |       |       |       |       |       |       |       |       |       |
| Connections Module 1 / Module 2 <sup>(a)</sup>              | inches             | 3  | 3     | 3     | 3     | 3     | 4     | 4     | 4     | 4     | 4     | 4     | 4     |
| External diameter Module 1 / Module 2 <sup>(a)</sup>        | mm                 | 88,5   | 88,6  | 88,7  | 88,8  | 88,9  | 114,3 | 114,4 | 114,5 | 114,6 | 114,7 | 114,8 | 114,9 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |       |       |       |       |       |       |       |       |       |       |       |

(4) Values are guidelines only. Refer to the unit name plate.

(a) Modules 1 and 2 only relate to sizes 620R to 1040R.

## PHYSICAL DATA, SIZES 620R TO 1040R

| 30RQP  |     |   |         | 620R | 660R | 740R | 800R | 860R  | 940R  | 1040R |
|--|-----|---|---------|------|------|------|------|-------|-------|-------|
| Heating  |     |   |         |      |      |      |      |       |       |       |
| Standard unit<br>Full load performances*                     | HA1 | Nominal capacity                          | kW      | 635  | 673  | 774  | 812  | 883   | 935   | 1075  |
|  |     | COP                                       | kW/kW   | 3,82 | 3,81 | 3,82 | 3,81 | 3,80  | 3,73  | 3,80  |
|  | HA2 | Nominal capacity                          | kW      | 620  | 658  | 757  | 795  | 863   | 915   | 1052  |
|  |     | COP                                       | kW/kW   | 3,10 | 3,09 | 3,10 | 3,09 | 3,10  | 3,03  | 3,10  |
| Seasonal energy<br>efficiency**                              | HA1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 3,87 | 3,86 | 3,90 | 3,91 | 3,92  | 3,89  | 3,96  |
|  |     | η <sub>s</sub> heat <sub>30/35°C</sub>    | %       | 152  | 151  | 153  | 153  | 154   | 153   | 155   |
|  |     | P <sub>rated</sub>                        | kW      | 499  | 530  | 609  | 641  | 696   | 741   | 798   |
| Cooling  |     |   |         |      |      |      |      |       |       |       |
| Standard unit<br>Full load performances*                     | CA1 | Nominal capacity                          | kW      | 604  | 648  | 723  | 761  | 825   | 878   | 999   |
|  |     | EER                                       | kW/kW   | 2,85 | 2,80 | 2,82 | 2,76 | 2,81  | 2,74  | 2,73  |
| Seasonal energy<br>efficiency**                              |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 4,78 | 4,81 | 4,88 | 4,87 | 4,81  | 4,75  | 4,81  |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 5,49 | 5,34 | 5,60 | 5,40 | 5,60  | 5,43  | 5,47  |
| Unit + option 15LS<br>Full load performances*                | CA1 | Nominal capacity                          | kW      | 569  | 610  | 682  | 716  | 778   | 827   | 941   |
|  |     | EER                                       | kW/kW   | 2,66 | 2,59 | 2,63 | 2,56 | 2,64  | 2,55  | 2,54  |
| Seasonal energy<br>efficiency**                              |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 4,73 | 4,76 | 4,91 | 4,78 | 4,94  | 4,86  | 4,75  |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 5,51 | 5,37 | 5,62 | 5,39 | 5,65  | 5,47  | 5,52  |
| Sound levels   |     |   |         |      |      |      |      |       |       |       |
| Standard unit  |     |   |         |      |      |      |      |       |       |       |
| Sound power <sup>(1)</sup>                                   |     |   | dB(A)   | 96,0 | 96,5 | 97,0 | 97,0 | 97,5  | 97,5  | 98,0  |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |   | dB(A)   | 63,5 | 64,0 | 64,5 | 64,5 | 65,0  | 65,0  | 65,5  |
| Unit + option 15LS <sup>(3)</sup>                            |     |   |         |      |      |      |      |       |       |       |
| Sound power <sup>(1)</sup>                                   |     |   | dB(A)   | 91,0 | 91,0 | 92,0 | 92,0 | 92,5  | 93,0  | 93,0  |
| Sound pressure at 10 m <sup>(2)</sup>                        |     |   | dB(A)   | 58,5 | 58,5 | 59,5 | 59,5 | 60,0  | 60,5  | 60,5  |
| Dimensions - standard unit                                   |     |   |         |      |      |      |      |       |       |       |
| Standard unit  |     |   |         |      |      |      |      |       |       |       |
| Length   |     |   | mm      | 7708 | 7708 | 7708 | 7708 | 10096 | 10096 | 10096 |
| Width  |     |   | mm      | 2253 | 2253 | 2253 | 2253 | 2253  | 2253  | 2253  |
| Height   |     |   | mm      | 2324 | 2324 | 2324 | 2324 | 2324  | 2324  | 2324  |
| Unit + option 307 <sup>(3)</sup>                             |     |   |         |      |      |      |      |       |       |       |
| Length   |     |   | mm      | -    | -    | -    | -    | -     | -     | -     |
| Operating weight <sup>(4)</sup>                              |     |   |         |      |      |      |      |       |       |       |
| Standard unit  |     |   | kg      | 4787 | 4905 | 5344 | 5356 | 6308  | 6360  | 6859  |
| Unit + option 15LS <sup>(3)</sup>                            |     |   | kg      | 5041 | 5158 | 5634 | 5646 | 6634  | 6686  | 7222  |
| Unit + option 15LS + option 116W <sup>(3)</sup>              |     |   | kg      | 5430 | 5548 | 6102 | 6114 | 7103  | 7229  | 7764  |
| Unit + option 15LS + option 116W + option 307 <sup>(3)</sup> |     |   | kg      | -    | -    | -    | -    | -     | -     | -     |

\* In accordance with EN14511-3:2018.

\*\* In accordance with EN14825:2018, average climate conditions

HA1 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 30 °C/35 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W

HA2 Heating mode conditions: Water type heat exchanger water inlet/outlet temperature 40 °C/45 °C, outside air temperature tdb/twb = 7 °C db/6 °C wb, evaporator fouling factor 0 m<sup>2</sup>. k/W

CA1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, outdoor air temperature 35 °C, evaporator fouling factor 0 m<sup>2</sup>. k/W

**η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub>** Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for Heating applications

SEER<sub>12/7°C</sub> & SEPR<sub>12/7°C</sub> Applicable Ecodesign regulation (EU) No. 2016/2281.

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). Measured in accordance with ISO 9614-1 and certified by Eurovent. Cooling mode.

(2) In dB ref 20 μPa, (A) weighting. Declared dual-number noise emission value in accordance with ISO 4871 with an uncertainty of +/-3 dB(A). For information, calculated from the sound power Lw(A).

(3) Options: 15LS = Very low noise level, 116W = Variable-speed high pressure dual-pump hydraulic module, 307 = Water buffer tank module.

(4) Values are guidelines only. Refer to the unit name plate.



Eurovent certified values

## PHYSICAL DATA, SIZES 620R TO 1040R

| 30RQP   |                    | 620R   | 660R          | 740R          | 800R          | 860R          | 940R          | 1040R         |
|---|--------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Compressors</b>  |                    | Hermetic Scroll 48.3 r/s   |               |               |               |               |               |               |
| Circuit A/C   |                    | 2/2  | 2/2           | 2/2           | 2/2           | 3/3           | 3/3           | 4/4           |
| Circuit B/D   |                    | 3/3  | 3/3           | 4/4           | 4/4           | 4/4           | 4/4           | 4/4           |
| Number of power stages                                      |                    | 10   | 10            | 12            | 12            | 14            | 14            | 16            |
| <b>Unit PED category</b>                                    |                    | III  | IV            | IV            | IV            | IV            | IV            | IV            |
| <b>Refrigerant<sup>(4)</sup></b>                            |                    | R32 / A2L /GWP= 675 as per AR4   |               |               |               |               |               |               |
| Circuit A/C   | kg                 | 16,0 / 16,0  | 18,0 / 18,0   | 18,0 / 18,0   | 18,0 / 18,0   | 29,0 / 29,0   | 29,0 / 29,0   | 35,0 / 35,0   |
|   | tCO <sub>2</sub> e | 10,8 / 10,8  | 12,2 / 12,2   | 12,2 / 12,2   | 12,2 / 12,2   | 19,6 / 19,6   | 19,6 / 19,6   | 23,6 / 23,6   |
| Circuit B/D   | kg                 | 28,5 / 28,5  | 28,5 / 28,5   | 34,0 / 34,0   | 34,0 / 34,0   | 34,5 / 34,5   | 35,0 / 35,0   | 35,0 / 35,0   |
|   | tCO <sub>2</sub> e | 19,2 / 19,2  | 19,2 / 19,2   | 23,0 / 23,0   | 23,0 / 23,0   | 23,3 / 23,3   | 23,6 / 23,6   | 23,6 / 23,6   |
| <b>Oil</b>  |                    |  |               |               |               |               |               |               |
| Circuit A/C   | l                  | 13,2 / 13,2  | 13,2 / 13,2   | 13,2 / 13,2   | 13,2 / 13,2   | 22,8 / 22,8   | 22,8 / 22,8   | 30,4 / 30,4   |
| Circuit B/D   | l                  | 22,8 / 22,8  | 22,8 / 22,8   | 30,4 / 30,4   | 30,4 / 30,4   | 30,4 / 30,4   | 30,4 / 30,4   | 30,4 / 30,4   |
| <b>Capacity control</b>                                     |                    | SmartVu™   |               |               |               |               |               |               |
| Minimum capacity  | %                  | 10   | 10            | 8             | 8             | 7             | 7             | 6             |
| <b>Condenser</b>  |                    | Grooved copper tubes and aluminium fins  |               |               |               |               |               |               |
| <b>Fans</b>   |                    | Axial Flying Bird 6 with rotating impeller   |               |               |               |               |               |               |
| <b>Standard unit</b>  |                    |  |               |               |               |               |               |               |
| Quantity  |                    | 10   | 10            | 12            | 12            | 14            | 14            | 16            |
| Maximum total air flow                                      | l/s                | 48200  | 48200         | 57840         | 57840         | 67480         | 67480         | 77120         |
| Maximum rotation speed                                      | r/s                | 16   | 16            | 16            | 16            | 16            | 16            | 16            |
| <b>Evaporator</b>   |                    | Direct expansion brazed-plate heat exchanger   |               |               |               |               |               |               |
| Water volume  | l                  | 77,4   | 97,2          | 97,2          | 97,2          | 97,2          | 104,4         | 117           |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000   | 1000          | 1000          | 1000          | 1000          | 1000          | 1000          |
| <b>Hydraulic module (option)</b>                            |                    | Pump, Victaulic screen filter, relief valve, water and air vent valve, pressure sensors                |               |               |               |               |               |               |
| Pump  |                    | Centrifugal pump, monocoil, 48.3 r/s, low or high pressure (as required), single or dual (as required) |               |               |               |               |               |               |
| Expansion tank volume (option)                              | l                  | -  | -             | -             | -             | -             | -             | -             |
| Buffer tank volume (option)                                 | l                  | -  | -             | -             | -             | -             | -             | -             |
| Max. water-side operating pressure with hydraulic module    | kPa                | 400  | 400           | 400           | 400           | 400           | 400           | 400           |
| <b>Water connections with or without hydraulic module</b>   |                    | Victaulic® type  |               |               |               |               |               |               |
| Connections Module 1 / Module 2 <sup>(a)</sup>              | inches             | 4 / 4  | 4 / 4         | 4 / 4         | 4 / 4         | 4 / 4         | 4 / 4         | 4 / 4         |
| External diameter Module 1 / Module 2 <sup>(a)</sup>        | mm                 | 114,3 / 114,3  | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 | 114,3 / 114,3 |
| <b>Casing paintwork</b>                                     |                    | Colour code RAL 7035   |               |               |               |               |               |               |

(4) Values are guidelines only. Refer to the unit name plate.

(a) Modules 1 and 2 only relate to sizes 620R to 1040R.



## ELECTRICAL DATA NOTES

| 30RQ  |         | 165R                          | 180R  | 210R  | 230R  | 270R  | 310R  | 330R  | 370R  | 400R  | 430R  | 470R  | 520R  |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |       |       |       |       |       |       |       |       |       |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |       |       |       |       |       |       |       |       |       |
| Voltage range   | V       | 360 - 440                     |       |       |       |       |       |       |       |       |       |       |       |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |       |       |       |       |       |       |       |       |       |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |       |       |       |
| Circuit A&B   | kW      | 74,6                          | 84,2  | 99,4  | 109,0 | 118,6 | 138,7 | 148,3 | 168,3 | 177,9 | 193,2 | 207,6 | 237,2 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit power factor                                      |         | 0,83                          | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  | 0,83  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 129                           | 145,6 | 172   | 188,6 | 205,2 | 239,9 | 256,5 | 291,2 | 307,8 | 334,2 | 359,1 | 410,4 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 140,7                         | 156,7 | 187,6 | 203,6 | 219,6 | 258,5 | 274,5 | 313,4 | 329,4 | 360,3 | 384,3 | 439,2 |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit   | A       | 305                           | 362   | 348   | 401   | 418   | 453   | 469   | 504   | 520   | 547   | 572   | 623   |
| Unit + option 25/25E  | A       | 262                           | 310   | 305   | 349   | 366   | 401   | 417   | 452   | 468   | 495   | 520   | 571   |

| 30RQP   |         | 165R                          | 180R  | 210R  | 230R  | 270R  | 310R  | 330R  | 370R  | 400R  |
|---|---------|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |       |       |       |       |       |       |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |       |       |       |       |       |       |
| Voltage range   | V       | 360 - 440                     |       |       |       |       |       |       |       |       |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |       |       |       |       |       |       |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |
| Circuit A&B (Module 1 / Module 2) <sup>(a)</sup>                | kW      | 74,8                          | 84,4  | 99,8  | 109,3 | 118,9 | 139,2 | 148,7 | 169   | 178,6 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |       |       |       |       |       |       |
| Standard unit power factor                                      |         | 0,85                          | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  | 0,85  |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |       |       |       |       |       |       |
| Standard unit (Module 1 / Module 2) <sup>(a)</sup>              | A       | 126,3                         | 142,9 | 168,4 | 185   | 201,6 | 235,4 | 252   | 285,8 | 302,4 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |       |       |       |       |       |       |
| Standard unit (Module 1 / Module 2) <sup>(a)</sup>              | A       | 138                           | 154   | 184   | 200   | 216   | 254   | 270   | 308   | 324   |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |       |       |       |       |       |       |
| Standard unit (Module 1 / Module 2) <sup>(a)</sup>              | A       | 302                           | 359   | 344   | 398   | 414   | 448   | 465   | 498   | 515   |
| Unit + option 25/25E (Module 1 / Module 2) <sup>(a)</sup>       | A       | 259                           | 307   | 301   | 346   | 362   | 396   | 413   | 446   | 463   |

| 30RQP   |         | 430R                          | 470R  | 520R  | 620R          | 660R          | 740R          | 800R          | 860R          | 940R          | 1040R         |
|---|---------|-------------------------------|-------|-------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Power circuit supply</b>                                     |         |                               |       |       |               |               |               |               |               |               |               |
| Nominal voltage   | V-ph-Hz | 400 - 3 - 50                  |       |       |               |               |               |               |               |               |               |
| Voltage range   | V       | 360 - 440                     |       |       |               |               |               |               |               |               |               |
| <b>Control circuit supply</b>                                   |         | 24 V via internal transformer |       |       |               |               |               |               |               |               |               |
| <b>Maximum operating input power<sup>(1) or (2)</sup></b>       |         |                               |       |       |               |               |               |               |               |               |               |
| Circuit A&B (Module 1 / Module 2) <sup>(a)</sup>                | kW      | 193,9                         | 208,3 | 237,8 | 139,2 / 139,2 | 148,7 / 148,7 | 169,0 / 169,0 | 178,6 / 178,6 | 193,7 / 193,7 | 208,1 / 208,1 | 237,8 / 237,8 |
| <b>Power factor at maximum power<sup>(1) or (2)</sup></b>       |         |                               |       |       |               |               |               |               |               |               |               |
| Standard unit power factor                                      |         | 0,85                          | 0,85  | 0,85  | 0,85          | 0,85          | 0,85          | 0,85          | 0,85          | 0,85          | 0,85          |
| <b>Maximum operating current draw (Un)<sup>(1) or (2)</sup></b> |         |                               |       |       |               |               |               |               |               |               |               |
| Standard unit (Module 1 / Module 2) <sup>(a)</sup>              | A       | 327,9                         | 352,8 | 403,2 | 235,4 / 235,4 | 252 / 252     | 285,8 / 285,8 | 302,4 / 302,4 | 327,9 / 327,9 | 352,8 / 352,8 | 403,2 / 403,2 |
| <b>Maximum current (Un-10%)<sup>(1) or (2)</sup></b>            |         |                               |       |       |               |               |               |               |               |               |               |
| Standard unit (Module 1 / Module 2) <sup>(a)</sup>              | A       | 354                           | 378   | 432   | 254 / 254     | 270 / 270     | 308 / 308     | 324 / 324     | 354 / 354     | 378 / 378     | 432 / 432     |
| <b>Maximum start-up current (Un)<sup>(2) + (3)</sup></b>        |         |                               |       |       |               |               |               |               |               |               |               |
| Standard unit (Module 1 / Module 2) <sup>(a)</sup>              | A       | 541                           | 565   | 616   | 448 / 448     | 465 / 465     | 498 / 498     | 515 / 515     | 541 / 541     | 565 / 565     | 616 / 616     |
| Unit + option 25/25E (Module 1 / Module 2) <sup>(a)</sup>       | A       | 489                           | 513   | 564   | 396 / 396     | 413 / 413     | 446 / 446     | 463 / 463     | 489 / 489     | 513 / 513     | 564 / 564     |

(1) Values at the unit's permanent maximum operating condition (as shown on the unit's nameplate).

(2) Values at the unit's maximum operating condition (as shown on the unit's nameplate).

(3) Maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor.

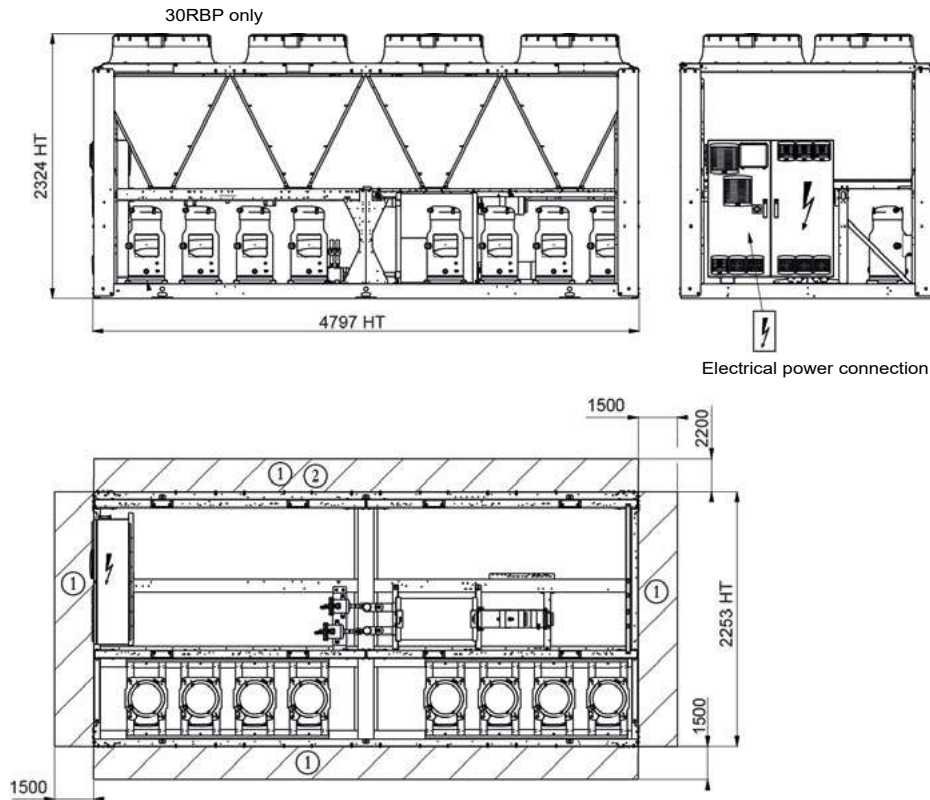
(a) Modules 1 and 2 only relate to sizes 620R to 1040R.



## DIMENSIONS/CLEARANCES

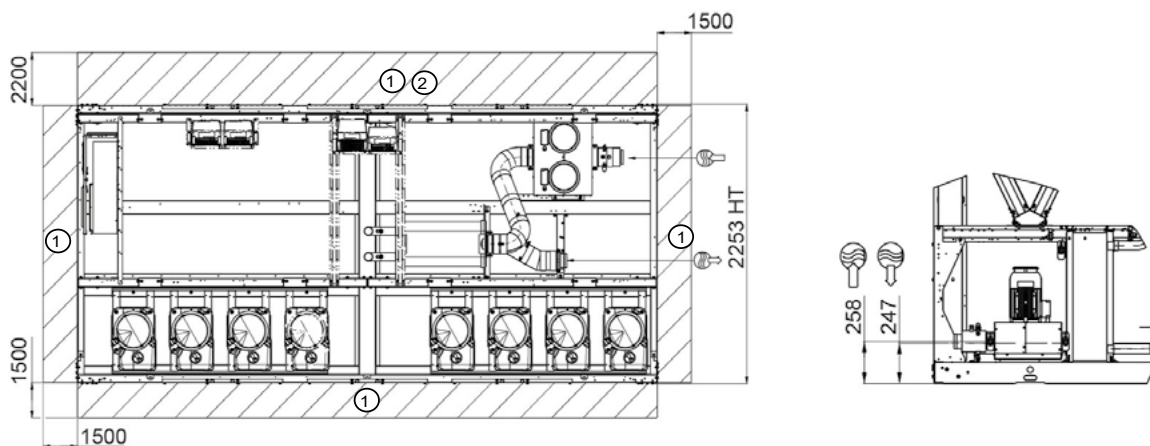
### 30RQ/30RQP 430R-520R (with and without hydraulic module)

#### Without hydraulic module



Electrical power connection

#### With hydraulic module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for removal of the coils

Water inlet

Water outlet

Air outlet, do not obstruct

Electrical cabinet

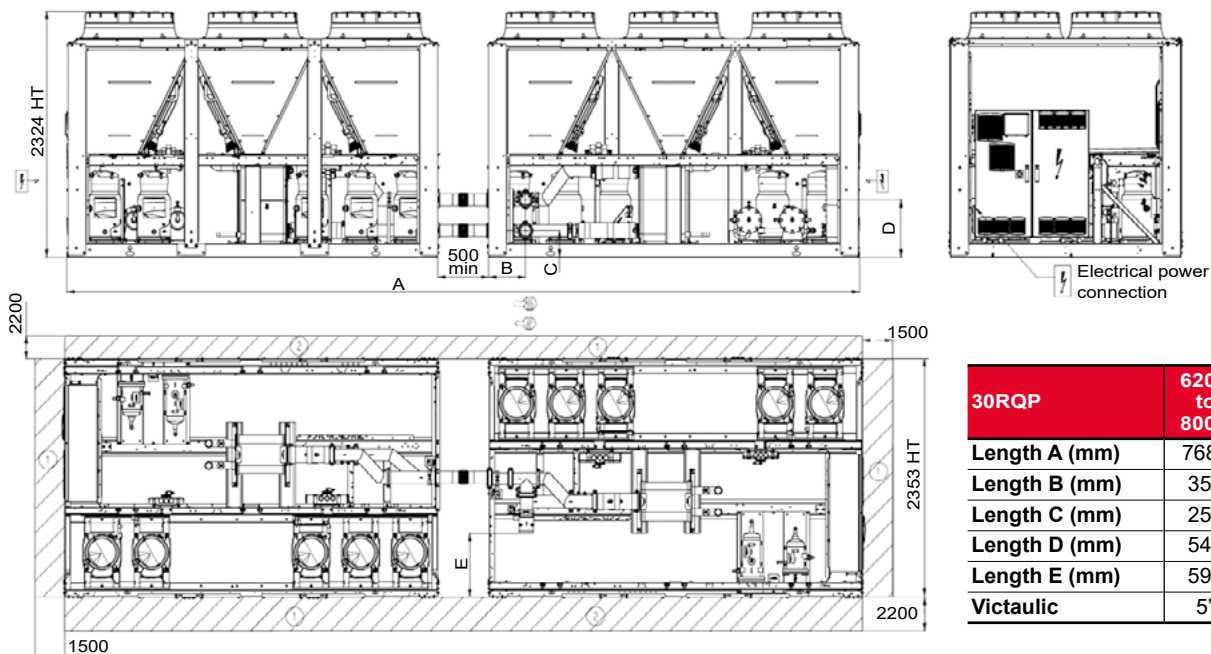
**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request. Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.



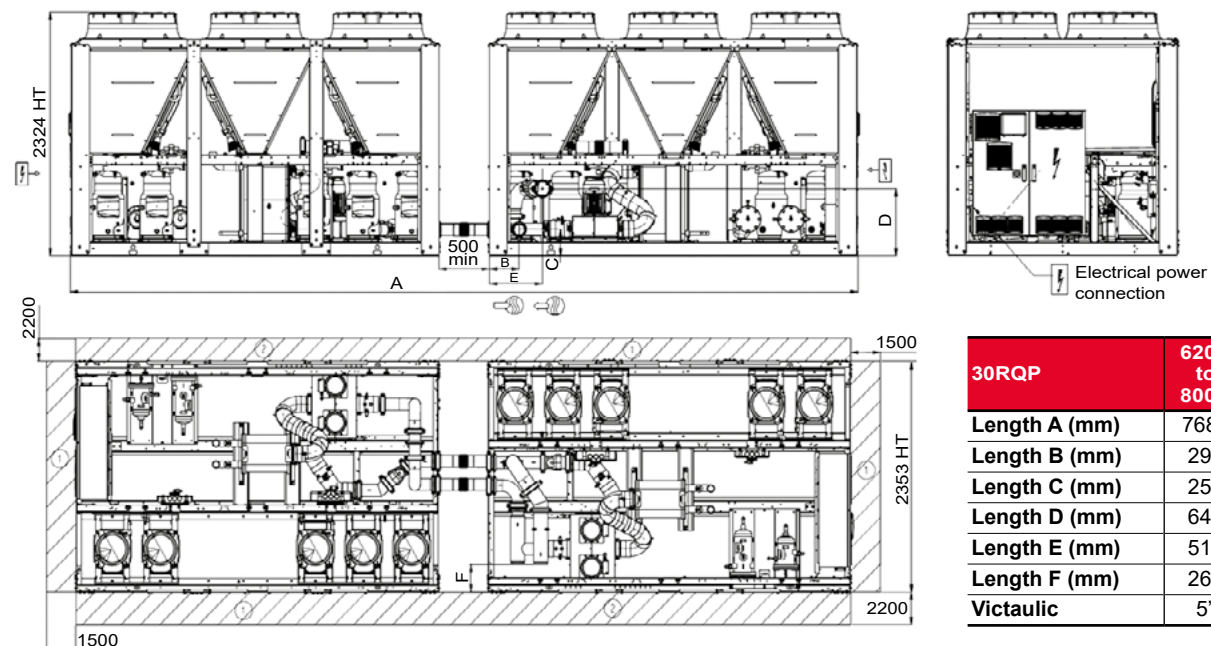
## DIMENSIONS/CLEARANCES

### 30RQP 620R-1040R (with and without hydraulic module)

#### Without hydraulic module



#### With hydraulic module



#### Key:

All dimensions are given in mm.

- ① Clearances required for maintenance and air flow
- ② Clearance recommended for removal of the coils
- Water inlet
- Water outlet
- Air outlet, do not obstruct
- Electrical cabinet

**Note:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request. Refer to the certified dimensional drawings for the location of fixing points, weight distribution and coordinates of the centre of gravity.

## WATER-SOURCED HEAT PUMPS



61WG optimized for heating  
Compact design  
Plug and play approach  
High efficiency

### 61WG-A

**AQUASNAP**  
Heating

Nominal heating capacity 29-230 kW  
Nominal cooling capacity 25-190 kW

The 61WG units are new Carrier chillers and heat pumps designed for commercial (offices, small hotels, leisure facilities), residential and industrial applications. All units offer a unique combination of high performance and functionality in an exceptionally compact chassis.  
61WG units are designed for high-temperature heating applications with hot water production possible up to 65 °C.

A large number of options is available for the whole range:

- hydraulic modules with or without variable water flow rate,
- reinforced sound insulation,
- stacking and connection of two units



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CUSTOMER BENEFITS

### Features

- Reduced footprint
- Scroll compressors and R-410A refrigerant
- Variable-flow pump
- Low-noise option (-3 dB(A))
- Stacking of two units for increased capacity (up to size 090)
- Several communication protocols available: JBus, BacNet, MS/TP, LON
- Water connection at the top or rear (61WG only)

### Available versions

#### 61WG - optimised for heating

- High temperature up to +65 °C
- Evaporator temperature down to -5 °C
- Control of the three-way diverter valve for domestic hot water and space heating requirements
- System approach - the Heating System Manager maximises the global efficiency of complex systems where the 61WG units are combined with an auxiliary heating source to serve multi-zone space heating and domestic hot water production.

#### The right unit for any application

- The high temperature of the 61WG units makes them compatible with most heating systems, both in new and refurbished buildings and permits domestic hot water production (with a dedicated temperature setpoint).
- Option 153 "Built-in DHW and space heating control" allows control of both domestic hot water and space heating requirements:
  - Domestic hot water production: a built-in three-way valve is directed to divert the heat flow from the space heating loop to the domestic hot water loop and vice versa.
  - Space heating control: the setpoint is adjustable, based on the daily schedule or the outside air temperature (weather compensation function).
  - Control of auxiliary systems: if an alarm is detected at the or if there is insufficient heating capacity, a digital signal starts an auxiliary electric heater (1 to 4 stages) or boiler.
  - Pump control: allows control of the built-in pump as well as the pump in the secondary loop (to terminals).

- In 61WG units the Heating System Manager (HSM) accessory allows control of systems with several heat sources and different additional systems: electric heat, boiler or for the most complex systems district heating (see pages 9 to 11).

### Adaptability and simple installation

- The 61WG units can be provided with several hydraulic module options, both on the evaporator and/or condenser side, with different levels of available pressure and variable or fixed-speed pumps (see page 7).
- If option 153 is selected domestic hot water production is controlled via a built-in three-way diverter valve (not supplied).
- 61WG units offer water-side cooling/heating reversibility.

#### Water connections at the rear of the unit



#### Internal view of 61WG unit with hydraulic module





## CUSTOMER BENEFITS

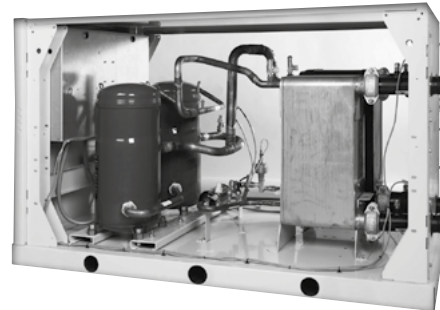
### Water connections at the top of the unit



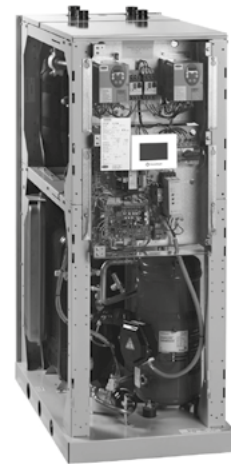
### Component accessibility

See photos below.

#### Access to scroll compressors



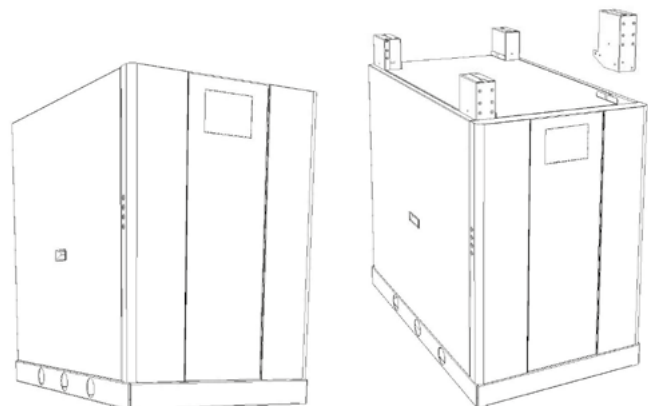
#### Access to control panel



### A compact high-performance product range

- Small footprint, ideal for refurbished buildings, allows access in very tight plant rooms.
- 61WG: High SCOP satisfies even the most stringent standards, with a leaving water temperature of up to 65 °C without supplementary system.
- Units optimized for process and comfort applications.
- Variable-flow pumps reduce system energy consumption.
- The entire range offers low sound levels, allowing installation in any building type. The low-noise option ensures enhanced acoustic comfort (-3 dB(A)).
- 61WG units are equipped with the latest generation R410A scroll compressor, optimised for typical operating conditions for water-sourced units.

### Two-unit stacking option for reduced footprint size 020-090





## CUSTOMER BENEFITS

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced communication technology over Ethernet (IP) and a user-friendly and intuitive user interface with 4.3-inch colour touch screen.

- Energy management configuration
  - Internal timer: controls chiller on/off times and operation at a second setpoint
  - Setpoint offset based on the outdoor air temperature
  - Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault.
  - Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and cooling capacity, and instantaneous and average energy efficiency values.
  - For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.
- Integrated features
  - Night mode: Capacity and fan speed limitation for reduced noise level
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
  - Display of trend curves for the main values
  - Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
  - Blackbox memory

### ■ 4"3 SmartVu™ user interface



- Intuitive and user-friendly 4"3 inch touch screen interface
- Concise and clear information is available in local languages
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit
- Dual setpoint: closing of this contact activates a second setpoint (e.g.: unoccupied mode).
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value.
- Operation indication: This volt-free contact indicates that the chiller is operating (cooling load).
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits.

## OPTIONS

| Options                                 | No.  | Description  | Advantages   | Use          |
|---|------|--|--|--------------|
| Soft Starter                            | 25   | Electronic starter on each compressor  | Reduced start-up current   | 61WG 020-190 |
| Master/slave operation                  | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parrallele operation with operating time equalisation  | 61WG 020-190 |
| External disconnect handle              | 70F  | The handle of the electrical disconnect switch is on the outside of the unit   | Quick access to the unit disconnect switch   | 61WG 020-190 |
| Evap. single pump power/control circuit | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 61WG 110-190 |
| Cond. single pump power/control circuit | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 61WG 110-190 |
| Condenser insulation                    | 86   | Thermal condenser insulation   | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated) | 61WG 020-190 |
| HP single-pump hydraulic module         | 116R | Single high-pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)                               | Easy and fast installation (plug & play)   | 61WG 110-190 |
| LP evap. single-pump                    | 116T | Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)              | Easy and fast installation (plug & play)   | 61WG 020-190 |
| HP evap. variable-speed single-pump     | 116V | Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)          | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability                     | 61WG 020-190 |
| HP VSD dual-pump hydraulic mod.         | 116W | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability                     | 61WG 110-190 |
| LP VSD single-pump                      | 116Y | Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)          | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability                     | 61WG 110-190 |
| Lon gateway                             | 148D | Two-directional communication board complying with Lon Talk protocol   | Connects the unit by communication bus to a building management system   | 61WG 020-190 |
| Bacnet over IP                          | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 61WG 020-190 |
| Modbus over IP and RS485                | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 61WG 020-190 |

## OPTIONS

| Options  | No.  | Description   | Advantages  | Use          |
|--|------|---|---|--------------|
| Built-in DHW & space heating control                     | 153  | Control board factory-installed on the unit, control using weather compensation, control of supplementary electric heater (4 stages) or boiler, needle valve for domestic hot-water production with programmable time schedule. | Permits easy control of a basic heating system  | 61WG 020-090 |
| Compliance with Russian regulations                      | 199  | EAC certification   | Conformance with Russian regulations  | 61WG 020-190 |
| Insulation of the evap. in/out ref.lines                 | 256  | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, anti-UV insulant   | Prevents condensation on the evaporator entering/leaving refrigerant lines  | 61WG 020-190 |
| Low noise level  | 257  | Compressor sound enclosure  | Reduced sound emissions   | 61WG 020-190 |
| Very low sound level                                     | 258  | Enhanced sound insulation of main noise sources (Material classified CD0S2 fire class according to Euroclass 13-501).   | 6 dB(A) quieter than standard . Refer to the physical data table for detailed values                                | 61WG 020-090 |
| Evaporator screw connection sleeves kit                  | 264  | Evaporator inlet/outlet screw connection sleeves  | Allows unit connection to a screw connector   | 61WG 020-140 |
| Condenser screw connection sleeves kit                   | 265  | Condenser inlet/outlet screw connection sleeves   | Allows unit connection to a screw connector   | 61WG 020-140 |
| Welded evaporator connection kit                         | 266  | Victaulic piping connections with welded joints   | Easy installation   | 61WG 020-190 |
| Welded condenser water connection kit                    | 267  | Victaulic piping connections with welded joints   | Easy installation   | 61WG 020-190 |
| HP single-pump, cond. side                               | 270R | Condenser hydraulic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option.  | Easy and fast installation (plug & play)  | 61WG 110-190 |
| LP single-pump, cond. side                               | 270T | Condenser hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option.   | Easy and fast installation (plug & play)  | 61WG 020-190 |
| HP cond. variable-speed single-pump                      | 270V | Condenser hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.                 | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump                   | 61WG 020-190 |
| HP cond. variable-speed dual-pump                        | 270W | Condenser hydraulic module equipped with dual high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.            | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump                   | 61WG 110-190 |
| LP cond. variable-speed single-pump                      | 270Y | Condenser hydraulic module equipped with low-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.                  | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump                   | 61WG 110-190 |
| High-temp. water prod. with glycol solution on the evap. | 272  | Condenser side water production up to 65 °C, with glycol solution on the evaporator side to -5 °C   | Geothermal application and domestic hot-water production  | 61WG 020-190 |
| Unit stackable for operation                             | 273  | Unit stackable for operation  | Reduced footprint size  | 61WG 020-090 |
| water connection at the top                              | 274  | Customer water connection at the top of the unit  | Reduced footprint size  | 61WG 020-190 |
| Safety hydraulic components, evap. side                  | 293  | Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module  | Easy and fast installation (plug & play), operating safety  | 61WG 020-190 |
| Safety hydraulic components, cond. side                  | 293A | Screen filter, expansion tank and relief valve integrated in the condenser hydraulic module   | Easy and fast installation (plug & play), operating safety  | 61WG 020-190 |
| Set point adjustment by 4-20mA signal                    | 311  | Connections to allow a 4-20mA signal input  | Easy energy management, allow to adjust set point by a 4-20mA external signal                                       | 61WG 020-190 |
| External temperature sensor                              | 312  | External temperature sensor control for using weather compensation  | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature | 61WG 020-190 |

## PHYSICAL DATA, 61WG UNITS

| 61WG  |     |                            |       | 020                      | 025  | 030  | 035  | 040  | 045  | 050  | 060  | 070  | 080  | 090  |    |
|---|-----|----------------------------|-------|--------------------------|------|------|------|------|------|------|------|------|------|------|----|
| Heating   |     |                            |       |                          |      |      |      |      |      |      |      |      |      |      |    |
| Standard unit<br>Full load performances*        | HW1 | Nominal capacity           | kW    | 29                       | 34   | 38   | 44   | 50   | 57   | 69   | 78   | 88   | 100  | 117  |    |
|   |     | COP                        | kW/kW | 5,42                     | 5,29 | 5,21 | 5,29 | 5,34 | 5,32 | 5,49 | 5,36 | 5,46 | 5,28 | 5,33 |    |
|   | HW2 | Nominal capacity           | kW    | 28                       | 33   | 37   | 43   | 49   | 55   | 66   | 76   | 84   | 95   | 109  |    |
|   |     | COP                        | kW/kW | 4,35                     | 4,34 | 4,20 | 4,27 | 4,32 | 4,36 | 4,51 | 4,32 | 4,35 | 4,27 | 4,31 |    |
|   | HW3 | Nominal capacity           | kW    | 27                       | 32   | 35   | 41   | 47   | 52   | 64   | 74   | 80   | 90   | 103  |    |
|   |     | COP                        | kW/kW | 3,65                     | 3,68 | 3,52 | 3,59 | 3,56 | 3,66 | 3,75 | 3,64 | 3,63 | 3,56 | 3,60 |    |
|   | HW4 | Nominal capacity           | kW    | 26                       | 31   | 34   | 40   | 43   | 49   | 61   | 71   | 76   | 85   | 97   |    |
|   |     | COP                        | kW/kW | 2,96                     | 2,96 | 2,86 | 2,93 | 2,88 | 2,96 | 2,98 | 3,04 | 2,99 | 2,94 | 2,97 |    |
|   | HB1 | Nominal capacity           | kW    | 22                       | 26   | 29   | 34   | 38   | 42   | 50   | 57   | 67   | 75   | 87   |    |
|   |     | COP                        | kW/kW | 4,24                     | 4,26 | 4,29 | 4,27 | 4,27 | 4,25 | 4,25 | 4,27 | 4,26 | 4,28 | 4,29 |    |
| Standard unit<br>Seasonal energy efficiency**   | HW1 | SCOP <sub>30/35°C</sub>    | kW/kW | 5,36                     | 5,20 | 5,11 | 5,19 | 5,23 | 5,19 | 5,84 | 5,93 | 5,93 | 5,83 | 5,82 |    |
|   |     | ηs heat <sub>30/35°C</sub> | %     | 206                      | 200  | 197  | 200  | 201  | 200  | 226  | 229  | 229  | 225  | 225  |    |
|   | HW3 | SCOP <sub>47/55°C</sub>    | kW/kW | 4,37                     | 4,32 | 4,20 | 4,28 | 4,32 | 4,35 | 4,86 | 4,88 | 4,80 | 4,89 | 4,80 |    |
|   |     | ηs heat <sub>47/55°C</sub> | %     | 167                      | 165  | 160  | 163  | 165  | 166  | 186  | 187  | 184  | 188  | 184  |    |
|   |     | P <sub>rated</sub>         | kW    | 32                       | 38   | 42   | 49   | 56   | 63   | 76   | 88   | 97   | 109  | 124  |    |
|   |     | Energy labelling           |       | A++                      | A++  | A++  | A++  | A++  | A++  | -    | -    | -    | -    | -    |    |
| Operating weight <sup>(1)</sup>                 |     |                            | kg    | 191                      | 200  | 200  | 207  | 212  | 220  | 386  | 392  | 403  | 413  | 441  |    |
| Operating weight with option 258 <sup>(1)</sup> |     |                            | kg    | 198                      | 207  | 207  | 214  | 219  | 227  | 399  | 405  | 416  | 426  | 454  |    |
| Sound levels <sup>(2)</sup>                     |     |                            |       |                          |      |      |      |      |      |      |      |      |      |      |    |
| Sound power level, standard unit                |     |                            | dB(A) | 67                       | 68   | 69   | 69   | 70   | 70   | 72   | 72   | 72   | 73   | 73   |    |
| Sound power level, option 257                   |     |                            | dB(A) | 65                       | 66   | 66   | 67   | 68   | 68   | 68   | 69   | 69   | 69   | 70   |    |
| Sound power level, option 258                   |     |                            | dB(A) | 61                       | 62   | 63   | 63   | 64   | 64   | 66   | 66   | 66   | 67   | 67   |    |
| Sound power level, option 257+258               |     |                            | dB(A) | 60                       | 62   | 62   | 62   | 64   | 63   | 65   | 65   | 65   | 66   | 66   |    |
| Dimensions, standard unit <sup>(3)</sup>        |     |                            |       |                          |      |      |      |      |      |      |      |      |      |      |    |
| Width   |     |                            | mm    | 600                      | 600  | 600  | 600  | 600  | 600  | 880  | 880  | 880  | 880  | 880  |    |
| Length  |     |                            | mm    | 1044                     | 1044 | 1044 | 1044 | 1044 | 1044 | 1474 | 1474 | 1474 | 1474 | 1474 |    |
| Height  |     |                            | mm    | 901                      | 901  | 901  | 901  | 901  | 901  | 901  | 901  | 901  | 901  | 901  |    |
| Compressors                                     |     |                            |       | Hermetic scroll 48.3 r/s |      |      |      |      |      |      |      |      |      |      |    |
| Quantity  |     |                            |       | 1                        | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    |    |
| Number of capacity stages                       |     |                            |       | 1                        | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    |    |
| Minimum capacity                                |     |                            |       | %                        | 100  | 100  | 100  | 100  | 100  | 100  | 50   | 50   | 50   | 50   | 50 |

\* In accordance with standard EN14511-3:2013

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHW4 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 55°C/65°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHB1 Heating mode conditions: Evaporator entering/leaving water temperature 0°C/-3°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W, evaporator fluid: 30% ethylene glycol.η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**

- Not applicable

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dual number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(3) The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings



Eurovent certified values

## PHYSICAL DATA, 61WG UNITS

| 61WG  |                    | 020                                   | 025  | 030  | 035  | 040  | 045  | 050  | 060  | 070  | 080  | 090  |
|---|--------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant<sup>(1)</sup></b>                            |                    | R410A (GWP=2088 Following ARI4)       |      |      |      |      |      |      |      |      |      |      |
| Charge, standard unit                                       | kg                 | 3,5                                   | 3,5  | 3,6  | 3,7  | 4,0  | 4,6  | 7,6  | 7,8  | 7,9  | 8,7  | 11,5 |
|   | teqCO <sub>2</sub> | 7,2                                   | 7,3  | 7,4  | 7,6  | 8,2  | 9,5  | 15,9 | 16,3 | 16,5 | 18,2 | 24   |
| Charge, unit with option 272                                | kg                 | 2,7                                   | 2,9  | 2,9  | 3,0  | 3,2  | 3,9  | 7,2  | 7,3  | 7,4  | 7,6  | 10,5 |
|   | teqCO <sub>2</sub> | 5,6                                   | 6,0  | 6,1  | 6,3  | 6,7  | 8,1  | 14,9 | 15,2 | 15,5 | 15,9 | 21,9 |
| <b>Capacity control</b>                                     |                    | SmartVu™                              |      |      |      |      |      |      |      |      |      |      |
| <b>Evaporator</b>   |                    | Direct-expansion plate heat exchanger |      |      |      |      |      |      |      |      |      |      |
| Water volume  | l                  | 3,3                                   | 3,6  | 3,6  | 4,2  | 4,6  | 5,0  | 8,4  | 9,2  | 9,6  | 10,4 | 12,5 |
| Water connections   |                    | Raccordements Victaulic               |      |      |      |      |      |      |      |      |      |      |
| Inlet/outlet  | in                 | 1,5                                   | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 2    | 2    | 2    | 2    | 2    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000                                  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>  |                    | Plate heat exchanger                  |      |      |      |      |      |      |      |      |      |      |
| Net water volume  | l                  | 3,3                                   | 3,6  | 3,6  | 4,2  | 4,6  | 5,0  | 8,4  | 9,2  | 9,6  | 10,4 | 12,5 |
| Water connections   |                    | Victaulic                             |      |      |      |      |      |      |      |      |      |      |
| Inlet/outlet  | in                 | 1,5                                   | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 2    | 2    | 2    | 2    | 2    |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000                                  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Chassis paint color</b>                                  |                    | Color code: RAL7035                   |      |      |      |      |      |      |      |      |      |      |

(1) Weight shown is a guideline only. Please refer to the unit nameplate

## PHYSICAL DATA, 61WG UNITS

| 61WG  |     |                            |                    | 110                             | 120   | 140   | 150   | 170   | 190   |
|---|-----|----------------------------|--------------------|---------------------------------|-------|-------|-------|-------|-------|
| Heating                                       |     |                            |                    |                                 |       |       |       |       |       |
| Standard unit<br>Full load performances*      | HW1 | Nominal capacity           | kW                 | 135                             | 151   | 175   | 183   | 204   | 235   |
|   |     | COP                        | kW/kW              | 5,48                            | 5,44  | 5,44  | 5,62  | 5,49  | 5,48  |
|   | HW2 | Nominal capacity           | kW                 | 131                             | 147   | 168   | 176   | 197   | 226   |
|   |     | COP                        | kW/kW              | 4,56                            | 4,53  | 4,55  | 4,63  | 4,52  | 4,53  |
|   | HW3 | Nominal capacity           | kW                 | 124,4                           | 140,7 | 161,3 | 166,0 | 186,2 | 212,5 |
|   |     | COP                        | kW/kW              | 3,58                            | 3,48  | 3,56  | 3,53  | 3,42  | 3,49  |
|   | HW4 | Nominal capacity           | kW                 | 118                             | 131   | 150   | 157   | 174   | 200   |
|   |     | COP                        | kW/kW              | 2,83                            | 2,74  | 2,85  | 2,86  | 2,70  | 2,85  |
|   | HB1 | Nominal capacity           | kW                 | 102                             | 114   | 133   | 135   | 153   | 177   |
|   |     | COP                        | kW/kW              | 4,42                            | 4,39  | 4,42  | 4,40  | 4,39  | 4,38  |
| Standard unit<br>Seasonal energy efficiency** | HW1 | SCOP <sub>30/35°C</sub>    | kW/kW              | 6,20                            | 6,32  | 6,24  | 6,18  | 6,19  | 6,03  |
|   |     | ηs heat <sub>30/35°C</sub> | %                  | 241                             | 245   | 242   | 240   | 240   | 234   |
|   | HW3 | SCOP <sub>47/55°C</sub>    | kW/kW              | 5,03                            | 5,03  | 5,03  | 5,02  | 5,05  | 4,93  |
|   |     | ηs heat <sub>47/55°C</sub> | %                  | 194                             | 193   | 193   | 194   | 194   | 190   |
|   |     | P <sub>rated</sub>         | kW                 | 144                             | 162   | 185   | 193   | 215   | 247   |
| Operating weight <sup>(1)</sup>               |     |                            | kg                 | 707                             | 733   | 758   | 841   | 877   | 908   |
| Sound levels <sup>(2)</sup>                   |     |                            |                    |                                 |       |       |       |       |       |
| Sound power level, standard unit              |     |                            | dB(A)              | 76                              | 77    | 78    | 76    | 77    | 78    |
| Sound power level, option 257                 |     |                            | dB(A)              | 73                              | 74    | 75    | 73    | 74    | 75    |
| Dimensions, standard unit <sup>(3)</sup>      |     |                            |                    |                                 |       |       |       |       |       |
| Width   |     |                            | mm                 | 880                             | 880   | 880   | 880   | 880   | 880   |
| Length  |     |                            | mm                 | 1583                            | 1583  | 1583  | 1583  | 1583  | 1583  |
| Height  |     |                            | mm                 | 1574                            | 1574  | 1574  | 1574  | 1574  | 1574  |
| Compressors                                   |     |                            |                    | Hermetic scroll 48.3 r/s        |       |       |       |       |       |
| Quantity                                      |     |                            |                    | 3                               | 3     | 3     | 4     | 4     | 4     |
| Number of capacity stages                     |     |                            |                    | 3                               | 3     | 3     | 4     | 4     | 4     |
| Minimum capacity                              |     |                            | %                  | 33                              | 33    | 33    | 25    | 25    | 25    |
| Refrigerant <sup>(1)</sup>                    |     |                            |                    | R410A (GWP=2088 Following ARI4) |       |       |       |       |       |
| Charge, standard unit                         |     |                            | kg                 | 13,3                            | 14,5  | 15,6  | 21,0  | 23,0  | 24,2  |
|   |     |                            | teqCO <sub>2</sub> | 27,8                            | 30,3  | 32,6  | 43,8  | 48,0  | 50,5  |
| Capacity control                              |     |                            |                    | SmartVu™                        |       |       |       |       |       |

- \* In accordance with standard EN14511-3:2013
- \*\* In accordance with standard EN14825:2016, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW4 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 55°C/65°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HB1 Heating mode conditions: Evaporator entering/leaving water temperature 0°C/-3°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>.K/W, evaporator fluid: 30% ethylene glycol.
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub>  
 η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub>  
 (1) Values calculated in accordance with EN14825:2016  
 (2) **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**  
 Weight shown is a guideline only. Please refer to the unit nameplate  
 In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.  
 (3) The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings



Eurovent certified values



## PHYSICAL DATA, 61WG UNITS

| 61WG  |     | 110                                   | 120   | 140   | 150   | 170   | 190   |
|---|-----|---------------------------------------|-------|-------|-------|-------|-------|
| <b>Evaporator</b>   |     | Direct-expansion plate heat exchanger |       |       |       |       |       |
| Water volume  | l   | 15,18                                 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Water connections   |     | Vitaualic                             |       |       |       |       |       |
| Inlet/outlet  | in  | 2 1/2                                 | 2 1/2 | 2 1/2 | 3     | 3     | 3     |
| Max. water-side operating pressure without hydraulic module | kPa | 1000                                  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Condenser</b>  |     | Plate heat exchanger                  |       |       |       |       |       |
| Net water volume  | l   | 15,18                                 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Water connections   |     | Vitaualic                             |       |       |       |       |       |
| Inlet/outlet  | in  | 2 1/2                                 | 2 1/2 | 2 1/2 | 3     | 3     | 3     |
| Max. water-side operating pressure without hydraulic module | kPa | 1000                                  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Chassis paint color</b>                                  |     | Color code: RAL7035                   |       |       |       |       |       |

## ELECTRICAL DATA

| 61WG without hydraulic module                        |         | 020  | 025  | 030  | 035  | 040  | 045   | 050   | 060  | 070   | 080   | 090   |      |
|--|---------|--|------|------|------|------|-------|-------|------|-------|-------|-------|------|
| Power circuit  |         |  |      |      |      |      |       |       |      |       |       |       |      |
| Nominal voltage                                      | V-ph-Hz | 400-3-50   |      |      |      |      |       |       |      |       |       |       |      |
| Voltage range  | V       | 360-440  |      |      |      |      |       |       |      |       |       |       |      |
| Control circuit supply                               |         | 24 V, via internal transformer                     |      |      |      |      |       |       |      |       |       |       |      |
| Maximum start-up current draw (Un) <sup>(1)</sup>    |         |  |      |      |      |      |       |       |      |       |       |       |      |
| Standard unit  | A       | 98   | 142  | 142  | 147  | 158  | 197   | 161,6 | 163  | 171,4 | 184,7 | 227,9 |      |
| Unit with electronic starter option                  | A       | 53,9   | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 97,7  | 99,2 | 105,2 | 113,6 | 139,2 |      |
| Unit power factor at maximum capacity <sup>(2)</sup> |         | 0,9  | 0,8  | 0,9  | 0,9  | 0,9  | 0,9   | 0,8   | 0,9  | 0,9   | 0,9   | 0,9   |      |
| Maximum operating power input <sup>(2)</sup>         |         | kW   | 9,5  | 11,3 | 12,4 | 14,4 | 15,9  | 18,2  | 22,5 | 24,9  | 28,7  | 31,8  | 36,4 |
| Nominal unit operating current draw <sup>(3)</sup>   |         | A  | 10,6 | 12,9 | 13,3 | 15,2 | 16,5  | 19,7  | 25,8 | 26,6  | 30,4  | 33,0  | 39,4 |
| Maximum operating current draw (Un) <sup>(4)</sup>   |         | A  | 16,1 | 19,6 | 21,1 | 24,4 | 26,7  | 30,9  | 39,2 | 42,2  | 48,8  | 53,4  | 61,8 |
| Maximum operating current draw (Un-10%)*             |         | A  | 17,9 | 21,8 | 23,4 | 27,1 | 29,7  | 34,3  | 43,6 | 46,9  | 54,2  | 59,3  | 68,7 |
| Customer-side unit power reserve                     |         | Customer reserve at the 24 V control power circuit |      |      |      |      |       |       |      |       |       |       |      |
| Short-circuit stability and protection               |         | See table below "Short-circuit stability current"  |      |      |      |      |       |       |      |       |       |       |      |

| 61WG without hydraulic module                              |         | 110  | 120   | 140   | 150   | 170   | 190   |
|--|---------|--|-------|-------|-------|-------|-------|
| <b>Power circuit</b>                                       |         |  |       |       |       |       |       |
| Nominal voltage  | V-ph-Hz | 400-3-50   |       |       |       |       |       |
| Voltage range  | V       | 360-440  |       |       |       |       |       |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer                     |       |       |       |       |       |
| <b>Maximum start-up current draw (Un)<sup>(1)</sup></b>    |         |  |       |       |       |       |       |
| Standard unit  | A       | 195,8  | 211,4 | 258,8 | 220,2 | 238,1 | 289,7 |
| Unit with electronic starter option                        | A       | 129,7  | 140,3 | 170,2 | 154,1 | 167   | 201,1 |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,87   | 0,85  | 0,85  | 0,87  | 0,85  | 0,85  |
| <b>Maximum operating power input<sup>(2)</sup></b>         | kW      | 44   | 47    | 55    | 59    | 63    | 73    |
| <b>Nominal unit operating current draw<sup>(3)</sup></b>   | A       | 45,6   | 49,5  | 59,1  | 60,8  | 66    | 78,8  |
| <b>Maximum operating current draw (Un)<sup>(4)</sup></b>   | A       | 73,2   | 80,1  | 92,7  | 97,6  | 106,8 | 123,6 |
| <b>Maximum operating current draw (Un-10%)*</b>            | A       | 81,3   | 89    | 103   | 108,4 | 118,7 | 137,3 |
| <b>Customer-side unit power reserve</b>                    |         | Customer reserve at the 24 V control power circuit |       |       |       |       |       |
| <b>Short-circuit stability and protection</b>              |         | See table below "Short-circuit stability current"  |       |       |       |       |       |

- (1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).
- (2) Maximum power input at the unit operating limits.
- (3) Values obtained at standardised Eurovent conditions: evaporator entering/leaving water temperature 10 °C/7 °C, condenser entering/leaving water temperature 30 °C/35 °C.
- (4) Maximum unit operating current at maximum unit power input and 400 V.
- \* Maximum unit operating current at maximum unit power input and 360 V.

## ELECTRICAL DATA

### Short-circuit stability current (TN system<sup>(1)</sup>) - standard unit (with main disconnect switch)

| 61WG   | 020    | 025      | 030 | 035 | 040 | 045 | 050 | 060 | 070 | 080 | 090 |
|--|--------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Value with non-specified upstream protection</b>                |        |          |     |     |     |     |     |     |     |     |     |
| Short-term current at 1 s - I <sub>cw</sub>                        | kA rms | 3        | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |
| Admissible peak current - I <sub>pk</sub>                          | kA pk  | 6        | 6   | 6   | 6   | 6   | 6   | 6   | 6   | 6   | 6   |
| <b>Maximum value with upstream protection (by circuit breaker)</b> |        |          |     |     |     |     |     |     |     |     |     |
| Conditional short-circuit current I <sub>cc</sub>                  | kA rms | 40       | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  |
| Schneider circuit breaker - Compact series                         |        | NSX 100N |     |     |     |     |     |     |     |     |     |
| Reference number <sup>(2)</sup>                                    |        | LV429795 |     |     |     |     |     |     |     |     |     |

(1) Earthing system type

(2) If another current limitation protection system is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.

The short-circuit stability current values above are suitable with the TN system.

| 61WG   | 110    | 120      | 140 | 150 | 170 | 190 |
|--|--------|----------|-----|-----|-----|-----|
| <b>Value with non-specified upstream protection</b>                |        |          |     |     |     |     |
| Short-term current at 1 s - I <sub>cw</sub>                        | kA rms | 5,5      | 5,5 | 5,5 | 5,5 | 5,5 |
| Admissible peak current - I <sub>pk</sub>                          | kA pk  | 20       | 20  | 20  | 20  | 20  |
| <b>Maximum value with upstream protection (by circuit breaker)</b> |        |          |     |     |     |     |
| Conditional short-circuit current I <sub>cc</sub>                  | kA rms | 154      | 154 | 154 | 154 | 154 |
| Schneider circuit breaker - Compact series                         |        | NSX 100N |     |     |     |     |
| Reference number <sup>(2)</sup>                                    |        | LV429795 |     |     |     |     |

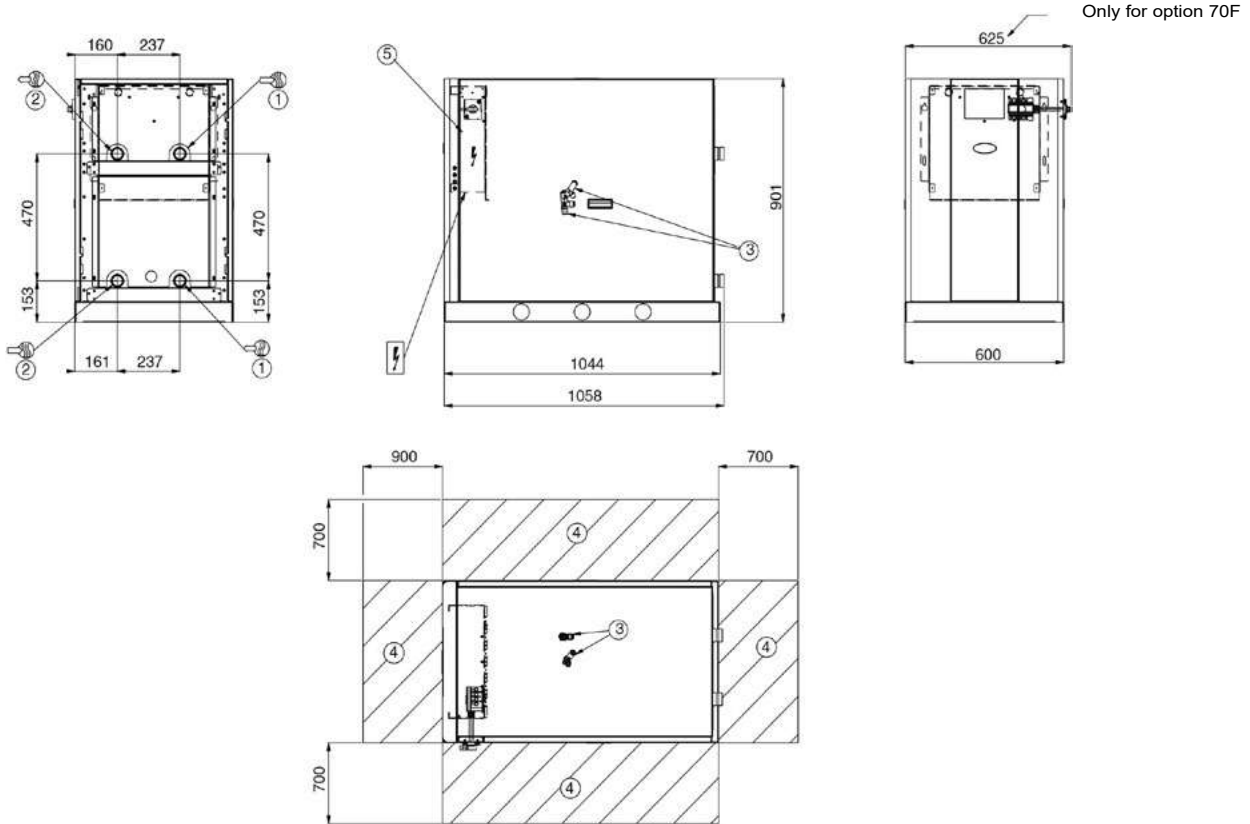
(1) Earthing system type

(2) If another current limitation protection system is used, its time-current and thermal constraint (I<sup>2</sup>t) trip characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.

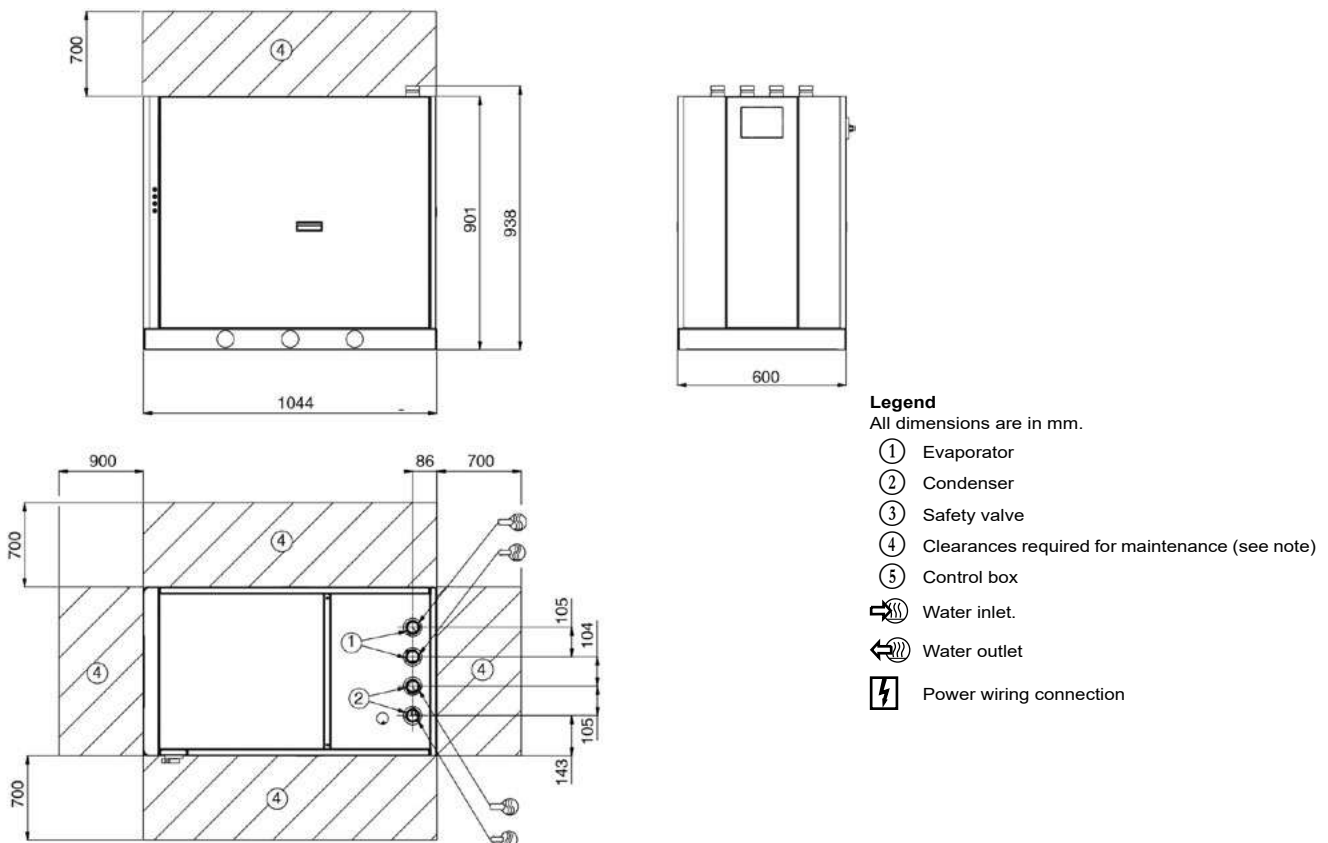
The short-circuit stability current values above are suitable with the TN system.

## DIMENSIONS/CLEARANCES

### 61WG 020-045 - standard unit



### 61WG 020-045 - unit with top connections (option 274)



#### Legend

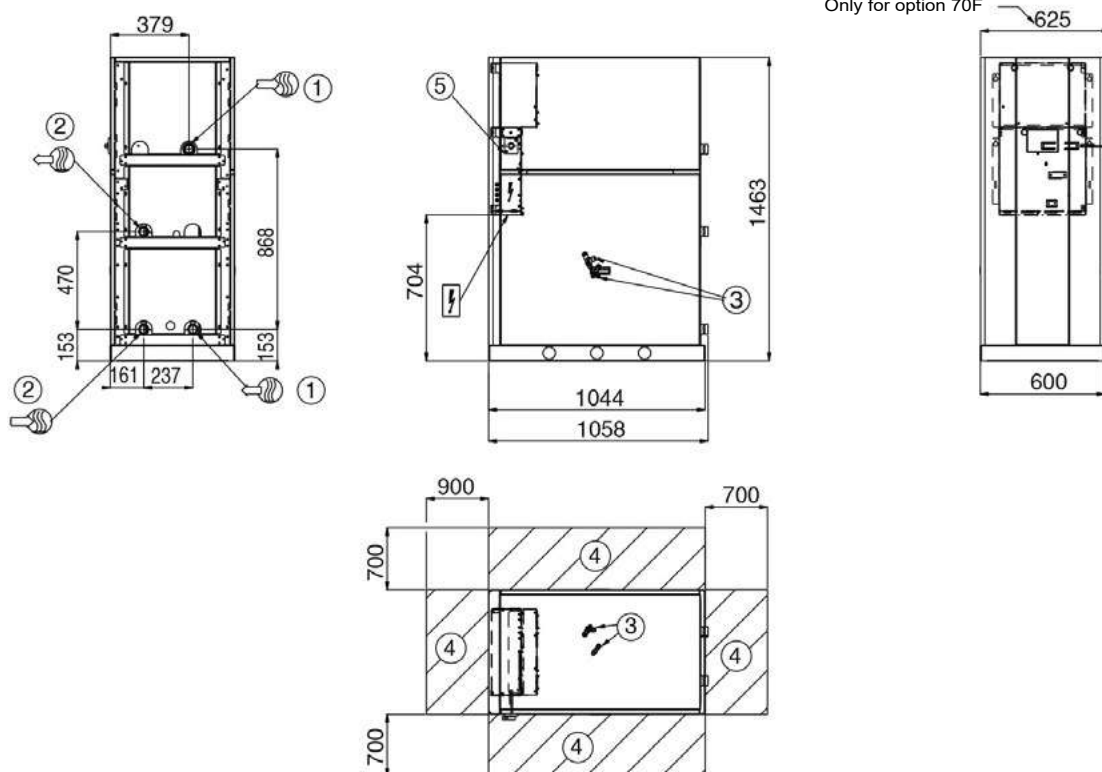
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

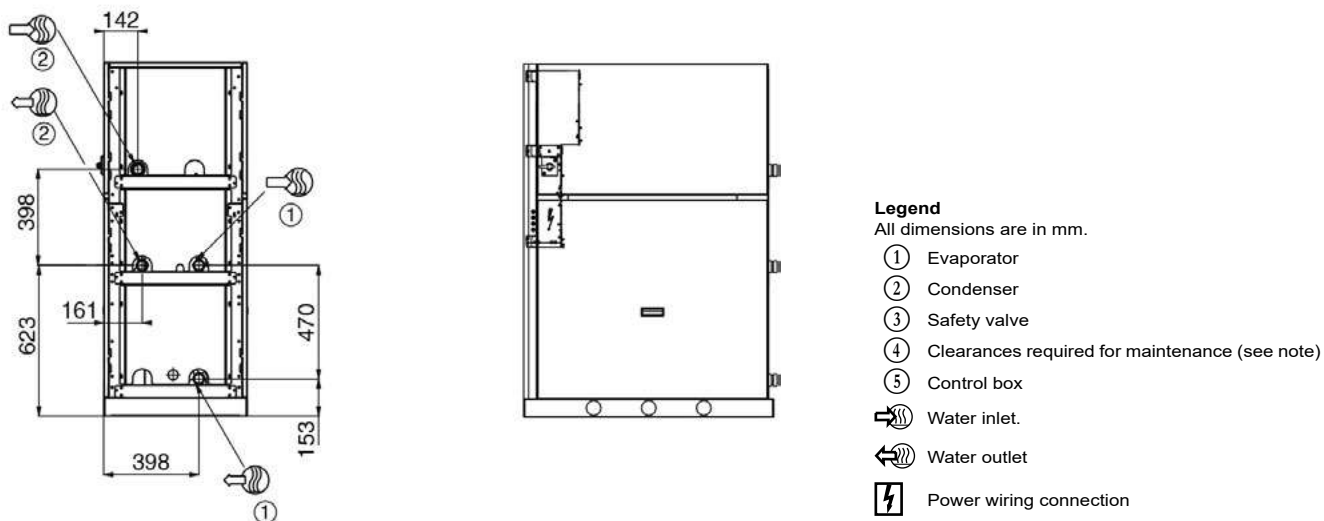
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 61WG 020-045 - unit with evaporator hydraulic module (option 116)



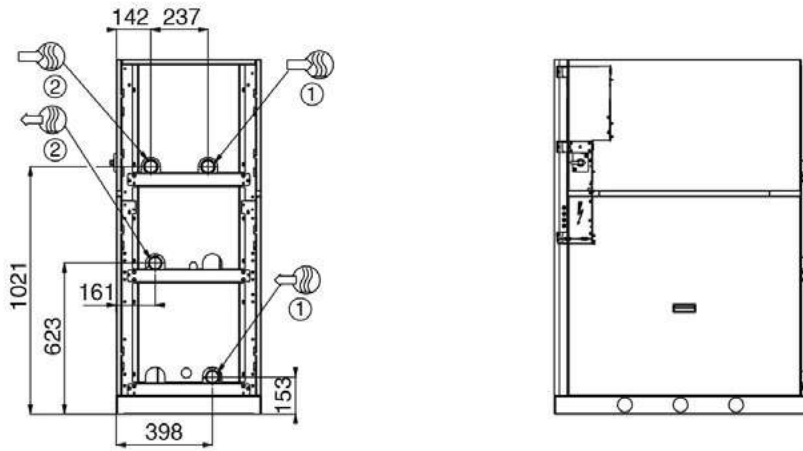
### 61WG 020-045 - unit with condenser hydraulic module (option 270)



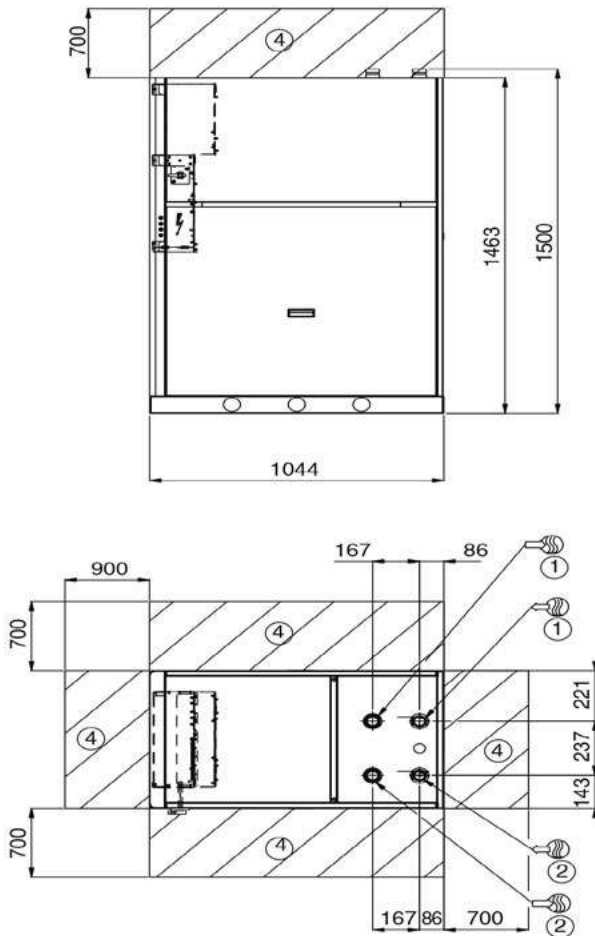
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 61WG 020-045 - unit with evaporator/condenser hydraulic modules (options 116 + 270)



### 61WG 020-045 - unit with hydraulic module and top connections (options 116 + 274 or 270 + 274 or 116 + 270 + 274)



#### Legend

All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

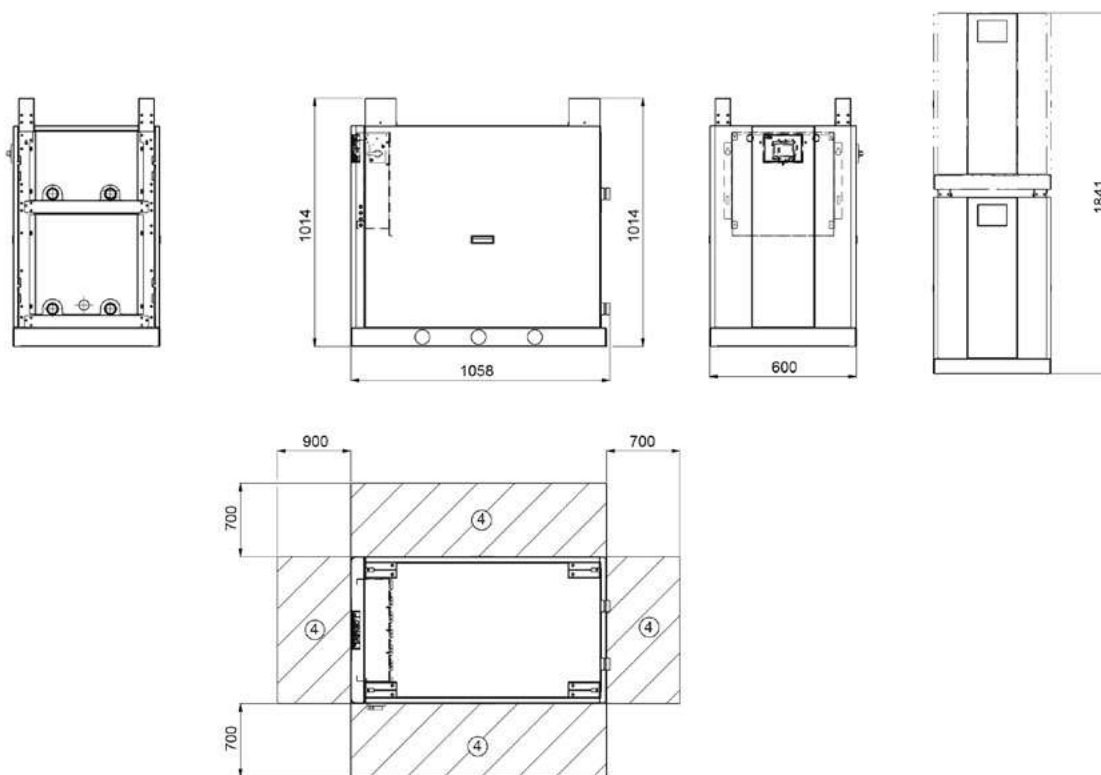
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.



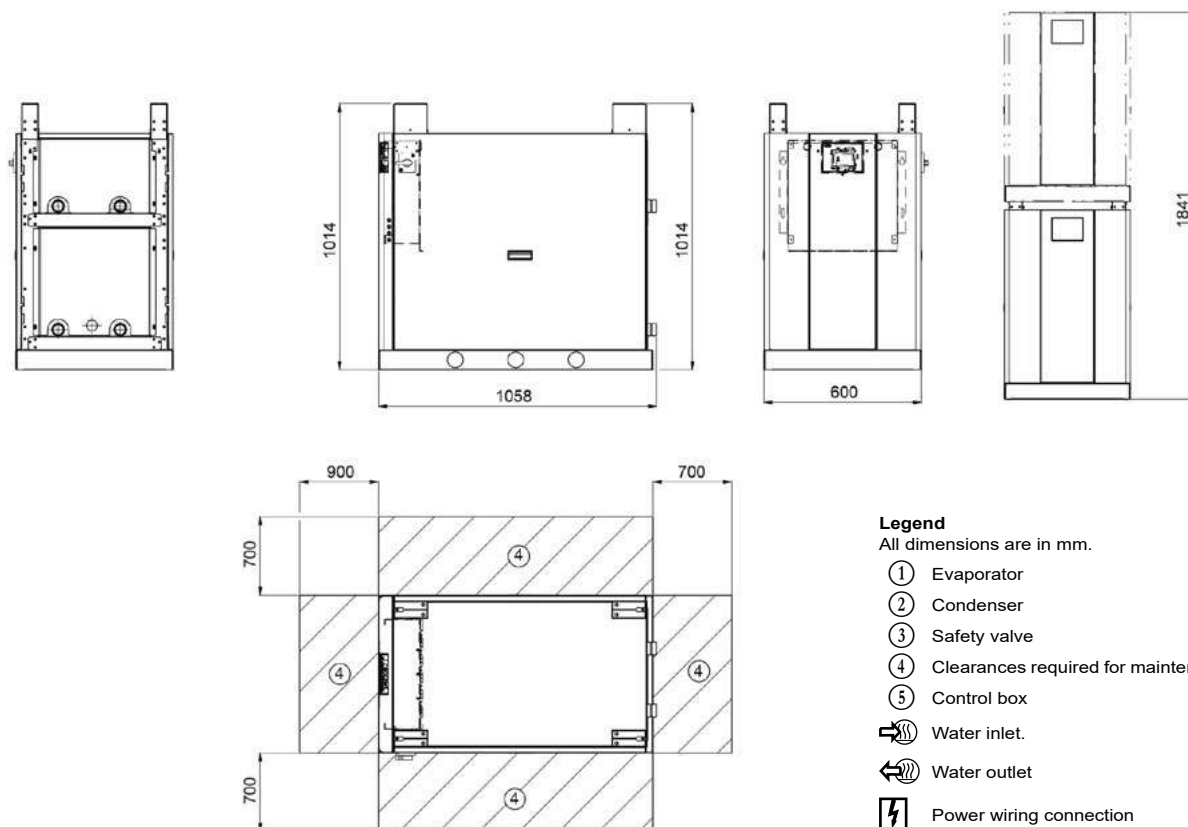
## DIMENSIONS/CLEARANCES

### 61WG 020-045 - stackable unit (option 273)

**NOTE:** The water and electrical connections are identical to those of the standard unit.



### 61WG 050-090 - standard unit



#### Legend

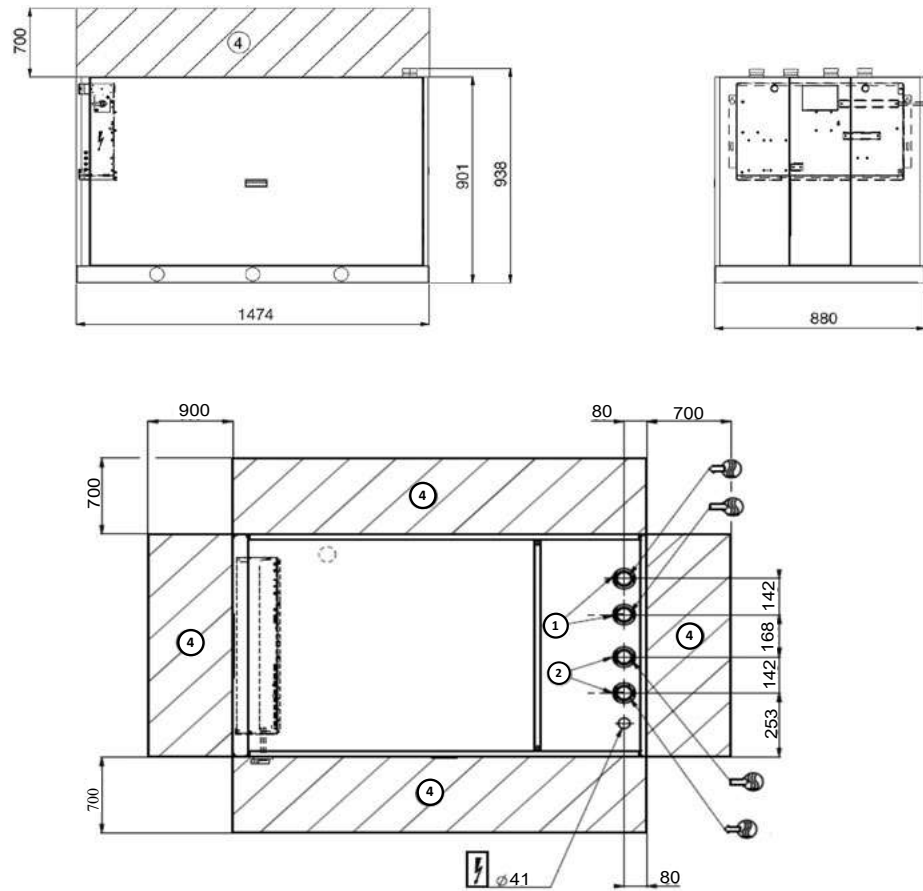
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- ⬇️ Water inlet.
- ⬆️ Water outlet
- ⚡ Power wiring connection

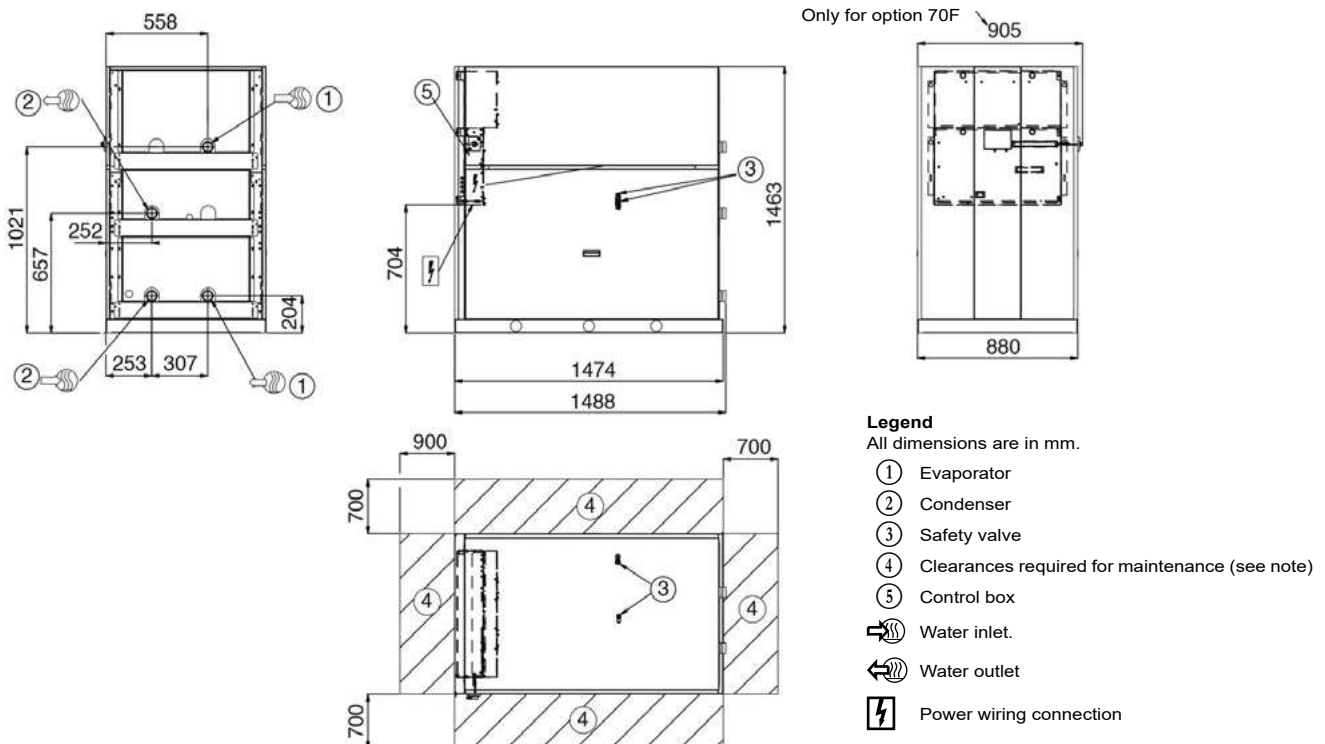
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 61WG 050-090 - unit with top connections (option 274)



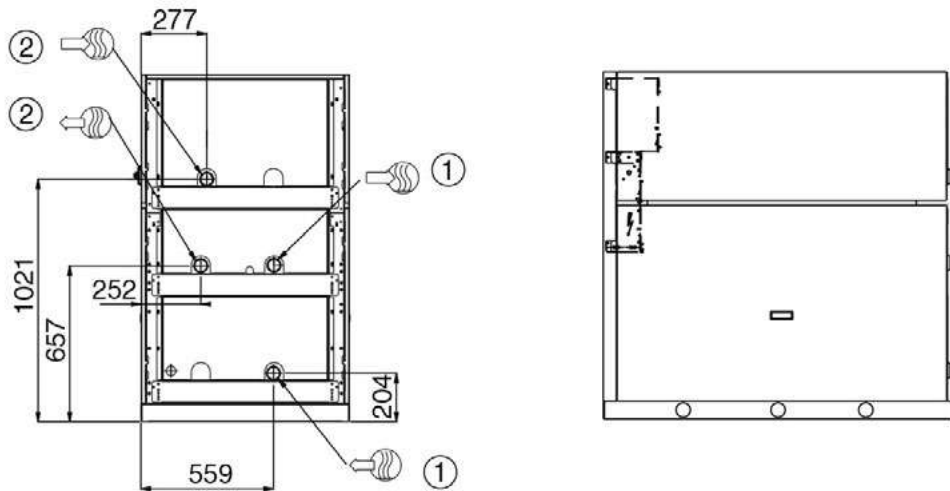
### 61WG 050-090 - unit with evaporator hydraulic module (option 116)



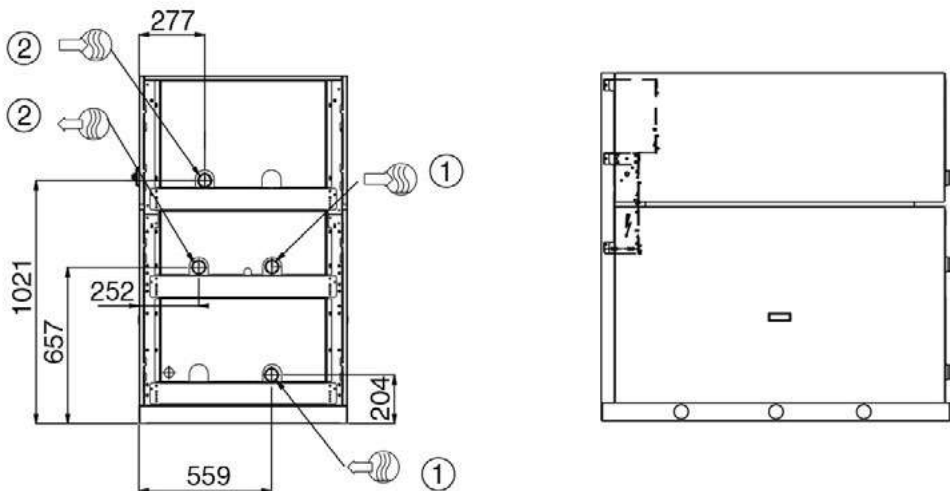
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 61WG 050-090 - unit with condenser hydraulic module (option 270)






### 61WG 050-090 - unit with evaporator/condenser hydraulic modules (options 116 + 270)



#### Legend

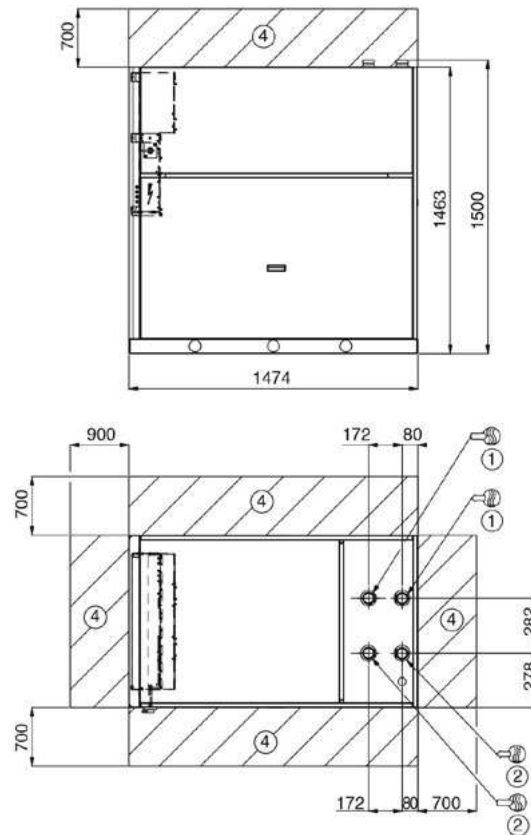
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
-  Water inlet.
-  Water outlet
-  Power wiring connection

**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

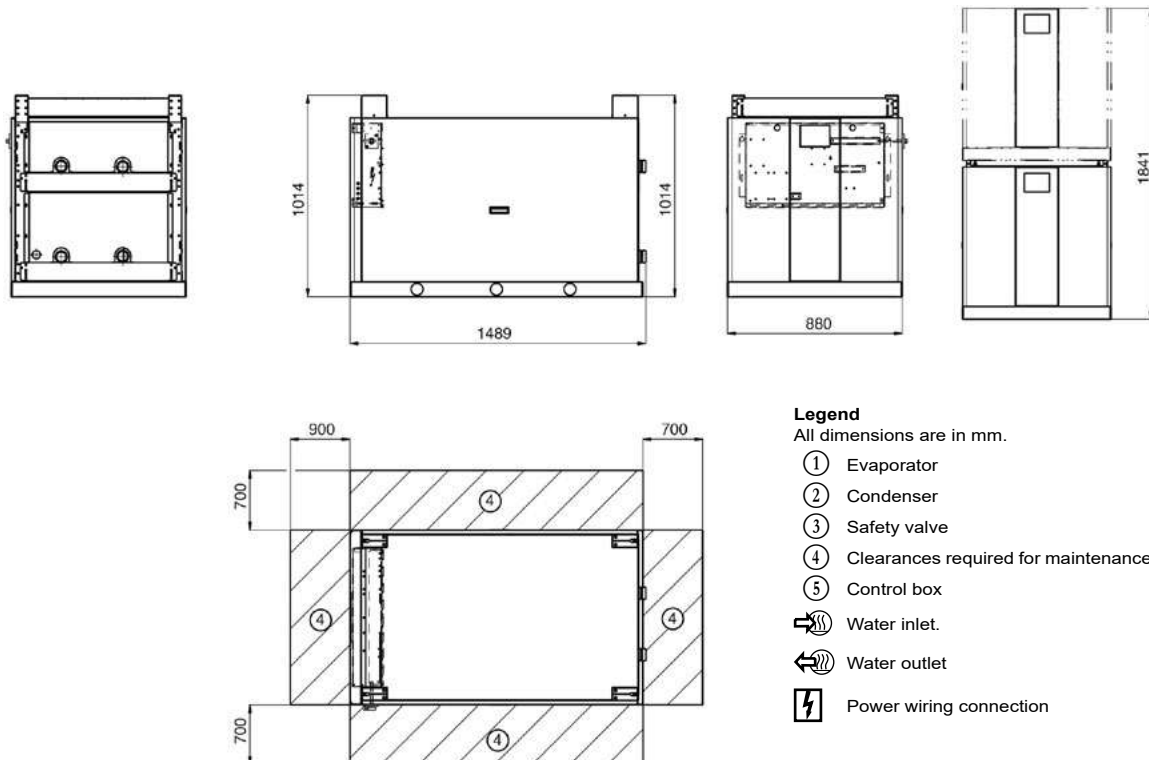
## DIMENSIONS/CLEARANCES

**61WG 050-090 - unit with hydraulic module and top connections (options 116 + 274 or 270 + 274 or 116 + 270 + 274)**



**61WG 050-090 - stackable unit (option 273)**

**NOTE:** The water and electrical connections are identical to those of the standard unit.



**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.



## WATER-COOLED AND CONDENSERLESS LIQUID CHILLERS WATER-SOURCED HEAT PUMPS



30WG optimized for cooling  
Compact design  
Plug and play approach  
High efficiency

## 30WG/30WGA-A

**AQUASNAP.**

Nominal heating capacity 29-230 kW  
Nominal cooling capacity 25-190 kW

The 30WG/30WGA units are new Carrier chillers and heat pumps designed for commercial (offices, small hotels, leisure facilities), residential and industrial applications. All units offer a unique combination of high performance and functionality in an exceptionally compact chassis.

The 30WG, also available as a condenserless version (30WGA), is designed for air-conditioning applications with a high SEER value. As they can produce chilled water down to -12 °C they are also suitable for process applications.

A large number of options is available for the whole range:

- hydraulic modules with or without variable water flow rate,
- reinforced sound insulation,
- stacking and connection of two units
- low-temperature applications down to -12 °C (30WG only).



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## CUSTOMER BENEFITS

### Features

- Reduced footprint
- Scroll compressors and R-410A refrigerant
- Variable-flow pump
- Low-noise option (-3 dB(A))
- Stacking of two units for increased capacity (up to size 090)
- Several communication protocols available: JBus, BacNet, MS/TP, LON
- Water connection at the top or rear (30WG only)

### Available versions

#### 30WG - optimised for air conditioning and process Heating & Cooling

- Evaporator temperature down to -12 °C
- Condenser temperature up to +60 °C
- Condensing pressure control devices available

#### 30WGA - optimised for air conditioning

- Continuous operation up to 62 °C saturated condensing temperature
- Compatible remote condensers available
- Optimised remote condenser fan control

### The right unit for any application

- Option 153 "Built-in DHW and space heating control" allows control of both domestic hot water and space heating requirements:
  - Domestic hot water production: a built-in three-way valve is directed to divert the heat flow from the space heating loop to the domestic hot water loop and vice versa.
  - Space heating control: the setpoint is adjustable, based on the daily schedule or the outside air temperature (weather compensation function).
  - Control of auxiliary systems: if an alarm is detected at the 30WG or if there is insufficient heating capacity, a digital signal starts an auxiliary electric heater (1 to 4 stages) or boiler.
  - Pump control: allows control of the built-in pump as well as the pump in the secondary loop (to terminals).
- In 30WG units the pressure control signal ensures safe unit operation and maximised performance at low source-side water temperatures.

- The condenserless 30WGA units are ideal for refurbishment projects where a remote condenser exists on site, and for all projects without geothermal/natural sinks for heat rejection.
- In 30WG units the Heating System Manager (HSM) accessory allows control of systems with several heat sources and different additional systems: electric heat, boiler or for the most complex systems district heating (see pages 9 to 11).

### Adaptability and simple installation

- The 30WG units can be provided with several hydraulic module options, both on the evaporator and/or condenser side, with different levels of available pressure and variable or fixed-speed pumps (see page 7).
- If option 153 is selected domestic hot water production is controlled via a built-in three-way diverter valve (not supplied).
- 30WG units offer water-side cooling/heating reversibility.
- Remote condenser fan control possible for 30WGA units.

### Water connections at the rear of the unit



## CUSTOMER BENEFITS

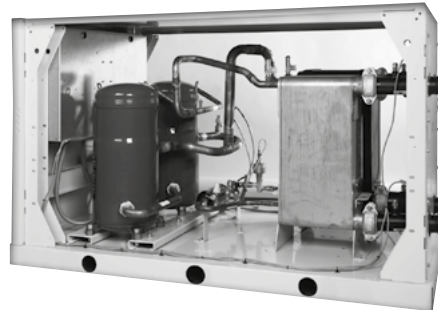
**Internal view of 30WG 170**



**Component accessibility**

See photos below.

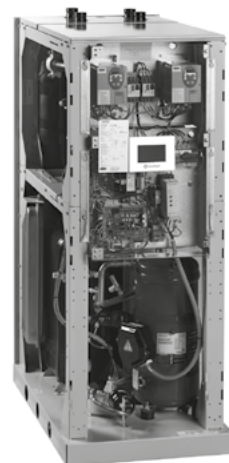
**Access to scroll compressors**



**Water connections at the top of the unit**



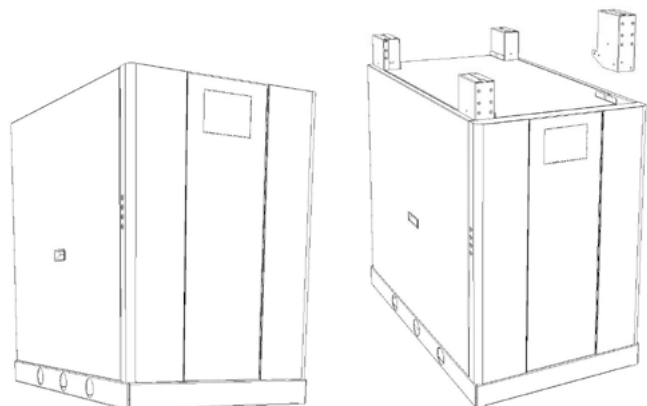
**Access to control panel**



### A compact high-performance product range

- Small footprint, ideal for refurbished buildings, allows access in very tight plant rooms.
- 30WG: High SEER and SEPR
- Units optimized for process and comfort applications.
- The 30WGA is based on the 30WG design to ensure efficient operation for applications with remote air-cooled condensers.
- Variable-flow pumps reduce system energy consumption.
- The entire range offers low sound levels, allowing installation in any building type. The low-noise option ensures enhanced acoustic comfort (-3 dB(A)).
- 30WG/30WGA units are equipped with the latest generation R410A scroll compressor, optimised for typical operating conditions for water-sourced units.

### Two-unit stacking option for reduced footprint size 020-090



## CUSTOMER BENEFITS

### SmartVu™ control

The SmartVu™ control combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and the evaporator water pump for optimum energy efficiency.

The SmartVu™ control features advanced communication technology over Ethernet (IP) and a user-friendly and intuitive user interface with 4.3-inch colour touch screen.

- Energy management configuration
  - Internal timer: controls chiller on/off times and operation at a second setpoint
  - Setpoint offset based on the outdoor air temperature
  - Master/slave control of two chillers operating in parallel with runtime balancing and automatic changeover in case of a unit fault.
  - Innovative smart energy monitoring, providing users with smart data such as real-time electrical energy consumption and cooling capacity, and instantaneous and average energy efficiency values.
  - For further energy savings, the AquaSnap® can be monitored remotely by Carrier experts for energy consumption diagnosis and optimisation.
- Integrated features
  - Night mode: Capacity and fan speed limitation for reduced noise level
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.
- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
  - Display of trend curves for the main values
  - Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
  - Blackbox memory

### ■ 4"3 SmartVu™ user interface



- Intuitive and user-friendly 4"3 inch touch screen interface
- Concise and clear information is available in local languages
- Complete menu, customised for different users (end user, service personnel or Carrier engineers).

### Remote management (standard)

Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.

The AquaSnap® is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.

The AquaSnap® also communicates with other centralised building management systems via optional communication gateways.

A connection terminal allows the AquaSnap® unit to be remotely controlled by wire:

- Start/stop: Opening of this contact will shut down the unit
- Dual setpoint: closing of this contact activates a second setpoint (e.g.: unoccupied mode).
- Demand limit: Closing of this contact limits the maximum chiller capacity to a predefined value.
- Operation indication: This volt-free contact indicates that the chiller is operating (cooling load).
- Alarm indication: this volt-free contact indicates the presence of a major fault that has led to the shut-down of one or several refrigerant circuits.

## CUSTOMER BENEFITS

### 30WG/30WGA units compatible the Carrier 09 series drycoolers/remote condensers

The Carrier 09 series drycoolers and remote condensers are compatible with the 30WG and 30WGA units.

The chiller 30WG/30WGA can control the fans of the dry cooler / remote condenser via digital or analogue outputs (according to AC or EC motors) with following options :

- For chiller 30WG/30WGA : option 154
- For dry cooler / remote condenser : dedicated control cabinet with an auxiliary board.

A simple communication bus is required between the chiller and the dry cooler/ remote condenser.

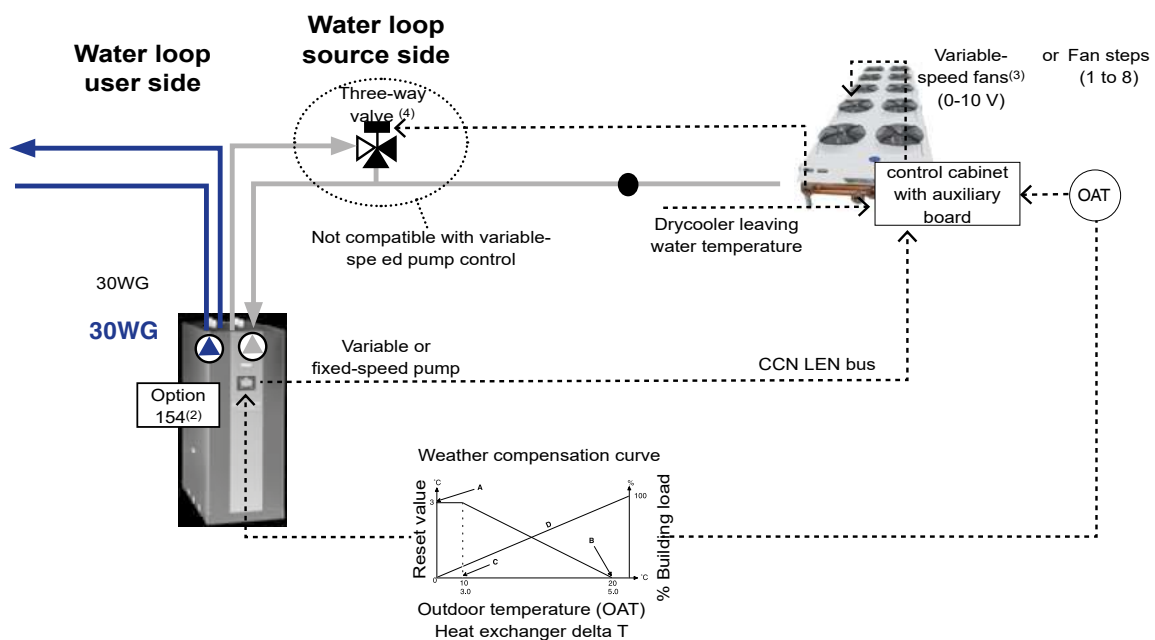
As all control components are installed and tested in the factory, installation and start-up of the unit and its associated drycooler/ remote condenser are simplified.

Control board algorithms optimise energy consumption based on:

- the outside temperature and chilled-water temperature read for drycoolers
- the outside temperature and saturated refrigerant discharge temperature read for remote condensers.

A simple communication bus is required downstream to connect the control board to the unit control.

### 30WG system concept

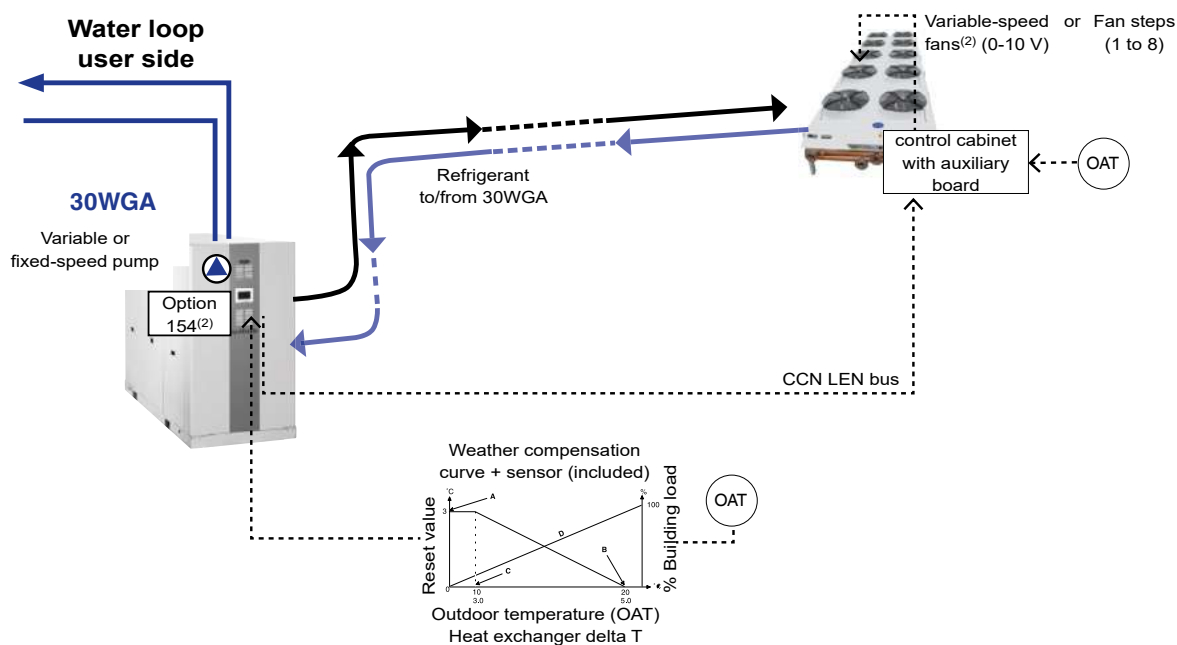


#### Legend

- CCN** Carrier Comfort Network  
**LEN** Local equipment network  
**OAT** Outside air temperature  
 (1) Control board option on 09PE dedicated to 30WG  
 (2) Option 154 for connection and communication with 09PE Drycooler  
 (3) For correct operation of the unit below 0 °C variable speed fans are required.  
 (4) Three-Way valve or two two-way valves optional on 09PE

## CUSTOMER BENEFITS

## 30WGA system concept



## Legend

- CCN** Carrier Comfort Network
- LEN** Local equipment network
- OAT** Outside air temperature
- (1) Control board option on 09PE dedicated to 30WG
- (2) Option 154 for connection and communication with 09PE Drycooler
- (3) For correct operation of the unit below 0 °C variable-speed fans are required.

## OPTIONS

| Options                                 | No.  | Description  | Advantages   | Use                           |
|---|------|--|--|-------------------------------|
| Medium-temperature brine solution       | 5B   | Low temperature chilled water production down to 0°C with ethylene glycol and propylene glycol.  | Covers specific applications such as ice storage and industrial processes  | 30WGA 020-190                 |
| Low-temperature brine solution          | 6B   | Low temperature glycol solution production down to -12 °C with ethylene glycol   | Covers specific applications such as ice storage and industrial processes  | 30WG 020-190                  |
| Soft Starter                            | 25   | Electronic starter on each compressor  | Reduced start-up current   | 30WG 020-190<br>30WGA 020-190 |
| Master/slave operation                  | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parrallele operation with operating time equalisation  | 30WG 020-190<br>30WGA 020-190 |
| External disconnect handle              | 70F  | The handle of the electrical disconnect switch is on the outside of the unit   | Quick access to the unit disconnect switch   | 30WG 020-190<br>30WGA 020-190 |
| Evap. single pump power/control circuit | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 30WG 110-190                  |
| Cond. single pump power/control circuit | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 30WG 110-190                  |
| Condenser insulation                    | 86   | Thermal condenser insulation   | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated) | 30WG 020-190                  |
| HP single-pump hydraulic module         | 116R | Single high-pressure water pump, water filter, electronic water flow control, pressure transducers. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)                               | Easy and fast installation (plug & play)   | 30WG 110-190<br>30WGA 110-190 |
| LP evap. single-pump                    | 116T | Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)              | Easy and fast installation (plug & play)   | 30WG 020-190<br>30WGA 020-190 |
| HP evap. variable-speed single-pump     | 116V | Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)          | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability                     | 30WG 020-190<br>30WGA 020-190 |
| HP VSD dual-pump hydraulic mod.         | 116W | Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included Option with built-in safety hydraulic components available) | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability                     | 30WG 110-190<br>30WGA 110-190 |
| LP VSD single-pump                      | 116Y | Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included.Option with built-in safety hydraulic components available.)          | Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved sytem reliability                     | 30WG 110-190<br>30WGA 110-190 |
| Lon gateway                             | 148D | Two-directional communication board complying with Lon Talk protocol   | Connects the unit by communication bus to a building management system   | 30WG 020-190<br>30WGA 020-190 |
| Bacnet over IP                          | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 30WG 20-190<br>30WGA 020-190  |
| Modbus over IP and RS485                | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 30WG 020-190<br>30WGA 020-190 |



## OPTIONS

| Options                                  | No.  | Description   | Advantages  | Use                           |
|--|------|---|---|-------------------------------|
| Built-in DHW & space heating control     | 153  | Control board factory-installed on the unit, control using weather compensation, control of supplementary electric heater (4 stages) or boiler, needle valve for domestic hot-water production with programmable time schedule. | Permits easy control of a basic heating system  | 30WG 020-190                  |
| Specific dry cooler control              | 154  | Dedicated connection and software for 09PE drycooler management.<br>For 09PE drycooler need to select the option control cabinet manage by the chiller  | Permits the use of an energy-efficient plug-and-play system                                       | 30WG 020-190                  |
| Condenser control                        | 154  | Control box for communication with the condenser via a bus.<br>For OPERA condenser need to select the cabinet with option control cabinet manage by the chiller Connect'Touch control   | Permits the use of an energy-efficient plug-and-play system                                       | 30WGA 020-190                 |
| Compliance with Russian regulations      | 199  | EAC certification   | Conformance with Russian regulations  | 30WG 020-190<br>30WGA 020-190 |
| Insulation of the evap. in/out ref.lines | 256  | Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, anti-UV insulant   | Prevents condensation on the evaporator entering/leaving refrigerant lines                        | 30WG 020-190<br>30WGA 020-190 |
| Low noise level                          | 257  | Compressor sound enclosure  | Reduced sound emissions   | 30WG 020-190<br>30WGA 020-190 |
| Very low sound level                     | 258  | Enhanced sound insulation of main noise sources (Material classified CD0S2 fire class according to Euroclass 13-501).   | 6 dB(A) quieter than standard . Refer to the physical data table for detailed values              | 30WG 020-090<br>30WGA 020-090 |
| Evaporator screw connection sleeves kit  | 264  | Evaporator inlet/outlet screw connection sleeves  | Allows unit connection to a screw connector   | 30WG 020-140<br>30WGA 020-140 |
| Condenser screw connection sleeves kit   | 265  | Condenser inlet/outlet screw connection sleeves   | Allows unit connection to a screw connector   | 30WG 020-140                  |
| Welded evaporator connection kit         | 266  | Victaulic piping connections with welded joints   | Easy installation   | 30WG 020-190<br>30WGA 020-190 |
| Welded condenser water connection kit    | 267  | Victaulic piping connections with welded joints   | Easy installation   | 30WG 020-190                  |
| HP single-pump, cond. side               | 270R | Condenser hydraulic module equipped with high pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option.  | Easy and fast installation (plug & play)  | 30WG 110-190                  |
| LP single-pump, cond. side               | 270T | Condenser hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. Built-in safety hydraulic components available in option.   | Easy and fast installation (plug & play)  | 30WG 020-190                  |
| HP cond. variable-speed single-pump      | 270V | Condenser hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.                 | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | 30WG 020-190                  |
| HP cond. variable-speed dual-pump        | 270W | Condenser hydraulic module equipped with dual high-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.            | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | 30WG 110-190                  |
| LP cond. variable-speed single-pump      | 270Y | Condenser hydraulic module equipped with low-pressure variable-speed pump, drain valve, air vent and pressure sensors. (expansion tank not included) Built-in safety hydraulic components available in option.                  | Easy and fast installation (plug & play), reduced power consumption of the water circulation pump | 30WG 110-190                  |
| Unit stackable for operation             | 273  | Unit stackable for operation  | Reduced footprint size  | 30WG 020-090<br>30WGA 020-090 |

## OPTIONS

| Options                                 | No.  | Description  | Advantages  | Use                           |
|---|------|--|---|-------------------------------|
| water connection at the top             | 274  | Customer water connection at the top of the unit   | Reduced footprint size  | 30WG 020-190<br>30WGA 020-190 |
| Replaceable filter drier                | 277  | Filter drier with cartridge to replace hermetic filter   | Easy filter replacement without emptying the refrigerant circuit  | 30WGA 020-190                 |
| Safety hydraulic components, evap. side | 293  | Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module     | Easy and fast installation (plug & play), operating safety  | 30WG 020-190<br>30WGA 020-190 |
| Safety hydraulic components, cond. side | 293A | Screen filter, expansion tank and relief valve integrated in the condenser hydraulic module      | Easy and fast installation (plug & play), operating safety  | 30WG 020-190                  |
| Set point adjustment by 4-20mA signal   | 311  | Connections to allow a 4-20mA signal input   | Easy energy management, allow to adjust set point by a 4-20mA external signal                                       | 30WG 020-190<br>30WGA 020-190 |
| External temperature sensor             | 312  | External temperature sensor control for using weather compensation                               | Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature | 30WG 020-190<br>30WGA 020-190 |
| Free Cooling dry cooler management      | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box | Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode                      | 30WG 020-190<br>30WGA 020-190 |

## PHYSICAL DATA, 30WG UNITS , SIZES 020 TO 090

| 30WG  |     |  |         | 020   | 025   | 030   | 035   | 040   | 045   | 050   | 060   | 070   | 080   | 090   |
|---|-----|--|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating   |     |  |         |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load performances*            | HW1 | Nominal capacity                               | kW      | 30    | 35    | 38    | 44    | 50    | 56    | 70    | 77    | 89    | 101   | 114   |
|   |     | COP  | kW/kW   | 5,53  | 5,53  | 5,49  | 5,52  | 5,49  | 5,51  | 5,58  | 5,48  | 5,53  | 5,46  | 5,50  |
|   | HW2 | Nominal capacity                               | kW      | 29    | 33    | 36    | 43    | 49    | 54    | 68    | 74    | 85    | 97    | 108   |
|   |     | COP  | kW/kW   | 4,34  | 4,37  | 4,35  | 4,36  | 4,40  | 4,35  | 4,39  | 4,35  | 4,32  | 4,40  | 4,32  |
|   | HW3 | Nominal capacity                               | kW      | 28    | 33    | 35    | 41    | 47    | 52    | 65    | 73    | 81    | 93    | 103   |
|   |     | COP  | kW/kW   | 3,59  | 3,63  | 3,61  | 3,60  | 3,67  | 3,61  | 3,58  | 3,62  | 3,54  | 3,70  | 3,56  |
| Standard unit<br>Seasonal energy efficiency**       | HW1 | SCOP <sub>30/35°C</sub>                        | kW/kW   | 5,46  | 5,45  | 5,36  | 5,40  | 5,35  | 5,38  | 6,12  | 6,08  | 6,09  | 6,11  | 6,09  |
|   |     | η <sub>s heat</sub> <sub>30/35°C</sub>         | %       | 211   | 210   | 206   | 208   | 206   | 207   | 237   | 235   | 235   | 236   | 235   |
|   | HW3 | SCOP <sub>47/55°C</sub>                        | kW/kW   | 4,36  | 4,37  | 4,34  | 4,37  | 4,40  | 4,34  | 4,91  | 4,96  | 4,85  | 5,08  | 4,91  |
|   |     | η <sub>s heat</sub> <sub>47/55°C</sub>         | %       | 167   | 167   | 166   | 167   | 168   | 166   | 188   | 190   | 186   | 195   | 188   |
|   |     | P <sub>rated</sub>                             | kW      | 32    | 37    | 40    | 47    | 54    | 59    | 75    | 83    | 93    | 106   | 118   |
|   |     | Energy labelling                               |         | A++   | A++   | A++   | A++   | A++   | A++   | -     | -     | -     | -     | -     |
| Cooling   |     |  |         |       |       |       |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load performances*            | CW1 | Nominal capacity                               | kW      | 25    | 29    | 32    | 37    | 42    | 47    | 58    | 63    | 74    | 84    | 95    |
|   |     | EER  | kW/kW   | 4,72  | 4,72  | 4,69  | 4,73  | 4,69  | 4,72  | 4,72  | 4,65  | 4,69  | 4,65  | 4,68  |
|   |     | Eurovent class                                 |         | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     | B     |
|   | CW2 | Nominal capacity                               | kW      | 34    | 39    | 43    | 50    | 57    | 66    | 79    | 86    | 102   | 113   | 129   |
|   |     | EER  | kW/kW   | 6,42  | 6,10  | 6,03  | 6,04  | 5,90  | 6,06  | 6,12  | 5,95  | 6,19  | 5,93  | 6,13  |
|   |     | Eurovent class                                 |         | A     | A     | A     | A     | A     | A     | A     | A     | A     | A     | A     |
| Standard unit<br>Seasonal energy efficiency**       |     | SEER <sub>12/7°C</sub> Comfort low temp.       | kW/kW   | 4,94  | 4,94  | 4,83  | 4,87  | 4,85  | 4,88  | 5,70  | 5,62  | 5,58  | 5,72  | 5,68  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp.      | kW/kW   | 6,42  | 6,44  | 6,26  | 6,22  | 6,26  | 6,31  | 6,63  | 6,50  | 6,48  | 6,59  | 6,62  |
| Unit with option 6B<br>Seasonal energy efficiency** |     | SEPR <sub>2/-8°C</sub> Process medium temp.*** | kWh/kWh | 3,92  | 4,26  | 4,43  | 4,34  | 4,47  | 4,01  | 4,12  | 4,73  | 4,55  | 4,78  | 4,76  |
| Integrated part load value                          |     | IPLV.SI  | kW/kW   | 5,840 | 5,850 | 5,760 | 5,780 | 5,770 | 5,820 | 6,580 | 6,680 | 6,560 | 6,810 | 6,720 |
| Operating weight <sup>(1)</sup>                     |     |  | kg      | 191   | 200   | 200   | 207   | 212   | 220   | 386   | 392   | 403   | 413   | 441   |
| Operating weight with option 258 <sup>(1)</sup>     |     |  | kg      | 198   | 207   | 207   | 214   | 219   | 227   | 399   | 405   | 416   | 426   | 454   |
| Sound levels <sup>(2)</sup>                         |     |  |         |       |       |       |       |       |       |       |       |       |       |       |
| Sound power level, standard unit                    |     |  | dB(A)   | 67    | 68    | 69    | 69    | 70    | 70    | 72    | 72    | 72    | 73    | 73    |
| Sound power level, option 257                       |     |  | dB(A)   | 65    | 66    | 66    | 67    | 68    | 68    | 68    | 69    | 69    | 69    | 70    |
| Sound power level, option 258                       |     |  | dB(A)   | 61    | 62    | 63    | 63    | 64    | 64    | 66    | 66    | 66    | 67    | 67    |
| Sound power level, option 257 + 258                 |     |  | dB(A)   | 60    | 62    | 62    | 62    | 64    | 63    | 65    | 65    | 65    | 66    | 66    |
| Dimensions, standard unit <sup>(3)</sup>            |     |  |         |       |       |       |       |       |       |       |       |       |       |       |
| Width   |     | mm   |         | 600   | 600   | 600   | 600   | 600   | 600   | 880   | 880   | 880   | 880   | 880   |
| Length  |     | mm   |         | 1044  | 1044  | 1044  | 1044  | 1044  | 1044  | 1474  | 1474  | 1474  | 1474  | 1474  |
| Height  |     | mm   |         | 901   | 901   | 901   | 901   | 901   | 901   | 901   | 901   | 901   | 901   | 901   |

- \* In accordance with standard EN14511-3:2013
- \*\* In accordance with standard EN14825:2016, average climate
- \*\*\* With EG 30%
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m2. k/W
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m2. k/W
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m2. k/W
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m2.K/W
- CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m2.K/W
- η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s heat</sub><sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**
- SEER<sub>12/7°C</sub> & SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016
- SEPR<sub>2/-8°C</sub> Values calculated in accordance with EN14825:2016
- Not applicable
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI)
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.
- (3) The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings.



Eurovent certified values

## PHYSICAL DATA, 30WG UNITS , SIZES 020 TO 090

| 30WG  | 020                                   | 025  | 030  | 035  | 040  | 045  | 050  | 060  | 070  | 080  | 090  |      |
|---|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Compressors   | Hermetic scroll 48.3 r/s              |      |      |      |      |      |      |      |      |      |      |      |
| Quantity  | 1                                     | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    |      |
| Number of capacity stages                                   | 1                                     | 1    | 1    | 1    | 1    | 1    | 2    | 2    | 2    | 2    | 2    |      |
| Minimum capacity  | %                                     | 100  | 100  | 100  | 100  | 100  | 100  | 50   | 50   | 50   | 50   |      |
| Refrigerant <sup>(1)</sup>                                  | R410A (GWP=2088 Following ARI4)       |      |      |      |      |      |      |      |      |      |      |      |
| Charge, standard unit                                       | kg                                    | 3,5  | 3,5  | 3,6  | 3,7  | 4,0  | 4,6  | 7,6  | 7,8  | 7,9  | 8,7  | 11,5 |
|   | teqCO <sub>2</sub>                    | 7,2  | 7,3  | 7,4  | 7,6  | 8,2  | 9,5  | 15,9 | 16,3 | 16,5 | 18,2 | 24   |
| Capacity control  | SmartVu™                              |      |      |      |      |      |      |      |      |      |      |      |
| Evaporator  | Direct-expansion plate heat exchanger |      |      |      |      |      |      |      |      |      |      |      |
| Water volume  | l                                     | 3,3  | 3,6  | 3,6  | 4,2  | 4,6  | 5,0  | 8,4  | 9,2  | 9,6  | 10,4 | 12,5 |
| Water connections   | Vitaualic                             |      |      |      |      |      |      |      |      |      |      |      |
| Inlet/outlet  | in                                    | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 2    | 2    | 2    | 2    | 2    |
| Max. water-side operating pressure without hydraulic module | kPa                                   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser   | Plate heat exchanger                  |      |      |      |      |      |      |      |      |      |      |      |
| Net water volume  | l                                     | 3,3  | 3,6  | 3,6  | 4,2  | 4,6  | 5,0  | 8,4  | 9,2  | 9,6  | 10,4 | 12,5 |
| Water connections   | Vitaualic                             |      |      |      |      |      |      |      |      |      |      |      |
| Inlet/outlet  | in                                    | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 2    | 2    | 2    | 2    | 2    |
| Max. water-side operating pressure without hydraulic module | kPa                                   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Chassis paint color   | Color code: RAL7035                   |      |      |      |      |      |      |      |      |      |      |      |

(1) Weight shown is a guideline only. Please refer to the unit nameplate

## PHYSICAL DATA, 30WG UNITS, SIZES 110 TO 190

| 30WG  |  |  | 110     | 120                      | 140   | 150   | 170   | 190   |       |
|---|--|--|---------|--------------------------|-------|-------|-------|-------|-------|
| Heating   |  |  |         |                          |       |       |       |       |       |
| Standard unit<br>Full load performances*            | HW1  | Nominal capacity                       | kW      | 135                      | 152   | 175   | 183   | 207   | 238   |
|   |  | COP                                    | kW/kW   | 5,50                     | 5,50  | 5,42  | 5,58  | 5,59  | 5,50  |
|   | HW2  | Nominal capacity                       | kW      | 131                      | 148   | 163   | 174   | 197   | 218   |
|   |  | COP                                    | kW/kW   | 4,44                     | 4,45  | 4,38  | 4,41  | 4,50  | 4,38  |
|   | HW3  | Nominal capacity                       |         | 125                      | 140   | 160   | 166   | 187   | 214   |
|   |  | COP                                    |         | 3,56                     | 3,45  | 3,54  | 3,55  | 3,44  | 3,53  |
| Standard unit<br>Seasonal energy efficiency**       | HW1  | SCOP <sub>30/35°C</sub>                | kW/kW   | 6,31                     | 6,37  | 6,31  | 6,31  | 6,32  | 6,18  |
|   |  | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 244                      | 247   | 244   | 244   | 245   | 239   |
|   | HW3  | SCOP <sub>47/55°C</sub>                | kW/kW   | 5,05                     | 5,09  | 5,05  | 5,02  | 5,17  | 4,96  |
|   |  | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 194                      | 196   | 194   | 193   | 199   | 190   |
|   |  | P <sub>rated</sub>                     | kW      | 143                      | 161   | 178   | 191   | 216   | 239   |
| Cooling   |  |  |         |                          |       |       |       |       |       |
| Standard unit<br>Full load performances*            | CW1  | Nominal capacity                       | kW      | 115                      | 130   | 144   | 153   | 172   | 192   |
|   |  | EER                                    | kW/kW   | 4,79                     | 4,77  | 4,70  | 4,83  | 4,78  | 4,79  |
|   |  | Eurovent class                         |         | B                        | B     | B     | B     | B     | B     |
|   | CW2  | Nominal capacity                       | kW      | 155                      | 176   | 196   | 207   | 231   | 262   |
|   |  | EER                                    | kW/kW   | 6,20                     | 6,10  | 6,01  | 6,23  | 5,97  | 6,14  |
|   |  | Eurovent class                         |         | A                        | A     | A     | A     | A     | A     |
| Standard unit<br>Seasonal energy efficiency**       | SEER <sub>12/7°C</sub> Comfort low temp.       |  | kW/kW   | 6,12                     | 6,24  | 6,17  | 5,97  | 6,06  | 5,96  |
|   | SEPR <sub>12/7°C</sub> Process high temp.      |  | kWh/kWh | 6,98                     | 7,13  | 6,90  | 6,54  | 6,62  | 6,41  |
| Unit with option 6B<br>Seasonal energy efficiency** | SEPR <sub>2/-8°C</sub> Process medium temp.*** |  | kWh/kWh | 4,01                     | 4,40  | 4,35  | 4,52  | 4,65  | 4,45  |
| Integrated part load value                          |  | IPLV.SI                                | kW/kW   | 6,860                    | 6,980 | 6,900 | 6,820 | 6,890 | 6,820 |
| Operating weight <sup>(1)</sup>                     |  |  | kg      | 707                      | 733   | 758   | 841   | 877   | 908   |
| Sound levels <sup>(2)</sup>                         |  |  |         |                          |       |       |       |       |       |
| Sound power level, standard unit                    |  |  | dB(A)   | 76                       | 77    | 78    | 76    | 77    | 78    |
| Sound power level, option 257                       |  |  | dB(A)   | 73                       | 74    | 75    | 73    | 74    | 75    |
| Dimensions, standard unit <sup>(3)</sup>            |  |  |         |                          |       |       |       |       |       |
| Width   |  |  | mm      | 880                      | 880   | 880   | 880   | 880   | 880   |
| Length  |  |  | mm      | 1583                     | 1583  | 1583  | 1583  | 1583  | 1583  |
| Height  |  |  | mm      | 1574                     | 1574  | 1574  | 1574  | 1574  | 1574  |
| Compressors   |  |  |         | Hermetic scroll 48.3 r/s |       |       |       |       |       |
| Quantity  |  |  |         | 3                        | 3     | 3     | 4     | 4     | 4     |
| Number of capacity stages                           |  |  |         | 3                        | 3     | 3     | 4     | 4     | 4     |
| Minimum capacity                                    |  |  | %       | 33                       | 33    | 33    | 25    | 25    | 25    |

\* In accordance with standard EN14511-3:2013

\*\* In accordance with standard EN14825:2016, average climate

\*\*\* With EG 30%

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m2. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m2. k/W

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m2. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m2.K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m2.K/W

η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**SEER<sub>12/7°C</sub> & SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016SEPR<sub>-2/-8°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(3) The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings.



Eurovent certified values

## PHYSICAL DATA, 30WG UNITS, SIZES 110 TO 190

| 30WG  |                    | 110                                   | 120   | 140   | 150   | 170   | 190   |
|---|--------------------|---------------------------------------|-------|-------|-------|-------|-------|
| <b>Refrigerant <sup>(1)</sup></b>                           |                    | R410A (GWP=2088 Following ARI4)       |       |       |       |       |       |
| Charge, standard unit                                       | kg                 | 13,3                                  | 14,5  | 15,6  | 21,0  | 23,0  | 24,2  |
|   | teqCO <sub>2</sub> | 27,8                                  | 30,3  | 32,6  | 43,8  | 48,0  | 50,5  |
| <b>Capacity control</b>                                     |                    | SmartVu™                              |       |       |       |       |       |
| <b>Evaporator</b>   |                    | Direct-expansion plate heat exchanger |       |       |       |       |       |
| Water volume  | l                  | 15,18                                 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Water connections   | -                  | Victaulic                             |       |       |       |       |       |
| Inlet/outlet  | in                 | 2 1/2                                 | 2 1/2 | 2 1/2 | 3     | 3     | 3     |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000                                  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Condenser</b>  |                    | Plate heat exchanger                  |       |       |       |       |       |
| Net water volume  | l                  | 15,18                                 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Water connections   | -                  | Victaulic                             |       |       |       |       |       |
| Inlet/outlet  | in                 | 2 1/2                                 | 2 1/2 | 2 1/2 | 3     | 3     | 3     |
| Max. water-side operating pressure without hydraulic module | kPa                | 1000                                  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Chassis paint color</b>                                  |                    | Color code: RAL7035                   |       |       |       |       |       |

(1) Weight shown is a guideline only. Please refer to the unit nameplate



## PHYSICAL DATA, 30WGA UNITS

| 30WGA   |     |                  |       | 020                                   | 025  | 030  | 035  | 040  | 045  | 050   | 060   | 070   | 080   | 090   |
|---|-----|------------------|-------|---------------------------------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Standard unit<br>Full load performances*                    | CS1 | Nominal capacity | kW    | 22,8                                  | 27   | 29,1 | 34   | 39,2 | 42,7 | 54,5  | 59,1  | 67,5  | 78,2  | 87,4  |
|   |     | EER              | kW/kW | 3,70                                  | 3,76 | 3,68 | 3,73 | 3,75 | 3,70 | 3,70  | 3,66  | 3,64  | 3,81  | 3,77  |
|   | CS2 | Nominal capacity | kW    | 31,8                                  | 37,6 | 40,3 | 47   | 53,2 | 61,3 | 74,5  | 81,2  | 94,9  | 108   | 121   |
|   |     | EER              | kW/kW | 5,35                                  | 5,25 | 5,11 | 5,09 | 4,99 | 5,15 | 5,16  | 5,15  | 5,18  | 5,26  | 5,13  |
| Operating weight <sup>(1)</sup>                             |     |                  | kg    | 164                                   | 171  | 171  | 177  | 180  | 185  | 321   | 324   | 332   | 339   | 354   |
| Operating weight with option 258 <sup>(1)</sup>             |     |                  | kg    | 171                                   | 178  | 178  | 184  | 187  | 192  | 334   | 337   | 345   | 352   | 367   |
| Sound levels <sup>(2)</sup>                                 |     |                  |       |                                       |      |      |      |      |      |       |       |       |       |       |
| Sound power level, standard unit                            |     |                  | dB(A) | 67                                    | 68   | 69   | 69   | 70   | 70   | 72    | 72    | 72    | 73    | 73    |
| Sound power level, option 257                               |     |                  | dB(A) | 65                                    | 66   | 66   | 67   | 68   | 68   | 68    | 69    | 69    | 69    | 70    |
| Sound power level, option 258                               |     |                  | dB(A) | 61                                    | 62   | 63   | 63   | 64   | 64   | 66    | 66    | 66    | 67    | 67    |
| Sound power level, option 257 + 258                         |     |                  | dB(A) | 60                                    | 62   | 62   | 62   | 64   | 63   | 65    | 65    | 65    | 66    | 66    |
| Dimensions, standard unit <sup>(3)</sup>                    |     |                  |       |                                       |      |      |      |      |      |       |       |       |       |       |
| Width   |     |                  | mm    | 600                                   | 600  | 600  | 600  | 600  | 600  | 880   | 880   | 880   | 880   | 880   |
| Length  |     |                  | mm    | 1044                                  | 1044 | 1044 | 1044 | 1044 | 1044 | 1474  | 1474  | 1474  | 1474  | 1474  |
| Height  |     |                  | mm    | 901                                   | 901  | 901  | 901  | 901  | 901  | 901   | 901   | 901   | 901   | 901   |
| Compressors   |     |                  |       | Hermetic scroll 48.3 r/s              |      |      |      |      |      |       |       |       |       |       |
| Circuit A   |     |                  |       | 1                                     | 1    | 1    | 1    | 1    | 1    | 2     | 2     | 2     | 2     | 2     |
| Circuit B   |     |                  |       | -                                     | -    | -    | -    | -    | -    | -     | -     | -     | -     | -     |
| Number of capacity stages                                   |     |                  |       | 1                                     | 1    | 1    | 1    | 1    | 1    | 2     | 2     | 2     | 2     | 2     |
| Minimum capacity  |     |                  | %     | 100                                   | 100  | 100  | 100  | 100  | 100  | 50    | 50    | 50    | 50    | 50    |
| Refrigerant   |     |                  |       | R410A (GWP=2088 Following ARI4)       |      |      |      |      |      |       |       |       |       |       |
| Capacity control  |     |                  |       | SmartVu™                              |      |      |      |      |      |       |       |       |       |       |
| Evaporator  |     |                  |       | Direct-expansion plate heat exchanger |      |      |      |      |      |       |       |       |       |       |
| Water volume  |     |                  | l     | 3,3                                   | 3,6  | 3,6  | 4,2  | 4,6  | 5,0  | 8,4   | 9,2   | 9,6   | 10,4  | 12,5  |
| Water connections   |     |                  |       | Victaulic                             |      |      |      |      |      |       |       |       |       |       |
| Inlet/outlet  |     |                  | in    | 1,5                                   | 1,5  | 1,5  | 1,5  | 1,5  | 1,5  | 2     | 2     | 2     | 2     | 2     |
| Max. water-side operating pressure without hydraulic module |     |                  | kPa   | 1000                                  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000  | 1000  | 1000  | 1000  | 1000  |
| Refrigerant connections                                     |     |                  |       |                                       |      |      |      |      |      |       |       |       |       |       |
| Discharge line diameter                                     |     |                  | in    | 7/8                                   | 7/8  | 7/8  | 7/8  | 7/8  | 7/8  | 1-1/8 | 1-1/8 | 1-1/8 | 1-1/8 | 1-1/8 |
| Liquid line diameter  |     |                  | in    | 5/8                                   | 5/8  | 5/8  | 5/8  | 5/8  | 5/8  | 7/8   | 7/8   | 7/8   | 7/8   | 7/8   |
| Chassis paint color   |     |                  |       | Color code: RAL7035                   |      |      |      |      |      |       |       |       |       |       |

- \* In accordance with standard EN14511-3:2013. Refrigerant piping equivalent length (without drier and valves) = 3 m.
- CS1 Cooling mode conditions: evaporator entering/leaving water temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m<sup>2</sup>K/W.
- CS2 Cooling mode conditions: evaporator entering/leaving water temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m<sup>2</sup>K/W.
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A). Measured in accordance with ISO 9614-1.
- (3) The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings.

## PHYSICAL DATA, 30WGA UNITS

| 30WGA   |     |                  |       | 110                                   | 120   | 140   | 150   | 170   | 190   |
|---|-----|------------------|-------|---------------------------------------|-------|-------|-------|-------|-------|
| <b>Standard unit</b><br>Full load performances*             | CS1 | Nominal capacity | kW    | 106                                   | 119   | 132   | 140   | 159   | 175   |
|   |     | EER              | kW/kW | 3,78                                  | 3,78  | 3,72  | 3,75  | 3,81  | 3,72  |
|   | CS2 | Nominal capacity | kW    | 146                                   | 166   | 185   | 195   | 218   | 247   |
|   |     | EER              | kW/kW | 5,24                                  | 5,17  | 5,12  | 5,32  | 5,17  | 5,26  |
| <b>Operating weight<sup>(1)</sup></b>                       |     |                  | kg    | 762                                   | 787   | 814   | 909   | 944   | 975   |
| <b>Sound levels<sup>(2)</sup></b>                           |     |                  |       |                                       |       |       |       |       |       |
| Sound power level   |     |                  | dB(A) | 76                                    | 77    | 78    | 76    | 77    | 78    |
| Sound power level, option 257                               |     |                  | dB(A) | 73                                    | 74    | 75    | 73    | 74    | 75    |
| <b>Dimensions, standard unit <sup>(3)</sup></b>             |     |                  |       |                                       |       |       |       |       |       |
| Width   |     |                  | mm    | 880                                   | 880   | 880   | 880   | 880   | 880   |
| Length  |     |                  | mm    | 1583                                  | 1583  | 1583  | 1583  | 1583  | 1583  |
| Height  |     |                  | mm    | 1574                                  | 1574  | 1574  | 1574  | 1574  | 1574  |
| <b>Compressors</b>  |     |                  |       | Hermetic scroll 48.3 r/s              |       |       |       |       |       |
| Circuit A   |     |                  |       | 3                                     | 3     | 3     | 4     | 4     | 4     |
| Number of capacity stages                                   |     |                  |       | 3                                     | 3     | 3     | 4     | 4     | 4     |
| Minimum capacity  |     |                  | %     | 33                                    | 33    | 33    | 25    | 25    | 25    |
| <b>Refrigerant</b>  |     |                  |       | R410A (GWP=2088 Following ARI4)       |       |       |       |       |       |
| <b>Capacity control</b>                                     |     |                  |       | SmartVu™                              |       |       |       |       |       |
| <b>Evaporator</b>   |     |                  |       | Direct-expansion plate heat exchanger |       |       |       |       |       |
| Water volume  |     |                  | l     | 15,18                                 | 17,35 | 19,04 | 23,16 | 26,52 | 29,05 |
| Water connections   |     |                  |       | Victaulic                             |       |       |       |       |       |
| Inlet/outlet  |     |                  | in    | 2 1/2                                 | 2 1/2 | 2 1/2 | 3     | 3     | 3     |
| Max. water-side operating pressure without hydraulic module |     |                  |       | 1000                                  | 1000  | 1000  | 1000  | 1000  | 1000  |
| <b>Refrigerant connections</b>                              |     |                  |       |                                       |       |       |       |       |       |
| Discharge line diameter                                     |     |                  | in    | 1"3/8                                 | 1"3/8 | 1"3/8 | 1"1/8 | 1"1/8 | 1"1/8 |
| Liquid line diameter  |     |                  | in    | 7/8"                                  | 7/8"  | 7/8"  | 7/8"  | 7/8"  | 7/8"  |
| <b>Chassis paint color</b>                                  |     |                  |       | Color code: RAL7035                   |       |       |       |       |       |

- \* In accordance with standard EN14511-3:2013. Refrigerant piping equivalent length (without drier and valves) = 3 m.
- CS1 Cooling mode conditions: evaporator entering/leaving water temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m²K/W.
- CS2 Cooling mode conditions: evaporator entering/leaving water temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m²K/W.
- (1) Weight shown is a guideline only. Please refer to the unit nameplate
- (2) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/- 3dB(A)). Measured in accordance with ISO 9614-1.
- (3) The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings.

## ELECTRICAL DATA

| 30WG without hydraulic module                              |         | 020  | 025  | 030  | 035  | 040  | 045   | 050  | 060  | 070   | 080   | 090   |
|--|---------|--|------|------|------|------|-------|------|------|-------|-------|-------|
| <b>Power circuit</b>                                       |         |  |      |      |      |      |       |      |      |       |       |       |
| Nominal voltage  | V-ph-Hz | 400-3-50   |      |      |      |      |       |      |      |       |       |       |
| Voltage range  | V       | 360-440  |      |      |      |      |       |      |      |       |       |       |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer                     |      |      |      |      |       |      |      |       |       |       |
| <b>Maximum start-up current draw (Un)<sup>(1)</sup></b>    |         |  |      |      |      |      |       |      |      |       |       |       |
| Standard unit  | A       | 98   | 142  | 142  | 147  | 158  | 197   | 161  | 162  | 170   | 183   | 226   |
| Unit with electronic starter option                        | A       | 53,9   | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 96,8 | 97,9 | 104,1 | 112,3 | 137,4 |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,9  | 0,8  | 0,9  | 0,9  | 0,9  | 0,9   | 0,8  | 0,9  | 0,9   | 0,9   | 0,9   |
| <b>Maximum operating power input<sup>(2)</sup></b>         |         | kW   | 9,2  | 10,8 | 11,7 | 13,7 | 15,1  | 17,1 | 21,5 | 23,3  | 27,3  | 34,2  |
| <b>Nominal unit operating current draw<sup>(3)</sup></b>   |         | A  | 10,5 | 13,2 | 13,8 | 15,6 | 16,2  | 20,2 | 26,4 | 27,6  | 31,2  | 40,4  |
| <b>Maximum operating current draw (Un)<sup>(4)</sup></b>   |         | A  | 15,6 | 18,7 | 19,8 | 23,2 | 25,4  | 29   | 37,4 | 39,6  | 46,4  | 58    |
| <b>Maximum operating current draw (Un-10%)*</b>            |         | A  | 17,3 | 20,8 | 22   | 25,8 | 28,2  | 32,2 | 41,6 | 44    | 51,6  | 64,4  |
| <b>Customer-side unit power reserve</b>                    |         | Customer reserve at the 24 V control power circuit |      |      |      |      |       |      |      |       |       |       |
| <b>Short-circuit stability and protection</b>              |         | See table below "Short-circuit stability current"  |      |      |      |      |       |      |      |       |       |       |

(1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).

(2) Maximum power input at the unit operating limits.

(3) Values obtained at standardised Eurovent conditions: evaporator entering/leaving water temperature 12 °C/7 °C, condenser entering/leaving water temperature 30 °C/ 35 °C.

(4) Maximum unit operating current at maximum unit power input and 400 V.

\* Maximum unit operating current at maximum unit power input and 360 V.

| 30WG without hydraulic module                              |         | 110  | 120   | 140   | 150   | 170   | 190   |
|--|---------|--|-------|-------|-------|-------|-------|
| <b>Power circuit</b>                                       |         |  |       |       |       |       |       |
| Nominal voltage  | V-ph-Hz | 400-3-50   |       |       |       |       |       |
| Voltage range  | V       | 360-440  |       |       |       |       |       |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer                     |       |       |       |       |       |
| <b>Maximum start-up current draw (Un)<sup>(1)</sup></b>    |         |  |       |       |       |       |       |
| Standard unit  | A       | 193,4  | 208,8 | 255   | 216,6 | 234,2 | 284   |
| Unit with electronic starter option                        | A       | 127,3  | 137,7 | 166,4 | 150,5 | 163,1 | 195,4 |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,87   | 0,85  | 0,85  | 0,87  | 0,85  | 0,85  |
| <b>Maximum operating power input<sup>(2)</sup></b>         |         | kW   | 41    | 45    | 51    | 55    | 68    |
| <b>Nominal unit operating current draw<sup>(3)</sup></b>   |         | A  | 46,8  | 48,6  | 60,6  | 62,4  | 80,8  |
| <b>Maximum operating current draw (Un)<sup>(4)</sup></b>   |         | A  | 69,6  | 76,2  | 87    | 92,8  | 116   |
| <b>Maximum operating current draw (Un-10%)*</b>            |         | A  | 77,3  | 84,7  | 96,7  | 103,1 | 128,9 |
| <b>Customer-side unit power reserve</b>                    |         | Customer reserve at the 24 V control power circuit |       |       |       |       |       |
| <b>Short-circuit stability and protection</b>              |         | See table below "Short-circuit stability current"  |       |       |       |       |       |

(1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).

(2) Maximum power input at the unit operating limits.

(3) Values obtained at standardised Eurovent conditions: evaporator entering/leaving water temperature 12 °C/7 °C, condenser entering/leaving water temperature 30 °C/ 35 °C.

(4) Maximum unit operating current at maximum unit power input and 400 V.

\* Maximum unit operating current at maximum unit power input and 360 V.

## ELECTRICAL DATA

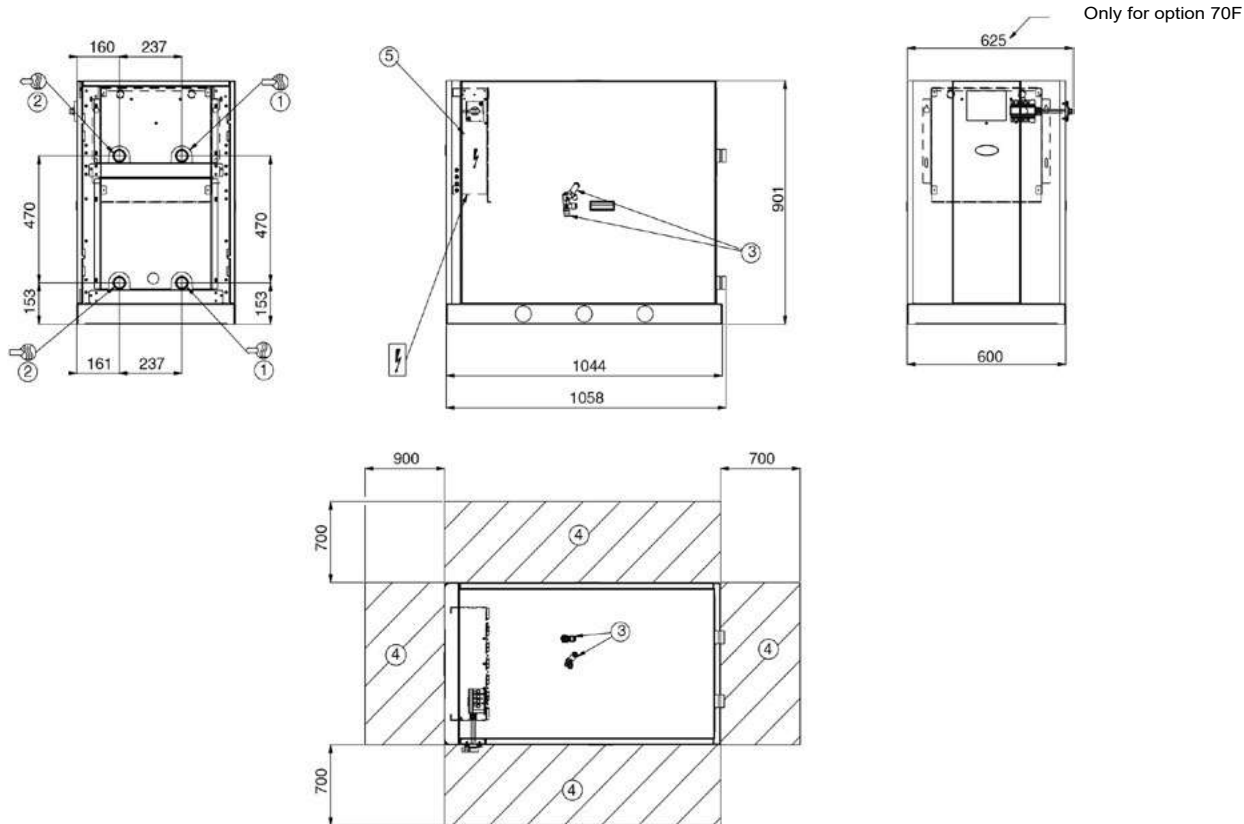
| 30WGA without hydraulic module                             |         | 020  | 025  | 030  | 035  | 040  | 045   | 050  | 060  | 070   | 080   | 090   |
|--|---------|--|------|------|------|------|-------|------|------|-------|-------|-------|
| <b>Power circuit</b>                                       |         |  |      |      |      |      |       |      |      |       |       |       |
| Nominal voltage  | V-ph-Hz | 400-3-50   |      |      |      |      |       |      |      |       |       |       |
| Voltage range  | V       | 360-440  |      |      |      |      |       |      |      |       |       |       |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer                     |      |      |      |      |       |      |      |       |       |       |
| <b>Maximum start-up current draw (Un)<sup>(1)</sup></b>    |         |  |      |      |      |      |       |      |      |       |       |       |
| Standard unit  | A       | 98   | 142  | 142  | 147  | 158  | 197   | 161  | 162  | 170   | 183   | 226   |
| Unit with electronic starter option                        | A       | 53,9   | 78,1 | 78,1 | 80,9 | 86,9 | 108,4 | 96,8 | 97,9 | 104,1 | 112,3 | 137,4 |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,9  | 0,8  | 0,9  | 0,9  | 0,9  | 0,9   | 0,8  | 0,9  | 0,9   | 0,9   | 0,9   |
| <b>Maximum operating power input<sup>(2)</sup></b>         |         | kW   | 9,2  | 10,8 | 11,7 | 13,7 | 15,1  | 17,1 | 21,5 | 23,3  | 27,3  | 34,2  |
| <b>Nominal unit operating current draw<sup>(3)</sup></b>   |         | A  | 11,4 | 13,8 | 14,7 | 16,5 | 18,1  | 21,2 | 27,6 | 29,4  | 33,1  | 36,4  |
| <b>Maximum operating current draw (Un)<sup>(4)</sup></b>   |         | A  | 15,6 | 18,7 | 19,8 | 23,2 | 25,4  | 29   | 37,4 | 39,6  | 46,4  | 58    |
| <b>Maximum operating current draw (Un-10%)*</b>            |         | A  | 17,3 | 20,8 | 22   | 25,8 | 28,2  | 32,2 | 41,6 | 44    | 51,6  | 64,4  |
| <b>Customer-side unit power reserve</b>                    |         | Customer reserve at the 24 V control power circuit |      |      |      |      |       |      |      |       |       |       |
| <b>Short-circuit stability and protection</b>              |         | See table below "Short-circuit stability current"  |      |      |      |      |       |      |      |       |       |       |

| 30WGA without hydraulic module                             |         | 110  | 120   | 140   | 150   | 170   | 190   |
|--|---------|--|-------|-------|-------|-------|-------|
| <b>Power circuit</b>                                       |         |  |       |       |       |       |       |
| Nominal voltage  | V-ph-Hz | 400-3-50   |       |       |       |       |       |
| Voltage range  | V       | 360-440  |       |       |       |       |       |
| <b>Control circuit supply</b>                              |         | 24 V, via internal transformer                     |       |       |       |       |       |
| <b>Maximum start-up current draw (Un)<sup>(1)</sup></b>    |         |  |       |       |       |       |       |
| Standard unit  | A       | 193,4  | 208,8 | 255   | 216,6 | 234,2 | 284   |
| Unit with electronic starter option                        | A       | 127,3  | 137,7 | 166,4 | 150,5 | 163,1 | 195,4 |
| <b>Unit power factor at maximum capacity<sup>(2)</sup></b> |         | 0,87   | 0,85  | 0,85  | 0,87  | 0,85  | 0,85  |
| <b>Maximum operating power input<sup>(2)</sup></b>         |         | kW   | 41    | 45    | 51    | 55    | 68    |
| <b>Nominal unit operating current draw<sup>(3)</sup></b>   |         | A  | 49,5  | 54,3  | 63,6  | 66    | 72,4  |
| <b>Maximum operating current draw (Un)<sup>(4)</sup></b>   |         | A  | 69,6  | 76,2  | 87    | 92,8  | 101,6 |
| <b>Maximum operating current draw (Un-10%)*</b>            |         | A  | 77,3  | 84,7  | 96,7  | 103,1 | 112,9 |
| <b>Customer-side unit power reserve</b>                    |         | Customer reserve at the 24 V control power circuit |       |       |       |       |       |
| <b>Short-circuit stability and protection</b>              |         | See table below "Short-circuit stability current"  |       |       |       |       |       |

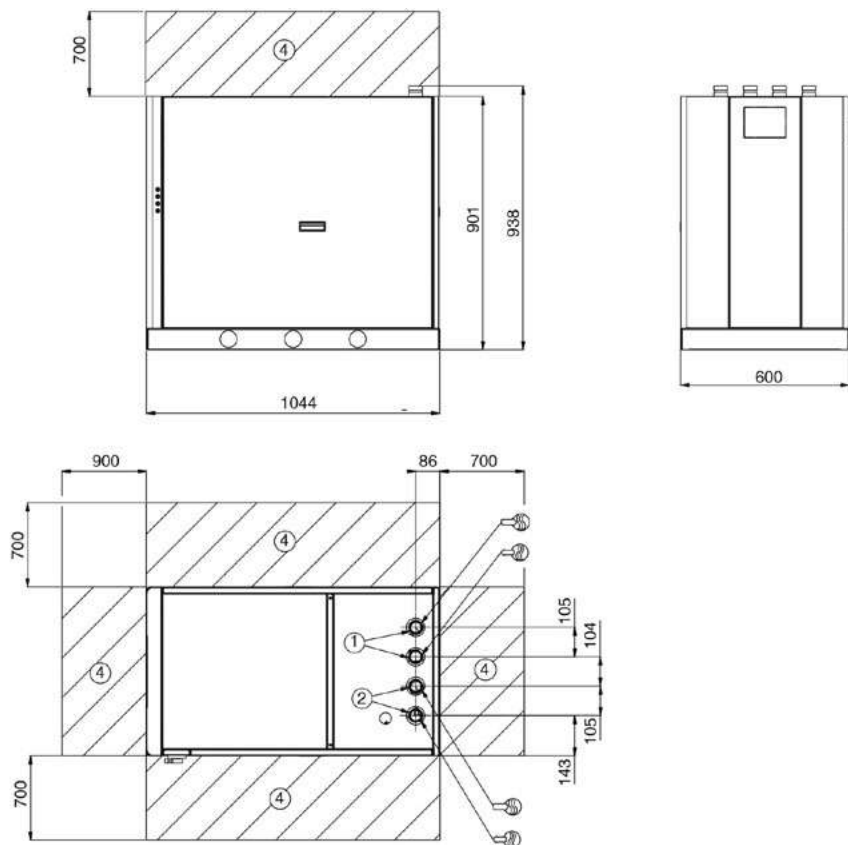
- (1) Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + locked rotor current or limited start-up current of the largest compressor).
- (2) Maximum power input at the unit operating limits.
- (3) Values obtained at the following conditions: evaporator entering/leaving water temperature 12 °C/7 °C, condenser entering/leaving water temperature 45 °C.
- (4) Maximum unit operating current at maximum unit power input and 400 V.
- \* Maximum unit operating current at maximum unit power input and 360 V.

## DIMENSIONS/CLEARANCES

### 30WG 020-045 - standard unit



### 30WG 020-045 - unit with top connections (option 274)



#### Legend

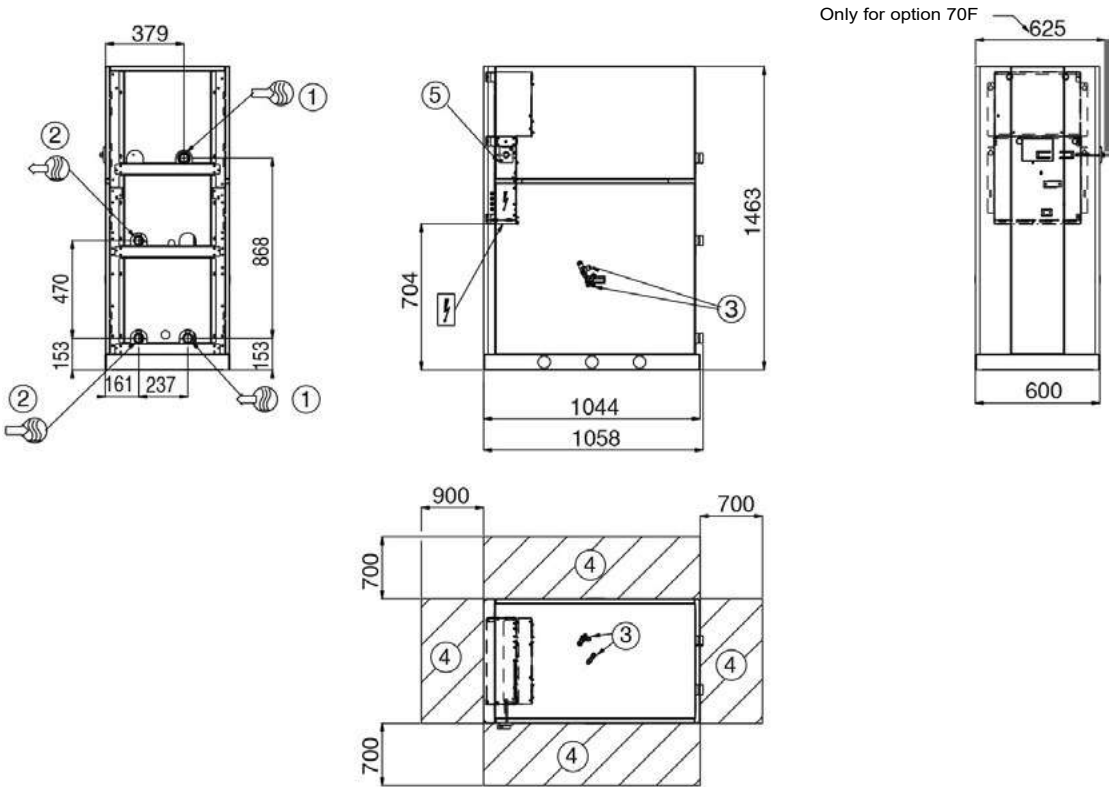
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

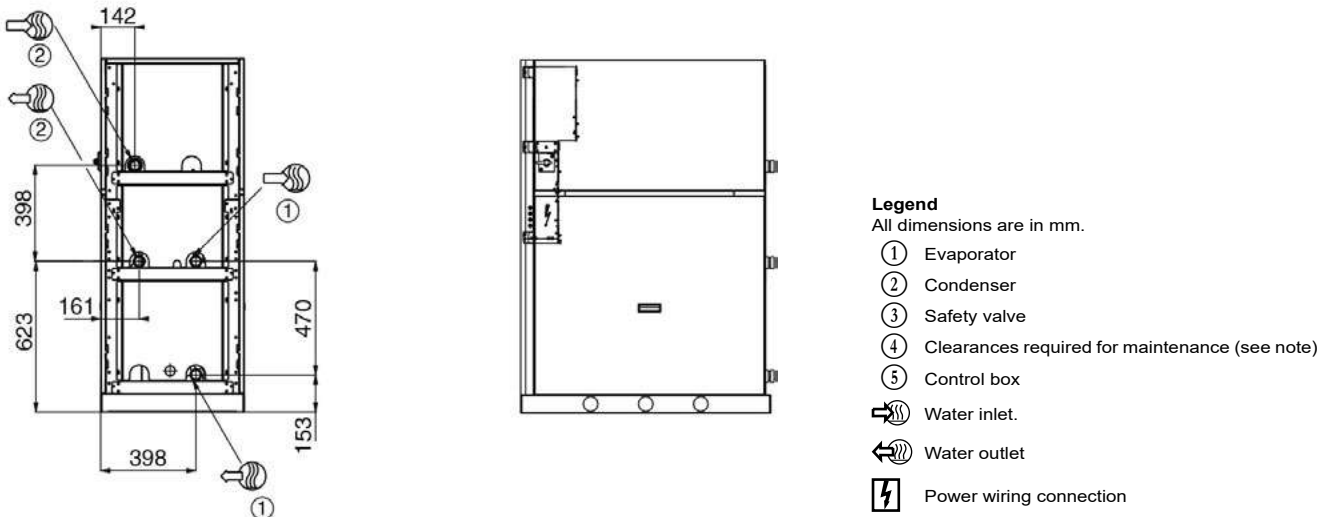
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

# DIMENSIONS/CLEARANCES

## 30WG 020-045 - unit with evaporator hydraulic module (option 116)



## 30WG 020-045 - unit with condenser hydraulic module (option 270)

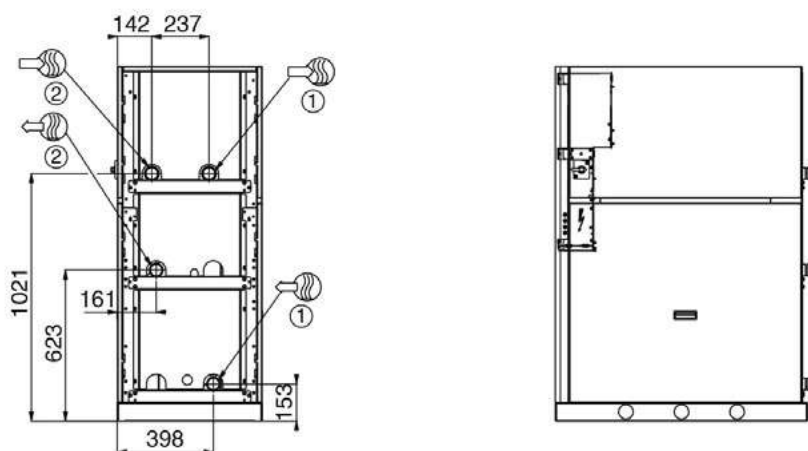


**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

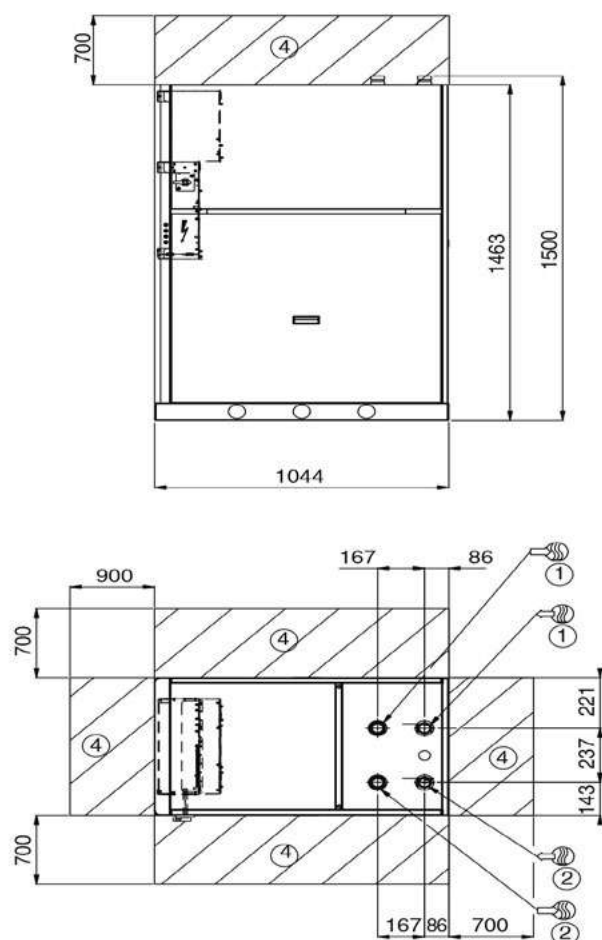


## DIMENSIONS/CLEARANCES

### 30WG 020-045 - unit with evaporator/condenser hydraulic modules (options 116 + 270)



### 30WG 020-045 - unit with hydraulic module and top connections (options 116 + 274 or 270 + 274 or 116 + 270 + 274)



#### Legend

All dimensions are in mm.

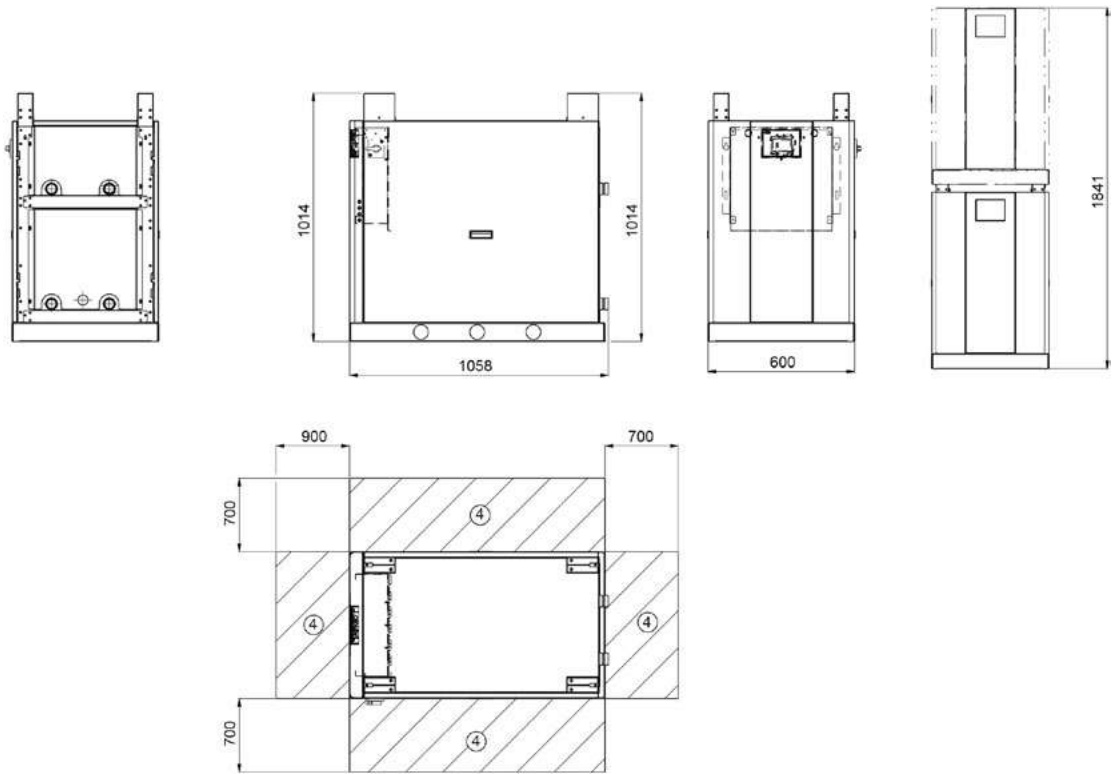
- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

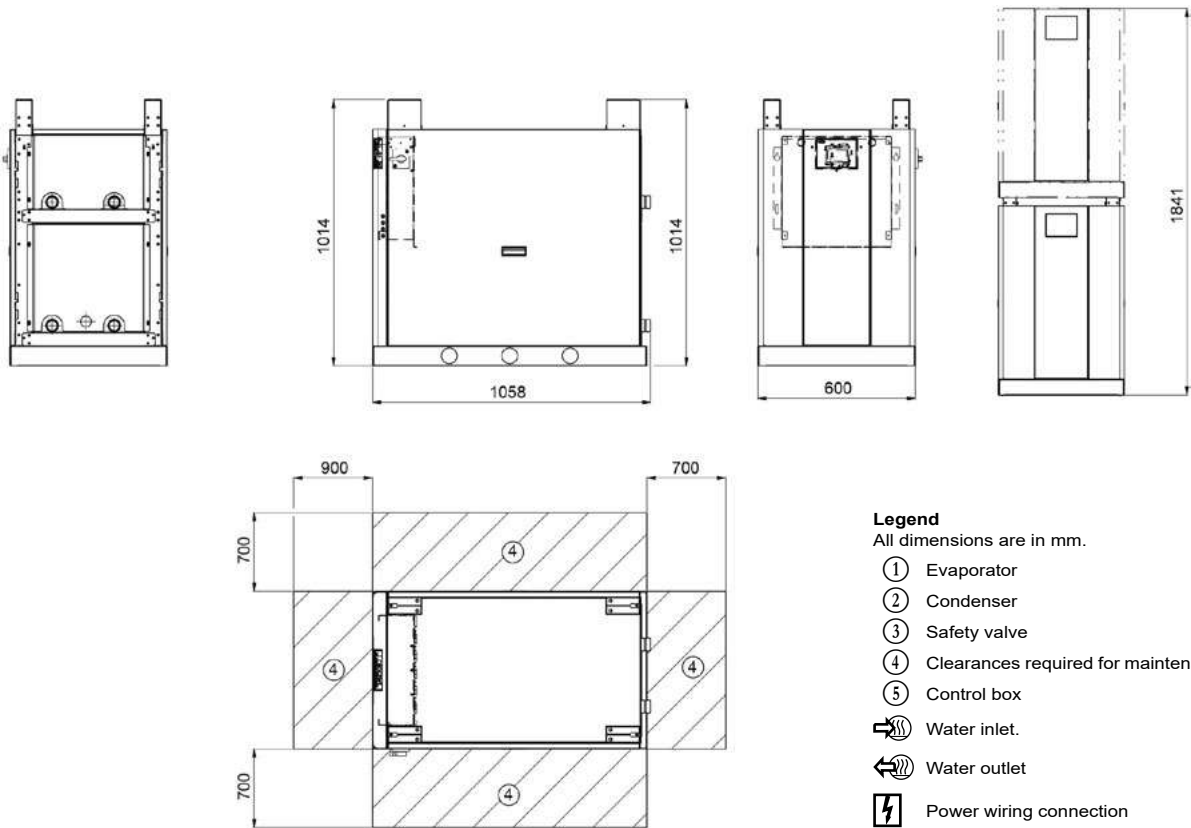
## DIMENSIONS/CLEARANCES

### 30WG 020-045 - stackable unit (option 273)

**NOTE:** The water and electrical connections are identical to those of the standard unit.



### 30WG 050-090 - standard unit



#### Legend

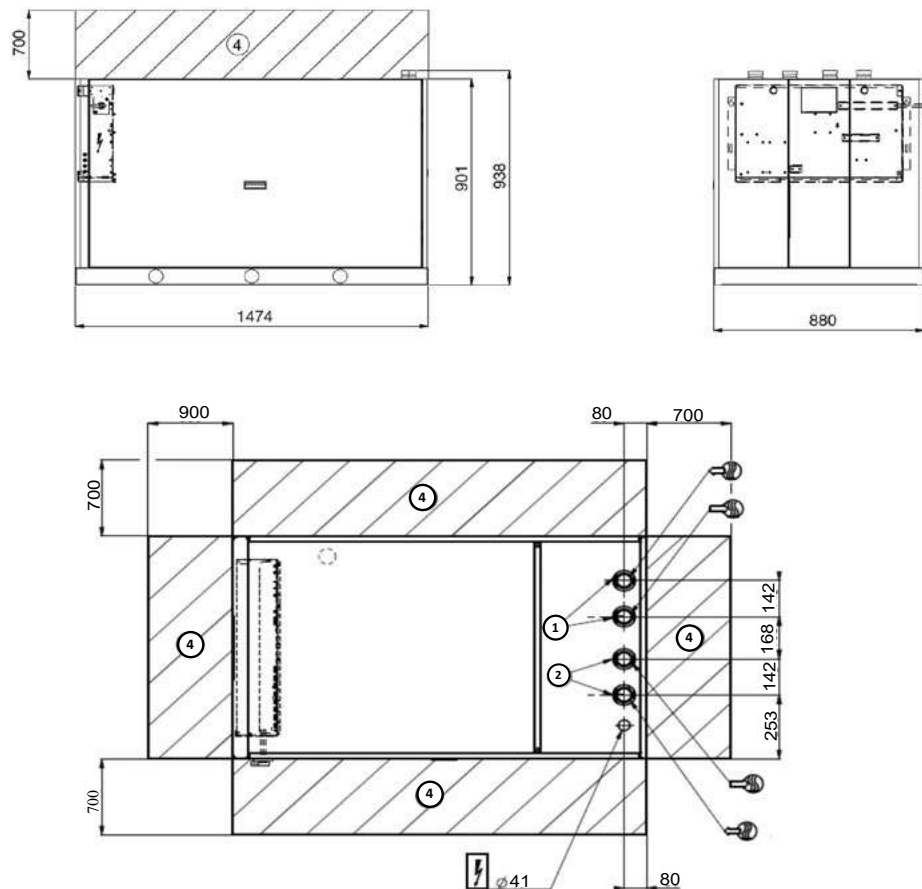
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- ⬇️ Water inlet.
- ⬆️ Water outlet
- ⚡ Power wiring connection

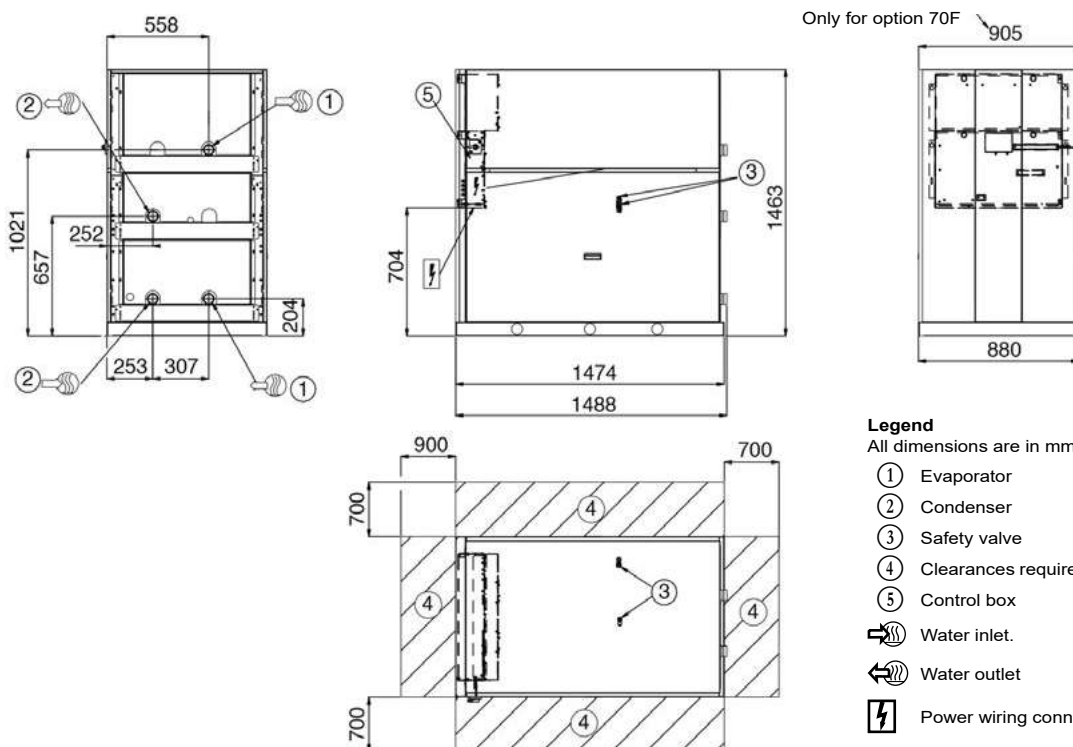
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WG 050-090 - unit with top connections (option 274)



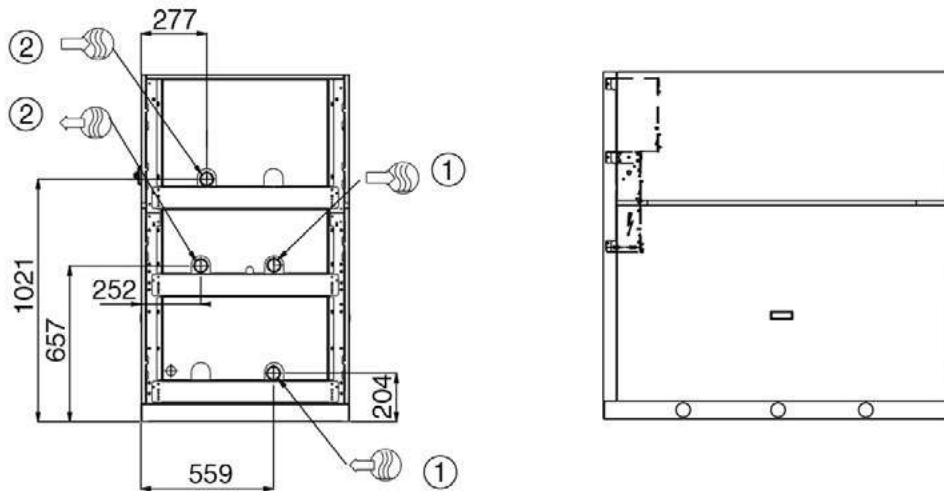
### 30WG 050-090 - unit with evaporator hydraulic module (option 116)



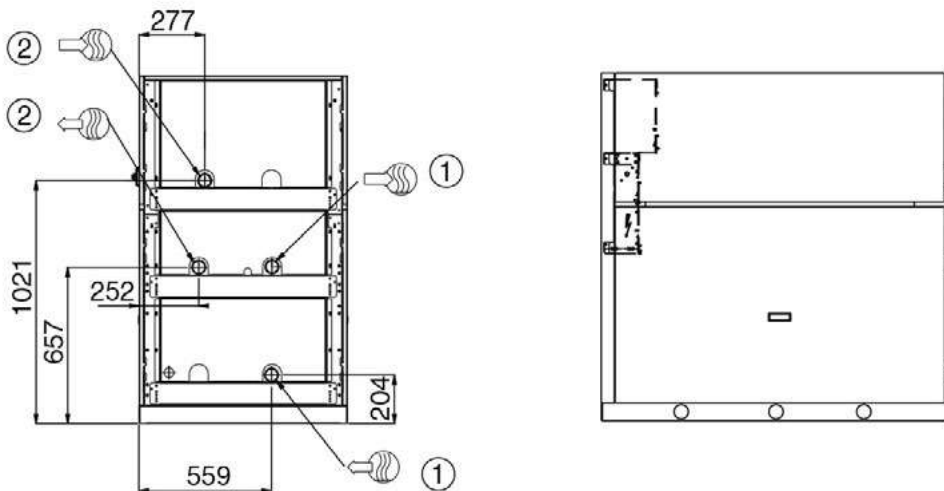
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WG 050-090 - unit with condenser hydraulic module (option 270)



### 30WG 050-090 - unit with evaporator/condenser hydraulic modules (options 116 + 270)



#### Legend

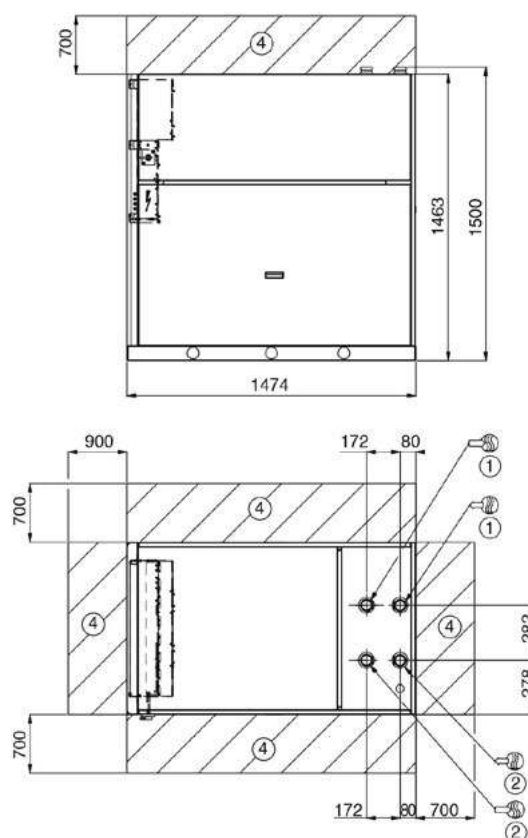
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

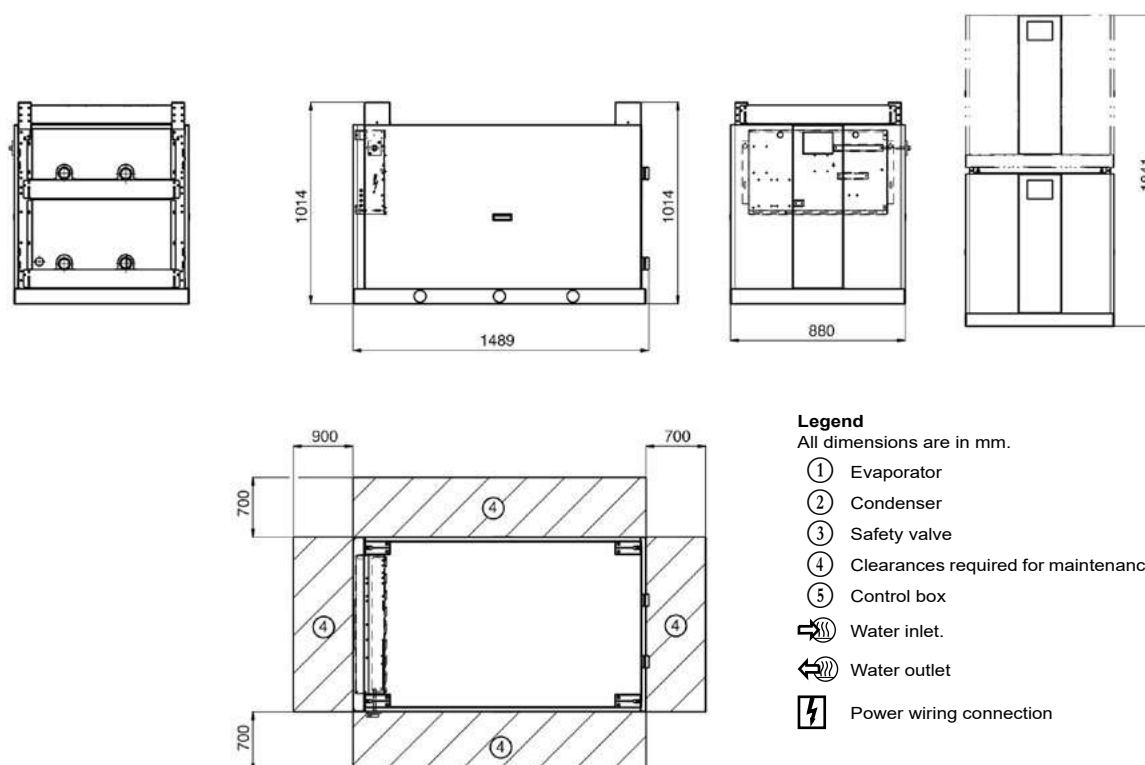
## DIMENSIONS/CLEARANCES

**30WG 050-090 - unit with hydraulic module and top connections (options 116 + 274 or 270 + 274 or 116 + 270 + 274)**



**30WG 050-090 - stackable unit (option 273)**

**NOTE:** The water and electrical connections are identical to those of the standard unit.



### Legend

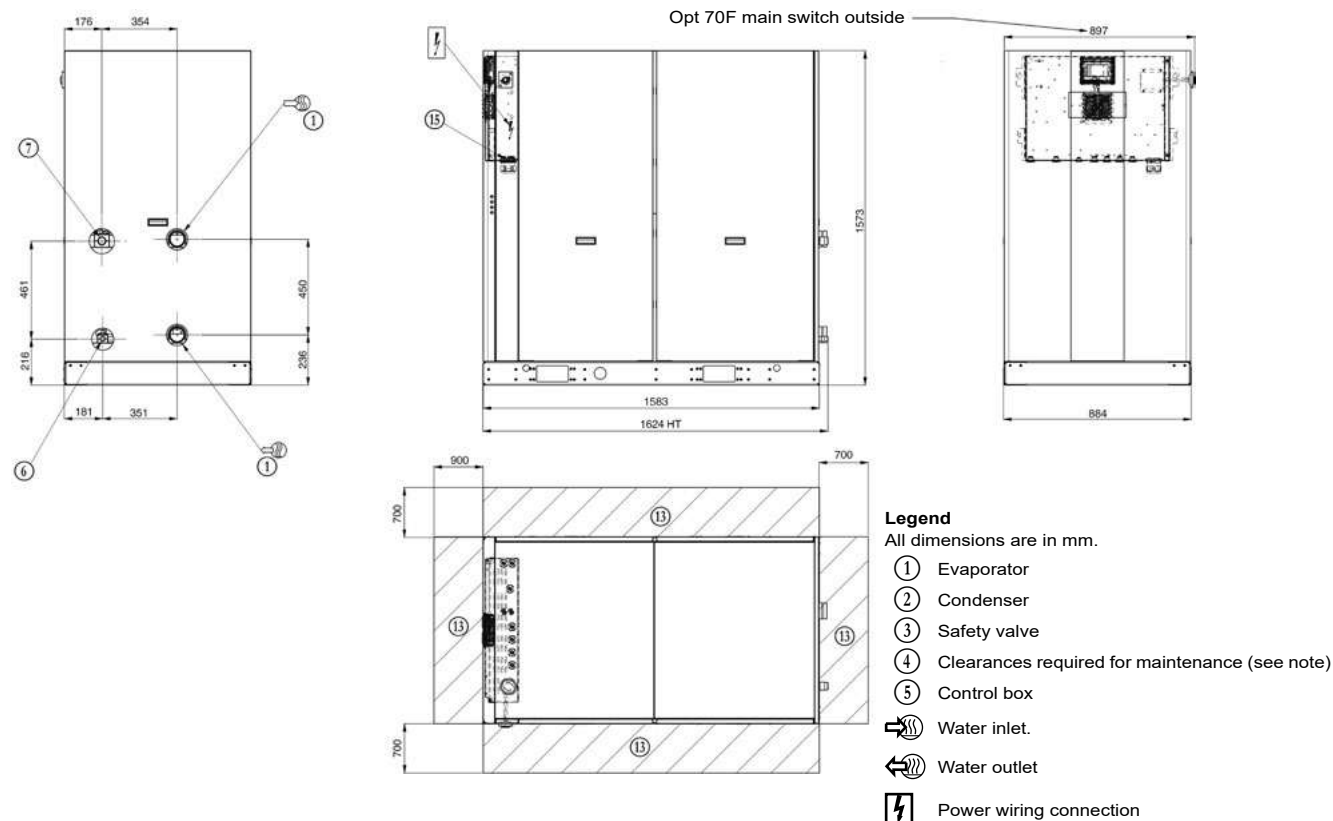
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- ➡ Water inlet.
- ➡ Water outlet
- ⚡ Power wiring connection

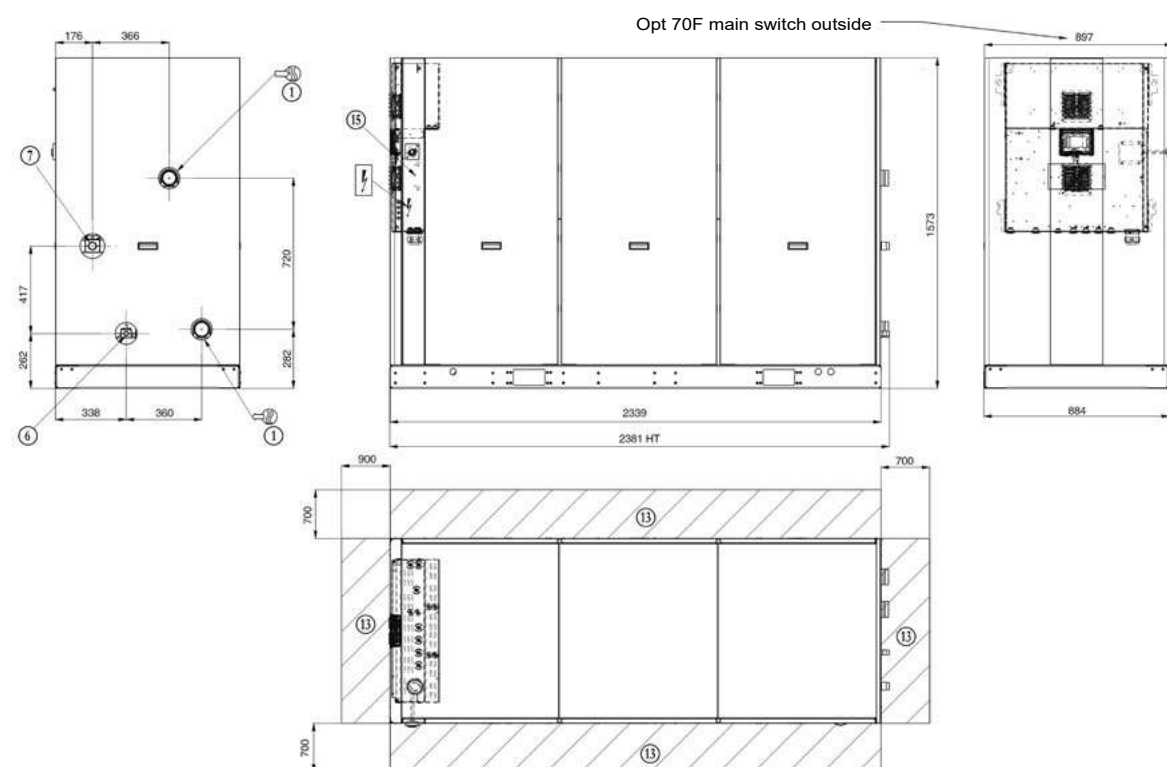
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WGA 110-140 - Standard unit



### 30WGA 110-140 - Unit with hydraulic module (option 116)

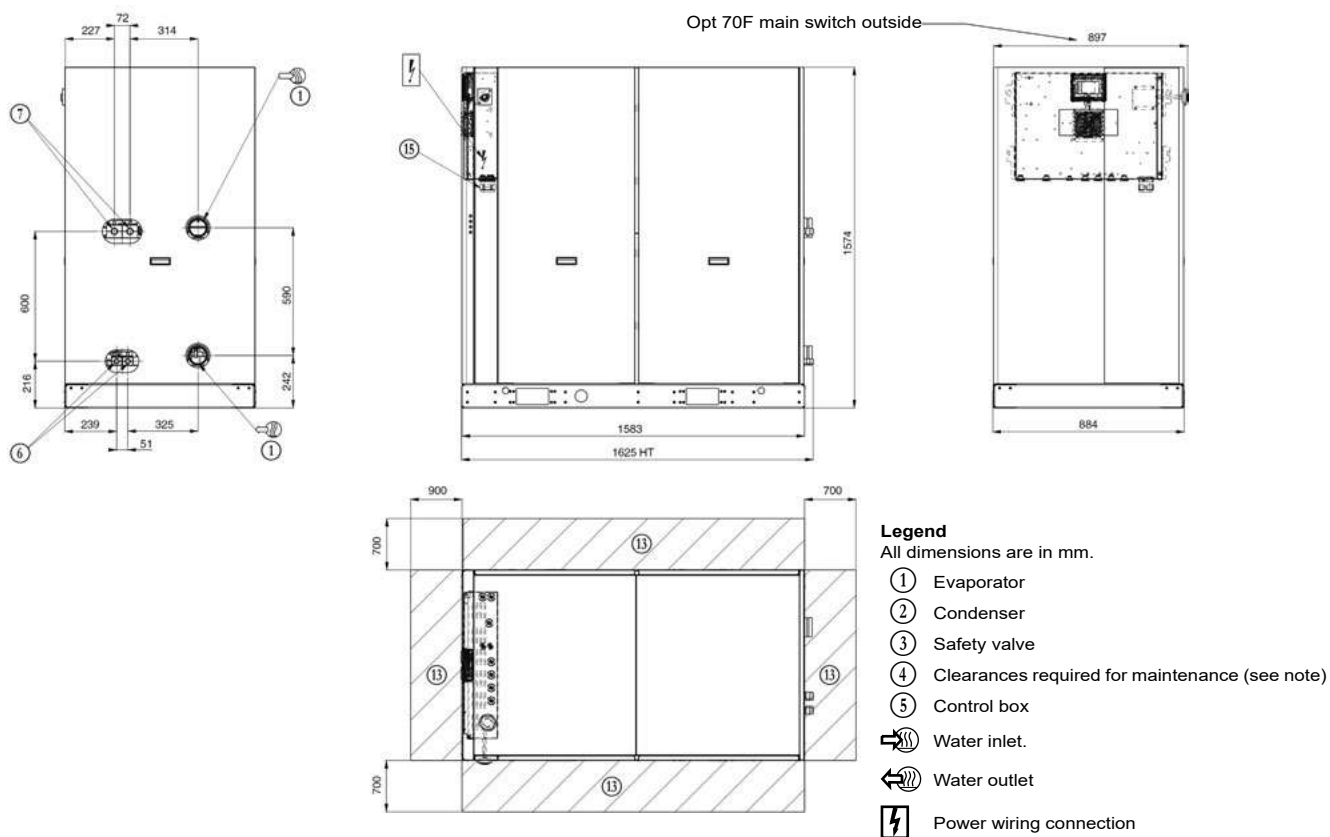


**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

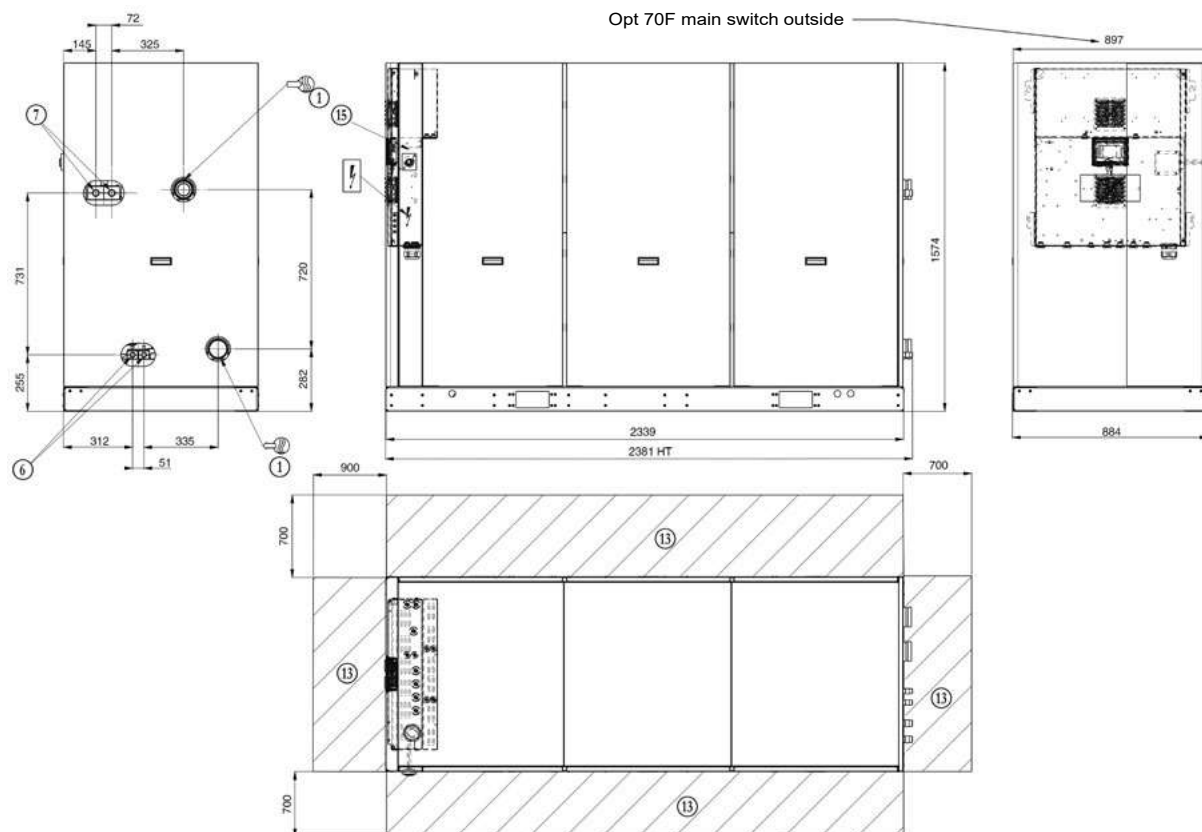


## DIMENSIONS/CLEARANCES

### 30WGA 150-190 - Standard unit



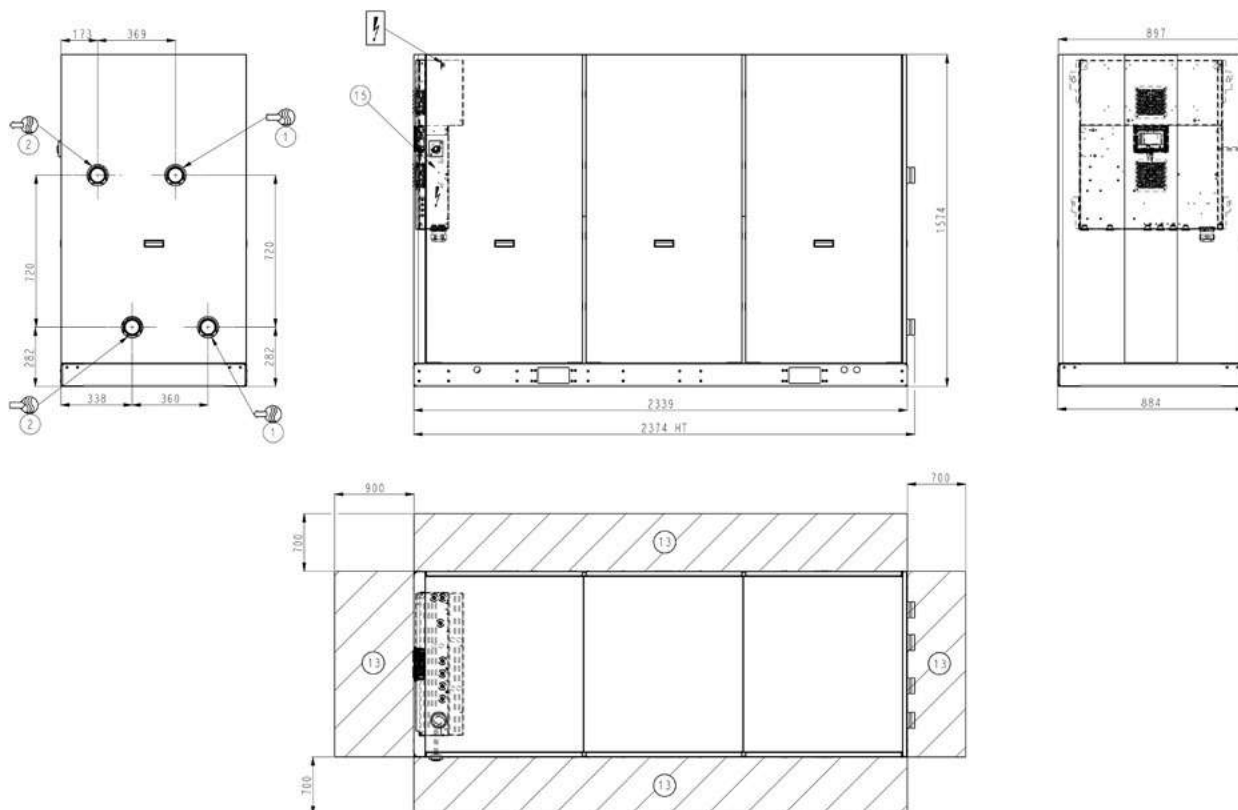
### 30WGA 150-190 - Unit with hydraulic module (option 116)



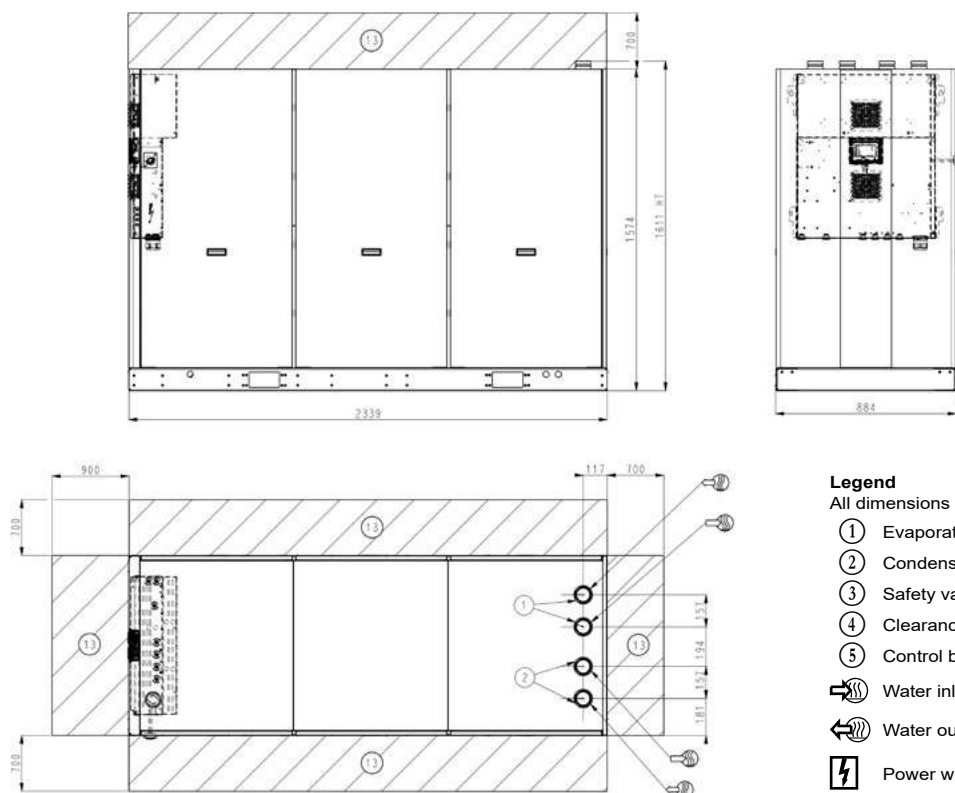
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WG 110-140 - unit with hydraulic module (option 116-270)






**30WG 110-140 - unit with hydraulic module and top connections (option 116-270 and 274)**



### Legend

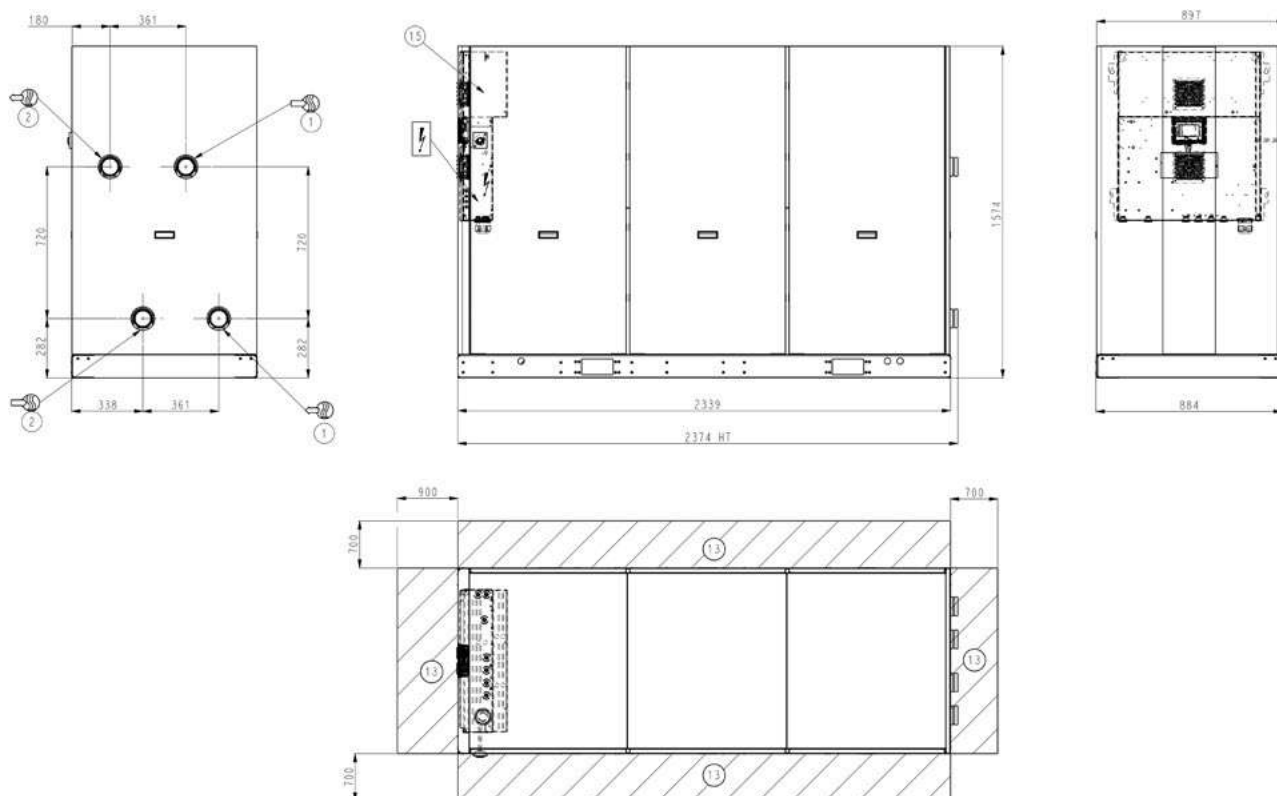
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
-  Water inlet.
-  Water outlet
-  Power wiring connection

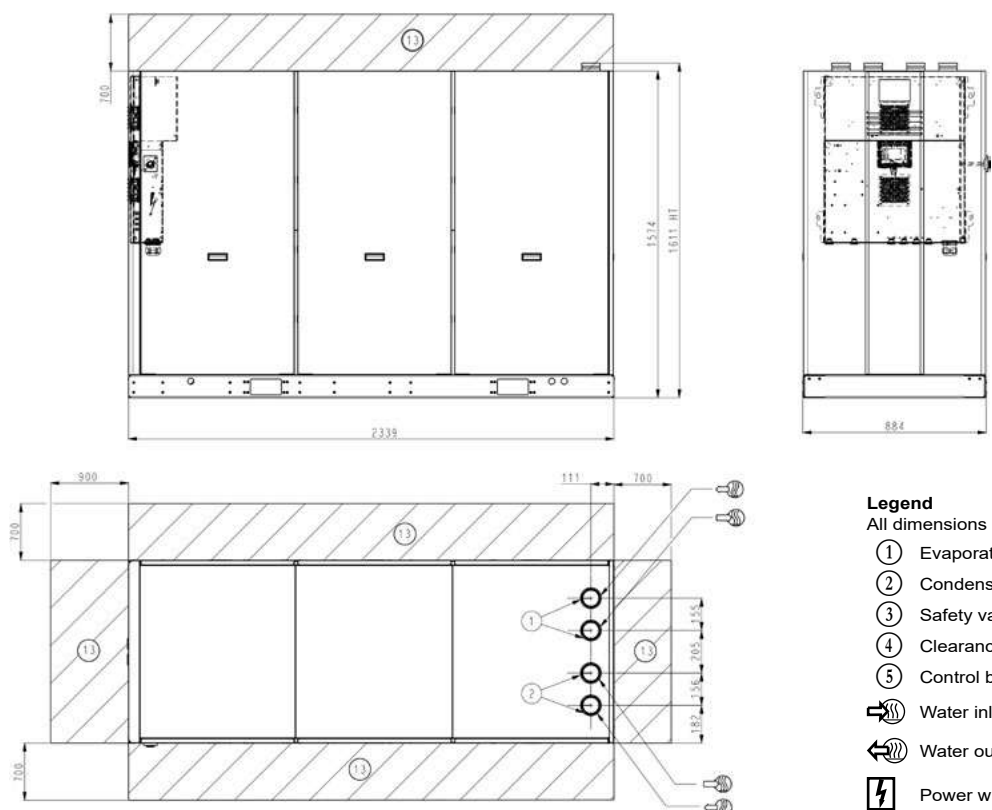
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WG 150-190 - unit with hydraulic module (option 116-270)



### 30WG 150-190 - unit with hydraulic module and top connections (option 116-270 and 274)



#### Legend

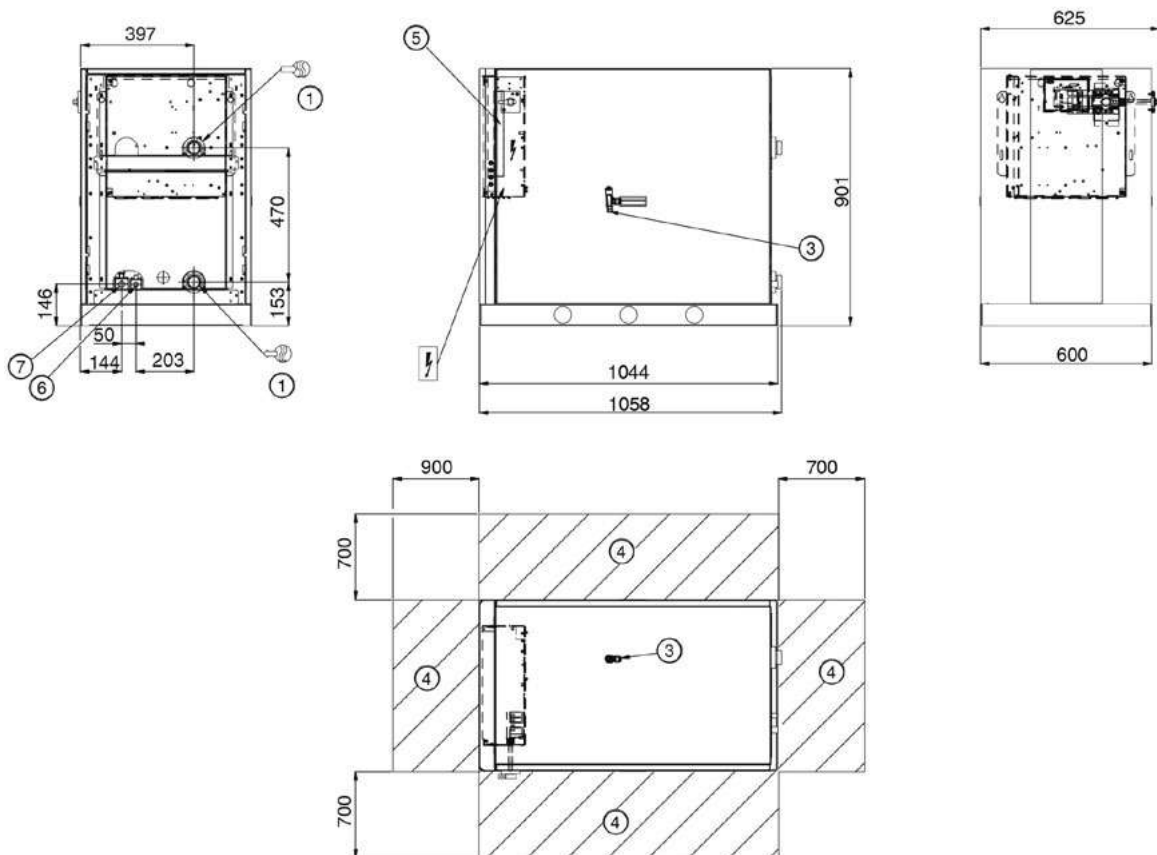
All dimensions are in mm.

- ① Evaporator
- ② Condenser
- ③ Safety valve
- ④ Clearances required for maintenance (see note)
- ⑤ Control box
- Water inlet.
- Water outlet
- Power wiring connection

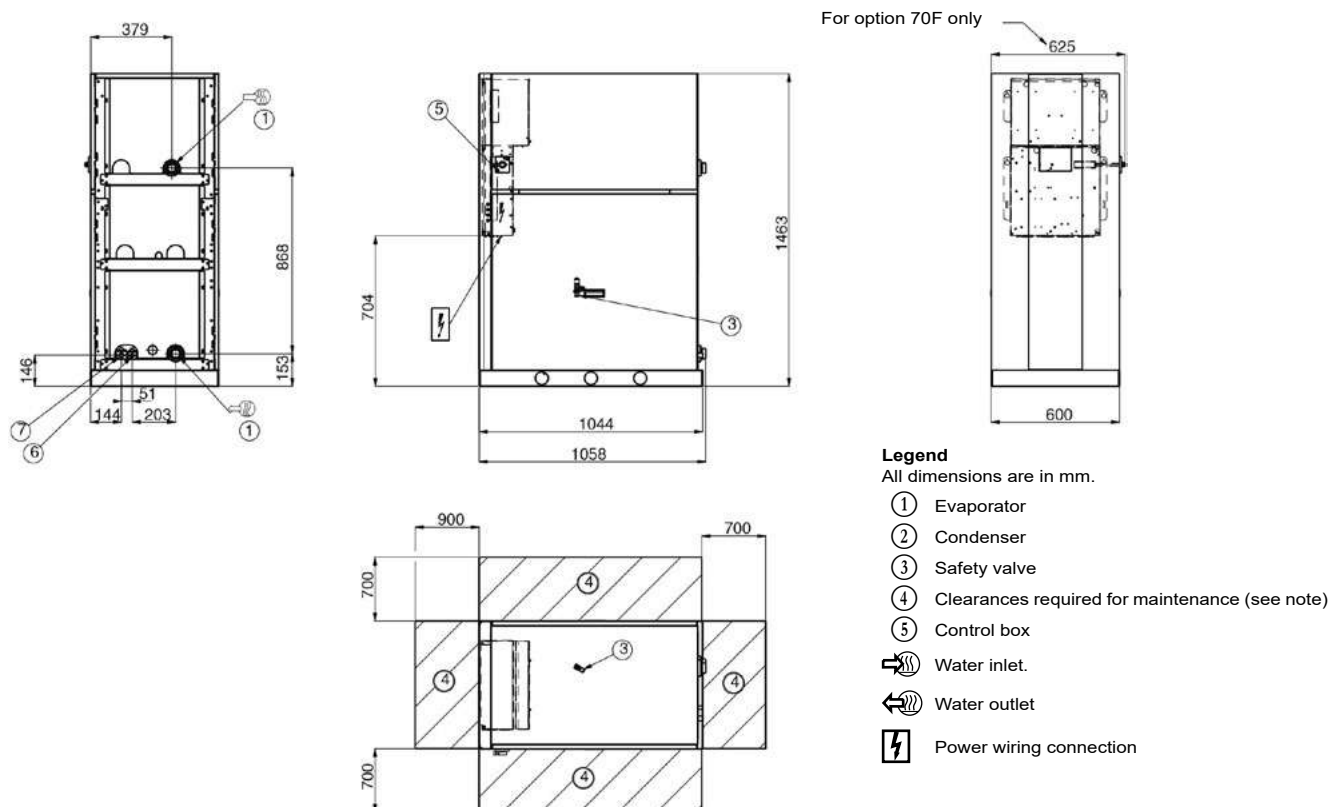
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WGA 020-045 - standard unit



### 30WGA 020-045 - unit with evaporator hydraulic module (option 116)

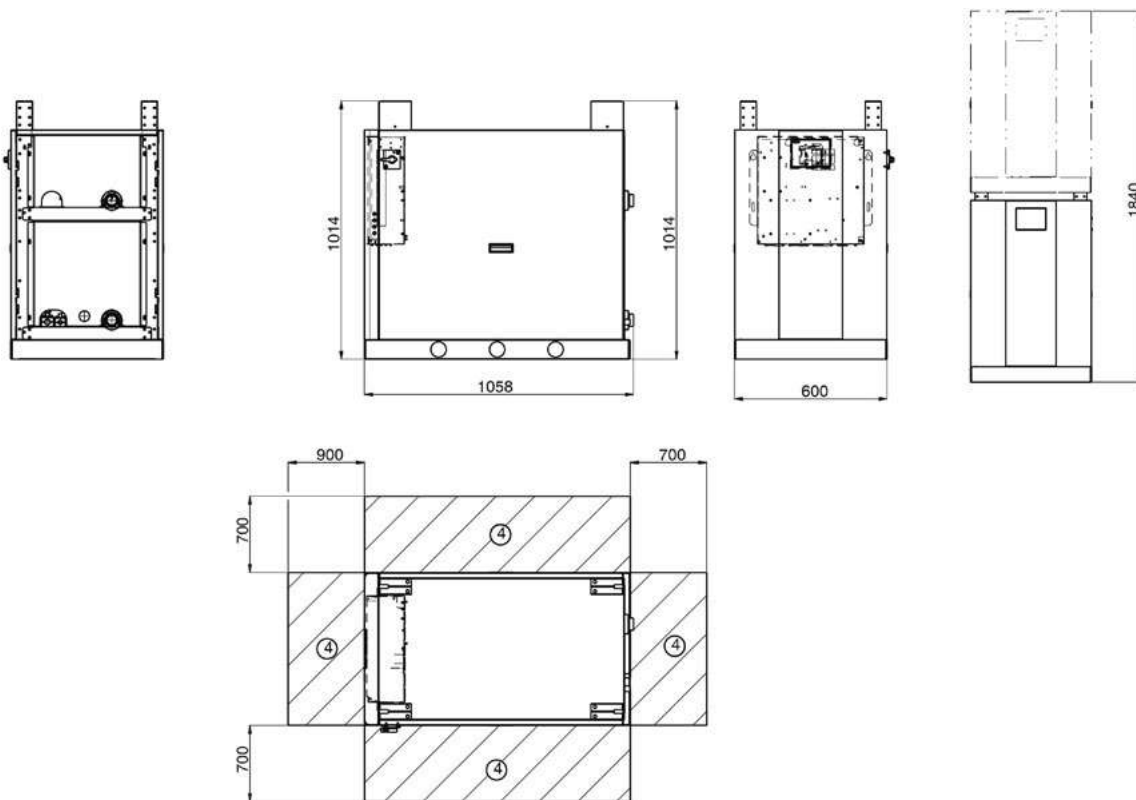


**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

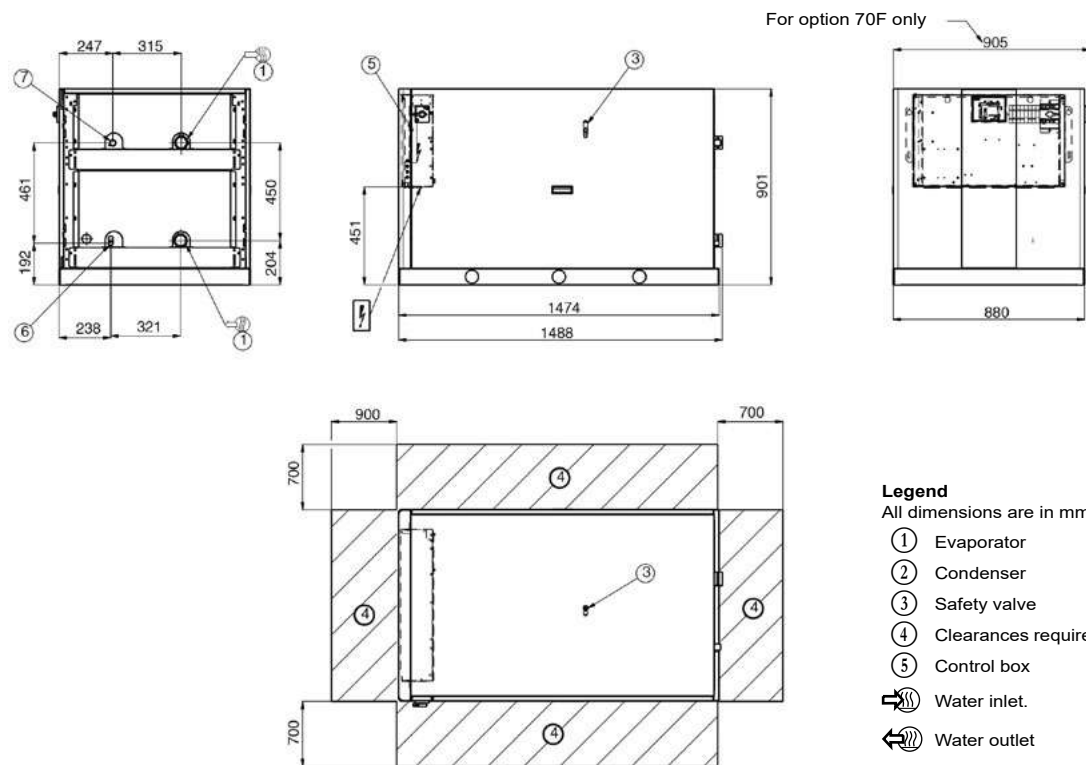
## DIMENSIONS/CLEARANCES

### 30WGA 020-045 - stackable unit (option 273)

**NOTE:** The water and electrical connections are identical to those of the standard unit.



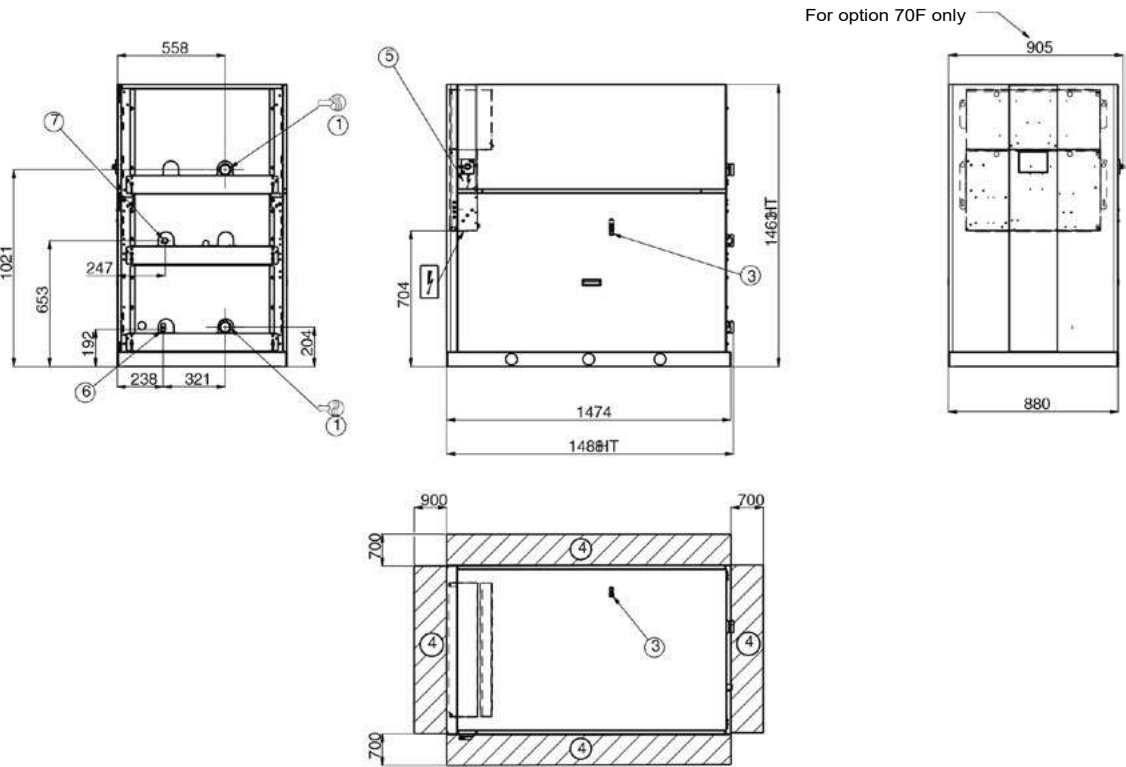
### 30WGA 050-090 - standard unit



**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

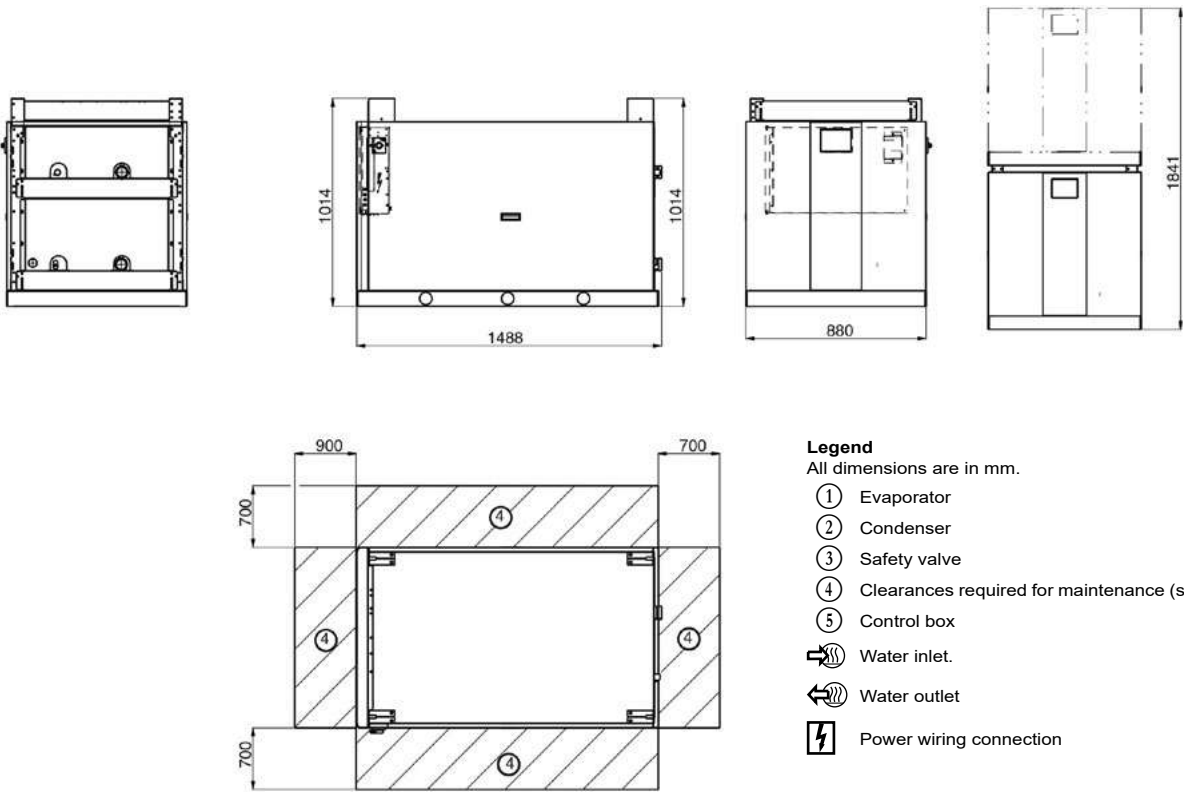
# DIMENSIONS/CLEARANCES

## 30WGA 050-090 - unit with evaporator hydraulic module (option 116)



## 30WGA 050-090 - stackable unit (option 273)

**NOTE:** The water and electrical connections are identical to those of the standard unit.

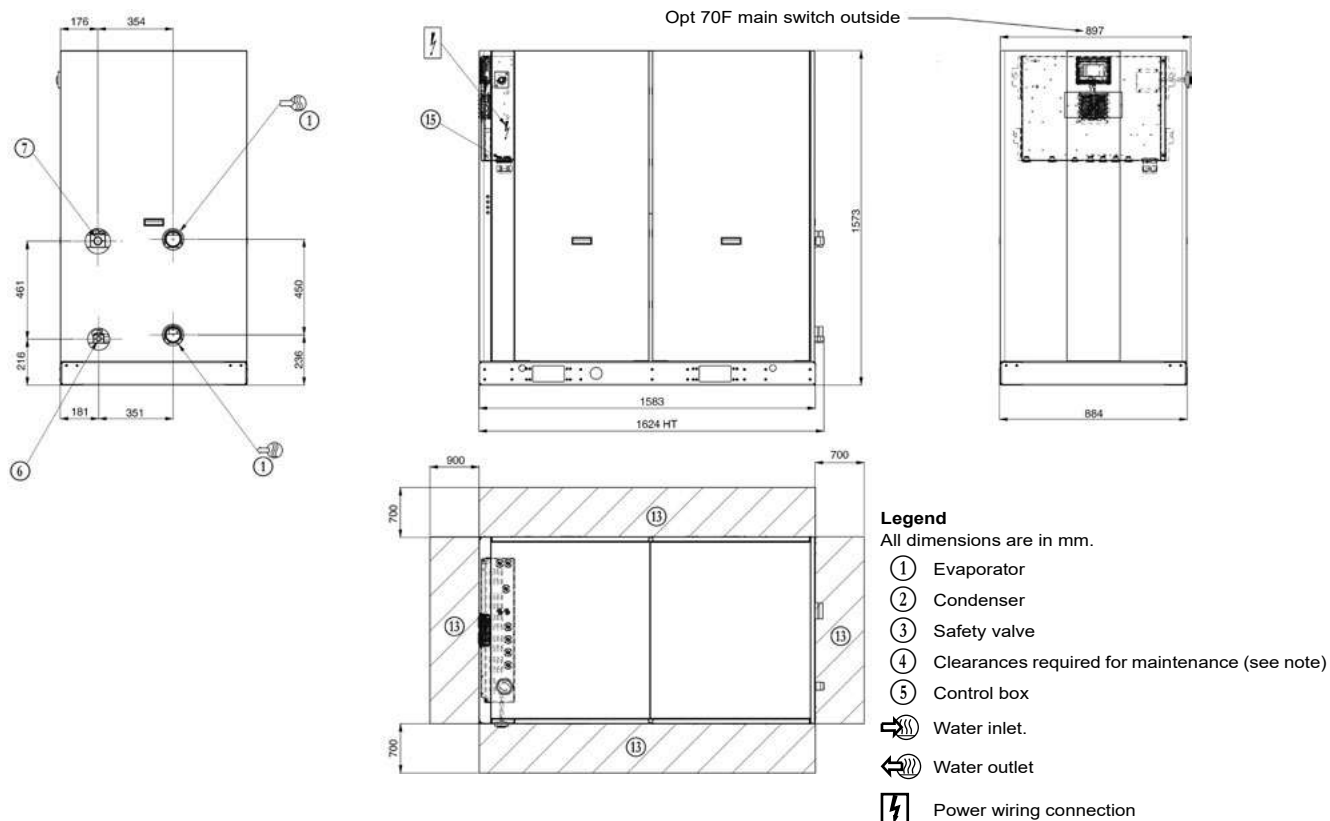


**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

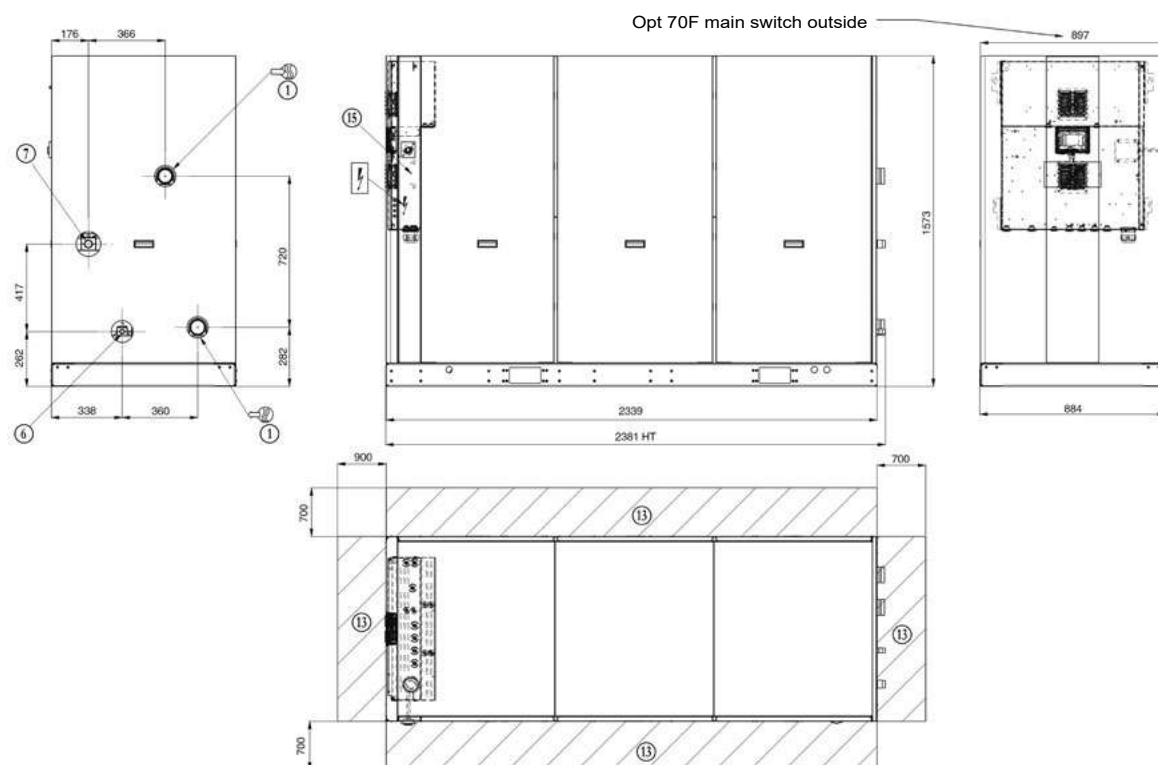


## DIMENSIONS/CLEARANCES

### 30WGA 110-140 - Standard unit



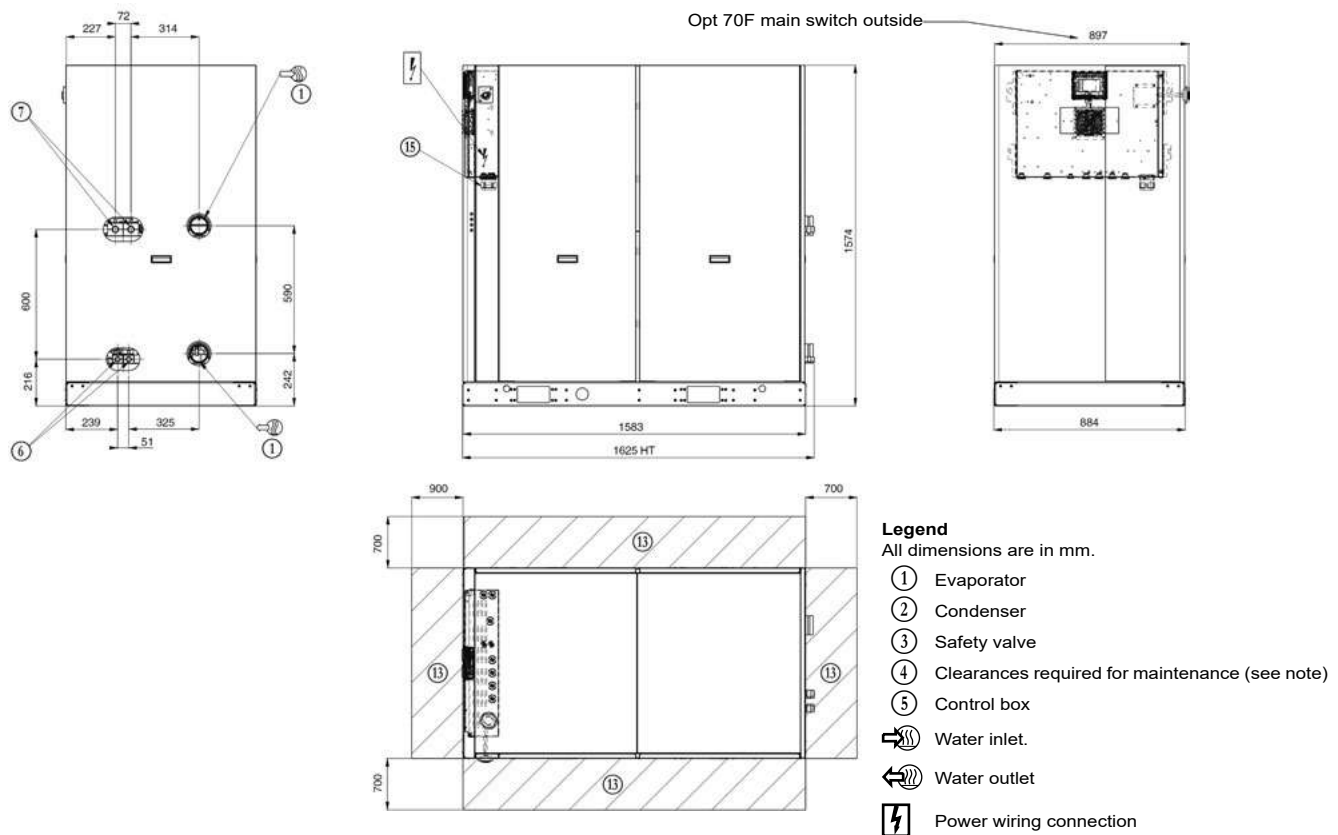
### 30WGA 110-140 - Unit with hydraulic module (option 116)



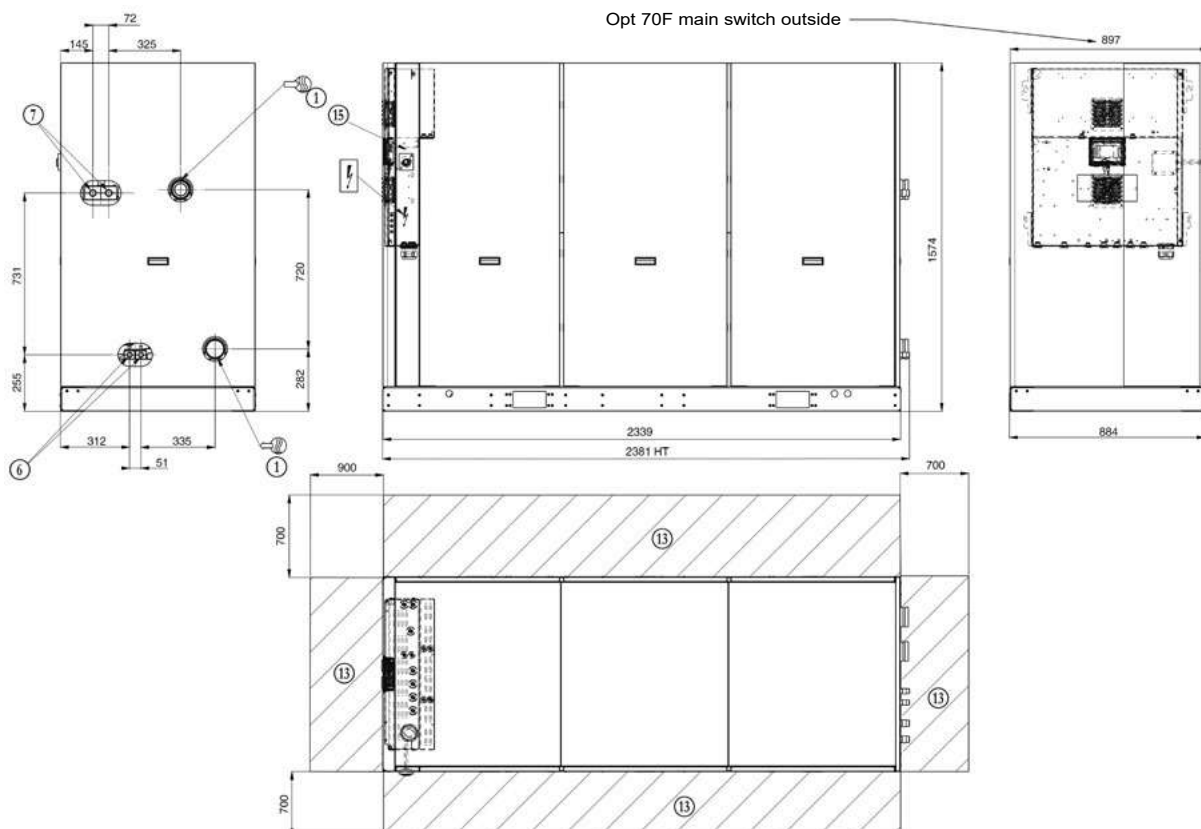
**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.

## DIMENSIONS/CLEARANCES

### 30WGA 150-190 - Standard unit



### 30WGA 150-190 - Unit with hydraulic module (option 116)



**NOTE:** Non-contractual drawings. Refer to the certified dimensional drawings available on request, when designing an installation.



## WATER-SOURCED SCREW HEAT PUMPS



Low energy consumption

High reliability

Easy and fast installation

Low operating sound levels

Environmental care

## 30XWH/30XWHP

**AQUAFORCE**

Nominal heating capacity 317-1989 kW

Nominal cooling capacity 273-1756 kW

The 30XWH/30XWHP liquid chillers are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality.

The 30XWH/30XWHP liquid chillers are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness. They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- Refrigerant R134a
- Flooded heat exchangers that are mechanically cleanable
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages

To meet to all environmental and economic requirements, the 30XWH/30XWHP is available in two efficiency classes:

- Entry-level efficiency 30XWH/30XWHP units that offer an optimised balance of technical and economical aspects,
- Premium-efficiency 30XWHP units that offer unequalled energy efficiency to satisfy the most stringent demands of building owners wanting to reduce operating costs to the minimum.

The 30XW Aquaforce range is also split into two versions:

- 30XW for air conditioning and refrigeration applications
- 30XWH for heating applications

As standard, the unit can provide an evaporator leaving temperature down to 3,3°C (-12°C optional), and when operating as a heat pump, it can deliver up to 50°C (63°C optional) on the condenser side.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CUSTOMER BENEFITS

### Low energy consumption

- SEPR up to 9,1 and SEER up to 7,7
- The high energy efficiency is reached through:
  - Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
  - Economizer system with electronic expansion device for increased cooling capacity (30XW-P).

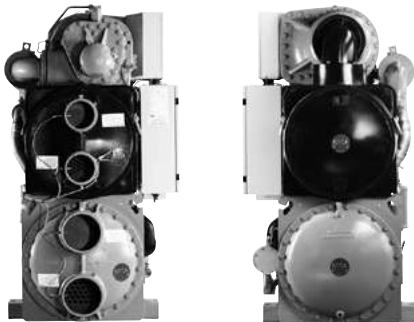
### Low operating sound levels

- Standard unit features include:
  - Silencers on the compressors discharge line.
  - Silencers on the economiser return line.
  - Acoustic insulation on the components that are most subjected to radiated noise.
  - Option 257 further reduces the global unit sound level.

### Easy and fast installation

- Compact design
  - The 30XW units are designed to offer the most compact dimensions on the market.
  - With a width of approximately 1 m up to 1600 kW the units can pass through standard door openings and only require minimum floor space in the plant room.

**Compact, accessible unit - side view -  
sizes up to 1600 KW**



- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V)
- Simplified hydraulic connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Environmental care

- R-134a refrigerant
  - HFC refrigerant with zero ozone depletion potential
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### High reliability and easy servicing

- The 30XW units offer increased global performance as well as Carrier's acclaimed product quality and reliability.
- Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuit
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features :
  - An intuitive and user-friendly, coloured, 4.3" interface
  - 1 languages available on choice: DE, EN, ES, FR, T, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features :
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote Management (Standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The 30XW/P also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
  - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output ( -1 gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.



## TECHNICAL INSIGHTS

### 06T screw compressor



The new generation of the Carrier 06T screw compressors benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high water temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.

The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

## OPTIONS

| Options                                  | No.  | Description  | Advantages  | Use                      |
|--|------|--|---|--------------------------|
| Low Brine with turbulators down to -15°C | 6    | Redesigned evaporator including turbulators to allow chilled brine solution production with low pressure drops on the entire negative application range, down to -15°C (including turbulators, extra insulation and algorithms). | Covers specific applications such as ice storage and industrial processes   | -0254-P1762              |
| Light-brine solution, down to -3°C       | 8    | Implementation of new control algorithms and redesigned evaporator to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements   | -0254-P1762              |
| IP44 electrical protection level         | 20   | Control box tightness reinforced<br>Electrical box enclosure and outside electrical component following IEC 60529 standard   | Permits unit installation in more severe environments   | -0254-P1762              |
| 90-10 Copper-Nickel condensers           | 33   | - Condenser tubes 90-10 Cu/Ni.<br>- Condenser tube sheets clad with 90-10 Cu/Ni.<br>- Waterboxes not treated against corrosion.  | Improved resistance to corrosion  | -0254-P1762              |
| Unit supplied in two assembled parts     | 51   | The unit is equipped with flanges that allow disassembly of the unit on site   | Facilitates installation in plant rooms with limited access   | -1652--1702, P1612-P1762 |
| Master/slave operation                   | 58   | Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel  | Optimised operation of two units connected in parallel operation with operating time equalisation   | -0254-P1762              |
| Single power connection point            | 81   | Unit power connection via one main supply connection   | Quick and easy installation   | -1002--1702, P1012-P1762 |
| No disconnect switch                     | 82A  | Unit without disconnect switch, but with short-circuit protection device   | Permits an external electrical disconnect system for the unit (field-supplied), while ensuring unit short circuit protection  | -0254-P1762              |
| Evap. single pump power/control circuit  | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | -0254--1252, P0512-P1314 |
| Evap. dual pumps power/control circuit   | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | -0254--1252, P0512-P1314 |
| Cond. single pump power/control circuit  | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | -0254--1252, P0512-P1314 |
| Condenser insulation                     | 86   | Thermal condenser insulation   | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications)   | -0254-P1762              |
| Service valve set                        | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve   | Allow isolation of various refrigerant circuit components for simplified service and maintenance  | -0254-P1762              |
| Evaporator with one pass less            | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.   | Easy to install, depending on site. Reduced pressure drops  | -0254-P1762              |
| Condenser with one pass less             | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.   | Easy to install, depending on site. Reduced pressure drops  | -0254-P1762              |
| 21 bar evaporator                        | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column evaporator side (typically high buildings)   | -0254-P1762              |
| 21 bar condenser                         | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column condenser side (typically high buildings)  | -0254-P1762              |
| Reversed evaporator water connections    | 107  | Evaporator with reversed water inlet/outlet  | Easy installation on sites with specific requirements   | -0254-P1762              |
| Reversed condenser water connections     | 107A | Condenser with reversed water inlet/outlet   | Easy installation on sites with specific requirements   | -0254-P1762              |
| Lon gateway                              | 148D | Bi-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | -0254-P1762              |
| Bacnet over IP                           | 149  | Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | -0254-P1762              |
| Modbus over IP and RS485                 | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | -0254-P1762              |
| High condensing temperature              | 150  | Optimized compressor for operation at high condensing temperature  | Increased condenser leaving water temperature up to 63°C. Allows applications with high condensing temperature (heat pumps, installations with not generously sized dry-coolers or more generally, installations with dry-coolers in hot climate). NOTE: to ens | -0254--0354, P0512-P1762 |

## OPTIONS

| Options                                      | No.  | Description   | Advantages   | Use         |
|--|------|---|--|-------------|
| Condensing temperature limitation            | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized  | -0254-P1762 |
| Control for low cond. temperature            | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | -0254-P1762 |
| Dry-cooler control                           | 154  | Adaptation of the control box for communication with the dry-cooler via a bus.<br>For dry cooler need to select the cabinet with option control cabinet manage by the chiller control | Easy system management, extended control capabilities of a remote dry-cooler   | -0254-P1762 |
| Energy Management Module                     | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | -0254-P1762 |
| 7" user interface                            | 158A | Control supplied with a 7 inch colour touch screen user interface   | Enhanced ease of use.  | -0254-P1762 |
| Input contact for Refrigerant leak detection | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)                                    | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | -0254-P1762 |
| Dual relief valves on 3-way valve            | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator  | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4   | -0254-P1762 |
| Compliance with Swiss regulations            | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications  | Conformance with Swiss regulations   | -0254-P1762 |
| Compliance with Russian regulations          | 199  | EAC certification   | Conformance with Russian regulations   | -0254-P1762 |
| Compliance with Australian regulations       | 200  | Unit approved to Australian code  | Conformance with Australian regulations  | -0254-P1762 |
| Low noise level                              | 257  | Evaporator sound insulation   | 3 dB(A) quieter than standard unit   | -0402-P1762 |
| Welded evaporator connection kit             | 266  | Victaulic piping connections with welded joints   | Easy installation  | -0254-P1762 |
| Welded condenser water connection kit        | 267  | Victaulic piping connections with welded joints   | Easy installation  | -0254-P1762 |
| Flanged evaporator water connection kit      | 268  | Victaulic piping connections with flanged joints  | Easy installation  | -0254-P1762 |
| Flanged condenser water connection kit       | 269  | Victaulic piping connections with flanged joints  | Easy installation  | -0254-P1762 |
| Thermal compressor insulation                | 271  | The compressor is covered with a thermal insulation layer   | Prevents air humidity to condensate on the compressor surface  | -0254-P1762 |
| 230V electrical plug                         | 284  | 230V AC power supply source provided with plug socket and transformer (180 VA, 0,8Amps)   | Permits connection of a laptop or an electrical device during unit commissioning or servicing  | -0254-P1762 |
| Free-cooling dry-cooler control              | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box  | Easy system management, Extended control capabilities to a dryccoler used in Free Cooling mode   | -0254-P1762 |
| Compliance with UAE regulation               | 318  | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590   | Compliance with ESMA standard UAE.S 5010-5:2019.   | -0254-P1762 |
| Compliance with Morocco regulation           | 327  | Specifics documents according Morocco regulation  | Conformance with Morocco regulations   | -0254-P1762 |

## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-  |         |   |         | 254   | 304   | 354   | 402   | 452   | 552   | 602   | 652   | 702   | 802  |
|--|---------|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Heating  |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Standard unit<br>Full load<br>performances*              | HW1     | Nominal capacity                          | kW      | 317   | 360   | 422   | 499   | 555   | 626   | 633   | 793   | 858   | 929  |
|  |         | COP                                       | kW/kW   | 5,96  | 5,98  | 5,93  | 5,98  | 6,04  | 5,84  | 5,81  | 6,06  | 5,96  | 5,79 |
|  | HW2     | Nominal capacity                          | kW      | 312   | 353   | 417   | 473   | 526   | 595   | 624   | 749   | 812   | 879  |
|  |         | COP                                       | kW/kW   | 4,51  | 4,50  | 4,55  | 4,54  | 4,56  | 4,42  | 4,46  | 4,54  | 4,48  | 4,40 |
| Seasonal energy<br>efficiency**                          | HW1     | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 5,98  | 6,02  | 5,99  | 6,45  | 6,60  | 6,58  | 6,31  | 6,16  | 6,15  | 6,13 |
|  |         | η <sub>s heat</sub> <sub>30/35°C</sub>    | %       | 231   | 233   | 231   | 250   | 256   | 255   | 245   | 238   | 238   | 237  |
|  |         | P <sub>rated</sub>                        | kW      | 414   | 426   | 500   | 595   | 660   | 742   | 750   | 945   | 1022  | 1095 |
| Cooling  |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Standard unit<br>Full load<br>performances*              | CW1     | Nominal capacity                          | kW      | 269   | 303   | 354   | 421   | 467   | 525   | 531   | 669   | 720   | 783  |
|  |         | EER                                       | kW/kW   | 5,25  | 5,23  | 5,17  | 5,22  | 5,28  | 5,12  | 5,11  | 5,32  | 5,23  | 5,13 |
|  | CW2     | Nominal capacity                          | kW      | 317   | 362   | 447   | 594   | 639   | 608   | 674   | 851   | 890   | 884  |
|  |         | EER                                       | kW/kW   | 6,46  | 6,25  | 6,86  | 7,04  | 6,97  | 5,84  | 6,38  | 6,55  | 6,27  | 5,68 |
| Seasonal energy<br>efficiency**                          |         | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 6,26  | 6,33  | 6,40  | 6,851 | 7,043 | 7,116 | 6,823 | 6,644 | 6,63  | 6,82 |
|  |         | η <sub>s cool</sub> <sub>12/7°C</sub>     | %       | 247   | 250   | 253   | 271   | 279   | 282   | 270   | 263   | 262   | 270  |
|  |         | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,60  | 8,16  | 8,80  | 8,12  | 8,28  | 7,72  | 7,90  | 8,83  | 8,25  | 8,01 |
| Integrated Part Load Value                               | IPLV.SI | kW/kW                                     | 6,791   | 6,845                                       | 6,850 | 6,861 | 7,165 | 7,430 | 7,110 | 7,185 | 7,168 | 7,212 |      |
| Sound levels - standard unit                             |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                         |         |   | dB(A)   | 95  | 95    | 95    | 99    | 99    | 99    | 99    | 99    | 99    | 99   |
| Sound pressure level at 1 m <sup>(2)</sup>               |         |   | dB(A)   | 78  | 78    | 78    | 82    | 82    | 82    | 82    | 82    | 82    | 82   |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                         |         |   | dB(A)   | -   | -     | -     | 96    | 96    | 96    | 96    | 96    | 96    | 96   |
| Sound pressure level at 1 m <sup>(2)</sup>               |         |   | dB(A)   | -   | -     | -     | 78    | 78    | 78    | 78    | 78    | 78    | 78   |
| Dimensions - standard unit                               |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Length   |         |   | mm      | 2724  | 2724  | 2724  | 2741  | 2741  | 2741  | 2741  | 3059  | 3059  | 3059 |
| Width  |         |   | mm      | 928   | 928   | 928   | 936   | 936   | 936   | 936   | 1040  | 1040  | 1040 |
| Height   |         |   | mm      | 1567  | 1567  | 1567  | 1692  | 1692  | 1692  | 1692  | 1848  | 1848  | 1848 |
| Operating weight <sup>(4)</sup>                          |         |   | kg      | 2017  | 2036  | 2072  | 2575  | 2575  | 2613  | 2644  | 3247  | 3266  | 3282 |
| Compressors  |         |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |      |
| Circuit A  |         |   | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1    |
| Circuit B  |         |   | -       | -   | -     | -     | -     | -     | -     | -     | -     | -     | -    |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s cool</sub><sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level.

(4) Weight shown is guideline only. Please refer to the unit nameplate.



Eurovent certified values



AHRI certified values  
30XW-only

## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-                      |                    | 254   | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 84  | 80   | 78   | 92   | 92   | 92   | 92   | 145  | 135  | 125  |
|                                    | teqCO <sub>2</sub> | 120   | 114  | 112  | 132  | 132  | 132  | 132  | 207  | 193  | 179  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Oil - standard unit</b>         |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 23,5  | 23,5 | 23,5 | 32   | 32   | 32   | 32   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 20  | 20   | 25   | 30   | 30   | 30   | 30   | 20   | 20   | 20   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 50  | 56   | 61   | 70   | 70   | 70   | 70   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 55  | 55   | 55   | 76   | 76   | 76   | 76   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-  |         |   |         | 852   | 1002  | 1052  | 1154  | 1252  | 1352  | 1452  | 1552  | 1652  | 1702 |
|--|---------|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Heating  |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Standard unit<br>Full load<br>performances*              | HW1     | Nominal capacity                          | kW      | 981   | 1185  | 1237  | 1324  | 1457  | 1557  | 1689  | 1795  | 1913  | 2001 |
|  |         | COP                                       | kW/kW   | 5,98  | 5,77  | 5,67  | 5,79  | 6,12  | 5,96  | 5,76  | 5,61  | 5,94  | 5,92 |
|  | HW2     | Nominal capacity                          | kW      | 958   | 1123  | 1174  | 1297  | 1375  | 1466  | 1592  | 1687  | 1867  | 1948 |
|  |         | COP                                       | kW/kW   | 4,60  | 4,40  | 4,33  | 4,46  | 4,63  | 4,53  | 4,41  | 4,33  | 4,61  | 4,64 |
| Seasonal energy<br>efficiency**                          | HW1     | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 6,33  | 6,43  | 6,24  | 6,30  | 6,56  | 6,33  | 6,22  | 6,11  | 6,46  | 6,50 |
|  |         | η <sub>s heat</sub> <sub>30/35°C</sub>    | %       | 245   | 249   | 242   | 244   | 254   | 245   | 241   | 236   | 251   | 252  |
|  |         | P <sub>rated</sub>                        | kW      | 1153  | 1411  | 1473  | 1569  | 1737  | 1856  | 2013  | 2140  | 2265  | 2371 |
| Cooling  |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Standard unit<br>Full load<br>performances*              | CW1     | Nominal capacity                          | kW      | 829   | 1005  | 1049  | 1128  | 1242  | 1327  | 1438  | 1532  | 1637  | 1712 |
|  |         | EER                                       | kW/kW   | 5,33  | 5,19  | 5,12  | 5,25  | 5,55  | 5,45  | 5,31  | 5,24  | 5,54  | 5,55 |
|  | CW2     | Nominal capacity                          | kW      | 936   | 1341  | 1505  | 1384  | 1733  | 1894  | 1981  | 2172  | 1949  | 2066 |
|  |         | EER                                       | kW/kW   | 5,91  | 6,64  | 6,91  | 6,28  | 7,31  | 7,29  | 6,86  | 6,88  | 6,47  | 6,43 |
| Seasonal energy<br>efficiency**                          |         | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 7,091                                       | 7,07  | 7,02  | 6,96  | 7,51  | 7,24  | 7,11  | 7,13  | 7,55  | 7,69 |
|  |         | η <sub>s cool</sub> <sub>12/7°C</sub>     | %       | 281   | 280   | 278   | 275   | 298   | 287   | 282   | 282   | 299   | 304  |
|  |         | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,01  | 8,29  | 8,11  | 7,96  | 8,97  | 9,09  | 8,34  | 8,13  | 8,45  | 8,50 |
| Integrated Part Load Value                               | IPLV.SI | kW/kW                                     | 7,289   | 7,478                                       | 7,367 | 7,435 | 7,804 | 7,725 | 7,666 | 7,504 | 8,000 | 8,020 |      |
| Sound levels - standard unit                             |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                         |         |   | dB(A)   | 99  | 102   | 102   | 102   | 102   | 102   | 102   | 102   | 102   | 102  |
| Sound pressure level at 1 m <sup>(2)</sup>               |         |   | dB(A)   | 82  | 84    | 84    | 84    | 83    | 83    | 83    | 83    | 83    | 83   |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                         |         |   | dB(A)   | 96  | 99    | 99    | 99    | 99    | 99    | 99    | 99    | 99    | 99   |
| Sound pressure level at 1 m <sup>(2)</sup>               |         |   | dB(A)   | 78  | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80    | 80   |
| Dimensions - standard unit                               |         |   |         |   |       |       |       |       |       |       |       |       |      |
| Length   |         |   | mm      | 2780  | 4025  | 4025  | 4025  | 4730  | 4730  | 4730  | 4730  | 4790  | 4790 |
| Width  |         |   | mm      | 1042  | 1036  | 1036  | 1036  | 1156  | 1156  | 1156  | 1156  | 1902  | 1902 |
| Height   |         |   | mm      | 1898  | 1870  | 1870  | 1925  | 2051  | 2051  | 2051  | 2051  | 1515  | 1515 |
| Operating weight <sup>(4)</sup>                          |         |   | kg      | 3492  | 5370  | 5408  | 5698  | 7066  | 7267  | 7305  | 7337  | 8681  | 8699 |
| Compressors  |         |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |      |
| Circuit A  |         |   | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1    |
| Circuit B  |         |   | -       | -   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1    |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s heat</sub> <sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s cool</sub> <sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level.

(4) Weight shown is guideline only. Please refer to the unit nameplate.



Eurovent certified values



AHRI certified values  
30XW-only



## PHYSICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-                      |                    | 852   | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 158   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | 226   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| Circuit B                          | kg                 | -   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | -   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| <b>Oil - standard unit</b>         |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 36  | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | 32   | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 20  | 15   | 15   | 15   | 15   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 98  | 182  | 182  | 205  | 301  | 301  | 301  | 301  | 354  | 354  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 137   | 193  | 193  | 193  | 340  | 340  | 340  | 340  | 426  | 426  |
| Water connections (Victaulic)      | in                 | 8   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## PHYSICAL DATA, STANDARD UNITS

### High-efficiency units

| 30XW-P/30XWHP  |     |   |         | 512   | 562   | 712   | 812   | 862   | 1012  | 1162  | 1314  | 1464  | 1612  | 1762  |
|--|-----|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating  |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Standard unit Full load performances*                    | HW1 | Nominal capacity                          | kW      | 586   | 667   | 851   | 912   | 995   | 1201  | 1327  | 1522  | 1680  | 1863  | 2019  |
|  |     | COP                                       | kW/kW   | 6,36  | 6,30  | 6,52  | 6,29  | 6,27  | 6,35  | 6,24  | 6,29  | 6,06  | 6,38  | 6,27  |
|  | HW2 | Nominal capacity                          | kW      | 573   | 654   | 836   | 896   | 970   | 1179  | 1296  | 1489  | 1643  | 1823  | 1964  |
|  |     | COP                                       | kW/kW   | 4,82  | 4,78  | 4,92  | 4,74  | 4,78  | 4,85  | 4,77  | 4,82  | 4,66  | 4,84  | 4,81  |
| Seasonal energy efficiency**                             | HW1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 6,58  | 6,59  | 6,48  | 6,27  | 6,48  | 6,72  | 6,85  | 6,75  | 6,38  | 6,73  | 6,71  |
|  |     | η <sub>s heat</sub> <sub>30/35°C</sub>    | %       | 255   | 256   | 251   | 243   | 251   | 261   | 266   | 262   | 247   | 261   | 260   |
|  |     | P <sub>rated</sub>                        | kW      | 694   | 791   | 1009  | 1081  | 1180  | 1424  | 1572  | 1805  | 1993  | 2210  | 2395  |
| Cooling  |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Standard unit Full load performances*                    | CW1 | Nominal capacity                          | kW      | 502   | 569   | 727   | 776   | 850   | 1025  | 1143  | 1308  | 1435  | 1606  | 1736  |
|  |     | EER                                       | kW/kW   | 5,63  | 5,57  | 5,75  | 5,55  | 5,59  | 5,67  | 5,71  | 5,74  | 5,53  | 5,80  | 5,72  |
|  | CW2 | Nominal capacity                          | kW      | 617   | 727   | 890   | 971   | 1001  | 1375  | 1425  | 1772  | 1905  | 2034  | 2105  |
|  |     | EER                                       | kW/kW   | 6,88  | 6,94  | 7,20  | 6,98  | 6,83  | 7,46  | 6,90  | 7,55  | 7,28  | 7,34  | 7,11  |
| Seasonal energy efficiency**                             |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 7,00  | 7,12  | 7,05  | 6,82  | 7,24  | 7,34  | 7,78  | 7,69  | 7,29  | 7,79  | 7,86  |
|  |     | η <sub>s cool</sub> <sub>12/7°C</sub>     | %       | 277   | 282   | 279   | 270   | 287   | 291   | 308   | 304   | 289   | 309   | 311   |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,42  | 8,50  | 9,23  | 8,33  | 8,54  | 8,50  | 8,85  | 9,00  | 8,89  | 8,82  | 8,83  |
| Integrated Part Load Value                               |     | IPLV.SI                                   | kW/kW   | 7,391                                       | 7,473 | 7,556 | 7,301 | 7,538 | 7,639 | 8,053 | 8,150 | 7,485 | 7,757 | 8,089 |
| Sound levels - standard unit                             |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 99  | 99    | 99    | 99    | 99    | 102   | 102   | 102   | 102   | 102   | 102   |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 82  | 82    | 81    | 81    | 81    | 83    | 83    | 83    | 83    | 83    | 83    |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 96  | 96    | 96    | 96    | 96    | 99    | 99    | 99    | 99    | 99    | 99    |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 78  | 78    | 78    | 78    | 78    | 80    | 80    | 80    | 80    | 80    | 80    |
| Dimensions - standard unit                               |     |   |         |   |       |       |       |       |       |       |       |       |       |       |
| Length   |     |   | mm      | 3059  | 3059  | 3290  | 3290  | 3290  | 4730  | 4730  | 4730  | 4730  | 4832  | 4832  |
| Width  |     |   | mm      | 936   | 936   | 1069  | 1069  | 1069  | 1039  | 1039  | 1162  | 1162  | 2129  | 2129  |
| Height   |     |   | mm      | 1743  | 1743  | 1950  | 1950  | 1950  | 1997  | 1997  | 2051  | 2051  | 1562  | 1562  |
| Operating weight <sup>(4)</sup>                          |     |   | kg      | 2981  | 3020  | 3912  | 3947  | 3965  | 6872  | 6950  | 7542  | 7752  | 10910 | 10946 |
| Compressors  |     |   |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |       |       |
| Circuit A  |     |   | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  |     |   | -       | -   | -     | -     | -     | -     | 1     | 1     | 1     | 1     | 1     | 1     |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s cool</sub><sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level.

(4) Weight shown is guideline only. Please refer to the unit nameplate.



Eurovent certified values



AHRI certified values  
30XW-only

## PHYSICAL DATA, STANDARD UNITS

### High-efficiency units

| 30XW-P/30XWHP                      |                    | 512   | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 130   | 130  | 180  | 175  | 177  | 120  | 120  | 130  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | 186   | 186  | 257  | 250  | 253  | 172  | 172  | 186  | 186  | 343  | 358  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | 120  | 120  | 150  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | 172  | 172  | 215  | 186  | 343  | 358  |
| <b>Oil - standard unit</b>         |                    |   |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 32  | 32   | 36   | 36   | 36   | 32   | 32   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | 32   | 32   | 32   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 30  | 30   | 20   | 20   | 20   | 15   | 15   | 15   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 101   | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  | 473  | 473  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 103   | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  | 623  | 623  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

## ELECTRICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW-/30XWH-  |         | 254                               | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 233                               | 233  | 303  | 414  | 414  | 414  | 414  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 233                               | 233  | 303  | 414  | 414  | 414  | 414  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,83                              | 0,85 | 0,83 | 0,87 | 0,88 | 0,89 | 0,89 | 0,88 | 0,89 | 0,90 |
| Maximum <sup>(4)</sup>                                |         | 0,89                              | 0,89 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,91 | 0,92 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 76                                | 89   | 97   | 128  | 135  | 151  | 151  | 184  | 200  | 223  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 84                                | 96   | 113  | 136  | 144  | 162  | 162  | 193  | 214  | 232  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 123                               | 145  | 160  | 206  | 217  | 242  | 242  | 295  | 317  | 351  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 138                               | 162  | 178  | 218  | 230  | 260  | 260  | 304  | 340  | 358  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum power input with option 150B†</b>          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 67                                | 79   | 87   | 114  | 118  | 133  | 134  | 173  | 183  | 205  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un) with option 150B†</b>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 109                               | 129  | 142  | 183  | 191  | 212  | 212  | 278  | 290  | 325  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, STANDARD UNITS

### Standard-efficiency units

| 30XW--/30XWH-   |         | 852                               | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | 414  | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | 558  | 574  | 574  | 747  | 780  | 801  | 819  | 819  | 819  |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | 414  | 414  | 414  | 414  | 587  | 587  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | 631  | 656  | 656  | 829  | 882  | 904  | 938  | 938  | 938  |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,90                              | 0,88 | 0,89 | 0,89 | 0,88 | 0,88 | 0,89 | 0,9  | 0,9  | 0,9  |
| Maximum <sup>(4)</sup>                                |         | 0,92                              | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,91 | 0,92 | 0,92 | 0,92 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 223                               | 150  | 151  | 151  | 184  | 184  | 200  | 223  | 223  | 223  |
| Circuit B   | kW      | -                                 | 135  | 151  | 151  | 151  | 184  | 200  | 223  | 202  | 223  |
| Option 81   | kW      | -                                 | 284  | 301  | 301  | 334  | 367  | 399  | 447  | 425  | 447  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 232                               | 162  | 162  | 162  | 193  | 193  | 214  | 232  | 232  | 232  |
| Circuit B   | A       | -                                 | 144  | 162  | 162  | 162  | 193  | 214  | 232  | 214  | 232  |
| Option 81   | A       | -                                 | 306  | 324  | 324  | 355  | 386  | 427  | 464  | 446  | 464  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 351                               | 242  | 242  | 242  | 295  | 295  | 317  | 351  | 351  | 351  |
| Circuit B   | A       | -                                 | 217  | 242  | 242  | 242  | 295  | 317  | 351  | 317  | 351  |
| Option 81   | A       | -                                 | 459  | 484  | 484  | 537  | 590  | 634  | 702  | 668  | 702  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 358                               | 260  | 260  | 260  | 304  | 304  | 340  | 358  | 358  | 358  |
| Circuit B   | A       | -                                 | 230  | 260  | 260  | 260  | 304  | 340  | 358  | 340  | 358  |
| Option 81   | A       | -                                 | 490  | 520  | 520  | 564  | 608  | 680  | 716  | 698  | 716  |
| <b>Maximum power input with option 150B†</b>          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 205                               | 133  | 133  | 133  | 173  | 173  | 183  | 207  | 207  | 207  |
| Circuit B   | kW      | -                                 | 118  | 133  | 133  | 133  | 173  | 183  | 207  | 185  | 207  |
| Option 81   | kW      | -                                 | 251  | 265  | 265  | 305  | 346  | 365  | 414  | 391  | 414  |
| <b>Maximum current drawn (Un) with option 150B†</b>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 325                               | 212  | 212  | 212  | 278  | 278  | 290  | 325  | 325  | 325  |
| Circuit B   | A       | -                                 | 191  | 212  | 212  | 212  | 278  | 290  | 325  | 290  | 325  |
| Option 81   | A       | -                                 | 403  | 424  | 424  | 490  | 556  | 580  | 650  | 615  | 650  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, STANDARD UNITS

### High-efficiency units

| 30XW-P/30XWHP   |         | 512                               | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 414                               | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 414  | 414  | 414  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 556  | 574  | 747  | 780  | 801  | 819  |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 414                               | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  | 587  | 587  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 414  | 414  | 414  | 587  | 587  | 587  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 631  | 656  | 829  | 882  | 904  | 938  |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,88                              | 0,89 | 0,88 | 0,89 | 0,90 | 0,86 | 0,87 | 0,88 | 0,88 | 0,89 | 0,90 |
| Maximum <sup>(4)</sup>                                |         | 0,90                              | 0,90 | 0,90 | 0,91 | 0,92 | 0,89 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 135                               | 151  | 184  | 200  | 223  | 134  | 151  | 184  | 184  | 200  | 223  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | 134  | 151  | 151  | 184  | 200  | 223  |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | 267  | 301  | 334  | 367  | 399  | 447  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 144                               | 162  | 193  | 214  | 232  | 144  | 162  | 193  | 193  | 214  | 232  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 144  | 162  | 162  | 193  | 214  | 232  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 288  | 324  | 355  | 386  | 427  | 464  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 217                               | 242  | 295  | 317  | 351  | 217  | 242  | 295  | 295  | 317  | 351  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 217  | 242  | 242  | 295  | 317  | 351  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 434  | 484  | 537  | 590  | 634  | 702  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 230                               | 260  | 304  | 340  | 358  | 230  | 260  | 304  | 304  | 340  | 358  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 230  | 260  | 260  | 304  | 340  | 358  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 460  | 520  | 564  | 608  | 680  | 716  |
| <b>Maximum power input with option 150B†</b>          |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 118                               | 133  | 173  | 183  | 207  | 118  | 133  | 173  | 173  | 183  | 207  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | 118  | 133  | 133  | 173  | 183  | 207  |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | 235  | 265  | 305  | 346  | 365  | 414  |
| <b>Maximum current drawn (Un) with option 150B†</b>   |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 191                               | 212  | 278  | 290  | 325  | 191  | 212  | 278  | 278  | 290  | 325  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 191  | 212  | 212  | 278  | 290  | 325  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 382  | 424  | 490  | 556  | 580  | 650  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.



# PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW--/30XWH-   |   |  |         | 254   | 304   | 354   | 402   | 452   | 552   | 602   | 652   | 702   | 802  |
|---|---|--|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Heating   |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Unit + option 150<br>Full load performances*                    | HW1                                       | Nominal capacity                         | kW      | 328   | 366   | 413   | 502   | 536   | 597   | 618   | 756   | 845   | 869  |
|   |   | COP                                      | kW/kW   | 5,49  | 5,48  | 5,44  | 5,11  | 5,41  | 5,27  | 5,41  | 5,31  | 5,37  | 5,17 |
|   | HW2                                       | Nominal heating capacity                 | kW      | 319   | 356   | 402   | 470   | 501   | 559   | 599   | 706   | 789   | 812  |
|   |   | COP                                      | kW/kW   | 4,54  | 4,51  | 4,47  | 4,21  | 4,45  | 4,36  | 4,48  | 4,39  | 4,44  | 4,31 |
|   | HW3                                       | Nominal capacity                         | kW      | 310   | 347   | 391   | 440   | 469   | 523   | 582   | 659   | 738   | 760  |
|   |   | COP                                      | kW/kW   | 3,80  | 3,78  | 3,75  | 3,47  | 3,67  | 3,61  | 3,76  | 3,62  | 3,68  | 3,57 |
| Seasonal energy efficiency**                                    | HW1                                       | SCOP <sub>30/35°C</sub>                  | kWh/kWh | 5,77  | 5,94  | 5,86  | 5,54  | 5,77  | 5,75  | 5,72  | 5,55  | 5,79  | 5,01 |
|   |   | η <sub>s</sub> heat <sub>30/35°C</sub>   | %       | 223   | 230   | 226   | 214   | 223   | 222   | 221   | 214   | 223   | 193  |
|   | HW3                                       | SCOP <sub>47/55°C</sub>                  | kWh/kWh | 4,58  | 4,63  | 4,56  | 4,20  | 4,42  | 4,45  | 4,50  | 4,26  | 4,45  | 3,86 |
|   |   | η <sub>s</sub> heat <sub>47/55°C</sub>   | %       | 175   | 177   | 175   | 160   | 169   | 170   | 172   | 163   | 170   | 146  |
|   |   | P <sub>rated</sub>                       | kW      | 411   | 415   | 467   | 535   | 571   | 637   | 697   | 803   | 898   | 926  |
|   |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Cooling   |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Unit + option 150<br>Full load performances*                    | CW1                                       | Nominal cooling capacity                 | kW      | 278   | 309   | 348   | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   |   | EER                                      | kW/kW   | 4,83  | 4,80  | 4,76  | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   | Seasonal energy efficiency**              | SEER <sub>12/7°C</sub> Comfort low temp. | kWh/kWh | 6,19  | 6,29  | 6,22  | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   |   | η <sub>s</sub> cool <sub>12/7°C</sub>    | %       | 245   | 249   | 246   | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh                                  | 6,67    | 6,72  | 6,57  | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
| Integrated Part Load Value                                      | IPLV.SI                                   | kW/kW                                    | 6,364   | 6,527                                       | 6,531 | 5,928 | 6,176 | 6,287 | 6,185 | 5,931 | 6,433 | 5,575 |      |
| Sound levels - unit with option 150                             |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                                |   |  | dB(A)   | 95  | 95    | 95    | 99    | 99    | 99    | 99    | 102   | 102   | 102  |
| Sound pressure level at 1 m <sup>(2)</sup>                      |   |  | dB(A)   | 78  | 78    | 78    | 82    | 82    | 82    | 82    | 84    | 84    | 84   |
| Sound levels - unit with option 150 + option 257 <sup>(3)</sup> |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                                |   |  | dB(A)   | -   | -     | -     | 96    | 96    | 96    | 96    | 100   | 100   | 100  |
| Sound pressure level at 1 m <sup>(2)</sup>                      |   |  | dB(A)   | -   | -     | -     | 78    | 78    | 78    | 78    | 82    | 82    | 82   |
| Dimensions - unit with option 150                               |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Length  |   | mm                                       | 2724    | 2724  | 2724  | 2741  | 2741  | 2741  | 2741  | 3059  | 3059  | 3059  |      |
| Width   |   | mm                                       | 928     | 928   | 928   | 936   | 936   | 936   | 936   | 1090  | 1090  | 1090  |      |
| Height  |   | mm                                       | 1567    | 1567  | 1567  | 1692  | 1692  | 1692  | 1692  | 1858  | 1858  | 1858  |      |
| Operating weight <sup>(4)</sup>                                 |   | kg                                       | 2017    | 2036  | 2072  | 2575  | 2575  | 2613  | 2644  | 3407  | 3438  | 3462  |      |
| Compressors   |   |  |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |      |
| Circuit A   |   | -  | 1       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |      |
| Circuit B   |   | -  | -       | -   | -     | -     | -     | -     | -     | -     | -     | -     |      |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2016, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/W
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W
- η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).
- NA Non Authorized for the specific application for CEE market
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Option 257 = Low noise level
- (4) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

AHRI certified values  
30XW-only

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW--/30XWH-                      |                    | 254   | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 84  | 80   | 78   | 92   | 92   | 92   | 92   | 145  | 135  | 125  |
|                                    | teqCO <sub>2</sub> | 120   | 114  | 112  | 132  | 132  | 132  | 132  | 207  | 193  | 179  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Oil - unit with option 150</b>  |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 23,5  | 23,5 | 23,5 | 32   | 32   | 32   | 32   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 30  | 30   | 30   | 30   | 30   | 30   | 30   | 25   | 25   | 25   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 50  | 56   | 61   | 70   | 70   | 70   | 70   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 55  | 55   | 55   | 76   | 76   | 76   | 76   | 109  | 109  | 109  |
| Water connections (Victaulic)      | in                 | 5   | 5    | 5    | 5    | 5    | 5    | 5    | 6    | 6    | 6    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

# PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW--/30XWH-   |   |  |         | 852   | 1002  | 1052  | 1154  | 1252  | 1352  | 1452  | 1552  | 1652  | 1702 |
|---|---|--|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Heating   |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Unit + option 150<br>Full load performances*                    | HW1                                       | Nominal capacity                         | kW      | 963   | 1163  | 1228  | 1338  | 1432  | 1551  | 1671  | 1776  | 1928  | 1991 |
|   |   | COP                                      | kW/kW   | 5,36  | 5,37  | 5,28  | 5,38  | 5,56  | 5,32  | 5,23  | 5,12  | 5,34  | 5,27 |
|   | HW2                                       | Nominal heating capacity                 | kW      | 939   | 1085  | 1146  | 1290  | 1329  | 1445  | 1558  | 1649  | 1873  | 1936 |
|   |   | COP                                      | kW/kW   | 4,46  | 4,46  | 4,40  | 4,48  | 4,63  | 4,45  | 4,38  | 4,34  | 4,50  | 4,46 |
|   | HW3                                       | Nominal capacity                         | kW      | 915   | 1012  | 1068  | 1249  | 1244  | 1345  | 1452  | 1543  | 1821  | 1882 |
|   |   | COP                                      | kW/kW   | 3,73  | 3,71  | 3,66  | 3,77  | 3,83  | 3,68  | 3,64  | 3,63  | 3,81  | 3,77 |
| Seasonal energy efficiency**                                    | HW1                                       | SCOP <sub>30/35°C</sub>                  | kWh/kWh | 5,66  | 5,86  | 5,86  | 5,78  | 6,09  | 5,69  | 5,79  | 5,43  | 5,93  | 5,92 |
|   |   | η <sub>s heat</sub> <sub>30/35°C</sub>   | %       | 218   | 226   | 226   | 223   | 236   | 220   | 224   | 209   | 229   | 229  |
|   | HW3                                       | SCOP <sub>47/55°C</sub>                  | kWh/kWh | 4,47  | 4,73  | 4,73  | 4,61  | 4,68  | 4,38  | 4,45  | 4,35  | 4,74  | 4,76 |
|   |   | η <sub>s heat</sub> <sub>47/55°C</sub>   | %       | 171   | 181   | 181   | 176   | 179   | 167   | 170   | 166   | 182   | 182  |
|   |   | P <sub>rated</sub>                       | kW      | 1094  | 1234  | 1303  | 1497  | 1518  | 1641  | 1770  | 1882  | 2179  | 2253 |
|   |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Cooling   |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Unit + option 150<br>Full load performances*                    | CW1                                       | Nominal cooling capacity                 | kW      | NA  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   |   | EER                                      | kW/kW   | NA  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   | Seasonal energy efficiency**              | SEER <sub>12/7°C</sub> Comfort low temp. | kWh/kWh | NA  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   |   | η <sub>s cool</sub> <sub>12/7°C</sub>    | %       | NA  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA   |
|   | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh                                  | NA      | NA  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |      |
| Integrated Part Load Value                                      | IPLV.SI                                   | kW/kW                                    | 6,351   | 6,572                                       | 6,595 | 6,522 | 6,873 | 6,211 | 6,615 | 6,366 | 6,939 | 7,136 |      |
| Sound levels - unit with option 150                             |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                                |   |  | dB(A)   | 102   | 102   | 102   | 102   | 105   | 105   | 105   | 105   | 105   | 105  |
| Sound pressure level at 1 m <sup>(2)</sup>                      |   |  | dB(A)   | 84  | 84    | 84    | 84    | 86    | 86    | 86    | 86    | 86    | 86   |
| Sound levels - unit with option 150 + option 257 <sup>(3)</sup> |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Sound power level <sup>(1)</sup>                                |   |  | dB(A)   | 100   | 99    | 99    | 99    | 103   | 103   | 103   | 103   | 103   | 103  |
| Sound pressure level at 1 m <sup>(2)</sup>                      |   |  | dB(A)   | 82  | 80    | 80    | 80    | 84    | 84    | 84    | 84    | 84    | 84   |
| Dimensions - unit with option 150                               |   |  |         |   |       |       |       |       |       |       |       |       |      |
| Length  |   | mm                                       | 2780    | 4025  | 4025  | 4025  | 4730  | 4730  | 4730  | 4730  | 4790  | 4790  |      |
| Width   |   | mm                                       | 1090    | 1036  | 1036  | 1036  | 1201  | 1201  | 1201  | 1201  | 1947  | 1947  |      |
| Height  |   | mm                                       | 1920    | 1870  | 1870  | 1925  | 2071  | 2071  | 2071  | 2071  | 1535  | 1535  |      |
| Operating weight <sup>(4)</sup>                                 |   | kg                                       | 3672    | 5370  | 5408  | 5698  | 7233  | 7554  | 7622  | 7670  | 9006  | 9032  |      |
| Compressors   |   |  |         | Semi-hermetic 06T screw compressors, 50 r/s |       |       |       |       |       |       |       |       |      |
| Circuit A   |   | -  | 1       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |      |
| Circuit B   |   | -  | -       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |      |

- \* In accordance with standard EN14511-3:2018.
- \*\* In accordance with standard EN14825:2016, average climate
- HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW
- HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW
- HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW
- CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W
- η<sub>s heat</sub> 30/35°C & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s heat</sub> 47/55°C & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016
- η<sub>s cool</sub> 12/7°C & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
- SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016
- IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).
- (1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
- (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
- (3) Option 257 = Low noise level
- (4) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values

AHRI certified values  
30XW-only

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW--/30XWH-                      |                    | 852   | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 158   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | 226   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| Circuit B                          | kg                 | -   | 85   | 85   | 105  | 120  | 115  | 110  | 105  | 195  | 195  |
|                                    | teqCO <sub>2</sub> | -   | 122  | 122  | 150  | 172  | 164  | 157  | 150  | 279  | 279  |
| <b>Oil - unit with option 150</b>  |                    |   |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 36  | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | 32   | 32   | 32   | 32   | 36   | 36   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 25  | 15   | 15   | 15   | 15   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 98  | 182  | 182  | 205  | 301  | 301  | 301  | 301  | 354  | 354  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 137   | 193  | 193  | 193  | 340  | 340  | 340  | 340  | 426  | 426  |
| Water connections (Victaulic)      | in                 | 8   | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

# PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW-P / 30XWHP | 512 | 562 | 712 | 812 | 862 | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|-----------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|
|-----------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|

### Heating

|  |     |  |         |      |      |      |      |      |      |      |      |      |      |      |
|--|-----|--|---------|------|------|------|------|------|------|------|------|------|------|------|
| Unit + option 150<br>Full load performances* | HW1 | Nominal capacity                       | kW      | 600  | 670  | 840  | 910  | 975  | 1188 | 1375 | 1514 | 1698 | 1890 | 1983 |
|  |     | COP                                    | kW/kW   | 5,89 | 5,90 | 5,72 | 5,58 | 5,72 | 5,61 | 5,77 | 5,55 | 5,40 | 5,78 | 5,73 |
|  | HW2 | Nominal heating capacity               | kW      | 580  | 646  | 815  | 885  | 950  | 1147 | 1322 | 1465 | 1648 | 1834 | 1929 |
|  |     | COP                                    | kW/kW   | 4,85 | 4,86 | 4,72 | 4,61 | 4,75 | 4,65 | 4,80 | 4,62 | 4,52 | 4,80 | 4,79 |
|  | HW3 | Nominal capacity                       | kW      | 561  | 625  | 790  | 862  | 925  | 1110 | 1275 | 1419 | 1598 | 1783 | 1874 |
|  |     | COP                                    | kW/kW   | 4,02 | 4,04 | 3,92 | 3,83 | 3,97 | 3,86 | 4,01 | 3,88 | 3,81 | 4,00 | 4,00 |
| Seasonal energy efficiency**                 | HW1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 6,15 | 6,22 | 6,40 | 6,11 | 5,99 | 5,97 | 6,24 | 6,18 | 6,18 | 6,50 | 6,21 |
|  |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 238  | 241  | 248  | 236  | 231  | 231  | 242  | 239  | 239  | 252  | 240  |
|  | HW3 | SCOP <sub>47/55°C</sub>                | kWh/kWh | 4,78 | 4,86 | 4,97 | 4,76 | 4,73 | 4,63 | 4,88 | 4,88 | 4,94 | 5,07 | 4,92 |
|  |     | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 183  | 186  | 191  | 182  | 181  | 177  | 187  | 187  | 189  | 195  | 189  |
|  |     | P <sub>rated</sub>                     | kW      | 673  | 749  | 947  | 1030 | 1106 | 1330 | 1531 | 1701 | 1915 | 2133 | 2243 |
|  |     |  |         |      |      |      |      |      |      |      |      |      |      |      |

### Cooling

|  |   |         |       |       |       |       |       |       |       |       |       |       |       |
|--|---|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Unit + option 150<br>Full load performances* CW1 | Nominal cooling capacity                  | kW      | 510   | 569   | 715   | 770   | 833   | 1011  | 1178  | 1287  | 1437  | 1613  | 1706  |
|  | EER                                       | kW/kW   | 5,14  | 5,17  | 5,02  | 4,88  | 5,09  | 4,98  | 5,23  | 4,96  | 4,84  | 5,15  | 5,21  |
| Seasonal energy efficiency**                     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 6,53  | 6,68  | 6,81  | 6,56  | 6,45  | 6,51  | 6,95  | 6,76  | 6,66  | 7,13  | 6,90  |
|  | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 258   | 264   | 269   | 259   | 255   | 258   | 275   | 267   | 264   | 282   | 273   |
|  | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,90  | 6,93  | 7,23  | 6,68  | 6,38  | 6,71  | 6,97  | 6,88  | 7,03  | 7,15  | 6,63  |
| Integrated Part Load Value                       | IPLV.SI                                   | kW/kW   | 6,612 | 6,804 | 7,029 | 6,703 | 6,782 | 6,505 | 6,997 | 6,946 | 7,131 | 7,302 | 7,308 |

### Sound levels - unit with option 150

|  |       |    |    |     |     |     |     |     |     |     |     |     |     |     |
|--|-------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 99 | 99 | 102 | 102 | 102 | 102 | 102 | 102 | 105 | 105 | 105 | 105 | 105 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 82 | 82 | 84  | 84  | 84  | 83  | 83  | 83  | 86  | 86  | 86  | 86  | 86  |

### Sound levels - unit with option 150 + option 257<sup>(3)</sup>

|  |       |    |    |     |     |     |    |    |    |     |     |     |     |     |
|--|-------|----|----|-----|-----|-----|----|----|----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 96 | 96 | 100 | 100 | 100 | 99 | 99 | 99 | 103 | 103 | 103 | 103 | 103 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 78 | 78 | 82  | 82  | 82  | 80 | 80 | 80 | 84  | 84  | 84  | 84  | 84  |

### Dimensions - unit with option 150

|                                 |    |      |      |      |      |      |      |      |      |      |       |       |       |       |
|---------------------------------|----|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Length                          | mm | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4832  | 4832  | 4832  | 4832  |
| Width                           | mm | 936  | 936  | 1105 | 1105 | 1105 | 1039 | 1039 | 1039 | 1202 | 1202  | 2174  | 2174  | 2174  |
| Height                          | mm | 1743 | 1743 | 1970 | 1970 | 1970 | 1997 | 1997 | 1997 | 2071 | 2071  | 1585  | 1585  | 1585  |
| Operating weight <sup>(4)</sup> | kg | 2981 | 3020 | 4072 | 4117 | 4145 | 6872 | 6950 | 7721 | 8059 | 11225 | 11279 | 11279 | 11279 |

### Compressors

|           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|           |   | Semi-hermetic 06T screw compressors, 50 r/s |   |   |   |   |   |   |   |   |   |   |   |   |
| Circuit A | - | 1   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Circuit B | - | -   | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

\* In accordance with standard EN14511-3:2018.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W

η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate



Eurovent certified values



AHRI certified values  
30XW-only

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW-P / 30XWHP                    |                    | 512   | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|------------------------------------|--------------------|---|------|------|------|------|------|------|------|------|------|------|
| <b>Refrigerant <sup>(4)</sup></b>  |                    | R-134a                                      |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 130   | 130  | 180  | 175  | 177  | 120  | 120  | 130  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | 186   | 186  | 257  | 250  | 253  | 172  | 172  | 186  | 186  | 343  | 358  |
| Circuit B                          | kg                 | -   | -    | -    | -    | -    | 120  | 120  | 150  | 130  | 240  | 250  |
|                                    | teqCO <sub>2</sub> | -   | -    | -    | -    | -    | 172  | 172  | 215  | 186  | 343  | 358  |
| <b>Oil - unit with option 150</b>  |                    |   |      |      |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 32  | 32   | 36   | 36   | 36   | 32   | 32   | 36   | 36   | 36   | 36   |
| Circuit B                          | l                  | -   | -    | -    | -    | -    | 32   | 32   | 32   | 36   | 36   | 36   |
| <b>Capacity control</b>            |                    | SmartVu™, electronic expansion valves (EXV) |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity <sup>(5)</sup>    | %                  | 30  | 30   | 20   | 20   | 20   | 15   | 15   | 15   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 101   | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  | 473  | 473  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type                     |      |      |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 103   | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  | 623  | 623  |
| Water connections (Victaulic)      | in                 | 6   | 6    | 8    | 8    | 8    | 8    | 8    | 10   | 10   | 10   | 10   |
| Drain and vent connections (NPT)   | in                 | 3/8   | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000  | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. Please refer to the unit nameplate

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

### Standard-efficiency 30XW/30XWH units (options 6)

| 30XW--/30XWH (reference)                |                    | 254                                  | 304    | 354    | 402    | 452    | 552    | 602    | 702    | 802    |
|---|--------------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Operating weight</b>                 | kg                 | 2041                                 | 2063   | 2102   | 2609   | 2609   | 2647   | 2678   | 3492   | 3516   |
| <b>Refrigerant charge<sup>(1)</sup></b> |                    | R-134a                               |        |        |        |        |        |        |        |        |
| Circuit A                               | kg                 | 91                                   | 86     | 84     | 99     | 99     | 99     | 99     | 146    | 135    |
|   | teqCO <sub>2</sub> | 129730                               | 123552 | 120463 | 142085 | 142085 | 142085 | 142085 | 208494 | 193050 |
| Circuit B                               | kg                 | 0                                    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
|   | teqCO <sub>2</sub> | 0                                    | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| <b>Evaporator</b>                       |                    | Single pass, multi-pipe flooded type |        |        |        |        |        |        |        |        |
| Water volume                            | l                  | 50                                   | 56     | 61     | 70     | 70     | 70     | 70     | 109    | 109    |
| Water connections (Victaulic)           | in                 | 5                                    | 5      | 5      | 6      | 6      | 6      | 6      | 6      | 6      |
| Drain and vent connections (NPT)        | in                 | 3/8                                  | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    |
| Max. water-side operating pressure      | kPa                | 1000                                 | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   |
| 30XW--/30XWH (reference)                |                    | 852                                  | 1002   | 1052   | 1154   | 1252   | 1452   | 1552   | 1652   | 1702   |
| <b>Operating weight</b>                 | kg                 | 3720                                 | 5467   | 5505   | 5806   | 7392   | 7781   | 7829   | 9193   | 9219   |
| <b>Refrigerant charge<sup>(1)</sup></b> |                    | R-134a                               |        |        |        |        |        |        |        |        |
| Circuit A                               | kg                 | 171                                  | 92     | 92     | 113    | 130    | 119    | 113    | 211    | 211    |
|   | teqCO <sub>2</sub> | 244015                               | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301158 |
| Circuit B                               | kg                 | 0                                    | 92     | 92     | 113    | 130    | 119    | 113    | 211    | 211    |
|   | teqCO <sub>2</sub> | 0                                    | 131274 | 131274 | 162162 | 185328 | 169884 | 162162 | 301158 | 301730 |
| <b>Evaporator</b>                       |                    | Single pass, multi-pipe flooded type |        |        |        |        |        |        |        |        |
| Water volume                            | l                  | 98                                   | 182    | 182    | 205    | 301    | 301    | 301    | 354    | 354    |
| Water connections (Victaulic)           | in                 | 6                                    | 6      | 6      | 8      | 8      | 8      | 8      | 8      | 8      |
| Drain and vent connections (NPT)        | in                 | 3/8                                  | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    | 3/8    |
| Max. water-side operating pressure      | kPa                | 1000                                 | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   | 1000   |

(1) Weights are guidelines only. The refrigerant charge is given on the unit nameplate.



## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### Standard-efficiency units (option 150)

| 30XW--/30XWH-   |         | 254                               | 304  | 354  | 402  | 452  | 552  | 602  | 652  | 702  | 802  |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 303                               | 388  | 388  | 587  | 587  | 587  | 587  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 303                               | 388  | 388  | 587  | 587  | 587  | 587  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,79                              | 0,78 | 0,79 | 0,83 | 0,85 | 0,85 | 0,85 | 0,84 | 0,86 | 0,87 |
| Maximum <sup>(4)</sup>                                |         | 0,88                              | 0,87 | 0,88 | 0,90 | 0,90 | 0,91 | 0,91 | 0,90 | 0,90 | 0,90 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 97                                | 111  | 122  | 156  | 173  | 191  | 191  | 249  | 268  | 286  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 95                                | 109  | 125  | 150  | 162  | 171  | 171  | 193  | 214  | 232  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 160                               | 185  | 200  | 250  | 275  | 300  | 300  | 400  | 430  | 460  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 176                               | 206  | 224  | 270  | 300  | 330  | 330  | 419  | 455  | 476  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | -    | -    | -    | -    | -    | -    | -    |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

# ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

## Standard-efficiency units (option 150)

| 30XW--/30XWH-                                  |         | 852                               | 1002 | 1052 | 1154 | 1252 | 1352 | 1452 | 1552 | 1652 | 1702 |
|--|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| Power circuit                                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                           | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range                                  | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| Control circuit                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| Nominal start-up current <sup>(1)</sup>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                      | A       | 772                               | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  | 772  |
| Circuit B                                      | A       | -                                 | 587  | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  |
| Option 81                                      | A       | -                                 | 757  | 757  | 757  | 943  | 965  | 986  | 1004 | 1004 | 1004 |
| Maximum start-up current <sup>(2)</sup>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                      | A       | 772                               | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  | 772  |
| Circuit B                                      | A       | -                                 | 587  | 587  | 587  | 587  | 772  | 772  | 772  | 772  | 772  |
| Option 81                                      | A       | -                                 | 887  | 887  | 887  | 1072 | 1172 | 1202 | 1232 | 1004 | 1232 |
| Cosine phi                                     |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                         |         | 0,87                              | 0,85 | 0,85 | 0,85 | 0,86 | 0,85 | 0,86 | 0,87 | 0,86 | 0,87 |
| Maximum <sup>(4)</sup>                         |         | 0,90                              | 0,90 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion <sup>(4)</sup>       | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Maximum power input†                           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                      | kW      | 286                               | 191  | 191  | 191  | 252  | 252  | 271  | 290  | 290  | 290  |
| Circuit B                                      | kW      | -                                 | 173  | 191  | 191  | 191  | 252  | 271  | 290  | 271  | 290  |
| Option 81                                      | kW      | -                                 | 364  | 382  | 382  | 443  | 504  | 542  | 580  | 562  | 580  |
| Nominal current drawn <sup>(3)</sup>           |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                      | A       | 232                               | 171  | 171  | 171  | 210  | 210  | 230  | 250  | 250  | 250  |
| Circuit B                                      | A       | -                                 | 162  | 171  | 171  | 171  | 210  | 230  | 250  | 230  | 250  |
| Option 81                                      | A       | -                                 | 333  | 342  | 342  | 381  | 420  | 460  | 500  | 480  | 500  |
| Maximum current drawn (Un)†                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                      | A       | 460                               | 300  | 300  | 300  | 400  | 400  | 430  | 460  | 460  | 460  |
| Circuit B                                      | A       | -                                 | 275  | 300  | 300  | 300  | 400  | 430  | 460  | 430  | 460  |
| Option 81                                      | A       | -                                 | 575  | 600  | 600  | 700  | 800  | 860  | 920  | 890  | 920  |
| Maximum current drawn (Un -10%) <sup>(4)</sup> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                      | A       | 476                               | 330  | 330  | 330  | 419  | 419  | 455  | 476  | 476  | 476  |
| Circuit B                                      | A       | -                                 | 300  | 330  | 330  | 330  | 419  | 455  | 476  | 455  | 476  |
| Option 81                                      | A       | -                                 | 630  | 660  | 660  | 749  | 838  | 910  | 952  | 931  | 952  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES

### High-efficiency units (option 150)

| 30XW-P/30XWHP   |         | 512                               | 562  | 712  | 812  | 862  | 1012 | 1162 | 1314 | 1464 | 1612 | 1762 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>                                  |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal power supply                                  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>                                |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |      |
| <b>Nominal start-up current <sup>(1)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 587  | 772  | 772  | 772  | 587  | 587  | 772  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 587  | 587  | 587  | 772  | 772  | 772  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 749  | 757  | 943  | 965  | 986  | 1004 |
| <b>Maximum start-up current <sup>(2)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 587                               | 587  | 772  | 772  | 772  | 587  | 587  | 772  | 772  | 772  | 772  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 587  | 587  | 587  | 772  | 772  | 772  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 862  | 887  | 1072 | 1172 | 1202 | 1232 |
| <b>Cosine phi</b>                                     |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>                                |         | 0,88                              | 0,88 | 0,84 | 0,86 | 0,87 | 0,87 | 0,88 | 0,86 | 0,85 | 0,86 | 0,87 |
| Maximum <sup>(4)</sup>                                |         | 0,91                              | 0,92 | 0,90 | 0,90 | 0,90 | 0,91 | 0,92 | 0,91 | 0,91 | 0,91 | 0,91 |
| Total harmonic distortion <sup>(4)</sup>              | %       | 0                                 | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| <b>Maximum power input†</b>                           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kW      | 173                               | 191  | 252  | 271  | 290  | 173  | 191  | 252  | 252  | 271  | 290  |
| Circuit B   | kW      | -                                 | -    | -    | -    | -    | 173  | 191  | 191  | 252  | 271  | 290  |
| Option 81   | kW      | -                                 | -    | -    | -    | -    | 346  | 382  | 443  | 504  | 542  | 580  |
| <b>Nominal current drawn <sup>(3)</sup></b>           |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 162                               | 171  | 210  | 230  | 250  | 162  | 171  | 210  | 210  | 230  | 250  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 162  | 171  | 171  | 210  | 230  | 250  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 324  | 342  | 381  | 420  | 460  | 500  |
| <b>Maximum current drawn (Un)†</b>                    |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 275                               | 300  | 400  | 430  | 460  | 275  | 300  | 400  | 400  | 430  | 460  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 275  | 300  | 300  | 400  | 430  | 460  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 550  | 600  | 700  | 800  | 860  | 920  |
| <b>Maximum current drawn (Un -10%) <sup>(4)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | A       | 300                               | 330  | 419  | 455  | 476  | 300  | 330  | 419  | 419  | 455  | 476  |
| Circuit B   | A       | -                                 | -    | -    | -    | -    | 300  | 330  | 330  | 419  | 455  | 476  |
| Option 81   | A       | -                                 | -    | -    | -    | -    | 600  | 660  | 749  | 838  | 910  | 952  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values based on standard Eurovent unit operating conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

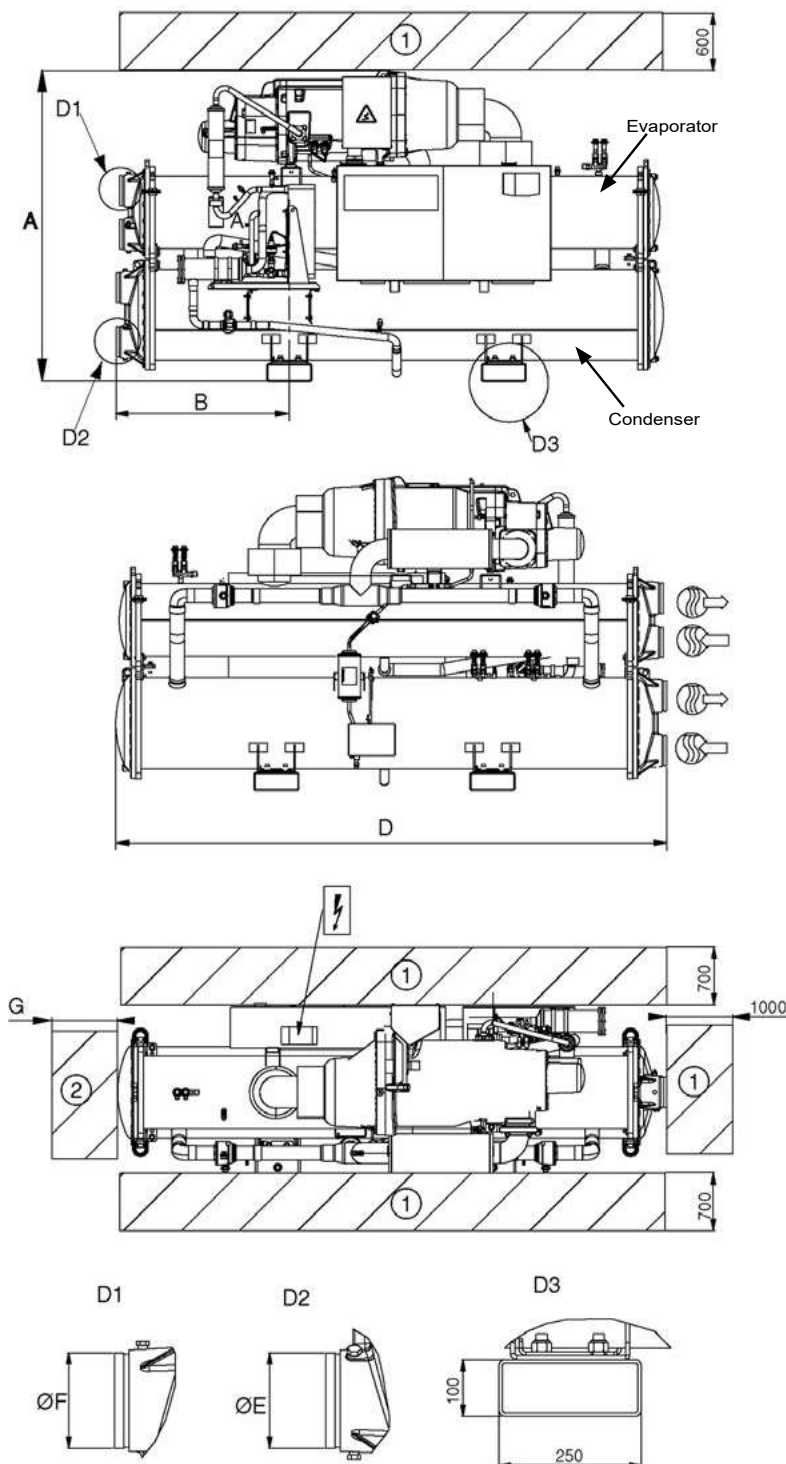
(4) Values obtained at operation with maximum unit power input.

† Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## DIMENSIONS/CLEARANCES

30XW--/30XWH- 254-852

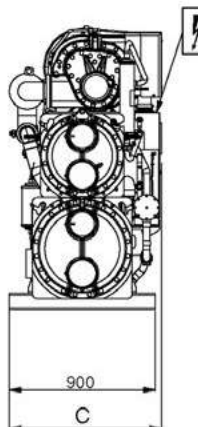
30XW-P/30XWHP 512-862



### Legend

All dimensions are given in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- ↶ Water inlet
- ↷ Water outlet
- ))) Air outlet – do not obstruct
- ⚡ Power supply connection



|  | Dimensions in mm |   |   |   |   |   |   |
|--|------------------|---|---|---|---|---|---|
|  | A                | B | C | D | E | F | G |

### Standard-efficiency units 30XW--/30XWH-

|     |      |     |      |      |       |       |      |
|-----|------|-----|------|------|-------|-------|------|
| 254 | 1567 | 800 | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 304 | 1567 | 800 | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 354 | 1567 | 800 | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 402 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 452 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 552 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 602 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 652 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 702 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 802 | 1848 | 968 | 1044 | 3059 | 168,3 | 168,3 | 2800 |
| 852 | 1898 | 828 | 1044 | 2780 | 219,1 | 168,3 | 2600 |

### High-efficiency units 30XW-P/30XWHP

|     |      |      |      |      |       |       |      |
|-----|------|------|------|------|-------|-------|------|
| 512 | 1743 | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 562 | 1743 | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 712 | 1950 | 1083 | 1065 | 3290 | 219,1 | 219,1 | 3100 |
| 812 | 1950 | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |
| 862 | 1950 | 1083 | 1070 | 3290 | 219,1 | 219,1 | 3100 |

### Standard-efficiency units 30XW--/30XWH- (option 150)

|     |      |     |      |      |       |       |      |
|-----|------|-----|------|------|-------|-------|------|
| 254 | 1567 | 800 | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 304 | 1567 | 800 | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 354 | 1567 | 800 | 928  | 2724 | 141,3 | 141,3 | 2600 |
| 402 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 452 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 552 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 602 | 1693 | 810 | 936  | 2742 | 141,3 | 141,3 | 2600 |
| 652 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 702 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 802 | 1868 | 968 | 1090 | 3059 | 168,3 | 168,3 | 2800 |
| 852 | 1920 | 828 | 1090 | 2780 | 168,3 | 219,1 | 2600 |

### High-efficiency units 30XW-P/30XWHP (option 150)

|     |      |      |      |      |       |       |      |
|-----|------|------|------|------|-------|-------|------|
| 512 | 1743 | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 562 | 1743 | 968  | 936  | 3059 | 168,3 | 168,3 | 2800 |
| 712 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 812 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |
| 862 | 1970 | 1083 | 1105 | 3290 | 219,1 | 219,1 | 3100 |

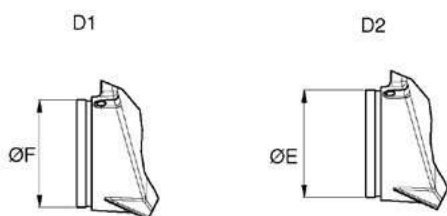
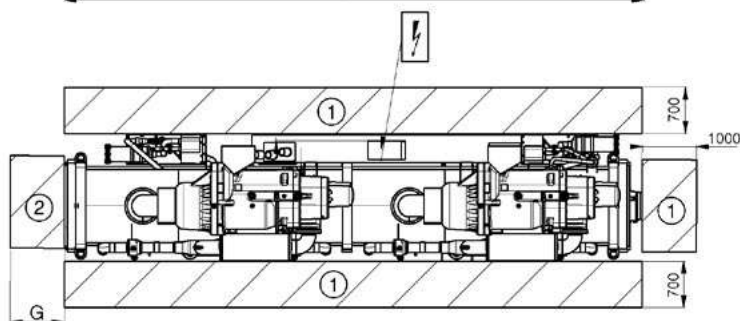
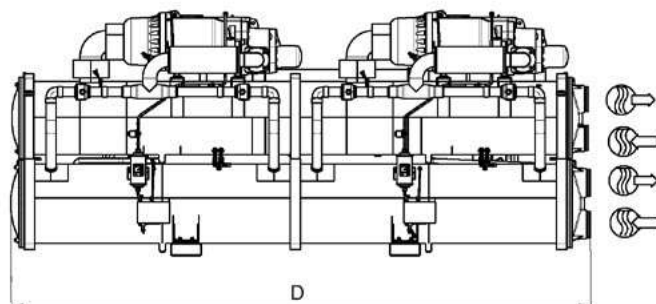
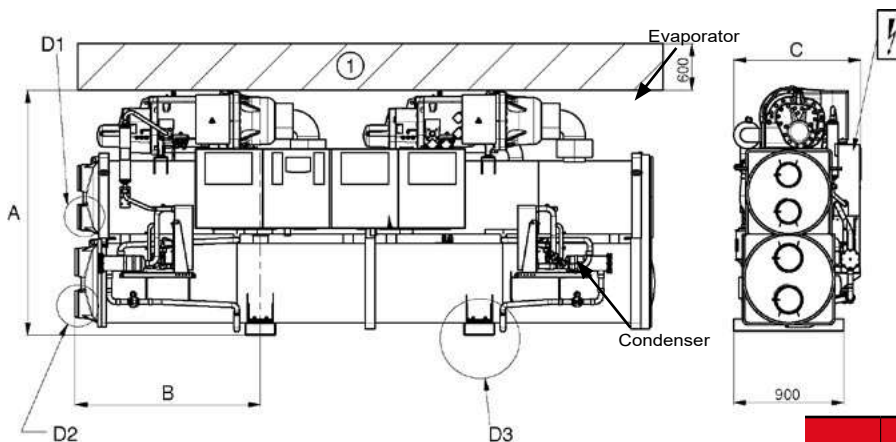
- Option 6 has same dimensions as option 150.
- Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

## DIMENSIONS/CLEARANCES

30XW--/30XWH- 1002-1552

30XW-P/30XWHP 1012-1464



|   | Dimensions in mm |      |      |      |       |       |      |
|---|------------------|------|------|------|-------|-------|------|
|   | A                | B    | C    | D    | E     | F     | G    |
| <b>Standard-efficiency units 30XW--/30XWH-</b>              |                  |      |      |      |       |       |      |
| 1002  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1052  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1152  | 1925             | 950  | 1036 | 4025 | 219,1 | 219,1 | 3800 |
| 1252  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1352  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1452  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1552  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP</b>                  |                  |      |      |      |       |       |      |
| 1012  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1162  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1314  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| 1464  | 2051             | 1512 | 1162 | 4730 | 219,1 | 219,1 | 4500 |
| <b>Standard-efficiency units 30XW--/30XWH- (option 150)</b> |                  |      |      |      |       |       |      |
| 1002  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1052  | 1870             | 950  | 1036 | 4025 | 219,1 | 168,3 | 3800 |
| 1154  | 2925             | 950  | 1036 | 4025 | 219,1 | 219,1 | 3800 |
| 1252  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1352  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1452  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1552  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP (option 150)</b>     |                  |      |      |      |       |       |      |
| 1012  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1162  | 1997             | 1512 | 1039 | 4730 | 219,1 | 219,1 | 4500 |
| 1314  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |
| 1464  | 2071             | 1512 | 1202 | 4730 | 219,1 | 219,1 | 4500 |

### Legend

All dimensions are given in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- ↻ Water inlet
- ↻ Water outlet
- ))) Air outlet – do not obstruct
- ⚡ Power supply connection

- Option 6 has same dimensions as option 150.
- Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

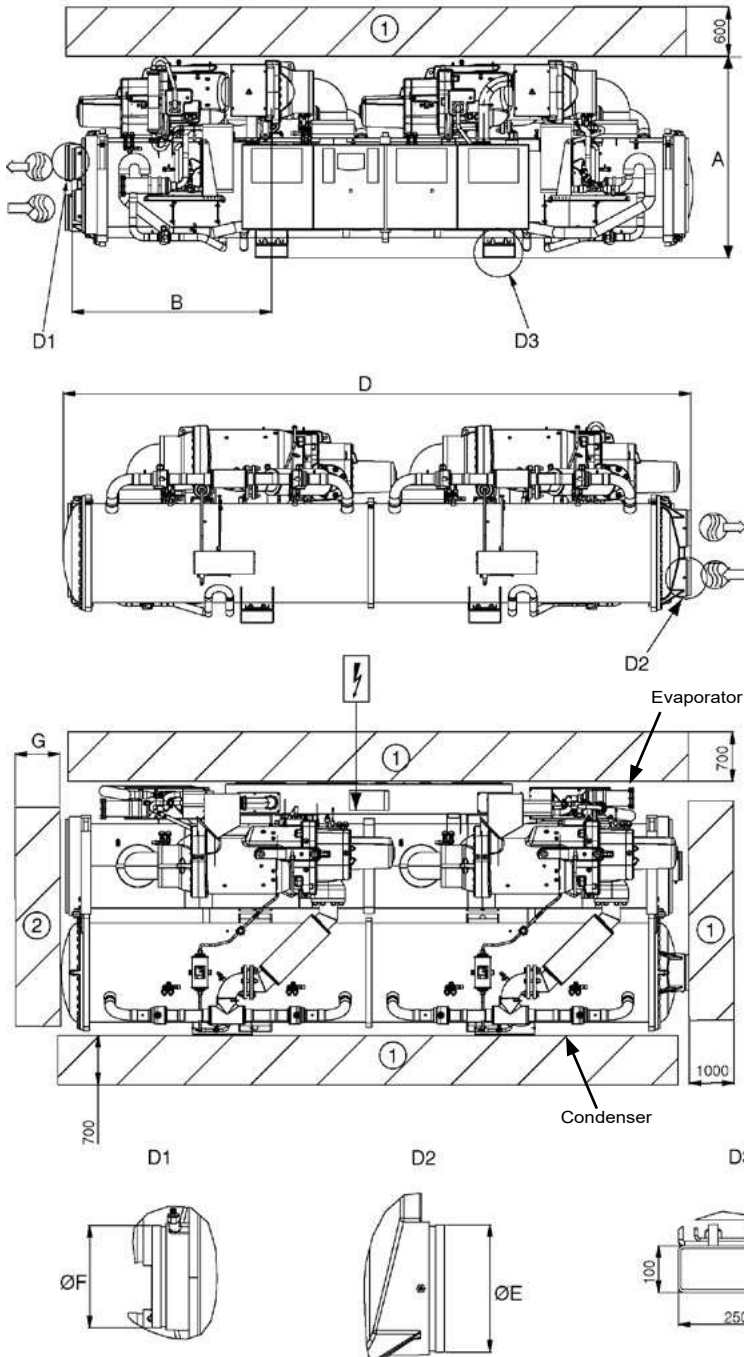
**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.



## DIMENSIONS/CLEARANCES

30XW--/30XWH- 1652-1702

30XW-P/30XWHP 1612-1762



|   | Dimensions in mm |      |      |      |       |       |      |
|---|------------------|------|------|------|-------|-------|------|
|   | A                | B    | C    | D    | E     | F     | G    |
| <b>Standard-efficiency units 30XW--/30XWH-</b>              |                  |      |      |      |       |       |      |
| <b>1652</b>   | 1515             | 1568 | 1902 | 4790 | 219,1 | 219,1 | 4500 |
| <b>1702</b>   | 1515             | 1568 | 1902 | 4790 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP</b>                  |                  |      |      |      |       |       |      |
| <b>1612</b>   | 1562             | 1591 | 2129 | 4832 | 273,1 | 273,1 | 4600 |
| <b>1762</b>   | 1562             | 1591 | 2129 | 4832 | 273,1 | 273,1 | 4600 |
| <b>Standard-efficiency units 30XW--/30XWH- (option 150)</b> |                  |      |      |      |       |       |      |
| <b>1652</b>   | 1535             | 1568 | 1947 | 4790 | 219,1 | 219,1 | 4500 |
| <b>1702</b>   | 1535             | 1568 | 1947 | 4790 | 219,1 | 219,1 | 4500 |
| <b>High-efficiency units 30XW-P/30XWHP (option 150)</b>     |                  |      |      |      |       |       |      |
| <b>1612</b>   | 1585             | 1591 | 2174 | 4832 | 273,1 | 273,1 | 4600 |
| <b>1762</b>   | 1585             | 1591 | 2174 | 4832 | 273,1 | 273,1 | 4600 |

### Legend

All dimensions are given in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- ↙ Water inlet
- ↘ Water outlet
- ⋯ Air outlet – do not obstruct
- ⚡ Power supply connection

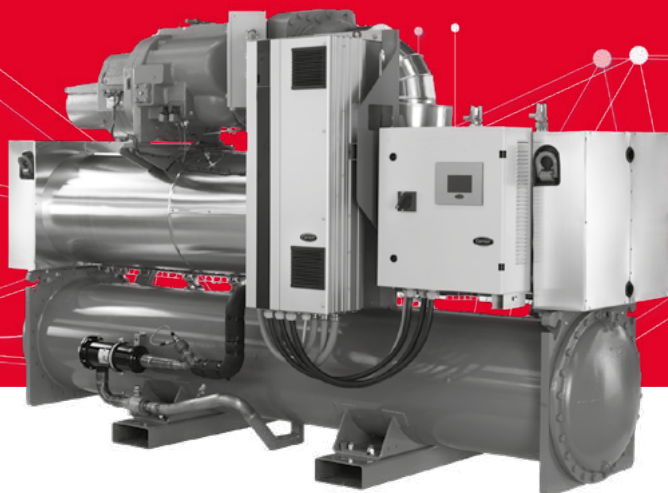
- Option 6 has same dimensions as option 150.
- Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.





## WATER-SOURCED VARIABLE-SPEED SCREW HEAT PUMPS



Low energy consumption

High reliability

Easy and fast installation

Minimised operating  
sound levels

Environmental care

Designed to support green  
building design

## 30XWHV

Nominal heating capacity 648-1932 kW  
Nominal cooling capacity 587-1741 kW

The 30XWHV water-sourced units are the premium solution for commercial and industrial applications where installers, consultants and building owners require maximum quality and optimal performances, especially at part load.

The 30XWHV units are designed to meet current and future requirements in terms of energy efficiency, versatility and compactness. They feature exclusive inverter-driven screw compressors - an evolution of the proven traditional Carrier twin-rotor screw compressor design. Other features include:

- the new SmartVu™ control
- mechanically cleanable flooded heat exchangers
- refrigerant R-134a

The 30XW-V/30XWHV range is split into two versions:

- 30XW-V for air conditioning applications
- 30XWHV for heating applications

As standard, the unit can provide an evaporator leaving water temperature down to 3.3°C, and when operating as a heat pump, it can deliver up to 50°C on the condenser side.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CUSTOMER BENEFITS

### Low energy consumption

- The 30XWHV was designed for high performance both at full load and at part load.
  - Eurovent certified values per EN14511-3:2013: SEPR up to 8.07 and SEER up to 8.43
- High energy efficiency
  - Inverter-driven twin-rotor screw compressors allow precise capacity matching of building load changes and significantly reduce unit power input, especially at part-load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permits operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
- Optimised electrical performance
  - All 30XWHV units comply with class 3 of standard EN61800-3. Category C3 refers to industrial environments. With option 282 category C2 compliance is possible.
  - Inverter-driven motors ensure negligible start-up current (value is lower than the maximum unit current draw)

### High reliability

- The 30XWHV ranges offer increased global performance as well as Carrier's acclaimed product quality and reliability. Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Inverter-driven screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - The inverter is optimised for each compressor motor to ensure reliable operation and easy maintenance.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuits
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling
  - Automatic compressor unloading in case of abnormally high condensing pressure or discharge temperature.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

### Easy and fast installation

- Compact design
  - The 30XWHV units are designed to offer compact dimensions for easy installation.
  - With a width of approximately 1.25 m up to 1000 kW the units can pass through standard door openings and only require minimum floor space in the plant room.
- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer supply to the integrated control circuit (400/24 V)
- Simplified water connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Minimised operating sound levels

- The inverter technology used for the compressor motors minimises noise levels at part load operation. In two-compressor units at 25% of the maximum load the unit sound power level is reduced by 10 dB(A).
- Standard unit features include:
  - Silencers on the compressor discharge line.
  - Sound insulation on the components that are most subjected to radiated noise.
- Option 257 further reduces the global unit sound level.

### Environmental care

- R-134a refrigerant
  - HFC-refrigerant with zero ozone depletion potential
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### Designed to support green building design

- A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment. The underlying principles of this approach: The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.

## CUSTOMER BENEFITS

- The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year, 30XWHV units offers a solution to this important challenge.
- A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.
- The following example looks at how Carrier's new 30XWHV range helps customers involved in LEED® building certification.

### 30XWHV and LEED® certification

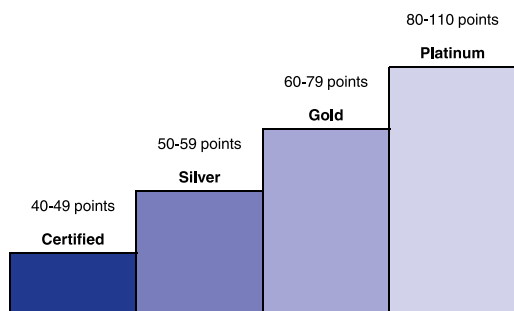
The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a pre-eminent programme to rate the design, construction and operation of green buildings with points assigned in seven credit categories:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain same, the point distribution varies to address different building types and application needs, for example according to New Construction, Schools, Core & Shell, Retail and Healthcare. All programmes now use the same point scale:

### 110 Possible LEED® points

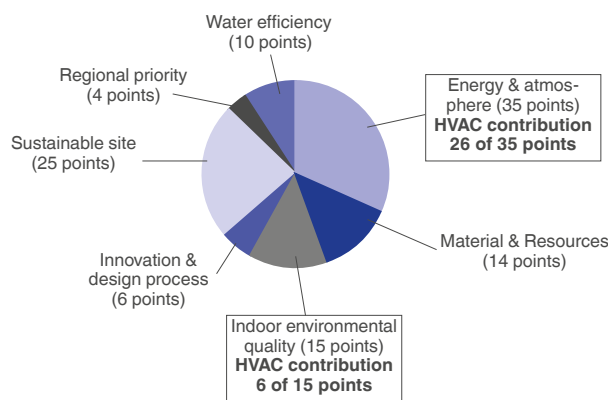


The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impacts of each component or sub-system to the overall building.

While the LEED® green building certification programs do not certify products or services, the selection of the right products, systems or service programs is critical to obtain LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilating and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

### Overview of LEED® for new construction and major renovations



The new 30XWHV units from Carrier can assist building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- **EA prerequisite 2: Minimum energy Performance**  
The 30XWHV exceeds the energy efficiency requirements of ASHRAE 90.1-2007; therefore it complies with the prerequisite standard.
- **EA prerequisite 3: Fundamental Refrigerant Management**  
The 30XWHV does not use chlorofluorocarbon (CFC) refrigerants thus satisfying the prerequisite statement.
- **EA credit 1: Optimise energy performance (1 to 19 points)**  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90.1-2007 reference. The 30XWHV, which is designed for high performance especially during part load operation, contributes reducing the energy consumption of the building and therefore helps gaining points within this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used as an energy analyses program complying with the modeling requirements for this credit and produce reports that are easily transferable to LEED® templates.
- **EA credit 4: Enhanced refrigerant management (2 points)**  
With this credit, LEED® awards systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) of the system. The 30XWHV uses a reduced R134a charge and therefore contributes toward satisfying this credit under LEED®.

**NOTE: This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30XWHV. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the complete HVAC system.**

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: Fundamental commissioning of energy management system
- EA credit 3: Enhanced commissioning (2 points)
- EA credit 5: Measurements and verification (3 points).

**NOTE: Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).**

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features :
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, T, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features :
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote Management (Standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The chiller also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

### Remote management (EMM option)

- The Energy Management Module offers extended remote control possibilities:
  - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
  - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
  - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
  - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
  - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
  - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
  - Time schedule override: Closing of this contact cancels the programmed time schedule.
  - Out of service: This signal indicates that the chiller is completely out of service.
  - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
  - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
  - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

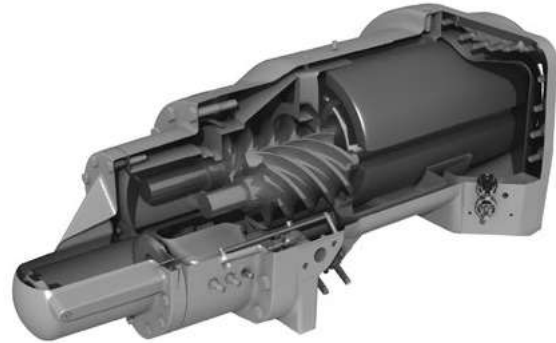
## TECHNICAL INSIGHTS

### Remote management (EMM option)

The Energy Management Module offers extended remote control possibilities:

- Room temperature: permits set-point reset based on the building indoor air temperature (with Carrier thermostat)
- Set point reset: ensures reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
- Demand limit: permits limitation of the maximum chiller power or current based on a 0-10 V signal
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller power or current to two predefined values
- User safety: this contact can be used for any customer safety loop; opening the contact generates a specific alarm
- Ice storage end: when ice storage has finished, this input permits return to the second set-point (unoccupied mode)
- Time schedule override: closing of this contact cancels the time schedule effects
- Out of service: this signal indicates that the chiller is completely out of service
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity
- Alert indication: this volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status : set of outputs (as many as the compressors number) indicating which compressors are running.

### New inverter-driven Thunderbolt screw compressor



- The new generation of Carrier inverter-driven screw compressors benefits from Carrier's long experience in the development of twin-rotor screw compressors. The design of the Thunderbolt compressors is based on the successful 06T screw compressor, core of the well-known Aquaforce series.
- Advanced control algorithms combine inverter frequency output with motor input logic to minimise mechanical part stress, resulting in best compression performance and high chiller reliability. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.
- Screw compressors use positive displacement principle to compress gases at higher pressure. As a result, in case of exceptional high temperature condenser side (due for example to water-pipes fouling or operation in harsh climate with an external dry-cooler) the compressor does not switch off, but continues operation at reduced capacity (unloaded mode).
- The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.
- The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.



## OPTIONS

| Options  | No.  | Description   | Advantages   | Use                                |
|--|------|---|--|------------------------------------|
| Light-brine solution, down to -3°C                       | 8    | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements  | 580-1710 (see dedicated paragraph) |
| Master/slave operation                                   | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two chillers connected in parallel with operating time equalisation   | 580-1710                           |
| Single power connection point                            | 81   | Unit power connection via one main supply connection  | Quick and easy installation  | 1150-1710                          |
| Evap. pump power/control circuit                         | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Evaporator dual pumps electrical power / control circuit | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Cond. pump power/control circuit                         | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Cond. dual pumps power/control circuit                   | 84T  | Unit equipped with an electrical power and control circuit for two pumps condenser side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 580-1710                           |
| Condenser insulation                                     | 86   | Thermal condenser insulation  | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)   | 580-1710                           |
| Service valve set  | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve  | Allow isolation of various refrigerant circuit components for simplified service and maintenance   | 580-1710                           |
| Evaporator with one pass less                            | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 580-1710                           |
| Condenser with one pass less                             | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 580-1710                           |
| 21 bar evaporator  | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)  | 580-1710                           |
| 21 bar condenser   | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)   | 580-1710                           |
| Reversed evaporator water connections                    | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements  | 580-1710                           |
| Reversed condenser water connections                     | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements  | 580-1710                           |
| LON gateway  | 148D | Two-directional communication board complying with LON protocol   | Connects the unit by communication bus to a building management system   | 580-1710                           |
| Bacnet over IP gateway                                   | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 580-1710                           |
| Modbus over IP and RS485                                 | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 580-1710                           |
| Condensing temperature limitation                        | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized  | 580-1710                           |
| Control for low condensing temperature systems           | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | 580-1710                           |
| Energy Management Module EMM                             | 156  | Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | 580-1710                           |
| Leak detection   | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)            | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 580-1710                           |

## OPTIONS

| Options                                  | No. | Description  | Advantages   | Use      |
|--|-----|--|--|----------|
| Dual relief valves on 3-way valve        | 194 | Three-way valve upstream of dual relief valves on the evaporator and the oil separator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4   | 580-1710 |
| Compliance with Swiss regulations        | 197 | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications | Conformance with Swiss regulations   | 580-1710 |
| Compliance with Russian regulations      | 199 | EAC certification  | Conformance with Russian regulations   | 580-1710 |
| Compliance with Australian regulations   | 200 | Unit approved to Australian code   | Conformance with Australian regulations  | 580-1710 |
| Low noise level                          | 257 | Evaporator sound insulation  | 3 dB(A) quieter than standard unit   | 580-1710 |
| Welded evaporator water connection kit   | 266 | Victaulic piping connections with welded joints  | Easy installation  | 580-1710 |
| Welded condenser water connection kit    | 267 | Victaulic piping connections with welded joints  | Easy installation  | 580-1710 |
| Flanged evaporator water connection kit  | 268 | Victaulic piping connections with flanged joints   | Easy installation  | 580-1710 |
| Flanged condenser water connection kit   | 269 | Victaulic piping connections with flanged joints   | Easy installation  | 580-1710 |
| Thermal compressor insulation            | 271 | The compressor is covered with a thermal insulation layer  | Prevents air humidity to condensate on the compressor surface  | 580-1710 |
| EMC classification C2, as per EN 61800-3 | 282 | Additional RFI filters on the unit power line  | Reduces electromagnetic interferences. Increase the variable frequency drive (VFD) immunity level according to first environment (so called, residential environment) requirements and allow its compliancy with emissions level required in category C2 | 580-1710 |
| Compliance with UAE regulation           | 318 | Additional label on the unit with rated power input, rated current and EER following AHRI 550/590                                      | Compliance with ESMA standard UAE.S 5010-5:2019.   | 580-1710 |
| Compliance with Morocco regulation       | 327 | Specifics documents according Morocco regulation   | Conformance with Morocco regulations   | 580-1710 |

## PHYSICAL DATA, 30XW-V UNITS

| 30XW-V / 30XWHV  |     |   |         | 580   | 630   | 810   | 880   | 1150  | 1280  | 1470  | 1570  | 1710  |
|--|-----|---|---------|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Heating  |     |   |         |   |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances *             | HW1 | Nominal capacity                          | kW      | 649   | 719   | 890   | 974   | 1261  | 1428  | 1594  | 1761  | 1932  |
|  |     | COP                                       | kW/kW   | 4,64  | 4,53  | 4,56  | 4,43  | 4,62  | 4,61  | 4,55  | 4,33  | 4,16  |
|  | HW2 | Nominal capacity                          | kW      | 687   | 767   | 956   | 1021  | 1335  | 1524  | 1712  | 1898  | 2067  |
|  |     | COP                                       | kW/kW   | 6,15  | 5,98  | 5,96  | 5,81  | 6,05  | 6,00  | 5,82  | 5,49  | 5,34  |
| Standard unit<br>Seasonal energy<br>efficiency **        | HW2 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 7,32  | 7,05  | 7,21  | 6,96  | 6,95  | 6,66  | 6,37  | 6,13  | 5,87  |
|  |     | ηs heat <sub>30/35°C</sub>                | %       | 285   | 274   | 280   | 270   | 270   | 259   | 247   | 237   | 227   |
|  |     | P <sub>rated</sub>                        | kW      | 818   | 913   | 1134  | 1216  | 1589  | 1815  | 2041  | 2263  | 2463  |
| Cooling  |     |   |         |   |       |       |       |       |       |       |       |       |
| Standard unit<br>Full load<br>performances*              | CW1 | Nominal capacity                          | kW      | 587   | 652   | 812   | 858   | 1140  | 1305  | 1461  | 1604  | 1741  |
|  |     | EER                                       | kW/kW   | 5,44  | 5,31  | 5,25  | 5,07  | 5,45  | 5,50  | 5,38  | 5,05  | 4,94  |
|  |     | Eurovent class                            |         | A   | A     | A     | A     | A     | A     | A     | A     | B     |
|  | CW2 | Nominal capacity                          | kW      | 791   | 846   | 1023  | 970   | 1528  | 1688  | 1703  | 2093  | 2272  |
|  |     | EER                                       | kW/kW   | 6,96  | 6,50  | 6,22  | 5,63  | 6,86  | 6,64  | 5,99  | 5,99  | 5,99  |
|  |     | Eurovent class                            |         | A   | A     | A     | A     | A     | A     | A     | A     | A     |
| Standard unit<br>Seasonal energy<br>efficiency**         |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 7,94  | 7,62  | 8,43  | 7,93  | 8,31  | 8,19  | 7,74  | 7,70  | 7,34  |
|  |     | ηs cool <sub>12/7°C</sub>                 | %       | 315   | 302   | 334   | 314   | 329   | 325   | 307   | 305   | 290   |
|  |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 8,07  | 8,02  | 7,73  | 6,76  | 8,04  | 8,07  | 7,96  | 7,89  | 7,49  |
| Integrated Part Load Value                               |     | IPLV.SI                                   | kW/kW   | 9,060                                       | 9,120 | 9,450 | 8,950 | 9,240 | 9,300 | 9,170 | 9,300 | 8,980 |
| Sound levels - standard unit                             |     |   |         |   |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 105   | 105   | 105   | 105   | 106   | 106   | 106   | 106   | 106   |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 87  | 87    | 87    | 87    | 87    | 87    | 87    | 87    | 87    |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |     |   |         |   |       |       |       |       |       |       |       |       |
| Sound power level <sup>(1)</sup>                         |     |   | dB(A)   | 102   | 102   | 102   | 102   | 103   | 103   | 103   | 103   | 103   |
| Sound pressure level at 1 m <sup>(2)</sup>               |     |   | dB(A)   | 84  | 84    | 84    | 84    | 84    | 84    | 84    | 84    | 84    |
| Dimensions - standard unit                               |     |   |         |   |       |       |       |       |       |       |       |       |
| Length   |     | mm  | 3059    | 3059  | 3290  | 3290  | 4730  | 4730  | 4730  | 4730  | 4730  | 4730  |
| Width  |     | mm  | 1087    | 1087  | 1237  | 1237  | 1164  | 1164  | 1255  | 1255  | 1255  | 1255  |
| Height   |     | mm  | 1743    | 1743  | 1950  | 1950  | 1997  | 1997  | 2051  | 2051  | 2051  | 2051  |
| Operating weight <sup>(4)</sup>                          |     | kg  | 3152    | 3190  | 4157  | 4161  | 7322  | 7398  | 7574  | 7770  | 7808  | 7808  |
| Compressors  |     |   |         | Semi-hermetic 06T screw compressors, 60 r/s |       |       |       |       |       |       |       |       |
| Circuit A  |     | -   | 1       | 1   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Circuit B  |     | -   | -       | -   | -     | -     | 1     | 1     | 1     | 1     | 1     | 1     |

\* In accordance with standard EN14511-3:2013.

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WCW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/WCW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/W(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) in dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate

η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016

NA Non Authorized for the specific application for CEE market

IPLV.SI Calculations according to standard performances AHRI 551-591 (SI).



Eurovent certified values

AHRI certified values  
30XW-only

## PHYSICAL DATA, 30XW-V UNITS

| 30XW-V / 30XWHV                    |                    | 580  | 630  | 810  | 880  | 1150 | 1280 | 1470 | 1570 | 1710 |
|------------------------------------|--------------------|--|------|------|------|------|------|------|------|------|
| <b>Oil - standard unit</b>         |                    |  |      |      |      |      |      |      |      |      |
| Circuit A                          | l                  | 32   | 32   | 36   | 36   | 32   | 32   | 36   | 36   | 36   |
| Circuit B                          | l                  | -  | -    | -    | -    | 32   | 32   | 32   | 36   | 36   |
| <b>Refrigerant - standard unit</b> |                    | R-134a, GWP=1430 following ARI4  |      |      |      |      |      |      |      |      |
| Circuit A                          | kg                 | 130  | 130  | 180  | 175  | 120  | 120  | 115  | 115  | 110  |
|                                    | teqCO <sub>2</sub> | 186  | 186  | 257  | 250  | 172  | 172  | 164  | 164  | 157  |
| Circuit B                          | kg                 | -  | -    | -    | -    | 120  | 120  | 120  | 115  | 110  |
|                                    | teqCO <sub>2</sub> | -  | -    | -    | -    | 172  | 172  | 172  | 164  | 157  |
| <b>Capacity control</b>            |                    | SmartVu™, inverter-driven compressor, electronic expansion valve (EXV) |      |      |      |      |      |      |      |      |
| Minimum capacity                   | %                  | 20   | 20   | 20   | 20   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                  |                    | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 106  | 106  | 154  | 154  | 297  | 297  | 297  | 297  | 297  |
| Water connections (Victaulic)      | in                 | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                   |                    | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                       | l                  | 112  | 112  | 165  | 165  | 340  | 340  | 340  | 340  | 340  |
| Water connections (Victaulic)      | in                 | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)   | in                 | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure | kPa                | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

## ELECTRICAL DATA

| 30XW-V/30XWHV  |         | 580                               | 630       | 810       | 880       | 1150      | 1280      | 1470      | 1570      | 1710      |
|--|---------|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Power circuit</b>                                 |         |                                   |           |           |           |           |           |           |           |           |
| Nominal power supply                                 | V-ph-Hz | 400-3-50                          |           |           |           |           |           |           |           |           |
| Voltage range  | V       | 360-440                           |           |           |           |           |           |           |           |           |
| <b>Control circuit</b>                               |         | 24 V via the built-in transformer |           |           |           |           |           |           |           |           |
| <b>Start-up current*</b>                             | A       | Lower than the operating current  |           |           |           |           |           |           |           |           |
| <b>Maximum power factor**</b>                        |         | 0,91-0,93                         | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 |
| <b>Cosine phi</b>                                    |         | >0,98                             | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     | >0,98     |
| Total harmonic distortion†                           | %       | 35-45                             | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     |
| <b>Maximum power input***</b>                        |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | kW      | 155                               | 193       | 222       | 246       | 155       | 193       | 222       | 222       | 246       |
| Circuit B  | kW      | -                                 | -         | -         | -         | 155       | 193       | 193       | 222       | 246       |
| With option 81                                       | kW      | -                                 | -         | -         | -         | 310       | 386       | 415       | 444       | 492       |
| <b>Eurovent current draw****</b>                     |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 175                               | 200       | 240       | 265       | 175       | 200       | 240       | 240       | 265       |
| Circuit B  | A       | -                                 | -         | -         | -         | 175       | 200       | 200       | 240       | 265       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 350       | 400       | 440       | 480       | 530       |
| <b>Maximum current draw (Un)***</b>                  |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 245                               | 300       | 346       | 383       | 245       | 300       | 346       | 346       | 383       |
| Circuit B  | A       | -                                 | -         | -         | -         | 245       | 300       | 300       | 346       | 383       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 490       | 600       | 646       | 692       | 766       |
| <b>Maximum current draw (Un -10%)***</b>             |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 270                               | 330       | 380       | 421       | 270       | 330       | 380       | 380       | 421       |
| Circuit B  | A       | -                                 | -         | -         | -         | 270       | 330       | 330       | 380       | 421       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 540       | 660       | 710       | 760       | 842       |
| <b>Maximum power input with option 150B***</b>       |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | kW      | 141                               | 173       | 199       | 221       | 141       | 173       | 199       | 199       | 221       |
| Circuit B  | kW      | -                                 | -         | -         | -         | 141       | 173       | 173       | 199       | 221       |
| With option 81                                       | kW      | -                                 | -         | -         | -         | 282       | 346       | 372       | 398       | 442       |
| <b>Maximum current draw (Un) with option 150B***</b> |         |                                   |           |           |           |           |           |           |           |           |
| Circuit A  | A       | 222                               | 272       | 314       | 348       | 222       | 272       | 314       | 314       | 348       |
| Circuit B  | A       | -                                 | -         | -         | -         | 222       | 272       | 272       | 314       | 348       |
| With option 81                                       | A       | -                                 | -         | -         | -         | 444       | 544       | 586       | 628       | 696       |
| <b>Dissipated power†</b>                             | W       | 3000                              | 4200      | 4700      | 5300      | 6000      | 8400      | 8900      | 9400      | 10600     |

\* Instantaneous start-up current

\*\* This can vary as a function of the short-circuit current/maximum current ratio of the system transformer. Values obtained at operation with maximum unit power input.

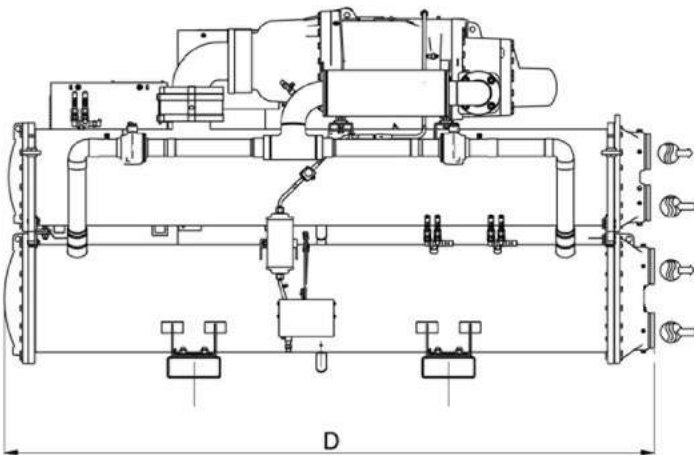
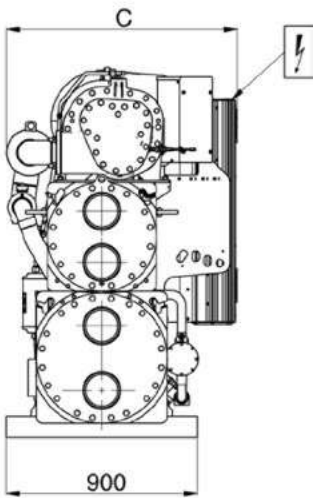
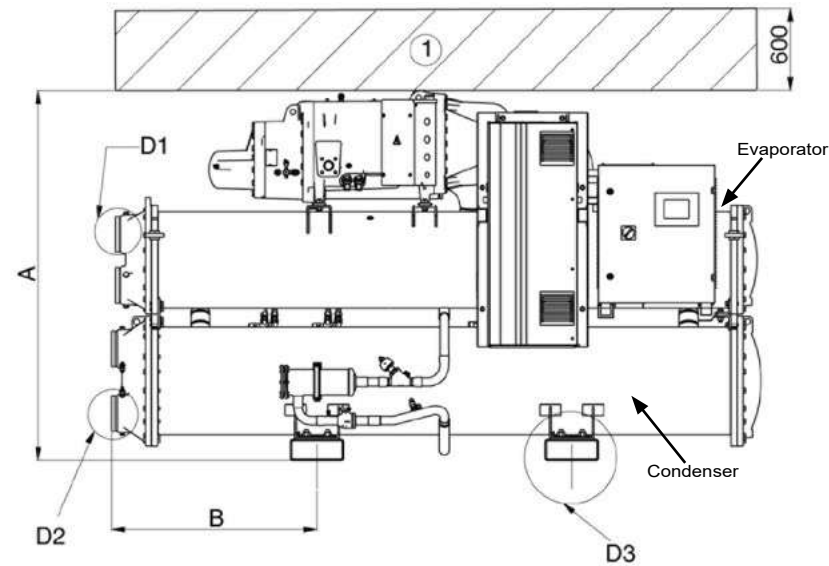
\*\*\* Values obtained at operation with maximum unit power input. Values given on the unit name plate.

\*\*\*\* Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C. Gross performances, not in accordance with EN14511-3:2013. These performances do not take into account the correction for the proportional heating capacity and power input generated by the water pump to overcome the internal pressure drop in the heat exchanger.

† Values obtained at operation with maximum unit power input.

DIMENSIONS/CLEARANCES

30XWHV 580-880



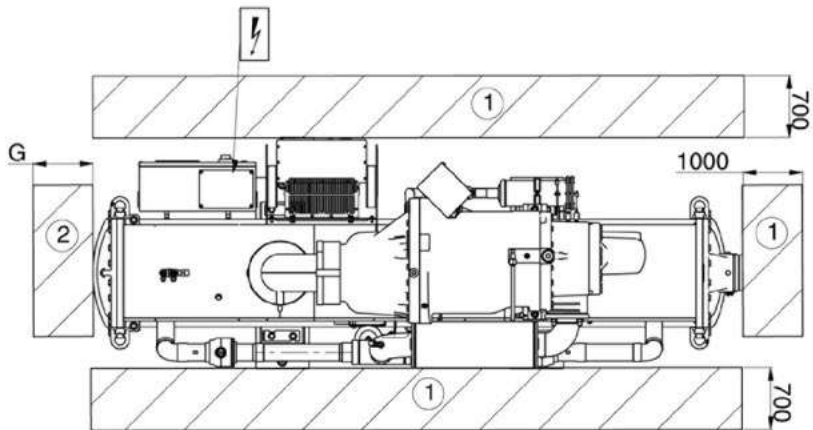
| Dimensions in mm |      |      |      |      |       |       |      |
|------------------|------|------|------|------|-------|-------|------|
|                  | A    | B    | C    | D    | E     | F     | G    |
| <b>30XWHV</b>    |      |      |      |      |       |       |      |
| <b>580</b>       | 1743 | 968  | 1087 | 3059 | 168,3 | 168,3 | 2900 |
| <b>630</b>       | 1743 | 968  | 1087 | 3059 | 168,3 | 168,3 | 2900 |
| <b>810</b>       | 1950 | 1083 | 1237 | 3290 | 219,1 | 219,1 | 3100 |
| <b>880</b>       | 1950 | 1083 | 1237 | 3290 | 219,1 | 219,1 | 3100 |

Legend:

All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Power supply connection

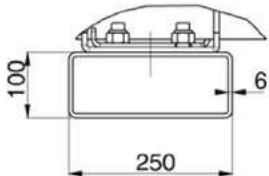
**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.



D1



D2

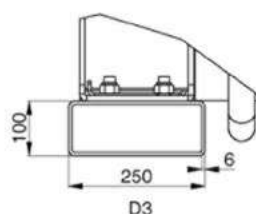
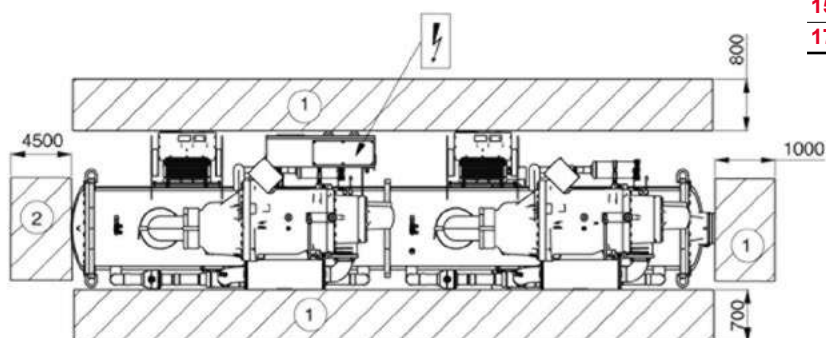
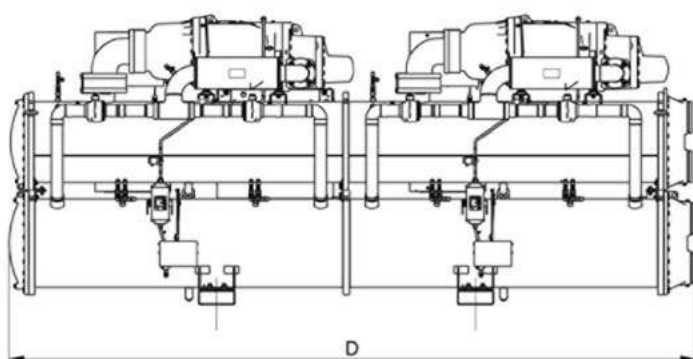
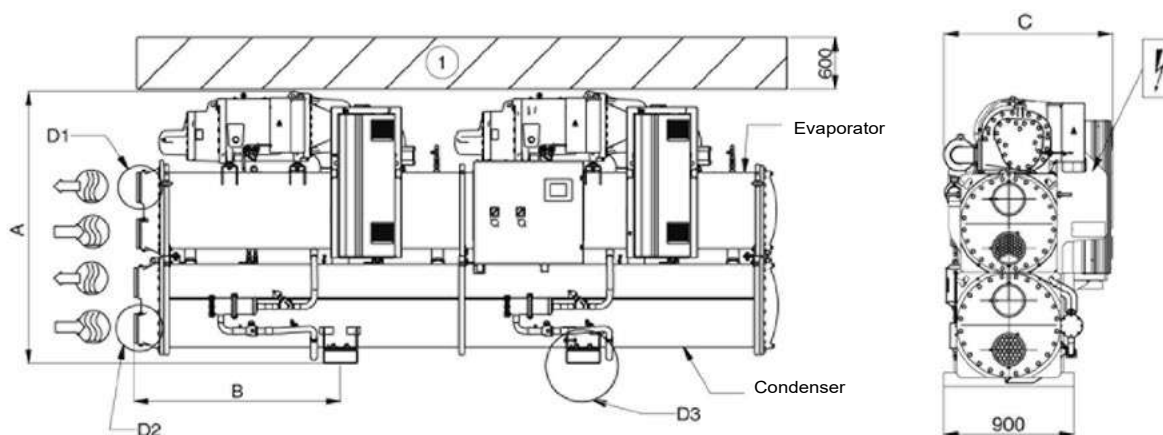


D3



## DIMENSIONS/CLEARANCES

### 30XWHV 1150-1710



| Dimensions in mm |      |      |      |      |       |       |
|------------------|------|------|------|------|-------|-------|
|                  | A    | B    | C    | D    | E     | F     |
| <b>30XWHV</b>    |      |      |      |      |       |       |
| <b>1150</b>      | 1997 | 1514 | 1164 | 4730 | 219,1 | 219,1 |
| <b>1280</b>      | 1997 | 1514 | 1164 | 4730 | 219,1 | 219,1 |
| <b>1470</b>      | 2051 | 1514 | 1255 | 4730 | 219,1 | 219,1 |
| <b>1570</b>      | 2051 | 1514 | 1255 | 4730 | 219,1 | 219,1 |
| <b>1710</b>      | 2051 | 1514 | 1255 | 4730 | 219,1 | 219,1 |

#### Legend:

All dimensions are in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- Water inlet
- Water outlet
- Power supply connection

**NOTE:** Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.

## WATER-SOURCED SCREW HEAT PUMPS



Low energy consumption

High reliability

Safe Design

Easy and fast installation

Minimised operating sound levels

Environmental care

## 30XWHPZE

**AQUAFORCE**  
PUREtec

Nominal heating capacity 319-1296 kW  
Nominal cooling capacity 269-1110 kW

The 30XWH-PZE heat pumps are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality.

The 30XWH-PZE heat pumps are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness. They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- R-1234ze refrigerant or R-515B
- Flooded heat exchangers that are mechanically cleanable
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages

The AquaForce PUREtec range is splitted into two versions:

- 30XW-PZE for air conditioning and refrigeration applications
- 30XWHPZE for heating applications

As standard, the unit can provide an evaporator leaving temperature down to 3,3°C, and when operating as a heat pump, it can deliver up to 55°C (70°C optional) on the condenser side.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CUSTOMER BENEFITS

### Low energy consumption

- SEER 12/7°C up to 7.6 and SEPR 12/7°C up to 9.3
- 30XWHPZE range is compliant with EU Eco-design Minimum Efficiency Performance Standards (MEPS) in heating that apply from September 2015
- COP of up to 6.7 and SCOP up to 7.2
- The high energy efficiency is reached through:
  - Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
  - Economizer system with electronic expansion device for increased cooling capacity.

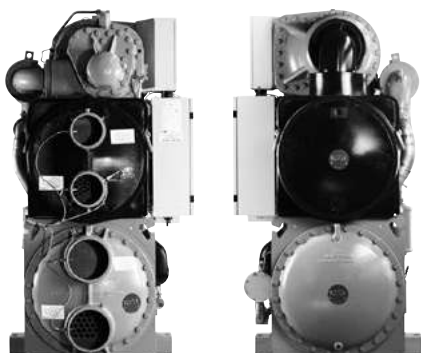
### Low operating sound levels

- Standard unit features include:
  - Silencers on the compressors discharge line.
  - Silencers on the economiser return line.
  - Acoustic insulation on the components that are most subjected to radiated noise.
  - Option 257 further reduces the global unit sound level.

### Easy and fast installation

- Compact design
  - The 30XW units are designed to offer the most compact dimensions on the market.
  - With a width of approximately 1 m up to 1300 kW the units can pass through standard door openings and only require minimum floor space in the plant room.

#### Compact, accessible unit - side view - sizes up to 1300 kW



- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V)
- Simplified hydraulic connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Environmental care



- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity air-conditioning equipment.
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

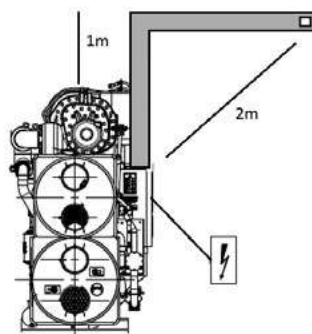
### High reliability and easy servicing

- The 30XW units offer increased global performance as well as Carrier's acclaimed product quality and reliability.
- Major components are selected and tested with R-1234ze and R-515B refrigerant to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Non flammable use possible when selecting option 330, Low GWP A1 R-515 Refrigerant
- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuit
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

## CUSTOMER BENEFITS

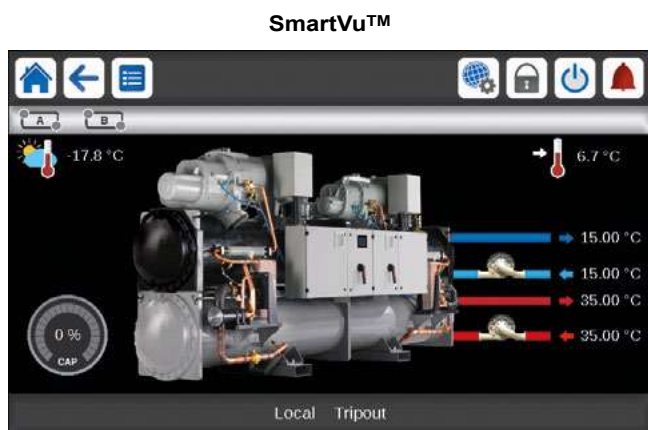
### Safe Design

- Specific polyol ester oil qualified by Carrier for using with HFO-1234ze or R-515B to guarantee and maintain reliable bearing lubrication.
- Specific compressor gaskets compatible with HFO-1234ze or R-515B, tested and validated by Carrier.
- New relief valves designed for operation with HFO-1234ze or R-515B
- Specific electrical box with increased tightness and integrated blower that maintains positive air pressure to avoid any risk of ignition when using R-1234ze refrigerant.
- No need of ducted electrical cabinet fresh air supply when using option 330 - LOW GWP A1 R-515B refrigerant
- New control algorithms
- Specific documentation that contains all the installation, operation, maintenance and safety Instructions.



## TECHNICAL INSIGHTS

### SmartVu™ Control



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 7" interface
  - 10 languages available on choice: DE, EN, ES, FR, IT, NL, PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced
  - Noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation
- Energy management:
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.

- Maintenance functions
  - F-Gas regulation leak check reminder alert
  - aintenance alert can be configured to days, months or hours of operation
- Advanced communication features
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters

### Remote Management (Standard)

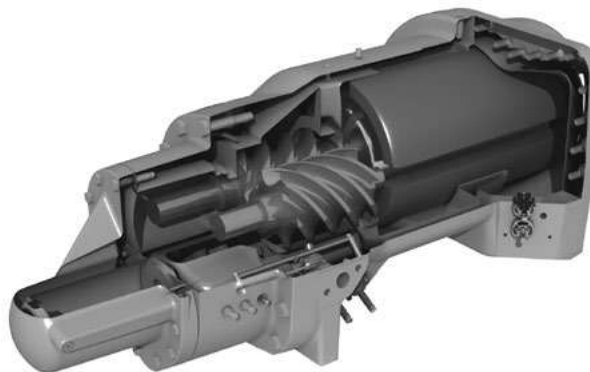
- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional)
- The 30XWZE/30XWPZE also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: ndication if the unit is operating or if it is in stand-by (no cooling load).
  - Alarm visualisation.

## TECHNICAL INSIGHTS

### Remote management (EMM option)

- The Energy management module (EMM) offers extended remote control possibilities:
- Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
- Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
- Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
- Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
- User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
- Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
- Time schedule override: Closing of this contact cancels the programmed time schedule.
- Out of service: This signal indicates that the chiller is completely out of service.
- Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
- Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running

### 06T screw compressor



The Carrier 06T screw compressor designed for operation with HFO-1234ze and R-515B refrigerant benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high water temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.

The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.



## OPTIONS

| Options                                   | N°   | Description   | Advantages  | Use      |
|---|------|---|---|----------|
| Light-brine solution, down to -3°C        | 8    | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements   | 301-1101 |
| Master/slave operation                    | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parrallele operation with operating time equalisation   | 301-1101 |
| Single power connection point             | 81   | Unit power connection via one main supply connection  | Quick and easy installation   | 801-1101 |
| Evap. pump power/control circuit          | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | 301-1001 |
| Evap. dual pumps power/control circuit    | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | 301-1001 |
| Cond. pump power/control circuit          | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control   | 301-1001 |
| Condenser insulation                      | 86   | Thermal condenser insulation  | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)  | 301-1101 |
| Service valve set                         | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve  | Allow isolation of various refrigerant circuit components for simplified service and maintenance  | 301-1101 |
| Evaporator with one pass less             | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops  | 301-1101 |
| Condenser with one pass less              | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops  | 301-1101 |
| 21 bar evaporator                         | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)   | 301-1101 |
| 21 bar condenser                          | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)  | 301-1101 |
| Reversed evaporator water connections     | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements   | 301-1101 |
| Reversed condenser water connections      | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements   | 301-1101 |
| Lon gateway                               | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system  | 301-1101 |
| Bacnet over IP                            | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 301-1101 |
| Modbus over IP and RS485                  | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters  | 301-1101 |
| High condensing temperature               | 150  | Optimized compressor for operation at high condensing temperature   | Increased condenser leaving water temperature up to 70°C. Allows applications with high condensing temperature (heat pumps, installations with not generously sized dry-coolers or more generally, installations with dry-coolers in hot climate). NOTE: to ensure control of the condenser leaving water temperature, this option must be fitted with 30XWH units. | 301-1101 |
| Condensing temperature limitation         | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized   | 301-1101 |
| Control for low cond. temperature systems | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values  | 301-1101 |



## OPTIONS

| Options                                 | N°   | Description  | Advantages   | Use      |
|---|------|--|--|----------|
| Dry-cooler control                      | 154  | Adaptation of the control box for communication with the dry-cooler via a bus. For dry cooler need to select the cabinet with option control cabinet manage by the chiller control | Easy system management, extended control capabilities of a remote dry-cooler                                     | 301-1101 |
| Energy Management Module                | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter  | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...) | 301-1101 |
| SmartVu™control, 7" user interface      | 158A | SmartVu™control supplied with a 7 inch colour touch screen user interface  | Enhanced ease of use.  | 301-1101 |
| Dual relief valves on 3-way valve       | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator   | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4 | 301-1101 |
| Compliance with Swiss regulations       | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications   | Conformance with Swiss regulations   | 301-1101 |
| Compliance with Australian regulations  | 200  | Unit approved to Australian code   | Conformance with Australian regulations  | 301-1101 |
| Low noise level                         | 257  | Evaporator sound insulation  | 3 dB(A) quieter than standard unit   | 401-1101 |
| Welded evaporator connection kit        | 266  | Victaulic piping connections with welded joints  | Easy installation  | 301-1101 |
| Welded condenser water connection kit   | 267  | Victaulic piping connections with welded joints  | Easy installation  | 301-1101 |
| Flanged evaporator water connection kit | 268  | Victaulic piping connections with flanged joints   | Easy installation  | 301-1101 |
| Flanged condenser water connection kit  | 269  | Victaulic piping connections with flanged joints   | Easy installation  | 301-1101 |
| Thermal compressor insulation           | 271  | The compressor is covered with a thermal insulation layer  | Prevents air humidity to condensate on the compressor surface  | 301-1101 |
| Free-cooling dry-cooler control         | 313  | Control & connections to a Free Cooling Drycooler 09PE or 09VE fitted with option FC control box   | Easy system management, Extended control capabilities to a dryccoler used in Free Cooling mode                   | 301-1101 |
| Low GWP A1 R-515B refrigerant           | 330  | Unit delivered with R-515B refrigerant charge (A1, GWP 299)  | Reduced CO <sub>2</sub> footprint (GWP < 300)<br>A1 safety class<br>Reduced installed cost in technical room     | 301-1101 |

## PHYSICAL DATA, STANDARD UNITS

| 30XW-PZE / 30XWHPZE                           |     |   |         | 301  | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|---|-----|---|---------|------|------|------|------|------|------|------|------|------|------|
| Heating                                       |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load performances*      | HW1 | Nominal capacity                          | kW      | 322  | 448  | 509  | 657  | 698  | 758  | 916  | 1012 | 1168 | 1297 |
|   |     | COP                                       | kW/kW   | 6,12 | 6,55 | 6,47 | 6,63 | 6,48 | 6,47 | 6,52 | 6,49 | 6,50 | 6,30 |
|   | HW2 | Nominal capacity                          | kW      | 318  | 439  | 500  | 646  | 686  | 741  | 900  | 991  | 1146 | 1271 |
|   |     | COP                                       | kW/kW   | 4,66 | 4,94 | 4,88 | 4,99 | 4,85 | 4,89 | 4,95 | 4,92 | 4,95 | 4,80 |
|   | HW3 | Nominal capacity                          | kW      | 315  | 433  | 494  | 638  | 678  | 725  | 890  | 976  | 1129 | 1251 |
|   |     | COP                                       | kW/kW   | 3,65 | 3,82 | 3,80 | 3,84 | 3,74 | 3,80 | 3,83 | 3,82 | 3,86 | 3,73 |
| Standard unit<br>Seasonal energy efficiency** | HW1 | SCOP <sub>30/35°C</sub>                   | kW/kW   | 6,20 | 6,74 | 6,81 | 6,48 | 6,53 | 6,57 | 6,79 | 6,97 | 6,88 | 6,51 |
|   |     | η <sub>s heat</sub> <sub>30/35°C</sub>    | %       | 240  | 262  | 264  | 251  | 253  | 255  | 264  | 271  | 267  | 252  |
|   | HW3 | SCOP <sub>47/55°C</sub>                   | kW/kW   | 4,43 | 5,04 | 4,99 | 4,49 | 4,60 | 4,73 | 5,07 | 5,09 | 4,95 | 4,62 |
|   |     | η <sub>s heat</sub> <sub>47/5 5°C</sub>   | %       | 169  | 194  | 192  | 171  | 176  | 181  | 195  | 195  | 190  | 177  |
|   |     | P <sub>rated</sub>                        | kW      | 411  | 540  | 615  | 795  | 845  | 908  | 1108 | 1218 | 1408 | 1562 |
|   |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Cooling                                       |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Standard unit<br>Full load performances*      | CW1 | Nominal capacity                          | kW      | 271  | 385  | 435  | 561  | 595  | 648  | 783  | 874  | 1001 | 1111 |
|   |     | EER                                       | kW/kW   | 5,28 | 5,75 | 5,66 | 5,80 | 5,66 | 5,69 | 5,74 | 5,83 | 5,80 | 5,65 |
|   | CW2 | Nominal capacity                          | kW      | 375  | 538  | 610  | 764  | 813  | 880  | 1086 | 1220 | 1383 | 1522 |
|   |     | EER                                       | kW/kW   | 8,00 | 8,15 | 7,99 | 8,55 | 8,17 | 8,33 | 8,10 | 8,13 | 8,27 | 8,13 |
| Standard unit<br>Seasonal energy efficiency** |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 6,43 | 7,03 | 7,35 | 6,54 | 6,65 | 6,97 | 7,10 | 7,59 | 7,61 | 7,14 |
|   |     | η <sub>s cool</sub> <sub>12/7°C</sub>     | %       | 254  | 278  | 291  | 259  | 263  | 276  | 281  | 301  | 301  | 283  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 9,27 | 8,76 | 8,75 | 9,36 | 8,78 | 8,84 | 8,76 | 9,06 | 9,26 | 9,19 |

\* In accordance with standard EN14511-3:2018

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WHW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. k/WCW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/WCW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/Wη<sub>s heat</sub><sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s heat</sub><sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016η<sub>s cool</sub><sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**

Eurovent certified values

## PHYSICAL DATA, STANDARD UNITS

| 30XW-PZE / 30XWHPZE   |                     | 301  | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|---|---------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Sound levels - standard unit</b>                             |                     |      |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                                | dB(A)               | 93   | 97   | 97   | 97   | 97   | 97   | 100  | 100  | 100  | 100  |
| Sound pressure level at 1 m <sup>(2)</sup>                      | dB(A)               | 76   | 80   | 80   | 79   | 79   | 79   | 81   | 81   | 81   | 81   |
| <b>Sound levels - standard unit + option 257 <sup>(3)</sup></b> |                     |      |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                                | dB(A)               | -    | 94   | 94   | 94   | 94   | 94   | 97   | 97   | 97   | 97   |
| Sound pressure level at 1 m <sup>(1)</sup>                      | dB(A)               | -    | 76   | 76   | 76   | 76   | 76   | 78   | 78   | 78   | 78   |
| <b>Dimensions - standard unit</b>                               |                     |      |      |      |      |      |      |      |      |      |      |
| Length  | mm                  | 2724 | 3059 | 3059 | 3290 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 |
| Width   | mm                  | 928  | 936  | 936  | 1069 | 1069 | 1069 | 1039 | 1039 | 1162 | 1162 |
| Height  | mm                  | 1567 | 1743 | 1743 | 1950 | 1950 | 1950 | 1997 | 1997 | 2051 | 2051 |
| <b>Operating weight <sup>(4)</sup></b>                          | kg                  | 2157 | 3050 | 3050 | 3942 | 3977 | 3995 | 6932 | 7010 | 7665 | 7875 |
| <b>Compressors</b>  |                     |      |      |      |      |      |      |      |      |      |      |
| Semi-hermetic 06T screw compressors, 50 r/s                     |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | -                   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B   | -                   | -    | -    | -    | -    | -    | -    | 1    | 1    | 1    | 1    |
| <b>Refrigerant - standard unit</b>                              |                     |      |      |      |      |      |      |      |      |      |      |
| R-1234ze  |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kg                  | 78   | 130  | 130  | 180  | 175  | 170  | 120  | 120  | 130  | 130  |
|   | teq CO <sub>2</sub> | 0,5  | 0,9  | 0,9  | 1,3  | 1,2  | 1,2  | 0,8  | 0,8  | 0,9  | 0,9  |
| Circuit B   | kg                  | -    | -    | -    | -    | -    | -    | 120  | 120  | 150  | 130  |
|   | teq CO <sub>2</sub> | -    | -    | -    | -    | -    | -    | 0,8  | 0,8  | 1,1  | 0,9  |
| <b>Refrigerant - option 330</b>                                 |                     |      |      |      |      |      |      |      |      |      |      |
| R-515B  |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | kg                  | 79   | 132  | 132  | 183  | 178  | 173  | 122  | 122  | 132  | 132  |
|   | teq CO <sub>2</sub> | 23,1 | 38,7 | 38,7 | 53,6 | 52,2 | 50,7 | 35,7 | 35,7 | 38,7 | 38,7 |
| Circuit B   | kg                  | -    | -    | -    | -    | -    | -    | 122  | 122  | 152  | 132  |
|   | teq CO <sub>2</sub> | -    | -    | -    | -    | -    | -    | 35,7 | 35,7 | 44,5 | 38,7 |
| <b>Oil - standard unit</b>                                      |                     |      |      |      |      |      |      |      |      |      |      |
| HATCOL-4496   |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A   | l                   | 20   | 20   | 20   | 25   | 25   | 25   | 20   | 20   | 25   | 25   |
| Circuit B   | l                   | -    | -    | -    | -    | -    | -    | 20   | 20   | 20   | 25   |
| <b>Capacity control</b>   |                     |      |      |      |      |      |      |      |      |      |      |
| SmartVu™, electronic expansion valves (EXV)                     |                     |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity  | %                   | 25   | 30   | 30   | 15   | 15   | 20   | 15   | 15   | 15   | 10   |
| <b>Evaporator</b>   |                     |      |      |      |      |      |      |      |      |      |      |
| Multi-pipe flooded type   |                     |      |      |      |      |      |      |      |      |      |      |
| Water volume  | l                   | 61   | 101  | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  |
| Water connections (Victaulic)                                   | in                  | 5    | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)                                | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                              | kPa                 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>  |                     |      |      |      |      |      |      |      |      |      |      |
| Multi-pipe flooded type   |                     |      |      |      |      |      |      |      |      |      |      |
| Water volume  | l                   | 55   | 103  | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  |
| Water connections (Victaulic)                                   | in                  | 5    | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)                                | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                              | kPa                 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate

## ELECTRICAL DATA, STANDARD UNITS

| 30XW-PZE / 30XWHPZE  |         | 301                               | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|--|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| <b>Power circuit</b>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Nom. power supply  | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| <b>Voltage range</b>   | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| <b>Control circuit</b>   |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| Nominal start-up current <sup>(1)</sup>                          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 303                               | 414  | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 414  | 414  | 414  | 587  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 529  | 543  | 716  | 751  |
| <b>Maximum start-up current<sup>(2)</sup></b>                    |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 303                               | 414  | 414  | 587  | 587  | 587  | 414  | 414  | 587  | 587  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 414  | 414  | 414  | 587  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 597  | 621  | 794  | 855  |
| <b>Cosine phi</b>  |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal <sup>(3)</sup>   |         | 0,79                              | 0,86 | 0,87 | 0,85 | 0,87 | 0,89 | 0,86 | 0,87 | 0,85 | 0,85 |
| Maximum <sup>(4)</sup>   |         | 0,90                              | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 | 0,90 |
| Total harmonic distortion <sup>(4)</sup>                         | %       | Closed to 0% (negligible)         |      |      |      |      |      |      |      |      |      |
| <b>Maximum power input<sup>(5)</sup></b>                         |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | kW      | 86                                | 112  | 126  | 148  | 165  | 174  | 112  | 126  | 148  | 148  |
| Circuit B  | kW      | -                                 | -    | -    | -    | -    | -    | 112  | 126  | 126  | 148  |
| Option 81  | kW      | -                                 | -    | -    | -    | -    | -    | 224  | 252  | 274  | 296  |
| <b>Nominal current drawn<sup>(3)</sup></b>                       |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 91                                | 115  | 129  | 164  | 177  | 194  | 115  | 129  | 164  | 164  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 115  | 129  | 129  | 164  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 230  | 258  | 293  | 328  |
| <b>Maximum current drawn (Un)<sup>(5)</sup></b>                  |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 140                               | 180  | 205  | 240  | 268  | 282  | 180  | 205  | 240  | 240  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 180  | 205  | 205  | 240  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 360  | 410  | 445  | 480  |
| <b>Maximum current drawn (Un -10%)<sup>(4)</sup></b>             |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 153                               | 196  | 223  | 261  | 292  | 307  | 196  | 223  | 261  | 261  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 196  | 223  | 223  | 261  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 392  | 446  | 484  | 522  |
| <b>Maximum power input with option 150B<sup>(5)</sup></b>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | kW      | 76                                | 97   | 110  | 129  | 146  | 153  | 97   | 110  | 129  | 129  |
| Circuit B  | kW      | -                                 | -    | -    | -    | -    | -    | 97   | 110  | 110  | 129  |
| Option 81  | kW      | -                                 | -    | -    | -    | -    | -    | 195  | 220  | 239  | 258  |
| <b>Maximum current drawn (Un) with option 150B<sup>(5)</sup></b> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A  | A       | 123                               | 158  | 179  | 209  | 237  | 249  | 158  | 179  | 209  | 209  |
| Circuit B  | A       | -                                 | -    | -    | -    | -    | -    | 158  | 179  | 179  | 209  |
| Option 81  | A       | -                                 | -    | -    | -    | -    | -    | 316  | 358  | 388  | 418  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(3) Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(4) Values obtained at operation with maximum unit power input.

(5) Values obtained at operation with maximum unit power input. Values given on the unit nameplate.

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES (OPTION 150)

| 30XW-ZE / 30XWHZE                                 |     |   |         | 301  | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|---|-----|---|---------|------|------|------|------|------|------|------|------|------|------|
| Heating   |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Unit + option 150<br>Full load performances*      | HW1 | Nominal capacity                          | kW      | 319  | 462  | 516  | 642  | 697  | 771  | 912  | 1057 | 1159 | 1297 |
|   |     | COP                                       | kW/kW   | 5,61 | 6,01 | 6,05 | 5,83 | 5,71 | 5,93 | 5,76 | 5,98 | 5,73 | 5,61 |
|   | HW2 | Nominal capacity                          | kW      | 310  | 446  | 498  | 623  | 678  | 753  | 880  | 1018 | 1123 | 1260 |
|   |     | COP                                       | kW/kW   | 4,59 | 4,93 | 4,97 | 4,8  | 4,7  | 4,91 | 4,74 | 4,93 | 4,74 | 4,66 |
|   | HW3 | Nominal capacity                          | kW      | 302  | 433  | 482  | 605  | 661  | 734  | 853  | 983  | 1089 | 1223 |
|   |     | COP                                       | kW/kW   | 3,78 | 4,05 | 4,09 | 3,95 | 3,88 | 4,06 | 3,89 | 4,06 | 3,94 | 3,88 |
|   | HW4 | Nominal capacity                          | kW      | 293  | 420  | 467  | 585  | 645  | 715  | 828  | 950  | 1057 | 1186 |
|   |     | COP                                       | kW/kW   | 3,07 | 3,29 | 3,32 | 3,21 | 3,16 | 3,29 | 3,15 | 3,29 | 3,21 | 3,18 |
| Unit + option 150<br>Seasonal energy efficiency** | HW1 | SCOP <sub>30/35°C</sub>                   | kWh/kWh | 5,8  | 6,18 | 6,25 | 6,38 | 6,28 | 6,29 | 6,21 | 6,31 | 6,26 | 6,3  |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub>    | %       | 224  | 239  | 242  | 247  | 243  | 244  | 240  | 244  | 242  | 244  |
|   | HW3 | SCOP <sub>47/55°C</sub>                   | kWh/kWh | 4,7  | 4,77 | 4,83 | 4,86 | 4,84 | 4,9  | 4,77 | 4,87 | 4,84 | 4,89 |
|   |     | η <sub>s</sub> heat <sub>47/55°C</sub>    | %       | 180  | 183  | 185  | 186  | 186  | 188  | 183  | 187  | 186  | 187  |
|   |     | P <sub>rated</sub>                        | kW      | 421  | 544  | 607  | 761  | 829  | 922  | 1073 | 1240 | 1371 | 1539 |
|   |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Cooling   |     |   |         |      |      |      |      |      |      |      |      |      |      |
| Unit + option 150<br>Full load performances*      | CW1 | Nominal capacity                          | kW      | 269  | 393  | 439  | 547  | 591  | 656  | 776  | 910  | 985  | 1101 |
|   |     | EER                                       | kW/kW   | 4,86 | 5,2  | 5,27 | 5,07 | 4,95 | 5,18 | 5,05 | 5,34 | 5,03 | 4,94 |
|   | CW2 | Nominal capacity                          | kW      | 352  | 538  | 605  | 725  | 782  | 877  | 1057 | 1251 | 1332 | 1466 |
|   |     | EER                                       | kW/kW   | 5,58 | 6,44 | 6,4  | 6,24 | 6,12 | 6,42 | 6,23 | 6,45 | 6,16 | 6,06 |
| Unit + option 150<br>Seasonal energy efficiency** |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 6,24 | 6,57 | 6,65 | 6,52 | 6,57 | 6,5  | 6,67 | 6,8  | 6,63 | 6,6  |
|   |     | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 247  | 260  | 263  | 258  | 260  | 257  | 264  | 269  | 262  | 261  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 6,80 | 7,01 | 7,07 | 7,39 | 6,97 | 6,99 | 6,96 | 7,23 | 7,11 | 7,30 |

\* In accordance with standard EN14511-3:2018

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². kW

HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². kW

HW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m². kW

HW4 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 55°C/65°C, evaporator and condenser fouling factor 0 m². kW

CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m².K/W

CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fouling factor 0 m².K/W

η<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016

η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**

SEPR<sub>12/7°C</sub> Values calculated in accordance with EN14825:2016



Eurovent certified values

## PHYSICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES (OPTION 150)

| 30XWHPZE   |                     | 301  | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|--|---------------------|------|------|------|------|------|------|------|------|------|------|
| Sound levels - unit with option 150                      |                     |      |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                         | dB(A)               | 93   | 97   | 97   | 100  | 100  | 100  | 100  | 100  | 103  | 103  |
| Sound pressure level at 1 m <sup>(2)</sup>               | dB(A)               | 76   | 80   | 80   | 82   | 82   | 82   | 81   | 81   | 84   | 84   |
| Sound levels - standard unit + option 257 <sup>(3)</sup> |                     |      |      |      |      |      |      |      |      |      |      |
| Sound power level <sup>(1)</sup>                         | dB(A)               | -    | 94   | 94   | 98   | 98   | 98   | 97   | 97   | 101  | 101  |
| Sound pressure level at 1 m <sup>(2)</sup>               | dB(A)               | -    | 76   | 76   | 80   | 80   | 80   | 78   | 78   | 82   | 82   |
| Operating weight <sup>(4)</sup>                          | kg                  | 2157 | 3050 | 3050 | 4102 | 4147 | 4175 | 6932 | 7010 | 7844 | 8182 |
| Compressors  |                     |      |      |      |      |      |      |      |      |      |      |
| Semi-hermetic 06T screw compressors, 50 r/s              |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A  | -                   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B  | -                   | -    | -    | -    | -    | -    | -    | 1    | 1    | 1    | 1    |
| Refrigerant - unit with option 150                       |                     |      |      |      |      |      |      |      |      |      |      |
| R-1234ze   |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A  | kg                  | 78   | 130  | 130  | 180  | 175  | 170  | 120  | 120  | 130  | 130  |
|  | teq CO <sub>2</sub> | 0,5  | 0,9  | 0,9  | 1,3  | 1,2  | 1,2  | 0,8  | 0,8  | 0,9  | 0,9  |
| Circuit B  | kg                  | -    | -    | -    | -    | -    | -    | 120  | 120  | 150  | 130  |
|  | teq CO <sub>2</sub> | -    | -    | -    | -    | -    | -    | 0,8  | 0,8  | 1,1  | 0,9  |
| Refrigerant - option 330                                 |                     |      |      |      |      |      |      |      |      |      |      |
| R-515B   |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A  | kg                  | 79   | 132  | 132  | 183  | 178  | 173  | 122  | 122  | 132  | 132  |
|  | teq CO <sub>2</sub> | 23,1 | 38,7 | 38,7 | 53,6 | 52,2 | 50,7 | 35,7 | 35,7 | 38,7 | 38,7 |
| Circuit B  | kg                  | -    | -    | -    | -    | -    | -    | 122  | 122  | 152  | 132  |
|  | teq CO <sub>2</sub> | -    | -    | -    | -    | -    | -    | 35,7 | 35,7 | 44,5 | 38,7 |
| Oil - unit with option 150                               |                     |      |      |      |      |      |      |      |      |      |      |
| HATCOL-4496  |                     |      |      |      |      |      |      |      |      |      |      |
| Circuit A  | l                   | 20   | 20   | 20   | 25   | 25   | 25   | 20   | 20   | 25   | 25   |
| Circuit B  | l                   | -    | -    | -    | -    | -    | -    | 20   | 20   | 20   | 25   |
| Capacity control   |                     |      |      |      |      |      |      |      |      |      |      |
| SmartVu™, electronic expansion valves (EXV)              |                     |      |      |      |      |      |      |      |      |      |      |
| Minimum capacity   | %                   | 30   | 30   | 30   | 20   | 20   | 25   | 15   | 15   | 15   | 10   |
| Evaporator   |                     |      |      |      |      |      |      |      |      |      |      |
| Multi-pipe flooded type                                  |                     |      |      |      |      |      |      |      |      |      |      |
| Water volume   | l                   | 61   | 101  | 101  | 154  | 154  | 154  | 293  | 293  | 321  | 321  |
| Water connections (Victaulic)                            | in                  | 5    | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)                         | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                       | kPa                 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Condenser  |                     |      |      |      |      |      |      |      |      |      |      |
| Multi-pipe flooded type                                  |                     |      |      |      |      |      |      |      |      |      |      |
| Water volume   | l                   | 55   | 103  | 103  | 148  | 148  | 148  | 316  | 316  | 340  | 340  |
| Water connections (Victaulic)                            | in                  | 5    | 6    | 6    | 8    | 8    | 8    | 8    | 8    | 10   | 10   |
| Drain and vent connections (NPT)                         | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure                       | kPa                 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. Please refer to the unit nameplate



## ELECTRICAL DATA, UNITS FOR HIGH CONDENSING TEMPERATURES (OPTION 150)

| 30XW-PZE / 30XWHPZE                         |         | 301                               | 401  | 451  | 551  | 601  | 651  | 801  | 901  | 1001 | 1101 |
|---|---------|-----------------------------------|------|------|------|------|------|------|------|------|------|
| Power circuit                               |         |                                   |      |      |      |      |      |      |      |      |      |
| Nominal power supply                        | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |      |      |      |
| Voltage range                               | V       | 360-440                           |      |      |      |      |      |      |      |      |      |
| Control circuit                             |         | 24 V via the built-in transformer |      |      |      |      |      |      |      |      |      |
| Nominal start-up current <sup>(1)</sup>     |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 388                               | 587  | 587  | 629  | 629  | 629  | 587  | 587  | 629  | 629  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 587  | 587  | 587  | 629  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 712  | 725  | 767  | 815  |
| Maximum start-up current <sup>(2)</sup>     |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 388                               | 587  | 587  | 629  | 629  | 629  | 587  | 587  | 629  | 629  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 587  | 587  | 587  | 629  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 833  | 860  | 902  | 972  |
| Cosine phi nominal <sup>(3)</sup>           |         | 0,75                              | 0,80 | 0,81 | 0,80 | 0,81 | 0,83 | 0,80 | 0,81 | 0,80 | 0,80 |
| Cosine phi maximum <sup>(4)</sup>           |         | 0,90                              | 0,90 | 0,90 | 0,89 | 0,89 | 0,89 | 0,90 | 0,90 | 0,89 | 0,89 |
| Total harmonic distortion <sup>(4)</sup>    | %       | Closed to 0% (negligible)         |      |      |      |      |      |      |      |      |      |
| Maximum power input <sup>(5)</sup>          |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | kW      | 107                               | 144  | 158  | 202  | 219  | 228  | 144  | 158  | 202  | 202  |
| Circuit B                                   | kW      | -                                 | -    | -    | -    | -    | -    | 144  | 158  | 158  | 202  |
| Option 81                                   | kW      | -                                 | -    | -    | -    | -    | -    | 288  | 317  | 360  | 404  |
| Nominal current drawn <sup>(3)</sup>        |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 102                               | 125  | 138  | 186  | 197  | 213  | 125  | 138  | 186  | 186  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 125  | 138  | 138  | 186  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 250  | 276  | 324  | 372  |
| Maximum current drawn (Un) <sup>(5)</sup>   |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 174                               | 234  | 257  | 328  | 356  | 371  | 234  | 257  | 328  | 328  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 234  | 257  | 257  | 328  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 468  | 514  | 585  | 656  |
| Max. current drawn (Un -10%) <sup>(4)</sup> |         |                                   |      |      |      |      |      |      |      |      |      |
| Circuit A                                   | A       | 190                               | 255  | 280  | 357  | 387  | 404  | 255  | 280  | 357  | 357  |
| Circuit B                                   | A       | -                                 | -    | -    | -    | -    | -    | 255  | 280  | 280  | 357  |
| Option 81                                   | A       | -                                 | -    | -    | -    | -    | -    | 510  | 560  | 637  | 714  |

(1) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C.

(2) Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

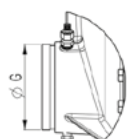
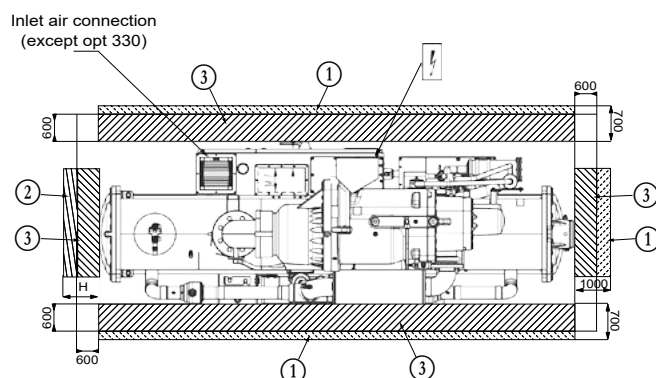
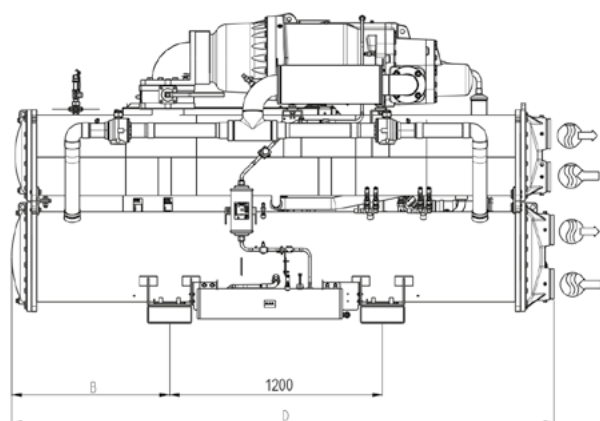
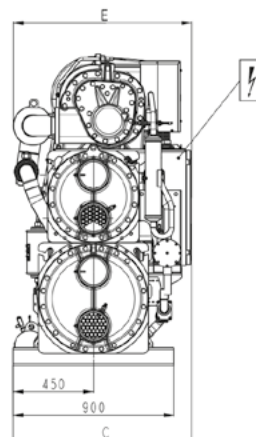
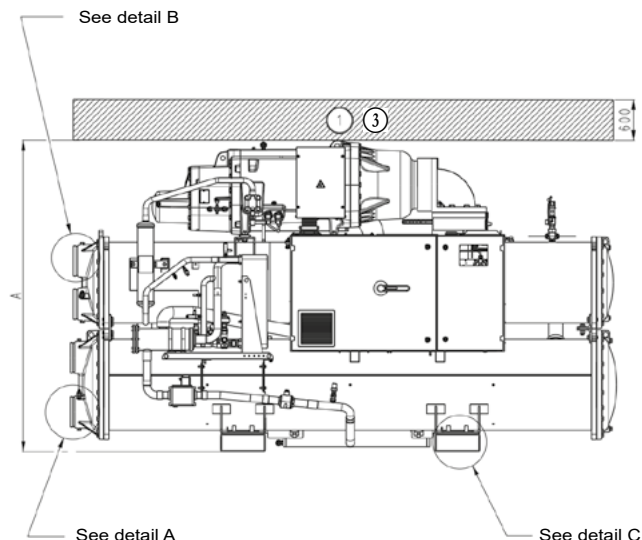
(3) Values obtained at standard Eurovent conditions: evaporator entering/leaving water temp. = 12°C/7°C, condenser entering/leaving water temp. = 30°C/35°C

(4) Values obtained at operation with maximum unit power input.

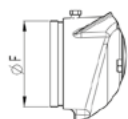
(5) Values obtained at operation with maximum unit power input. Values given on the unit nameplate.

## DIMENSIONS/CLEARANCES

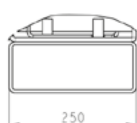
### 30XWHPZE 301-651



Detail A



Detail B



Detail C

| Dimensions in mm             |      |      |      |      |      |       |       |      |
|------------------------------|------|------|------|------|------|-------|-------|------|
|                              | A    | B    | C    | D    | E    | F     | G     | H    |
| <b>30XWHPZE</b>              |      |      |      |      |      |       |       |      |
| <b>301</b>                   | 1612 | 800  | 982  | 2724 | 983  | 141,3 | 141,3 | 2600 |
| <b>401</b>                   | 1743 | 968  | 980  | 3059 | 982  | 168,3 | 168,3 | 2800 |
| <b>451</b>                   | 1743 | 968  | 980  | 3059 | 982  | 168,3 | 168,3 | 2800 |
| <b>551</b>                   | 1950 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| <b>601</b>                   | 1950 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| <b>651</b>                   | 1950 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| <b>30XWHPZE (option 150)</b> |      |      |      |      |      |       |       |      |
| <b>301</b>                   | 1612 | 800  | 982  | 2724 | 983  | 141,3 | 141,3 | 2600 |
| <b>401</b>                   | 1743 | 968  | 980  | 3059 | 982  | 168,3 | 168,3 | 2800 |
| <b>451</b>                   | 1743 | 968  | 1040 | 3059 | 1042 | 168,3 | 168,3 | 2800 |
| <b>551</b>                   | 1968 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| <b>601</b>                   | 1968 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |
| <b>651</b>                   | 1968 | 1083 | 1080 | 3290 | 1180 | 219,1 | 219,1 | 3100 |

#### Legend

All dimensions are given in mm

- ① Services clearances required
- ② Space required to remove cooler tubes
- ③ Zone ATEX
- Inlet water
- Outlet water
- Electrical supply entry

#### NOTES:

- Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.
- For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.



## WATER-SOURCED VARIABLE-SPEED SCREW HEAT PUMPS



Low energy consumption  
High reliability  
Safe Design  
Easy and fast installation  
Minimised operating sound levels  
Environmental care  
Designed to support green building design

## 30XWHVZE-A

Nominal heating capacity 524-1485 kW  
Nominal cooling capacity 448-1243 kW

The 30XWHVZE water-sourced units are the premium solution for commercial and industrial applications where installers, consultants and building owners require maximum quality and optimal performances, especially at part load.

The 30XWHVZE units are designed to meet current and future requirements in terms of energy efficiency, versatility and compactness. They feature exclusive inverter-driven screw compressors - an evolution of the proven traditional Carrier twin-rotor screw compressor design. Other features include:

- the new SmartVu™ control
- mechanically cleanable flooded heat exchangers
- refrigerant R-1234ze or R-515B

The 30XW-VZE/30XWHVZE range is splitted into two versions:

- 30XW-VZE for air conditioning applications
- 30XWHVZE for heating applications

As standard, the unit can provide an evaporator leaving water temperature down to 3.3°C, and when operating as a heat pump, it can deliver up to 55°C on the condenser side.

**AQUAFORCE**  
PUREtec



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

\* Evaporator with aluminium jacket shown in the picture not standard - available as special order only

## CUSTOMER BENEFITS

### Low energy consumption

- The 30XWHVZE are designed for high performance both at full load and at part load.
  - Eurovent certified values per EN14511-3:2013: SEPR up to 10.7 and SEER up to 8.8
- High energy efficiency
  - Inverter-driven twin-rotor screw compressors allow precise capacity matching of building load changes and significantly reduce unit power input, especially at part-load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permits operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
- Optimised electrical performance
  - All 30XWHVZE units comply with class 3 of standard EN61800-3. Category C3 refers to industrial environments. With option 282 category C2 compliance is possible.
  - Inverter-driven motors ensure negligible start-up current (value is lower than the maximum unit current draw)

### High reliability

- The 30XWHVZE ranges offer increased global performance as well as Carrier's acclaimed product quality and reliability. Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Inverter-driven screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - The inverter is optimised for each compressor motor to ensure reliable operation and easy maintenance.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuits
  - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
  - All components have been selected and tested with R-1234ze refrigerant and R-515B
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling
  - Automatic compressor unloading in case of abnormally high condensing pressure or discharge temperature.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard)

### Safe Design

- Specific polyol ester oil qualified by Carrier for using with HFO-1234ze and R-515B to guarantee and maintain reliable bearing lubrication.
- Specific compressor gaskets compatible with HFO-1234ze and R-515B, tested and validated by Carrier.
- New relief valves designed for operation with HFO-1234ze and R-515B
- New control algorithms
- Specific documentation that contains all the installation, operation, maintenance and safety Instructions.
- No need of electrical cabinet ducted fresh air supply

### Easy and fast installation

- Compact design
  - The 30XWHVZE units are designed to offer compact dimensions for easy installation.
  - With a width of approximately 1.25 m up to 1000 kW the units can pass through standard door openings and only require minimum floor space in the plant room.
- Simplified electrical connections
  - Transformer supply to the integrated control circuit (400/24 V)
- Simplified water connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.
  - Non flammable use possible when selecting option 330, Low GWP A1 R-515B Refrigerant

### Minimised operating sound levels

- The inverter technology used for the compressor motors minimises noise levels at part load operation. In two-compressor units at 25% of the maximum load the unit sound power level is reduced by 10 dB(A).
- Standard unit features include:
  - Silencers on the compressor discharge line.
  - Sound insulation on the components that are most subjected to radiated noise.
- Option 257 further reduces the global unit sound level.



## CUSTOMER BENEFITS

### Environmental care



- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity air-conditioning equipment.
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### Designed to support green building design

- A green building is a building that is environmentally sustainable and has been designed, constructed and is operated to minimise the total impact on the environment. The underlying principles of this approach: The resulting building will be economical to operate, offer increased comfort and create a healthier environment for the people who live and work there, increasing productivity.
- The air conditioning system can use between 30 and 40% of the annual building energy consumption. Selection of the right air conditioning system is one of the main aspects to consider when designing a green building. For buildings with a variable load throughout the year 30XW-VZE/30XWHVZE units offers a solution to this important challenge.
- A number of green building certification programs exist in the market and offer third-party assessment of green building measures for a wide variety of building types.
- The following example looks at how Carrier's new 30XW-VZE/30XWHVZE range helps customers involved in LEED® building certification.

#### 30XW-VZE/30XWHVZE and LEED® certification

The LEED® (Leadership in Energy and Environmental Design) green building certification programme is a pre-eminent programme to rate the design, construction and operation of green buildings with points assigned in seven credit categories:

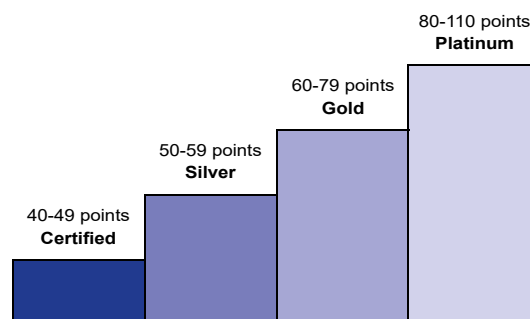
- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (IEQ)
- Innovation in Design (ID)
- Regional Priority (RP).

There are a number of different LEED® products.

While the strategies and categories assessed remain same, the point distribution varies to address different building types and application needs, for example according to New Construction, Schools, Core & Shell, Retail and Healthcare.

All programmes now use the same point scale:

#### 110 Possible LEED® points

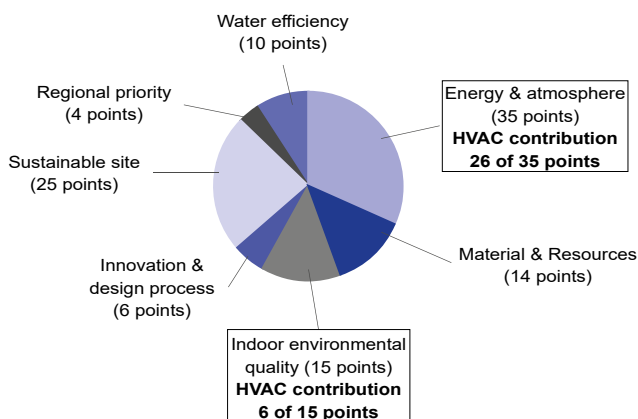


The majority of credits in LEED® rating systems are performance-based and achieving them is dependent on the impacts of each component or sub-system to the overall building.

While the LEED® green building certification programs do not certify products or services, the selection of the right products, systems or service programs is critical to obtain LEED® certification for a registered project, because the right products or service programmes can help meet the goals of green construction and ongoing operation and maintenance.

The choice of heating, ventilating and air conditioning (HVAC) products in particular can have a significant impact on LEED® certification, as the HVAC system directly impacts two categories that together influence 40% of the available points.

#### Overview of LEED® for new construction and major renovations



The new 30XW-VZE/30XWHVZE units from Carrier can assist building owners to earn LEED® points in particular in the Energy & Atmosphere (EA) credit category and help address the following prerequisites and credit requirements:

- **EA prerequisite 2: Minimum energy Performance**  
The 30XW-VZE/30XWHVZE exceeds the energy efficiency requirements of ASHRAE 90.1-2007; therefore it complies with the prerequisite standard.
- **EA prerequisite 3: Fundamental Refrigerant Management**  
The 30XW-VZE/30XWHVZE does not use chlorofluorocarbon (CFC) refrigerants thus satisfying the prerequisite statement.



## CUSTOMER BENEFITS

- **EA credit 1: Optimise energy performance (1 to 19 points)**  
Points for this credit are assigned depending on the energy cost reduction virtually achievable by the new building, compared to ASHRAE 90,1-2007 reference. The 30XW-VZE/30XWHVZE, which is designed for high performance especially during part load operation, contributes reducing the energy consumption of the building and therefore helps gaining points within this credit. In addition, the Carrier HAP (Hourly Analyses Program) can be used as an energy analyses program complying with the modeling requirements for this credit and produce reports that are easily transferable to LEED® templates.
- **EA credit 4: Enhanced refrigerant management (2 points)**  
With this credit, LEED® awards systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) of the system. The 30XW-VZE/30XWHVZE uses HFO-1234ze refrigerant with Global Warming Potential Index below 1 and therefore contributes toward satisfying this credit under LEED®.

**NOTE: This section describes the prerequisites and credit requirements in LEED® for New Construction and is directly related to the 30XW-V-ZE/30XWHV-ZE. Other prerequisites and credit requirements are not directly and purely related to the air-conditioning unit itself, but more to the control of the complete HVAC system.**

i-Vu®, Carrier's open control system, has features that can be valuable for:

- EA prerequisite 1: Fundamental commissioning of energy management system
- EA credit 3: Enhanced commissioning (2 points)
- EA credit 5: Measurements and verification (3 points).

**NOTE: Products are not reviewed or certified under LEED®. LEED® credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. For more information on LEED®, visit [www.usgbc.org](http://www.usgbc.org).**

## TECHNICAL INSIGHTS

### SmartVu™



- New innovative smart control features :
  - An intuitive and user-friendly, coloured, 7" interface
  - 1 languages available on choice :DE, EN, ES,FR,T,NL,PT, TR, TU + one additional customer choice
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Setpoint offset based on the outside air temperature
  - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
  - Night-mode: Cooling capacity management for reduced noise level.
  - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
  - Internal time schedule clock controls chiller on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
  - F-Gas regulation leak check reminder alert
  - Maintenance alert can be configured to days, months or hours of operation

- Advanced communication features :
  - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
  - Access to multiple unit parameters.

### Remote Management (Standard)

- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The chiller also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
  - Start/Stop of the machine
  - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
  - Demand limit setting: To limit the maximum chiller capacity to a predefined value
  - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
  - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
  - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
  - Alarm visualisation.

## TECHNICAL INSIGHTS

### Remote management (EMM option)

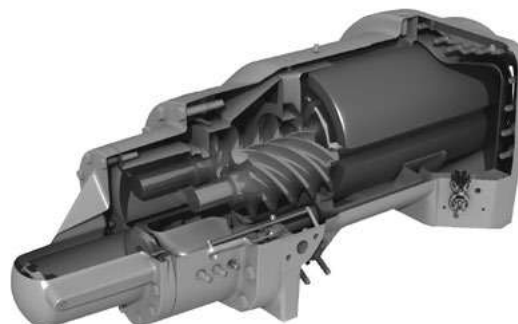
- The Energy management module (EMM) offers extended remote control possibilities:
- Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
- Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
- Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
- Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
- User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
- Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
- Time schedule override: Closing of this contact cancels the programmed time schedule.
- Out of service: This signal indicates that the chiller is completely out of service.
- Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
- Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

### Remote management (EMM option)

The Energy Management Module offers extended remote control possibilities:

- Room temperature: permits set-point reset based on the building indoor air temperature (with Carrier thermostat)
- Set point reset: ensures reset of the cooling set-point based on a 0-10 V signal
- Demand limit: permits limitation of the maximum chiller power or current based on a 0-10 V signal
- Demand limit 1 and 2: closing of these contacts limits the maximum chiller power or current to two predefined values
- User safety: this contact can be used for any customer safety loop; opening the contact generates a specific alarm
- Ice storage end: when ice storage has finished, this input permits return to the second set-point (unoccupied mode)
- Time schedule override: closing of this contact cancels the time schedule effects
- Out of service: this signal indicates that the chiller is completely out of service
- Chiller capacity: this analogue output (0-10 V) gives an immediate indication of the chiller capacity
- Alert indication: this volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
- Compressors running status : set of outputs (as many as the compressors number) indicating which compressors are running.

### New inverter-driven Thunderbolt screw compressor



- The Carrier 06T screw compressor designed for operation with HFO-1234ze refrigerant benefits from Carrier's long experience in the development of twin-rotor screw compressors. The design of the Thunderbolt compressors is based on the successful 06T screw compressor, core of the well-known Aquaforce series.
- Advanced control algorithms combine inverter frequency output with motor input logic to minimise mechanical part stress, resulting in best compression performance and high chiller reliability. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.
- Screw compressors use positive displacement principle to compress gases at higher pressure. As a result, in case of exceptional high temperature condenser side (due for example to water-pipes fouling or operation in harsh climate with an external dry-cooler) the compressor does not switch off, but continues operation at reduced capacity (unloaded mode).
- The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.
- The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

## OPTIONS

| Options                                      | N°   | Description   | Advantages   | Use                                |
|--|------|---|--|------------------------------------|
| Light-brine solution, down to -3°C           | 8    | Implementation of new algorithms of control to allow chilled brine solution production down to -3°C when ethylene glycol is used (0°C with propylene glycol)  | Matches with most application requirements for ground-sourced heat pumps and fits with many industrial processes requirements  | 451-1301 (see dedicated paragraph) |
| Master/slave operation                       | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parallel operation with operating time equalisation  | 451-1301                           |
| Condenser insulation                         | 86   | Thermal condenser insulation  | Minimizes thermal dispersions condenser side (key option for heat pump or heat recovery applications) and allows compliancy with special installation criteria (hot parts insulated)   | 451-1301                           |
| Service valve set                            | 92   | Liquid line valve (evaporator inlet) and compressor suction line valve  | Allow isolation of various refrigerant circuit components for simplified service and maintenance   | 451-1301                           |
| Evaporator with one pass less                | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 451-1301                           |
| Condenser with one pass less                 | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 451-1301                           |
| 21 bar evaporator                            | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)  | 451-1301                           |
| 21 bar condenser                             | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)   | 451-1301                           |
| Reversed evaporator water connections        | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements  | 451-1301                           |
| Reversed condenser water connections         | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements  | 451-1301                           |
| Lon gateway                                  | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system   | 451-1301                           |
| Bacnet over IP                               | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 451-1301                           |
| Modbus over IP and RS485                     | 149B | Bi-directional high-speed communication using Modbus protocol over Ethernet network (IP)  | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 451-1301                           |
| Condensing temperature limitation            | 150B | Limitation of the maximum condenser leaving water temperature to 45°C   | Reduced maximum power input and current absorption: power cables and protection elements can therefore be downsized  | 451-1301                           |
| Control for low cond. temperature systems    | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | 451-1301                           |
| Energy Management Module                     | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | 451-1301                           |
| Input contact for Refrigerant leak detection | 159  | 0-10 V signal to report any refrigerant leakage in the unit directly on the controller (the leak detector itself must be supplied by the customer)            | Immediate customer notification of refrigerant losses to the atmosphere, allowing timely corrective actions  | 451-1301                           |
| Dual relief valves on 3-way valve            | 194  | Three-way valve upstream of dual relief valves on the shell and tubes evaporator  | Valve replacement and inspection facilitated without refrigerant loss. Comforms to European standard EN378/BGVD4   | 451-1301                           |
| Compliance with Swiss regulations            | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications                        | Conformance with Swiss regulations   | 451-1301                           |

## OPTIONS

| Options                                  | N°    | Description   | Advantages   | Use      |
|--|-------|---|--|----------|
| Compliance with Russian regulations      | 199   | EAC certification   | Conformance with Russian regulations   | 451-1301 |
| Compliance with Australian regulations   | 200   | Unit approved to Australian code  | Conformance with Australian regulations  | 451-1301 |
| Low noise level                          | 257   | Evaporator sound insulation   | 3 dB(A) quieter than standard unit   | 451-1301 |
| Welded evaporator connection kit         | 266   | Victaulic piping connections with welded joints   | Easy installation  | 451-1301 |
| Welded condenser water connection kit    | 267   | Victaulic piping connections with welded joints   | Easy installation  | 451-1301 |
| Flanged evaporator water connection kit  | 268   | Victaulic piping connections with flanged joints  | Easy installation  | 451-1301 |
| Flanged condenser water connection kit   | 269   | Victaulic piping connections with flanged joints  | Easy installation  | 451-1301 |
| Thermal compressor insulation            | 271   | The compressor is covered with a thermal insulation layer   | Prevents air humidity to condensate on the compressor surface  | 451-1301 |
| EMC classification C2, as per EN 61800-3 | 282   | Additional RFI filters on the unit power line   | Reduces electromagnetic interferences. Increase the variable frequency drive (VFD) immunity level according to first environment (so called, residential environment) requirements and allow its compliancy with emissions level required in category C2 | 451-1301 |
| Fast Capacity Recovery                   | QM295 | New software algorithms to allow quick restart and fast loading while preserving unit-reliability | Full capacity recovery in less than 5 minutes after power failure. Matches requirements of typical critical missions applications  | 451-1301 |
| Compliance with Morocco regulation       | 327   | Specifics documents according Morocco regulation  | Conformance with Morocco regulations   | 451-1301 |
| Low GWP A1 R-515B refrigerant            | 330   | Unit delivered with R-515B refrigerant charge (A1, GWP 299)                                       |  | 451-1301 |

## PHYSICAL DATA, 30XW-VZE UNITS

| 30XW-V ZE / 30XWHVZE | 451 | 501 | 601 | 651 | 851 | 1001 | 1101 | 1201 | 1301 |
|----------------------|-----|-----|-----|-----|-----|------|------|------|------|
|----------------------|-----|-----|-----|-----|-----|------|------|------|------|

## Heating

|   |     |  |         |      |      |      |      |      |      |      |      |      |
|---|-----|--|---------|------|------|------|------|------|------|------|------|------|
| <b>Standard unit</b><br>Full load performances*       | HW1 | Nominal capacity                       | kW      | 523  | 581  | 730  | 780  | 1017 | 1157 | 1304 | 1450 | 1555 |
|   |     | COP                                    | kW/kW   | 6,3  | 6,14 | 6,04 | 5,92 | 6,27 | 6,29 | 6,12 | 5,74 | 5,61 |
|   | HW2 | Nominal capacity                       | kW      | 491  | 544  | 677  | 730  | 955  | 1081 | 1211 | 1344 | 1452 |
|   |     | COP                                    | kW/kW   | 4,74 | 4,6  | 4,55 | 4,39 | 4,73 | 4,73 | 4,67 | 4,42 | 4,28 |
|   | HW3 | Nominal capacity                       | kW      | 466  | 508  | 628  | 689  | 906  | 1007 | 1122 | 1242 | 1367 |
|   |     | COP                                    | kW/kW   | 3,52 | 3,41 | 3,42 | 3,24 | 3,51 | 3,5  | 3,52 | 3,39 | 3,22 |
| <b>Standard unit</b><br>Seasonal energy efficiency ** | HW1 | SCOP <sub>30/35°C</sub>                | kWh/kWh | 7,64 | 7,39 | 7,62 | 7,57 | 7,45 | 7,4  | 7,17 | 6,64 | 6,56 |
|   |     | η <sub>s</sub> heat <sub>30/35°C</sub> | %       | 298  | 288  | 297  | 295  | 290  | 288  | 279  | 257  | 254  |
|   |     | SCOP <sub>47/55°C</sub>                | kWh/kWh | 5,34 | 5,3  | 5,26 | 5,21 | 5,31 | 5,39 | 5,46 | 5,17 | 5,11 |
|   | HW3 | η <sub>s</sub> heat <sub>47/55°C</sub> | %       | 206  | 204  | 202  | 201  | 204  | 207  | 210  | 199  | 197  |
|   |     | P <sub>rated</sub>                     | kW      | 559  | 614  | 761  | 827  | 1086 | 1217 | 1361 | 1507 | 1645 |
|   |     |  |         |      |      |      |      |      |      |      |      |      |

## Cooling

|   |     |   |         |       |       |       |       |       |       |      |      |      |
|---|-----|---|---------|-------|-------|-------|-------|-------|-------|------|------|------|
| <b>Standard unit</b><br>Full load performances*       | CW1 | Nominal capacity                          | kW      | 448   | 496   | 620   | 660   | 870   | 991   | 1115 | 1227 | 1312 |
|   |     | EER                                       | kW/kW   | 5,53  | 5,39  | 5,26  | 5,14  | 5,57  | 5,6   | 5,47 | 5,14 | 5,05 |
|   |     | Eurovent class                            |         | A     | A     | A     | A     | A     | A     | A    | A    | A    |
|   | CW2 | Nominal capacity                          | kW      | 670   | 728   | 915   | 970   | 1301  | 1455  | 1296 | 1423 | 1521 |
|   |     | EER                                       | kW/kW   | 7,88  | 7,49  | 7,26  | 7,14  | 7,9   | 7,74  | 6,19 | 5,76 | 5,7  |
|   |     | Eurovent class                            |         | A     | A     | A     | A     | A     | A     | A    | A    | A    |
| <b>Standard unit</b><br>Seasonal energy efficiency ** |     | SEER <sub>12/7°C</sub> Comfort low temp.  | kWh/kWh | 8,12  | 8,15  | 8,77  | 8,37  | 8,41  | 8,48  | 7,48 | 7,33 | 7,13 |
|   |     | η <sub>s</sub> cool <sub>12/7°C</sub>     | %       | 322   | 323   | 348   | 332   | 333   | 336   | 296  | 290  | 282  |
|   |     | SEPR <sub>12/7°C</sub> Process high temp. | kWh/kWh | 10,49 | 10,23 | 10,42 | 10,03 | 10,71 | 10,71 | 9,66 | 9,12 | 9,10 |

## Sound levels - standard unit

|  |       |     |     |     |     |     |     |     |     |     |
|--|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 103 | 103 | 103 | 103 | 104 | 104 | 104 | 104 | 104 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 85  | 85  | 85  | 85  | 85  | 85  | 85  | 85  | 85  |

Sound levels - standard unit + option 257<sup>(3)</sup>

|  |       |     |     |     |     |     |     |     |     |     |
|--|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Sound power level <sup>(1)</sup>           | dB(A) | 100 | 100 | 100 | 100 | 101 | 101 | 101 | 101 | 101 |
| Sound pressure level at 1 m <sup>(2)</sup> | dB(A) | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  | 82  |

## Dimensions - standard unit

|        |    |      |      |      |      |      |      |      |      |      |
|--------|----|------|------|------|------|------|------|------|------|------|
| Length | mm | 3059 | 3059 | 3290 | 3290 | 4730 | 4730 | 4730 | 4730 | 4730 |
| Width  | mm | 1087 | 1087 | 1237 | 1237 | 1164 | 1164 | 1264 | 1264 | 1264 |
| Height | mm | 1743 | 1743 | 1948 | 1948 | 1997 | 1997 | 2051 | 2051 | 2051 |

\* In accordance with standard EN14511-3:2018

\*\* In accordance with standard EN14825:2016, average climate

HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWHW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWHW3 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 47°C/55°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kWCW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/WCW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. K/Wη<sub>s</sub> heat<sub>30/35°C</sub> & SCOP<sub>30/35°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> heat<sub>47/55°C</sub> & SCOP<sub>47/55°C</sub> Values calculated in accordance with EN14825:2016η<sub>s</sub> cool<sub>12/7°C</sub> & SEER<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**SEPR<sub>12/7°C</sub> **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Process application**(1) In dB ref=10<sup>-12</sup> W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(2) in dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Option 257 = Low noise level

(4) Weight shown is guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate



Eurovent certified values

## PHYSICAL DATA, 30XW-VZE UNITS

| 30XW-V ZE / 30XWHVZE                  |                     | 451  | 501  | 601  | 651  | 851  | 1001 | 1101 | 1201 | 1301 |
|---------------------------------------|---------------------|--|------|------|------|------|------|------|------|------|
| <b>Operating weight<sup>(4)</sup></b> | kg                  | 3223   | 3261 | 4263 | 4267 | 7477 | 7553 | 7731 | 7932 | 7970 |
| <b>Compressors</b>                    |                     | Semi-hermetic 06T screw compressors, 60 r/s                            |      |      |      |      |      |      |      |      |
| Circuit A                             | -                   | 1  | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B                             | -                   | -  | -    | -    | -    | 1    | 1    | 1    | 1    | 1    |
| <b>Oil - standard unit</b>            |                     | HATCOL-4496  |      |      |      |      |      |      |      |      |
| Circuit A                             | l                   | 20   | 20   | 25   | 25   | 20   | 20   | 25   | 25   | 25   |
| Circuit B                             | l                   | -  | -    | -    | -    | 20   | 20   | 20   | 25   | 25   |
| <b>Refrigerant - standard unit</b>    |                     | R1234ze (E)  |      |      |      |      |      |      |      |      |
| Circuit A                             | kg                  | 130  | 130  | 180  | 175  | 120  | 120  | 115  | 115  | 110  |
|                                       | teq CO <sub>2</sub> | 0,9  | 0,9  | 1,3  | 1,2  | 0,8  | 0,8  | 0,8  | 0,8  | 0,8  |
| Circuit B                             | kg                  | -  | -    | -    | -    | 120  | 120  | 120  | 115  | 110  |
|                                       | teq CO <sub>2</sub> | -  | -    | -    | -    | 0,8  | 0,8  | 0,8  | 0,8  | 0,8  |
| <b>Capacity control</b>               |                     | SmartVu™, inverter-driven compressor, electronic expansion valve (EXV) |      |      |      |      |      |      |      |      |
| Minimum capacity                      | %                   | 20   | 20   | 20   | 20   | 10   | 10   | 10   | 10   | 10   |
| <b>Evaporator</b>                     |                     | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                          | l                   | 106  | 106  | 154  | 154  | 297  | 297  | 297  | 297  | 297  |
| Water connections (Victaulic)         | in                  | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)      | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure    | kPa                 | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                      |                     | Multi-pipe flooded type  |      |      |      |      |      |      |      |      |
| Water volume                          | l                   | 112  | 112  | 165  | 165  | 340  | 340  | 340  | 340  | 340  |
| Water connections (Victaulic)         | in                  | 6  | 6    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)      | in                  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure    | kPa                 | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

(4) Weight shown is guideline only. To find out the unit refrigerant charge, please refer to the unit nameplate



## ELECTRICAL DATA

| 30XW-VZE /30XWHVZE  |         | 451   | 501       | 601       | 651       | 851       | 1001      | 1101      | 1201      | 1301      |
|---|---------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Power circuit</b>  |         |   |           |           |           |           |           |           |           |           |
| Nominal power supply  | V-ph-Hz | 400-3-50                                      |           |           |           |           |           |           |           |           |
| Voltage range   | V       | 360-440                                       |           |           |           |           |           |           |           |           |
| <b>Control circuit</b>  |         | 24 V via the built-in transformer             |           |           |           |           |           |           |           |           |
| <b>Start-up current<sup>(1)</sup></b>                           | A       | Negligible (lower than maximum current drawn) |           |           |           |           |           |           |           |           |
| <b>Maximum power factor<sup>(2)</sup></b>                       |         | 0,91-0,93                                     | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 | 0,91-0,93 |
| <b>Cosine phi</b>   |         | > 0,98  | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    | > 0,98    |
| <b>Harmonic distortion rate<sup>(3)</sup></b>                   | %       | 35-45   | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     | 35-45     |
| <b>Maximum power input<sup>(4)</sup></b>                        |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | kW      | 125   | 157       | 189       | 208       | 125       | 157       | 189       | 189       | 208       |
| Circuit B   | kW      | -   | -         | -         | -         | 125       | 157       | 157       | 189       | 208       |
| With option 81  | kW      | -   | -         | -         | -         | 250       | 314       | 346       | 378       | 416       |
| <b>Eurovent current draw*</b>                                   |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 129   | 148       | 180       | 197       | 129       | 149       | 180       | 180       | 197       |
| Circuit B   | A       | -   | -         | -         | -         | 129       | 149       | 149       | 180       | 197       |
| With option 81  | A       | -   | -         | -         | -         | 258       | 298       | 329       | 360       | 394       |
| <b>Maximum current draw (Un)<sup>(4)</sup></b>                  |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 195   | 245       | 295       | 325       | 195       | 245       | 295       | 295       | 325       |
| Circuit B   | A       | -   | -         | -         | -         | 195       | 245       | 245       | 295       | 325       |
| With option 81  | A       | -   | -         | -         | -         | 390       | 490       | 540       | 590       | 650       |
| <b>Maximum current draw (Un -10%)<sup>(3)</sup></b>             |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 206   | 260       | 313       | 345       | 206       | 260       | 313       | 313       | 345       |
| Circuit B   | A       | -   | -         | -         | -         | 206       | 260       | 260       | 313       | 345       |
| With option 81  | A       | -   | -         | -         | -         | 412       | 520       | 573       | 626       | 690       |
| <b>Maximum power input with option 150B<sup>(4)</sup></b>       |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | kW      | 106   | 134       | 161       | 177       | 106       | 134       | 161       | 161       | 177       |
| Circuit B   | kW      | -   | -         | -         | -         | 106       | 134       | 134       | 161       | 177       |
| With option 81  | kW      | -   | -         | -         | -         | 212       | 268       | 295       | 322       | 354       |
| <b>Maximum current draw (Un) with option 150B<sup>(4)</sup></b> |         |   |           |           |           |           |           |           |           |           |
| Circuit A   | A       | 169   | 213       | 257       | 283       | 169       | 213       | 257       | 257       | 283       |
| Circuit B   | A       | -   | -         | -         | -         | 169       | 213       | 213       | 257       | 283       |
| With option 81  | A       | -   | -         | -         | -         | 338       | 426       | 470       | 514       | 566       |
| <b>Dissipated power<sup>(3)</sup></b>                           | W       | 3000  | 4200      | 4700      | 5300      | 6000      | 8400      | 8900      | 9400      | 10600     |

(1) Instantaneous start-up current.

(2) May vary, based on the short-circuit current/max. current draw ratio of the system transformer. Values obtained at operation with maximum unit power input.

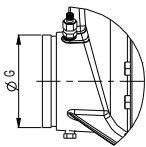
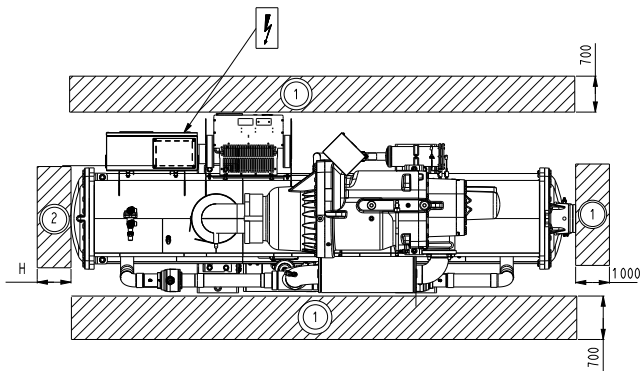
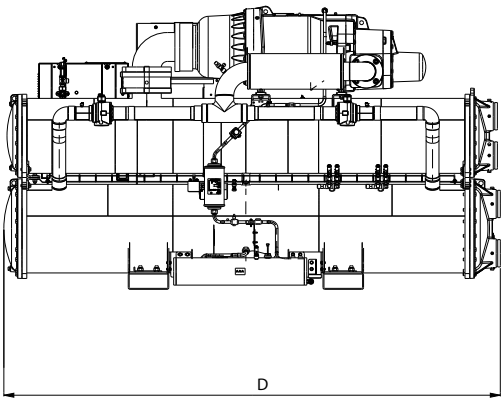
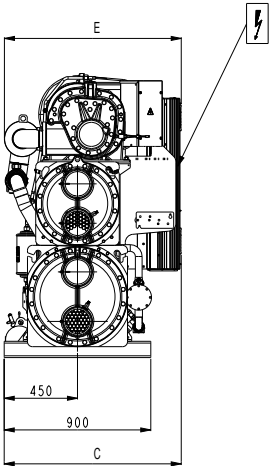
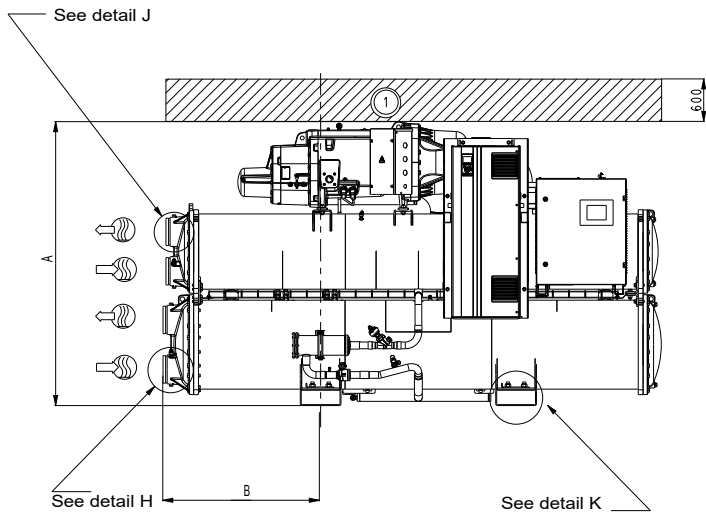
(3) Values obtained at operation with maximum unit power input.

(4) Values obtained at operation with maximum unit power input. Values given on the unit name plate.

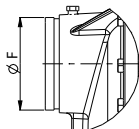
\* Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C. Gross performances, not in accordance with EN14511-3:2013. These performances do not take into account the correction for the proportional heating capacity and power input generated by the water pump to overcome the internal pressure drop in the heat exchanger.

# DIMENSIONS/CLEARANCES

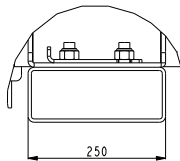
## 30XWHVZE 451-651



Detail H



Detail J



Detail K

Dimensions in mm

|                 | A    | B    | C    | D    | E    | F     | G     | H    |
|-----------------|------|------|------|------|------|-------|-------|------|
| <b>30XWHVZE</b> |      |      |      |      |      |       |       |      |
| <b>451</b>      | 1743 | 968  | 1087 | 3059 | 1086 | 168,3 | 168,3 | 2800 |
| <b>501</b>      | 1743 | 968  | 1087 | 3059 | 1086 | 168,3 | 168,3 | 2800 |
| <b>601</b>      | 1948 | 1083 | 1137 | 3290 | 1237 | 219,1 | 219,1 | 3100 |
| <b>651</b>      | 1948 | 1083 | 1137 | 3290 | 1237 | 219,1 | 219,1 | 3100 |

### Legend

All dimensions are given in mm

- ① → Services clearances required
- ② → Space required to remove
- Inlet water
- Outlet water
- Electrical supply entry

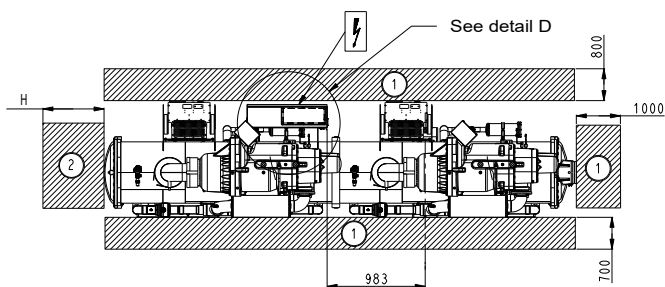
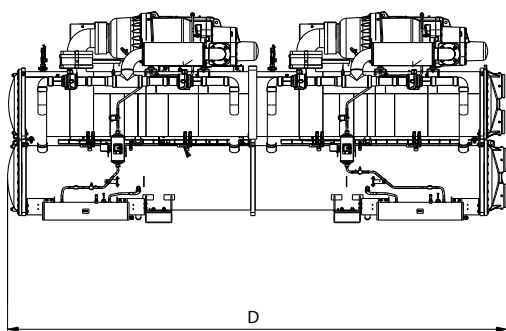
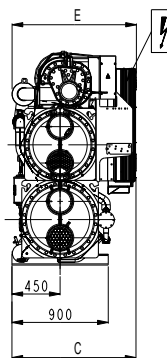
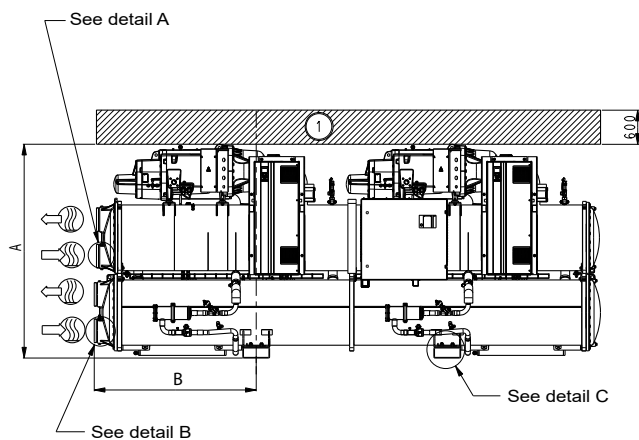
### NOTES:

Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.

## DIMENSIONS/CLEARANCES

### 30XWHVZE 851-1301



| Dimensions in mm |      |      |      |      |      |       |       |      |
|------------------|------|------|------|------|------|-------|-------|------|
|                  | A    | B    | C    | D    | E    | F     | G     | H    |
| <b>30XWHVZE</b>  |      |      |      |      |      |       |       |      |
| <b>851</b>       | 1998 | 1514 | 1164 | 4730 | 1162 | 219,1 | 219,1 | 4500 |
| <b>1001</b>      | 1998 | 1514 | 1164 | 4730 | 1162 | 219,1 | 219,1 | 4500 |
| <b>1101</b>      | 2051 | 1514 | 1164 | 4730 | 1264 | 219,1 | 219,1 | 4500 |
| <b>1201</b>      | 2051 | 1514 | 1164 | 4730 | 1264 | 219,1 | 219,1 | 4500 |
| <b>1301</b>      | 2051 | 1514 | 1164 | 4730 | 1264 | 219,1 | 219,1 | 4500 |

#### Legend

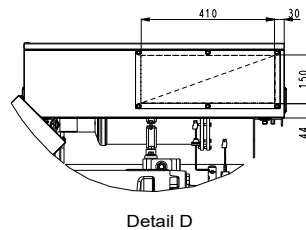
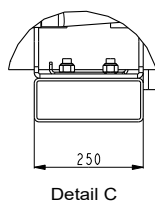
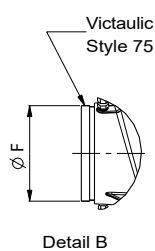
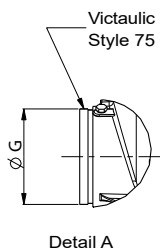
All dimensions are given in mm

- ① → Services clearances required
- ② → Space required to remove
- Inlet water
- Outlet water
- Electrical supply entry

#### NOTES:

Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.

For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.



## HIGH TEMPERATURE WATER-SOURCE HEAT PUMP



Renewable heat solution able  
to produce hot water up to  
85°C

Multiple applications: district  
heating, space heating,  
process heating

Multiple renewable energy  
sources: waste heat from data  
centers, from industry, grey  
waters, ground source water

61XWHLZE  
61XWH-ZE  
61XWHHZE

**AQUAFORCE**  
PUREtec

Nominal heating capacity 200 - 2500 kW

The AQUAFORCE PUREtec 61XWHZE water-source heat pumps are the premium solution for industrial and commercial heating applications where end users, consultants and building owners require optimal performances, very hot water temperature, environmental solution and maximum reliability.

The AQUAFORCE PUREtec 61XWHZE water-source heat pumps are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness.

They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- R-1234ze refrigerant
- Touch Pilot control system
- Flooded heat exchangers that are mechanically cleanable

The 61XWHZE Aquaforce range is available into three versions:

- 61XWHLZE for low heat source temperatures
- 61XWH-ZE for medium heat source temperatures
- 61XWHHZE for high heat source temperatures

## INTRODUCTION

Forecasts indicate that 75% of the European citizens will live in urban areas in 2020 and that this share will increase to 84% by 2050. People in cities use three times as much energy as people who live in the country. This has tremendous implications for the environment today and in the future if we do nothing.

Recent European surveys have demonstrated that there is enough waste heat produced in the European Union to heat the entire building stock. Industrial waste heat, waste heat from grey waters, waste heat from process cooling, data centers... All this waste energy too frequently released into the air or into water bodies.

More and more, developers, consultants, cities, politics will need to imagine intelligent, sustainable cities with smart heating and cooling solutions. More and more industrial end users will need to imagine new solutions to value waste heat from industrial processes.

Heat pumps have been already used to such purpose for many years.

More recently CARRIER has supported customers across various markets on big projects like data centers, hospitals, schools, district heating with large heat-pumps using HFC 134a.

### Higher with PUREtec

Now the combination of Carrier technology and HFO refrigerant enables to offer high temperature PUREtec heat pumps capable of delivering hot water up to 85°C!

The AQUAFORCE PUREtec 61XWHZE water-source heat pumps can recover, upgrade and value the waste heat for reuse in applications like local or district heating. Selecting the 61XWHZE, you can now have an alternative and complement as traditional boiler in applications such as district heating or industrial processes.

While the boilers are heating only, 61XWHZE heat-pumps can provide heating, cooling and transfer energy from waste energy with much higher energy efficiency performance ratios than boilers.

The AQUAFORCE PUREtec 61XWHZE water-source heat pumps are the premium solution for industrial and commercial heating applications where installers, consultants and building owners require optimal performances hot water temperature, environmental solution, maximum reliability and safety.

The AQUAFORCE PUREtec 61XWHZE water-source heat pumps are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness. They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- R-1234ze refrigerant
- Touch Pilot control system
- Flooded heat exchangers that are mechanically cleanable

## Customer Benefits

### Renewable Heat Solution

- The perfect solution for district heating systems
  - The 61XWHZE contribute both towards the EU 2020 ambition of 27% energy mix coming from renewable sources and the expansion of district heating from the present level of around 12% to 50% in 2050 in EU.
  - Multiple 61XWHZE high temperature water-source heat pumps can be combined to reach the best efficiency and higher capacities.
  - The district heating networks using 61XWHZE high temperature water-source heat pumps are being illegible for financial incentives in many countries.

- The perfect solution for smart cities
  - The 61XWHZE high temperature water-source heat pumps can recover energy from industrial process wasted heat, IT cooling systems, grey waters, to produce very hot water up to 85°C to supply residential buildings, commercial buildings, hotels, hospitals, public offices, schools, industries located in the district.

- The perfect solution for process heating and facilities space heating
  - The 61XWHZE high temperature water-source heat pumps can be used in the industrial sector to recover, upgrade and value any water stream up to 55°C as a source to higher temperature levels of 85°C which make it attractive for several usages. Some examples are the heat removed from electrical motors, industrial machines, paper industry, steel industry, non-metallic industry (glass, cement, tile, brick, food, beverage), chemical industries or also facilities space heating.

### Low energy consumption

- Renewable energy source to comply with EU 2020 targets (27% of renewable energy)
- No need for a gas network
- The heat pump technology is more efficient and sustainable than any fossil fuel combustion system.
- 61XWHZE achieves great Coefficient Of Performance (COP of 6 or more), with very low carbon impact when compared with traditional boilers.
- The high energy efficiency is reached through:
  - Twin-rotor screw carrier compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the heating capacity to the load.
  - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
  - Electronic expansion device permitting improved utilisation of the evaporator heat exchange surface.
  - Economizer system with electronic expansion device for increased heating/cooling capacity.

### Low sound level

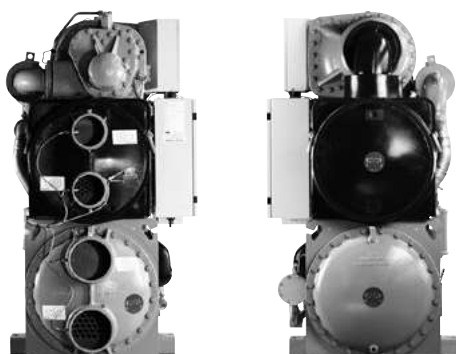
- Standard unit features include:
  - Silencers on the compressors discharge line.
  - Silencers on the economiser return line.
  - Acoustic insulation on the components that are most subjected to radiated noise.
  - Specific attenuation possible upon request.

## INTRODUCTION

### Easy and fast installation

- The 61XWHZE units just need an electrical connection and a water source.
- Compact design
  - The 61XWHZE water-source heat pumps are designed to offer the most compact dimensions on the market.
  - With a width of less than 1.4 m up to 2500 kW the units can pass through standard door openings and only require minimum floor space in the plant room.

Compact, accessible unit - side view



- Simplified electrical connections
  - Main disconnect switch with high trip capacity
  - Transformer to supply the integrated control circuit (400/24 V)
- Simplified hydronic connections
  - Victaulic connections on the evaporator and condenser
  - Practical reference marks for entering and leaving water connections
  - Possibility to reverse the heat exchanger water inlet and outlet at the factory
  - Possibility to modify the number of heat exchanger passes
- Fast commissioning
  - Systematic factory operation test before shipment
  - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

### Environmental care



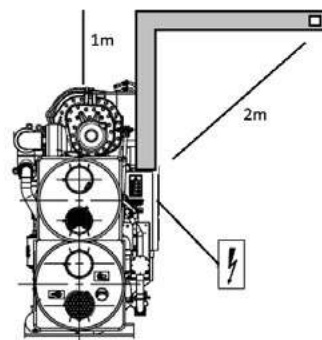
- R-1234ze long-term refrigerant solution
  - HFO refrigerant with nearly zero global warming potential (GWP < 1) and zero ozone depletion potential (ODP = 0).
  - Not impacted by the HFC phase-down plan in Europe (79% HFC reduction in EU member states at 2030 horizon)
  - Compliant with refrigerant regulation in Switzerland that bans the use of HFC refrigerant in large capacity air-conditioning equipment.
- Leak-tight refrigerant circuit
  - Reduction of leaks as no capillary tubes and flare connections are used
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
  - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

### High reliability and easy servicing

- The 61XWHZE water-source heat pumps offer increased global performance as well as Carrier's acclaimed product quality and reliability.
- Major components are selected and tested with R-1234ze refrigerant to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Screw compressors
  - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
  - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuit
  - One or two independent refrigerant circuits the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
  - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling (Carrier patent)
  - Automatic compressor unloading in case of abnormally high condensing pressure.
- Exceptional endurance tests
  - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
  - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

### Safe Design Carrier

- Specific compressor gaskets compatible with HFO-1234ze, tested and validated.
- New relief valves designed for operation with HFO-1234ze and high temperature
- Specific electrical box with increased tightness and integrated blower that maintains positive air pressure to avoid any risk of ignition.
- New control algorithms
- Specific documentation that contains all the installation, operation, maintenance and safety Instructions.



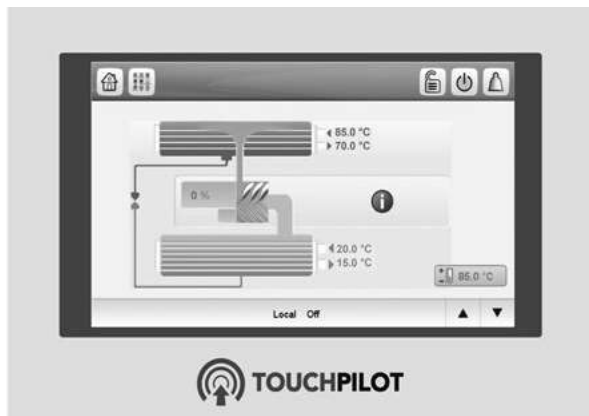


## INTRODUCTION

### Technical insights

#### Touch Pilot Control

##### Touch Pilot control, 5" user interface



- New innovative smart control features:
  - An intuitive and user-friendly, coloured, 5" interface (7" optional)
  - Direct access to the unit's technical drawings and the main service documents
  - Screen-shots with concise and clear information in local languages
  - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
  - Easy access to the controller box with inclined touch screen mounting to ensure legibility under any lighting conditions
  - Safe operation and unit setting: password protection ensures that unauthorised people cannot modify any advanced parameters
  - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation.
- Energy management:
  - Internal time schedule clock controls heat pump on/off times and operation at a second set-point
  - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.

#### Remote Management (Standard)

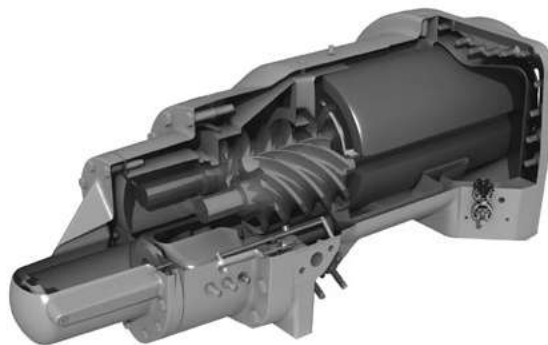
- Units with Touch Pilot control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- The 61XWHZE also communicates with other building management systems via optional communication gateways.
- The 61XWHZE is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. Carrier offers a vast choice of control products, specially designed to control, manage and supervise the operation of an air conditioning system. Please consult your Carrier representative for more information.
- The following commands/visualisations are possible from remote connection:
  - Condenser pumps control: a digital input allows verification of condenser water flow (the flow switch must be supplied by the installer)
  - Start/stop of the machine

- Dual set-point management: through a dedicated contact is possible to activate a second set-point (example: unoccupied mode)
- Demand limit setting: to limit the maximum heat pump capacity to a predefined value
- Operation visualization: indication if the unit is operating or if it's in stand-by no heating load
- alarm visualization.

#### Remote management (EMM option)

- The Energy Management Module offers extended remote control possibilities:
  - Room temperature: permits set-point reset based on the building indoor air temperature (with Carrier thermostat)
  - Set point reset: ensures reset of the heating set-point based on a 4-20 mA signal
  - Demand limit: permits limitation of the maximum heat pump power or current based on a 4-20 mA signal
  - Demand limit 1 and 2: closing of these contacts limits the maximum heat pump power or current to two predefined values
  - User safety: this contact can be used for any customer safety loop; opening of the contact generates a specific alarm
  - Time schedule override: closing of this contact cancels the time schedule effects
  - Out of service: this signal indicates that the heat pump is completely out of service
  - Heat pump capacity: this analogue output (0-10 V) gives an immediate indication of the heat pump capacity
  - Alert indication: this volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.

#### 06T screw compressor



The Carrier 06T screw compressor designed for operation with HFO-1234ze refrigerant benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor heating capacity and ensures exceptionally high stability of the hot water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high water temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.

## OPTIONS

| Options                                 | No.  | Description   | Advantages   | Use for 61XWH range               |
|---|------|---|--|-----------------------------------|
| Star / delta start                      | 25A  | Star / Delta start on each compressor   | Reduced start-up current   | 3-5, 10                           |
| Master/slave operation                  | 58   | Unit equipped with supplementary water outlet temperature sensor kit to be field-installed allowing master/slave operation of two units connected in parallel | Optimised operation of two units connected in parrallele operation with operating time equalisation  | 3-17                              |
| Single power connection point           | 81   | Unit power connection via one main supply connection  | Quick and easy installation  | 10-17                             |
| No disconnect switch                    | 82A  | Unit without disconnect switch, but with short-circuit protection device  | Permits an external electrical disconnect system for the unit (field-supplied), while ensuring unit short circuit protection   | 3-17                              |
| Evap. single pump power/control circuit | 84   | Unit equipped with an electrical power and control circuit for one pump evaporator side   | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 3-10<br>Not available on 61XWHHZE |
| Evap. dual pumps power/control circuit  | 84D  | Unit equipped with an electrical power and control circuit for two pumps evaporator side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 3-10<br>Not available on 61XWHHZE |
| Cond. single pump power/control circuit | 84R  | Unit equipped with an electrical power and control circuit for one pump condenser side  | Quick and easy installation: the control of fixed speed pumps is embedded in the unit control  | 3-10<br>Not available on 61XWHHZE |
| Evaporator with one pass more           | 100A | Evaporator with one pass more on the water side   | Optimise chiller operation when the chilled water circuit is designed with low waterflows (high delta T evaporator inlet/outlet)   | 3-17                              |
| Evaporator with one pass less           | 100C | Evaporator with one pass on the water side. Evaporator inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 3-17                              |
| Condenser with one pass more            | 102A | Condenser with three passes on the water side. Condenser inlet and outlet on opposite sides.  | Adapted to sites where larger temperature differences and smaller water flow rates are required  | 3-17                              |
| Condenser with one pass less            | 102C | Condenser with one pass on the water side. Condenser inlet and outlet on opposite sides.  | Easy to install, depending on site. Reduced pressure drops   | 3-17                              |
| 21 bar evaporator                       | 104  | Reinforced evaporator for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)  | Covers applications with a high water column evaporator side (typically high buildings)  | 3-17                              |
| 21 bar condenser                        | 104A | Reinforced condenser for extension of the maximum water-side service pressure to 21 bar (standard 10 bar)   | Covers applications with a high water column condenser side (typically high buildings)   | 3-17                              |
| Reversed evaporator water connections   | 107  | Evaporator with reversed water inlet/outlet   | Easy installation on sites with specific requirements  | 3-17                              |
| Reversed condenser water connections    | 107A | Condenser with reversed water inlet/outlet  | Easy installation on sites with specific requirements  | 3-17                              |
| J-Bus gateway                           | 148B | Two-directional communication board complying with JBus protocol  | Connects the unit by communication bus to a building management system   | 3-17                              |
| Lon gateway                             | 148D | Two-directional communication board complying with Lon Talk protocol  | Connects the unit by communication bus to a building management system   | 3-17                              |
| Bacnet over IP                          | 149  | Two-directional high-speed communication using BACnet protocol over Ethernet network (IP)   | Easy and high-speed connection by ethernet line to a building management system. Allows access to multiple unit parameters   | 3-17                              |
| Control for low cond. temperature       | 152  | Output signal (0-10 V) to control the condenser water inlet valve   | Simple installation: for applications with cold water at condenser inlet (ex. ground-source, groundwater-source, superficial water-source applications) the signal permits to control a 2 or 3-way valve to maintain condenser water temperature (and so condensing pressure) at acceptable values | 3-17                              |
| Energy Management Module                | 156  | EMM Control board with additional inputs/outputs. See Energy Management Module option chapter   | Extended remote control capabilities (Set-point reset, ice storage end, demand limits, boiler on/off command...)   | 3-17                              |
| Compliance with Swiss regulations       | 197  | Additional tests on the water heat exchangers: supply (additional of PED documents) supplementary certificates and test certifications                        | Conformance with Swiss regulations   | 3-17                              |
| Low noise level                         | 257  | Evaporator sound insulation   | 3 dB(A) quieter than standard unit   | 5-17                              |

## OPTIONS

| Options                                 | No. | Description                                      | Advantages                            | Use for 61XWH range |
|---|-----|--|---------------------------------------|---------------------|
| Welded evaporator connection kit        | 266 | Victaulic piping connections with welded joints  | Easy installation                     | 3-17                |
| Welded condenser water connection kit   | 267 | Victaulic piping connections with welded joints  | Easy installation                     | 3-17                |
| Flanged evaporator water connection kit | 268 | Victaulic piping connections with flanged joints | Easy installation                     | 3-17                |
| Flanged condenser water connection kit  | 269 | Victaulic piping connections with flanged joints | Easy installation                     | 3-17                |
| Conformance with Moroccan regulations   | 327 | Specific regulatory documentation                | Conformance with Moroccan regulations | 3-17                |

## PHYSICAL DATA

| 61XWHLZE/61XWH-ZE/61XWHHZE                   |                     | Model | 3  | 5    | 7    | 10   | 14   | 15   | 17   |
|--|---------------------|-------|--|------|------|------|------|------|------|
| 61XWH-ZE<br>(Heating performances*)          | Nominal capacity**  | kW    | 300  | 484  | 727  | 967  | 1453 | 1468 | 1570 |
| <b>Dimensions - 61XWHLZE/61XWH-ZE</b>        |                     |       |  |      |      |      |      |      |      |
| Length                                       | mm                  |       | 2724   | 3059 | 3290 | 4730 | 4730 | 4790 | 4790 |
| Width  | mm                  |       | 981  | 1041 | 1079 | 1125 | 1148 | 1399 | 1399 |
| Height                                       | mm                  |       | 1594   | 1745 | 1968 | 2002 | 2070 | 2305 | 2305 |
| <b>Dimensions - 61XWHHZE</b>                 |                     |       |  |      |      |      |      |      |      |
| Length                                       | mm                  |       | 2724   | 3059 | 3290 | 4730 | -    | 4790 | -    |
| Width  | mm                  |       | 981  | 1041 | 1079 | 1125 | -    | 1417 | -    |
| Height                                       | mm                  |       | 1594   | 1745 | 1968 | 2002 | -    | 2305 | -    |
| <b>Operating weight <sup>(1)</sup></b>       |                     | kg    | 2054   | 2942 | 4147 | 7265 | 8031 | 9519 | 9519 |
| <b>Compressors</b>                           |                     |       | Semi-hermetic 06T screw compressors, 50 r/s    |      |      |      |      |      |      |
| Circuit A                                    | -                   |       | 1  | 1    | 1    | 1    | 1    | 1    | 1    |
| Circuit B                                    | -                   |       | -  | -    | -    | 1    | 1    | 1    | 1    |
| <b>Refrigerant - 61XWHLZE <sup>(2)</sup></b> |                     |       | R1234ze  |      |      |      |      |      |      |
| Circuit A                                    | kg                  |       | 107  | 168  | 237  | 154  | 176  | 237  | 226  |
|  | teq CO <sub>2</sub> |       | 0,7  | 1,2  | 1,7  | 1,1  | 1,2  | 1,7  | 1,6  |
| Circuit B                                    | kg                  |       | -  | -    | -    | 154  | 187  | 237  | 231  |
|  | teq CO <sub>2</sub> |       | -  | -    | -    | 1,1  | 1,3  | 1,7  | 1,6  |
| <b>Refrigerant - 61XWH-ZE <sup>(2)</sup></b> |                     |       | R1234ze  |      |      |      |      |      |      |
| Circuit A                                    | kg                  |       | 97   | 153  | 215  | 140  | 160  | 215  | 205  |
|  | teq CO <sub>2</sub> |       | 0,7  | 1,1  | 1,5  | 1,0  | 1,1  | 1,5  | 1,4  |
| Circuit B                                    | kg                  |       | -  | -    | -    | 140  | 170  | 215  | 210  |
|  | teq CO <sub>2</sub> |       | -  | -    | -    | 1,0  | 1,2  | 1,5  | 1,5  |
| <b>Refrigerant - 61XWHHZE <sup>(2)</sup></b> |                     |       | R1234ze  |      |      |      |      |      |      |
| Circuit A                                    | kg                  |       | 88   | 138  | 195  | 140  | -    | 195  | -    |
|  | teq CO <sub>2</sub> |       | 0,6  | 1,0  | 1,4  | 1,0  | -    | 1,4  | -    |
| Circuit B                                    | kg                  |       | -  | -    | -    | 140  | -    | 195  | -    |
|  | teq CO <sub>2</sub> |       | -  | -    | -    | 1,0  | -    | 1,4  | -    |
| <b>Oil - standard unit</b>                   |                     |       | HATCOL4496                                     |      |      |      |      |      |      |
| Circuit A                                    | l                   |       | 20   | 20   | 25   | 20   | 25   | 25   | 25   |
| Circuit B                                    | l                   |       | -  | -    | -    | 20   | 25   | 25   | 25   |
| <b>Capacity control</b>                      |                     |       | Touch Pilot, electronic expansion valves (EXV) |      |      |      |      |      |      |
| Minimum capacity                             | %                   |       | 50   | 50   | 50   | 25   | 25   | 25   | 25   |
| <b>Evaporator</b>                            |                     |       | Multi-pipe flooded type                        |      |      |      |      |      |      |
| Water volume                                 | l                   |       | 61   | 101  | 154  | 293  | 321  | 354  | 354  |
| Water connections (Victaulic)                | in                  |       | 5  | 6    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)             | in                  |       | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure           | kPa                 |       | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Condenser</b>                             |                     |       | Multi-pipe flooded type                        |      |      |      |      |      |      |
| Water volume                                 | l                   |       | 55   | 103  | 148  | 316  | 340  | 426  | 426  |
| Water connections (Victaulic)                | in                  |       | 5  | 6    | 8    | 8    | 8    | 8    | 8    |
| Drain and vent connections (NPT)             | in                  |       | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  | 3/8  |
| Max. water-side operating pressure           | kPa                 |       | 1000   | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

\* In accordance with standard EN14511-3:2013.

\*\* Heating mode conditions: Evaporator entering/leaving water temperature 20°C/15°C, condenser entering/leaving water temperature 70°C/75°C, evaporator and condenser fouling factor 0 m<sup>2</sup>. kW

(1) Weight shown is guideline only. Please refer to the unit nameplate

(2) Refrigerant charge shown is guideline only. Charge may differ according to options. Please refer to the unit nameplate

## ELECTRICAL DATA

| 61XWHLZE / 61XWH-ZE   | Model   | 3                                 | 5    | 7    | 10   | 14   | 15   | 17   |
|---|---------|-----------------------------------|------|------|------|------|------|------|
| <b>Power circuit</b>  |         |                                   |      |      |      |      |      |      |
| Nom. power supply   | V-ph-Hz | 400-3-50                          |      |      |      |      |      |      |
| Voltage range   | V       | 360-440                           |      |      |      |      |      |      |
| <b>Control circuit</b>  |         | 24 V via the built-in transformer |      |      |      |      |      |      |
| <b>Maximum start-up current<sup>(1)</sup> - Standard unit</b>           |         |                                   |      |      |      |      |      |      |
| Circuit A   | A       | 1210                              | 1828 | 1919 | 1828 | 1919 | 1919 | 1919 |
| Circuit B   | A       | -                                 | -    | -    | 1828 | 1919 | 1919 | 1919 |
| Option 81   | A       | -                                 | -    | -    | 2158 | 2425 | 2425 | 2407 |
| <b>Maximum start-up current - Star/delta start option<sup>(2)</sup></b> |         |                                   |      |      |      |      |      |      |
| Circuit A   | A       | 388                               | 587  | -    | 587  | -    | -    | -    |
| Circuit B   | A       | -                                 | -    | -    | 587  | -    | -    | -    |
| Transient (< 150ms)   | A       | 1210                              | 1828 | -    | 1828 | -    | -    | -    |
| Option 81   | A       | -                                 | -    | -    | 943  | -    | -    | -    |
| Transient (< 150ms)   | A       | -                                 | -    | -    | 2158 | -    | -    | -    |
| <b>Cosine phi</b>   |         |                                   |      |      |      |      |      |      |
| Nominal   |         | 0,70                              | 0,80 | 0,81 | 0,80 | 0,81 | 0,81 | 0,83 |
| Maximum <sup>(2)</sup>  |         | 0,89                              | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 | 0,89 |
| Total harmonic distortion <sup>(2)</sup>                                | %       | Closed to 0% (negligible)         |      |      |      |      |      |      |
| <b>Maximum power input<sup>(3)</sup></b>                                |         |                                   |      |      |      |      |      |      |
| Circuit A   | kW      | 137                               | 203  | 312  | 203  | 312  | 312  | 301  |
| Circuit B   | kW      | -                                 | -    | -    | 203  | 312  | 312  | 301  |
| Option 81   | kW      | -                                 | -    | -    | 406  | 624  | 624  | 602  |
| <b>Maximum current drawn (Un)<sup>(3)</sup></b>                         |         |                                   |      |      |      |      |      |      |
| Circuit A   | A       | 222                               | 330  | 506  | 330  | 506  | 506  | 488  |
| Circuit B   | A       | -                                 | -    | -    | 330  | 506  | 506  | 488  |
| Option 81   | A       | -                                 | -    | -    | 660  | 1012 | 1012 | 976  |
| <b>Maximum current drawn (Un -10%)<sup>(2)</sup></b>                    |         |                                   |      |      |      |      |      |      |
| Circuit A   | A       | 240                               | 356  | 546  | 356  | 546  | 546  | 527  |
| Circuit B   | A       | -                                 | -    | -    | 356  | 546  | 546  | 527  |
| Option 81   | A       | -                                 | -    | -    | 712  | 1092 | 1092 | 1054 |

(1) Instantaneous start-up current for star connection (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

(2) Values obtained at operation with maximum unit power input.

(3) Values obtained at operation with maximum unit power input. Values given on the unit name plate.

| 61XWHHZE  | Model | 3    | 5    | 7    | 10   | 14 | 15   | 17 |
|---|-------|------|------|------|------|----|------|----|
| <b>Maximum start-up current<sup>(1)</sup> - Standard unit</b>           |       |      |      |      |      |    |      |    |
| Circuit A   | A     | 1210 | 1828 | 1919 | 1828 | -  | 1919 | -  |
| Circuit B   | A     | -    | -    | -    | 1828 | -  | 1919 | -  |
| Option 81   | A     | -    | -    | -    | 2188 | -  | -    | -  |
| <b>Maximum start-up current - Star/delta start option<sup>(2)</sup></b> |       |      |      |      |      |    |      |    |
| Circuit A   | A     | 388  | 587  | -    | 587  | -  | -    | -  |
| Circuit B   | A     | -    | -    | -    | 587  | -  | -    | -  |
| Transient (< 150ms)   | A     | 1210 | 1828 | -    | 1828 | -  | -    | -  |
| Option 81   | A     | -    | -    | -    | 947  | -  | -    | -  |
| Transient (< 150ms)   | A     | -    | -    | -    | 2188 | -  | -    | -  |
| <b>Maximum power input<sup>(4)</sup></b>                                |       |      |      |      |      |    |      |    |
| Circuit A   |       | 148  | 222  | 334  | 222  | -  | 334  | -  |
| Circuit B   |       | -    | -    | -    | 222  | -  | 334  | -  |
| Option 81   | %     | -    | -    | -    | 444  | -  | -    | -  |
| <b>Maximum current drawn (Un)<sup>(4)</sup></b>                         |       |      |      |      |      |    |      |    |
| Circuit A   | kW    | 241  | 360  | 543  | 360  | -  | 543  | -  |
| Circuit B   | kW    | -    | -    | -    | 360  | -  | 543  | -  |
| Option 81   | kW    | -    | -    | -    | 720  | -  | -    | -  |
| <b>Maximum current drawn (Un -10%)<sup>(3)</sup></b>                    |       |      |      |      |      |    |      |    |
| Circuit A   | A     | 260  | 389  | 586  | 389  | -  | 586  | -  |
| Circuit B   | A     | -    | -    | -    | 389  | -  | 586  | -  |
| Option 81   | A     | -    | -    | -    | 778  | -  | -    | -  |

(1) Instantaneous start-up current for delta connection (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor).

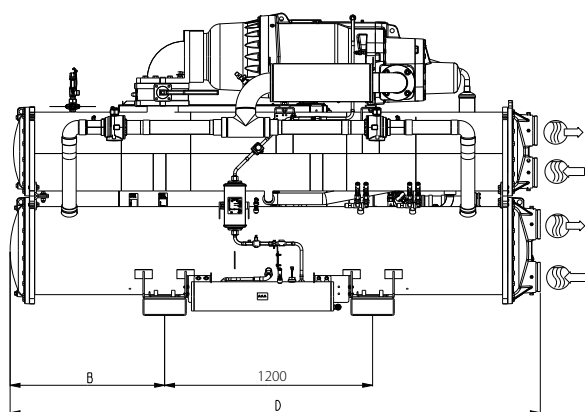
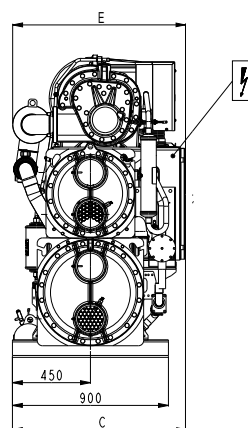
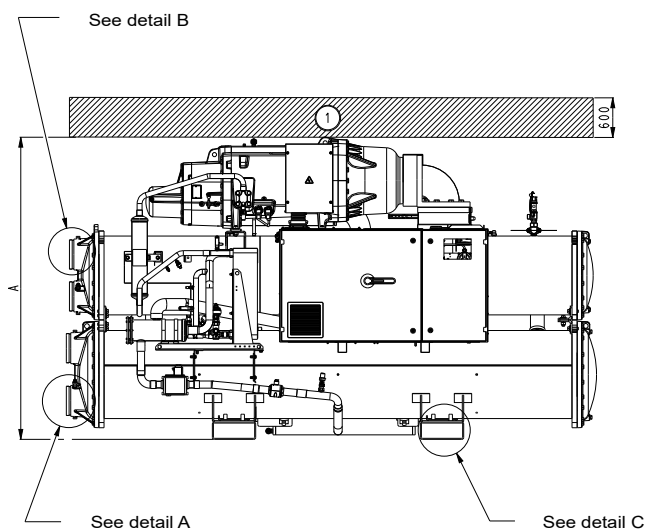
(2) Both Max start-up current and transient peak to be considered for installation

(3) Values obtained at operation with maximum unit power input.

(4) Values obtained at operation with maximum unit power input. Values given on the unit name plate.

## DIMENSIONS/CLEARANCES






### 61XWHLZE/61XWH-ZE/61XWHHZE 03-05-07

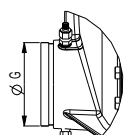
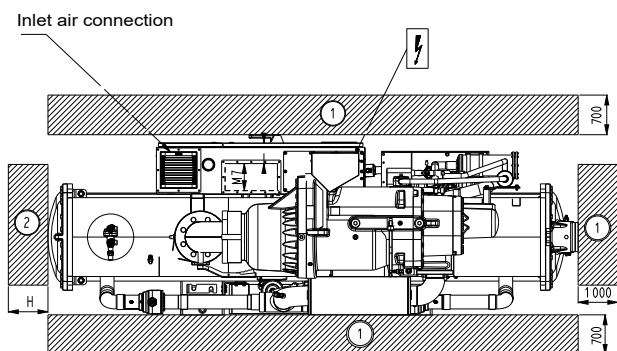


| 61XWHLZE/61XWH-ZE/61XWHHZE |                  |      |      |      |      |       |       |      |
|----------------------------|------------------|------|------|------|------|-------|-------|------|
|                            | A                | B    | C    | D    | E    | F     | G     | H    |
| Model                      | Dimensions in mm |      |      |      |      |       |       |      |
| 3                          | 1594             | 723  | 981  | 2724 | 982  | 141,3 | 141,3 | 2600 |
| 5                          | 1745             | 891  | 1041 | 3059 | 1039 | 168,3 | 168,3 | 2900 |
| 7                          | 1968             | 1007 | 1079 | 3290 | 1170 | 219,1 | 219,1 | 3100 |

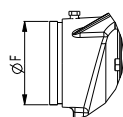
#### Legend

All dimensions are given in mm

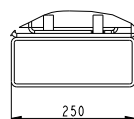
-  → Services clearances required
-  → Space required to remove cooler tubes
-  → Inlet water
-  → Outlet water
-  → Electrical supply entry



Detail A



Detail B



Detail C

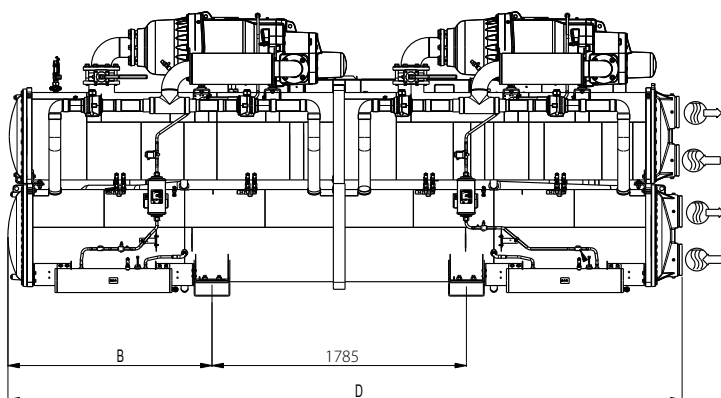
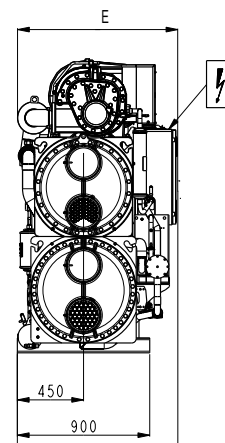
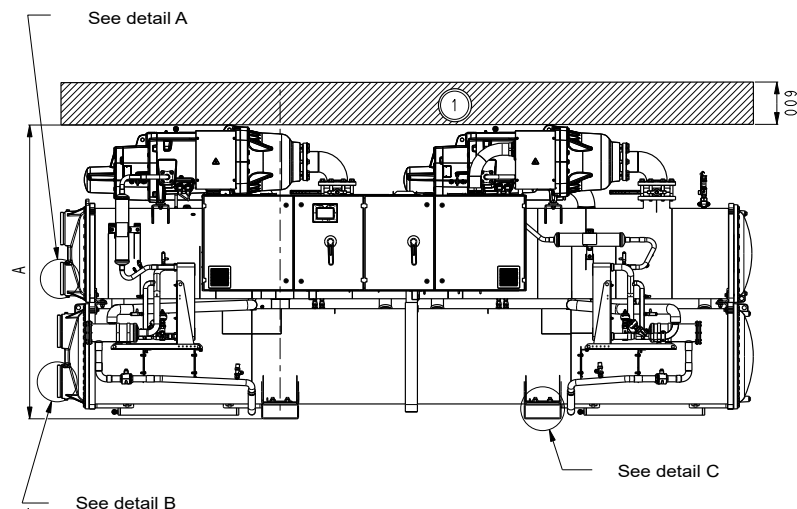
#### NOTES:

- Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.
- For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.



## DIMENSIONS/CLEARANCES

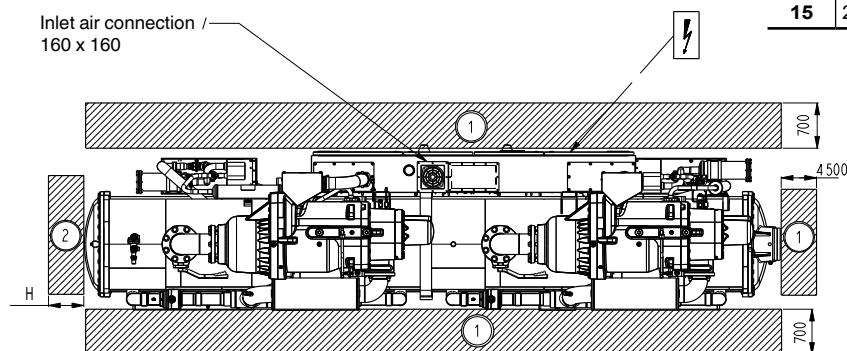
### 61XWHLZE/61XWH-ZE 10-14-15-17; 61XWHHZE 10-15



| 61XWHLZE/61XWH-ZE |                  |      |      |      |      |       |       |      |
|-------------------|------------------|------|------|------|------|-------|-------|------|
|                   | A                | B    | C    | D    | E    | F     | G     | H    |
| Model             | Dimensions in mm |      |      |      |      |       |       |      |
| 10                | 2002             | 1432 | 1124 | 4730 | 1124 | 219,1 | 219,1 | 4500 |
| 14                | 2070             | 1432 | 1148 | 4730 | 1237 | 219,1 | 219,1 | 4500 |
| 15                | 2305             | 1458 | 1399 | 4790 | 1264 | 219,1 | 219,1 | 4500 |
| 17                | 2305             | 1458 | 1399 | 4790 | 1264 | 219,1 | 219,1 | 4500 |

| 61XWHHZE |                  |      |      |      |      |       |       |      |
|----------|------------------|------|------|------|------|-------|-------|------|
|          | A                | B    | C    | D    | E    | F     | G     | H    |
| Model    | Dimensions in mm |      |      |      |      |       |       |      |
| 10       | 2002             | 1432 | 1124 | 4730 | 1124 | 219,1 | 219,1 | 4500 |
| 15       | 2305             | 1458 | 1417 | 4790 | 1282 | 219,1 | 219,1 | 4500 |

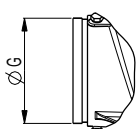
Inlet air connection /  
160 x 160



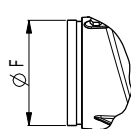
#### Legend

All dimensions are given in mm

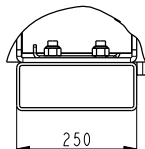
- ① → Services clearances required
- ② → Space required to remove cooler tubes
- Inlet water
- Outlet water
- Electrical supply entry



Detail A



Detail B



Detail C

#### NOTES:

- Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings supplied with the unit or available on request.
- For the positioning of the fixing points, weight distribution and centre of gravity coordinates please refer to the dimensional drawings.





PRESENTATION

COOLING

HEATING

AIR TREATMENT

CONTROLS

# Air treatment

647

| Type                                   |         |                  | Range    | Cooling capacity, kW | Heating capacity, kW | Air flow m <sup>3</sup> /h | Page |
|--|---------|------------------|----------|----------------------|----------------------|----------------------------|------|
| <b>Air heaters</b>                     |         |                  | 42AM     | -                    | -                    | 1400-11000                 | 649  |
| <b>Chilled-water terminal units</b>    |         |                  |          |                      |                      |                            |      |
| Cassette                               | Cabinet | Concealed/Ducted |          |                      |                      |                            |      |
| x                                      |         |                  | 42GW     | 1.5-9.5              | 1.3-11.3             | -                          | 669  |
| x                                      |         |                  | 42KY     | 1-6                  | 2-10                 | -                          | 683  |
|  | x       |                  | 42NC-ND  | 0.7-8.7              | 1-9.15               | -                          | 695  |
|  |         | x                | 42NL/NH  | 0.6-12               | 0.8-17               | -                          | 709  |
|  |         | x                | 42EP     | 0.4-4.2              | 0.5-5                | -                          | 761  |
|  |         | x                | 42BJ     | 0.5-6                | 0.5-12.2             | -                          | 781  |
|  |         | x                | 42GR     | 1.32-3.44            | 2.9-3.5              | -                          | 793  |
|  | x       |                  | 42WM     | 1.2-3.8              | 1.3-4.3              | -                          | 803  |
|  | x       |                  | 42SI     | 0.55-2.9             | 0.57-2.5             | -                          | 813  |
| <b>Air handling units</b>              |         |                  |          |                      |                      |                            |      |
|  |         |                  | 39CQ     | -                    | -                    | 1000-6000                  | 823  |
|  |         |                  | 39HX     | -                    | -                    | 300-18000                  | 829  |
|  |         |                  | 39CP     | -                    | -                    | 1000-30000                 | 837  |
|  |         |                  | 39HQ     | -                    | -                    | 5000-13000                 | 849  |
|  |         |                  | 39CZ     | -                    | -                    | 6000-60000                 | 853  |
| <b>Air scrubber</b>                    |         |                  |          |                      |                      |                            |      |
|  | NEW     |                  | 39UV     | -                    | -                    | 1000-1800-2500             | 867  |
| <b>Close control units</b>             |         |                  |          |                      |                      |                            |      |
|  |         |                  | 50CJ     | 5-47                 | 4-41                 | 1300-12000                 | 873  |
|  |         |                  | 50CO     | 40-100               | 18-73                | 10000-27000                | 883  |
| <b>Rooftop units</b>                   |         |                  |          |                      |                      |                            |      |
|  | NEW     |                  | 50FC     | 22-90                | 22-90                | -                          | 889  |
|  | NEW     |                  | 50FF/FC  | 97-273               | 97-299               | 10800-54000                | 919  |
| <b>Packaged units</b>                  |         |                  |          |                      |                      |                            |      |
|  |         |                  | 38ZS/ZF  | 21-138               | 23-148               | -                          | 947  |
|  |         |                  | 40ZS/ZF  | 21-138               | 23-148               | -                          | 955  |
|  |         |                  | 50NI     | 19-115               | 19-121               | -                          | 961  |
| <b>ADVANCED HVAC CEILING SOLUTIONS</b> |         |                  |          |                      |                      |                            |      |
|  | NEW     |                  | Barrisol | -                    | -                    | -                          | 973  |





## AIR HEATERS DESTRATIFIER



The best solution for heating and/or cooling large spaces

Ensures buildings warm up ultra fast

Excellent diffusion via patented JET+ double deflection technology

Available with low consumption EC motor

Destratifier version for better air mixing in heating mode

# 42AM 42AMA

In wall-mounted or ceiling-mounted versions, the **air heater** is the simple, affordable heating/cooling solution for all your applications: for your premises in the tertiary sector (sales area, gym, multi-purpose rooms etc.) or in industry (workshop, garage, storage unit, logistics platform, etc.).

The air heater may have associated **destratifiers** (42AMA-) to promote mixing of the building air. (Anti-stratification solution).

The 42AM range meets APSAD and NFPA guidelines on unit peripheral air speeds.

All are less than 5 m/s at 0.5 m from the diffuser and thus do not interfere with sprinkler systems.



## RANGE

### Heating version

| Heating/cooling medium | LP water   | HP superheated water - Oil | HP steam                 |
|------------------------|--|----------------------------|--------------------------|
| AC motor               | THREE-PHASE 2-speed – SINGLE-PHASE 1 variable speed<br>IP 44 (42AM-AC35) and IP54 (42AM-AC40 to 42AM-AC63) |                            |                          |
| Reinforced variant     | CORROBLOC version – IP 55/65 – 700-hour salt spray test  |                            |                          |
| Coil (tubing/row)      | Copper/Alu   | 316L stainless steel/Alu   | 316L stainless steel/Alu |
| Reinforced versions    | 316L stainless steel pipes/HERESITE coating  | HERESITE coating           |                          |
| Casing                 | Precoated off-white (RAL 7035) galvanised steel  |                            |                          |
| Reinforced versions    | 304L stainless steel   |                            |                          |
| ATEX versions          | LCIE 13 ATEX 1015 X – Zone 2 – IIB or IIC – T4 or T6   |                            |                          |

### Heating or Cooling version

| Heating/cooling medium     | LP water  |
|----------------------------|---|
| <b>EC motor</b>            | Variable speed single-phase with 0-10 V signal<br>IP 54 (42AM-EC30 and 42AM-EC35) and IP55 (42AM-EC40 to 42AM-EC63) |
| <b>Coil (tubing/row)</b>   | Copper/Alu  |
| <b>Reinforced versions</b> | 316L stainless steel pipes/HERESITE coating   |
| <b>Casing</b>              | Off-white precoated galvanised steel (RAL 7035)<br>Built-in condensate pan + quick-release fitting for cooling      |
| <b>Reinforced versions</b> | 304L stainless steel  |

# CODES

|   | Range  |   |   |   |   |   | Series |            | Size |                                 |    |    | Model | Coil   | Thermal function | Sp. option | Modif. index |    |
|---|--|---|---|---|---|---|--------|------------|------|---------------------------------|----|----|-------|--|------------------|------------|--------------|----|
| Product ref.  | 4  | 2 | A | M | - | A | C      | 3          | 5    | 1                               | M  | 0  | -     | s  | 0                | H          | I            | A  |
| Digit   | 1  | 2 | 3 | 4 | 5 | 6 | 7      | 8          | 9    | 10                              | 11 | 12 | 13    | 14   | 15               | 16         | 17           | 18 |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| Digits 1 to 7   |  |   |   |   |   |   |        | Digits 8&9 |      | Digit 14                        |    |    |       | Digit 17                                       |                  |            |              |    |
| 42AM-AC: AC motor air heater- Digit 16 = H, C, P or S |  |   |   |   |   |   |        | 30*        |      | S = Suspended-Digit 16 = H or - |    |    |       | - = NONE                                       |                  |            |              |    |
| 42AM-EC: EC motor air heater - Digit 16 = H or C      |  |   |   |   |   |   |        | 35         |      | M = Wall-mounted only           |    |    |       | I = Stainless steel casing                     |                  |            |              |    |
| 42AM-EX: ATEX air heater - Digit 16 = H, C, P or S    |  |   |   |   |   |   |        | 40         |      |                                 |    |    |       | C = Corroblock FMA - 42AM-AC                   |                  |            |              |    |
| 42AMAAC: AC motor destratifier - Digit 16 = -         |  |   |   |   |   |   |        | 45**       |      |                                 |    |    |       | H = Heresite-coated coil Digit 16 = H,C,P or S |                  |            |              |    |
| 42AMAEC: EC motor destratifier - Digit 16 = -         |  |   |   |   |   |   |        | 50         |      |                                 |    |    |       | A = Altena-coated coil Digit 16 = H,C,P or S   |                  |            |              |    |
|   |  |   |   |   |   |   |        | 63***      |      |                                 |    |    |       | J = I+C  |                  |            |              |    |
|   |  |   |   |   |   |   |        | 64****     |      |                                 |    |    |       | K = I+H  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| Digits 10 to 13                                       |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| 42AM-AC   | 1M0- = 1 row 1-ph/230 V FMA with AC motor - Digit 16 = H, P or S                           |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3M0H = 3 rows 1-ph/230 V FMA with AC motor - Heating - Digit 16 = H                        |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 1T0- = 1 row 3-ph/400 V FMA with AC motor - Digit 16 = H, P or S                           |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T0- = 3 rows 3-ph/400 V FMA with AC motor - Digit 16 = H                                  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| 42AM-EC   | 1M9- = 1 row 1-ph/230 V FMA with EC motor- Digit 16 = H                                    |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 2M9H = 2 rows 1-ph/230 V FMA with EC motor - Digit 8&9 =30 and Digit 16 = H                |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 2M9C = 2 rows 1-ph/230 V FMA with EC motor - Digit 8&9 =30 and Digit 16 = C or R           |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3M9H = 3 rows 1-ph/230 V FMA with EC motor - HEATING - Digit 16 = H                        |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3M9C = 3 rows 1-ph/230 V FMA with EC motor - Cooling or Heating/Cooling - Digit 16 = C     |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| 42AM-EX<br>( Gaseous atmospheres and Zone 2 only)     | 1T1- = 1 row 380 V/3-ph - ATEX IIBT4 motor (gas) - Digit 16 = H, P or S                    |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T1H = 3 rows 380 V/3-ph - ATEX IIBT4 motor (gas) - Digit 16 = H                           |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T1C = 3 rows 380 V/3-ph - ATEX IIBT4 motor (gas)- Cooling or Heating/Cooling-Digit 16 = C |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 1T2- = 1 row 380 V/3-ph - ATEX IIBT5 motor (gas) - Digit 16 = H, P or S                    |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T2H= 3 rows 380 V/3-ph - ATEX IIBT5 motor (gas) - Heating - Digit 16 = H                  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T2C= 3 rows 380 V/3-ph - ATEX IIBT5 motor (gas)- Cooling or Heating/Cooling-Digit 16 = C  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 1T3- = 1 row 380 V/3-ph - ATEX IICT4 motor (gas) - Digit 16 = H, P or S                    |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T3H= 3 rows 380 V/3-ph - ATEX IICT4 motor (gas) - Heating - Digit 16 = H                  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T3C= 3 rows 380 V/3-ph - ATEX IICT4 motor (gas)- Cooling or Heating/Cooling-Digit 16 = C  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 1T4- = 1 row 380 V/3-ph - ATEX IICT6 motor (gas) - Digit 16 = H, P or S                    |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T4H= 3 rows 380 V/3-ph - ATEX IICT6 motor (gas) - Heating - Digit 16 = H                  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | 3T4C= 3 rows 380 V/3-ph - ATEX IICT6 motor (gas)- Cooling or Heating/Cooling-Digit 16 = C  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| 42AMAAC   | -M0- = 1-ph/230 V FMA with AC motor- Cooling or Heating/Cooling-Digit 16 = -               |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   | -T0- = 3-ph/400 V FMA with AC motor- Cooling or Heating/Cooling-Digit 16 = -               |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
| 42AMAEC   | -M9- = 1-ph/230 V FMA with EC motor- Cooling or Heating/Cooling-Digit 16 = -               |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
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|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |
|   |  |   |   |   |   |   |        |            |      |                                 |    |    |       |  |                  |            |              |    |

- \* If 42AM-EC  
\*\* If Digit 16 = H, C or -  
\*\*\* 42AM-AC: If Digit 16 = H, P or S  
42AM-EC: If Digit 16 = H or C  
42AM-EX: Not available  
\*\*\*\* 42AM-AC: If Digit 16 = H

Units in Hot Water only, Superheated Water or Steam versions are delivered as standard with left-hand connection (opposite the air heater). Right-hand connection is possible simply by reversing the unit.

Units in Cold Water only or Hot Water/Cold Water versions are delivered as standard with left-hand connection. To request right-hand connection, please consult us.

ATEX versions are only available with left-hand connection.

## TECHNICAL DESCRIPTION

### High-efficiency fan motor assembly

Silent FMA with an epoxy polyester-coated aluminium airfoil propeller to ensure the best compromise between air flow efficiency and acoustic comfort.

The ROTOREX design with windings inserted in the fan hub, keeps the motor cool to ensure that it operates at optimum efficiency.



#### Available versions:

- THREE-PHASE 2 speeds (accessory: LS/HS switch)
- SINGLE-PHASE 1 variable speed (accessory: 5-speed autotransformer)

### Low consumption EC FMA

Fan motor assembly equipped with a powerful high-efficiency EC (electronically commutated) motor. These EC motors (single-phase 230 V drive) will be progressively controlled by the 0-10 V signal, to ensure acoustic comfort and air flow efficiency and to optimise consumption of electricity. A shunt can be used to operate the air heater at maximum speed.

#### Casing

- Elegant galvanised steel casing, pre-painted in RAL 7035 (light grey).
- Built-in condensate drain pan for cooling applications, featuring an antibacterial design (perforated bottom) and quick-release fitting.
- Inlet cone optimised for improved air flow performance and acoustic comfort level.
- Advantages:
  - Its classic design means that it can easily blend into the architecture of the installation site.
  - No need to add an unsightly condensate drain pan.
  - Condensate pipes quick and extremely simple to connect, without any need for a clamp.

#### Diffuser

Double deflection diffuser made from rigid aluminium sections, based on the BERNOULLI fluid flow principle and on NACA0012 airfoils, creating a high induction rate on the primary air, in order to increase the air streams, limit the stratification phenomenon and thereby reduce energy consumption.

### Basic version on request for a minimum quantity of 15 units (one size available only: 42AM-AC641T0-M0H):

- Single-deflection diffuser with directional louver
- Light-grey galvanised steel louver

### JET+ version (fitted as standard):

- Double-deflection diffuser
- JET+ aluminium louver with NACA0012 airfoil design
- Each louver is directional
- Advantages:
  - Air flows adjustable in 4 directions for optimum coverage of the area to be handled, while limiting draughts.
  - Laminar flow of the airstream for improved acoustic comfort (no turbulence at the diffuser outlet).
  - Increased velocity of the air streams thanks to the aerodynamics of the curved airfoil (low pressure on the underside of the wing) increases the coverage of the air streams and the induction rate.
  - Limits stratification.
  - Reduced building warm-up time:
  - Recorded energy savings of 15 to 20%.

### Heat exchanger

HIGH EFFICIENCY heat exchanger coil with tapered intake baffles to help pressurise the finned casing, available in the following versions:

#### LP hot or cold water version – Available with 1 or 3 rows:

- Copper pipe Ø 9.52 mm
- Embossed aluminium fins – Thickness 10/100 mm
- Fin spacing 2.1 mm
- Equilateral geometry 32 mm
- Advantage: Excellent thermal yield (dry transfer coefficient > 50 W/m<sup>2</sup>.K)

#### HP superheated water version- Oil – Available with 1 row:

- 316L stainless steel Ø 16 mm thick pipe
- Embossed aluminium fins – Thickness 28.5/100 mm
- Fin spacing 2.5 mm
- Can be used with heat transfer oils
- Advantage: robust aluminium finned casing for industrial environments (polluted air) compatible with high-pressure jet washing.

#### HP steam version – Available with 1 row:

- 316L stainless steel Ø 16 mm thick pipe
- Embossed aluminium fins – Thickness 28.5/100 mm
- Fin spacing 2.5 mm
- Advantage: excellent corrosion resistance thanks to chemical treatments injected into the steam installation pipe networks.

## TECHNICAL DESCRIPTION

### Control

A range of "Plug & Play" proportional air-source/water-source controllers with heat exchanger (or electric heater) are used to control the air flow of the fan motor assembly and the heating capacity required for the room, according to the occupancy periods (built-in timer).

Single-phase EC FMA + LP water application:

- The single-phase EC BOX can control:
  - 6 H4000 single-phase ECs
  - 6 TPL 4000 single-phase ECs
  - 3 H4000 single-phase ECs + 3 TPL single-phase ECs
  - 4 H4000 single-phase ECs + 2 TPL single-phase ECs

### Options and accessories

- Wall bracket, ceiling bracket, IPN additional kit
- Filter box
- Specific diffuser (on door, high-level etc.)
- Room thermostat for THREE-PHASE or SINGLE-PHASE installation
- LS/HS switch for 3-PH fan motor assembly
- 5-speed autotransformer for single-phase AC FMAs
- Proximity switch
- Circuit breaker unit

### By special request:

- ATEX air heater

## 42AM PERFORMANCE SUPERHEATED WATER AND STEAM 230 V/1-PH/50 HZ MOTOR - AC AND EC

| HEATING operation - 230 V/1-ph/50 Hz motor - AC and EC |          |                                  |                   |                  |                |           |                       |     |                         |
|--|----------|----------------------------------|-------------------|------------------|----------------|-----------|-----------------------|-----|-------------------------|
| Model  | No. rows | Supply air speed<br>SINGLE-PHASE | Flow rate<br>m³/h | Air speed<br>m/s | Range (metres) |           | Heating capacity (kW) |     | Sound pressure<br>dB(A) |
|  |          |                                  |                   |                  | Wall-mounted   | Suspended | SW                    | HPS |                         |
| 30   | 2        | Direct                           | 1 420             | 3.16 m/s         | 15             | 3         |                       |     | 45                      |
| 35   | 1        | Direct                           | 2 600             | 3.92 m/s         | 22             | 6         | 29                    | 32  | 48                      |
|  |          | R3*                              | 2 360             | 3.56 m/s         | 18             | 4         | 27                    | 29  | 46                      |
|  | 3        | Direct                           | 2 075             | 3.13 m/s         | 15             | 2,5       |                       |     | 50                      |
|  |          | R3*                              | 1 780             | 2.68 m/s         | 14             | 2         |                       |     | 48                      |
| 40   | 1        | Direct                           | 4 200             | 4.57 m/s         | 26             | 8,5       | 43                    | 46  | 54                      |
|  |          | R3*                              | 3 914             | 4.26 m/s         | 24             | 7,5       | 39                    | 42  | 52                      |
|  | 3        | Direct                           | 3 450             | 3.75 m/s         | 23             | 7         |                       |     | 56                      |
|  |          | R3*                              | 3 220             | 3.50 m/s         | 20             | 5,5       |                       |     | 54                      |
| 45   | 1        | Direct                           | 5 200             | 4.20 m/s         | 27             | 8,5       |                       |     | 56                      |
|  |          | R3*                              | 4 100             | 3.31 m/s         | 24             | 6         |                       |     | 49                      |
|  | 3        | Direct                           | 4 550             | 3.68 m/s         | 18             | 3,5       |                       |     | 59                      |
|  |          | R3*                              | 3 650             | 2.95 m/s         | 17             | 3         |                       |     | 52                      |
| 50   | 1        | Direct                           | 7 100             | 4.22 m/s         | 28             | 9         | 79                    | 77  | 56                      |
|  |          | R3*                              | 5 700             | 3.39 m/s         | 26             | 7         | 66                    | 70  | 50                      |
|  | 3        | Direct                           | 6 200             | 3.69 m/s         | 24             | 6,5       |                       |     | 58                      |
|  |          | R3*                              | 5 055             | 3.01 m/s         | 23             | 5,5       |                       |     | 52                      |
| 63   | 1        | Direct                           | 10 450            | 4.19 m/s         | 28             | 10,5      | 103                   | 107 | 54                      |
|  |          | R3*                              | 8 900             | 3.57 m/s         | 22             | 8         | 93                    | 98  | 47                      |
|  | 3        | Direct                           | 8 280             | 3.32 m/s         | 21             | 6,5       |                       |     | 56                      |
|  |          | R3*                              | 6 270             | 2.52 m/s         | 19             | 5         |                       |     | 44                      |

| HEATING - COOLING operation - 230 V/1-ph/50 Hz motor - EC |          |                  |               |           |                |                |
|---|----------|------------------|---------------|-----------|----------------|----------------|
| Model   | No. rows | Supply air speed | Air flow rate | Air speed | Range (metres) | Sound pressure |
|   |          |                  | m³/h          | m/s       | Wall-mounted   | dB(A)          |
| 30M9 (EC)   | 2        | Direct           | 1200          | 2.67 m/s  | 12             | 43             |
| 35M9 (EC)   | 3        | Direct           | 1640          | 2.47 m/s  | 23             | 30             |
| 40M9 (EC)   |          |                  | 2160          | 2.35 m/s  | 26             | 48             |
| 45M9 (EC)   |          |                  | 3025          | 2.44 m/s  | 24             | 45             |
| 50M9 (EC)   |          |                  | 4060          | 2.41 m/s  | 23             | 54             |
| 63M9 (EC)   |          |                  | 5960          | 2.39 m/s  | 21             | 53             |

### Specifications determined using the following information:

■ **Superheated water (ES HP):** temperature: 180 - 120 °C / TR=15 °C – RH 50 %

■ **Steam (VAP HP):** temperature 175 °C – 8 bar / TR=15 °C – RH 50 %

■ **Cooling:** temperature 7 - 12 °C / TR=27 °C – RH 50 %

■ **Air stream:** \* with JET+ diffuser for a residual speed of 0.1 m/s

\* defined with a  $\Delta t$  TS/TR of 15 °C (heating) and 7 °C (cooling)

\* for LP water operation

■ **Air speed:** JET+ diffuser outlet

■ **Sound pressure:** 5 metres from the unit, directivity 2, attenuation of 22 dB

■ **Direct:** speed obtained when wired directly to single-phase motor.

■ **R3\*** (version with AC motor): supply air speed obtained with an autotransformer at 3. Other operation points (5 in total) can be supplied on request by your agent using our technical selection software.

## 42AM PERFORMANCE SUPERHEATED WATER AND STEAM 400 V/3-PH/50 HZ MOTOR

| HEATING operation - 400 V/3-ph/50 Hz motor - AC |          |                                 |                   |                  |                |           |                       |      |                         |
|---|----------|---------------------------------|-------------------|------------------|----------------|-----------|-----------------------|------|-------------------------|
| Model   | No. rows | Supply air speed<br>THREE-PHASE | Flow rate<br>m³/h | Air speed<br>m/s | Range (metres) |           | Heating capacity (kW) |      | Sound pressure<br>dB(A) |
|   |          |                                 |                   |                  | Wall-mounted   | Suspended | SW                    | HPS  |                         |
| 35  | 1        | HS                              | 2 600             | 3.92 m/s         | 22             | 6         | 29                    | 32   | 48                      |
|   |          | LS                              | 2 210             | 3.33 m/s         | 17             | 3,5       | 27                    | 29   | 44                      |
|   | 3        | HS                              | 2 165             | 3.26 m/s         | 18             | 4,5       |                       |      | 50                      |
|   |          | LS                              | 1 775             | 2.67 m/s         | 14             | 2         |                       |      | 46                      |
| 40  | 1        | HS                              | 4 000             | 4.35 m/s         | 25             | 8         | 42,7                  | 45,7 | 55                      |
|   |          | LS                              | 3 480             | 3.79 m/s         | 21             | 5         | 38                    | 41   | 51                      |
|   | 3        | HS                              | 3 400             | 3.70 m/s         | 22             | 6,5       |                       |      | 56                      |
|   |          | LS                              | 2 960             | 3.22 m/s         | 17             | 3,5       |                       |      | 52                      |
| 45  | 1        | HS                              | 5 400             | 4.36 m/s         | 28             | 9         |                       |      | 56                      |
|   |          | LS                              | 3 910             | 3.16 m/s         | 23             | 5,5       |                       |      | 49                      |
|   | 3        | HS                              | 5 000             | 4.04 m/s         | 24             | 7,5       |                       |      | 59                      |
|   |          | LS                              | 3 910             | 3.16 m/s         | 20             | 4         |                       |      | 52                      |
| 50  | 1        | HS                              | 7 500             | 4.46 m/s         | 30             | 10        | 79,4                  | 77,4 | 56                      |
|   |          | LS                              | 5 740             | 3.41 m/s         | 26             | 7         | 66,2                  | 70,1 | 50                      |
|   | 3        | HS                              | 6 500             | 3.86 m/s         | 26             | 8,5       |                       |      | 58                      |
|   |          | LS                              | 5 020             | 2.98 m/s         | 23             | 5,5       |                       |      | 52                      |
| 63  | 1        | HS                              | 11 140            | 4.47 m/s         | 29             | 11,5      | 110                   | 115  | 55                      |
|   |          | LS                              | 9 635             | 3.87 m/s         | 24             | 8,5       | 100                   | 105  | 48                      |
|   | 3        | HS                              | 9 175             | 3.68 m/s         | 25             | 10        |                       |      | 57                      |
|   |          | LS                              | 7 545             | 3.03 m/s         | 21             | 7         |                       |      | 49                      |

### Specifications determined using the following information:

■ **Superheated water (ES HP):** temperature: 180 - 120 °C / TR=15 °C – RH 50 %

■ **Steam (VAP HP):** temperature 175 °C – 8 bar / TR=15 °C – RH 50 %

■ **Air stream:** \* with JET+ diffuser for a residual speed of 0.1 m/s

\* defined with a  $\Delta t$  TS/TR of 15 °C

\* for LP water operation

■ **Air speed:** JET+ diffuser outlet

■ **Sound pressure:** 5 metres from the unit, directivity 2, attenuation of 22 dB



## DESTRATIFIER DETERMINATION AND SELECTION EXAMPLE (42AMA)

The use of 42AMA units is recommended for buildings between 5 and 15 metres high.

S = Supply (released at the top of the building)

TR = Temperature under roof

TW = Temperature setpoint in the work area

$$\text{Calculated flow rate for destratifiers} = \frac{A}{0.3 \times (TR - TW)}$$

Selection example:

Supply under building roof = S = 45,000 kcal (52,200 Watts)

Temperature under roof = TR = 30°C

Temperature setpoint in the work area = TW = 16°C

$$\text{Calculated flow rate for destratifiers} = \frac{45\,000}{0.3 \times (30 - 16)} = 10714 \text{ m}^3/\text{h}$$

Either: 2 X 42AMA-50---T0 at HS or 1 x 42AMA-63---T0 at HS.

## 42AMA AIR FLOW & ACOUSTIC PERFORMANCE

| 42AMA-  | 40      |         | 45      |         | 50      |         | 63      |         |
|---|---------|---------|---------|---------|---------|---------|---------|---------|
| THREE-PHASE motor<br>(3-phase 400 V coupling) | HS<br>△ | LS<br>★ | HS<br>△ | LS<br>★ | HS<br>△ | LS<br>★ | HS<br>△ | LS<br>★ |
| SINGLE-PHASE AC and SINGLE-PHASE EC motor     | Direct  | -       | Direct  | -       | Direct  | -       | Direct  | -       |
| Flow rate m <sup>3</sup> /h                   | 4400    | 3000    | 6000    | 4100    | 8000    | 5500    | 11500   | 8800    |
| Air stream m                                  | 15      | 8       | 14      | 9       | 16      | 10      | 19      | 14      |
| Sound pressure dB(A)                          | 51      | 43      | 54      | 46      | 57      | 47      | 55      | 50      |

Specifications determined using the following information:

**Air stream:** \* with JET+ diffuser for a residual speed of 0.1 m/s

**Sound pressure:** \* measured 8 metres from unit, directivity 2, attenuation of 26 dB

## 42AM - HOT WATER - 230 V/1-PH/50 HZ MOTOR - AC AND EC

| Inlet/Outlet water temperature, °C |    | 42AM--302*                               |      |      |      | 42AM--351                                |      |      |      |                                       |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|---------------------------------------|------|------|------|
|                                    |    | Air flow rate (m <sup>3</sup> /h) Direct |      |      |      | Air flow rate (m <sup>3</sup> /h) Direct |      |      |      | Air flow rate (m <sup>3</sup> /h) R3* |      |      |      |
|                                    |    | 1420                                     |      |      |      | 2600                                     |      |      |      | 2360                                  |      |      |      |
|                                    |    | Air inlet dry-bulb temperature (°C)      |      |      |      | Air inlet dry-bulb temperature (°C)      |      |      |      | Air inlet dry-bulb temperature (°C)   |      |      |      |
|                                    |    | 8  | 12   | 15   | 18   | 8  | 12   | 15   | 18   | 8                                     | 12   | 15   | 18   |
| 80-60                              | Hc | 17,1                                     | 15,8 | 14,8 | 13,9 | 11,9                                     | 11   | 10,3 | 9,62 | 11,5                                  | 10,6 | 9,93 | 9,28 |
|                                    | PD | 42,7                                     | 36,8 | 32,7 | 28,9 | 7,91                                     | 6,95 | 6,11 | 5,4  | 7,41                                  | 6,42 | 5,73 | 5,07 |
| 60-40                              | Hc | 10,7                                     | 9,4  | 8,46 | 7,52 | 7,12                                     | 6,19 | 5,49 | 4,77 | 6,87                                  | 5,97 | 5,29 | 4,6  |
|                                    | PD | 18,4                                     | 14,6 | 12   | 9,65 | 3,37                                     | 2,63 | 2,12 | 1,65 | 3,17                                  | 2,46 | 1,99 | 1,55 |
| 45-40                              | Hc |  |      |      |      | 7,08                                     | 6,17 | 5,49 | 4,81 | 6,83                                  | 5,95 | 5,29 | 4,65 |
|                                    | PD |  |      |      |      | 40,4                                     | 31,7 | 25,7 | 20,3 | 37,9                                  | 29,5 | 24   | 19,1 |
| 50-42                              | Hc |  |      |      |      | 7,52                                     | 6,62 | 5,94 | 5,27 | 7,26                                  | 6,38 | 5,74 | 5,09 |
|                                    | PD |  |      |      |      | 19,3                                     | 15,3 | 12,6 | 10,1 | 18,1                                  | 14,4 | 11,9 | 9,52 |

| Inlet/Outlet water temperature, °C |    | 42AM--353                                |      |      |      |                                       |      |      |      | 42AM--401                                |      |      |      |                                       |      |      |      |
|------------------------------------|----|--|------|------|------|---------------------------------------|------|------|------|--|------|------|------|---------------------------------------|------|------|------|
|                                    |    | Air flow rate (m <sup>3</sup> /h) Direct |      |      |      | Air flow rate (m <sup>3</sup> /h) R3* |      |      |      | Air flow rate (m <sup>3</sup> /h) Direct |      |      |      | Air flow rate (m <sup>3</sup> /h) R3* |      |      |      |
|                                    |    | 2075                                     |      |      |      | 1780                                  |      |      |      | 4200                                     |      |      |      | 3914                                  |      |      |      |
|                                    |    | Air inlet dry-bulb temperature (°C)      |      |      |      | Air inlet dry-bulb temperature (°C)   |      |      |      | Air inlet dry-bulb temperature (°C)      |      |      |      | Air inlet dry-bulb temperature (°C)   |      |      |      |
|                                    |    | 8  | 12   | 15   | 18   | 8                                     | 12   | 15   | 18   | 8  | 12   | 15   | 18   | 8                                     | 12   | 15   | 18   |
| 80-60                              | Hc | 25,9                                     | 23,9 | 22,3 | 20,8 | 23,7                                  | 21,8 | 20,4 | 19   | 17,2                                     | 15,9 | 14,9 | 13,9 | 16,8                                  | 15,5 | 14,5 | 13,5 |
|                                    | PD | 7,65                                     | 6,53 | 5,77 | 5,03 | 6,43                                  | 5,5  | 4,87 | 4,24 | 7,24                                     | 6,25 | 5,55 | 4,9  | 6,91                                  | 5,96 | 5,3  | 4,68 |
| 60-40                              | Hc | 15,5                                     | 13,4 | 11,9 | 10,4 | 14,1                                  | 12,3 | 10,8 | 9,45 | 10,2                                     | 8,81 | 7,78 | 6,72 | 9,93                                  | 8,58 | 7,58 | 6,55 |
|                                    | PD | 3  | 2,29 | 1,82 | 1,43 | 2,51                                  | 1,93 | 1,54 | 1,21 | 2,99                                     | 2,3  | 1,85 | 1,42 | 2,86                                  | 2,2  | 1,76 | 1,36 |
| 45-40                              | Hc | 15,2                                     | 13,2 | 11,7 | 10,3 | 13,8                                  | 12   | 10,7 | 9,35 | 10,3                                     | 8,97 | 7,98 | 6,99 | 10                                    | 8,74 | 7,77 | 6,81 |
|                                    | PD | 40                                       | 30,3 | 24,4 | 18,9 | 33,5                                  | 25,6 | 20,4 | 15,8 | 38,1                                     | 29,5 | 23,8 | 18,7 | 36,3                                  | 28,1 | 22,6 | 17,9 |
| 50-42                              | Hc | 16,3                                     | 14,3 | 12,8 | 11,3 | 14,8                                  | 13   | 11,7 | 10,3 | 10,9                                     | 9,6  | 8,61 | 7,62 | 10,6                                  | 9,35 | 8,39 | 7,43 |
|                                    | PD | 18,5                                     | 14,4 | 11,7 | 9,29 | 15,5                                  | 12,1 | 9,81 | 7,81 | 17,9                                     | 14   | 11,5 | 9,22 | 17,1                                  | 13,4 | 11   | 8,79 |

## 42AM - HOT WATER - 230 V/1-PH/50 HZ MOTOR - AC AND EC

| Inlet/Outlet water temperature, °C |    | 42AM--403                              |      |      |      |  |      |      |      | 42AM--451                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>Direct         |      |      |      | Air flow rate (m³/h)<br>R3*            |      |      |      | Air flow rate (m³/h)<br>Direct         |      |      |      | Air flow rate (m³/h)<br>R3*            |      |      |      |
|                                    |    | 3450                                   |      |      |      | 3220                                   |      |      |      | 5200                                   |      |      |      | 4100                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 40,1                                   | 36,9 | 34,6 | 32,3 | 38,6                                   | 35,5 | 33,2 | 31   | 23,4                                   | 21,6 | 20,3 | 19   | 21,3                                   | 19,7 | 18,5 | 17,3 |
|                                    | PD | 13,3                                   | 11,4 | 10,1 | 8,9  | 12,3                                   | 10,6 | 9,37 | 8,26 | 14,6                                   | 12,7 | 11,3 | 10   | 12,4                                   | 10,7 | 9,55 | 8,46 |
| 60-40                              | Hc | 24,2                                   | 20,9 | 18,5 | 16,1 | 23,2                                   | 20,1 | 17,8 | 15,5 | 14,3                                   | 12,5 | 11,2 | 9,92 | 13,1                                   | 11,5 | 10,2 | 9,01 |
|                                    | PD | 5,47                                   | 4,22 | 3,36 | 2,63 | 5,09                                   | 3,93 | 3,13 | 2,45 | 6,43                                   | 5,12 | 4,2  | 3,37 | 5,5                                    | 4,34 | 3,57 | 2,83 |
| 45-40                              | Hc | 23,5                                   | 20,4 | 18,2 | 15,9 | 22,6                                   | 19,6 | 17,4 | 15,3 | 13,7                                   | 12   | 10,7 | 9,38 | 12,5                                   | 10,9 | 9,71 | 8,53 |
|                                    | PD | 67,9                                   | 52,4 | 42,2 | 32,9 | 63,2                                   | 48,7 | 39   | 30,6 | 72,4                                   | 56,8 | 45,9 | 36,5 | 61,3                                   | 48   | 38,9 | 30,8 |
| 50-42                              | Hc | 25,2                                   | 22,1 | 19,8 | 17,5 | 24,2                                   | 21,2 | 19   | 16,8 | 14,7                                   | 12,9 | 11,6 | 10,3 | 13,4                                   | 11,8 | 10,6 | 9,42 |
|                                    | PD | 32,1                                   | 25,1 | 20,5 | 16,4 | 29,8                                   | 23,3 | 19   | 15,2 | 34,9                                   | 27,8 | 23   | 18,6 | 29,5                                   | 23,6 | 19,5 | 15,8 |

| Inlet/Outlet water temperature, °C |    | 42AM--453                              |      |      |      |  |      |      |      | 42AM--501                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>Direct         |      |      |      | Air flow rate (m³/h)<br>R3*            |      |      |      | Air flow rate (m³/h)<br>Direct         |      |      |      | Air flow rate (m³/h)<br>R3*            |      |      |      |
|                                    |    | 4550                                   |      |      |      | 3650                                   |      |      |      | 7100                                   |      |      |      | 5700                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 54,4                                   | 50,2 | 47   | 43,8 | 47,8                                   | 44   | 41,2 | 38,5 | 31                                     | 28,6 | 26,9 | 25,1 | 28,5                                   | 26,3 | 24,7 | 23,1 |
|                                    | PD | 13,5                                   | 11,6 | 10,3 | 9,02 | 10,6                                   | 9,08 | 8,04 | 7,06 | 7,9                                    | 6,84 | 6,1  | 5,4  | 6,8                                    | 5,89 | 5,25 | 4,65 |
| 60-40                              | Hc | 33,5                                   | 29,3 | 26,1 | 22,9 | 29,4                                   | 25,6 | 22,8 | 20   | 18,6                                   | 16,2 | 14,3 | 12,5 | 17,1                                   | 14,8 | 13,1 | 11,4 |
|                                    | PD | 5,69                                   | 4,44 | 3,57 | 2,81 | 4,47                                   | 3,46 | 2,8  | 2,18 | 3,39                                   | 2,65 | 2,13 | 1,66 | 2,92                                   | 2,27 | 1,83 | 1,42 |
| 45-40                              | Hc | 31,6                                   | 27,5 | 24,4 | 21,4 | 27,6                                   | 24   | 21,3 | 18,7 | 18,4                                   | 16,1 | 14,3 | 12,5 | 16,9                                   | 14,7 | 13,1 | 11,5 |
|                                    | PD | 68,6                                   | 53   | 42,4 | 33,2 | 53,5                                   | 41   | 33   | 25,7 | 40,3                                   | 31,4 | 25,5 | 20,2 | 34,5                                   | 26,9 | 21,8 | 17,3 |
| 50-42                              | Hc | 34                                     | 29,8 | 26,8 | 23,7 | 29,7                                   | 26,1 | 23,4 | 20,8 | 19,6                                   | 17,2 | 15,5 | 13,7 | 18                                     | 15,8 | 14,2 | 12,6 |
|                                    | PD | 32,5                                   | 25,4 | 20,8 | 16,6 | 25,3                                   | 19,9 | 16,2 | 12,9 | 19,2                                   | 15,2 | 12,6 | 10,1 | 16,6                                   | 13,1 | 10,9 | 8,69 |

| Inlet/Outlet water temperature, °C |    | 42AM--503                              |      |      |      |  |      |      |      | 42AM--631                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>Direct         |      |      |      | Air flow rate (m³/h)<br>R3*            |      |      |      | Air flow rate (m³/h)<br>Direct         |      |      |      | Air flow rate (m³/h)<br>R3*            |      |      |      |
|                                    |    | 6200                                   |      |      |      | 5055                                   |      |      |      | 10450                                  |      |      |      | 8900                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 74,3                                   | 68,4 | 64,1 | 59,8 | 65,9                                   | 60,8 | 56,9 | 53,1 | 45,4                                   | 41,9 | 39,3 | 36,7 | 42,7                                   | 39,4 | 37   | 34,5 |
|                                    | PD | 12,8                                   | 11   | 9,74 | 8,56 | 10,3                                   | 8,81 | 7,8  | 6,87 | 6,89                                   | 5,94 | 5,28 | 4,65 | 6,16                                   | 5,32 | 4,72 | 4,16 |
| 60-40                              | Hc | 45,8                                   | 40,1 | 35,7 | 31,3 | 40,7                                   | 35,5 | 31,7 | 27,8 | 26,9                                   | 23,3 | 20,6 | 17,8 | 25,3                                   | 21,9 | 19,3 | 16,7 |
|                                    | PD | 5,46                                   | 4,27 | 3,44 | 2,71 | 4,39                                   | 3,42 | 2,77 | 2,17 | 2,79                                   | 2,14 | 1,71 | 1,32 | 2,5                                    | 1,91 | 1,53 | 1,19 |
| 45-40                              | Hc | 43,1                                   | 37,5 | 33,3 | 29,2 | 38,2                                   | 33,2 | 29,5 | 25,9 | 27,2                                   | 23,7 | 21   | 18,5 | 25,5                                   | 22,2 | 19,8 | 17,3 |
|                                    | PD | 64,8                                   | 49,9 | 39,9 | 31,4 | 51,6                                   | 39,9 | 32   | 25   | 36,3                                   | 28,1 | 22,7 | 17,9 | 32,4                                   | 25,1 | 20,3 | 15,9 |
| 50-42                              | Hc | 46,3                                   | 40,7 | 36,5 | 32,4 | 41,1                                   | 36,1 | 32,4 | 28,8 | 28,8                                   | 25,3 | 22,7 | 20,1 | 27,1                                   | 23,8 | 21,4 | 18,9 |
|                                    | PD | 30,7                                   | 24,1 | 19,7 | 15,7 | 24,5                                   | 19,3 | 15,7 | 12,6 | 17                                     | 13,4 | 11   | 8,75 | 15,1                                   | 12   | 9,77 | 7,81 |

| Inlet/Outlet water temperature, °C |    | 42AM--633                           |      |      |      |                                     |      |      |      |
|------------------------------------|----|-------------------------------------|------|------|------|-------------------------------------|------|------|------|
|                                    |    | Air flow rate (m³/h)Direct          |      |      |      | Air flow rate (m³/h)<br>R3*         |      |      |      |
|                                    |    | 8280                                |      |      |      | 6270                                |      |      |      |
|                                    |    | Air inlet dry-bulb temperature (°C) |      |      |      | Air inlet dry-bulb temperature (°C) |      |      |      |
|                                    |    | 8                                   | 12   | 15   | 18   | 8                                   | 12   | 15   | 18   |
| 80-60                              | Hc | 106                                 | 97,5 | 91,4 | 85,4 | 89,1                                | 82,2 | 77   | 72   |
|                                    | PD | 21,5                                | 18,3 | 16,2 | 14,3 | 15,5                                | 13,3 | 11,8 | 10,4 |
| 60-40                              | Hc | 66,1                                | 58,2 | 52,3 | 46,3 | 56                                  | 49,2 | 44   | 38,9 |
|                                    | PD | 9,2                                 | 7,26 | 5,94 | 4,76 | 6,74                                | 5,31 | 4,31 | 3,43 |
| 45-40                              | Hc | /                                   | 53,1 | 47,3 | 41,5 | 51,1                                | 44,5 | 39,7 | 34,9 |
|                                    | PD | /                                   | 82,5 | 66,5 | 52,2 | 76,9                                | 59,2 | 47,7 | 37,6 |
| 50-42                              | Hc | 65,8                                | 57,9 | 52,1 | 46,3 | 55,3                                | 48,7 | 43,8 | 38,9 |
|                                    | PD | 50,9                                | 40,1 | 32,8 | 26,3 | 36,8                                | 28,9 | 23,8 | 19   |

Hc Heating capacity (kW)

PD Water pressure drop (kPa)

\* Only available in EC version

## 42AM - CHILLED WATER &amp; HOT WATER - 230 V/1-PH/50 HZ MOTOR - EC

| Inlet/Outlet water temperature, °C |    | 42AM--302*                          |      |      |      | 42AM--353                           |      |      |      | 42AM--403                           |      |      |      | 42AM--453                           |      |      |      | 42AM--503                           |      |      |      | 42AM--633*                          |      |      |      |
|------------------------------------|----|-------------------------------------|------|------|------|-------------------------------------|------|------|------|-------------------------------------|------|------|------|-------------------------------------|------|------|------|-------------------------------------|------|------|------|-------------------------------------|------|------|------|
|                                    |    | Air flow rate (m³/h)                |      |      |      | Air flow rate (m³/h)                |      |      |      | Air flow rate (m³/h)                |      |      |      | Air flow rate (m³/h)                |      |      |      | Air flow rate (m³/h)                |      |      |      | Air flow rate (m³/h)                |      |      |      |
|                                    |    | - Direct                            |      |      |      | - Direct                            |      |      |      | - Direct                            |      |      |      | - Direct                            |      |      |      | - Direct                            |      |      |      | - Direct                            |      |      |      |
|                                    |    | 1200                                |      |      |      | 1640                                |      |      |      | 2160                                |      |      |      | 3025                                |      |      |      | 4060                                |      |      |      | 4060                                |      |      |      |
|                                    |    | Air inlet dry-bulb temperature (°C) |      |      |      | Air inlet dry-bulb temperature (°C) |      |      |      | Air inlet dry-bulb temperature (°C) |      |      |      | Air inlet dry-bulb temperature (°C) |      |      |      | Air inlet dry-bulb temperature (°C) |      |      |      | Air inlet dry-bulb temperature (°C) |      |      |      |
|                                    |    | 8                                   | 12   | 15   | 18   | 8                                   | 12   | 15   | 18   | 8                                   | 12   | 15   | 18   | 8                                   | 12   | 15   | 18   | 8                                   | 12   | 15   | 18   | 8                                   | 12   | 15   | 18   |
| 80-60                              | Hc | 17,1                                | 15,8 | 14,8 | 13,9 | 21,4                                | 19,7 | 18,5 | 17,2 | 28,9                                | 26,6 | 24,9 | 23,2 | 40,6                                | 37,4 | 35,1 | 32,8 | 54,9                                | 50,6 | 47,4 | 44,3 | 82                                  | 75,7 | 71   | 66,4 |
|                                    | PD | 42,7                                | 36,8 | 32,7 | 28,9 | 5,32                                | 4,5  | 4    | 3,5  | 7,2                                 | 6,2  | 5,5  | 4,8  | 7,8                                 | 6,7  | 6    | 5,2  | 7,3                                 | 6,3  | 5,6  | 4,9  | 13,2                                | 11,4 | 10,1 | 8,9  |
| 60-40                              | Hc | 10,7                                | 9,4  | 8,46 | 7,52 | 12,8                                | 11,1 | 9,8  | 8,6  | 17,3                                | 15   | 13,3 | 11,7 | 25                                  | 21,9 | 19,5 | 17,1 | 33,9                                | 29,6 | 26,4 | 23,2 | 51,6                                | 45,4 | 40,6 | 35,9 |
|                                    | PD | 18,4                                | 14,6 | 12   | 9,65 | 2,1                                 | 1,6  | 1,3  | 1    | 3                                   | 2,3  | 1,9  | 1,5  | 3,3                                 | 2,6  | 2,1  | 1,7  | 3,1                                 | 2,4  | 2    | 1,6  | 5,8                                 | 4,6  | 3,7  | 3    |
| 45-40                              | Hc |                                     |      |      |      | 12,5                                | 10,9 | 9,7  | 8,5  | 16,8                                | 14,6 | 13   | 11,4 | 23,5                                | 20,5 | 18,2 | 16   | 31,7                                | 27,6 | 24,6 | 21,6 | 46                                  | 41,1 | 36,6 | 32,2 |
|                                    | PD |                                     |      |      |      | 27,6                                | 21,3 | 16,9 | 13,1 | 36,6                                | 28,4 | 22,7 | 17,8 | 39,4                                | 30,6 | 24,5 | 19,2 | 36,5                                | 28,3 | 22,8 | 17,9 | 44,9                                | 51,1 | 41,2 | 32,4 |

| Inlet/Outlet water temperature, °C |      | 42AM--302*                          |      |      |  | 42AM--353                           |      |      |  | 42AM--403                           |      |      |  | 42AM--453                           |      |      |  | 42AM--503                           |      |      |  | 42AM--633*                          |      |      |  |
|------------------------------------|------|-------------------------------------|------|------|--|-------------------------------------|------|------|--|-------------------------------------|------|------|--|-------------------------------------|------|------|--|-------------------------------------|------|------|--|-------------------------------------|------|------|--|
|                                    |      | Relative humidity 50%               |      |      |  | Relative humidity 50%               |      |      |  | Relative humidity 50%               |      |      |  | Relative humidity 50%               |      |      |  | Relative humidity 50%               |      |      |  | Relative humidity 50%               |      |      |  |
|                                    |      | Air flow rate (m³/h)                |      |      |  | Air flow rate (m³/h)                |      |      |  | Air flow rate (m³/h)                |      |      |  | Air flow rate (m³/h)                |      |      |  | Air flow rate (m³/h)                |      |      |  | Air flow rate (m³/h)                |      |      |  |
|                                    |      | Direct                              |      |      |  | Direct                              |      |      |  | Direct                              |      |      |  | Direct                              |      |      |  | Direct                              |      |      |  | Direct                              |      |      |  |
|                                    |      | 1200                                |      |      |  | 1640                                |      |      |  | 2160                                |      |      |  | 3025                                |      |      |  | 4060                                |      |      |  | 5960                                |      |      |  |
|                                    |      | Air inlet dry-bulb temperature (°C) |      |      |  | Air inlet dry-bulb temperature (°C) |      |      |  | Air inlet dry-bulb temperature (°C) |      |      |  | Air inlet dry-bulb temperature (°C) |      |      |  | Air inlet dry-bulb temperature (°C) |      |      |  | Air inlet dry-bulb temperature (°C) |      |      |  |
|                                    |      | 23                                  | 25   | 27   |  | 23                                  | 25   | 27   |  | 23                                  | 25   | 27   |  | 23                                  | 25   | 27   |  | 23                                  | 25   | 27   |  | 23                                  | 25   | 27   |  |
| 7-12                               | TCC  | 2,95                                | 3,65 | 4,59 |  | 3,38                                | 4,28 | 5,6  |  | 4,6                                 | 5,91 | 7,64 |  | 7,13                                | 8,87 | 11,6 |  | 9,66                                | 12,1 | 15,7 |  | 15,2                                | 19,3 | 24,4 |  |
|                                    | SCC  | 2,95                                | 3,5  | 3,99 |  | 3,38                                | 4,28 | 5,17 |  | 4,6                                 | 5,85 | 6,98 |  | 7,13                                | 8,67 | 10,2 |  | 9,66                                | 11,8 | 13,7 |  | 15,2                                | 18,2 | 20,8 |  |
|                                    | PD   | 24,4                                | 36,1 | 55   |  | 2,34                                | 3,69 | 6,22 |  | 3,46                                | 5,55 | 9,08 |  | 4,44                                | 6,75 | 11,3 |  | 4,22                                | 6,55 | 10,7 |  | 8,46                                | 13,3 | 20,6 |  |
| 8-13                               | 8-13 | 2,69                                | 3,28 | 4,06 |  | 2,96                                | 3,9  | 4,93 |  | 4,04                                | 5,3  | 6,71 |  | 6,39                                | 8,08 | 10,2 |  | 8,66                                | 10,9 | 13,9 |  | 13,8                                | 17,1 | 21,7 |  |
|                                    | SCC  | 2,69                                | 3,24 | 3,75 |  | 2,96                                | 3,9  | 4,78 |  | 4,04                                | 5,3  | 6,46 |  | 6,39                                | 8,02 | 9,47 |  | 8,66                                | 10,9 | 12,9 |  | 13,8                                | 16,8 | 19,6 |  |
|                                    | PD   | 20,4                                | 29,5 | 43,8 |  | 1,82                                | 3,1  | 4,86 |  | 2,68                                | 4,53 | 7,06 |  | 3,6                                 | 5,65 | 8,76 |  | 3,43                                | 5,37 | 8,52 |  | 6,98                                | 10,6 | 16,5 |  |
| 10-15                              | TCC  | 2,15                                | 2,71 | 3,31 |  | 2,16                                | 3,1  | 3,99 |  | 2,92                                | 4,22 | 5,43 |  | 4,84                                | 6,54 | 8,19 |  | 6,55                                | 8,86 | 11,1 |  | 10,8                                | 14   | 17,3 |  |
|                                    | SCC  | 2,15                                | 2,71 | 3,26 |  | 2,16                                | 3,1  | 3,99 |  | 2,92                                | 4,22 | 5,43 |  | 4,84                                | 6,54 | 8,12 |  | 6,55                                | 8,86 | 11   |  | 10,8                                | 14   | 16,9 |  |
|                                    | PD   | 13,4                                | 20,6 | 29,7 |  | 0,993                               | 1,98 | 3,22 |  | 1,43                                | 2,92 | 4,74 |  | 2,11                                | 3,75 | 5,79 |  | 2,01                                | 3,57 | 5,5  |  | 4,38                                | 7,11 | 10,7 |  |

Hc Heating capacity (kW)  
TCC Total cooling capacity  
SCC Sensible cooling capacity (kW)  
PD Water pressure drop (kPa)  
\* Only available in EC version

## 42AM - HOT WATER - 400 V/3-PH/50 HZ MOTOR - AC

| Inlet/Outlet water temperature, °C |    | 42AM--351                              |      |      |      |  |      |      |      | 42AM--353                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      |
|                                    |    | 2600                                   |      |      |      | 2210                                   |      |      |      | 2165                                   |      |      |      | 1775                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 11,9                                   | 11   | 10,3 | 9,62 | 11,2                                   | 10,3 | 9,69 | 9,05 | 26,6                                   | 24,5 | 22,9 | 21,4 | 23,7                                   | 21,8 | 20,4 | 19   |
|                                    | PD | 7,92                                   | 6,86 | 6,12 | 5,41 | 7,09                                   | 6,14 | 5,48 | 4,84 | 8,04                                   | 6,86 | 6,07 | 5,3  | 6,42                                   | 5,49 | 4,86 | 4,24 |
| 60-40                              | Hc | 7,13                                   | 6,2  | 5,5  | 4,78 | 6,71                                   | 5,83 | 5,17 | 4,49 | 15,9                                   | 13,8 | 12,2 | 10,7 | 14,1                                   | 12,3 | 10,8 | 9,47 |
|                                    | PD | 3,38                                   | 2,63 | 2,13 | 1,66 | 3,03                                   | 2,36 | 1,9  | 1,48 | 3,15                                   | 2,4  | 1,91 | 1,5  | 2,51                                   | 1,93 | 1,55 | 1,21 |
| 45-40                              | Hc | 7,08                                   | 6,18 | 5,5  | 4,82 | 6,66                                   | 5,8  | 5,16 | 4,53 | 15,6                                   | 13,6 | 12,1 | 10,6 | 13,8                                   | 12   | 10,7 | 9,36 |
|                                    | PD | 40,5                                   | 31,7 | 25,7 | 20,3 | 36,3                                   | 28,3 | 22,9 | 18,3 | 42                                     | 32,4 | 25,7 | 20   | 33,5                                   | 25,6 | 20,4 | 15,8 |
| 50-42                              | Hc | 7,53                                   | 6,63 | 5,95 | 5,28 | 7,08                                   | 6,23 | 5,59 | 4,96 | 16,7                                   | 14,7 | 13,1 | 11,6 | 14,8                                   | 13   | 11,7 | 10,3 |
|                                    | PD | 19,3                                   | 15,3 | 12,7 | 10,2 | 17,3                                   | 13,7 | 11,3 | 9,11 | 19,5                                   | 15,2 | 12,3 | 9,79 | 15,5                                   | 12,1 | 9,82 | 7,82 |

| Inlet/Outlet water temperature, °C |    | 42AM--401                              |      |      |      |  |      |      |      | 42AM--403                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      |
|                                    |    | 4000                                   |      |      |      | 3480                                   |      |      |      | 3400                                   |      |      |      | 2960                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 16,9                                   | 15,6 | 14,6 | 13,6 | 16,1                                   | 14,8 | 13,9 | 13   | 39,8                                   | 36,6 | 34,3 | 32   | 36,8                                   | 33,8 | 31,7 | 29,5 |
|                                    | PD | 7,01                                   | 6,04 | 5,37 | 4,74 | 6,38                                   | 5,51 | 4,9  | 4,33 | 13,1                                   | 11,2 | 9,92 | 8,76 | 11,3                                   | 9,69 | 8,63 | 7,55 |
| 60-40                              | Hc | 10                                     | 8,65 | 7,64 | 6,6  | 9,51                                   | 8,21 | 7,26 | 6,29 | 24                                     | 20,8 | 18,4 | 16   | 22,1                                   | 19,2 | 17   | 14,8 |
|                                    | PD | 2,9                                    | 2,23 | 1,79 | 1,37 | 2,65                                   | 2,03 | 1,63 | 1,27 | 5,39                                   | 4,16 | 3,31 | 2,59 | 4,66                                   | 3,58 | 2,88 | 2,26 |
| 45-40                              | Hc | 10,1                                   | 8,81 | 7,83 | 6,86 | 9,61                                   | 8,37 | 7,44 | 6,52 | 23,3                                   | 20,3 | 18   | 15,8 | 21,5                                   | 18,7 | 16,6 | 14,6 |
|                                    | PD | 36,8                                   | 28,5 | 23   | 18,1 | 33,5                                   | 26   | 21   | 16,4 | 66,9                                   | 51,6 | 41,6 | 32,4 | 57,6                                   | 44,5 | 35,7 | 28   |
| 50-42                              | Hc | 10,7                                   | 9,42 | 8,45 | 7,48 | 10,2                                   | 8,96 | 8,03 | 7,11 | 25                                     | 21,9 | 19,6 | 17,4 | 23,1                                   | 20,2 | 18,1 | 16,1 |
|                                    | PD | 17,3                                   | 13,6 | 11,1 | 8,91 | 15,7                                   | 12,4 | 10,1 | 8,13 | 31,6                                   | 24,7 | 20,2 | 16,1 | 27,4                                   | 21,3 | 7,4  | 13,9 |

| Inlet/Outlet water temperature, °C |    | 42AM--451                              |      |      |      |  |      |      |      | 42AM--453                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      |
|                                    |    | 5400                                   |      |      |      | 3910                                   |      |      |      | 5000                                   |      |      |      | 3910                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 23,7                                   | 21,9 | 20,6 | 19,2 | 21                                     | 19,4 | 18,2 | 17   | 57,4                                   | 52,9 | 49,6 | 46,2 | 49,8                                   | 45,9 | 43   | 40,1 |
|                                    | PD | 14,9                                   | 13   | 11,6 | 10,2 | 12                                     | 10,4 | 9,24 | 8,19 | 15                                     | 12,8 | 11,3 | 9,97 | 11,5                                   | 9,84 | 8,71 | 7,65 |
| 60-40                              | Hc | 14,5                                   | 12,7 | 11,4 | 10,1 | 12,8                                   | 11,3 | 10,1 | 8,84 | 35,3                                   | 30,9 | 27,5 | 24,1 | 30,7                                   | 26,8 | 23,9 | 20,9 |
|                                    | PD | 6,58                                   | 5,24 | 4,31 | 3,45 | 5,32                                   | 4,23 | 3,46 | 2,74 | 6,27                                   | 4,89 | 3,95 | 3,1  | 4,84                                   | 3,76 | 3,03 | 2,37 |
| 45-40                              | Hc | 13,9                                   | 12,1 | 10,8 | 9,5  | 12,3                                   | 10,7 | 9,54 | 8,38 | 33,4                                   | 29   | 25,8 | 22,6 | 28,9                                   | 25,1 | 22,3 | 19,6 |
|                                    | PD | 74,2                                   | 58,2 | 47,3 | 37,4 | 59,3                                   | 46,4 | 37,7 | 29,9 | 76,5                                   | 58,7 | 47   | 36,7 | 58,1                                   | 44,7 | 35,9 | 28   |
| 50-42                              | Hc | 14,9                                   | 13,1 | 11,8 | 10,5 | 13,1                                   | 11,6 | 10,4 | 9,25 | 35,8                                   | 31,5 | 28,3 | 25,1 | 31,1                                   | 27,3 | 24,5 | 21,7 |
|                                    | PD | 35,7                                   | 28,5 | 23,6 | 19,1 | 28,6                                   | 22,8 | 18,8 | 15,3 | 35,9                                   | 28,1 | 23   | 18,3 | 27,4                                   | 21,6 | 17,6 | 14   |

| Inlet/Outlet water temperature, °C |    | 42AM--501                              |      |      |      |  |      |      |      | 42AM--503                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      |
|                                    |    | 7500                                   |      |      |      | 5740                                   |      |      |      | 6500                                   |      |      |      | 5020                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 31,7                                   | 29,2 | 27,4 | 25,6 | 28,6                                   | 26,4 | 24,8 | 23,2 | 76,4                                   | 70,4 | 65,9 | 61,6 | 65,7                                   | 60,6 | 56,7 | 53   |
|                                    | PD | 8,2                                    | 7,1  | 6,33 | 5,6  | 6,84                                   | 5,93 | 5,29 | 4,68 | 13,5                                   | 11,6 | 10,3 | 9,03 | 10,2                                   | 8,76 | 7,16 | 6,83 |
| 60-40                              | Hc | 19                                     | 16,5 | 14,6 | 12,7 | 17,2                                   | 14,9 | 13,2 | 11,5 | 47,1                                   | 41,2 | 36,8 | 32,3 | 40,6                                   | 35,5 | 31,6 | 27,7 |
|                                    | PD | 3,51                                   | 2,75 | 2,21 | 1,73 | 2,94                                   | 2,28 | 1,84 | 1,43 | 5,75                                   | 4,49 | 3,67 | 2,86 | 4,37                                   | 3,4  | 2,76 | 2,16 |
| 45-40                              | Hc | 18,8                                   | 16,4 | 14,6 | 12,8 | 17                                     | 14,8 | 13,2 | 11,6 | 44,4                                   | 38,6 | 34,3 | 30,1 | 38,1                                   | 33,1 | 29,5 | 25,8 |
|                                    | PD | 41,9                                   | 32,6 | 26,4 | 20,9 | 34,8                                   | 27,1 | 22   | 17,5 | 68,5                                   | 52,7 | 42,3 | 33,1 | 51,3                                   | 39,7 | 31,8 | 24,9 |
| 50-42                              | Hc | 20                                     | 17,6 | 15,8 | 14   | 18,1                                   | 15,9 | 14,3 | 12,7 | 47,7                                   | 41,9 | 37,6 | 33,4 | 41                                     | 36   | 32,3 | 28,7 |
|                                    | PD | 19,9                                   | 15,8 | 13   | 10,5 | 16,7                                   | 13,2 | 10,9 | 8,77 | 32,4                                   | 25,4 | 20,8 | 16,6 | 24,4                                   | 19,2 | 15,7 | 12,5 |

Hc Heating capacity (kW)

PD Water pressure drop (kPa)

## 42AM - HOT WATER - 400 V/3-PH/50 HZ MOTOR - AC

| Inlet/Outlet water temperature, °C |    | 42AM--631                              |      |      |      |  |      |      |      | 42AM--633                              |      |      |      |  |      |      |      |
|------------------------------------|----|--|------|------|------|--|------|------|------|--|------|------|------|--|------|------|------|
|                                    |    | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      | Air flow rate (m³/h)<br>HS             |      |      |      | Air flow rate (m³/h)<br>LS             |      |      |      |
|                                    |    | 11140                                  |      |      |      | 9635                                   |      |      |      | 9175                                   |      |      |      | 7545                                   |      |      |      |
|                                    |    | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      | Air inlet dry-bulb<br>temperature (°C) |      |      |      |
|                                    |    | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   | 8                                      | 12   | 15   | 18   |
| 80-60                              | Hc | 46,5                                   | 42,9 | 40,2 | 37,5 | 44,1                                   | 40,7 | 38,1 | 35,6 | 112                                    | 103  | 97   | 90,6 | 100                                    | 92,2 | 86,5 | 80,8 |
|                                    | PD | 7,19                                   | 6,2  | 5,5  | 4,85 | 6,51                                   | 5,62 | 4,99 | 4,4  | 24                                     | 20,5 | 18,2 | 16   | 19,2                                   | 16,5 | 14,6 | 12,9 |
| 60-40                              | Hc | 27,6                                   | 23,9 | 21   | 18,2 | 26,1                                   | 22,6 | 19,9 | 17,2 | 70                                     | 61,7 | 55,4 | 49,1 | 62,7                                   | 55,1 | 49,5 | 43,7 |
|                                    | PD | 2,91                                   | 2,24 | 1,78 | 1,38 | 2,64                                   | 2,02 | 1,61 | 1,25 | 10,2                                   | 8,1  | 6,6  | 5,3  | 8,36                                   | 6,56 | 2,17 | 4,26 |
| 45-40                              | Hc | 27,8                                   | 24,2 | 21,5 | 18,9 | 26,3                                   | 22,9 | 20,4 | 17,9 | /                                      | 56,4 | 50,2 | 44,1 | 57,6                                   | 50,1 | 44,6 | 39,2 |
|                                    | PD | 37,9                                   | 29,4 | 23,7 | 18,6 | 34,3                                   | 26,6 | 21,5 | 16,9 | /                                      | 92,9 | 74,5 | 58,3 | 96,6                                   | 74,2 | 59,5 | 46,7 |
| 50-42                              | Hc | 15,7                                   | 25,9 | 23,3 | 20,6 | 16,4                                   | 24,6 | 22   | 19,5 | 29,9                                   | 61,5 | 55,3 | 49,1 | 31,6                                   | 54,7 | 49,2 | 43,8 |
|                                    | PD | 17,7                                   | 13,9 | 11,5 | 9,12 | 16                                     | 12,6 | 10,3 | 8,26 | 56,9                                   | 44,8 | 36,8 | 29,4 | 45,6                                   | 36,1 | 29,5 | 23,8 |

Hc Heating capacity (kW)

PD Water pressure drop (kPa)

## ELECTRIC MOTOR SPECIFICATIONS

| Use     | Family         | Size    | Motor                             | Speed of rotation (rpm) | Nom. current A | P. Abs W | IP | Thermal cut-out          | Class | Operating T°    |
|---------|----------------|---------|-----------------------------------|-------------------------|----------------|----------|----|--------------------------|-------|-----------------|
| HEATING | 42AM--         | 35H     | THREE-PHASE<br>230/400 V – 50 Hz  | HS - Δ 1385             | 0,35           | 110      | 44 | NO                       | F     | -40°C / +60°C   |
|         |                |         |                                   | LS - ★ <b>1175</b>      | 0,15           | 70       |    |                          |       |                 |
|         | 42AM--/ 42AMA- | 40H/40- |                                   | HS - Δ 1404             | 0,5            | 260      | 54 | YES<br>6.3 A<br>- 165 °C |       | -40 °C / +70 °C |
|         |                |         |                                   | LS - ★ <b>1176</b>      | 0,3            | 170      |    |                          |       |                 |
|         | 42AM--/ 42AMA- | 45H/45- |                                   | HS - Δ 1385             | 1,13           | 550      |    |                          |       |                 |
|         |                |         |                                   | LS - ★ <b>1040</b>      | 0,64           | 380      |    |                          |       |                 |
|         | 42AM--/ 42AMA- | 50H/50- |                                   | HS - Δ 1391             | 1,51           | 770      |    |                          |       |                 |
|         |                |         |                                   | LS - ★ <b>1176</b>      | 0,9            | 520      |    |                          |       |                 |
|         | 42AM--/ 42AMA- | 63H/63- |                                   | HS - Δ 1000             | 1,3            | 590      |    |                          |       |                 |
|         |                |         |                                   | LS - ★ <b>750</b>       | 0,63           | 250      |    |                          |       |                 |
|         | 42AMS-         | 63H     | HS - Δ 1000                       | 1,3                     | 590            |          |    |                          |       |                 |
|         |                |         | LS - ★ <b>750</b>                 | 0,63                    | 250            |          |    |                          |       |                 |
| HEATING | 42AM--         | 35H     | SINGLE-PHASE<br>230 V – 50 Hz     | Direct <b>1330</b>      | 0,7            | 150      | 44 | NO                       | F     | -40°C / +60°C   |
|         | 42AM--/42AMA-  | 40H/40- |                                   | Direct <b>1400</b>      | 1,3            | 300      | 54 | YES<br>6.3 A<br>- 165 °C |       | -40 °C / +70 °C |
|         | 42AM--/42AMA-  | 45H/45- |                                   | Direct <b>1380</b>      | 2,01           | 480      |    |                          |       |                 |
|         | 42AM--/42AMA-  | 50H/50- |                                   | Direct <b>1403</b>      | 2,78           | 630      |    |                          |       |                 |
|         | 42AM--/42AMA-  | 63H/63- |                                   | Direct <b>913</b>       | 2,6            | 580      |    |                          |       |                 |
|         |                |         |                                   |                         |                |          |    |                          |       |                 |
| EC FMA  |                |         |                                   |                         |                |          |    |                          |       |                 |
| HEATING | 42AM--         | 30H     | SINGLE-PHASE<br>230 V<br>50/60 Hz | <b>1530</b>             | 0,8            | 85       | 54 | PTC                      | B     | -25 °C/+55 °C   |
|         | 42AM--         | 35H     |                                   | <b>1480</b>             | 1,35           | 165      | 54 | PTC                      | B     | -25 °C/+50 °C   |
|         | 42AM--/42AMA-  | 40H/40- |                                   | <b>1760</b>             | 2,2            | 500      | 55 | Thermal cut-out          | B     | -25°C/+60°C     |
|         | 42AM--/42AMA-  | 45H/45- |                                   | <b>1500</b>             | 2,2            | 500      | 55 | Thermal cut-out          | B     | -25°C/+60°C     |
|         | 42AM--/42AMA-  | 50H/50- |                                   | <b>1440</b>             | 3,25           | 740      | 55 | Thermal cut-out          | B     | -40°C/+60°C     |
|         | 42AM--/42AMA-  | 63H/63- |                                   | <b>1020</b>             | 3,2            | 730      | 55 | Thermal cut-out          | B     | -40°C/+60°C     |
| COOLING | 42AM--         | 30C     | SINGLE-PHASE<br>230 V<br>50/60 Hz | <b>1530</b>             | 0,8            | 85       | 54 | PTC                      | B     | -25 °C/+55 °C   |
|         | 42AM--         | 35C     |                                   | <b>1040</b>             | 0,65           | 73       | 54 | PTC                      | B     | -25°C/+60°C     |
|         | 42AM--         | 40C     |                                   | <b>1760</b>             | 2,2            | 500      | 55 | Thermal cut-out          | B     | -25°C/+60°C     |
|         | 42AM--         | 45C     |                                   | <b>1500</b>             | 2,2            | 500      | 55 | Thermal cut-out          | B     | -25°C/+60°C     |
|         | 42AM--         | 50C     |                                   | <b>970</b>              | 1,1            | 250      | 55 | Thermal cut-out          | B     | -25°C/+60°C     |
|         | 42AM--         | 63C     |                                   | <b>770</b>              | 1,1            | 250      | 55 | Thermal cut-out          | B     | -25°C/+60°C     |
|         |                |         |                                   |                         |                |          |    |                          |       |                 |

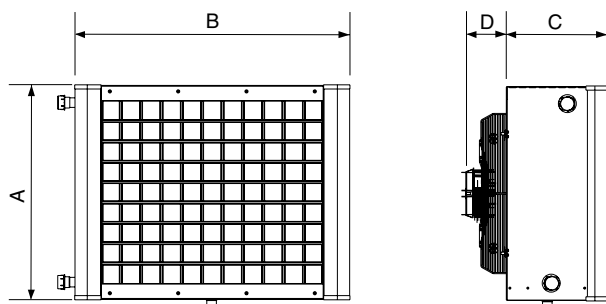
## COIL SPECIFICATIONS

|                            |                            | 30                          | 35  |      | 40      |      | 45   |      | 50      |      | 63   |     |
|----------------------------|----------------------------|-----------------------------|---|------|---------|------|------|------|---------|------|------|-----|
| HOT WATER/COLD WATER COIL  | Number of heating rows     | 2                           | 1   | 3    | 1       | 3    | 1    | 3    | 1       | 3    | 1    | 3   |
|                            | Number of cooling rows     | 2                           | 3   |      |         |      |      |      |         |      |      |     |
|                            | Coil capacity (L)          | 0,8                         | 0,68  | 1,66 | 0,96    | 2,28 | 1,38 | 3,22 | 2,18    | 4,55 | 2,97 | 6,4 |
|                            | Connection diameter        | 1/2"                        | ¾"  |      |         |      | 1"   |      | 1" ¼    |      |      |     |
|                            | Connection type            | Threaded unions 243 GCU F/M |   |      |         |      |      |      |         |      |      |     |
|                            | Maximum operating pressure | 13 bar                      |   |      |         |      |      |      |         |      |      |     |
|                            | Test pressure              | 24 bar                      |   |      |         |      |      |      |         |      |      |     |
|                            | Max T°                     | 110°C                       |   |      |         |      |      |      |         |      |      |     |
| SUPERHEATED WATER COIL     | Number of heating rows     | 1                           |   |      |         |      |      |      |         |      |      |     |
|                            | Coil capacity (L)          |                             | 1,19  |      | 1,69    |      | -    |      | 2,66    |      | 3,69 |     |
|                            | Connection diameter        |                             | 33.7 mm   |      | 42.4 mm |      | -    |      | 42.4 mm |      |      |     |
|                            | Connection type            |                             | Smooth 316L stainless steel tube (to be welded) |      |         |      |      |      |         |      |      |     |
|                            | Maximum operating pressure |                             | 16 bar  |      |         |      |      |      |         |      |      |     |
|                            | Test pressure              |                             | 24 bar  |      |         |      |      |      |         |      |      |     |
|                            | Max T°                     |                             | 200°C   |      |         |      |      |      |         |      |      |     |
|                            | STEAM COIL                 | Number of heating rows      | 1   |      |         |      |      |      |         |      |      |     |
| Coil capacity (L)          |                            |                             | 0,97  |      | 1,22    |      | -    |      | 1,95    |      | 2,86 |     |
| Connection diameter        |                            |                             | 26,9  |      | 33,7    |      | -    |      | 48,3    |      |      |     |
| Connection type            |                            |                             | Smooth 316L stainless steel tube (to be welded) |      |         |      |      |      |         |      |      |     |
| Maximum operating pressure |                            |                             | 16 bar  |      |         |      |      |      |         |      |      |     |
| Test pressure              |                            |                             | 24 bar  |      |         |      |      |      |         |      |      |     |
| Max T°                     |                            |                             | 200°C   |      |         |      |      |      |         |      |      |     |



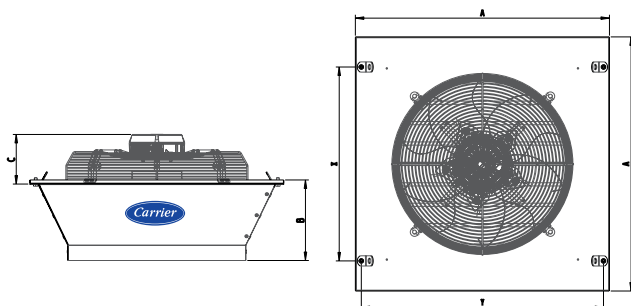
## DIMENSIONS

### 42AM air heater



| Size | A   | B    | C   | D   |     | Weight (kg) |       |        |
|------|-----|------|-----|-----|-----|-------------|-------|--------|
|      |     |      |     | STD | EC  |             |       |        |
|      | mm  |      |     |     |     |             | 1 row | 2 rows |
| 30   | 395 | 600  | 286 | 115 | 115 | -           | 18    | -      |
| 35   | 460 | 646  | 286 | 101 | 126 | 21          | -     | 26     |
| 40   | 557 | 700  | 286 | 142 | 143 | 30          | -     | 34     |
| 45   | 620 | 813  | 286 | 142 | 143 | 40          | -     | 44     |
| 50   | 716 | 918  | 336 | 142 | 188 | 50          | -     | 56     |
| 63   | 876 | 1050 | 336 | 142 | 200 | 62          | -     | 72     |
| 63S  | 872 | 1050 | 295 | 126 |     | 60          | -     | -      |

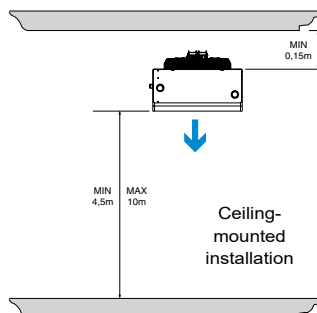
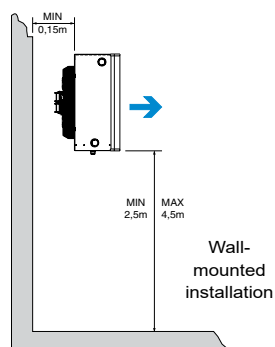
### 42AMA destratifier



| Size | A   | B   | C   |     | X   | Y   | Weight kg |
|------|-----|-----|-----|-----|-----|-----|-----------|
|      |     |     | STD | EC  |     |     |           |
| 40   | 586 | 183 | 143 | 143 | 370 | 552 | 17        |
| 45   | 666 | 212 | 143 | 143 | 470 | 632 | 22        |
| 50   | 747 | 225 | 143 | 188 | 570 | 712 | 25        |
| 63   | 907 | 273 | 143 | 200 | 705 | 872 | 33        |

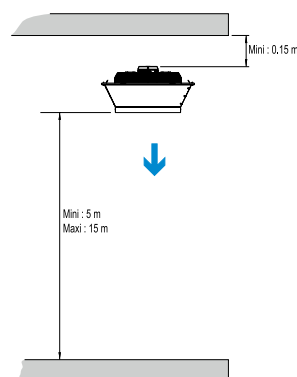
## INSTALLATION

### 42AM air heater



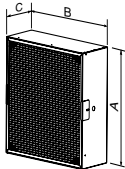
### 42AMA destratifier

Recommended for buildings between 5 and 15 metres high.



## ASSEMBLY ACCESSORIES



A different assembly for each use.

| RETURN AIR ACCESSORIES  |        |     |   |     |         |   |
|---|--------|-----|---|-----|---------|---|
|  | Size   | A   | B | C   | Codes   | <b>Filter box</b> (G1 filter in accordance with EN 779)<br>Prevents premature clogging of exchanger coils<br>Not ductable |
|   | 35     | 440 |   | 220 | 7185105 |   |
|   | 40     | 520 |   |     | 7185106 |   |
|   | 45     | 600 |   |     | 7185107 |   |
|   | 50     | 680 |   |     | 7185108 |   |
|   | 63/63S | 840 |   |     | 7185110 |   |




| DIFFUSION ACCESSORIES | | | | | | |
|  | Size | A | B | C | Codes | **Diffuser on door** Create an air curtain that limits energy loss when doors are opened. |
| 35 | 750 | 700 | 300 | 7185133 |
| 40 | 850 | 750 | 325 | 7185134 |
| 45 | 970 | 850 | 350 | 7185135 |
| 50 | 1100 | 970 | 375 | 7185136 |
| 63/63S | 1250 | 1170 | 400 | 7185137 |
|  | Size | A | B | C | Codes | **Diffuser for large spaces** Reduction cone for increasing the air throws. |
| 35 | — | — | — | — |
| 40 | 178 | 555 | 522 | 7185138 |
| 45 | 136 | 637 | 618 | 7185139 |
| 50 | 132 | 740 | 714 | 7185140 |
| 63/63S | 282 | 872 | 814 | 7185141 |
| ASSEMBLY SUPPORT ACCESSORIES | | | | | | |
|  | Size |  | | | Codes | **Wall bracket** |
| All | 7181226 |
| 35 to 45 | 7181228 | **Additional kit for fastening on an IPN** |
| 50 to 63/63S | 7181230 |
|  | Size |  | | | Codes | **Suspension support for ceiling mounting** |
| All | 7282116 |

## ELECTRICAL ACCESSORIES



## ELECTRICAL &amp; USER SAFETY

|   |          |  |   |  |                                     |
|---|----------|--|---|--|-------------------------------------|
|  | Codes    |  | <b>Padlockable proximity switch</b><br>Available in a 1 or 2-speed version, this accessory must be placed at least 2 metres from any rotating part, to comply with French standard IT 246, Art. 4-7-3, and EC requirements. |  |                                     |
|   | 0596142  |  |   |  |                                     |
|   | 0596147  |  |   |  |                                     |
|  | Use      | Circuit breaker unit - FMA SINGLE-PHASE AC heating | Circuit breaker unit - FMA SINGLE-PHASE EC heating  | Circuit breaker unit - FMA SINGLE-PHASE EC cooling | Circuit breaker unit THREE-PHASE AC |
|   | 42AM--30 |  | 7252526   | 7252526  |                                     |
|   | 42AM--35 | 7252526  | 7252527   | 7252526  | 7252523                             |
|   | 42AM--40 | 7252527  | 7252528   | 7252528  | 7252525                             |
|   | 42AM--45 | 7252528  | 7252528   | 7252528  | 7252527                             |
|   | 42AM--50 | 7252529  | 7252529   | 7252527  | 72525227                            |
|   | 42AM--63 | 7252529  | 7252529   | 7252527  | 7252527                             |
|   | 42AMS-63 |  |   |  | 7252527                             |
|   | 42AMA-40 | 7252527  | 7252528   |  | 7252525                             |
|   | 42AMA-45 | 7252528  | 7252528   |  | 7252527                             |
|   | 42AMA-50 | 7252529  | 7252529   |  | 7252527                             |
|   | 42AMA-63 | 7252529  | 7252529   |  | 7252527                             |

## THERMOSTATS

|   |         |   |  |
|---|---------|---|--|
|  | Codes   | <b>Manual/auto room thermostat - SINGLE-PHASE / SINGLE-PHASE EC installation</b>  |  |
|   | 7486653 | "3-speed EC thermostat kit (for EC SINGLE-PHASE FMA) - Heating and cooling with manual toggle switch - Inductive breaking capacity 3.53A" |  |
|   | 7486654 | "1-speed AC thermostat kit (for AC SINGLE-PHASE FMA) - Heating and cooling with manual toggle switch - Inductive breaking capacity 3.53A" |  |
|  | 5201027 | Summer or Winter thermostat - SINGLE-PHASE AC FMA   |  |
|  | Codes   | <b>IP54 industrial environment thermostat - THREE-PHASE AC installation</b>   |  |
|   | 7113335 | Summer or Winter thermostat - 3-PH AC FMA - 1 Stage   |  |
|   | 7113336 | Summer or Winter thermostat - 3-PH AC FMA - 2 Stages  |  |

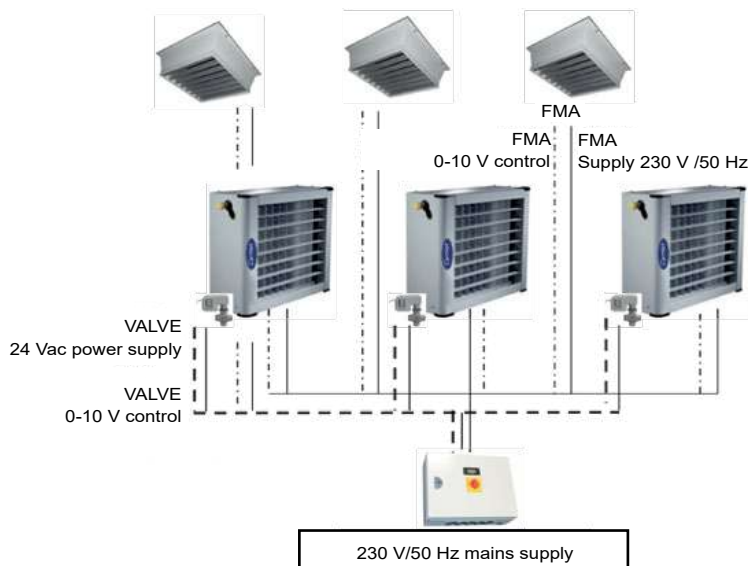
## SUPPLY AIR SPEED SELECTION

|   |         |  |
|---|---------|--|
|  | Codes   | <b>LS/HS switch</b><br>For 3-phase motor, selects two motor rotation speeds and stop.  |
|   | 7169961 |  |
|  | Codes   | <b>Autotransformer with selector switch (3.5 A)</b><br>Used to obtain 5 supply air speeds by varying the voltage on the variable speed AC 1 single-phase motors. |
|   | 7166982 |  |

## 42AM SINGLE-PHASE EC AIR HEATER CONTROL

Single-phase EC FMA + LP water application:

- The single-phase EC BOX can control:
  - 6 H4000 single-phase ECs
  - 6 TPL 4000 single-phase ECs
  - 3 H4000 single-phase ECs + 3 TPL single-phase ECs
  - 4 H4000 single-phase ECs + 2 TPL single-phase ECs



### Description

- Complete "PLUG & PLAY" control solution for air-source (0-10 V SINGLE-PHASE EC FMA) and/or water-source (0-10 V three-way valve) for 42AM air heaters equipped with SINGLE-PHASE EC FMAs.
- Proportional control system adjusts the supply air velocity and coil water supply based on the difference between the indoor temperature (measured by the built-in sensor) and the programmed temperature setpoint (summer or winter).
- Built-in timer featuring 3 operating modes: COMFORT, ECO and FROST PROTECTION (weekly setting).
- Electrical components (circuit breaker, padlockable proximity switch, contactor, thermostat, timer, etc.) included. Remote control On/Off function, with two fault summaries. Communication possible via ModBus/JBUS protocols or BACnet IP (optional expansion card).

### Advantages

- All your air heaters will be controlled centrally via an EC MONO BOX master controller
- You can adjust the heating or cooling to meet your needs as water is supplied to one or more heat exchangers in proportion to your building's heating demand (available with the optional valve kit).
- Supply air temperatures are controlled to maintain the necessary air streams. You can choose between fresh air only or mix with frost protection via the actuator to be installed on the 2-channel mixing box with built-in filter (available with the fresh air kit + damper actuator + frost protection thermostat kit) or 100% recirculated air.
- You will bring the fresh air rate of your building in line with current regulations or according to the space occupancy (via the built-in timer) thanks to an internal timer which can be configured on a weekly basis using 3 operating modes (Comfort, Eco, Frost protection). Fresh air damper controlled via the EC MONO BOX (On/off) depending on optional fresh air kit (Antifreeze thermostat + servomotor).
- Your building's heating requirement will depend on its occupancy and be serviced by centralised management of 42AM air heaters via the controller (a SINGLE-PHASE EC BOX controls 6 42AMs- or 6 42AMAs- or 3 42AMs- + 3 42AMAs- or 4 42AMs- + 2 42AMAs-).
- The display shows the operating status of each individual 42AM heater (fresh air or return air, motor fault, risk of frost, etc.)
- No need to size and wire the electrical components (circuit breaker, padlockable proximity switch, contactor, thermostat, timer, etc.) as this all-in-one control solution makes for faster installation.
- Two user levels: USER (restricted access) and INSTALLER (full access) for greater simplicity, ease of use and security.
- Option to use a remote control On/Off function with two fault summaries. Communication possible via ModBus/JBUS protocols or BACnet IP (optional expansion card).

### Electrical data

- Single-phase EC BOX unit supply: Single-phase 230 V
- Index of Protection: IP54
- Built-in motor overload and user protections as required by French standard NF C 15-100

## 42AM FOR EXPLOSIVE ATMOSPHERES

### THE 42AM also meets the requirements of ATEX directives

Ex II 2 G  
II c 65 °C - 105 °C or 120 to 220 °C  
EEx d/de IIB or IIC T4 to T6

This special series of ATEX-certified 42AM air heaters is the result of CARRIER's extensive expertise and experience. This approval, issued by an independent external body, is your guarantee of complete compliance with the ATEX directives.

The 42AM-EX range is certified for your applications:

- In the presence of explosive gas agents
- In Zone 2 only
- For explosion groups IIB or IIC
- With T4 to T6 gas self-ignition temperatures
- Low pressure water, superheated water, steam, oil, compressed air...



### What is ATEX?

ATEX or explosive atmosphere can be caused in atmospheric conditions by flammable gases, vapours or mists or by combustible dusts mixed with air. After ignition, combustion spreads through the whole of the unburned mixture.

### How is an ATEX zone defined?

ATEX zones are determined based on the probability and duration of the occurrence of an explosive atmosphere. This risk analysis is used to define zones, explosion groups and maximum surface temperature classes. These atmospheres are mainly found in painting workshops, metal processing workshops, waste recycling, wood processing, etc.

### Who defines ATEX zones?

Any operator of a production facility where an explosive atmosphere may occur must define the relevant ATEX zones, explosion groups and temperature classes. By doing so, the operator will also be able to set up the necessary means of prevention (communication, documentation, recommendations, etc.).

"Directive 94/9/EC divides the equipment and protective systems which it covers into equipment groups and categories; this Directive (1999/92/EC) provides for a classification by the employer of the places where explosive atmospheres may occur in terms of zones and determines which equipment and protective systems groups and categories should be used in each zone."

| ZONE    |          | Category | The explosive agent is:  |
|---------|----------|----------|--|
| Gas (G) | Dust (D) |          |  |
| 0       | 20       | 0        | Present continuously, frequently or over a long period: NO CARRIER PRODUCT |
| 1       | 21       | 1        | Present occasionally under normal use: NO CARRIER PRODUCT                  |
| 2       | 22       | 2        | Rarely or briefly present  |

| GAS - EXPLOSION GROUP AND TEMPERATURE CLASS |   |   |                                       |              |       |                   |
|---|---|---|---------------------------------------|--------------|-------|-------------------|
| Temperature class                           | T1  | T2  | T3                                    | T4           | T5    | T6                |
| Max surface temp                            | 450°C   | 300°C                                     | 200°C                                 | 135°C        | 100°C | 85°C              |
| Explosion group                             |   |   |                                       |              |       |                   |
| IIA   | Acetone<br>Ammonia<br>Benzene<br>Acetic acid<br>Ethane<br>Ethyl acetate<br>Ethyl chloride<br>Methanol<br>Naphthalene<br>Phenol<br>Propane | i-Amyl acetate<br>Butane<br>Butyl alcohol | Petrol<br>Diesel<br>Hot oil<br>Hexane | Acetaldehyde |       |                   |
| II B  | Town gas  | Ethylene                                  | Hydrogen sulphide                     | Ethyl ether  |       |                   |
| II C  | Hydrogen  | Acetylene                                 |                                       |              |       | Carbon disulphide |

## OPERATING LIMITS

|                       | Cooling mode  | heating mode   | Steam mode  | Superheated water mode  |
|-----------------------|---|--|---|---|
| Water circuit         | Min. water inlet temp.: 5 °C<br>Max. operating pressure:<br>13 bar  | Max. water inlet temp.: 110 °C<br>Max. operating pressure:<br>13 bar   | Max. steam temp.: 200 °C<br>Max. operating pressure: 16 bar   | Max. water inlet temp.: 200 °C<br>Max. operating pressure: 16 bar   |
| Indoor temperature    | Tmax: 60 °C and Tmin -15 °C   |  |   |   |
| 1-PH AC motor         | -   | Nominal voltage: <b>230 V</b> (+/-6 %)<br>Frequency: <b>50 Hz</b><br><u>Size 35:</u><br>Index of Protection: <b>IP44</b><br><u>Sizes: 40 - 45-50-63:</u> Index of Protection: <b>IP54</b>  | Nominal voltage: <b>230 V</b> (+/-6 %)<br>Frequency: <b>50 Hz</b><br><u>Size 35:</u><br>Index of Protection: <b>IP44</b><br><u>Sizes: 40 - 45-50-63:</u> Index of Protection: <b>IP54</b> | Nominal voltage: <b>230 V</b> (+/-6 %)<br>Frequency: <b>50 Hz</b><br><u>Size 35:</u><br>Index of Protection: <b>IP44</b><br><u>Sizes: 40 - 45-50-63:</u> Index of Protection: <b>IP54</b> |
| 3-PH AC motor         | -   | Nominal voltage: <b>400 V</b> (+/-6%)<br>Frequency: <b>50 Hz</b><br><u>Size 35:</u><br>Index of Protection: <b>IP44</b><br><u>Sizes: 40 - 45-50-63:</u> Index of Protection: <b>IP54</b>   | Nominal voltage: <b>400 V</b> (+/-6%)<br>Frequency: <b>50 Hz</b><br><u>Size 35:</u><br>Index of Protection: <b>IP44</b><br><u>Sizes: 40 - 45-50-63:</u> Index of Protection: <b>IP54</b>  | Nominal voltage: <b>400 V</b> (+/-6%)<br>Frequency: <b>50 Hz</b><br><u>Size 35:</u><br>Index of Protection: <b>IP44</b><br><u>Sizes: 40 - 45-50-63:</u> Index of Protection: <b>IP54</b>  |
| SINGLE-PHASE EC motor | "Frequency: <b>50/60 Hz</b><br><u>Sizes 30 and 35:</u><br>Nominal voltage: 230 V (Range 200..240)<br>Index of Protection: <b>IP54</b><br><u>Sizes 40 - 45-50-63:</u><br>Nominal voltage: 230 V (Range 200..277)<br>Index of Protection: <b>IP55</b> | Frequency: <b>50/60 Hz</b><br><u>Sizes 30 and 35:</u><br>Nominal voltage: 230 V (Range 200..240)<br>Index of Protection: <b>IP54</b><br><u>Sizes 40 - 45-50-63:</u><br>Nominal voltage: 230 V (Range 200..277)<br>Index of Protection: <b>IP55</b> | -   | -   |





## 4-WAY CASSETTE



Easy installation  
Centralised diffusion  
Low energy consumption  
Optimised comfort  
Aesthetically integrated  
into suspended ceilings  
Quiet operation

## 42GW

Rated cooling capacity 1.5-8.7 kW  
Rated heating capacity 1.3 -11.6 kW

Carrier's Idrofan cassettes 42GW\_AC/LEC offer a modern solution for a host of commercial applications. They are particularly suitable for big offices, stores, restaurants, bars, hotel receptions, meeting rooms, banks, laboratories and exhibition rooms.



CARRIER participates in the ECP programme for FC/FCP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## CODING

|              | Range |   |   |   | size & motor type |   |   | Coil type | Control | Valves | Electric heater | Valve servomotors | Elec. box |
|--------------|-------|---|---|---|-------------------|---|---|-----------|---------|--------|-----------------|-------------------|-----------|
| Product ref. | 4     | 2 | G | W | 2                 | 0 | 0 | C         | A       | G      | A               | A                 | -         |
| Digit        | 1     | 2 | 3 | 4 | 5                 | 6 | 7 | 8         | 9       | 10     | 11              | 12                | 13        |

## Digit 8

C = 2-pipe

D = 4-pipe

## Digit 5 - 6 - 7

|   |   |   |          |
|---|---|---|----------|
| 2 | 0 | 0 | AC motor |
| 2 | 0 | 9 | EC motor |
| 3 | 0 | 0 | AC motor |
| 3 | 0 | 9 | EC motor |
| 4 | 0 | 0 | AC motor |
| 4 | 0 | 9 | EC motor |
| 5 | 0 | 0 | AC motor |
| 5 | 0 | 9 | EC motor |
| 6 | 0 | 0 | AC motor |
| 6 | 0 | 9 | EC motor |
| 7 | 0 | 1 | AC motor |
| 7 | 0 | 9 | EC motor |

## Digit 10

- = No valves

G = 2-way valve

H = 4-way valve

## Digit 11

- = None

A = Elec. batt.

## Digit 13

- = Without CARRIER valve, for customer 230V ON/OFF valve

X = Without CARRIER valve, for customer 230V - 3PTS valve

Y = Without CARRIER valve, for customer 24V - 3PTS valve

Z = Without CARRIER valve, for customer 24V ON/OFF valve

## Digit 12

- = None

A = 230 V ON/OFF actuator

B = 24V ON/OFF servomotor (mandatory, digit 9 = -)

C = 3-POINT 230 V actuator (with NTC or WTC)

B = 24V 3-POINT servomotor (mandatory, digit 9 = -)

## Digit 9

- = None

A = 33TA Thermostat for AC motor (2-PIPE)

B = 33TB Thermostat for AC motor (4-pipe or 2-pipe + elec.)

C = 33TC Thermostat for EC motor (2-pipe)

D = 33TD Thermostat for EC motor (4-pipe or 2-pipe + elec.)

K = NTC control (AQUASMART EVOLUTION®)

L = WTC LON control (manual louvres grille, without IR)

M = WTC BACNET control (manual louvres grille, without IR)

P = WTC LON control (grille with manual louvres and IR receiver)

Q = WTC BACNET control (grille with manual louvres and IR receiver)

## TECHNICAL DESCRIPTION

- The 42GW\_AC is available with a 3-speed AC motor. The 42GW\_LEC is available with a variable speed low energy consumption (LEC) motor.
- The 42GW is installed in suspended ceilings, and can provide two, three or four-way diffusion. These units maintain the requisite temperature and humidity degree with precision, while preventing draughts and formation of areas of stagnant air.
- The air inlet grille blends in nicely with all types of interior.
- Carrier's hydraulic cassette is available in 6 sizes, to suit a vast range of applications, with air flows ranging from 100 to 402 l/s (360 to 1450 m<sup>3</sup>/h). The Idrofan cassette offers an ultra-low noise level, for situations where low noise level is the most important selection criterion.

### General specifications

- The slimline 42GW is light and easy to install. The small frame is perfectly suited to conventional ceiling tiles, and is easy to install anywhere.
- Comfort is ensured by four-way air supply. It is possible to adjust the degree of opening on each diffuser.
- Integrated cooling and heating coils, which come factory-fitted, for two-pipe or two-pipe plus electrical heater applications, as well as 4-pipe applications.

### Designed for quiet

- 42GW units have been designed especially to operate very quietly, with noise levels which represent new comfort levels for buildings. The unique design of the centrifugal fan ensures very quiet operation.
- The new design of the fan/motor block ensures quiet operation (half the noise of the previous model). Particular attention has been paid to low-speed operation of the fan.
- The special shape of the diffuser ensures a rapid mix of supply air and ambient air. Conditioned air is blown against the ceiling, and then distributed uniformly throughout the room. The return air enters the cassette via a large grille. It is then cleaned by a removable and washable synthetic filter, conditioned and then supplied again.

### Motors

- The Idrofan is available with a three-speed AC motor, with ultra-low noise levels, which makes it one of the quietest cassettes on the market.
- The Idrofan is also available with variable speed LEC motors (low energy consumption), which meet the new building energy performance objectives. The low energy consumption solution improves the unit's performances, bringing you:
  - Lower energy costs – the LEC motor reduces the unit's energy consumption by 50 to 70%. This option meets the new regulations in terms of building energy management.
  - Better comfort – the variable speed low energy consumption motor reduces the noise level compared to multi-speed motors, making for an ultra-quiet air flow, even at very low operating levels. Thanks to the NTC control, a maximum fan speed can be set to better manage noise level.
  - Maximum flexibility – the air flow automatically adapts from 0 to 100%, ensuring perfect cooling or heating conditions in the room.
  - Extended service life – low energy consumption LEC technology motors run at lower fan motor temperatures, which extends their service life.

### Filters

- The standard filter used for the Idrofan range has a pleated filtration surface, which provides a surface area 87% larger than a traditional filter, as well as the following additional advantages:
  - Low pressure drop, consumption and noise level.
  - The mean filter cleaning interval is three times longer than for standard filters.
  - EU1 grade polypropylene-based filter.
- In the Idrofan cassette range, the filter is situated in the unit's grille. Cleaning is simple: you need only detach the filter manually from the support on the grille. The filter frame can be lowered, and the filter can be easily removed. Refitting is just as simple, you need only follow the procedure in reverse. Washable filters are supplied in the standard version.



### Condensate drain pump

- Self-contained, very high-performance condensate drain pump flush-mounted in soundproofing material, for better condensate management - quick and quiet.
- The cassette's main condensate pan has been improved thanks to use of the very latest composite materials, to provide better noise absorption, easier cleaning and better condensed water transfer from the coil to the discharge pump.

## TECHNICAL DESCRIPTION

### Electrics box

- All the units are equipped with an electrics box, which contains the terminal strips. This box is located on the outside of the unit. The box cover is easy to open: you need only remove a mounting bolt. For more details on the electrical connections, please consult the appropriate wiring prints.



### Carrier controllers range

- The Idrofan is available with the complete range of Carrier controllers. Several types facilitate installation. The number of controllers offers an abundance of solutions and makes selection easy, according to its application.
  - A-B-C-D type electronic thermostats
  - The Carrier electronic thermostats range is available for all Carrier hot water terminal ranges
  - Type A: a two-pipe application equipped with alternating current motors
  - Type B: four or two-pipe applications equipped with electric heating and alternating current motors.
  - Type C: a two-pipe application equipped with EC motors
  - Type D: four or two-pipe applications equipped with electric heating and EC motors.
- The thermostat for FCU with EC motors option manages 3 intermittent and configurable speeds, via a 0-10V signal.
- The thermostats come in an elegant square shape with a coaxial button enabling the room temperature to be set, as well as three buttons for setting the ventilation speed, cooling or heating mode, and START or STOP mode, as the customer wishes.
- Wall-mounted controls can easily and discreetly be integrated into any room environment.
- The operating range of the electronic thermostats goes from 10°C to 30°C, with the option of limiting the temperature in public buildings where low energy consumption is a paramount requirement. This is done via a micro-switch which is inside the control (cooling setpoint between 23°C and 30°C, heating between 10°C and 21°C).

The following characteristics are available as parameters:

- **Auto ventilation:** the fan speed is automatically set by the thermostat; when the ambient temperature drifts away from the setting, maximum speed is selected. When the ambient temperature nears the desired value, the speed decreases until reaching minimum speed or stopping in the deadband.

- **Automatic changeover:** automatic changeover from cooling mode to heating mode, depending on the water temperature, ensures that the ideal ambient temperature is maintained.
- **Remote changeover:** automatic changeover from cooling mode to heating mode, depending on the remote signal emitted by the control system.
- **Draught protection:** this function stops the fan if the water temperature is too low or too high in relation to demand, thereby ensuring that the room's occupants are not disturbed by a warm draught.
- **Air temperature sensor:** this sensor is mounted on the unit. If the thermostat is installed on a wall, a second sensor situated in the thermostat may be used to correctly set the desired ambient temperature.
- **Low water temperature cutout:** this function ensures that the ambient temperature is maintained above the minimum level. If the unit has been shut down and ambient temperature has dropped below 7°C, low water temperature cutout is activated and the unit operates in heating mode until the temperature reaches above 9°C. The unit is then switched off again.
- **Optimised heating management (available with the electrical heater option):** if the water temperature is below 30°C, the system operates in heating demand mode, and the electrical heater is the only available heating source. If the water temperature is above 35°C, the system operates in auxiliary heating mode, powering up the water coil and electrical heater at the same time. The auxiliary heating function is deactivated if the temperature reaches above 45°C (the electrical heater is then de-energized).
- **Unoccupied mode:** this temperature function saves energy when the room is unoccupied, without needing to switch off the unit. When the unoccupied mode button is held down, the current setpoint is modified as follows, without changing the position of the setpoint selection button:
  - Cooling: setpoint increased by 4 K
  - Heating: setpoint decreased by 4 K

The unit reverts to normal operation when the unoccupied mode button is held down again.

- **LED intensity:** for office applications or light commercial applications, 10 seconds after the user interface has last been used, all the necessary LEDs are dimmed. As soon as the user touches the user interface again, the LEDs revert to normal brightness. To prevent disruption to hotel customers, the thermostat can be configured from Night Mode to Dark Mode: in this case, 10 seconds after the user interface has last been used, all the LEDs will switch off. As soon as the user touches the user interface again, the current status LEDs will switch on, and revert to normal brightness.

## TECHNICAL DESCRIPTION

- **Air sampling:** if no ventilation demand is made and the air sampling jumper is in the ON position, the command executes the air sampling function: the air moves, to ensure a more reliable ambient temperature reading.
- **Continuous ventilation:** if there is no ventilation demand and the continuous ventilation jumper is in the ON position, the control selects low, medium or high fan speed, depending on the ventilation speed selection, regardless of the thermal conditions. If the fan is controlled by automatic ventilator mode and the control is not in demand phase, the fan is activated permanently in low speed mode.
- **External contact:** a high voltage input signal for external contact is displayed. If the external contact is activated, the device will respond according to its local configuration:
  - Presence detection (empty room with a hotel door card), energy saving mode is activated, the internal temperature is increased by 4°C in cooling mode and is decreased by 4°C in heating mode
  - Window contact: during STOP mode (window open), all the outputs are disconnected (fan, valves, etc.), and only the frost protection function is active if it has been started up via its micro-switch.
- **Master/slave control:**
  - Thermostat type A\_AC and B\_AC: the accessories grouped control panel (42N9006) provides a ventilation speed relay only (the water valves must be wired or related separately) for up to 300 units with air temperature-based control (no water valves), or for 10 two-pipe units with water control, or 5 four-pipe units with water control
  - Thermostat type C\_EC and D\_EC: the EC motor thermostat version can control up to 10 LEC units thanks to parallel wiring of the analogue output signal with two 0-10 cables (the water valves and electric heaters must be wired or relayed separately).

### NTC

- A PID controller can communicate and combine energy savings algorithms with solutions providing complete control functions, compatible with the Aquasmart Evolution system. The NTC control is compatible with the low energy consumption motor option, and combines energy savings with optimised comfort.

### Valve types available

- Valve bodies: both types of valve, two-way or four-way (three-way with integral by-pass) are factory-fitted and subjected to factory tests. These chilled water valves are completely insulated in a moulded insulant jacket, which prevents condensation from forming on the valve body. This new jacket reduces the complexity of the range and prevents the risk of water leaks. These valves can be factory-fitted on the unit side.

### WTC controller

- Open Communication protocol BACnet or LON
- Communication PID controller
- Large range of user interfaces, wall mounted or remote
- Manages the EC motor for optimised comfort
- Manages a CO<sub>2</sub> sensor to improve air quality
- Optional lighting and/or blinds management modules, controlled from the same user interface
- Large range of sensors (light, presence, etc.)

### Valve types available

- Valve bodies: both types of valve, two-way or four-way (three-way with integral by-pass) are factory-fitted and subjected to factory tests. These chilled water valves are completely insulated in a moulded insulant jacket, which prevents condensation from forming on the valve body. This new jacket reduces the complexity of the range and prevents the risk of water leaks. These valves can be factory-fitted on the unit side.



Insulating moulded jacket for the valve

- Valve actuators: Carrier has a vast range of valve actuators with two or four-way valve bodies, which offer the most suitable solution whatever the control type and the customer's requirements, from on/off to proportional type, and a 230 V or 24 V power supply:
  - 230 V on/off actuator
  - 24 V on/off actuator
  - 230 V 3-point floating actuator
  - 24 V 3-point floating actuator
- When combining low energy consumption motors with an NTC control, it is recommended to use 230 V three-point floating actuators, to increase energy savings and improve comfort.



## TECHNICAL DESCRIPTION

### Auxiliary condensate pan

- An auxiliary condensate pan is available as an accessory if the water valves, shut-off valves or balancing valves are customer supplied. Conversely, the auxiliary condensate pan is not required if you have water valves factory-fitted by Carrier, since they come supplied with an insulated valve body (insulating moulded jacket), which prevents condensation.\*



Auxiliary drain pan for units 42GW\_S/E 200/209, 300/309, 400/409



Auxiliary drain pan for units 42GW\_S/E 500/509, 600/609, 701/709

### Electrical heater option

- There is an electrical heater option only on models with a two-pipe coil. There is an electrical heater available for each Idrofan cassette size, factory-fitted to ensure reliable and completely safe operation.

### Fresh air inlet option

- All the units have couplings provided for fresh air inlet ducts, which can considerably improve the indoor air quality, while the fresh air intake volume is regulated by the CO<sub>2</sub> sensor by means of the NTC control.
- The fresh air flow must represent less than 10% of the total air flow, to prevent operating problems and excessive noise. For a higher air flow, there is a primary air kit which can be fitted on the precut hole provided for an air duct in the adjacent room, and a noise barrier, such that the fresh air enters the room via a diffuser.

### Conditioned air supply via a duct in an adjacent room

- This option supplies conditioned air in a room situated near the Idrofan cassette, via an air duct (customer supplied). If this option is used, the supply air opening corresponding to the duct must be closed, using the air discharge outlet closing kit supplied. This kit cannot be used in units fitted with an electrical heater. An air inlet grille must be fitted (if possible near the floor) between the air conditioned room (where the unit is) and the adjacent room; or a cut-out can be made at the bottom of the door.
- The duct lengths can be calculated in accordance with the "air distribution in an adjacent room" diagram, which figures in the installation, operation and maintenance manual, also taking into account the pressure drop via the air diffusers and the fresh air filters.

### Ease of maintenance

- All of the main components (motors, fans and discharge pump) are accessible from the unit base; you need only remove the grille. These components can also be removed without having to touch the other components or removing the surrounding ceiling tiles.

## PHYSICAL AND ELECTRICAL SPECIFICATIONS, UNITS WITH AC MOTORS

| 42GW                                       | 200C   |           |      | 300C   |          |      | 400C   |           |      | 500C   |        |      | 600C   |        |      | 701C   |        |      |      |
|--|--------|-----------|------|--------|----------|------|--------|-----------|------|--------|--------|------|--------|--------|------|--------|--------|------|------|
| Coil type                                  | 2-pipe |           |      | 2-pipe |          |      | 2-pipe |           |      | 2-pipe |        |      | 2-pipe |        |      | 2-pipe |        |      |      |
| Fan speed                                  | 1      | 2         | 3    | 1      | 2        | 3    | 1      | 2         | 3    | 1      | 2      | 3    | 1      | 2      | 3    | 1      | 2      | 3    |      |
| Air flow                                   | l/s    | 183       | 125  | 100    | 204      | 140  | 89     | 249       | 173  | 134    | 272    | 199  | 147    | 321    | 229  | 139    | 402    | 299  | 166  |
|  | m³/h   | 660       | 450  | 360    | 735      | 505  | 320    | 900       | 625  | 485    | 980    | 720  | 530    | 1160   | 825  | 500    | 1450   | 1080 | 600  |
| Cooling                                    |        |           |      |        |          |      |        |           |      |        |        |      |        |        |      |        |        |      |      |
| Total cooling capacity                     | kW     | 2,33      | 1,74 | 1,53   | 3,96     | 2,86 | 1,86   | 4,64      | 3,46 | 2,77   | 6,03   | 4,41 | 3,33   | 7,13   | 5,43 | 3,68   | 8,54   | 6,43 | 4,02 |
| Sensible cooling capacity                  | kW     | 1,95      | 1,46 | 1,28   | 3,01     | 2,16 | 1,41   | 3,57      | 2,64 | 2,11   | 4,68   | 3,44 | 2,58   | 5,37   | 4,03 | 2,66   | 6,4    | 4,81 | 2,95 |
| Water flow                                 | l/s    | 0,11      | 0,09 | 0,08   | 0,19     | 0,14 | 0,09   | 0,23      | 0,17 | 0,13   | 0,29   | 0,21 | 0,16   | 0,34   | 0,26 | 0,18   | 0,41   | 0,31 | 0,19 |
|  | l/h    | 410       | 310  | 270    | 690      | 500  | 320    | 810       | 600  | 480    | 1050   | 760  | 580    | 1240   | 940  | 640    | 1490   | 1120 | 700  |
| Water pressure drop, cooling               | kPa    | 11,1      | 6,8  | 5,6    | 15,2     | 8,6  | 4,7    | 19,8      | 11,6 | 7,9    | 23,8   | 13,4 | 8,3    | 12,4   | 7,8  | 4,6    | 21,9   | 13,1 | 6    |
| Heating mode                               |        |           |      |        |          |      |        |           |      |        |        |      |        |        |      |        |        |      |      |
| Heating capacity                           | kW     | 2,74      | 2,17 | 1,92   | 3,68     | 3,15 | 1,94   | 5,28      | 3,92 | 3,16   | 6,84   | 5,08 | 3,8    | 8,51   | 6,26 | 3,85   | 10,28  | 7,95 | 4,38 |
| Water flow                                 | l/s    | 0,13      | 0,11 | 0,09   | 0,18     | 0,15 | 0,09   | 0,26      | 0,19 | 0,15   | 0,33   | 0,24 | 0,18   | 0,41   | 0,30 | 0,19   | 0,50   | 0,38 | 0,21 |
|  | l/h    | 480       | 380  | 330    | 640      | 550  | 340    | 920       | 680  | 550    | 1190   | 880  | 660    | 1480   | 1090 | 670    | 1790   | 1380 | 760  |
| Water pressure drop, heating               | kPa    | 11,8      | 8,4  | 7,1    | 12,8     | 10,1 | 5,0    | 18,6      | 11,7 | 8,4    | 23,1   | 14,4 | 9,2    | 15,3   | 9,6  | 4,8    | 18     | 11   | 5    |
| Water volume                               | l      | 0,55      |      |        | 1,1      |      |        | 1,1       |      |        | 1,6    |      |        | 2,4    |      |        | 2,4    |      |      |
| Sound levels                               |        |           |      |        |          |      |        |           |      |        |        |      |        |        |      |        |        |      |      |
| Sound power level                          | dB(A)  | 49        | 41   | 37     | 53       | 47   | 35     | 57        | 48   | 42     | 49     | 40   | 35     | 54     | 46   | 38     | 59     | 52   | 40   |
| Sound pressure level                       | dB(A)  | 40        | 32   | 28     | 44       | 38   | 26     | 48        | 39   | 33     | 40     | 31   | 26     | 45     | 37   | 29     | 50     | 43   | 31   |
| NR value**                                 |        | 36        | 28   | 25     | 40       | 31   | 20     | 43        | 34   | 28     | 35     | 26   | 21     | 40     | 32   | 22     | 45     | 38   | 25   |
| Power input                                | W      | 58        | 35   | 25     | 58       | 34   | 17     | 99        | 58   | 38     | 66     | 41   | 28     | 88     | 61   | 34     | 125    | 92   | 44   |
| Current                                    | A      | 0,27      | 0,17 | 0,12   | 0,24     | 0,14 | 0,07   | 0,41      | 0,24 | 0,16   | 0,30   | 0,17 | 0,12   | 0,46   | 0,27 | 0,14   | 0,63   | 0,41 | 0,19 |
| EUROVENT FCEER energy class (cooling mode) |        | D         |      |        | C        |      |        | D         |      |        | C      |      |        | C      |      |        | D      |      |      |
| EUROVENT FCCOP energy class (heating mode) |        | E         |      |        | D        |      |        | D         |      |        | C      |      |        | C      |      |        | D      |      |      |
| Electrical heater                          |        |           |      |        |          |      |        |           |      |        |        |      |        |        |      |        |        |      |      |
| High capacity @240V                        | W      | 1500      |      |        | 2500     |      |        | 2500      |      |        | 3000   |      |        | 3000   |      |        | 3000   |      |      |
| Current (high capacity) @240V              | A      | 6,3       |      |        | 10,4     |      |        | 10,4      |      |        | 12,5   |      |        | 12,5   |      |        | 12,5   |      |      |
| Coil connection diameter                   | inches | 3/4 " gas |      |        | 3/4" gas |      |        | 3/4 " gas |      |        | 1" gas |      |        | 1" gas |      |        | 1" gas |      |      |
| Condensate diameter                        | mm     | 16        |      |        | 16       |      |        | 16        |      |        | 16     |      |        | 16     |      |        | 12,5   |      |      |
| Weight, unit                               | kg     | 14,8      |      |        | 16,5     |      |        | 16,5      |      |        | 37     |      |        | 39,6   |      |        | 39,6   |      |      |
| Weight, grille                             | kg     | 3         |      |        | 3        |      |        | 3         |      |        | 5      |      |        | 5      |      |        | 5      |      |      |

**Based on Eurovent conditions:**

Cooling mode (2 and 4-pipe coils): entering air temperature 27°C dry bulb/19°C wet bulb, 7°C/12°C entering and leaving water temperature

Heating mode (2-pipe coil): air temperature 20°C, 45°C/40°C entering and leaving water temperature

Heating mode (4-pipe coil): air temperature 20°C, 65°C/55°C entering and leaving water temperature

\* Speeds: 1 = high, 2 = medium, 3 = low

\*\* Sound pressure level and NR values with hypothetical noise attenuation of the room of -9 dB(A).

**Note:** the version with an electrical heater is available on all 2-pipe units

Eurovent certified values

## PHYSICAL AND ELECTRICAL SPECIFICATIONS, UNITS WITH AC MOTORS

| 42GW                                       |        | 200D      |      |      | 300D      |      |      | 400D      |      |      | 600D      |      |      | 701D      |       |      |
|--|--------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|-------|------|
| Coil type                                  |        | 4-pipe    |      |      | 4-pipe    |      |      | 4-pipe    |      |      | 4-pipe    |      |      | 4-pipe    |       |      |
| Fan speed                                  | l/s    | 1         | 2    | 3    | 1         | 2    | 3    | 1         | 2    | 3    | 1         | 2    | 3    | 1         | 2     | 3    |
| Air flow                                   | m³/h   | 183       | 125  | 100  | 204       | 140  | 89   | 249       | 173  | 134  | 321       | 229  | 139  | 402       | 299   | 166  |
|  |        | 660       | 450  | 360  | 735       | 505  | 320  | 900       | 625  | 485  | 1160      | 825  | 500  | 1450      | 1080  | 600  |
| Cooling                                    |        |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Total cooling capacity                     | kW     | 1,97      | 1,49 | 1,34 | 3,34      | 2,67 | 1,98 | 3,95      | 3,18 | 2,53 | 6,58      | 4,93 | 2,96 | 7,49      | 5,97  | 3,14 |
| Sensible cooling capacity                  | kW     | 1,84      | 1,37 | 1,18 | 2,62      | 2,05 | 1,49 | 3,25      | 2,55 | 2,04 | 5,08      | 3,78 | 2,31 | 5,89      | 4,64  | 2,53 |
| Water flow                                 | l/s    | 0,10      | 0,07 | 0,06 | 0,17      | 0,13 | 0,10 | 0,20      | 0,16 | 0,12 | 0,32      | 0,24 | 0,14 | 0,39      | 0,32  | 0,18 |
|  | l/h    | 350       | 260  | 230  | 580       | 460  | 340  | 700       | 560  | 440  | 1140      | 860  | 510  | 1310      | 1040  | 550  |
| Water pressure drop, cooling               | kPa    | 14,9      | 9,1  | 7,6  | 12,6      | 8,6  | 5,6  | 16,5      | 11,2 | 7,6  | 25,2      | 15,3 | 6,5  | 31,5      | 21,8  | 7,1  |
| Water volume, cooling                      | l      | 0,4       |      |      | 1,1       |      |      | 1,1       |      |      | 2,4       |      |      | 2,4       |       |      |
| Heating mode                               |        |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Heating capacity                           | kW     | 1,67      | 1,27 | 1,09 | 5,46      | 4,4  | 3,1  | 5,8       | 5    | 4,32 | 10,04     | 7,79 | 5,28 | 12,77     | 10,07 | 6,43 |
| Water flow rate                            | l/s    | 0,04      | 0,03 | 0,03 | 0,15      | 0,12 | 0,09 | 0,16      | 0,14 | 0,12 | 0,27      | 0,21 | 0,14 | 0,35      | 0,27  | 0,17 |
|  | l/h    | 150       | 110  | 100  | 548       | 439  | 310  | 585       | 499  | 430  | 989       | 765  | 516  | 1247      | 989   | 628  |
| Water pressure drop, heating               | kPa    | 29,5      | 18,8 | 14,8 | 21,1      | 14,8 | 8,5  | 24,2      | 18,9 | 15   | 12,3      | 8,4  | 5,1  | 17,9      | 12,3  | 6,5  |
| Water volume                               | l      | 0,1       |      |      | 0,6       |      |      | 0,6       |      |      | 1,2       |      |      | 1,2       |       |      |
| Sound levels                               |        |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Sound power level                          | dB(A)  | 49        | 40   | 36   | 53        | 44   | 35   | 57        | 48   | 42   | 54        | 46   | 38   | 59        | 52    | 40   |
| Sound pressure level                       | dB(A)  | 40        | 31   | 27   | 44        | 35   | 26   | 48        | 39   | 33   | 45        | 37   | 29   | 50        | 43    | 31   |
| NR value**                                 |        | 35        | 27   | 23   | 39        | 30   | 20   | 43        | 34   | 28   | 40        | 32   | 22   | 45        | 38    | 25   |
| Power input                                | W      | 58        | 35   | 25   | 58        | 34   | 17   | 99        | 58   | 38   | 88        | 61   | 34   | 125       | 92    | 44   |
| Current                                    | A      | 0,27      | 0,17 | 0,12 | 0,24      | 0,14 | 0,07 | 0,41      | 0,24 | 0,16 | 0,46      | 0,27 | 0,14 | 0,63      | 0,41  | 0,19 |
| EUROVENT FCEER energy class (cooling mode) |        | E         |      |      | C         |      |      | D         |      |      | C         |      |      | D         |       |      |
| EUROVENT FCCOP energy class (heating mode) |        | E         |      |      | C         |      |      | D         |      |      | C         |      |      | C         |       |      |
| Connection diameter                        |        |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Cooling coil                               | inches | 3/4 " gas |      |      | 3/4 " gas |      |      | 3/4 " gas |      |      | 1" gas    |      |      | 1" gas    |       |      |
| Heating coil                               | inches | 1/2 " gas |      |      | 1/2 " gas |      |      | 1/2 " gas |      |      | 3/4 " gas |      |      | 3/4 " gas |       |      |
| Condensate diameter                        | mm     | 16        |      |      | 16        |      |      | 16        |      |      | 16        |      |      | 16        |       |      |
| Unit weight                                | kg     | 14,8      |      |      | 16,5      |      |      | 16,5      |      |      | 39,6      |      |      | 39,6      |       |      |
| Grille weight                              | kg     | 3         |      |      | 3         |      |      | 3         |      |      | 5         |      |      | 5         |       |      |

## Based on Eurovent conditions:

Cooling mode (2 and 4-pipe coils): entering air temperature 27°C dry bulb/19°C wet bulb, 7°C/12°C entering and leaving water temperature

Heating mode (2-pipe coil): air temperature 20°C, 45°C/40°C entering and leaving water temperature

Heating mode (4-pipe coil): air temperature 20°C, 65°C/55°C entering and leaving water temperature

\* Speeds: 1 = high, 2 = medium, 3 = low

\*\* Sound pressure level and NR values with hypothetical noise attenuation of the room of -9 dB(A).

Note: the version with an electrical heater is available on all 2-pipe units



Eurovent certified values

## PHYSICAL AND ELECTRICAL SPECIFICATIONS, UNITS WITH LEC MOTORS

| 42GW                                       |        | 209C      |      |      | 309C     |      |      | 409C      |      |      | 509C   |      |      | 609C   |      |      | 709C   |      |      |
|--|--------|-----------|------|------|----------|------|------|-----------|------|------|--------|------|------|--------|------|------|--------|------|------|
| Coil type                                  |        | 2-pipe    |      |      | 2-pipe   |      |      | 2-pipe    |      |      | 2-pipe |      |      | 2-pipe |      |      | 2-pipe |      |      |
| Fan speed                                  |        | 1         | 2    | 3    | 1        | 2    | 3    | 1         | 2    | 3    | 1      | 2    | 3    | 1      | 2    | 3    | 1      | 2    | 3    |
| Voltage (DC)                               | V      | 10        | 6    | 2    | 10       | 6    | 2    | 10        | 6    | 2    | 10     | 6    | 2    | 10     | 6    | 2    | 10     | 6    | 2    |
| Air flow                                   | l/s    | 183       | 125  | 100  | 204      | 140  | 89   | 249       | 173  | 134  | 272    | 199  | 147  | 321    | 229  | 139  | 443    | 299  | 166  |
|  | m³/h   | 660       | 450  | 360  | 735      | 505  | 320  | 900       | 625  | 485  | 980    | 720  | 530  | 1160   | 825  | 500  | 1600   | 1080 | 600  |
| Cooling                                    |        |           |      |      |          |      |      |           |      |      |        |      |      |        |      |      |        |      |      |
| Total cooling capacity                     | kW     | 2,36      | 1,77 | 1,54 | 3,98     | 2,88 | 1,87 | 4,68      | 3,5  | 2,79 | 6,08   | 4,44 | 3,35 | 7,19   | 5,47 | 3,71 | 9,55   | 6,49 | 4,05 |
| Sensible cooling capacity                  | kW     | 1,98      | 1,49 | 1,29 | 3,04     | 2,18 | 1,42 | 3,61      | 2,67 | 2,13 | 4,72   | 3,47 | 2,6  | 5,43   | 4,07 | 2,68 | 7,16   | 4,86 | 2,98 |
| Water flow rate                            | l/s    | 0,11      | 0,09 | 0,08 | 0,19     | 0,14 | 0,09 | 0,23      | 0,17 | 0,13 | 0,29   | 0,21 | 0,16 | 0,34   | 0,26 | 0,18 | 0,46   | 0,31 | 0,19 |
|  | l/h    | 410       | 310  | 270  | 690      | 500  | 320  | 810       | 600  | 480  | 1050   | 760  | 580  | 1240   | 940  | 640  | 1660   | 1120 | 700  |
| Water side pressure drop, cooling          | kPa    | 11,1      | 6,8  | 5,6  | 15,2     | 8,6  | 4,7  | 19,8      | 11,6 | 7,9  | 23,8   | 13,4 | 8,3  | 12,4   | 7,8  | 4,6  | 26,9   | 13,1 | 6    |
| Heating mode                               |        |           |      |      |          |      |      |           |      |      |        |      |      |        |      |      |        |      |      |
| Heating capacity                           | kW     | 2,74      | 2,17 | 1,92 | 3,68     | 3,15 | 1,94 | 5,28      | 3,92 | 3,16 | 6,84   | 5,08 | 3,8  | 8,51   | 6,26 | 3,85 | 11,03  | 7,95 | 4,38 |
| Water flow                                 | l/s    | 0,13      | 0,11 | 0,09 | 0,18     | 0,15 | 0,09 | 0,26      | 0,19 | 0,13 | 0,33   | 0,24 | 0,18 | 0,41   | 0,30 | 0,19 | 0,53   | 0,38 | 0,21 |
|  | l/h    | 480       | 380  | 330  | 640      | 550  | 340  | 920       | 680  | 480  | 1190   | 880  | 660  | 1480   | 1090 | 670  | 1920   | 1380 | 760  |
| Water pressure drop, heating               | kPa    | 11,8      | 8,4  | 7,1  | 12,8     | 10,1 | 5    | 18,6      | 11,7 | 8,5  | 23,1   | 14,4 | 9,2  | 15,3   | 9,6  | 4,8  | 30,6   | 18   | 7,2  |
| Water volume                               | l      | 0,55      |      |      | 1,1      |      |      | 1,1       |      |      | 1,6    |      |      | 2,4    |      |      | 2,4    |      |      |
| Sound levels                               |        |           |      |      |          |      |      |           |      |      |        |      |      |        |      |      |        |      |      |
| Sound power level                          | dB(A)  | 49        | 40   | 36   | 53       | 44   | 35   | 57        | 48   | 42   | 49     | 40   | 35   | 54     | 46   | 38   | 61     | 52   | 40   |
| Sound pressure level                       | dB(A)  | 40        | 31   | 27   | 44       | 35   | 26   | 48        | 39   | 33   | 40     | 31   | 26   | 45     | 37   | 29   | 52     | 43   | 31   |
| NR value**                                 |        | 35        | 27   | 23   | 40       | 31   | 20   | 43        | 35   | 29   | 35     | 26   | 20   | 39     | 32   | 22   | 47     | 38   | 25   |
| Power input                                | W      | 29        | 13   | 9    | 33       | 14   | 7    | 57        | 23   | 13   | 25     | 12   | 7    | 45     | 23   | 9    | 115    | 40   | 11   |
| Current                                    | A      | 0,19      | 0,1  | 0,08 | 0,27     | 0,13 | 0,08 | 0,46      | 0,2  | 0,12 | 0,23   | 0,12 | 0,08 | 0,4    | 0,22 | 0,1  | 0,89   | 0,35 | 0,12 |
| EUROVENT FCEER energy class (cooling mode) |        | B         |      |      | A        |      |      | B         |      |      | A      |      |      | A      |      |      | A      |      |      |
| EUROVENT FCCOP energy class (heating mode) |        | B         |      |      | B        |      |      | B         |      |      | A      |      |      | A      |      |      | B      |      |      |
| Electrical heater                          |        |           |      |      |          |      |      |           |      |      |        |      |      |        |      |      |        |      |      |
| High capacity @240V                        | W      | 1500      |      |      | 2500     |      |      | 2500      |      |      | 3000   |      |      | 3000   |      |      | 3000   |      |      |
| Current (high capacity) @240V              | A      | 6,3       |      |      | 10,4     |      |      | 10,4      |      |      | 12,5   |      |      | 12,5   |      |      | 12,5   |      |      |
| Coil connection diameter                   | inches | 3/4 " gas |      |      | 3/4" gas |      |      | 3/4 " gas |      |      | 1" gas |      |      | 1" gas |      |      | 1" gas |      |      |
| Condensate diameter                        | mm     | 16        |      |      | 16       |      |      | 16        |      |      | 16     |      |      | 16     |      |      | 12,5   |      |      |
| Weight, unit                               | kg     | 14,8      |      |      | 16,5     |      |      | 16,5      |      |      | 37     |      |      | 39,6   |      |      | 39,6   |      |      |
| Weight, grille                             | kg     | 3         |      |      | 3        |      |      | 3         |      |      | 5      |      |      | 5      |      |      | 5      |      |      |

### Based on Eurovent conditions:

Cooling mode (2 and 4-pipe coils): entering air temperature 27°C dry bulb/19°C wet bulb, 7/12°C entering and leaving water temperature

Heating mode (2-pipe coil): air temperature 20°C, 45°C/40°C entering and leaving water temperature

Heating mode (4-pipe coil): air temperature 20°C, 65°C/55°C entering and leaving water temperature

Sound pressure level and NR values with hypothetical noise attenuation of the room of -9 dB(A).

**Note:** the version with an electrical heater is available on all 2-pipe units



Eurovent certified values

## PHYSICAL AND ELECTRICAL SPECIFICATIONS, UNITS WITH LEC MOTORS

| 42GW                                       |       | 209D      |      |      | 309D      |      |      | 409D      |      |      | 609D      |      |      | 709D      |       |      |
|--|-------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|-------|------|
| Coil type                                  |       | 4-pipe    |      |      | 4-pipe    |      |      | 4-pipe    |      |      | 4-pipe    |      |      | 4-pipe    |       |      |
| Fan speed                                  |       |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Voltage (DC)                               | V     | 10        | 6    | 2    | 10        | 6    | 2    | 10        | 6    | 2    | 10        | 6    | 2    | 10        | 6     | 2    |
| Air flow                                   | l/s   | 183       | 125  | 100  | 204       | 140  | 89   | 249       | 173  | 134  | 321       | 229  | 139  | 443       | 299   | 166  |
|  | m³/h  | 660       | 450  | 360  | 735       | 505  | 320  | 900       | 625  | 485  | 1160      | 825  | 500  | 1600      | 1080  | 600  |
| Cooling                                    |       |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Total cooling capacity                     | kW    | 1,97      | 1,49 | 1,34 | 3,34      | 2,67 | 1,98 | 3,95      | 3,18 | 2,53 | 6,58      | 4,93 | 2,96 | 7,49      | 5,97  | 3,14 |
| Sensible cooling capacity                  | kW    | 1,84      | 1,37 | 1,18 | 2,62      | 2,05 | 1,49 | 3,25      | 2,55 | 2,04 | 5,08      | 3,78 | 2,31 | 5,89      | 4,64  | 2,53 |
| Water flow                                 | l/s   | 0,10      | 0,07 | 0,06 | 0,17      | 0,13 | 0,10 | 0,20      | 0,16 | 0,12 | 0,32      | 0,24 | 0,14 | 0,36      | 0,29  | 0,15 |
|  | l/h   | 350       | 260  | 230  | 580       | 460  | 340  | 700       | 560  | 440  | 1140      | 860  | 510  | 1310      | 1040  | 550  |
| Water pressure drop, cooling               | kPa   | 14,9      | 9,1  | 7,6  | 12,6      | 8,6  | 5,6  | 16,5      | 11,2 | 7,6  | 25,2      | 15,3 | 6,5  | 31,5      | 21,8  | 7,1  |
| Water volume, cooling                      | l     | 0,4       |      |      | 1,1       |      |      | 1,1       |      |      | 2,4       |      |      | 2,4       |       |      |
| Heating mode                               |       |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Heating capacity                           | kW    | 1,67      | 1,27 | 1,09 | 5,46      | 4,4  | 3,1  | 5,8       | 5    | 4,32 | 10,04     | 7,79 | 5,28 | 13,99     | 10,07 | 6,43 |
| Water flow                                 | l/s   | 0,04      | 0,03 | 0,03 | 0,13      | 0,11 | 0,08 | 0,14      | 0,12 | 0,11 | 0,24      | 0,19 | 0,13 | 0,31      | 0,24  | 0,16 |
|  | l/h   | 150       | 110  | 100  | 480       | 390  | 270  | 510       | 440  | 380  | 880       | 680  | 460  | 1120      | 880   | 560  |
| Water pressure drop, heating               | kPa   | 29,5      | 18,8 | 14,8 | 21,1      | 14,8 | 8,5  | 24,2      | 18,9 | 15   | 12,3      | 8,4  | 5,1  | 20,7      | 12,3  | 6,5  |
| Water volume                               | l     | 0,1       |      |      | 0,6       |      |      | 0,6       |      |      | 1,2       |      |      | 1,2       |       |      |
| Sound levels                               |       |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Sound power level                          | dB(A) | 49        | 40   | 36   | 53        | 44   | 35   | 57        | 48   | 42   | 54        | 46   | 38   | 61        | 52    | 40   |
| Sound pressure level                       | dB(A) | 40        | 31   | 27   | 44        | 35   | 26   | 48        | 39   | 33   | 45        | 37   | 29   | 52        | 43    | 31   |
| NR value**                                 |       | 35        | 27   | 23   | 40        | 31   | 20   | 43        | 35   | 29   | 39        | 32   | 22   | 47        | 38    | 25   |
| Power input                                | W     | 29        | 13   | 9    | 33        | 14   | 7    | 57        | 23   | 13   | 45        | 23   | 9    | 115       | 40    | 11   |
| Current                                    | A     | 0,19      | 0,1  | 0,08 | 0,27      | 0,13 | 0,08 | 0,46      | 0,2  | 0,12 | 0,4       | 0,22 | 0,1  | 0,89      | 0,35  | 0,12 |
| EUROVENT FCEER energy class (cooling mode) |       | B         |      |      | A         |      |      | B         |      |      | A         |      |      | B         |       |      |
| EUROVENT FCCOP energy class (heating mode) |       | C         |      |      | A         |      |      | B         |      |      | A         |      |      | A         |       |      |
| Connection diameter                        |       |           |      |      |           |      |      |           |      |      |           |      |      |           |       |      |
| Cooling coil                               | inch  | 3/4 " gas |      |      | 3/4 " gas |      |      | 3/4 " gas |      |      | 1" gas    |      |      | 1" gas    |       |      |
| Heating coil                               | inch  | 1/2 " gas |      |      | 1/2 " gas |      |      | 1/2 " gas |      |      | 3/4 " gas |      |      | 3/4 " gas |       |      |
| Condensate diameter                        | mm    | 16        |      |      | 16        |      |      | 16        |      |      | 16        |      |      | 12,5      |       |      |
| Weight, unit                               | kg    | 14,8      |      |      | 14,8      |      |      | 14,8      |      |      | 39,6      |      |      | 39,6      |       |      |
| Heaters weight                             | kg    | 3         |      |      | 3         |      |      | 3         |      |      | 5         |      |      | 5         |       |      |

### Based on Eurovent conditions:

Cooling mode (2 and 4-pipe coils): entering air temperature 27°C dry bulb/19°C wet bulb, 7/12°C entering and leaving water temperature

Heating mode (2-pipe coil): air temperature 20°C, 45°C/40°C entering and leaving water temperature

Heating mode (4-pipe coil): air temperature 20°C, 65°C/55°C entering and leaving water temperature

Sound pressure level and NR values with hypothetical noise attenuation of the room of -9 dB(A).

**Note:** the version with an electrical heater is available on all 2-pipe units

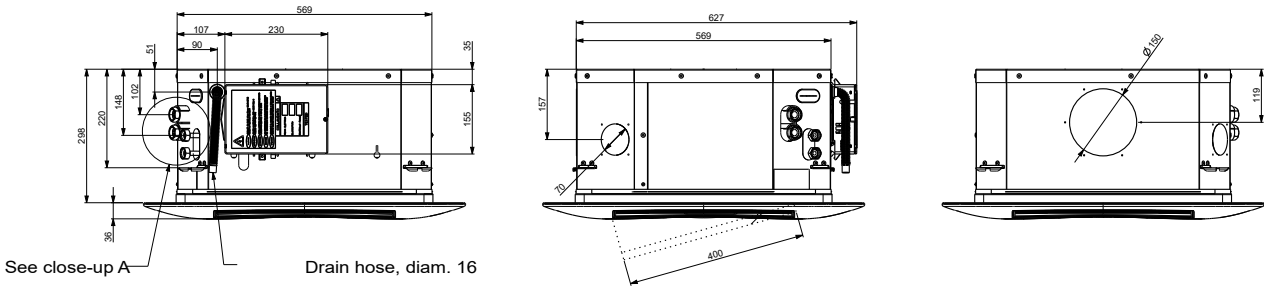


Eurovent certified values

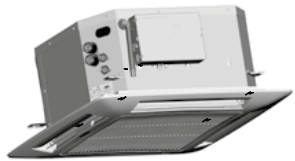
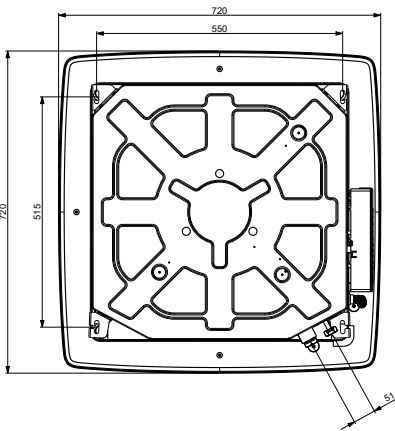
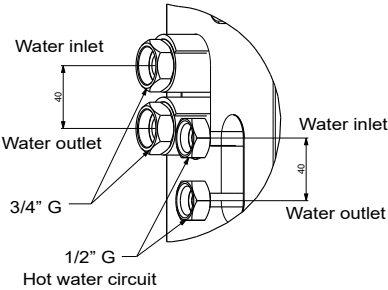
# DIMENSIONS, MM

## 42GW 200/209 - 300/309 - 400/409 (compact chassis)

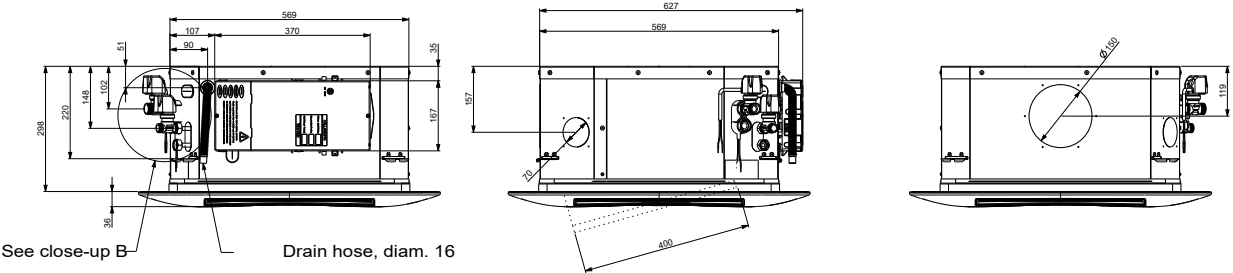
### Unit without valve



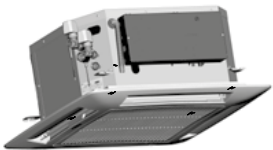
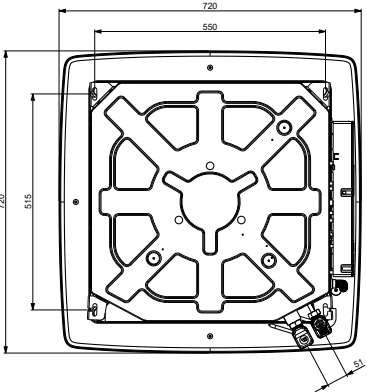
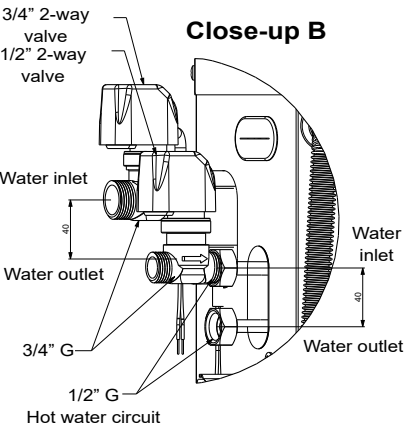
### Close-up A



### Unit with 2-way valve



### Close-up B

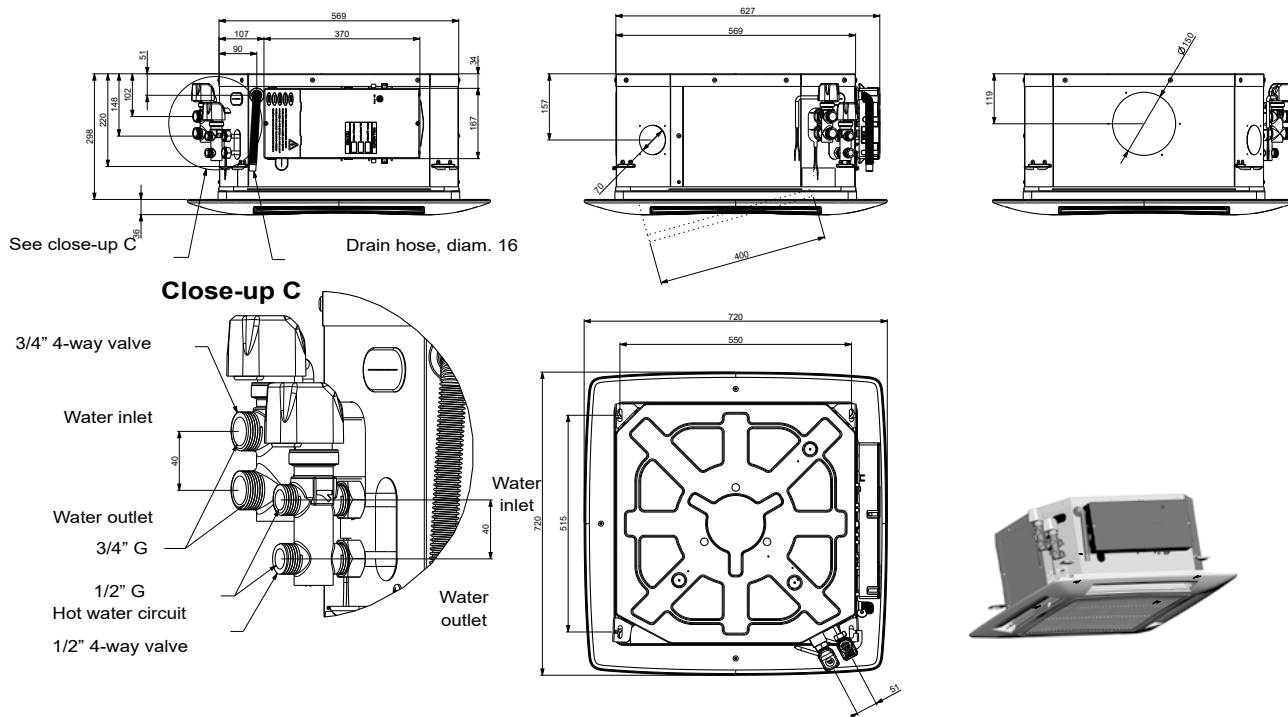




## DIMENSIONS, MM

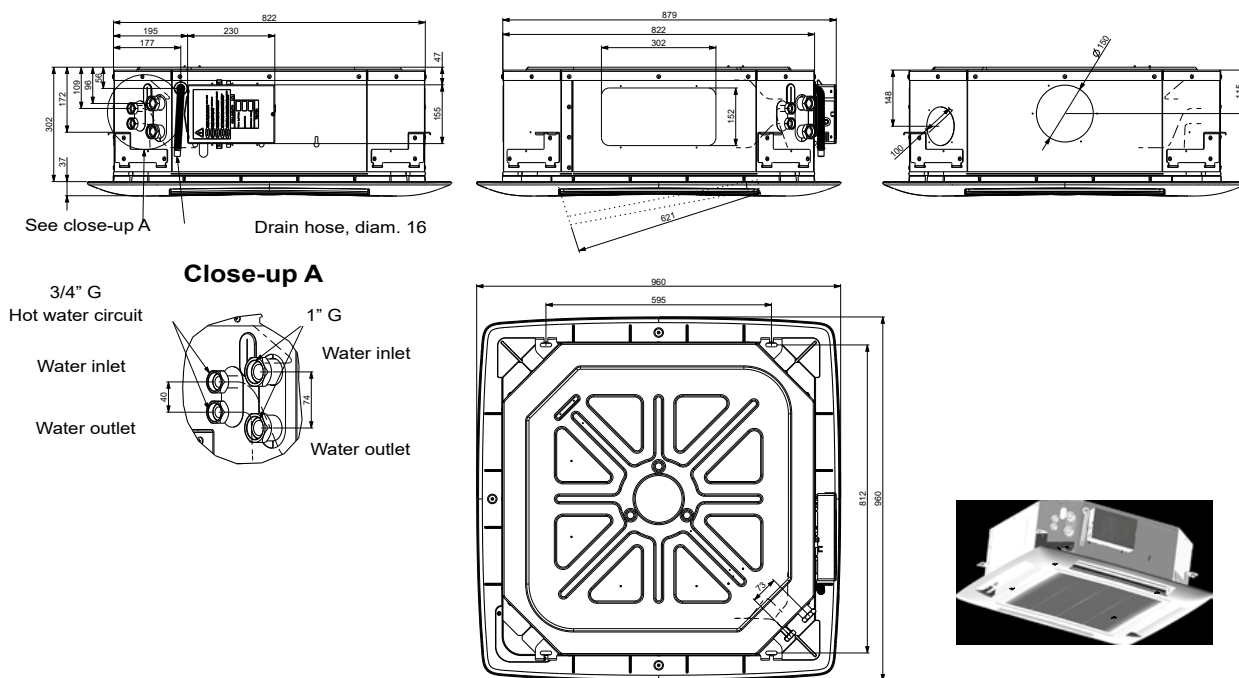
### 42GW 200/209 - 300/309 - 400/409 (compact chassis)

#### Unit with 4-way valves



### 42GW 500/509 - 600/609 - 701/709 (big chassis)

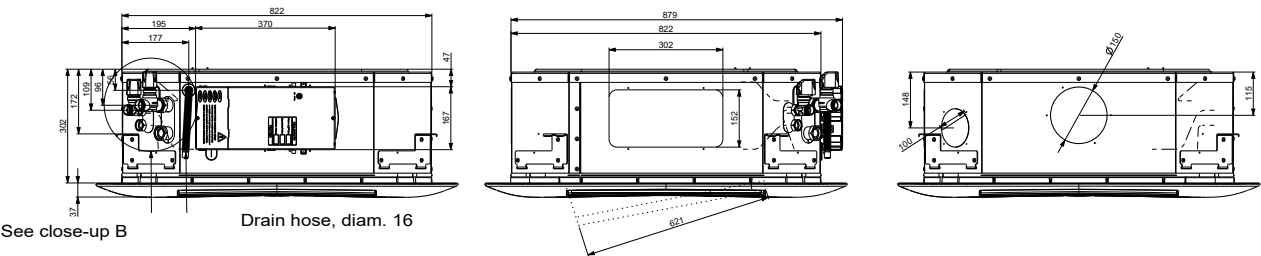
#### Unit without valve



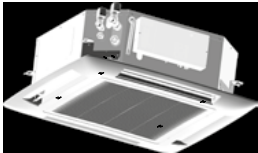
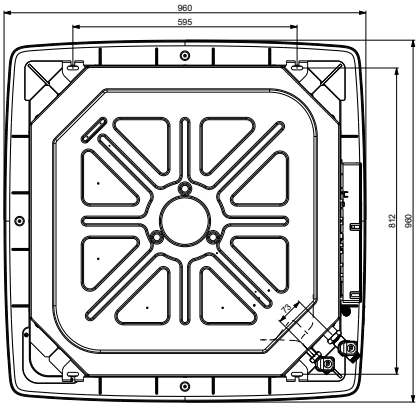
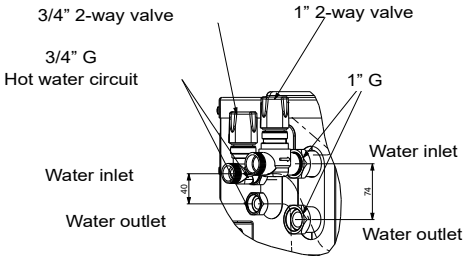
# DIMENSIONS, MM

## 42GW 500/509 - 600/609 - 701/709 (big chassis)

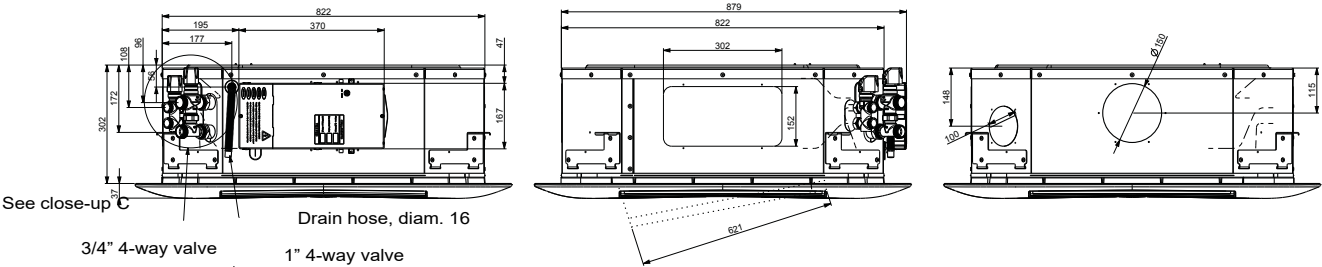
### Unit with 2-way valve



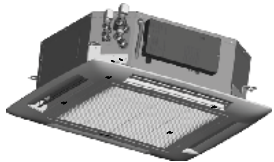
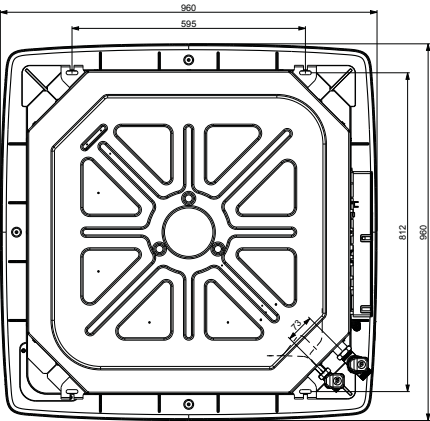
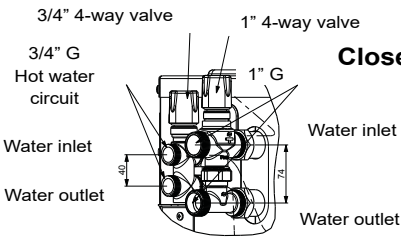
### Close-up B



### Unit with 4-way valve



### Close-up C



## COIL WATER CAPACITY

| 42GW        |   | 200/209 | 300/309 | 400/409 | 500/509 | 600/609 | 701/709 |
|-------------|---|---------|---------|---------|---------|---------|---------|
| Coil volume | l | 0,55    | 1,1     | 1,1     | 1,6     | 2,4     | 2,4     |

## AIR STREAM, IN METRES

| 42GW    | All louvres open |              |           | One louvre closed |              |           | Two louvres closed |              |           |
|---------|------------------|--------------|-----------|-------------------|--------------|-----------|--------------------|--------------|-----------|
|         | High speed       | Medium speed | Low speed | High speed        | Medium speed | Low speed | High speed         | Medium speed | Low speed |
| 200/209 | 3,8              | 3,2          | 2,7       | 4,3               | 3,7          | 3,0       | 4,8                | 4,1          | 3,4       |
| 300/309 | 4,0              | 3,4          | 2,8       | 4,5               | 3,8          | 3,2       | 5,0                | 4,3          | 3,5       |
| 400/409 | 4,8              | 4,1          | 3,4       | 5,3               | 4,5          | 3,7       | 5,8                | 4,9          | 4,1       |
| 500/509 | 3,0              | 2,6          | 2,1       | 3,5               | 3,0          | 2,5       | 4,0                | 3,4          | 2,8       |
| 600/609 | 3,4              | 2,9          | 2,4       | 3,9               | 3,3          | 2,7       | 4,4                | 3,7          | 3,1       |
| 701/709 | 4,3              | 3,7          | 3,0       | 4,8               | 4,1          | 3,4       | 5,3                | 4,5          | 3,7       |

### Notes:

1. The louvres were set so as to use the Coanda effect to obtain an air flow model parallel to the ceiling, and adhering to it as much as possible.
2. The air discharge is defined as the distance between the point where the air flow emerges from the unit parallel to the ceiling, and the point where its speed drops to 0.2 m/s.
3. These values are supplied as a guide; they may vary according to the ceiling type, the room dimensions and even its furniture.

## OPERATING LIMITS

|                           |  |  |
|---------------------------|--|--|
| <b>Water circuit</b>      | Maximum water side pressure: 1600 kPa (160 m WG) | Minimum entering water temperature: 5°C<br>Maximum entering water temperature: 80°C  |
| <b>Indoor temperature</b> |  | Minimum temperature: 5°C<br>Maximum temperature: 32°C in heating mode with electric heating device   |
| <b>Power supply</b>       | Nominal voltage<br>Operating limits              | 230 V - 1 ph - 50/60 Hz<br>Min. 207 V - max. 253 V - units without electric heating device<br>Min. 216 V - max. 244 V - units with electric heating device |

## VALVE KIT

| Valve kit                                   | 42GW 9029    | 42GW 9031  | 42GW 9030                   | 42GW 9032                 | 42GW 9033    | 42GW 9035  | 42GW 9034                   | 42GW 9036                 |
|---|--------------|------------|-----------------------------|---------------------------|--------------|------------|-----------------------------|---------------------------|
| <b>Unit option (10<sup>th</sup> letter)</b> | H - 4-way    | H - 4-way  | H - 4-way                   | H - 4-way                 | G - 2-way    | G - 2-way  | G - 2-way                   | G - 2-way                 |
| <b>Description</b>                          | 3/4" cooling | 1" cooling | 3/4" cooling + 1/2" heating | 1" cooling + 3/4" heating | 3/4" cooling | 1" cooling | 3/4" cooling + 1/2" heating | 1" cooling + 3/4" heating |
| <b>Valve centre-to-centre, mm</b>           | 40           | 73         | 40/40                       | 73/40                     | 40           | 73         | 40/40                       | 73/40                     |
| <b>Valve gasket coupling type</b>           | Flat         | Flat       | Flat                        | Flat                      | Flat         | Flat       | Flat                        | Flat                      |
| <b>2-pipe</b>                               |              |            |                             |                           |              |            |                             |                           |
| 200C, 300C, 400C                            | x            |            |                             |                           | x            |            |                             |                           |
| 209C, 309C, 409C                            | x            |            |                             |                           | x            |            |                             |                           |
| 500C, 600C, 701C                            |              | x          |                             |                           |              | x          |                             |                           |
| 509C, 609C, 709C                            |              | x          |                             |                           |              | x          |                             |                           |
| <b>4-pipe</b>                               |              |            |                             |                           |              |            |                             |                           |
| 200D, 300D, 400D                            |              |            | x                           |                           |              |            | x                           |                           |
| 209D, 309D, 409D                            |              |            | x                           |                           |              |            | x                           |                           |
| 600D, 701D                                  |              |            |                             | x                         |              |            |                             | x                         |
| 609D, 709D                                  |              |            |                             | x                         |              |            |                             | x                         |

## COANDA EFFECT CASSETTE



Optimised Coanda Effect

Thermal comfort

Indoor air quality

Responsiveness of the system  
and individual adjustment

Low energy consumption

Acoustic comfort

Perfect integration : suitable  
for 600 x 600 mm false ceiling  
grid as standard

Ease of maintenance

# 42KY

Cooling capacity: 1 kW to 6 kW  
Heating capacity: 2 kW to 10 kW

Energy performance, comfort and indoor air quality: Carrier's 42KY cassette is the all-in-one solution to meet heating and cooling requirements for commercial buildings and provide optimum comfort for users.

This low consumption (LEC) variable speed active comfort unit makes it possible to adapt the indoor temperature automatically and independently to the preferences of occupants with very quick response times.

Optimisation of the Coanda Effect for air diffusion, to meet the requirements of the standard NF EN ISO 7730, ensures perfect control of thermal phenomena that can cause discomfort. Carrier's 42KY cassette makes it possible to eliminate the draughts that are felt with sweeping diffusion systems or those with direct airflow onto the occupant.

Eco-designed product that is 90% recyclable, the 42KY cassette has been developed to limit its impact on the environment throughout its life cycle.



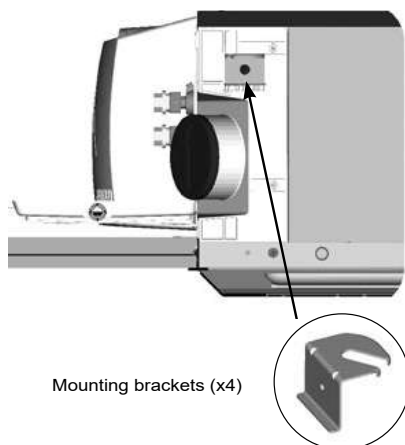
CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## OPERATION AND ADVANTAGES

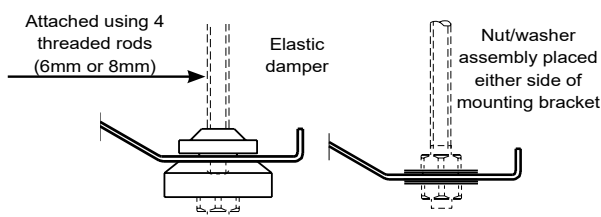
### Use

The air treatment unit is fitted within the suspended ceiling, at the edge of the room, with the outlet facing the windows. It has all the economical advantages that come from installing and operating a central heated and chilled water production unit. The location facilitates hydraulic connection via the suspended ceiling of the adjoining corridor, and gravity draining of condensate (no pump).

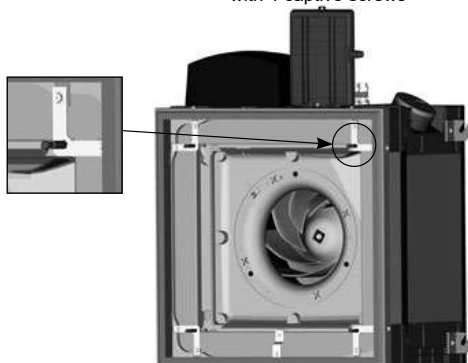
The 42KY cassette must be suspended from the ceiling with four 6 mm or 8 mm threaded rods (not supplied), that are fixed to the four mounting brackets of the device with elastic anti-vibration mounts or a nut/washer assembly fitted either side of the mounting bracket.



Mounting principle  
2 methods



Diffuser mounting system  
with 4 captive screws



### Operating principle

The centrifugal turbine draws air through a perforated metal intake grille. The air is filtered, then heated or cooled through a temperature exchange coil fed with either hot or chilled water. The air is then pulsed horizontally at 180° or 360°, by means of the Coanda Effect in the room to be treated.

### The Coanda effect

Coanda effect diffuser:

The single slot peripheral outlet with its narrow opening and specific internal profile will increase the initial speed of the air as it leaves the diffuser. The high speed of the moving flow of air causes an area of low pressure which keeps it close to the ceiling, (there is no direct blast on occupants) and the ambient air is drawn in by induction to be reinjected in the air stream. The air mix rate, the range and the coverage of the air flow are improved, which reduces thermal phenomena that cause discomfort in the occupied area (residual air flow rate, asymmetric temperatures, radiation caused by walls, etc.).

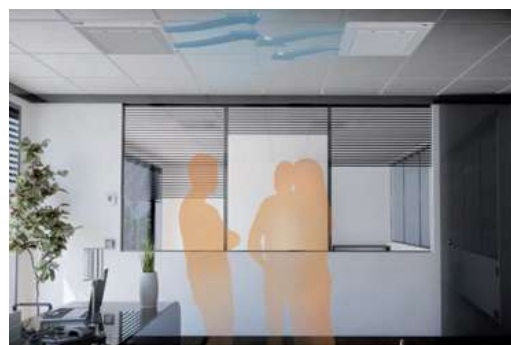
### "Anti cold shower" system

The one-way 180° diffuser is fitted with an "anti cold shower" system that maximises comfort by preventing cold air from falling between two cassettes.

The system incorporates two deflectors in the insulation which offsets the air stream slightly in the lateral axis. When the units are placed side by side in the same room, the air flows do not oppose one another and cross over in parallel, which avoids any cold air draughts.

This patented system removes the discomfort caused by draughts without having to reduce the outlets and with no increased noise levels, while maintaining the air flow necessary for the thermal requirements.

### with anti "cold shower" system

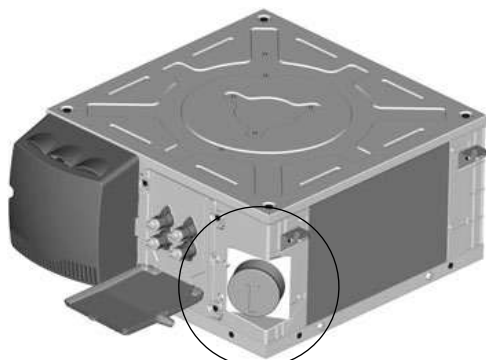


### without anti "cold shower" system

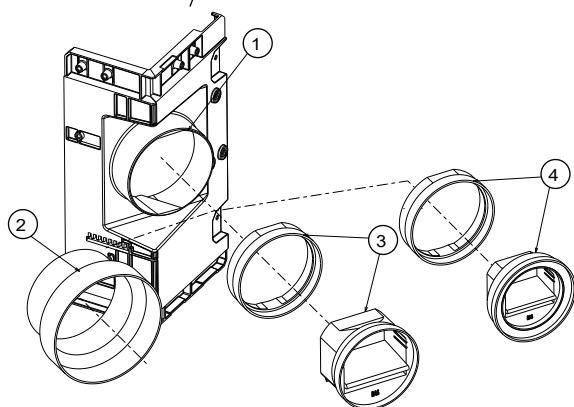


## OPERATION AND ADVANTAGES

### Fresh air inlet spigot



Ø 100 mm spigot, max. air flow 90 m³/h recommended. Network balancing system not supplied by Carrier.



- ① Fresh air inlet on device
- ② Ø100 / Ø125 mm adapter
- ③ 60/75/90 m³/h air flow controller kit
- ④ 15/30/45 m³/h air flow controller kit

### Innovative design

- Next generation chassis that combines high density EPS for its thermal and phonic properties, ABS PC and a ribbed galvanised sheet steel base to stiffen the assembly.
- Chassis with unique dimensions for all sizes, adapted to the suspended ceiling grid size 600 x 600 mm.
- Hydraulic, air and electrical connections on the same side to facilitate installation and access for maintenance operations.
- Fresh air inlet with 100 mm sleeve integrated to the chassis with removable plug.

### Range

The 42KY one-way cassette range includes 3 models that cover a flow rate from 250 to 770 m³/h which meet the most stringent of sound level requirements.

The 42KY is available as:

- 2-tube system, with heating or cooling mode.
- 2-tube + 2-wire system, with heating + cooling/cooling + electric mode.
- 4-tube system, with heating and cooling mode.

### Advantages

- Individual adjustment of the indoor temperature.
- Responsive system.
- Large power range.
- Coanda effect diffusion over 180 or 360° for even coverage and perfect control of the thermal phenomena that can cause discomfort.
- Acoustic comfort.
- LEC low consumption motor.
- G3 filter.
- Optimised hydraulic coil.
- Condensate drain by gravity avoiding the need for a drain pump.
- Modern and elegant design for perfect integration.
- Eco-designed product that is 90% recyclable. The 42KY cassette has been developed to limit its impact on the environment throughout its life cycle.
- Ease of maintenance.

### Greater comfort

Optimised Coanda Effect diffusion for perfect control of thermal phenomena that can cause discomfort and make the room feel draughty.

### Compliance with energy requirements

- Optimised temperature exchange coils to meet low energy buildings requirements as well as cost limitation
- LEC low consumption motor.
- Reduction in power of the electric heating coils to match the requirements of new buildings.

### Eco-design

#### Raw materials

30% saving in weight and 21% saving in volume thanks to a compact and well thought out architecture.

Use of easily recyclable materials (EPS and ABS).

#### Transport

Raw material suppliers selected from those that are less than 100 km from our manufacturing and packaging factory, enabling a 50% gain in volumes transported (reduction in CO<sub>2</sub> emissions).

#### Recycling and ease of disassembly

90% recyclable products.

Materials can be completely separated and fixings have been reduced by 40% to allow greater efficiency at recycling plants.



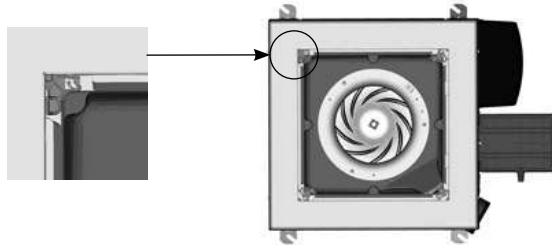


## OPERATION AND ADVANTAGES

### Ease of installation and operation

The 42KY cassette is designed to be easy to fit and not require many on-site operations:

- Fitting template provided with each unit to mark out the anchoring points on the ceiling.
- Optimised weight and size to facilitate handling during installation.
- Mounting brackets equipped with anti-slip system to hold the threaded rods when attaching and levelling the unit.
- Safety system to suspend the diffuser leaving the technician's hands free to tighten the mounting bolts.



- Technical plate containing all connections (electrical, air and hydraulic) on one face.
- Fresh air inlet sleeve with plug integrated directly to the chassis (no fitting necessary).
- Large electrical box with single latch that can house all the control systems of the Carrier range.
- Access to internal components without the need to open suspended ceilings, easy to open filter hatch grille that is hinged to facilitate maintenance operations.
- Diffusion panels supplied in individual packaging, making it easier to fit the unit with no risk of damaging or soiling visible parts during installation.

## CODES

|              | Range |   |   |   | Size    | Motor                 | Coils      | Control                                     | Valves  | Elec heater | Valve servomotors  | Sensors | Condensate drainage | Grille adaptation | Coil protection | Modif. index   |
|--------------|-------|---|---|---|---------|-----------------------|------------|---|---------|-------------|--|---------|---------------------|-------------------|-----------------|--|
| Product ref. | 4     | 2 | K | Y | 1       | 9                     | C          | -   | G       | A           | -  | A       | P                   | T                 | -               | A  |
| Digit        | 1     | 2 | 3 | 4 | 5       | 6                     | 7          | 8   | 9       | 10          | 11   | 12      | 13                  | 14                | 15              | 16   |
|              |       |   |   |   | Digit 5 |                       |            |   |         |             |  |         |                     |                   |                 | Digit 10   |
|              |       |   |   |   | 1       |                       |            |   |         |             |  |         |                     |                   |                 | - = None   |
|              |       |   |   |   | 2       |                       |            |   |         |             |  |         |                     |                   |                 | C= Coil protection   |
|              |       |   |   |   | 3       |                       |            |   |         |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         | Digit 6               |            |   |         |             |  |         |                     |                   |                 | Digit 13   |
|              |       |   |   |   |         | 0 = 5-speed motor     |            |   |         |             |  |         |                     |                   |                 | - = None   |
|              |       |   |   |   |         | 9 = LEC 0 -10 V motor |            |   |         |             |  |         |                     |                   |                 | T = 675 x 675 ceiling adapter                                    |
|              |       |   |   |   |         |                       |            |   |         |             |  |         |                     |                   |                 | S = Staff ceiling adapter  |
|              |       |   |   |   |         |                       | Digit 7    |   |         |             |  |         |                     |                   |                 | Digit 13   |
|              |       |   |   |   |         |                       | C = 2-tube |   |         |             |  |         |                     |                   |                 | - = None   |
|              |       |   |   |   |         |                       | D = 4-tube |   |         |             |  |         |                     |                   |                 | P = Condensate drain pump  |
|              |       |   |   |   |         |                       |            |   |         |             |  |         |                     |                   |                 | H = Lift kit   |
|              |       |   |   |   |         |                       |            | Digit 8                                     |         |             |  |         |                     |                   |                 | Digit 12   |
|              |       |   |   |   |         |                       |            | - = No control                              |         |             |  |         |                     |                   |                 | - = None   |
|              |       |   |   |   |         |                       |            | K = NTC control with fuse protection        |         |             |  |         |                     |                   |                 | A = Return sensor  |
|              |       |   |   |   |         |                       |            | K = WTC Lon control with fuse protection    |         |             |  |         |                     |                   |                 | B = changeover sensor (2-tube only digit 9 =H)                   |
|              |       |   |   |   |         |                       |            | K = WTC BaCNet control with fuse protection |         |             |  |         |                     |                   |                 | C = return sensor and changeover sensor (2-tube only digit 9 =H) |
|              |       |   |   |   |         |                       |            |   | Digit 9 |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            | - = No valves                               |         |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            | G = 2-way valve                             |         |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            | H = 4-way valve                             |         |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         | Digit 10    |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            | - = No valves                               |         |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            | A = Elec heater (digit 7 = "C")             |         |             |  |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | Digit 11   |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | - = None   |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | A = 230V ON/OFF servomotor                                     |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | B = 24V ON/OFF servomotor (digit 8 = " " no control)           |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | C = 230V 3-POINT servomotor (digit 8 = " " or K, L or M)       |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | B = 24V 3-POINT servomotor (digit 8 = " " no control)          |         |                     |                   |                 |  |
|              |       |   |   |   |         |                       |            |   |         |             | E = 24V 0-10V modulating servomotor (digit 8 = " " no control) |         |                     |                   |                 |  |

## TECHNICAL DESCRIPTION

### Return/supply interface

**Coanda Effect diffusion through a single slot with a narrow opening and specific internal profile.**

- 180° diffusion (1-way) or 360° diffusion (4-way)
- In sheet metal painted in RAL 9010 to be fitted over the chassis with exactly the same dimensions as a standard suspended ceiling tile.
- Perforated metal return grille with hinge-mounted filter housing that requires no tools to open it.
- PSE insulation, M1 fire resistance with very low heat transfer coefficient.
- Flat G3 filter on metal frame.

### Chassis

- Unique chassis and reduced footprint for all sizes fitted in place of a suspended ceiling tile, either 600 x 600 mm or 675 x 675 mm (optional).
- Ribbed galvanised steel motor support base panel, 10/10th thick.
- High-density PSE casing integrating thermal and acoustic functionalities. 15 mm thick base and 25 to 30 mm thick vertical sides that make up the casing.
- Low emission of TVOCs and no halogenated compounds.
- ABS corner reinforcements fitted with open galvanised steel mounting brackets with one-way system for assembly of threaded rods.
- M1 fire rating.
- Hydraulic, air and electrical connections on the same side of the technical panel at the rear of the unit providing a single access point.
- Galvanised 0.8 mm sheet metal frame finished in RAL 9010 to which the diffusion interface is fixed.

### Water coil

- 1 hot water or cold water circuit (2-tube system).
- 1 hot water circuit + 1 cold water circuit (4-tube system).
- One-piece coupling with 40 mm centre to centre distance with integrated sealed flush fitting female revolving unions and gaskets, for easy fitting of the control valves.
- One, two or three row circular coil with low pressure drop.
- Copper tubes, one-piece aluminium fins (1.6 mm pitch).
- Bleeding and draining.
- Rated pressure of 16 bar (at 20°C).
- Test pressure: 24 bar.
- Max hot water inlet temperature:
  - 4-tube application: 80°C,
  - 2-tube application: 70°C,
  - 2-tube/2-wire application: 55°C (min air flow rate: 200m<sup>3</sup>/h).
- Min cold water inlet temperature: 6°C.

### Electric heater (2-tube + electric system)

- 230V/1/50 single-tube electrical elements inserted into the aluminium housing.
- 2 temperature limiters, manually and automatically reset, inserted in the aluminium block with easy access that does not require the suspended ceiling to be opened, via the return/supply air interface.
- Heater element power supply on the connection terminal inside the electrics box.
- Option to deactivate a heater element on site by means of a shunt on the terminal to reduce the electrical power.
- Condensate drain pan
- Single-piece all-climate primary pan in high density watertight EPS, naturally tilted and can be removed from underneath with no need to open the suspended ceiling.
- M1 fire rating class.
- PC ABS auxiliary pan (configured to prevent standing water) to be used to catch condensate from valves from the primary pan.
- Gravity drain: height 70mm.
- Drainage bushing: external Ø 15 to 20 mm.

### Fan motor assembly

#### LEC motor (low energy consumption)

**Low energy motor making it possible to reduce electrical consumption by up to 85%.**

- Sealed, tropicalised, with protected shaft.
- Progressive control with 0-10V control signal.
- Internal automatic heat protection with serial opening on winding.
- Mounted on rubber mounts.
- 230V/1Ph/50 Hz power supply (60Hz compatible).

**Note:** The minimum voltage to start up the motor is 2V.

**Or**

#### Asynchronous motor

5 factory-wired speeds connected to a terminal strip for customisation.

- Sealed, tropicalised, with protected shaft.
- Permanent capacitor.
- Ball bearings.
- Internal automatic heat protection with serial opening on winding.
- Resilient mounts.
- 230V/1Ph/50 Hz power supply (60Hz compatible).
- High efficiency and power factor.

### Fan(s)

- Balanced centrifugal impeller (Ø 282 mm) with airfoil blades.
- Polymer impeller.
- Single-point mounting system with foolproofing device.

## TECHNICAL DESCRIPTION

### Electrics box

- Large ABS electrics box, with a hinge to keep it open and screw closure.
- Protection rating IP20.
- Terminal block on DIN rail in accordance with EN 50022, depth 7.5 mm.
- Junction block located with tension clamp. Cross section 0.5 to 2.5 mm<sup>2</sup> - Max current: 24A – Shock resistance: 8 kV. Cable routing for customer connections.

### Fresh air inlet sleeve

Connecting sleeve for fresh air inlet, Ø100 mm, integrated to the chassis with removable plug.

### Filtration

- Regenerative flexible polyester fibre filter element.
- Positioned at the fan inlet.
- EN779 efficiency Class: G3.
- On rigid metal frame.
- Accessed via the hinged inlet grille.
- Low energy impact.
- M1 fire rating.
- A protected air stream which prevents particles being drawn into suspended ceilings.
- Uniform treatment of the room thanks to optimised diffusion using the Coanda effect.
- Suitable mixing rate.

### Device mounting

- Open mounting brackets, factory-fitted, made from galvanised steel, 15/10th thick, with check valve for securing the threaded rods during fitting and levelling.

### Packaging

- Strapped cardboard crate for the casing.
- Fitting template and direction of fitting printed on the cardboard.
- Return/supply air interface supplied separately in protective cardboard packaging.
- Delivered on a plastic-wrapped pallet.

### Control systems

- A-B-C-D type electronic thermostats.
- NTC / Aquasmart Evolution networked electronic control.
- WTC LON or BACnet networked electronic control.

### Options (factory assembled)

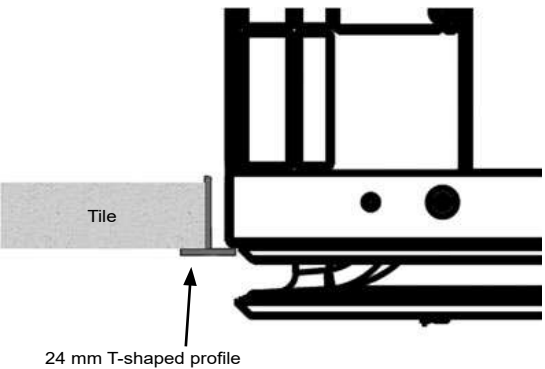
- Condensate drain pump.
- Lift kit.
- Finishing trim frame for 675 x 675 mm suspended ceiling tiles.
- Finishing trim frame for STAFF ceilings.
- Hydraulic coil with protected fins for aggressive / corrosive areas (locations close to the sea or to chemical industries).

### Accessories (available separately)

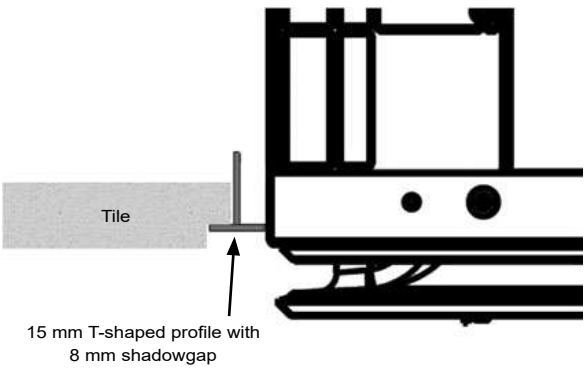
- Vibration damping rubber mounts for mounting brackets.
- Self-regulating conditioned fresh air inlet module (3 flow rates adjustable using a set of shims).
- Ø 100-125 mm sleeve adapter.
- Condensate drain pump kit with high safety device.
- 80 mm riser kit for gravity drainage without condensate drain pump.
- Finish counter frame kit for 675 mm suspended ceiling tile.

INTEGRATION INTO THE SUSPENDED CEILING

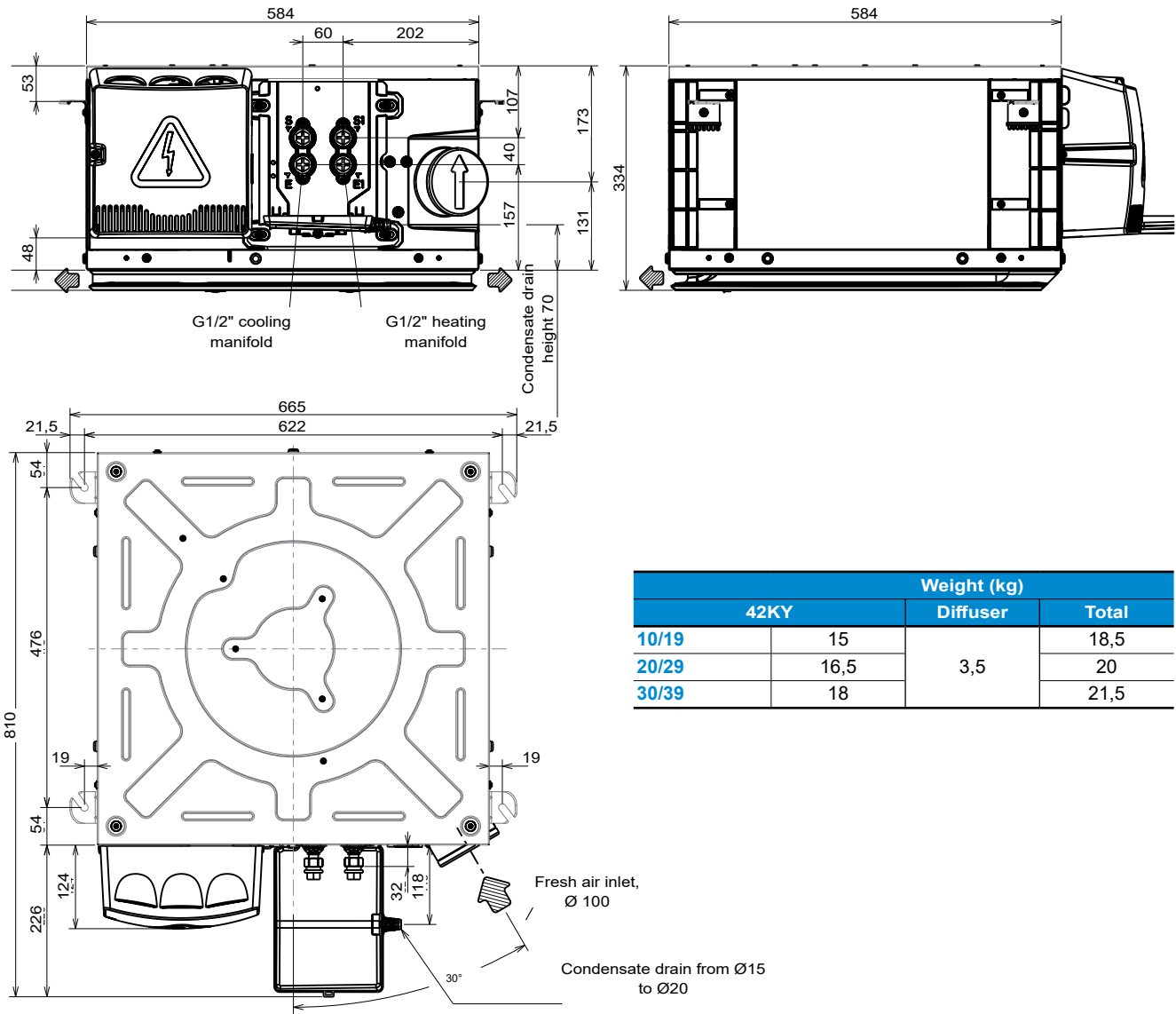
Mounting position with 600 x 600 mm suspended ceiling on T-shaped profile



Mounting position with 600 x 600 mm suspended ceiling on T-shaped profile with 8 mm shadowgap



DIMENSIONS



| Weight (kg) |      |          |       |
|-------------|------|----------|-------|
|             | 42KY | Diffuser | Total |
| 10/19       | 15   | 3,5      | 18,5  |
| 20/29       | 16,5 |          | 20    |
| 30/39       | 18   |          | 21,5  |

## SPECIFICATIONS FOR UNITS UNDER EUROVENT CONDITIONS

## 2 pipes application

| Model           | Speed | Voltage | Input Power | Air flow | Heating capacity | Pressure drop heating | Cooling capacity |            | Pressure drop cooling | Lw    | LP    | Comfort level (ISO or NR) | Average air temperature rise in K Auxiliary electric heater 230/1/50 |
|-----------------|-------|---------|-------------|----------|------------------|-----------------------|------------------|------------|-----------------------|-------|-------|---------------------------|--|
|                 |       | v       | W           | m3/h     | W                | kPa                   | Total W          | Sensible W | kPa                   | dB(A) | dB(A) |                           |  |
| 42KY10C-----    | HS    |         | 45          | 440      | 2 000            | 12,8                  | 1 700            | 1 550      | 10,7                  | 49    | 37    | 32                        |  |
|                 | MS    |         | 41          | 380      | 1 800            | 10,7                  | 1 530            | 1 390      | 8,9                   | 46    | 34    | 29                        |  |
|                 | LS    |         | 34          | 235      | 1 350            | 6,3                   | 1 190            | 1 030      | 5,5                   | 37    | 25    | 19                        |  |
| 42KY19C-----    | HS    | 4,9     | 17          | 440      | 2 070            | 13,0                  | 1 700            | 1 550      | 10,5                  | 49    | 37    | 32                        |  |
|                 | MS    | 3,4     | 8           | 310      | 1 650            | 9,0                   | 1 370            | 1 220      | 6,9                   | 42    | 34    | 29                        |  |
|                 | LS    | 2,5     | 5           | 235      | 1 400            | 7,0                   | 1 190            | 1 040      | 5,3                   | 37    | 25    | 19                        |  |
| 42KY20C-----    | HS    |         | 45          | 420      | 2 700            | 17,2                  | 2 600            | 2 030      | 18,7                  | 51    | 39    | 34                        |  |
|                 | MS    |         | 41          | 360      | 2 300            | 13,7                  | 2 280            | 1 750      | 14,8                  | 47    | 35    | 30                        |  |
|                 | LS    |         | 34          | 215      | 1 550            | 7,0                   | 1 580            | 1 150      | 7,6                   | 35    | 23    | 18                        |  |
| 42KY29C-----    | HS    | 4,9     | 17          | 420      | 2 700            | 17,2                  | 2 590            | 2 020      | 18,4                  | 51    | 39    | 34                        |  |
|                 | MS    | 4,2     | 12          | 360      | 2 300            | 13,7                  | 2 280            | 1 760      | 14,5                  | 47    | 35    | 30                        |  |
|                 | LS    | 2,5     | 5           | 215      | 1 550            | 7,0                   | 1 580            | 1 150      | 7,3                   | 35    | 23    | 18                        |  |
| 42KY20C--A----- | HS    |         | 45          | 420      | 2 390            | 11,4                  | 2 050            | 1 800      | 9,9                   | 51    | 39    | 34                        | 900W (2R)  |
|                 | MS    |         | 41          | 360      | 2 200            | 9,4                   | 1 870            | 1 580      | 8,4                   | 47    | 35    | 30                        |  |
|                 | LS    |         | 34          | 215      | 1 600            | 5,4                   | 1 420            | 1 090      | 5,1                   | 35    | 23    | 18                        |  |
| 42KY29C--A----- | HS    | 4,9     | 17          | 420      | 2 390            | 11,6                  | 2 040            | 1 790      | 9,7                   | 51    | 39    | 34                        | 900W (2R)  |
|                 | MS    | 4,2     | 12          | 360      | 2 200            | 9,6                   | 1 870            | 1 590      | 8,2                   | 47    | 35    | 30                        |  |
|                 | LS    | 2,5     | 5           | 215      | 1 600            | 5,6                   | 1 420            | 1 090      | 4,8                   | 35    | 23    | 18                        |  |
| 42KY30C-----    | HS    |         | 77          | 660      | 4 150            | 23,5                  | 4 340            | 3 260      | 29,5                  | 58    | 46    | 40                        |  |
|                 | MS    |         | 56          | 525      | 3 350            | 16,0                  | 3 540            | 2 620      | 20,2                  | 51    | 39    | 34                        |  |
|                 | LS    |         | 40          | 405      | 2 600            | 10,3                  | 2 840            | 2 070      | 13,3                  | 45    | 33    | 27                        |  |
| 42KY39C-----    | HS    | 6,7     | 38          | 660      | 4 150            | 23,5                  | 4 350            | 3 270      | 29,1                  | 58    | 46    | 40                        |  |
|                 | MS    | 5,3     | 21          | 525      | 3 350            | 16,0                  | 3 540            | 2 630      | 19,8                  | 51    | 39    | 34                        |  |
|                 | LS    | 3       | 6           | 290      | 1 900            | 6,0                   | 2 210            | 1 570      | 8,6                   | 38    | 26    | 19                        |  |
| 42KY30C--A----- | HS    |         | 77          | 660      | 4 050            | 19                    | 3 833            | 3 009      | 9,9                   | 58    | 46    | 40                        | 1200W (2R)   |
|                 | MS    |         | 56          | 525      | 3 300            | 13,1                  | 3 169            | 2 442      | 8,4                   | 51    | 39    | 34                        |  |
|                 | LS    |         | 40          | 405      | 2 720            | 8,8                   | 2 600            | 1 955      | 5,1                   | 45    | 33    | 27                        |  |
| 42KY39C--A----- | HS    | 5,3     | 21          | 525      | 3 320            | 13,3                  | 2 260            | 2 890      | 13,3                  | 51    | 39    | 34                        | 1200W (2R)   |
|                 | MS    | 4,6     | 15          | 460      | 2 950            | 10,8                  | 2 610            | 2 010      | 10,8                  | 48    | 36    | 30                        |  |
|                 |       | 3       | 6           | 290      | 2 110            | 6,1                   | 1 910            | 1 400      | 6,3                   | 38    | 26    | 19                        |  |

## 4-tube

| Model        | Speed | Voltage | Input Power | Air flow | Heating capacity | Pressure drop heating | Cooling capacity |            | Pressure drop cooling | Lw    | LP    | Comfort level (ISO or NR) |
|--------------|-------|---------|-------------|----------|------------------|-----------------------|------------------|------------|-----------------------|-------|-------|---------------------------|
|              |       | v       | W           | m3/h     | W                | kPa                   | Total W          | Sensible W | kPa                   | dB(A) | dB(A) |                           |
| 42KY20D----- | HS    |         | 45          | 420      | 2 400            | 17,0                  | 2 050            | 1 800      | 9,9                   | 51    | 39    | 34                        |
|              | MS    |         | 41          | 360      | 2 200            | 15,0                  | 1 870            | 1 580      | 8,4                   | 47    | 35    | 30                        |
|              | LS    |         | 34          | 215      | 1 700            | 10,0                  | 1 420            | 1 090      | 5,1                   | 35    | 23    | 18                        |
| 42KY29D----- | HS    | 4,9     | 17          | 420      | 2 400            | 17,0                  | 2 040            | 1 790      | 9,7                   | 51    | 39    | 34                        |
|              | MS    | 4,2     | 12          | 360      | 2 200            | 15,0                  | 1 870            | 1 590      | 8,2                   | 47    | 35    | 30                        |
|              | LS    | 2,5     | 5           | 215      | 1 700            | 10,0                  | 1 420            | 1 090      | 4,8                   | 35    | 23    | 18                        |
| 42KY30D----- | HS    |         | 77          | 660      | 3 000            | 22,0                  | 3 833            | 3 009      | 19,2                  | 58    | 46    | 40                        |
|              | MS    |         | 56          | 525      | 2 600            | 17,0                  | 3 169            | 2 442      | 13,4                  | 51    | 39    | 34                        |
|              | LS    |         | 40          | 405      | 2 200            | 14,0                  | 2 600            | 1 955      | 9,3                   | 45    | 33    | 27                        |
| 42KY39D----- | HS    | 5,3     | 21          | 525      | 2 600            | 18,0                  | 2 260            | 2 890      | 13,2                  | 51    | 39    | 34                        |
|              | MS    | 4,6     | 15          | 460      | 2 400            | 15,0                  | 2 610            | 2 010      | 10,8                  | 48    | 36    | 30                        |
|              |       | 3       | 6           | 290      | 1 900            | 12,0                  | 1 910            | 1 400      | 5,9                   | 38    | 26    | 19                        |

## EUROVENT Conditions

- Cooling mode: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)
- Heating mode (2T): water temperature: 45°/40°C, inlet air temperature: 20°C
- Heating mode (4T): water temperature: 65°/55°C, inlet air temperature: 20°C
- The sound pressure levels (Lp) and ISO NR level are based on hypothetical attenuation of the room of 12 dB(A)



## TECHNICAL SPECIFICATIONS

### Coil capacity (L)

| 42KY cassette                 |         | 10/19 | 20/29 | 30/39 |
|-------------------------------|---------|-------|-------|-------|
| 2-tube coil                   |         | 0.4   | 0.8   | 1.1   |
| 2-tube coil + electric heater |         | -     | 0.6   | 1     |
| 4-tube coil                   | Cooling | -     | 0.6   | 1     |
|                               | Heating | -     | 0.2   | 0.2   |

### Diameters of coil couplings

Coil connection type: flush fit female threaded union nuts

Valve connection type: install flush fit male threaded unions

| 42KY cassette                 |         | 10/19  | 20/29  | 30/39  |
|-------------------------------|---------|--------|--------|--------|
| 2-tube coil                   |         | G 1/2" | G 1/2" | G 1/2" |
| 2-tube coil + electric heater |         | -      | G 1/2" | G 1/2" |
| 4-tube coil                   | Cooling | -      | G 1/2" | G 1/2" |
|                               | Heating | -      | G 1/2" | G 1/2" |

### Motor electrical specifications

| 42KY              | Motor information | AC asynchronous motor |      |      | LEC motor |      |      |
|-------------------|-------------------|-----------------------|------|------|-----------|------|------|
|                   |                   | 10                    | 20   | 30   | 19        | 29   | 39   |
| Input power (W)   | V5                | 70                    | 70   | 101  | 38        | 38   | 56   |
|                   | V4                | 45                    | 45   | 77   | 17        | 17   | 38   |
|                   | V3                | 41                    | 41   | 56   | 12        | 12   | 21   |
|                   | V2                | 38                    | 38   | 47   | 8         | 8    | 15   |
|                   | V1                | 34                    | 34   | 40   | 5         | 5    | 11   |
| Input current (A) | V5                | 0,30                  | 0,30 | 0,32 | 0,18      | 0,18 | 0,40 |
|                   | V4                | 0,21                  | 0,21 | 0,29 | 0,09      | 0,09 | 0,28 |
|                   | V3                | 0,19                  | 0,19 | 0,24 | 0,07      | 0,07 | 0,17 |
|                   | V2                | 0,18                  | 0,18 | 0,22 | 0,04      | 0,04 | 0,13 |
|                   | V1                | 0,17                  | 0,17 | 0,21 | 0,02      | 0,02 | 0,10 |

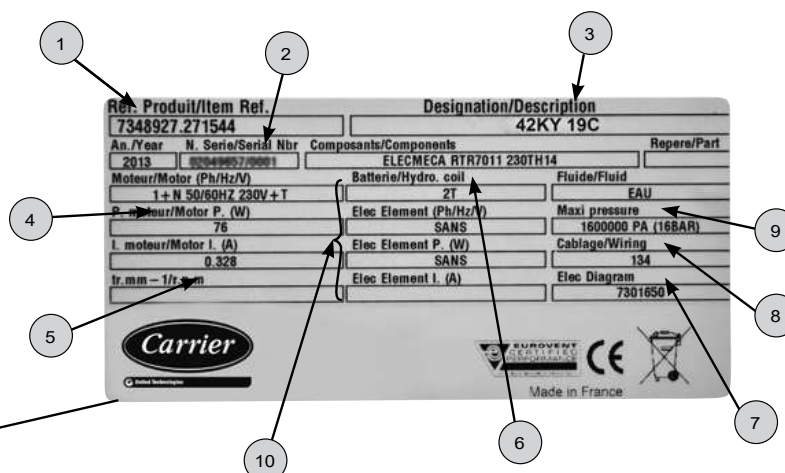
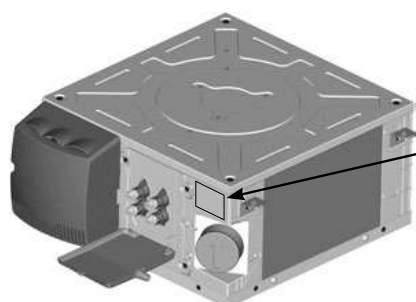
**NB:** Specifications given for a 230 V +/-10% - 50 Hz power supply.

- For operation at 60Hz, the power input and rotation speed values are generally higher.

- Motor operating range: min. return T°C: 0°C, max. return T°C: 40°C Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is placed on the technical side that has all the connections, above the fresh air inlet.

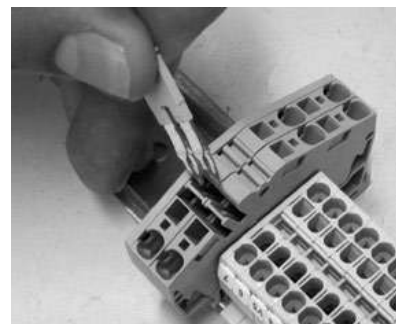
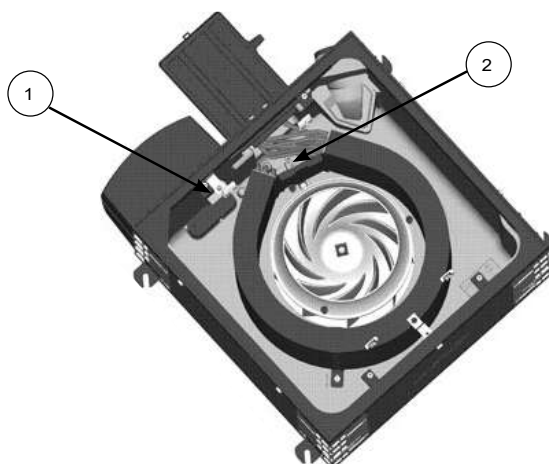
- ① Code
- ② Serial number
- ③ Description of the unit
- ④ Rated motor power
- ⑤ Motor rotation speed
- ⑥ Coil type
- ⑦ Wiring diagram reference
- ⑧ Motor speed wiring
- ⑨ Maximum operating pressure
- ⑩ Electric heater specifications (if fitted)



## TECHNICAL SPECIFICATIONS

### Electrical heaters

2 single-tube 230/1/50 electrical elements inserted into the aluminium housing and bent around the hydraulic coil.



Remove shunt to deactivate a heater (reduction of 300w)

- ① Temperature limiter with manual reset
- ② Temperature limiter with automatic reset

### Electrical heater specifications - Input voltage 230V - 1 ph - 50Hz

| 42KY cassette        | 10/19 | 20/29 | 30/39 |
|----------------------|-------|-------|-------|
| Electrical power (W) | -     | 900   | 1200  |
| Input current (A)    | -     | 3.6   | 4.8   |

### Limitations of use

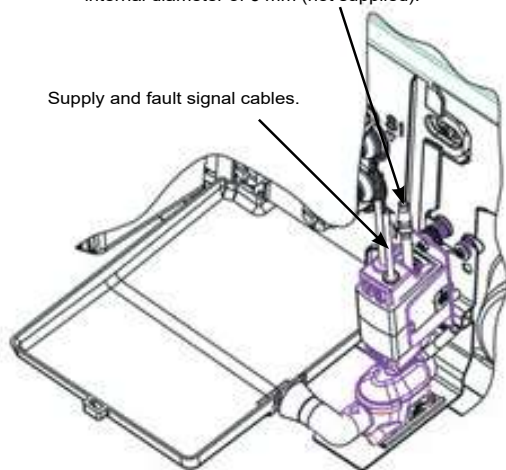
|                    |                                   |  |
|--------------------|-----------------------------------|--|
| 42KY cassette      | Operating pressure<br>max. 16 Bar | Minimum water inlet temperature: 6°C   |
|                    |                                   | Maximum water inlet temperature:   |
|                    |                                   | 4-tube coil: 80°C  |
|                    |                                   | 2-tube coil: 70°C  |
|                    |                                   | 2-tube coil + electric heater: 55°C (min air flow rate 200m <sup>3</sup> /h) |
| Indoor temperature | -                                 | Minimum temperature: 5°C   |
|                    | -                                 | Maximum temperature: 40°C  |
| Power supply       | Nominal usage limitations         | Min 207 - Max 253 V for units without electrical heater                      |
|                    |                                   | Min 216 - Max 244 V for units with electrical heater                         |

## OPTIONS (FACTORY ASSEMBLED)

### Condensate drain pump

The pump discharge must be connected to the wastewater pipe by a flexible tube with an internal diameter of 6 mm (not supplied).

Supply and fault signal cables.



|  |  |
|--|--|
| <b>Maximum flow rate</b>   | 10.4 l/h   |
| <b>Maximum discharge height</b>  | 7 m (flow rate 4 l/h)  |
| <b>Maximum pressure</b>  | 10 m (flow rate 0 l/h)                                       |
| <b>Sound level at 1 m in accordance with EN ISO 3744 and 4871 (measurements taken at LNE, pump in water, outside of application)</b> | 20.2 dBA   |
| <b>Power supply</b>  | 230V +10%/-15% - 50/60Hz - 19W                               |
| <b>Electric insulation class</b>   | Class 1  |
| <b>Detection levels</b>  | ON: 14.7 mm, OFF: 10.7 mm, AL: 17 mm                         |
| <b>Safety switch</b>   | NF: 5A resistance - 250V<br>AgNI 90/10 gold-plated contacts. |
| <b>Thermal protection (overheating)</b>  | 70°C (automatic restart)                                     |
| <b>Operating cycle (operating factor)</b>  | 100%   |
| <b>Protection (as per NF EN 60529)</b>   | IP64   |
| <b>Safety standard</b>   | CE   |
| <b>RoHS directive</b>  | Compliant  |
| <b>WEEE directive</b>  | Compliant  |

| Pump performance<br>Water flow in litres per hour (-15% / +20%) |   |           |           |           |
|---|---|-----------|-----------|-----------|
| Discharge height  | Horizontal length of the discharge pipe |           |           |           |
|   | 5 metres                                | 10 metres | 20 metres | 30 metres |
| 1 metre   | 10,4                                    | 9,1       | 8,3       | 7,3       |
| 2 metres  | 8,5                                     | 7,8       | 7         | 6,4       |
| 3 metres  | 7,9                                     | 7,1       | 6,3       | 5,8       |
| 4 metres  | 7                                       | 6         | 5,3       | 4,9       |

Operating limit:

Drain: flexible tube int. Ø 6 mm, end piece Ø 8.8 mm. This accessory must be paired with a valve control to allow the upper safety limit to control the valve's closure (stopping condensate).

$$\text{Condensate flow rate (l/h)} = \frac{\text{Total capacity} - \text{Sensible capacity (W)}}{680}$$

### Accessories (available separately)

| Description   |               |
|---|---------------|
| Condensate drain pump kit   |               |
| Elastic dampers (4 per device)  |               |
| Lift kit  |               |
| Self adjusting module kit, diameter 100 mm  | 15/30/45 m³/h |
|   | 60/75/90 m³/h |
| AN adapter kit, diameter 100/125 mm   |               |
| Frame kit for suspended ceiling 675x675   |               |
| LEC motor speed control 3 speed ON/OFF unit kit<br>(only for thermostat or controllers not from CARRIER that have 3 x 230V speed outputs) |               |
| Description   |               |
| Condensate drain pump   |               |
| Lift kit  |               |
| Frame for 675 x 675 suspended ceiling tiles   |               |
| Finishing trim frame for STAFF ceilings   |               |
| Hydraulic coil with protected blades  |               |



Versatile  
unit meeting all building-  
specific constraints

Energy and ecodesign  
performance.

Improved occupant comfort,  
very low sound level

Innovative design ensuring  
easy installation and  
simplified maintenance

# 42N 42NC-42NR-42ND-42NI-42NU

Total cooling capacity 0,7– 8,7kW  
Nominal heating capacity 1,0– 9,15kW

Designed for heating and cooling, the new 42N is available in 2 models (cased or uncased).

The versatility of the new 42N, thanks to its different assembly options and range of accessories, means it can be adapted to any type of installation.

In Europe, it has become a benchmark solution for renovations of large office blocks and hotel chains and restoration of buildings, etc.

Modern aesthetic lines, excellent sound levels and optimised thermal performance. With its new 42N range, CARRIER offers a comfort solution which is both economical and quick to set up.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## MORPHO CODES

| Range & Model |   |   |   | Size   | Coil efficiency | motor type | Coil Type | Control  | Valve | Electrical heater | Actuators | Supply Rect. flange   | Sensors | Drain pump |
|---------------|---|---|---|--|-----------------|------------|-----------|--|-------|-------------------|-----------|---|---------|------------|
| 4             | 2 | N | C | 1  | 2               | 9          | F         | A  | G     | A                 | A         | -   | -       | -          |
| 1             | 2 | 3 | 4 | 5  | 6               | 7          | 8         | 9  | 10    | 11                | 12        | 13  | 14      | 15         |
|               |   |   |   | <b>Digit 5</b><br>1 Size 1<br>2 Size 2<br>3 Size 3<br>4 Size 4<br>5 Size 5<br>6 Size 6   |                 |            |           |  |       |                   |           |   |         |            |
|               |   |   |   | <b>Digit 1-2-3-4</b><br>42NC = Standard cabinet<br>42NR = Cabinet with front return grill<br>42ND = Standard concealed<br>42NI = Concealed with plenum in-line<br>42NU = Concealed with U_plenum |                 |            |           |  |       |                   |           | <b>Digit 14</b><br>- = Without<br>A = Air return sensor (only for digit 9 = W)<br>B = Change/over sensor (only for digit 8 = F/G, digit 9 = V/W, digit 10 = H)<br>C = Air return + change over sensor (only for digit 8 = F/G, digit 9 = W, digit 10 = H)   |         |            |
|               |   |   |   | <b>Digit 6</b><br>1 low efficiency<br>2 medium efficiency<br>3 standard efficiency<br>4 high efficiency  |                 |            |           |  |       |                   |           |   |         |            |
|               |   |   |   | <b>Digit 7</b><br>5 AC motor 5 speed<br>6 <sup>(1)</sup> AC Motor 3 speed<br>9 EC motor 10 -10V  |                 |            |           |  |       |                   |           |   |         |            |
|               |   |   |   |  |                 |            |           | <b>Digit 8</b><br>F = 2 pipes - Left hand<br>G = 2 pipes - Right hand<br>C = 4 pipes - Left hand<br>D = 4 pipes - Right hand   |       |                   |           |   |         |            |
|               |   |   |   |  |                 |            |           | <b>Digit 9</b><br>- = NO CONTROL SUPPLIED<br>K = NTC Controller AQUASMART EVOLUTION®) without user interface<br>L = WTC Lon without user interface<br>M = WTC BACnet without user interface<br>V = 33TZ Thermostat built-in for Cabinet version (fitted) (only 42NC & 42NR)<br>W = 33TZ Thermostat wall version (not fitted)<br>T = 3-speed control EC motor |       |                   |           |   |         |            |
|               |   |   |   |  |                 |            |           | <b>Digit 11</b><br>- = No electrical heater<br>A = Electrical Heater HIGH CAPACITY<br>B = Electrical Heater LOW CAPACITY   |       |                   |           |   |         |            |
|               |   |   |   |  |                 |            |           |  |       |                   |           | <b>Digit 15</b><br>- = Without<br>P = With drain pump (for vertical installation)<br>Q = With drain pump (for horizontal installation)  |         |            |
|               |   |   |   |  |                 |            |           |  |       |                   |           | <b>Digit 13</b><br>- = Without<br>A = With rectangular flange (only for 42ND)   |         |            |
|               |   |   |   |  |                 |            |           |  |       |                   |           | <b>Digit 12</b><br>- = Sans<br>A = ON/OFF 230V ACTUATOR<br>B = ON/OFF 24V ACTUATOR (Mandatory digit 9 = - )<br>C = 230V PROPORTIONAL 3-POINTS ACTUATOR (Mandatory digit 9 = - or K/L/M)<br>D = 24V PROPORTIONAL 3-POINTS ACTUATOR (Mandatory digit 9 = - )<br>E = 0-10V ACTUATOR (Mandatory digit 9 = - ) |         |            |
|               |   |   |   |  |                 |            |           | <b>Digit 10</b><br>- = No valve<br>G = 2 ways valve<br>H = 4 ways (3 ways valve with by-pass)<br>L = 2 ways Auto balancing valve without pressure port<br>T = 2 ways Auto balancing valve with pressure drop   |       |                   |           |   |         |            |

**Nota :**

(1) Only available in Sizes 2 &amp; 3

## TECHNICAL DESCRIPTION

### Casing

- Single-unit casing and side members in ABS
- Front/rear panel in galvanised steel with mounting holes for easy fixing.

### Casing for cabinet model

Bi-material casing in two colours:

- Flange, side member and supply air grille in RAL 7035 grey ABS
- Front pressed metal panel painted RAL 9010 white and front mounted return air grille (42NR) in RAL 7035 grey
- Central access point for housing 33TZ thermostat.

### Water coil

- High performance coil concept
- Coil casing in galvanised panels.
- Copper pipes, aluminium louvre or non-louvre fins, patented.
- Water coil tap on the left or right of the unit from the front of the supply air (to be specified when ordering).
- 2 or 4-pipe main coil fitted with  $\frac{1}{2}$ " or  $\frac{3}{4}$ " rotary couplings with air purge and drain screw.
- Additional coil for 4 pipes fitted with  $\frac{1}{2}$ " rotary couplings with 40 mm centre-to-centre distance.
- Nominal pressure of 16 bar (at 20°C)
- Test pressure 18 bar.
- Maximum hot water inlet temperature:
  - 4-pipe application: 90°C
  - 2-pipe application: 90°C
  - 2-pipe/2-wire application: 55°C (min. air flow: 200 m<sup>3</sup>/h)

### Electric heater

- Single pipe 230V single phase 50/60 Hz electrical elements inserted into the aluminium housing.
- Two capillary tube temperature limiters with manual and automatic reset inserted in the aluminium housing.

### Condensate drain pan

- Pan in ABS PC 10% fibreglass with M1 class reinforced EPS insulation (20 mm thick).
- Reinforced insulation for all climates, M1 class EPS panel (20 mm thick).
- Auxiliary drain pan in ABS.
- 22 mm external Ø raised condensate outlet.

### Fan motor assembly

- Fan(s)

Impeller(s) in ABS in split units for total accessibility of the different parts of the fan motor assembly.

160 mm impeller(s), with exclusive airfoil blades in self-extinguishable HB ABS.

- EC motor

High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.

- Brushless technology.
- Sealed type, tropicalised with protected shaft.
- Progressive control with 0-10V control signal.
- Internal normally closed series automatic overload protection on the windings.
- Mounted on anti-vibration mounts.
- Supply 230V±10%/1-Ph/50-60 Hz.

**Note: The minimum voltage to start up the motor is 2V.**

- Asynchronous motor
  - 5 factory-fitted wired speeds (connected and available at the terminal) for customised adjustment.
  - Sealed, tropicalised type, class F with protected shaft.
  - Permanent capacitor.
  - Ball bearings.
  - Automatic overload protection as standard on winding.
  - Resilient mounts.
  - 230V single-phase 50/60 Hz power supply, reduced consumption.
  - 3-speed asynchronous motor available on sizes 2 and 3.



## TECHNICAL DESCRIPTION

### Electrics box

- Box incorporated on the side of the base opposite the hydraulics.
- Fully encased in an enclosure in PP 20% Talc.
- Electrical connection terminal on DIN rail in compliance with EN 50022, 7,5 mm deep.
- Wire clamps for customer connection.

### Air filter

- Flexible filter medium made of regenerative polyester fibre, on rigid frame.
- Efficiency class EN 779: G3.
- Fire rating: M1.
- Mounted on pivoting runners for easy maintenance

### Packaging

- Delivered in individual boxes on pallets protected by stretch wrap film.

### Controls

- Electronic thermostat : 33TZ (built-in thermostat for vertical model with or without casing or available in wall mounted for all models ) & 33TA/B/C/D (available from ERCD in wall mounted only).
- Networked electronic range (CCN): NTC.
- Networked electronic range (LON or BacNET): WTC.

### Factory-fitted options

- Condensate drain pump.
- Rectangular supply air sleeve for direct distribution in soffit.
- Supply and return air plenum : in line for model 42NI and lateral U for model 42NU for sizes 2 to 4.
- Hydraulic coil with blades protected for use in harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).
- 3-speed EC motor for subsequent integration (on-site - not factory-fitted) of a 33TZ thermostat or for operation with a thermostat or a 3-speed control.

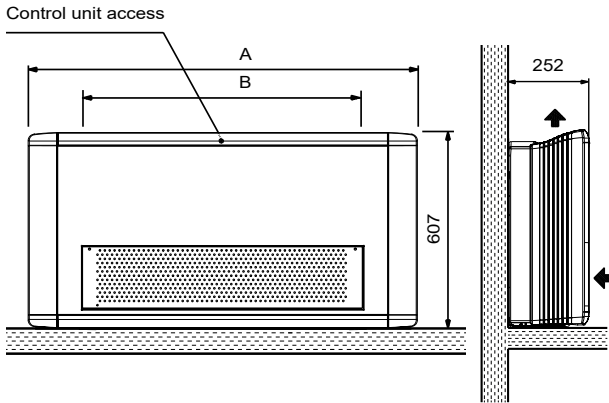
### Accessories supplied separately

- Support feet or base
- Return air grille between feet
- Rear skirting support and rear painted panel
- Single- or dual-deflection diffusion grille
- Supply air plenum in kit for sizes 1 to 6 diameter 200 mm or 160 mm for sizes 1 to 5
- Resilients mounts (lot of 4 pcs)

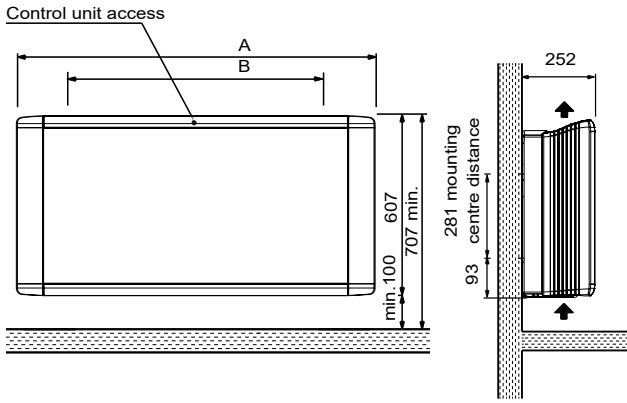
**Note: refer to the technical manual and the instruction manual for more information.**

# ASSEMBLY AND DIMENSIONS – CABINET MODEL (VERTICAL APPLICATION)

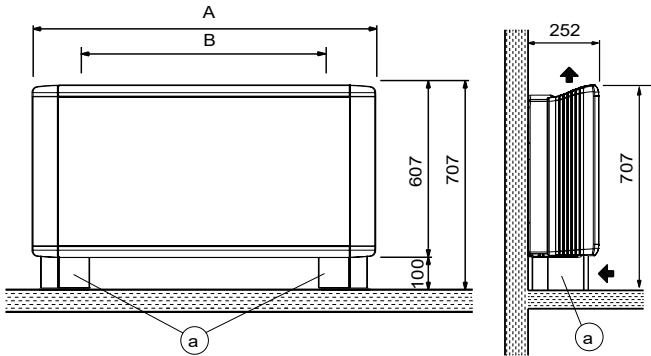
## 42NR: Unit with return on front



## 42NC: Basic unit with return underneath

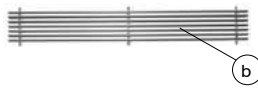


## 42NC + feet: Basic unit with feet

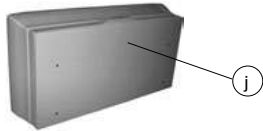


### Options available with feet:

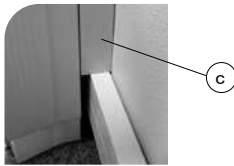
- Base mounted grille



- Rear painted panel



- Rear skirting support



### Accessories for assembly configurations (supplied separately)

- a: Support feet
- b: Aluminium return air grille between feet
- c: Painted rear skirting support
- j: Rear painted panel RAL 7035

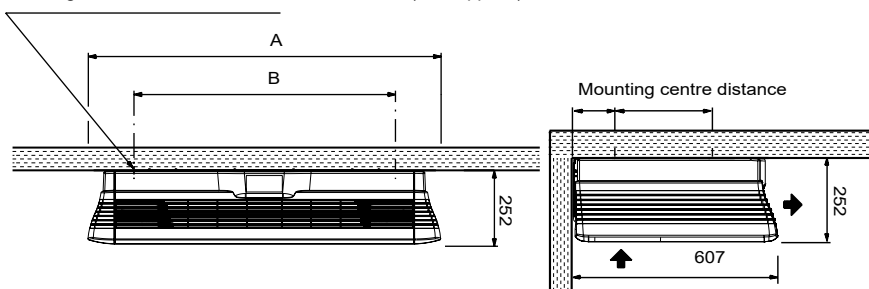
| Sizes | A    | B<br>mounting centre distance | Weight (kg) <sup>(1)</sup> |
|-------|------|-------------------------------|----------------------------|
| 1     | 840  | 505                           | 20                         |
| 2     | 1000 | 665                           | 23                         |
| 3     | 1200 | 865                           | 28                         |
| 4     | 1400 | 1065                          | 34                         |
| 5     | 1600 | 1265                          | 39                         |
| 6     | 1800 | 1465                          | 44                         |

(1) Weight of the unit in 4-pipe version (without valves)

## ASSEMBLY AND DIMENSIONS – CABINET MODEL (HORIZONTAL APPLICATION)

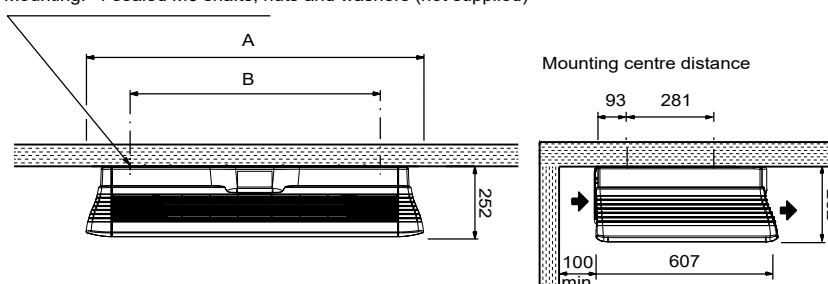
### 42NR: Unit with return on front

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



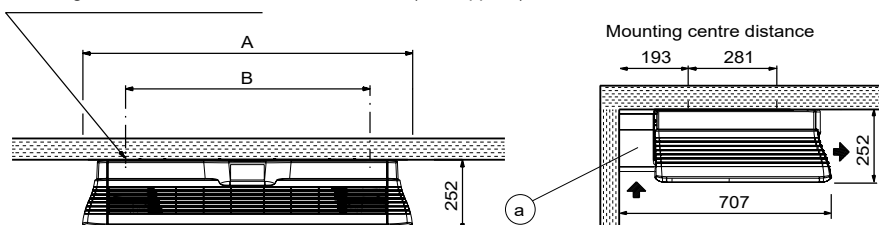
### 42NC: Basic unit

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



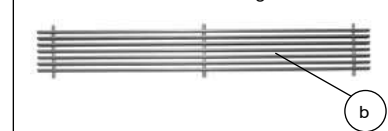
### 42NC + feet: Basic unit with feet

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Option available with feet:

- Base mounted grille



Accessories for assembly configurations (supplied separately)

a: Support feet

b: Aluminium internal return air grille between feet

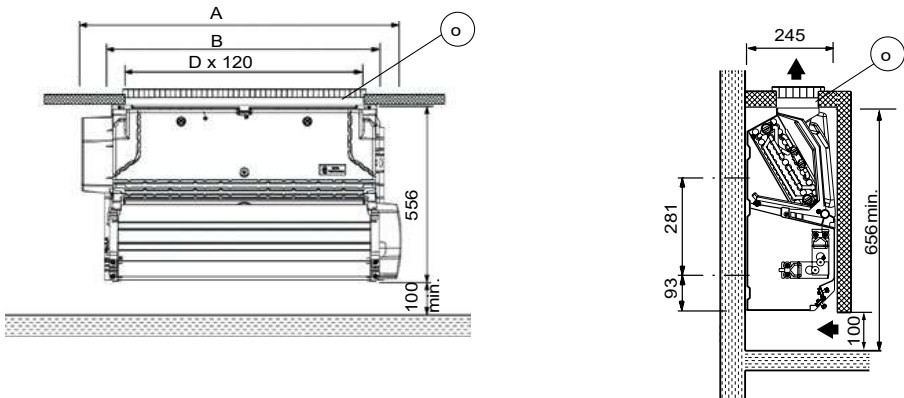
**Note: with feet the condensate drain pump must be used.**

| Sizes | A    | B<br>mounting centre distance | Weight (kg) <sup>(1)</sup> |
|-------|------|-------------------------------|----------------------------|
| 1     | 840  | 505                           | 20                         |
| 2     | 1000 | 665                           | 23                         |
| 3     | 1200 | 865                           | 28                         |
| 4     | 1400 | 1065                          | 34                         |
| 5     | 1600 | 1265                          | 39                         |
| 6     | 1800 | 1465                          | 44                         |

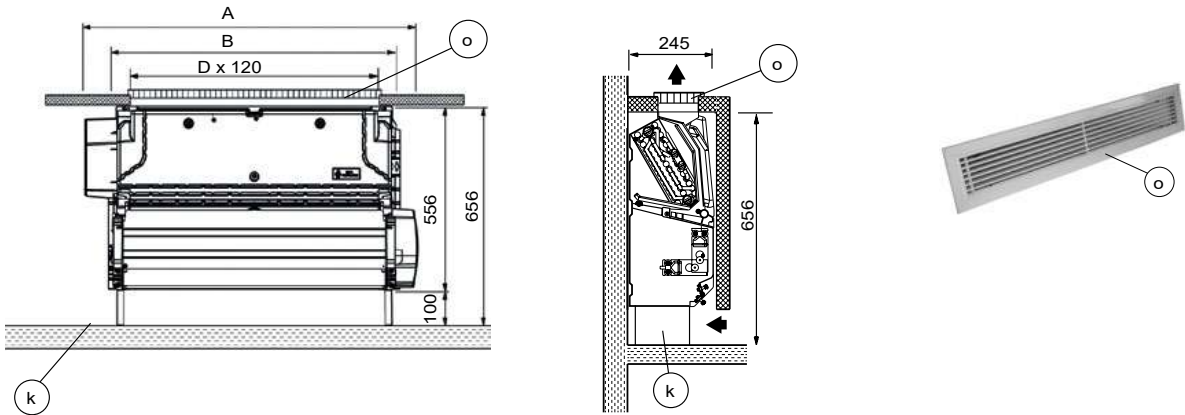
(1) Weight of heaviest unit in 4-pipe configuration

# ASSEMBLY AND DIMENSIONS – CONCEALED MODEL (VERTICAL APPLICATION)

## 42ND: Basic unit with bottom-mounted return



## 42ND + support: Basic unit with support base



### Accessories for assembly configurations (supplied separately)

- k: Support base
- o: Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).

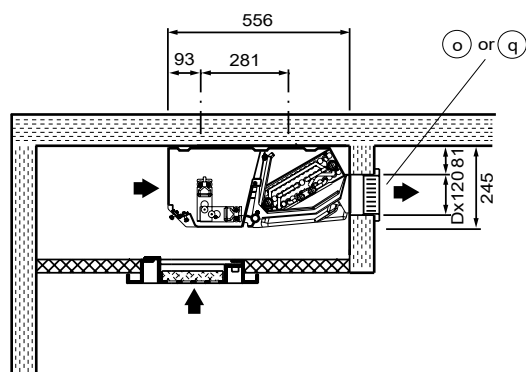
**Note: this grille can be used for both return and supply air.**

| Sizes | A    | B<br>mounting centre distance | D<br>grille space | Weight (kg) <sup>(1)</sup> |
|-------|------|-------------------------------|-------------------|----------------------------|
| 1     | 652  | 505                           | 355               | 15                         |
| 2     | 812  | 665                           | 515               | 18                         |
| 3     | 1012 | 865                           | 715               | 22                         |
| 4     | 1212 | 1065                          | 915               | 28                         |
| 5     | 1412 | 1265                          | 1115              | 32                         |
| 6     | 1612 | 1465                          | 1315              | 36                         |

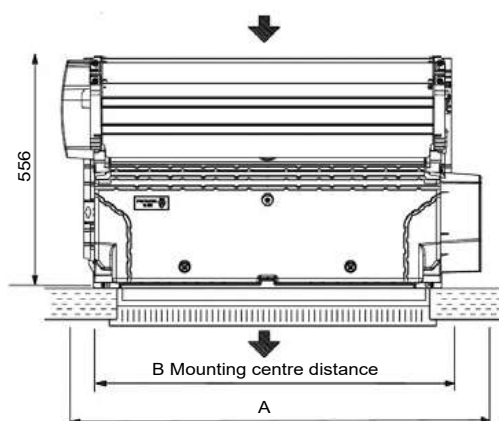
(1) Weight of the unit in 4-pipe version (without valves)

## ASSEMBLY AND DIMENSIONS – HORIZONTAL CONCEALED MODEL

### 42ND: Unit with return on front



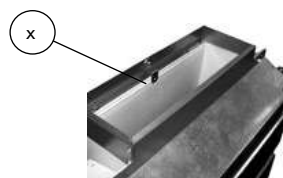
View from beneath



Option available  
- Aluminium single (o) or double (q) deflection  
diffusion grille with sealing frame



- Metal sleeve for connection to air discharge



#### Accessories for assembly configurations (supplied separately)

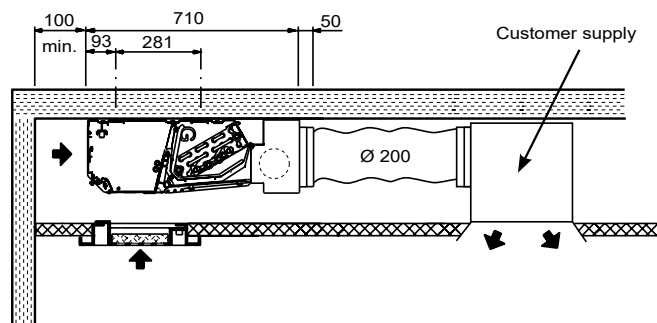
- o: Aluminium single deflection diffusion grille with sealing frame.
- q: Aluminium double deflection diffusion grille with sealing frame
- x: Metal sleeve connecting rectangular sleeve to supply air

| Size | A    | B<br>mounting centre distance | D<br>grille space | Weight (kg) <sup>(1)</sup> |
|------|------|-------------------------------|-------------------|----------------------------|
| 1    | 652  | 505                           | 355               | 15                         |
| 2    | 812  | 665                           | 515               | 18                         |
| 3    | 1012 | 865                           | 715               | 22                         |
| 4    | 1212 | 1065                          | 915               | 28                         |
| 5    | 1412 | 1265                          | 1115              | 32                         |
| 6    | 1612 | 1465                          | 1315              | 36                         |

(1) Weight of the unit in 4-pipe version (without valves)

## ASSEMBLY AND DIMENSIONS – HORIZONTAL CONCEALED MODEL

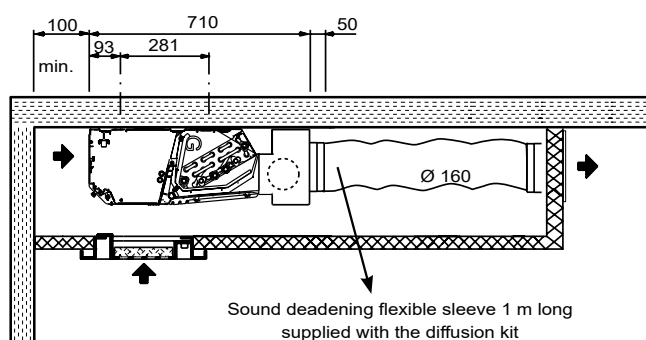
### 42ND + kit supply plenum Ø 200 mm:



Supply air plenum delivered not fitted. Available for sizes 1 to 6

| Size | Number of collars | Ø of collars |
|------|-------------------|--------------|
| 1    | 1                 | 200          |
| 2    | 1                 | 200          |
| 3    | 2                 | 200          |
| 4    | 3                 | 200          |
| 5    | 3                 | 200          |
| 6    | 3                 | 200          |

### 42ND + kit supply plenum Ø 160 mm:

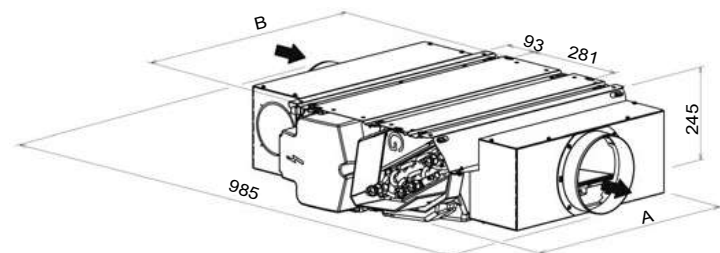


Supply air plenum delivered not fitted. Available for sizes 1 to 5

| Size | Number of collars | Ø of collars |
|------|-------------------|--------------|
| 1    | 1                 | 160          |
| 2    | 1                 | 160          |
| 3    | 2                 | 160          |
| 4    | 3                 | 160          |
| 5    | 3                 | 160          |

### 42NI :

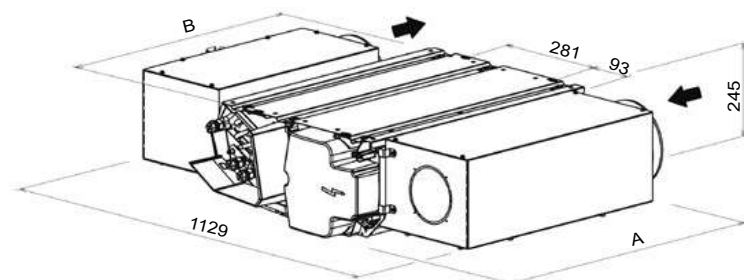
Supply and return air plenum factory-fitted with Ø 200 mm spigots available for sizes 2 to 4



| Size | A    | B    | Number of collars |
|------|------|------|-------------------|
| 2    | 760  | 665  | 1                 |
| 3    | 960  | 865  | 2                 |
| 4    | 1160 | 1065 | 3                 |

### 42NU:

Supply and return air plenum factory-fitted with Ø 200 mm spigots available for sizes 2 to 4



| Size | A    | B    | Number of collars |
|------|------|------|-------------------|
| 2    | 770  | 665  | 1                 |
| 3    | 970  | 865  | 1                 |
| 4    | 1170 | 1065 | 1                 |



## PERFORMANCE – 2-PIPES SYSTEM

## Eurovent conditions

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)

Heating operation: water temperature: 45/40 °C, inlet air temperature: 20 °C

| Sizes                    | AC motor<br>Motor speed | EC motor<br>Voltage (V) | Air Flow<br>(m³/h) | Cooling cap.<br>W |          | Heating capacity<br>W | Sound power LW<br>dB(A) | Electric consumption W |          | Electric heater   |                    |
|--------------------------|-------------------------|-------------------------|--------------------|-------------------|----------|-----------------------|-------------------------|------------------------|----------|-------------------|--------------------|
|                          |                         |                         |                    | Total             | Sensible |                       |                         | AC Motor               | EC Motor | Low capacity<br>W | High capacity<br>W |
| 42N-115F/G<br>42N-119F/G | V4                      | 4,6                     | 265                | 1 040             | 990      | 1 530                 | 46                      | 24                     | 10       | 300               | 600                |
|                          | V3                      | 3,9                     | 225                | 880               | 830      | 1 360                 | 41                      | 19                     | 6        |                   |                    |
|                          | V1                      | 2,8                     | 165                | 710               | 660      | 1 030                 | 33                      | 12                     | 5        |                   |                    |
| 42N-135F/G<br>42N-139F/G | V4                      | 5                       | 265                | 1 390             | 1 130    | 1 880                 | 46                      | 25                     | 11       | 300               | 600                |
|                          | V3                      | 4,2                     | 225                | 1 200             | 970      | 1 600                 | 42                      | 19                     | 8        |                   |                    |
|                          | V1                      | 2,9                     | 165                | 850               | 670      | 1 160                 | 36                      | 11                     | 5        |                   |                    |
| 42N-215F/G<br>42N-219F/G | V4                      | 4,8                     | 415                | 1 760             | 1 690    | 2 500                 | 50                      | 42                     | 15       | 500               | 1000               |
|                          | V3                      | 4,3                     | 370                | 1 620             | 1 540    | 2 330                 | 47                      | 40                     | 12       |                   |                    |
|                          | V1                      | 2,7                     | 230                | 1 150             | 1 050    | 1 550                 | 36                      | 33                     | 5        |                   |                    |
| 42N-235F/G<br>42N-239F/G | V4                      | 4,8                     | 410                | 2 140             | 1 800    | 2 690                 | 50                      | 42                     | 15       | 500               | 1000               |
|                          | V3                      | 4,3                     | 365                | 1 910             | 1 640    | 2 430                 | 46                      | 40                     | 12       |                   |                    |
|                          | V1                      | 2,7                     | 225                | 1 320             | 1 120    | 1 670                 | 35                      | 33                     | 5        |                   |                    |
| 42N-236F/G               | V3                      | -                       | 788                | 4 170             | 3 310    | 4 980                 | 65                      | 98                     | -        | 500               | 1000               |
|                          | V2                      | -                       | 532                | 3 190             | 2 440    | 3 650                 | 57                      | 82                     | -        |                   |                    |
|                          | V1                      | -                       | 367                | 2 420             | 1 800    | 2 670                 | 47                      | 59                     | -        |                   |                    |
| 42N-245F/G<br>42N-249F/G | V4                      | 4,8                     | 410                | 2 420             | 1 960    | 2 960                 | 50                      | 42                     | 15       |                   |                    |
|                          | V3                      | 4,3                     | 365                | 2 190             | 1 770    | 2 650                 | 47                      | 40                     | 12       |                   |                    |
|                          | V1                      | 2,7                     | 225                | 1 480             | 1 150    | 1 740                 | 36                      | 33                     | 5        |                   |                    |
| 42N-315F/G<br>42N-319F/G | V4                      | 5,3                     | 645                | 2 720             | 2 150    | 3 410                 | 53                      | 53                     | 26       | 800               | 1600               |
|                          | V3                      | 4,4                     | 535                | 2 390             | 1 870    | 2 960                 | 47                      | 47                     | 17       |                   |                    |
|                          | V1                      | 2,2                     | 230                | 1 380             | 1 030    | 1 670                 | 29                      | 36                     | 4        |                   |                    |
| 42N-325F/G<br>42N-329F/G | V4                      | 5,3                     | 645                | 3 160             | 2 620    | 3 840                 | 53                      | 53                     | 26       |                   |                    |
|                          | V3                      | 4,4                     | 535                | 2 760             | 2 250    | 3 180                 | 47                      | 47                     | 17       |                   |                    |
|                          | V1                      | 2,2                     | 230                | 1 300             | 1 080    | 1 680                 | 29                      | 36                     | 4        |                   |                    |
| 42N-335F/G<br>42N-339F/G | V4                      | 5,3                     | 620                | 3 510             | 2 700    | 4 280                 | 53                      | 53                     | 26       | 800               | 1600               |
|                          | V3                      | 4,4                     | 505                | 3 050             | 2 340    | 3 590                 | 47                      | 47                     | 17       |                   |                    |
|                          | V1                      | 2,2                     | 220                | 1 370             | 1 060    | 1 690                 | 29                      | 36                     | 4        |                   |                    |
| 42N-336F/G               | V3                      | -                       | 1062               | 5 210             | 4 230    | 6 410                 | 64                      | 117                    | -        | 800               | 1600               |
|                          | V2                      | -                       | 777                | 4 250             | 3 350    | 5 040                 | 57                      | 91                     | -        |                   |                    |
|                          | V1                      | -                       | 558                | 3 360             | 2 580    | 3 840                 | 49                      | 66                     | -        |                   |                    |
| 42N-435F/G<br>42N-439F/G | V4                      | 6,8                     | 1030               | 5 750             | 4 480    | 6 310                 | 60                      | 102                    | 59       | 1200              | 2400               |
|                          | V3                      | 5,4                     | 805                | 4 740             | 3 590    | 5 150                 | 55                      | 87                     | 31       |                   |                    |
|                          | V1                      | 3,2                     | 445                | 2 910             | 2 160    | 3 170                 | 41                      | 68                     | 10       |                   |                    |
| 42N-535F/G<br>42N-539F/G | V4                      | 7,1                     | 1120               | 6 150             | 4 840    | 6 950                 | 60                      | 94                     | 60       | 1600              | 3200               |
|                          | V3                      | 5,8                     | 910                | 5 350             | 4 100    | 5 740                 | 55                      | 80                     | 35       |                   |                    |
|                          | V1                      | 3,6                     | 535                | 3 440             | 2 620    | 3 660                 | 42                      | 64                     | 11       |                   |                    |
| 42N-645F/G<br>42N-649F/G | V4                      | 7,8                     | 1350               | 7 990             | 5 970    | 8 590                 | 63                      | 122                    | 87       |                   |                    |
|                          | V3                      | 7,1                     | 1210               | 7 420             | 5 550    | 7 870                 | 61                      | 118                    | 65       |                   |                    |
|                          | V1                      | 4,4                     | 730                | 5 070             | 3 770    | 5 230                 | 49                      | 105                    | 18       |                   |                    |

**Important: the air supply temperature should not exceed 65°C (CARRIER recommendation).****CARRIER participates in the ECP program for Fan Coil Units :**

The certified values are : Input voltage for variable speed units only, Total cooling Capacity, Sensible Capacity, Total heating capacity, Water Pressure Drop, Electric Motor Consumption, Lw (inlet+radiated) and Lw (outlet) for ducted units, Lw (overall) for non-ducted units and Air Flow Rate and External Static Pressure for ducted units only .

## PERFORMANCE – 4 PIPES SYSTEM

### Eurovent conditions

Cooling operation: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)

Heating operation: water temperature: 65/55°C, inlet air temperature: 20°C

| Sizes                    | AC motor<br>Motor speed | EC motor<br>Voltage (V) | Air Flow<br>(m³/h) | Cooling cap.<br>W |          | Heating capacity<br>W | Sound power LW<br>dB(A) | Electric consumption W |          |
|--------------------------|-------------------------|-------------------------|--------------------|-------------------|----------|-----------------------|-------------------------|------------------------|----------|
|                          |                         |                         |                    | Total             | Sensible |                       |                         | AC Motor               | EC Motor |
| 42N-135C/D<br>42N-139C/D | V4                      | 5,0                     | 260                | 1 390             | 1 130    | 1 130                 | 46                      | 25                     | 11       |
|                          | V3                      | 4,2                     | 215                | 1 200             | 970      | 1 030                 | 42                      | 19                     | 8        |
|                          | V1                      | 2,9                     | 140                | 850               | 670      | 850                   | 36                      | 11                     | 5        |
| 42N-235C/D<br>42N-239C/D | V4                      | 4,8                     | 410                | 2 130             | 1 850    | 1 860                 | 50                      | 42                     | 15       |
|                          | V3                      | 4,3                     | 365                | 1 940             | 1 660    | 1 760                 | 46                      | 40                     | 12       |
|                          | V1                      | 2,7                     | 225                | 1 320             | 1 120    | 1 390                 | 35                      | 33                     | 5        |
| 42N-236C/D               | V3                      | -                       | 788                | 3 900             | 3 200    | 2 500                 | 65                      | 98                     | -        |
|                          | V2                      | -                       | 532                | 3 000             | 2 300    | 2 000                 | 57                      | 82                     | -        |
|                          | V1                      | -                       | 367                | 2 200             | 1 700    | 1 400                 | 47                      | 59                     | -        |
| 42N-245C/D<br>42N-249C/D | V4                      | 4,8                     | 410                | 1 910             | 1 740    | 3 420                 | 50                      | 42                     | 15       |
|                          | V3                      | 4,3                     | 365                | 1 720             | 1 560    | 3 250                 | 46                      | 40                     | 12       |
|                          | V1                      | 2,7                     | 225                | 1 200             | 1 090    | 2 470                 | 35                      | 33                     | 5        |
| 42N-335C/D<br>42N-339C/D | V4                      | 5,3                     | 620                | 3 310             | 2 690    | 2 980                 | 53                      | 53                     | 26       |
|                          | V3                      | 4,4                     | 505                | 2 790             | 2 280    | 2 650                 | 47                      | 47                     | 17       |
|                          | V1                      | 2,2                     | 220                | 1 200             | 1 040    | 1 540                 | 29                      | 36                     | 4        |
| 42N-336C/D               | V3                      | -                       | 1062               | 5 210             | 4 000    | 6 100                 | 64                      | 117                    | -        |
|                          | V2                      | -                       | 777                | 4 700             | 3 700    | 5 200                 | 57                      | 91                     | -        |
|                          | V1                      | -                       | 558                | 3 800             | 3 100    | 4 200                 | 49                      | 66                     | -        |
| 42N-345C/D<br>42N-349C/D | V4                      | 5,3                     | 620                | 2 930             | 2 390    | 4 730                 | 53                      | 53                     | 26       |
|                          | V3                      | 4,4                     | 505                | 2 550             | 2 040    | 4 150                 | 47                      | 47                     | 17       |
|                          | V1                      | 2,2                     | 220                | 1 180             | 960      | 2 130                 | 29                      | 36                     | 4        |
| 42N-435C/D<br>42N-439C/D | V4                      | 6,8                     | 1030               | 5 480             | 4 300    | 4 110                 | 60                      | 102                    | 59       |
|                          | V3                      | 5,4                     | 805                | 4 650             | 3 570    | 3 600                 | 55                      | 87                     | 31       |
|                          | V1                      | 3,2                     | 445                | 2 940             | 2 190    | 2 610                 | 41                      | 68                     | 10       |
| 42N-445C/D<br>42N-449C/D | V4                      | 6,8                     | 1030               | 4 910             | 4 080    | 5 720                 | 60                      | 102                    | 59       |
|                          | V3                      | 5,4                     | 805                | 4 150             | 3 380    | 4 990                 | 55                      | 87                     | 31       |
|                          | V1                      | 3,2                     | 445                | 2 650             | 2 070    | 3 600                 | 41                      | 68                     | 10       |
| 42N-535C/D<br>42N-539C/D | V4                      | 7,1                     | 1120               | 5 880             | 4 810    | 5 770                 | 60                      | 94                     | 60       |
|                          | V3                      | 5,8                     | 910                | 4 980             | 4 070    | 5 090                 | 55                      | 80                     | 35       |
|                          | V1                      | 3,6                     | 535                | 3 330             | 2 590    | 3 790                 | 42                      | 64                     | 11       |
| 42N-635C/D<br>42N-639C/D | V4                      | 7,8                     | 1250               | 8 150             | 6 040    | 9 150                 | 64                      | 120                    | 82       |
|                          | V3                      | 7,1                     | 1120               | 7 460             | 5 550    | 8 160                 | 62                      | 117                    | 61       |
|                          | V1                      | 4,5                     | 680                | 4 960             | 3 670    | 6 270                 | 50                      | 105                    | 19       |

### CARRIER participates in the ECP program for Fan Coil Units :

The certified values are : Input voltage for variable speed units only, Total cooling Capacity, Sensible Capacity, Total heating capacity, Water Pressure Drop, Electric Motor Consumption, Lw (inlet+radiated) and Lw (outlet) for ducted units, Lw (overall) for non-ducted units and Air Flow Rate and External Static Pressure for ducted units only .

## TECHNICAL CHARACTERISTICS

### Coil capacity (litres)

|               |                        | 115/119 | 135/139 | 215/219 | 235/239 | 245/249 | 315/319 | 325/329 | 335/339 | 435/439 | 535/539 | 645/649 |
|---------------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2-pipe system | Hot or cold water coil | 0,23    | 0,33    | 0,30    | 0,45    | 0,53    | 0,40    | 0,47    | 0,63    | 0,84    | 1,03    | 1,33    |

|               |                 | 135/139 | 235/239 | 245/249 | 335/339 | 345/349 | 435/439 | 445/449 | 535/539 | 635/639 |
|---------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 4-pipe system | Cold water coil | 0,33    | 0,45    | 0,36    | 0,60    | 0,52    | 0,71    | 0,72    | 1,11    | 1,32    |
|               | Hot water coil  | 0,075   | 0,098   | 0,19    | 0,13    | 0,21    | 0,22    | 0,24    | 0,274   | 0,47    |

### Coil connection diameters

- Coil connection type: rotary couplings with flat face;
- Valve connection type: install flush fit male threaded unions.

|               |                        | 115/119 | 135/139 | 215/219 | 235/239 | 245/249 | 315/319 | 325/329 | 335/339 | 435/439 | 535/539 | 645/649 |
|---------------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2-pipe system | Hot or cold water coil | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G3/4"   | G3/4"   |

|               |                 | 135/139 | 235/239 | 245/249 | 335/339 | 345/349 | 435/439 | 445/449 | 535/539 | 635/639 |
|---------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 4-pipe system | Cold water coil | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G3/4"   | G3/4"   | G3/4"   |
|               | Hot water coil  | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   | G1/2"   |

### Motor specifications

|                                  | Motor speed | AC Motor Asynchronous ( 230V/50Hz) |             |      |                 |      |         |         |         | EC Motor Brushless ( 230V/50Hz) |             |                 |         |      |         |
|----------------------------------|-------------|------------------------------------|-------------|------|-----------------|------|---------|---------|---------|---------------------------------|-------------|-----------------|---------|------|---------|
|                                  |             | 115/135                            | 215/235/245 | 236  | 315/325/335/345 | 336  | 435/445 | 535/545 | 635/645 | 119/139                         | 219/239/249 | 319/329/339/349 | 439/449 | 539  | 639/649 |
| Power input during operation (W) | V5          | 33                                 | 58          | -    | 88              | -    | 106     | 108     | 135     | 11                              | 25          | 32              | 77      | 90   | 100     |
|                                  | V4          | 31                                 | 41          | -    | 67              | -    | 93      | 94      | 114     | 9                               | 15          | 22              | 63      | 80   | 75      |
|                                  | V3          | 29                                 | 36          | 98   | 52              | 117  | 80      | 79      | 99      | 6                               | 11          | 13              | 36      | 42   | 55      |
|                                  | V2          | 27                                 | 31          | 82   | 42              | 91   | 72      | 72      | 88      | 5                               | 8           | 7               | 21      | 26   | 32      |
|                                  | V1          | 26                                 | 27          | 59   | 35              | 66   | 63      | 63      | 77      | 4                               | 5           | 3               | 11      | 13   | 16      |
| Max. absorbed current (A)        | V5          | 0,14                               | 0,25        | -    | 0,38            | -    | 0,46    | 0,47    | 0,59    | 0,11                            | 0,2         | 0,29            | 0,62    | 0,71 | 0,74    |
|                                  | V4          | 0,13                               | 0,18        | -    | 0,29            | -    | 0,4     | 0,41    | 0,5     | 0,09                            | 0,13        | 0,2             | 50      | 0,62 | 0,67    |
|                                  | V3          | 0,13                               | 0,16        | 0,42 | 0,23            | 0,5  | 0,35    | 0,34    | 0,43    | 0,07                            | 0,11        | 0,13            | 0,3     | 0,35 | 0,44    |
|                                  | V2          | 0,12                               | 0,13        | 0,35 | 0,18            | 0,39 | 0,31    | 0,31    | 0,38    | 0,06                            | 0,09        | 0,08            | 0,19    | 0,21 | 0,27    |
|                                  | V1          | 0,11                               | 0,12        | 0,26 | 0,15            | 0,28 | 0,27    | 0,27    | 0,33    | 0,06                            | 0,06        | 0,06            | 0,11    | 0,13 | 0,16    |

**Note:** Specifications determined for 230V +/-10% - 50Hz supply.

For operation at 60 Hz, the power input and rotation speed values are generally higher. Motor operating range:  
 minimum return T°C: 0°C,  
 maximum return T°: 40°C

## TECHNICAL CHARACTERISTICS

### Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is located on the condensate pan, on the electrical connection side.

① Code

② Serial number

③ Description of the unit

④ Nominal motor output

⑤ Motor rotation speed

⑥ Coil type

⑦ Wiring diagram reference

⑧ Motor speed wiring

⑨ Maximum operating pressure

⑩ Electrical heater specifications (if fitted)

| Ref.Produit/item Ref.    |                          | Designation/Description |  |
|--------------------------|--------------------------|-------------------------|--|
| 7552742                  |                          | 42ND539FMGAA - CP       |  |
| An./Year                 | N. Serie/Serial Nbr      | Composants/Components   |  |
| 2019                     | 02786871/0001            |                         |  |
| Moteur/Motor (Ph/Hz/V)   | Batterie/Hydro. coil     | Fluide/Fluid            |  |
| 1+ N 50/60HZ 230/220V +T | 2T                       | EAU                     |  |
| P. moteur/Motor P. (W)   | Elec Element (Ph/Hz/V)   | Maxi pressure (bar)     |  |
| 118.9/142.7              | 1 + N 50/60HZ230/220V    | 1600000 PA (16BAR)      |  |
| I. moteur/Motor I. (A)   | Elec Elem. P. (W)/I. (A) | Cablage/Wiring          |  |
| 0.89/1.07                | 3200                     | SANS                    |  |
| tr.mm - 1/r.p.m          | Elec Diagram             | N° Incorporation CE     |  |
|                          | 7547562                  |                         |  |

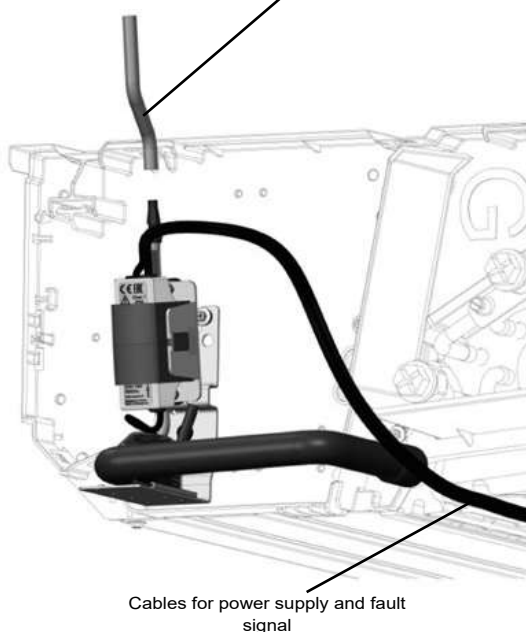
CARRIER SCS  
Route de Thil  
01122 Montluel - France  
Tel : (00 33)4 72 25 21 21

Made in France

## CONDENSATE DRAIN PUMP

### Technical characteristics

The pump outlet must be connected to the wastewater pipe by a flexible tube with an internal diameter of 6 mm (not supplied).



|  |   |
|--|---|
| Maximum flow rate  | 10,4 l/h  |
| Maximum discharge height   | 7 m (flow rate = 4 l/h)   |
| Maximum pressure   | 10 m (flow rate = 0 l/h)  |
| Sound level at 1 m in accordance with EN ISO 3744 and 4871 (Measurement taken at LNE, pump in water, outside of application) | 20,2 dBA  |
| Power supply   | 230 V +10%/-15% - 50/60 Hz - 19 W   |
| Electrical insulation class  | Class 1   |
| Detection levels   | ON: 14,7 mm, OFF: 10,7 mm, AL: 17 mm                                      |
| Safety switch  | NF: 5 A resistance - 250 V<br>Contacts made from AgNI 90/10, gold-plated. |
| Thermal protection (overheating)   | 70°C (automatic restart)  |
| Operating cycle (duty factor)  | 100%  |
| Protection (according to NF EN 60529)  | IP64  |
| Safety standard  | CE  |
| RoHS directive   | Compliant   |
| WEEE directive   | Compliant   |

#### Pump performance: Water flow rate in litres per hour (-15 %/+20 %)

| Discharge height | Horizontal length of the discharge pipe |           |           |           |
|------------------|---|-----------|-----------|-----------|
|                  | 5 metres                                | 10 metres | 20 metres | 30 metres |
| 1 metre          | 10,4                                    | 9,1       | 8,3       | 7,3       |
| 2 metres         | 8,5                                     | 7,8       | 7         | 6,4       |
| 3 metres         | 7,9                                     | 7,1       | 6,3       | 5,8       |
| 4 metres         | 7                                       | 6         | 5,3       | 4,9       |



#### Operating limit:

Drainage: ➔ 6 mm int. flexible pipe,  
➔ 8,8 mm end piece. This accessory must be paired with a valve control to allow the upper safety limit to control the valve's closure (stop condensate).











Condensate flow rate (l/h) =

$$\frac{\text{Total capacity} - \text{Sensible capacity (W)}}{680}$$

## OPTIONS (FACTORY FITTED)

| 42NC/42NR | 42ND/42NI/42NU | Figures   | Digit number | Description   |
|-----------|----------------|---|--------------|---|
| •         | •              |  | 14           | Condensate drain pump fitted to unit with high safety device. |
|           | •              |  | 13           | Metal sleeve for connection to air discharge                  |

## FACTORY ACCESSORIES (DELIVERED SEPARATELY)

| Figures   | Description  |      | SIZE 1  | SIZE 2  | SIZE 3  | SIZE 4  | SIZE 5  | SIZE 6  |
|---|--|------|---------|---------|---------|---------|---------|---------|
|    | Support feet for cased model   | Code | 7242933 |         |         |         |         |         |
|   | Internal return air grille between feet  | Code | 7242935 | 7242936 | 7242937 | 7242938 | 7242939 | 7242940 |
|  | Rear skirting support in RAL7035 light grey, 55 mm thick (for 70 mm skirting)                      | Code | 7242926 | 7242927 | 7242928 | 7242929 | 7242930 | 7242931 |
|  | Rear painted panel in RAL7035 light grey for positioning the unit by a window                      | Code | 7262703 | 7262704 | 7262705 | 7262706 | 7262707 | 7262708 |
|  | Support base for Concealed unit  | Code | 7242932 |         |         |         |         |         |
|  | Single deflection diffusion grille with sealing frame for vertical and horizontal Concealed models | Code | 7256897 | 7256898 | 7256899 | 7256900 | 7256901 | 7256902 |
|  | Double deflection diffusion grille with sealing frame for horizontal Concealed models              | Code | 7242942 | 7242943 | 7242944 | 7242945 | 7242946 | 7242947 |
|  | Supply plenum with Spigots Ø 200 mm  | Code | 7512282 | 7512284 | 7512286 | 7512288 | 7242995 | 7242996 |
|  | Supply air plenum with Spigots Ø 160 mm  | Code | 7512283 | 7512285 | 7512287 | 7512289 | 7243490 |         |
|  | Resilient mounts supplied separately (4 per unit)  | Code | 0219453 |         |         |         |         |         |

## DUCTABLE FAN COIL UNIT



## 42NL & 42NH

The Carrier 42NH and 42NL are available in different sizes with 2-pipe, 2-pipe plus electric heater or 4-pipe coils, with an air flow range from 100 to 2300 m<sup>3</sup>/h, a total cooling capacity range from 0.6 kW to 12 kW and a nominal heating capacity range from 0.8 kW to 17 kW.



CARRIER participates in the ECP programme for FC/FCP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



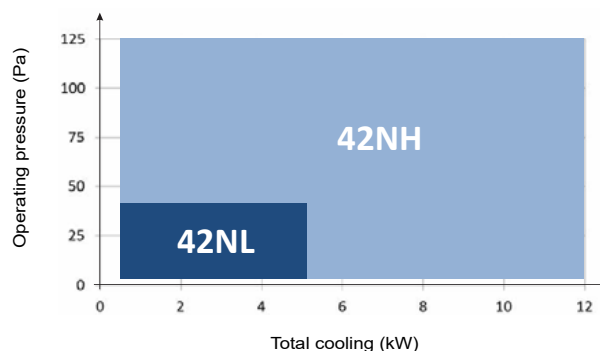
## 1 - FUNCTIONS AND CONFIGURATIONS

- Compact and modular ducted unit, designed for any false ceiling installation.
- Reliable and economical for tertiary building as hotel guest rooms, offices or light commercial applications.
- Low height of 235 mm (sizes 2/3/4/5) and 285 mm (sizes 6/7)
- Compatible with the Carrier diffuser ranges.
- Extremely low sound levels for ducted applications.
- Five- to Six- speed fan AC motors offers a wide choice of medium speeds.
- Available with Low Energy Consumption variable-speed EC motor.
- High-pressure centrifugal fan for 42NH Range
- G3 filter as standard.
- Safe factory installed electric heater with multiple capacity stages choices.
- Low water pressure drop with factory installed valves.
- Factory installed options (valves and controllers) for fast and easy installation in false ceilings.

### 1.1 - Modularity

Thanks to its two versions, the range is suitable for all applications.

The 42NL version is optimised for soffit installations while the 42NH is optimised for air return and supply ducted installations.

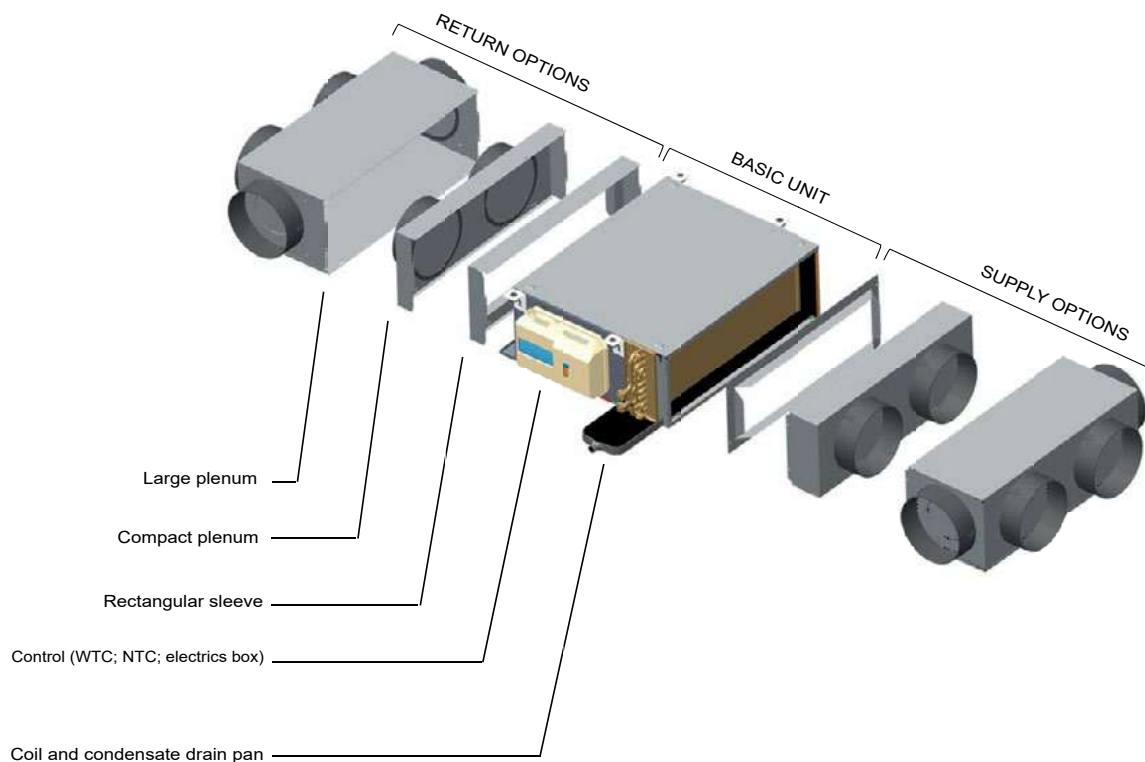


### 1.2 - Configuration and flexibility

Each of the 42NL and 42NH sizes can be equipped:

- with non-ducted return and/or direct supply;
- with a rectangular flange on the return and/or supply (ideal for connecting the fan coil unit to the air duct);
- with return and/or plenums including a large number of spigots with diameters of 160, 200 or 250 mm depending on the unit size.

The image below shows all available plenum configurations on the 42NL or 42NH (e.g. size 3) with a spigot diameter of 200 mm.



## 1 - FUNCTIONS AND CONFIGURATIONS

### 1.3 - Standard spigot configuration

Large and small plenums are available for all sizes as per the drawings below:

(\*) = Minimum number of spigots required to ensure sufficient available static pressure and fan reliability

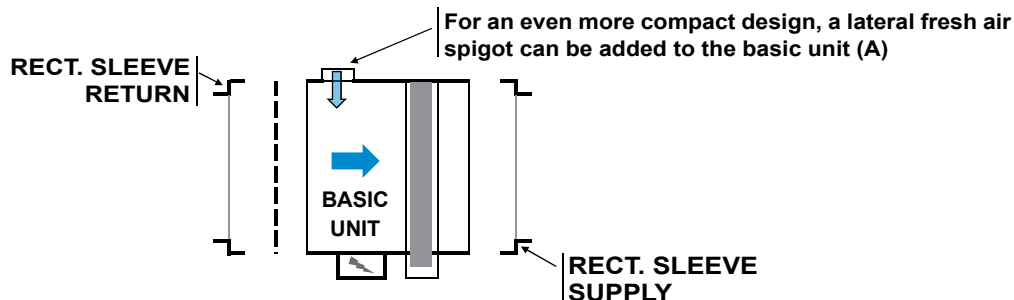
|                          | 42NH & 42NL Size 2xx   | 42NH & 42NL Size 3xx   | 42NH & 42NL Size 4xx                 |
|--------------------------|--|--|--------------------------------------|
| LARGE RETURN OR SUPPLY   |  |  |                                      |
| COMPACT RETURN OR SUPPLY |  |  |                                      |
| LIMITS (*)               | MIN. NO. OF SPIGOTS = 1x160 or 1x200<br>(2x160 and 1x200 for 42NH279)    | MIN. NO. OF SPIGOTS = 2x160 or 1x200<br>(2x160 and 2x200 for 42NL range) | MIN. NO. OF SPIGOTS = 3x160 or 2x200 |
|                          | 42NH & 42NL Size 5xx   | 42NH Size 6xx  | 42NH Size 7xx                        |
| LARGE RETURN OR SUPPLY   |  |  |                                      |
| COMPACT RETURN OR SUPPLY |  |  |                                      |
| LIMITS (*)               | MIN. NO. OF SPIGOTS = 3x160 or 2x200<br>(4x160 and 3x200 for 42NL range) | MIN. NO. OF SPIGOTS = 3x200 or 2x250                                     | MIN. NO. OF SPIGOTS = 4x200 or 3x250 |

#### NOTE:

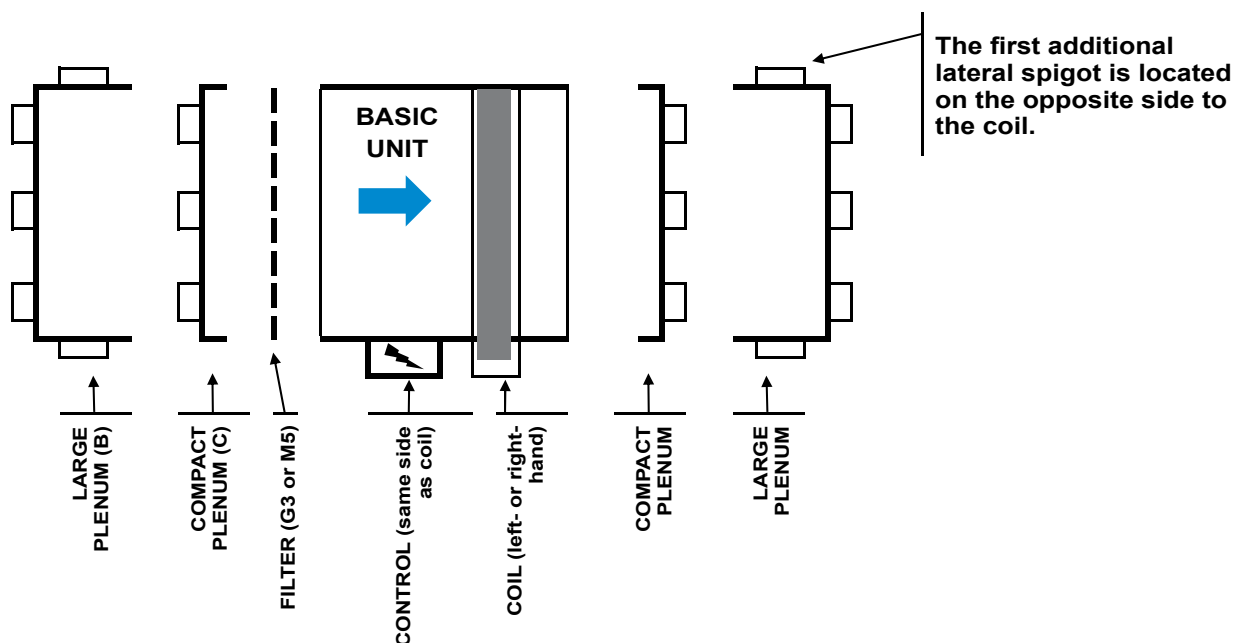
- Electrical heater are not available for 42NL Units when plenum are selected (due to minimum airflow requirement).
- Non-standard configurations not listed above can be provided upon special request. Contact your local Carrier representative.

## 1 - FUNCTIONS AND CONFIGURATIONS

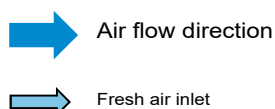
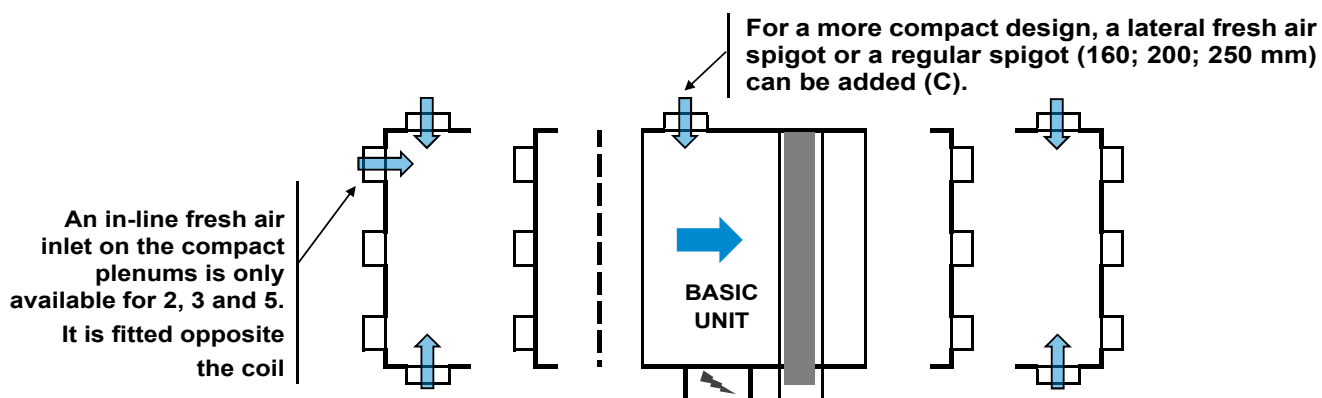
Standard configuration with return and supply rectangular sleeves:



Standard configuration with spigots without fresh air:



Standard configuration with fresh air return possibilities:

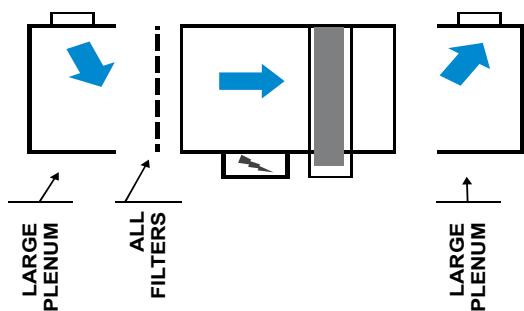


- (A) In this case, the air must be filtered beforehand to prevent any damage to the fan and the soiling of the coil.
- (B) Large plenum is required to fit the M5 filter
- (C) Without any filter the small inlet plenum is flat for improved compactness.

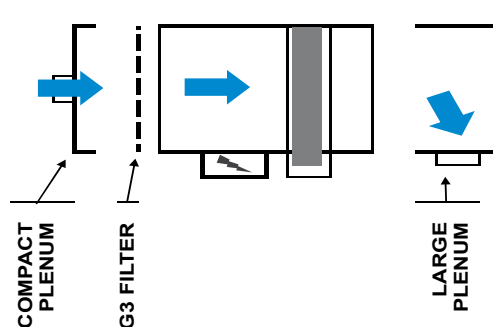
## 1 - FUNCTIONS AND CONFIGURATIONS

Additional configurations are displayed below:

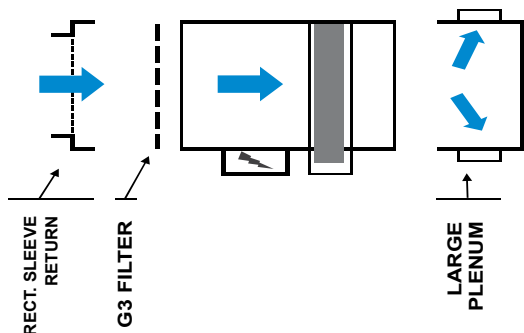
U-shaped



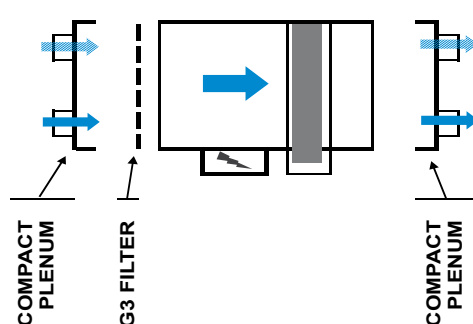
L-shaped



T-shaped

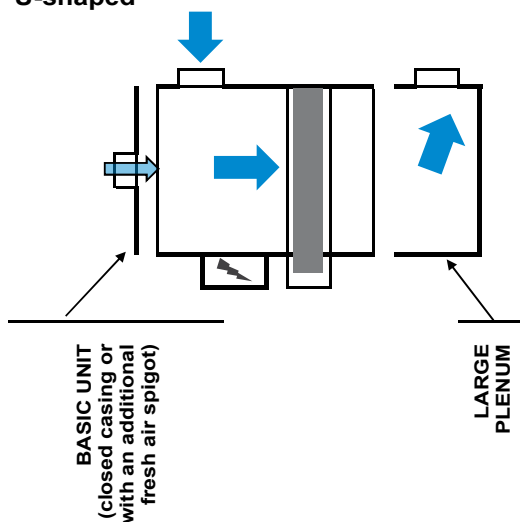


H-shaped or I-shaped

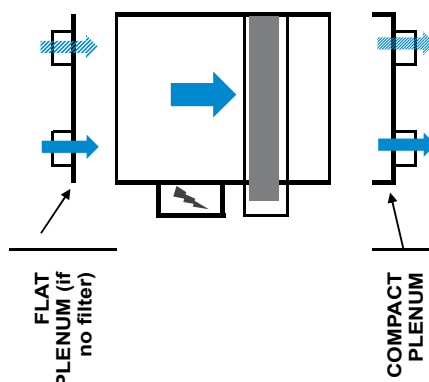


Configurations without filter (ultra-compact design)

U-shaped



H-shaped or I-shaped



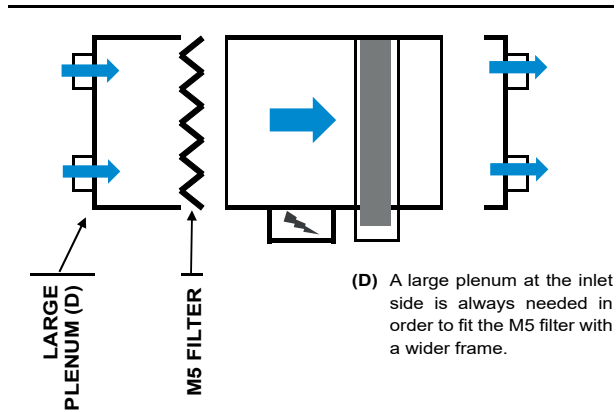
| Compatibility Reminder | Size 2    |      | Size 3 | Sizes 4 to 7 |
|------------------------|-----------|------|--------|--------------|
|                        | 22x / 23x | 279  |        |              |
| 1x160                  | NH/NL     | n.a. | n.a.   | n.a.         |
| 1x200                  | NH/NL     | NH   | NH     | n.a.         |
| 1x250                  | n.a.      | n.a. | n.a.   | n.a.         |

| Compatibility Reminder | Size 2 to 3 | Size 4 | Size 5 | Size 6 | Size 7 |
|------------------------|-------------|--------|--------|--------|--------|
| 2x160                  | NH/NL       | n.a.   | n.a.   | n.a.   | n.a.   |
| 2x200                  | NH/NL       | NH/NL  | NH     | n.a.   | n.a.   |
| 2x250                  | n.a.        | n.a.   | n.a.   | NH     | n.a.   |

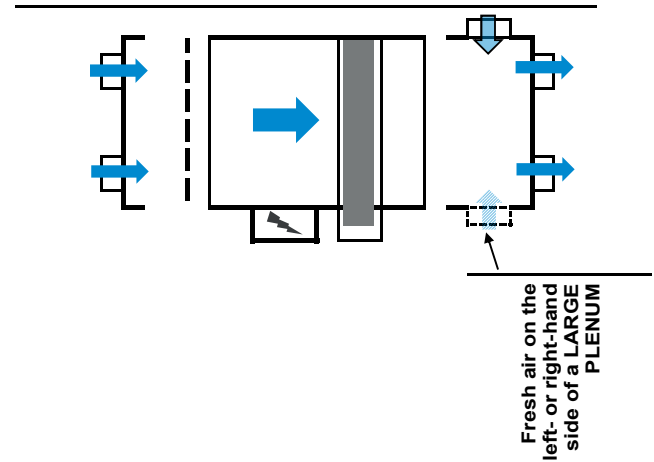
NA: Not Available

## 1 - FUNCTIONS AND CONFIGURATIONS

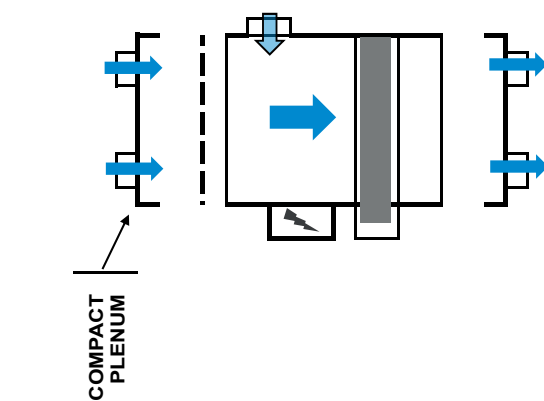
## M5 filter configurations



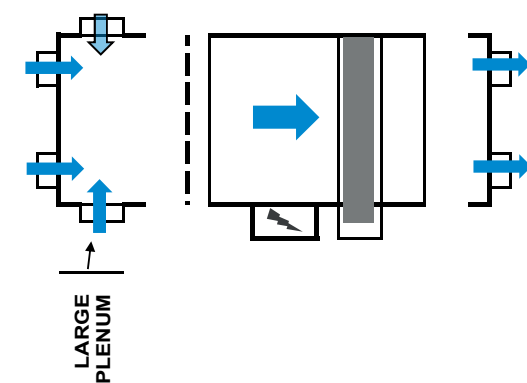
## Lateral fresh air configuration at the supply side



## Fresh air configurations at the return side

Lateral fresh air (opposite side to coil)  
Option 1 "Optimised"

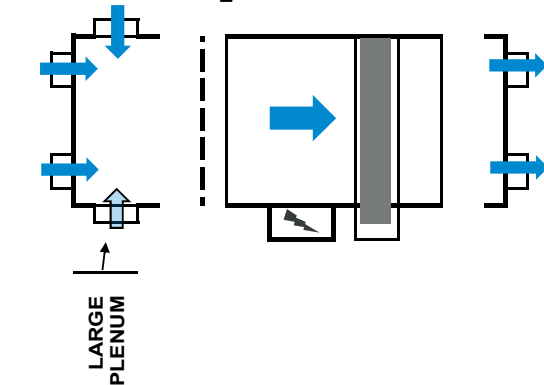
## Option 2 "In\_opp"



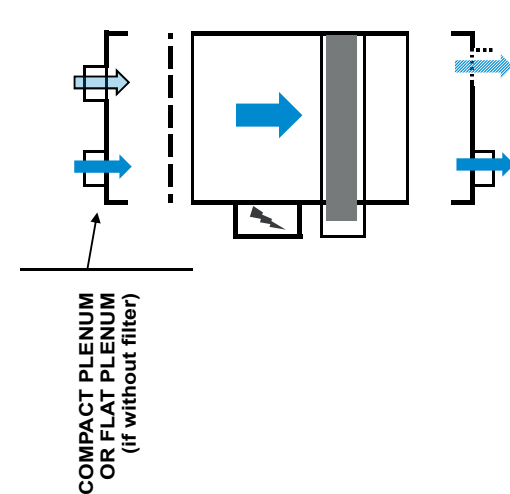
Inlet optimised: for a compact design, the fresh air is fitted on the basic unit (on the opposite side to the coil).

With this option, the fresh air is located opposite the coil and is always installed in a large plenum.

## Lateral fresh Air "In\_coil"



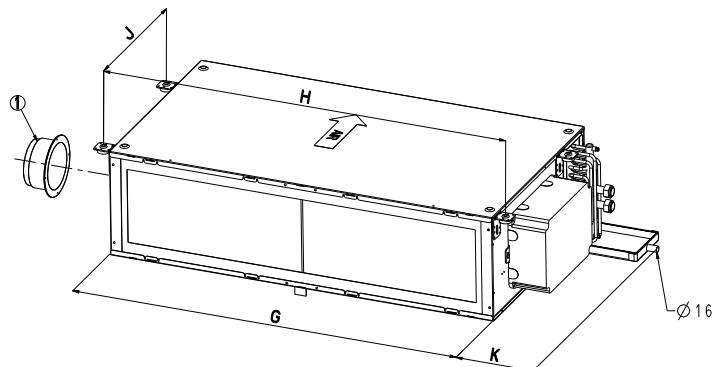
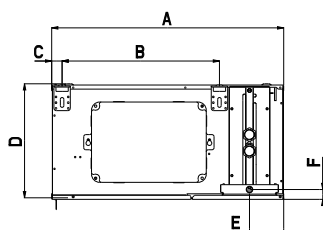
## "In\_line" fresh air (for sizes 2, 3 and 5)



## 2 - DIMENSIONAL DRAWINGS

**NOTE:** All the drawings show the coil connection on the right-hand side. Coils with left-hand connections are strictly symmetrical,

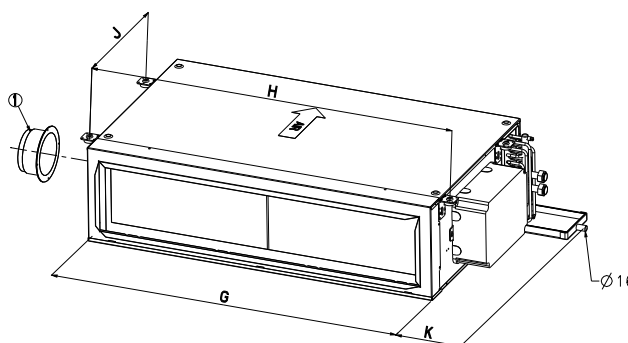
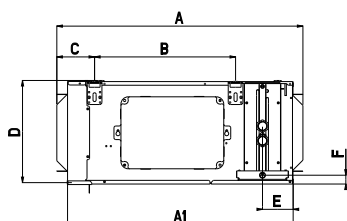
### Standard unit without rectangular return and supply flanges



| Dimensions in mm |     |     |     |     |     |     |
|------------------|-----|-----|-----|-----|-----|-----|
| Size             | 2xx | 3xx | 4xx | 5xx | 6xx | 7xx |
| A                | 520 | 520 | 520 | 520 | 575 | 575 |
| B                | 330 | 330 | 330 | 330 | 385 | 385 |
| C                | 25  | 25  | 25  | 25  | 25  | 25  |
| D                | 235 | 235 | 235 | 235 | 285 | 285 |
| E                | 85  | 85  | 85  | 85  | 85  | 85  |
| F                | 17  | 17  | 17  | 17  | 25  | 25  |

| Dimensions in mm |     |     |      |      |      |      |
|------------------|-----|-----|------|------|------|------|
| Size             | 2xx | 3xx | 4xx  | 5xx  | 6xx  | 7xx  |
| G                | 450 | 620 | 820  | 1020 | 1020 | 1320 |
| H                | 500 | 670 | 870  | 1070 | 1070 | 1370 |
| J                | 330 | 330 | 330  | 330  | 385  | 385  |
| K                | 230 | 230 | 230  | 230  | 230  | 230  |
| G + K            | 680 | 850 | 1050 | 1250 | 1250 | 1550 |
| Weight* [kg]     | 15  | 18  | 23   | 27   | 30   | 36   |

### Standard unit with rectangular sleeves on the return and supply



| Dimensions in mm    |           |           |           |           |           |            |
|---------------------|-----------|-----------|-----------|-----------|-----------|------------|
| Size                | 2xx       | 3xx       | 4xx       | 5xx       | 6xx       | 7xx        |
| A                   | 615       | 615       | 615       | 615       | 670       | 670        |
| B                   | 330       | 330       | 330       | 330       | 385       | 385        |
| C                   | 103       | 103       | 103       | 103       | 103       | 103        |
| D                   | 235       | 235       | 235       | 235       | 285       | 285        |
| E                   | 85        | 85        | 85        | 85        | 85        | 85         |
| Rectangular Flanges | 380 x 160 | 550 x 160 | 750 x 160 | 950 x 160 | 950 x 210 | 1250 x 210 |

| Dimensions in mm |     |     |      |      |      |      |
|------------------|-----|-----|------|------|------|------|
| Size             | 2xx | 3xx | 4xx  | 5xx  | 6xx  | 7xx  |
| F                | 17  | 17  | 17   | 17   | 25   | 25   |
| A1               | 561 | 561 | 561  | 561  | 615  | 615  |
| G                | 450 | 620 | 820  | 1020 | 1020 | 1320 |
| H                | 500 | 670 | 870  | 1070 | 1070 | 1370 |
| J                | 330 | 330 | 330  | 330  | 385  | 385  |
| K                | 230 | 230 | 230  | 230  | 230  | 230  |
| G + K            | 680 | 850 | 1050 | 1250 | 1250 | 1550 |
| Weight* [kg]     | 15  | 18  | 23   | 27   | 30   | 36   |

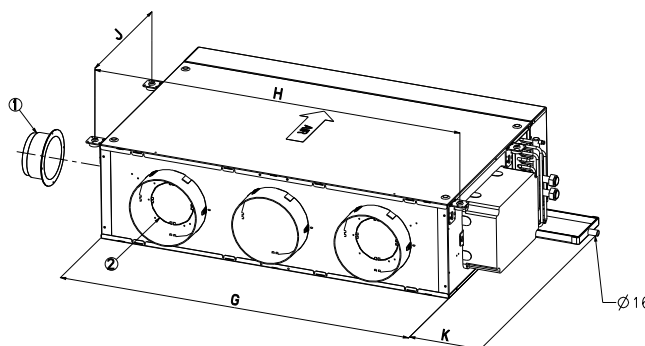
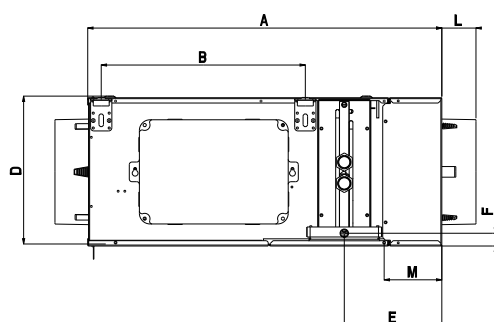
#### KEY

- 1 Lateral optimized fresh air position in base unit (opposite to coil hand at inlet)  
 \* Maximum weight 42NL/NH (AC or EC motor version) - without valve option - without water  
 Air flow direction  
 All dimensions are in mm.



## 2 - DIMENSIONAL DRAWINGS

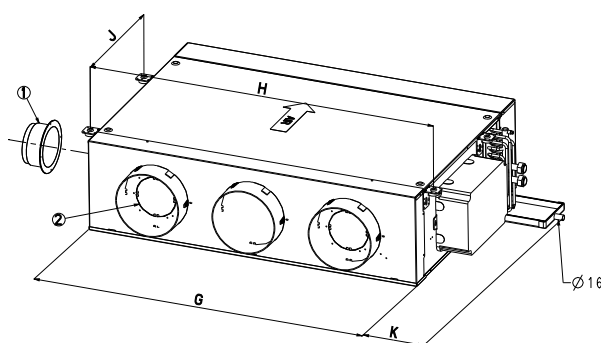
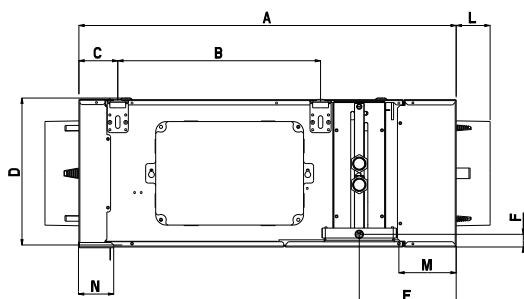
## Unit without filter with compact plenum at return and supply (optimised length)



| Dimensions in mm |     |     |     |      |      |      |
|------------------|-----|-----|-----|------|------|------|
| Size             | 2xx | 3xx | 4xx | 5xx  | 6xx  | 7xx  |
| A                | 611 | 611 | 611 | 611  | 666  | 666  |
| B                | 330 | 330 | 330 | 330  | 385  | 385  |
| C                | 25  | 25  | 25  | 25   | 25   | 25   |
| D                | 235 | 235 | 235 | 235  | 285  | 285  |
| E                | 185 | 185 | 185 | 185  | 185  | 185  |
| F                | 17  | 17  | 17  | 17   | 25   | 25   |
| G                | 450 | 620 | 820 | 1020 | 1020 | 1320 |

| Dimensions in mm |     |     |      |      |      |      |
|------------------|-----|-----|------|------|------|------|
| Size             | 2xx | 3xx | 4xx  | 5xx  | 6xx  | 7xx  |
| H                | 500 | 670 | 870  | 1070 | 1070 | 1370 |
| J                | 330 | 330 | 330  | 330  | 385  | 385  |
| K                | 230 | 230 | 230  | 230  | 230  | 230  |
| L                | 63  | 63  | 63   | 63   | 76   | 76   |
| M                | 100 | 100 | 100  | 100  | 100  | 100  |
| G + K            | 680 | 850 | 1050 | 1250 | 1250 | 1550 |
| Weight* [kg]     | 19  | 23  | 29   | 33   | 37   | 44   |


## Unit with G3 filter and compact plenum at the return and supply



| Dimensions in mm |     |     |     |      |      |      |
|------------------|-----|-----|-----|------|------|------|
| Size             | 2xx | 3xx | 4xx | 5xx  | 6xx  | 7xx  |
| A                | 660 | 660 | 660 | 660  | 715  | 715  |
| B                | 330 | 330 | 330 | 330  | 385  | 385  |
| C                | 75  | 75  | 75  | 75   | 75   | 75   |
| D                | 235 | 235 | 235 | 235  | 285  | 285  |
| E                | 185 | 185 | 185 | 185  | 185  | 185  |
| F                | 17  | 17  | 17  | 17   | 25   | 25   |
| G                | 450 | 620 | 820 | 1020 | 1020 | 1320 |

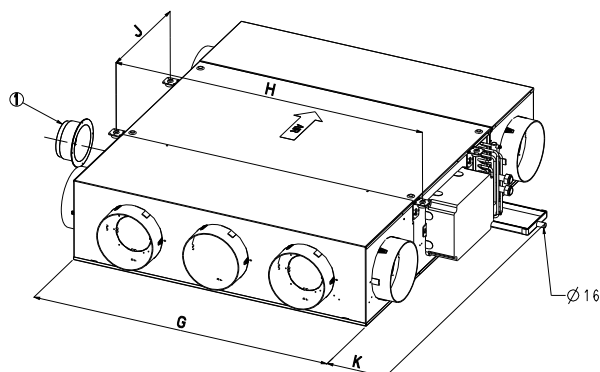
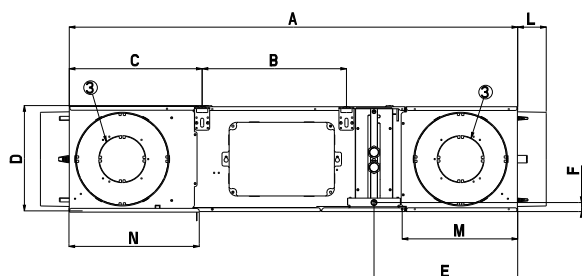
| Dimensions in mm |     |     |      |      |      |      |
|------------------|-----|-----|------|------|------|------|
| Size             | 2xx | 3xx | 4xx  | 5xx  | 6xx  | 7xx  |
| H                | 500 | 670 | 870  | 1070 | 1070 | 1370 |
| J                | 330 | 330 | 330  | 330  | 385  | 385  |
| K                | 230 | 230 | 230  | 230  | 230  | 230  |
| L                | 63  | 63  | 63   | 63   | 76   | 76   |
| M                | 100 | 100 | 100  | 100  | 100  | 100  |
| N                | 50  | 50  | 50   | 50   | 50   | 50   |
| G + K            | 680 | 850 | 1050 | 1250 | 1250 | 1550 |
| Weight* [kg]     | 19  | 23  | 29   | 33   | 37   | 44   |
| G + K            | 680 | 850 | 1050 | 1250 | 1250 | 1550 |
| Weight* [kg]     | 19  | 23  | 29   | 33   | 37   | 44   |

## KEY

- 1 Lateral optimized fresh air position in base unit (opposite to coil hand at inlet)  
 2 In line fresh air position for compact plenum (with or without filter)  
 \* Maximum weight 42NL/NH (AC or EC motor version) - without valve option - without water  
 Air flow direction  
 All dimensions are in mm.

## 2 - DIMENSIONAL DRAWINGS

### Unit with G3 or M5 filter and large plenum at the return and supply



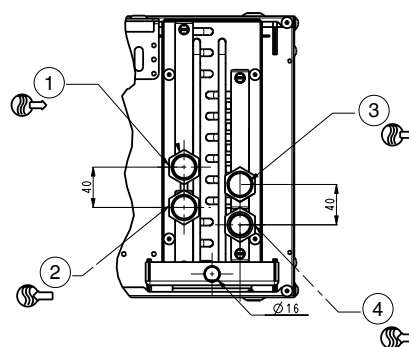
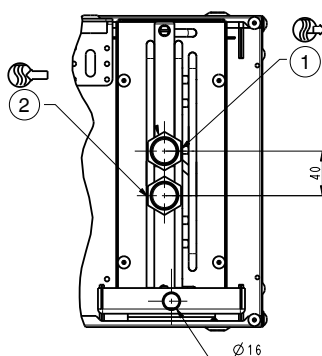
| Dimensions in mm |      |      |      |      |      |      |
|------------------|------|------|------|------|------|------|
| Size             | 2xx  | 3xx  | 4xx  | 5xx  | 6xx  | 7xx  |
| A                | 1040 | 1040 | 1040 | 1040 | 1195 | 1195 |
| B                | 330  | 330  | 330  | 330  | 385  | 385  |
| C                | 305  | 305  | 305  | 305  | 355  | 355  |
| D                | 235  | 235  | 235  | 235  | 285  | 285  |
| E                | 333  | 333  | 333  | 333  | 382  | 382  |
| F                | 17   | 17   | 17   | 17   | 25   | 25   |
| G                | 450  | 620  | 820  | 1020 | 1020 | 1320 |

| Dimensions in mm |     |     |      |      |      |      |
|------------------|-----|-----|------|------|------|------|
| Size             | 2xx | 3xx | 4xx  | 5xx  | 6xx  | 7xx  |
| H                | 500 | 670 | 870  | 1070 | 1070 | 1370 |
| J                | 330 | 330 | 330  | 330  | 385  | 385  |
| K                | 230 | 230 | 230  | 230  | 230  | 230  |
| L                | 63  | 63  | 63   | 63   | 76   | 76   |
| M                | 250 | 250 | 250  | 250  | 297  | 297  |
| N                | 280 | 280 | 280  | 280  | 330  | 330  |
| G + K            | 680 | 850 | 1050 | 1250 | 1250 | 1550 |
| Weight* [kg]     | 22  | 27  | 34   | 40   | 45   | 53   |

#### KEY

- 1 Lateral optimized fresh air position in base unit (opposite to coil hand at inlet)
- 3 Lateral fresh air position in large plenum (at inlet or outlet side)
- \* Maximum weight 42NL/NH (AC or EC motor version) - without valve option - without water
- ➔ Air flow direction
- All dimensions are in mm.

### Water coil



DN:  
1/2" 42NH/NL 2xx, 3xx, 4xx, 5xx  
3/4" 42NH 6xx, 7xx

- 1 Cooling water outlet for 4-pipe coil and heating/cooling for 2-pipe coil
- 2 Cooling water inlet for 4-pipe coil and heating/cooling for 2-pipe coil
- 3 Heating water outlet (4-pipe coil)
- 4 Heating water inlet (4-pipe coil)

## 3 - MAIN MODULES AND COMPONENTS

### 3.1 - Casing

In order to further enhance occupant comfort, this product range offers especially low noise levels. The casing is made of galvanised sheet steel with full high-efficiency internal lining for optimised thermal and sound insulation of the unit.

In order to comply with the various local regulations (fire class) the fan-coil unit is available with both class M1 type insulation (according to NF P 92-507) and Euroclass level B-s3-d0 (according to EN 13501). It is also equipped with anti-vibration mounts as standard.

In order to reduce the dimensions to the minimum, the units are equipped with high-efficiency heat exchangers with very high cooling capacity/treated air flow ratios. The condensate drain pan height is optimised.

### 3.2 - Fan motor assemblies

#### 3.2.1 - Multi-speed fan motor assembly compliant with ErP 2015 regulations

##### Motor description

- Asynchronous motors, 4 poles with internal overload protection
- Permanent capacitor
- Class B winding insulation, varnish class F
- See operating limits in chapter 8.

The 42NH and 42NL have a multi-speed fan motor assembly with forward curved, double inlet, single, double or triple wheel fans depending on the unit size.

Five speeds are available as standard for 42NH (Six speeds for 42NL). Three speeds must be selected to allow connection of the fan motor in accordance with applicable electromechanical or electronic control.

- Minimum speed: R5 for 42NH; R6 for 42NL
- Maximum speed: R1
- Units can be supplied with Carrier electronic controls and prewired to a selection of three speeds.
- For other fan motor Speed wiring combinations refer to the unit options list (chapter 6).

#### 3.2.2 - Low-consumption fan motor assembly (variable-speed LEC)

##### Motor description

- Permanent magnet brushless motor
- Electronically commutated
- Class B winding insulation, varnish class F
- See operating limits in chapter 8.

The 42NH and 42NL units are equipped with the LEC fan motor, which is controlled by a 0 to 10 V signal, available with the Carrier NTC or WTC type electronic control.

**NOTE: In this case the minimum control signal that allows the motor to start is 2 V for two- and four-pipe versions and 3 V for versions equipped with electric heaters.**

If the product is supplied without a Carrier control device, verification of EMC conformity is the responsibility of the installer.

### 3.3 - Fan wiring solutions

#### 3.3.1 - Multi-speed unit with bare wires (standard)

As standard, all speeds of the multi-speed fan are available with bare wires (six speeds for the 42NL and five speeds for the 42NH), offering greater flexibility.

Minimum speed = R6 or R5, maximum speed = R1.

#### 3.3.2 - Multi-speed unit with optional controller or electrics box

When ordering, three of the five speeds must be selected to enable the motor connection to comply with the applicable controller (NTC, WTC or electrics box for Carrier thermostats).

With the electrical box, the installer can connect the unit to a terminal board. The electrical box can be opened with a screw driver.

The electrical box permits changing the speed wiring without access to the motor. All available speeds are connected.



Wiring example: By default, R5 R3 R1 are connected on the terminal board.  
The other 2 or 3 speeds are available and easy to access

**NOTE: The standard wiring for all unit ranges is always R5 R3 R1.**

#### 3.3.3 - Variable-speed low energy consumption (LEC) fan motor with bare wires (standard)

The variable-speed low energy consumption (LEC) motor must be controlled by a 0-10 VDC signal.

#### 3.3.4 - Variable-speed low energy consumption (LEC) fan motor with electrics box

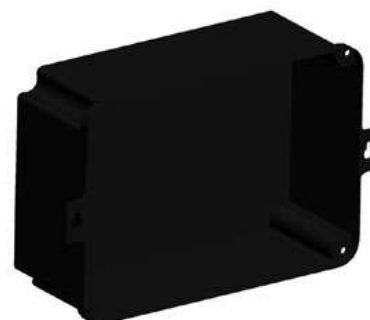
This option allows the installer to connect the unit to a terminal board inside an electrical box. The electrical box can be opened with a screw driver.

The 0-10 VDC signal that controls the variable-speed fan is directly accessible at the terminal strip.

#### 3.3.5 - Cover only option

A plastic cover accessory can be added to house a controller supplied by the customer (max. dimensions L = 200 mm x D = 100 mm x H = 95 mm). It is installed on site or in the factory on a multi-speed unit or on a variable speed fan motor with low energy consumption (LEC).

**NOTE: This option is not compatible with the electrics box option.**



### 3 - MAIN MODULES AND COMPONENTS

#### 3.3.6 - Fuse holder option

A fuse holder can be provided as an option for all controllers or with the electrics box.



#### 3.4 - Hydraulic coil

- Aluminium fins mechanically bonded by expansion onto copper tubes
- 1/2-inch threaded female water inlet and outlet connections for sizes 2 to 5
- 3/4-inch threaded female water inlet and outlet connections for sizes 6 and 7
- Air bleed valves and drain as standard.
- Operating pressure 1550 kPa.

The coil, condensate drain pan and coil access door are in the form of an easily removable drawer.

#### 3.5 - Single unit condensate drain pan

Single unit condensate drain pan made from polypropylene and insulated with 5 mm of foam.

Drain connection diameter: Ø 16 mm external

HB fire rating (in compliance with UL94).

#### 3.6 - Filter

##### 3.6.1 - Specifications

The 42NH and 42NL include as standard a G3 filter in compliance with EN 779.

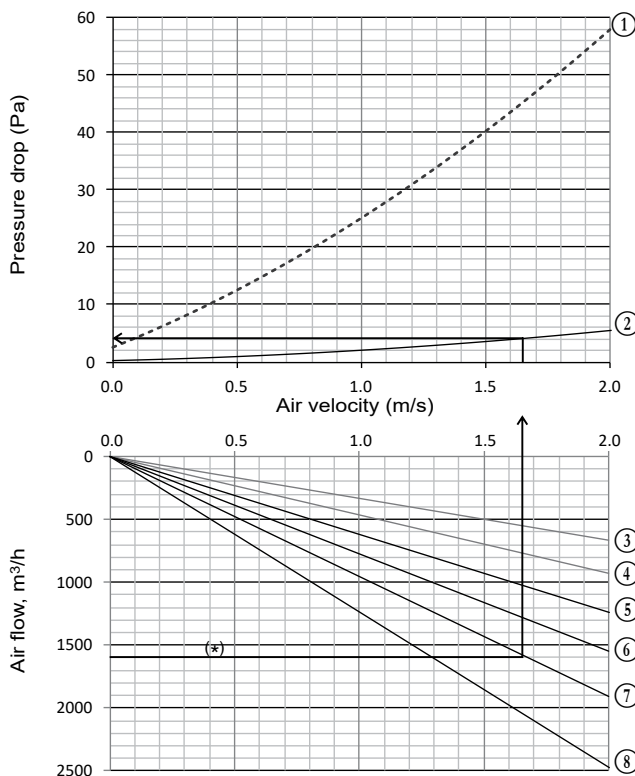
A pleated M5 filter (for range 42NH only) according to EN 779 are also available. G3 and M5 filters have medium fire rating M1 (according to NFP 92-507) and a metal frame.

The "without filter" option is only available for units with a rectangular sleeve on the return side to ensure that a duct can be connected when the unit operates.

To prevent coil fouling, Carrier recommends the use of a filter installed in either the fan coil unit or in the return air grille.

The 42NH offers four filter configurations:

- Without filter: only available for units with an inlet plenum with spigots or with a rectangular flange inlet
- G3 filter: metal wire frame, medium efficiency supplied as standard
- M5 filter (only for 42NH): metal wire frame, high efficiency, thickness = 55 mm.



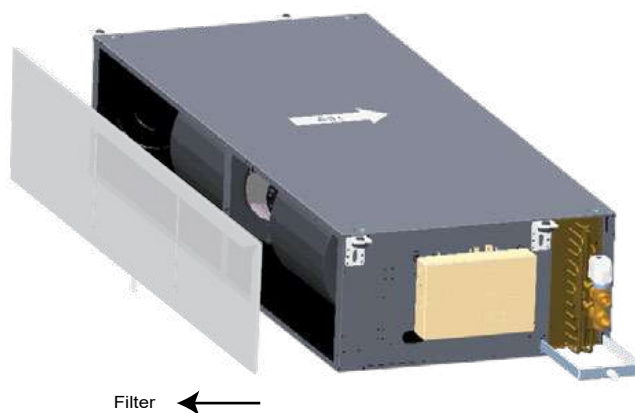
##### Key

- 1 M5 filter
- 2 G3 filter
- 3 Airflow for 42NH/NL Size 2
- 4 Airflow for 42NH/NL Size 3
- 5 Airflow for 42NH/NL Size 4
- 6 Airflow for 42NH/NL Size 5
- 7 Airflow for 42NH Size 6
- 8 Airflow for 42NH Size 7
- (\*) Example: The pressure drop of a G3 filter used in a 42NH645 is 5 Pa for a 1600 m³/h air flow.

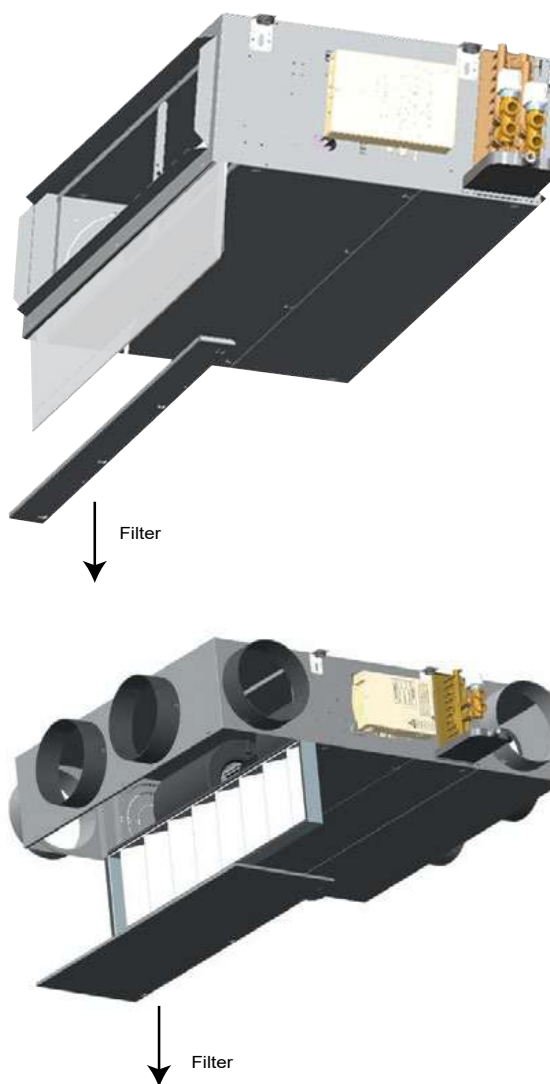
### 3 - MAIN MODULES AND COMPONENTS

#### 3.6.2 - Filter access

Without a rectangular return sleeve, the filter is removed from the rear.



With a rectangular sleeve or return plenum, the filter is removed from below (hatch).



## 4 - OPTIONS SPECIFICATIONS

### 4.1 - Electric heater (option for 2-pipe coil)

Resistive wire type heater

- Supply voltage: 230 V - 1 ph - 50 Hz
- Heater size and capacity per unit (+5% ; -10%):

| Electrical Heater Capacity | Low       | Medium    | High       | Very High  |
|----------------------------|-----------|-----------|------------|------------|
| 42NH/NL 2-5                | 1 x 500 W | 1 x 800 W | 1 x 1000 W | NA         |
| 42NH/NL 2-9                | 1 x 500 W | 1 x 800 W | 1 x 1000 W | NA         |
| 42NH/NL 3-5                | 1 x 500 W | 1 x 800 W | 1 x 1000 W | 1 x 1600 W |
| 42NH/NL 3-9                | 1 x 500 W | 1 x 800 W | 1 x 1000 W | 1 x 1600 W |
| 42NH/NL 4-5                | 2 x 500 W | 2 x 800 W | 2 x 1000 W | NA         |
| 42NH/NL 4-9                | 1 x 500 W | 1 x 800 W | 1 x 1000 W | 1 x 1600 W |
| 42NH/NL 5-5                | 2 x 500 W | 2 x 800 W | 2 x 1000 W | NA         |
| 42NH/NL 5-9                | 2 x 500 W | 2 x 800 W | 2 x 1000 W | NA         |
| 42NH 6-5                   | 2 x 500 W | 2 x 800 W | 2 x 1000 W | 2 x 1600 W |
| 42NH 6-9                   | 2 x 500 W | 2 x 800 W | 2 x 1000 W | 2 x 1600 W |
| 42NH 7-5                   | 2 x 500 W | 2 x 800 W | 2 x 1000 W | 2 x 1600 W |
| 42NH 7-9                   | 2 x 500 W | 3 x 500 W | 3 x 800 W  | 3 x 1000 W |

- The heater is protected with a dual safety device:
  - a) Self-holding automatically reset integrated safety thermostat
  - b) Destructive thermofuse link
- Available for 2-pipe coil only.

**WARNING:** Minimum supply air flow must be maintained to avoid damaging the electric heaters.

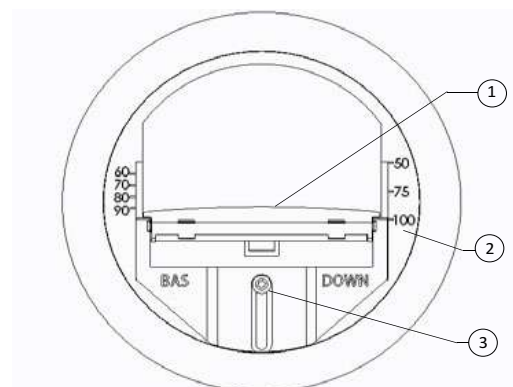
A minimum control signal of 3 V is selected by default with Electronic Carrier controller (NTC / WTC). To prevent low air flow with the 42NL range, plenums are not available as an option.

### 4.2 - Fresh air controller (option)

#### 4.2.1 - Constant volume fresh air controller

The coil can be fitted with a constant fresh air flow controller adjustable from 15 m<sup>3</sup>/h to 180 m<sup>3</sup>/h to allow the fresh air intake and the air change rate to be controlled.

The fresh air supply can be located in the air supply plenum, in the air return plenum or in the side of the basic unit casing for a compact design.



Example: Range 50-100 m<sup>3</sup>/h

- 1 Air Damper
- 2 Fresh airflow damper position setting (in m<sup>3</sup>/h)
- 3 Airflow adjustment screw

The fresh air controller may be modified on site by relocating the damper (adjustable screw). Three ranges of air-controller are provided: 15 to 50m<sup>3</sup>/h, 60 to 100m<sup>3</sup>/h and 110 to 180m<sup>3</sup>/h.

**IMPORTANT:** If an optional return air temperature sensor is provided, the constant fresh air flow rate must not exceed 50 % of the unit supply air flow rate at minimum speed.

**NOTE:** To operate correctly, the fresh air flow controller requires a differential pressure in the range of 60 Pa to 210 Pa.

#### 4.2.2 - Variable volume fresh air controller

The unit can be equipped with an optional variable fresh air flow controller from 0-55 l/s (0-200 m<sup>3</sup>/h). It is connected to the numeric Carrier controller and can regulate the fresh air intake in two ways:

- Either using a fixed rate set by the installer that can be reconfigured as required
- Or based on the CO<sub>2</sub> level; in this case it is connected to a CO<sub>2</sub> sensor via the Carrier numeric controller.



**NOTE:** With the variable fresh air flow controller the pressure upstream of the fresh air duct must be 180 Pa.



## 4 - OPTIONS SPECIFICATIONS

### 4.3 - Valves and actuators (option)

**NOTE:** The motor/valve assembly is normally closed.

#### 4.3.1 - Valve actuators

A wide choice of actuators is available with two- or four-way valve bodies (three-way with integral bypass) to offer the right solution for any controller type and customer requirement, from on/off to proportional types, with either 230 V or 24 V power supply:

- On/off 230 V actuator
- On/off 24 V actuator
- Floating 3-point 230 V actuator
- Floating 3-point 24 V actuator
- Modulating 0-10 V/24 V actuator

When combined with LEC motors and WTC or NTC controllers, floating 3-point 230 V actuators are recommended to increase energy savings and enhance comfort.



**NOTE:** 24 V power supply actuators are not compatible with Carrier controllers (Thermostats A/B/C/D, WTC and NTC).

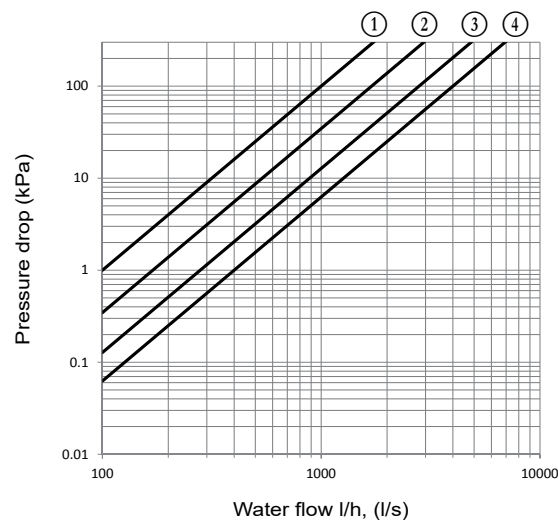
#### 4.3.2 - Standard two-way valve body and three-way valve body (with integral bypass)

**Features of the 1/2" two-way and three-way valves for 42NL/NH sizes 2 to 5**

- 1/2" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body
- Nominal size DN15 for 1/2" valve
- Nominal pressure: PN 16 bar

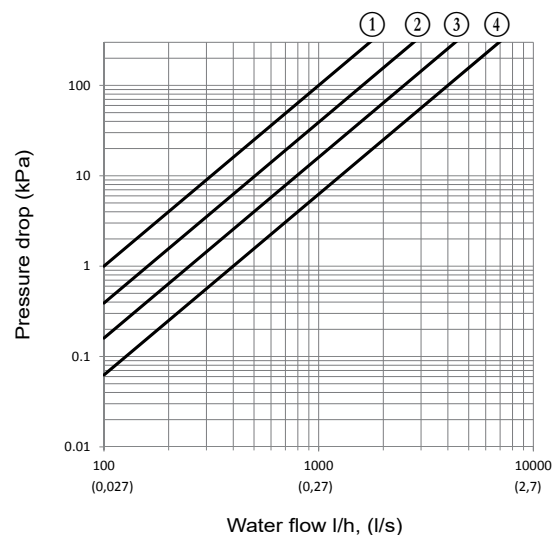
**Features of the 3/4" two-way and three-way valves for 42NH sizes 6 and 7**

- 3/4" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body
- Nominal size DN20 for 3/4" valve
- Nominal pressure: PN 16 bar



**Key**

- 1 1/2" - ON/OFF valve 42NL/NH - Size 2 Kvs = 1
- 2 1/2" - ON/OFF valve 42NL/NH - Sizes 3, 4, 5 Kvs = 1.7
- 3 3/4" - ON/OFF valve 42NL/NH - Size 6 Kvs = 2.8
- 4 3/4" - ON/OFF valve 42NL/NH - Size 7 Kvs = 4



**Key**

- 1 1/2" - Modulating valve (3-points & 0-10V) 42NL/NH - Size 2 Kvs = 1
- 2 1/2" - Modulating valve (3-points & 0-10V) 42NL/NH - Sizes 3, 4, 5 Kvs = 1.6
- 3 3/4" - Modulating valve (3-points & 0-10V) 42NL/NH - Size 6 Kvs = 2.5
- 4 3/4" - Modulating valve (3-points & 0-10V) 42NL/NH - Size 7 Kvs = 4

4 - OPTIONS SPECIFICATIONS

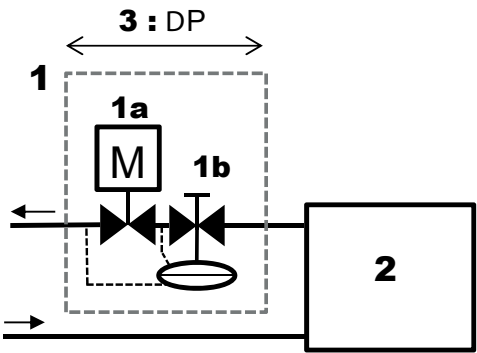
4.3.3 - Two way balancing valve body

New two-way valves with embedded balancing function technology are available as an option with 42NH and 42NL units. The Carrier two-way valve with balancing function combines the functionality of a dynamic balancing valve and a control valve in one product.



The dynamic balancing function maintains a constant differential pressure over the control valve.

The control valve regulates the flow by means of a variable orifice which is controlled by the actuator.



- Key**
- 1. Two-way valve with balancing function
    - 1a. Valve actuator for waterflow control
    - 1b. Differential pressure controller & balancing feature
  - 2. Fan-coil unit
  - 3. Minimum operating pressure drop at nominal waterflow: 20 kPa for sizes 4 and 5

The constant differential pressure across the control valve ensures accurate control and maximises valve authority, independently of the pressure conditions in the system.

Advantages compared to the standard two-way valve

- Improved and reliable commissioning. The water flow can be set and controlled on site.
- Higher energy efficiency due to optimal waterflow and maximized valve authority.
- Enhanced comfort thanks to stable and precise ambient temperature control.

Features of the 1" two-way valves with balancing function for 42NL/NH sizes

- 1" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body
- Nominal size DN 20 for 1" valve
- Nominal pressure: PN 16 bar
- Minimum operating differential pressure = 20 kPa at nominal flow.

As a secondary option, two pressure points can be added to the valve body in order to accurately measure the flow rate during the commissioning and maintenance stages.

| Sizes            | 2xx & 3xx             | 4xx & 5xx            |
|------------------|-----------------------|----------------------|
| water flow range | 100-575 l/h           | 220 - 1330 l/h       |
| Nominal Diameter | DN15                  | DN20                 |
| Thread           | G3/4" for flat washer | G 1" for flat washer |

4.4 - Flexible water pipes (option)

4.4.1 - Materials

- Pipes: EPDM-based elastomer (Ethylene Propylene Diene Monomer)
- Braid: 304L stainless steel
- Insulation: cellular foam rubber with M1 fire rating (9 mm thick, flexible water pipes).

4.4.2 - Characteristics

- Minimum bend radius (insulated pipes): 106 mm
- The flexible water pipes are designed for treated or untreated water.
- Maximum operating pressure: 16 bar
- 1/2" female flat gas connections for sizes 2, 3, 4 and 5
- 3/4" female flat gas connections for sizes 6 and 7
- Length: 1 m.

## 4 - OPTIONS SPECIFICATIONS

### 4.5 - Sensors (option)

#### 4.5.1 - Water temperature sensor

A water temperature sensor can be provided as an option for NTC and WTC controllers.

- For 2-pipe coil: The sensor is installed on a cooling/heating water pipe (for change-over function).
- For 4-pipe coil: The sensor is installed on a heating water pipe (for cold-draft function that prevents the operation of the unit when the heating network is off).

The fan coil unit is delivered with an electrical box, the "water temperature sensor" option is actually a switch that will be connected to the Carrier thermostat.

#### NOTE:

- *The water sensor option (switch) with electrical box is only available for 2-pipe coil without electrical heater.*
- *A water probe can also be provided as an accessory only in order to use the cold draft function of the thermostat.*

#### 4.5.2 - Air temperature sensors

Two factory-fitted air temperature sensors are available as an option for NTC and WTC controllers. They measure the temperature at the supply and/or return side.

#### 4.5.3 - CO<sub>2</sub> sensor

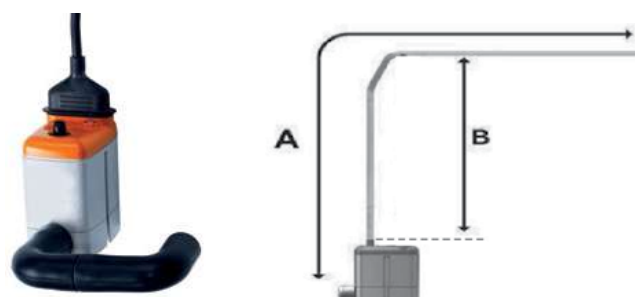
For indoor air quality control, a CO<sub>2</sub> sensor is available as an option for NTC and WTC controllers. The sensor is factory fitted at the inlet side.

### 4.6 - Condensate pump (option)

The condensate pump option is designed to fit on the side of the unit drain pan. Electrical power supply 230V-50/60Hz.

Condensate pump discharge performances:

| TABLE OF ACTUAL DISCHARGE (l/h) |                                       |      |      |      |
|---------------------------------|---------------------------------------|------|------|------|
| Discharge head (B)              | Total length of pipe (Ø int. 6 mm ) A |      |      |      |
|                                 | 5 m                                   | 10 m | 20 m | 30 m |
| 0 m                             | 20                                    | 19   | 18   | 17   |
| 2 m                             | 16                                    | 15   | 14   | 13,5 |
| 4 m                             | 11,5                                  | 11   | 10,5 | 10   |
| 6 m                             |                                       | 8,5  | 7,5  | 6,5  |
| 8 m                             |                                       | 6    | 5    | 4    |
| 10 m                            |                                       | 4    | 3,5  | 2,5  |



| Technical characteristics                   |  |
|---|--|
| Max. flow rate                              | 20 l/h -10%                              |
| Max. recommended discharge height           | 10 m                                     |
| Max. manometric pressure                    | 14 m                                     |
| Max sound level at 1 m distance             | < 28 dBA                                 |
| Electrical supply                           | 230V +10%/-15% - 50/60Hz                 |
| Max. input Power                            | 16 W (pour 230V/50Hz)                    |
| Rated current                               | 65 mA (pour 230V/50Hz)                   |
| Detection levels                            | ON : 18 mm, OFF : 12 mm,<br>AL : 21.5 mm |
| Alarm contact                               | Contact NC : 8A maxi – 250V              |
| Thermal protection                          | 90°C (auto reset)                        |
| Cycle de fonctionnement (facteur de marche) | 100%                                     |
| Protection (selon NF EN 60529)              | IPX4                                     |

## 5 - CONTROL (OPTION)

The unit can be supplied with a wide range of Carrier controls. These offer functions to suit the various application requirements, summarised in the table below.

|   | Thermostats   | NTC | WTC |
|---|---------------|-----|-----|
| <b>Communication protocols</b>  |               |     |     |
| Carrier Communication Network (CCN) Aquasmart compatible  |               | x   |     |
| BACnet MSTP   |               |     | x   |
| LON   |               |     | x   |
| <b>Control algorithms</b>   |               |     |     |
| On-off  | x             |     |     |
| Proportional-integral   |               | x   | x   |
| Carrier Energy saving algorithm   |               | x   | x   |
| <b>Fan control</b>  |               |     |     |
| 3 fixed speeds for AC motors  | Types A and B | x   | x   |
| Automatic optimum fan speed selection   | x             | x   | x   |
| 3 fixed speeds for EC motors  | Types C and D | x   | x   |
| EC motors Variable speed  |               | x   | x   |
| <b>Water valve management</b>   |               |     |     |
| Air flow control only (no water valve)  | x             |     |     |
| 230V On-off actuators   | x             | x   | x   |
| 230V Modulating actuators (floating 3pts)   |               | x   | x   |
| <b>Main functions</b>   |               |     |     |
| Setpoint control  | x             | x   | x   |
| Occupied/unoccupied mode  | x             | x   | x   |
| Frost protection mode   | x             | x   | x   |
| Window/door contact input   | x             | x   | x   |
| Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)                      | Type A&C      | x   | x   |
| Measurement of water inlet temperature to prevent cold-draughts (4 pipes and 2 pipes + electric heater) | Types B and D | x   | x   |
| Manual changeover   | x             | x   | x   |
| Frost protection mode   | x             | x   | x   |
| Continuous ventilation within dead-band   | x             | x   | x   |
| Periodical ventilation within dead-band   | x             | x   | x   |
| On-site configuration   | x             | x   | x   |
| Unit grouping Master/Slave  | x             | x   | x   |
| Cassette Louvers control  |               | x   | x   |
| Supply air temperature monitoring limiting  |               | x   | x   |
| Electrical heater loadshed  |               | x   | x   |
| Dirty filter alarm  |               | x   | x   |
| Alarm reporting   |               | x   | x   |
| Indoor Air Quality control (CO <sub>2</sub> sensor)   |               | o   | o   |
| Demand-controlled ventilation (DCV) (0-10 V fresh air valve)  |               | o   | o   |
| Free cooling mode   |               |     | o   |
| Presence detection  |               |     | o   |
| <b>User interfaces</b>  |               |     |     |
| Automatic or manual fan speed control   | x             | x   | x   |
| Setpoint adjustment   | x             | x   | x   |
| Occupancy (eco) button  | x             | x   | o   |
| Digital display   |               | o   | o   |
| Remote control (infra-red)  |               | o   | o   |
| CO <sub>2</sub> sensor  |               | o   | o   |
| Luminosity sensor   |               |     | o   |
| Motion detection  |               |     | o   |
| Easy connection RJ45 jack (on wall mounted UI)  |               |     | x   |
| <b>Light and blinds management</b>  |               |     |     |
| Light power modules   |               |     | o   |
| Blinds power modules  |               |     | o   |
| <b>Control kit</b>  |               |     |     |
| On site control kit solution  |               |     | o   |

### Key

X Feature available as standard

O Optional

**NOTE: For the features and specifications of the Carrier controllers, refer to the technical documentation for each controller.**

**Upon special request, other controller types can be factory-installed on the units (supplied by Carrier or the customer).**

## 6 - PRODUCT CHARACTERISTICS LIST

| Characteristic Name          |              | Digit n° Codification | Value | Description                               | Pack. | Compatibility  |                         |
|------------------------------|--------------|-----------------------|-------|---|-------|--|-------------------------|
| Range                        |              | 1-2                   | 42    |   |       |  |                         |
|                              |              | 3-4                   | NH    |   |       |  |                         |
|                              |              |                       | NL    |   |       |  |                         |
| UNIT SIZE (Digits 5 - 6 - 7) | Chassis size | 5                     | 2     | Chassis Size 2                            | Yes   | Unit size availability (Digit n° 5-6-7):   |                         |
|                              |              |                       | 3     | Chassis size 3                            |       |  |                         |
|                              |              |                       | 4     | Chassis Size 4                            |       | 2-pipe:  | 4-pipe:                 |
|                              |              |                       | 5     | Chassis Size 5                            |       | NL / NH 225;235;229;239;279  | NL / NH 235;239;279     |
|                              |              |                       | 6     | Chassis size 6                            |       | NL / NH 325;335;329;339  | NL / NH 335;339         |
|                              |              |                       | 7     | Chassis Size 7                            |       | NL / NH 425;435;429;439  | NL / NH 435;439         |
|                              | Efficiency   | 6                     | 2     | Standard efficiency                       | Yes   | NL / NH 425;435;429;439  | NL / NH 435;439         |
|                              |              |                       | 3     | Medium efficiency                         |       | NL / NH 525;535;529;539  | NL / NH 535;545;539;549 |
|                              |              |                       | 4     | High efficiency                           |       | NH 635;645;639;649   | NH 645;649              |
|                              |              |                       | 7     | Extra High efficiency                     |       |  |                         |
|                              | Fan type     | 7                     | 5     | AC multispeed motor                       | Yes   | NH 735;745;739;749   | NH 735;745;739;749      |
|                              |              |                       | 9     | EC low consumption motor                  |       |  |                         |
| Coil hand & type             |              | 8                     | F     | 2 pipes coil Left Hand                    | Yes   |  |                         |
|                              |              |                       | G     | 2 pipes coil Right Hand                   |       |  |                         |
|                              |              |                       | C     | 4 pipes coil Left Hand                    |       |  |                         |
|                              |              |                       | D     | 4 pipes coil Right Hand                   |       |  |                         |
| Control                      |              | 9                     | -     | Bare wires                                | Yes   | Valves and actuators must be selected with NTC   |                         |
|                              |              |                       | E     | Electrics box                             |       |  |                         |
|                              |              |                       | K     | NTC                                       |       |  |                         |
|                              |              |                       | L     | WTC LON                                   |       |  |                         |
|                              |              |                       | M     | WTC BACNET                                |       |  |                         |
| Valve body                   |              | 10                    | -     | Without valve                             | Yes   | Balancing valves are not available for unit sizes 6xx and 7xx  |                         |
|                              |              |                       | G     | 2-way valve                               | Yes   |  |                         |
|                              |              |                       | H     | 4-way valve                               | Yes   |  |                         |
|                              |              |                       | L     | 2-way balancing valve                     | No    |  |                         |
|                              |              |                       | T     | 2-way balancing valve and pressure points | No    |  |                         |
| Electrical heater            |              | 11                    | -     | Without electric heater                   | Yes   | Electrical heaters are not compatible with 42NL with plenum.   |                         |
|                              |              |                       | E     | 500W electric heater                      |       | Highest capacity for unit size 2xx   |                         |
|                              |              |                       | F     | 800W electric heater                      |       | Highest capacity for unit sizes 3xx and 4x9  |                         |
|                              |              |                       | G     | 1000W electric heater                     |       | Highest capacity for unit sizes 4x5 and 5xx  |                         |
|                              |              |                       | H     | 1500W electric heater                     |       | Highest capacity for unit sizes 7x9  |                         |
|                              |              |                       | J     | 1600W electric heater                     |       | Highest capacity for unit sizes 6xx and 7x5  |                         |
|                              |              |                       | K     | 2000W electric heater                     |       |  |                         |
|                              |              |                       | L     | 2400W electric heater                     |       |  |                         |
|                              |              |                       | M     | 3000W electric heater                     |       |  |                         |
|                              |              |                       | N     | 3200W electric heater                     |       |  |                         |
| Valve actuator               |              | 12                    | -     | Without actuator                          | Yes   | 24 V actuators are not available with Carrier controllers. 3-point floating actuators are not available with the electrics box |                         |
|                              |              |                       | A     | 230V ON/OFF actuator                      | Yes   |  |                         |
|                              |              |                       | C     | 230V floating actuator (3 points)         | No    |  |                         |
|                              |              |                       | B     | 24V ON/OFF actuator                       | Yes   |  |                         |
|                              |              |                       | D     | 24V floating actuator (3 points)          | No    |  |                         |
|                              |              |                       | E     | 24V 0-10V modulating actuator             | No    |  |                         |
| Rectangular flanges          |              | 13                    | -     | Without rectangular flange                | Yes   |  |                         |
|                              |              |                       | A     | Outlet rectangular flange only            | Yes   |  |                         |
|                              |              |                       | B     | Inlet rectangular flange only             | Yes   |  |                         |
|                              |              |                       | C     | Inlet and outlet rectangular flanges      | Yes   |  |                         |
| Specific (options selection) |              | 14                    | -     | Without specific option                   | Yes   |  |                         |
|                              |              |                       | A     | With specific options (factory fitted)    | Yes   |  |                         |

## Key:

☐ Default value for mandatory characteristic

☐ Pack: Available with individual packaging

## 6 - PRODUCT CHARACTERISTICS LIST

Specific options (can be selected if digit no. 14 = A\*)

| Characteristic Name           | Value      | Description  | Pack. | Compatibility  |
|-------------------------------|------------|--|-------|--|
| Indoor air quality            | Without    | Filter   | Yes   | Only available with rect. flanges or plenum  |
|                               | G3         |  | Yes   |  |
|                               | M5         |  | No    | M5 filter only available for 42NH units with plenum  |
| Fan speed wiring for AC motor | 654        | AC motor speeds arrangement:   | Yes   | R6 not available for 42NH range  |
|                               | 653        |  |       |  |
|                               | 652        |  |       |  |
|                               | 651        | R6 = minimum speed for 42NL  |       |  |
|                               | 643        | R5 = minimum speed for 42NH  |       |  |
|                               | 642        | R1 = maximum speed   |       |  |
|                               | 641        |  |       |  |
|                               | 632        |  |       |  |
|                               | 631        | When this option is not selected, the standard wiring for all 42NL and 42NH units is always R5-R3-R1 |       |  |
|                               | 621        |  |       |  |
|                               | 543        |  |       |  |
|                               | 542        |  |       |  |
|                               | 541        |  |       |  |
|                               | 532        |  |       |  |
|                               | 531        |  |       |  |
|                               | 521        |  |       |  |
|                               | 432        |  |       |  |
|                               | 431        |  |       |  |
|                               | 421        |  |       |  |
|                               | 321        |  |       |  |
| Packaging                     | Bundle     | Filmed on a pallet (shrink wrap)   | -     |  |
|                               | Individual | Individual packaging   |       |  |
| Inlet plenum                  | 1_inline   | 1 spigot in line   | No    | According to unit sizes, filter and fresh air position<br>Use selection software for more informations |
|                               | 1_lat_op   | 1 lateral spigot opposite to coil side   |       |  |
|                               | 1_lat      | 1 lateral spigot at coil side  |       |  |
|                               | 2          | 2 spigots  |       |  |
|                               | 2_lat      | 2 lateral spigots  |       |  |
|                               | 3          | 3 spigots  |       |  |
|                               | 4          | 4 spigots  |       |  |
|                               | 5          | 5 spigots  |       |  |
|                               | 6          | 6 spigots  |       |  |
| Outlet plenum                 | 7          | 7 spigots  | No    | According to unit sizes, filter and fresh air position<br>Use selection software for more informations |
|                               | 1_inline   | 1 spigot in line   |       |  |
|                               | 1_lat_op   | 1 lateral spigot opposite to coil side   |       |  |
|                               | 1_lat      | 1 lateral spigot at coil side  |       |  |
|                               | 2          | 2 spigots  |       |  |
|                               | 2_lat      | 2 lateral spigots  |       |  |
|                               | 3          | 3 spigots  |       |  |
|                               | 4          | 4 spigots  |       |  |
|                               | 5          | 5 spigots  |       |  |
| 6                             | 6 spigots  |  |       |  |

**Key:**

☐ Default value for mandatory characteristic

Pack: Available with individual packaging

\* If digit no. 14 = "-" the default values are selected.

Boolean: yes or no



## 6 - PRODUCT CHARACTERISTICS LIST

| Characteristic Name      | Value         | Description  | Pack. | Compatibility  |
|--------------------------|---------------|--|-------|--|
| Inlet spigots diameter   | DN160         | Spigot diameter  | No    | DN160 Not available for unit sizes 6xx to 7xx  |
|                          | DN200         |  |       | DN250 Not available for unit sizes 2xx to 5xx  |
|                          | DN250         |  |       |  |
| Outlet spigots diameter  | DN160         | Spigot diameter  | No    | DN160 Not available for unit sizes 6xx to 7xx  |
|                          | DN200         |  |       | DN250 Not available for unit sizes 2xx to 5xx  |
|                          | DN250         |  |       |  |
| Fresh air                | DN125         | Without controller - spigot only                                       | No    | Motorized air damper compatible with NTC and WTC only (Position feedback is not available if WTC and CO <sub>2</sub> sensor are also selected) |
|                          | DN125_15_50   | 15 to 50 m <sup>3</sup> /h controller                                  |       |  |
|                          | DN125_50_100  | 50 to 100 m <sup>3</sup> /h controller                                 |       |  |
|                          | DN125_100_180 | 100 to 180 m <sup>3</sup> /h controller                                |       |  |
|                          | Adaptor_D125  | For motorized air damper (to be ordered separately)                    |       |  |
| Fresh air position       | In_opp        | At inlet side opposite to coil hand                                    | No    | According to unit sizes, filter and spigots selection<br>Use selection software for more informations  |
|                          | In_coil       | At inlet side same as coil hand  |       |  |
|                          | In_line       | At inlet rear side   |       |  |
|                          | Optimized     | Inlet optimized: opposite to coil hand in base unit for compact design |       |  |
|                          | Out_opp       | At outlet side opposite to coil hand                                   |       |  |
|                          | Out_coil      | At outlet side same as coil hand                                       |       |  |
| Fuse holder              | boolean       | Fuse holder  | Yes   |  |
| Plastic cover            | boolean       | Plastic cover  | Yes   | For bare wires (without control only)  |
| Condensate pump          | boolean       | Condensate pump  | No    |  |
| Flexible                 | boolean       | Flexible hoses   | No    |  |
| Return air sensor        | boolean       | Return air temperature sensor  | Yes   | Compatible with NTC and WTC only   |
| Supply air sensor        | boolean       | Supply air temperature sensor  | Yes   | Compatible with NTC and WTC only   |
| Water temperature sensor | boolean       | Water temperature sensor   | Yes   | According to controller and coil type  |
| CO <sub>2</sub> sensor   | boolean       | CO <sub>2</sub> sensor   | Yes   | Compatible with NTC and WTC only   |

**Key:**

Pack: Available with individual packaging

\* If digit no. 14 = "-" the default values are selected.

Boolean: yes or no

## 7 - 42NH AND 42NL PERFORMANCE DATA

### 7.1 - Physical and electrical data at Eurovent conditions - 42NL - Sizes 2 and 3

With G3 filter - without plenum

| 42NL                                    |       | 225                    |      |      |      |      |       | 235                    |      |      |      |      |      |
|---|-------|------------------------|------|------|------|------|-------|------------------------|------|------|------|------|------|
| Fan speed                               |       | R6                     | R5   | R4   | R3   | R2   | R1    | R6                     | R5   | R4   | R3   | R2   | R1   |
| (Eurovent certification speeds)         |       | (L)                    | (M)  | (H)  |      |      | (Max) | (L)                    | (M)  | (H)  |      |      | Max  |
| Air flow                                | l/s   | 59                     | 69   | 96   | 109  | 125  | 138   | 59                     | 69   | 96   | 109  | 125  | 138  |
|   | m³/h  | 214                    | 248  | 346  | 393  | 449  | 496   | 214                    | 248  | 346  | 393  | 449  | 496  |
| Available static pressure               | Pa    | 0                      | 0    | 0    | 0    | 0    | 0     | 0                      | 0    | 0    | 0    | 0    | 0    |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
| Total cooling capacity                  | kW    | 1,17                   | 1,33 | 1,72 | 1,87 | 2,03 | 2,13  | 1,35                   | 1,54 | 2,04 | 2,25 | 2,46 | 2,62 |
| Sensible cooling capacity               | kW    | 0,93                   | 1,06 | 1,40 | 1,54 | 1,69 | 1,80  | 1,03                   | 1,18 | 1,59 | 1,76 | 1,96 | 2,10 |
| Water flow                              | l/s   | 0,06                   | 0,06 | 0,08 | 0,09 | 0,10 | 0,11  | 0,07                   | 0,08 | 0,10 | 0,11 | 0,12 | 0,13 |
|   | l/h   | 210                    | 230  | 300  | 330  | 360  | 380   | 240                    | 270  | 360  | 400  | 430  | 460  |
| Water pressure drop                     | kPa   | 16,2                   | 20,4 | 31,4 | 36,5 | 42   | 46,3  | 12,2                   | 15,6 | 26,5 | 31   | 36,3 | 40,7 |
| Water volume                            | l     | 0,4                    |      |      |      |      |       | 0,5                    |      |      |      |      |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
| Heating capacity                        | kW    | 1,39                   | 1,58 | 2,07 | 2,28 | 2,50 | 2,68  | 1,57                   | 1,80 | 2,41 | 2,69 | 2,99 | 3,23 |
| Water flow                              | l/s   | 0,07                   | 0,08 | 0,10 | 0,11 | 0,12 | 0,13  | 0,08                   | 0,09 | 0,12 | 0,13 | 0,14 | 0,16 |
|   | l/h   | 240                    | 270  | 360  | 400  | 440  | 470   | 270                    | 310  | 420  | 470  | 520  | 560  |
| Water pressure drop                     | kPa   | 17,9                   | 22,1 | 35   | 41,3 | 48,6 | 54,7  | 13,9                   | 17,3 | 28,4 | 34,2 | 41   | 46,8 |
| Water volume                            | l     | 0,4                    |      |      |      |      |       | 0,5                    |      |      |      |      |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
| Total cooling capacity                  | kW    | NA                     |      |      |      |      |       | 1,02                   | 1,16 | 1,51 | 1,65 | 1,80 | 1,90 |
| Sensible cooling capacity               | kW    |                        |      |      |      |      |       | 0,86                   | 0,98 | 1,30 | 1,44 | 1,58 | 1,69 |
| Water flow                              | l/s   |                        |      |      |      |      |       | 0,05                   | 0,06 | 0,08 | 0,08 | 0,09 | 0,09 |
|   | l/h   |                        |      |      |      |      |       | 180                    | 200  | 270  | 290  | 320  | 340  |
| Water pressure drop                     | kPa   |                        |      |      |      |      |       | 5,4                    | 6,6  | 10,5 | 12,4 | 14,6 | 16,4 |
| Water volume                            | l     |                        |      |      |      |      |       | 0,3                    |      |      |      |      |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
| Heating capacity                        | kW    | NA                     |      |      |      |      |       | 1,63                   | 1,84 | 2,36 | 2,56 | 2,76 | 2,91 |
| Water flow                              | l/s   |                        |      |      |      |      |       | 0,04                   | 0,04 | 0,06 | 0,06 | 0,07 | 0,07 |
|   | l/h   |                        |      |      |      |      |       | 140                    | 160  | 210  | 220  | 240  | 260  |
| Water pressure drop                     | kPa   |                        |      |      |      |      |       | 4,8                    | 5,7  | 8,3  | 9,5  | 10,7 | 11,6 |
| Water volume                            | l     |                        |      |      |      |      |       | 0,2                    |      |      |      |      |      |
| Electric heater                         |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
|   |       | 230V ±10% - 1ph - 50Hz |      |      |      |      |       | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |
| Maximum capacity                        | W     | 1000                   |      |      |      |      |       | 1000                   |      |      |      |      |      |
| Current input                           | A     | 4,6                    |      |      |      |      |       | 4,6                    |      |      |      |      |      |
| Sound levels                            |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
| Sound power level (global)              | dB(A) | 38                     | 41   | 48   | 51   | 54   | 57    | 38                     | 41   | 48   | 51   | 54   | 57   |
| Electrical data, motor                  |       |                        |      |      |      |      |       |                        |      |      |      |      |      |
| Power input                             | W     | 28                     | 31   | 45   | 54   | 65   | 80    | 28                     | 31   | 45   | 54   | 65   | 80   |
| Current input                           | A     | 0,12                   | 0,14 | 0,20 | 0,23 | 0,28 | 0,35  | 0,12                   | 0,14 | 0,20 | 0,23 | 0,28 | 0,35 |
| FCEER [energy class] - 2 pipes          |       | 42 [E]                 |      |      |      |      |       | 48 [E]                 |      |      |      |      |      |
| FCCOP [energy class]                    |       | 50 [E]                 |      |      |      |      |       | 56 [E]                 |      |      |      |      |      |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      |      |       | 37 [E]                 |      |      |      |      |      |
| FCCOP [energy class]                    |       |                        |      |      |      |      |       | 58 [E]                 |      |      |      |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NL                                    |       | 229                    |      |      |      | 239                    |      |      |       |
|---|-------|------------------------|------|------|------|------------------------|------|------|-------|
| Fan speed                               |       | 2V                     | 4V   | 6V   | 10V  | 2V                     | 5V   | 7V   | 10V   |
| (Eurovent certification speeds)         |       | (L)                    | (M)  | (H)  | Max  | (L)                    | (M)  | (H)  | (Max) |
| Air flow                                | l/s   | 43                     | 58   | 73   | 102  | 43                     | 65   | 81   | 102   |
|   | m³/h  | 153                    | 210  | 261  | 368  | 153                    | 234  | 292  | 368   |
| Available static pressure               | Pa    | 0                      | 0    | 0    | 0    | 0                      | 0    | 0    | 0     |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |                        |      |      |       |
| Total cooling capacity                  | kW    | 0,89                   | 1,17 | 1,41 | 1,83 | 1,00                   | 1,48 | 1,81 | 2,17  |
| Sensible cooling capacity               | kW    | 0,70                   | 0,94 | 1,14 | 1,50 | 0,76                   | 1,14 | 1,40 | 1,71  |
| Water flow                              | l/s   | 0,04                   | 0,06 | 0,07 | 0,09 | 0,05                   | 0,07 | 0,09 | 0,11  |
|   | l/h   | 150                    | 200  | 240  | 320  | 170                    | 260  | 310  | 380   |
| Water pressure drop                     | kPa   | 9,4                    | 15,7 | 22,1 | 33,8 | 7                      | 14,1 | 20,3 | 28,7  |
| Water volume                            | l     | 0,4                    |      |      |      | 0,5                    |      |      |       |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |                        |      |      |       |
| Heating capacity                        | kW    | 1,03                   | 1,37 | 1,65 | 2,17 | 1,13                   | 1,70 | 2,08 | 2,55  |
| Water flow                              | l/s   | 0,05                   | 0,07 | 0,08 | 0,11 | 0,06                   | 0,08 | 0,10 | 0,12  |
|   | l/h   | 180                    | 240  | 290  | 380  | 200                    | 300  | 360  | 440   |
| Water pressure drop                     | kPa   | 11                     | 17,5 | 23,8 | 37,9 | 8,3                    | 15,8 | 22,2 | 31,1  |
| Water volume                            | l     | 0,4                    |      |      |      | 0,5                    |      |      |       |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |                        |      |      |       |
| Total cooling capacity                  | kW    | NA                     |      |      |      | 0,76                   | 1,12 | 1,35 | 1,61  |
| Sensible cooling capacity               | kW    |                        |      |      |      | 0,65                   | 0,96 | 1,16 | 1,40  |
| Water flow                              | l/s   |                        |      |      |      | 0,04                   | 0,05 | 0,06 | 0,08  |
|   | l/h   |                        |      |      |      | 130                    | 190  | 230  | 280   |
| Water pressure drop                     | kPa   |                        |      |      |      | 3,4                    | 6,1  | 8,3  | 11,4  |
| Water volume                            | l     |                        |      |      |      | 0,3                    |      |      |       |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |                        |      |      |       |
| Heating capacity                        | kW    | NA                     |      |      |      | 1,21                   | 1,75 | 2,09 | 2,46  |
| Water flow                              | l/s   |                        |      |      |      | 0,03                   | 0,04 | 0,05 | 0,06  |
|   | l/h   |                        |      |      |      | 110                    | 150  | 180  | 220   |
| Water pressure drop                     | kPa   |                        |      |      |      | 3,3                    | 5,4  | 6,9  | 8,9   |
| Water volume                            | l     |                        |      |      |      |                        |      |      |       |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |       |
| Maximum capacity                        | W     | 1000                   |      |      |      | 1000                   |      |      |       |
| Current input                           | A     | 4,6                    |      |      |      | 4,6                    |      |      |       |
| Sound levels                            |       |                        |      |      |      |                        |      |      |       |
| Sound power level (global)              | dB(A) | 32                     | 37   | 40   | 48   | 32                     | 38   | 41   | 48    |
| Electrical data, motor                  |       |                        |      |      |      |                        |      |      |       |
| Power input                             | W     | 3                      | 5    | 7    | 13   | 3                      | 5    | 9    | 13    |
| Current input                           | A     | 0,05                   | 0,06 | 0,08 | 0,14 | 0,05                   | 0,06 | 0,10 | 0,14  |
| FCEER [energy class] - 2 pipes          |       | 263 [A]                |      |      |      | 304 [A]                |      |      |       |
| FCCOP [energy class]                    |       | 310 [A]                |      |      |      | 347 [A]                |      |      |       |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      | 230 [A]                |      |      |       |
| FCCOP [energy class]                    |       |                        |      |      |      | 366 [A]                |      |      |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NL                                    |       | 325    |      |      |      |      |       | 335                    |      |      |      |      |       |
|---|-------|--------|------|------|------|------|-------|------------------------|------|------|------|------|-------|
| Fan speed                               |       | R6     | R5   | R4   | R3   | R2   | R1    | R6                     | R5   | R4   | R3   | R2   | R1    |
| (Eurovent certification speeds)         |       | (L)    | (M)  | (H)  |      |      | (Max) | (L)                    | (M)  | (H)  |      |      | (Max) |
| Air flow                                | l/s   | 84     | 94   | 124  | 144  | 154  | 168   | 84                     | 94   | 124  | 144  | 154  | 168   |
|   | m³/h  | 302    | 338  | 447  | 517  | 555  | 606   | 302                    | 338  | 447  | 517  | 555  | 606   |
| Available static pressure               | Pa    | 0      | 0    | 0    | 0    | 0    | 0     | 0                      | 0    | 0    | 0    | 0    | 0     |
| Cooling mode, two pipes <sup>(1)</sup>  |       |        |      |      |      |      |       |                        |      |      |      |      |       |
| Total cooling capacity                  | kW    | 1,43   | 1,56 | 1,90 | 2,11 | 2,20 | 2,33  | 1,75                   | 1,94 | 2,48 | 2,80 | 2,95 | 3,16  |
| Sensible cooling capacity               | kW    | 1,21   | 1,32 | 1,65 | 1,84 | 1,94 | 2,06  | 1,38                   | 1,54 | 1,98 | 2,24 | 2,38 | 2,56  |
| Water flow                              | l/s   | 0,07   | 0,08 | 0,09 | 0,11 | 0,11 | 0,12  | 0,09                   | 0,09 | 0,12 | 0,14 | 0,14 | 0,16  |
|   | l/h   | 250    | 270  | 340  | 380  | 390  | 420   | 310                    | 340  | 440  | 490  | 520  | 560   |
| Water pressure drop                     | kPa   | 10,5   | 12,2 | 17,9 | 21,3 | 23,1 | 25,6  | 11,6                   | 13,9 | 22   | 27,5 | 30,3 | 33,8  |
| Water volume                            | l     | 0,7    |      |      |      |      |       | 0,9                    |      |      |      |      |       |
| Heating mode, two pipes <sup>(2)</sup>  |       |        |      |      |      |      |       |                        |      |      |      |      |       |
| Heating capacity                        | kW    | 1,97   | 2,16 | 2,67 | 2,96 | 3,10 | 3,27  | 2,23                   | 2,48 | 3,17 | 3,57 | 3,77 | 4,02  |
| Water flow                              | l/s   | 0,09   | 0,11 | 0,13 | 0,14 | 0,15 | 0,16  | 0,11                   | 0,12 | 0,15 | 0,17 | 0,18 | 0,19  |
|   | l/h   | 340    | 380  | 460  | 510  | 540  | 570   | 390                    | 430  | 550  | 620  | 660  | 700   |
| Water pressure drop                     | kPa   | 17,9   | 20,6 | 28,6 | 33,6 | 36,2 | 39,5  | 15,3                   | 18,1 | 27,2 | 33,3 | 36,6 | 40,9  |
| Water volume                            | l     | 0,7    |      |      |      |      |       | 0,9                    |      |      |      |      |       |
| Cooling mode, four pipes <sup>(1)</sup> |       |        |      |      |      |      |       |                        |      |      |      |      |       |
| Total cooling capacity                  | kW    | NA     |      |      |      |      |       | 1,75                   | 1,91 | 2,35 | 2,60 | 2,73 | 2,88  |
| Sensible cooling capacity               | kW    |        |      |      |      |      |       | 1,37                   | 1,50 | 1,88 | 2,10 | 2,21 | 2,36  |
| Water flow                              | l/s   |        |      |      |      |      |       | 0,09                   | 0,09 | 0,11 | 0,13 | 0,13 | 0,14  |
|   | l/h   |        |      |      |      |      |       | 310                    | 340  | 410  | 460  | 480  | 510   |
| Water pressure drop                     | kPa   |        |      |      |      |      |       | 15,9                   | 18,8 | 26,9 | 32   | 34,7 | 38,3  |
| Water volume                            | l     |        |      |      |      |      |       | 0,6                    |      |      |      |      |       |
| Heating mode, four pipes <sup>(3)</sup> |       |        |      |      |      |      |       |                        |      |      |      |      |       |
| Heating capacity                        | kW    | NA     |      |      |      |      |       | 2,43                   | 2,66 | 3,21 | 3,48 | 3,61 | 3,78  |
| Water flow                              | l/s   |        |      |      |      |      |       | 0,06                   | 0,06 | 0,08 | 0,09 | 0,09 | 0,09  |
|   | l/h   |        |      |      |      |      |       | 210                    | 230  | 280  | 310  | 320  | 330   |
| Water pressure drop                     | kPa   |        |      |      |      |      |       | 11                     | 12,6 | 17,2 | 19,7 | 20,9 | 22,5  |
| Water volume                            | l     |        |      |      |      |      |       | 0,3                    |      |      |      |      |       |
| Electric heater                         |       |        |      |      |      |      |       | 230V ±10% - 1ph - 50Hz |      |      |      |      |       |
| Maximum capacity                        | W     | 1600   |      |      |      |      |       | 1600                   |      |      |      |      |       |
| Current input                           | A     | 7,3    |      |      |      |      |       | 7,3                    |      |      |      |      |       |
| Sound levels                            |       |        |      |      |      |      |       |                        |      |      |      |      |       |
| Sound power level (global)              | dB(A) | 43     | 46   | 54   | 57   | 59   | 61    | 43                     | 46   | 54   | 57   | 59   | 61    |
| Electrical data, motor                  |       |        |      |      |      |      |       |                        |      |      |      |      |       |
| Power input                             | W     | 38     | 45   | 62   | 74   | 86   | 99    | 38                     | 45   | 62   | 74   | 86   | 99    |
| Current input                           | A     | 0,16   | 0,20 | 0,27 | 0,32 | 0,37 | 0,44  | 0,16                   | 0,20 | 0,27 | 0,32 | 0,37 | 0,44  |
| FCEER [energy class] - 2 pipes          |       | 36 [E] |      |      |      |      |       | 45 [E]                 |      |      |      |      |       |
| FCCOP [energy class]                    |       | 50 [E] |      |      |      |      |       | 57 [E]                 |      |      |      |      |       |
| FCEER [energy class] - 4 pipes          |       |        |      |      |      |      |       | 44 [E]                 |      |      |      |      |       |
| FCCOP [energy class]                    |       |        |      |      |      |      |       | 62 [E]                 |      |      |      |      |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NL                                    |       | 329                    |      |      |       | 339                    |      |      |       |      |      |      |      |
|---|-------|------------------------|------|------|-------|------------------------|------|------|-------|------|------|------|------|
| Fan speed                               |       | 2V                     | 4V   | 6V   | 10V   | 2V                     | 5V   | 7V   | 10V   |      |      |      |      |
| (Eurovent certification speeds)         |       | (L)                    | (M)  | (H)  | (Max) | (L)                    | (M)  | (H)  | (Max) |      |      |      |      |
| Air flow                                | l/s   | 55                     | 88   | 120  | 165   | 55                     | 88   | 120  | 165   |      |      |      |      |
|   | m³/h  | 198                    | 318  | 431  | 594   | 198                    | 318  | 431  | 594   |      |      |      |      |
| Available static pressure               | Pa    | 0                      | 0    | 0    | 0     | 0                      | 0    | 0    | 0     |      |      |      |      |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |       |                        |      |      |       |      |      |      |      |
| Total cooling capacity                  | kW    | 1,05                   | 1,52 | 1,89 | 2,35  | 1,21                   | 1,87 | 2,44 | 3,16  |      |      |      |      |
| Sensible cooling capacity               | kW    | 0,87                   | 1,29 | 1,64 | 2,08  | 0,95                   | 1,48 | 1,95 | 2,56  |      |      |      |      |
| Water flow                              | l/s   | 0,05                   | 0,07 | 0,09 | 0,11  | 0,06                   | 0,09 | 0,12 | 0,15  |      |      |      |      |
|   | l/h   | 180                    | 260  | 330  | 410   | 210                    | 320  | 420  | 550   |      |      |      |      |
| Water pressure drop                     | kPa   | 5,9                    | 11,2 | 17   | 25    | 5,9                    | 12,6 | 20,7 | 32,9  |      |      |      |      |
| Water volume                            | l     | 0,7                    |      |      |       | 0,9                    |      |      |       |      |      |      |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |       |                        |      |      |       |      |      |      |      |
| Heating capacity                        | kW    | 1,37                   | 2,05 | 2,60 | 3,23  | 1,50                   | 2,34 | 3,06 | 3,96  |      |      |      |      |
| Water flow                              | l/s   | 0,07                   | 0,10 | 0,13 | 0,16  | 0,07                   | 0,11 | 0,15 | 0,19  |      |      |      |      |
|   | l/h   | 240                    | 360  | 450  | 560   | 260                    | 410  | 530  | 690   |      |      |      |      |
| Water pressure drop                     | kPa   | 10,9                   | 19,1 | 27,3 | 38,7  | 8,2                    | 16,5 | 25,7 | 39,8  |      |      |      |      |
| Water volume                            | l     | 0,7                    |      |      |       | 0,9                    |      |      |       |      |      |      |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |       |                        |      |      |       |      |      |      |      |
| Total cooling capacity                  | kW    | NA                     |      |      |       | 1,27                   | 1,87 | 2,36 | 2,95  |      |      |      |      |
| Sensible cooling capacity               | kW    |                        |      |      |       | 0,98                   | 1,47 | 1,89 | 2,43  |      |      |      |      |
| Water flow                              | l/s   |                        |      |      |       | 0,06                   | 0,09 | 0,11 | 0,14  |      |      |      |      |
|   | l/h   |                        |      |      |       | 220                    | 320  | 400  | 510   |      |      |      |      |
| Water pressure drop                     | kPa   |                        |      |      |       | 8                      | 16   | 25   | 37    |      |      |      |      |
| Water volume                            | l     | NA                     |      |      |       | 0,5984                 |      |      |       |      |      |      |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |       |                        |      |      |       |      |      |      |      |
| Heating capacity                        | kW    |                        |      |      |       | NA                     |      |      |       | 1,95 | 2,90 | 3,58 | 4,27 |
| Water flow                              | l/s   |                        |      |      |       |                        |      |      |       | 0,05 | 0,07 | 0,09 | 0,11 |
|   | l/h   |                        |      |      |       |                        |      |      |       | 170  | 250  | 310  | 380  |
| Water pressure drop                     | kPa   | 7                      | 13   | 19   | 26    |                        |      |      |       |      |      |      |      |
| Water volume                            | l     | 0,3                    |      |      |       |                        |      |      |       |      |      |      |      |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |       | 230V ±10% - 1ph - 50Hz |      |      |       |      |      |      |      |
| Maximum capacity                        | W     | 1600                   |      |      |       | 1600                   |      |      |       |      |      |      |      |
| Current input                           | A     | 7,3                    |      |      |       | 7,3                    |      |      |       |      |      |      |      |
| Sound levels                            |       |                        |      |      |       |                        |      |      |       |      |      |      |      |
| Sound power level (global)              | dB(A) | 37                     | 46   | 53   | 60    | 37                     | 46   | 53   | 60    |      |      |      |      |
| Electrical data, motor                  |       |                        |      |      |       |                        |      |      |       |      |      |      |      |
| Power input                             | W     | 4                      | 10   | 20   | 49    | 4                      | 10   | 20   | 49    |      |      |      |      |
| Current input                           | A     | 0,06                   | 0,10 | 0,17 | 0,39  | 0,06                   | 0,10 | 0,17 | 0,39  |      |      |      |      |
| FCEER [energy class] - 2 pipes          |       | 187 [A]                |      |      |       | 223 [A]                |      |      |       |      |      |      |      |
| FCCOP [energy class]                    |       | 254 [B]                |      |      |       | 284 [A]                |      |      |       |      |      |      |      |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |       | 228 [A]                |      |      |       |      |      |      |      |
| FCCOP [energy class]                    |       |                        |      |      |       | 360 [A]                |      |      |       |      |      |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

## 7.2 - Physical and electrical data at Eurovent conditions - 42NL - Size 4

With G3 filter - without plenum

| 42NL                                    |       | 425    |       |       |       |       |       | 435                    |       |       |       |       |       |
|---|-------|--------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|
| Fan speed                               |       | R6     | R5    | R4    | R3    | R2    | R1    | R6                     | R5    | R4    | R3    | R2    | R1    |
| (Eurovent certification speeds)         |       | (L)    | (M)   | (H)   |       |       | (Max) | (L)                    | (M)   | (H)   |       |       | (Max) |
| Air flow                                | l/s   | 129    | 149   | 209   | 234   | 267   | 301   | 129                    | 149   | 209   | 234   | 267   | 301   |
|   | m³/h  | 464    | 537   | 751   | 842   | 960   | 1085  | 464                    | 537   | 751   | 842   | 960   | 1085  |
| Available static pressure               | Pa    | 0      | 0     | 0     | 0     | 0     | 0     | 0                      | 0     | 0     | 0     | 0     | 0     |
| Cooling mode, two pipes <sup>(1)</sup>  |       |        |       |       |       |       |       |                        |       |       |       |       |       |
| Total cooling capacity                  | kW    | 2,37   | 2,67  | 3,44  | 3,70  | 4,01  | 4,26  | 2,69                   | 3,12  | 4,25  | 4,67  | 5,15  | 5,59  |
| Sensible cooling capacity               | kW    | 1,93   | 2,19  | 2,87  | 3,13  | 3,43  | 3,70  | 2,12                   | 2,45  | 3,35  | 3,70  | 4,13  | 4,53  |
| Water flow                              | l/s   | 0,12   | 0,13  | 0,17  | 0,18  | 0,20  | 0,21  | 0,13                   | 0,15  | 0,21  | 0,23  | 0,25  | 0,28  |
|   | l/h   | 420    | 470   | 610   | 660   | 710   | 760   | 470                    | 550   | 750   | 820   | 910   | 990   |
| Water pressure drop                     | kPa   | 14,8   | 18,5  | 28,3  | 32,2  | 36,8  | 41,2  | 19,4                   | 25,7  | 43,7  | 51,3  | 60,8  | 70,2  |
| Water volume                            | l     | 1,0    |       |       |       |       |       | 1,3                    |       |       |       |       |       |
| Heating mode, two pipes <sup>(2)</sup>  |       |        |       |       |       |       |       |                        |       |       |       |       |       |
| Heating capacity                        | kW    | 2,95   | 3,40  | 4,61  | 5,07  | 5,60  | 6,09  | 3,15                   | 3,64  | 5,04  | 5,60  | 6,29  | 6,97  |
| Water flow                              | l/s   | 0,14   | 0,16  | 0,22  | 0,24  | 0,27  | 0,29  | 0,15                   | 0,18  | 0,24  | 0,27  | 0,30  | 0,34  |
|   | l/h   | 510    | 590   | 800   | 880   | 970   | 1060  | 550                    | 630   | 880   | 970   | 1090  | 1210  |
| Water pressure drop                     | kPa   | 17,70  | 22,40 | 37,50 | 44,10 | 52,30 | 60,50 | 21,70                  | 27,80 | 48,20 | 57,90 | 70,90 | 84,70 |
| Water volume                            | l     | 1,0    |       |       |       |       |       | 1,3                    |       |       |       |       |       |
| Cooling mode, four pipes <sup>(1)</sup> |       |        |       |       |       |       |       |                        |       |       |       |       |       |
| Total cooling capacity                  | kW    | NA     |       |       |       |       |       | 2,46                   | 2,77  | 3,58  | 3,88  | 4,23  | 4,56  |
| Sensible cooling capacity               | kW    |        |       |       |       |       |       | 1,99                   | 2,25  | 2,97  | 3,25  | 3,58  | 3,90  |
| Water flow                              | l/s   |        |       |       |       |       |       | 0,12                   | 0,14  | 0,18  | 0,19  | 0,21  | 0,23  |
|   | l/h   |        |       |       |       |       |       | 430                    | 490   | 630   | 690   | 750   | 810   |
| Water pressure drop                     | kPa   |        |       |       |       |       |       | 20,1                   | 24,9  | 38,5  | 44,2  | 51,3  | 58,7  |
| Water volume                            | l     |        |       |       |       |       |       | 0,9                    |       |       |       |       |       |
| Heating mode, four pipes <sup>(3)</sup> |       |        |       |       |       |       |       |                        |       |       |       |       |       |
| Heating capacity                        | kW    | NA     |       |       |       |       |       | 3,17                   | 3,68  | 5,01  | 5,50  | 6,05  | 6,54  |
| Water flow                              | l/s   |        |       |       |       |       |       | 0,08                   | 0,09  | 0,12  | 0,13  | 0,15  | 0,16  |
|   | l/h   |        |       |       |       |       |       | 280                    | 320   | 440   | 480   | 530   | 570   |
| Water pressure drop                     | kPa   |        |       |       |       |       |       | 18,9                   | 24,3  | 41,2  | 48,4  | 57,1  | 65,4  |
| Water volume                            | l     |        |       |       |       |       |       | 0,5                    |       |       |       |       |       |
| Electric heater                         |       |        |       |       |       |       |       | 230V ±10% - 1ph - 50Hz |       |       |       |       |       |
| Maximum capacity                        | W     | 2000   |       |       |       |       |       | 2000                   |       |       |       |       |       |
| Current input                           | A     | 9,1    |       |       |       |       |       | 9,1                    |       |       |       |       |       |
| Sound levels                            |       |        |       |       |       |       |       |                        |       |       |       |       |       |
| Sound power level (global)              | dB(A) | 45     | 48    | 55    | 58    | 60    | 63    | 45                     | 48    | 55    | 58    | 60    | 63    |
| Electrical data, motor                  |       |        |       |       |       |       |       |                        |       |       |       |       |       |
| Power input                             | W     | 57     | 69    | 98    | 113   | 129   | 157   | 57                     | 69    | 98    | 113   | 129   | 157   |
| Current input                           | A     | 0,25   | 0,30  | 0,43  | 0,49  | 0,57  | 0,69  | 0,25                   | 0,30  | 0,43  | 0,49  | 0,57  | 0,69  |
| FCEER [energy class] - 2 pipes          |       | 40 [E] |       |       |       |       |       | 46 [E]                 |       |       |       |       |       |
| FCCOP [energy class]                    |       | 51 [E] |       |       |       |       |       | 54 [E]                 |       |       |       |       |       |
| FCEER [energy class] - 4 pipes          |       |        |       |       |       |       |       | 42 [E]                 |       |       |       |       |       |
| FCCOP [energy class]                    |       |        |       |       |       |       |       | 55 [E]                 |       |       |       |       |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.



## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NL                                    |      | 429                    |      |      |      |      |       | 439                    |      |      |      |      |       |      |
|---|------|------------------------|------|------|------|------|-------|------------------------|------|------|------|------|-------|------|
| Fan speed                               |      | 2V                     | 3.5V | 4V   | 6V   | 8V   | 10V   | 2V                     | 3.5V | 4V   | 6V   | 8V   | 10V   |      |
| (Eurovent certification speeds)         |      | (L)                    | (M)  | (H)  |      |      | (Max) | (L)                    | (M)  | (H)  |      |      | (Max) |      |
| Air flow                                | l/s  | 67                     | 110  | 123  | 169  | 206  | 226   | 67                     | 111  | 123  | 169  | 206  | 226   |      |
|   | m³/h | 240                    | 397  | 444  | 610  | 743  | 814   | 240                    | 398  | 444  | 610  | 743  | 814   |      |
| Available static pressure               |      | Pa                     | 0    | 0    | 0    | 0    | 0     | 0                      | 0    | 0    | 0    | 0    | 0     |      |
| Cooling mode, two pipes <sup>(1)</sup>  |      |                        |      |      |      |      |       |                        |      |      |      |      |       |      |
| Total cooling capacity                  |      | kW                     | 1,33 | 2,09 | 2,31 | 2,99 | 3,43  | 3,63                   | 1,34 | 2,32 | 2,60 | 3,56 | 4,22  | 4,54 |
| Sensible cooling capacity               |      | kW                     | 1,08 | 1,71 | 1,89 | 2,47 | 2,87  | 3,06                   | 1,09 | 1,84 | 2,05 | 2,80 | 3,33  | 3,60 |
| Water flow                              | l/s  | 0,06                   | 0,10 | 0,11 | 0,14 | 0,17 | 0,18  | 0,06                   | 0,11 | 0,13 | 0,17 | 0,21 | 0,22  |      |
|   | l/h  | 230                    | 360  | 400  | 520  | 600  | 640   | 230                    | 400  | 450  | 620  | 740  | 800   |      |
| Water pressure drop                     |      | kPa                    | 5,3  | 11,5 | 13,8 | 21,9 | 27,9  | 31                     | 5,4  | 14,3 | 17,7 | 32,2 | 42,9  | 48,8 |
| Water volume                            |      | l                      | 1,0  |      |      |      |       |                        | 1,3  |      |      |      |       |      |
| Heating mode, two pipes <sup>(2)</sup>  |      |                        |      |      |      |      |       |                        |      |      |      |      |       |      |
| Heating capacity                        |      | kW                     | 1,49 | 2,52 | 2,82 | 3,83 | 4,57  | 4,93                   | 1,59 | 2,68 | 3,00 | 4,12 | 4,98  | 5,42 |
| Water flow                              | l/s  | 0,07                   | 0,12 | 0,14 | 0,19 | 0,22 | 0,24  | 0,08                   | 0,13 | 0,14 | 0,20 | 0,24 | 0,26  |      |
|   | l/h  | 260                    | 440  | 490  | 670  | 800  | 860   | 280                    | 470  | 520  | 720  | 870  | 940   |      |
| Water pressure drop                     |      | kPa                    | 6,1  | 13,6 | 16,4 | 27,3 | 36,9  | 42,0                   | 7,3  | 16,7 | 20,1 | 34,2 | 47,3  | 54,7 |
| Water volume                            |      | l                      | 1,0  |      |      |      |       |                        | 1,3  |      |      |      |       |      |
| Cooling mode, four pipes <sup>(1)</sup> |      |                        |      |      |      |      |       |                        |      |      |      |      |       |      |
| Total cooling capacity                  |      | kW                     | NA   |      |      |      |       |                        | 1,40 | 2,18 | 2,40 | 3,09 | 3,57  | 3,79 |
| Sensible cooling capacity               |      | kW                     |      |      |      |      |       |                        | 1,11 | 1,76 | 1,94 | 2,54 | 2,96  | 3,17 |
| Water flow                              | l/s  | 0,07                   |      |      |      |      |       |                        | 0,11 | 0,11 | 0,15 | 0,18 | 0,19  |      |
|   | l/h  | 240                    |      |      |      |      |       |                        | 380  | 410  | 540  | 630  | 670   |      |
| Water pressure drop                     |      | kPa                    |      |      |      |      |       |                        | 7,0  | 15,6 | 18,6 | 29,6 | 37,9  | 42,3 |
| Water volume                            |      | l                      |      |      |      |      |       |                        | 0,9  |      |      |      |       |      |
| Heating mode, four pipes <sup>(3)</sup> |      |                        |      |      |      |      |       |                        |      |      |      |      |       |      |
| Heating capacity                        |      | kW                     | NA   |      |      |      |       |                        | 1,50 | 2,68 | 3,02 | 4,15 | 4,96  | 5,35 |
| Water flow                              | l/s  | 0,04                   |      |      |      |      |       |                        | 0,07 | 0,07 | 0,10 | 0,12 | 0,13  |      |
|   | l/h  | 130                    |      |      |      |      |       |                        | 240  | 260  | 360  | 430  | 470   |      |
| Water pressure drop                     |      | kPa                    |      |      |      |      |       |                        |      |      |      |      |       |      |
| Water volume                            |      | l                      | 0,5  |      |      |      |       |                        |      |      |      |      |       |      |
| Electric heater                         |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |       | 230V ±10% - 1ph - 50Hz |      |      |      |      |       |      |
| Maximum capacity                        |      | W                      | 1600 |      |      |      |       |                        | 1600 |      |      |      |       |      |
| Current input                           |      | A                      | 7,3  |      |      |      |       |                        | 7,3  |      |      |      |       |      |
| Sound levels                            |      |                        |      |      |      |      |       |                        |      |      |      |      |       |      |
| Sound power level (global)              |      | dB(A)                  | 38   | 49   | 52   | 60   | 65    | 67                     | 38   | 49   | 52   | 60   | 65    | 67   |
| Electrical data, motor                  |      |                        |      |      |      |      |       |                        |      |      |      |      |       |      |
| Power input                             |      | W                      | 6    | 15   | 18   | 42   | 78    | 99                     | 6    | 14   | 18   | 42   | 78    | 99   |
| Current input                           |      | A                      | 0,07 | 0,15 | 0,18 | 0,38 | 0,65  | 0,80                   | 0,07 | 0,15 | 0,18 | 0,38 | 0,65  | 0,80 |
| FCEER [energy class] - 2 pipes          |      | 173 [B]                |      |      |      |      |       | 189 [A]                |      |      |      |      |       |      |
| FCCOP [energy class]                    |      | 205 [B]                |      |      |      |      |       | 225 [B]                |      |      |      |      |       |      |
| FCEER [energy class] - 4 pipes          |      |                        |      |      |      |      |       | 187 [A]                |      |      |      |      |       |      |
| FCCOP [energy class]                    |      |                        |      |      |      |      |       | 218 [B]                |      |      |      |      |       |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

## 7.3 - Physical and electrical data at Eurovent conditions - 42NL - Size 5

With G3 filter - without plenum

| 42NL                                    | 525   |                        |      |      |      |       | 535                    |      |      |      |      |                        | 545  |      |      |      |      |       |      |
|---|-------|------------------------|------|------|------|-------|------------------------|------|------|------|------|------------------------|------|------|------|------|------|-------|------|
| Fan speed                               | R6    | R5                     | R4   | R3   | R2   | R1    | R6                     | R5   | R4   | R3   | R2   | R1                     | R6   | R5   | R4   | R3   | R2   | R1    |      |
| (Eurovent certification speeds)         | (L)   |                        | (M)  | (H)  |      | (Max) | (L)                    |      | (M)  | (H)  |      | (Max)                  | (L)  |      | (M)  | (H)  |      | (Max) |      |
| Air flow                                | l/s   | 150                    | 170  | 233  | 275  | 313   | 359                    | 150  | 170  | 233  | 275  | 313                    | 359  | 150  | 170  | 233  | 275  | 313   | 359  |
|   | m³/h  | 540                    | 612  | 840  | 991  | 1127  | 1291                   | 540  | 612  | 840  | 991  | 1127                   | 1291 | 540  | 612  | 840  | 991  | 1127  | 1291 |
| Available static pressure               | Pa    | 0                      | 0    | 0    | 0    | 0     | 0                      | 0    | 0    | 0    | 0    | 0                      | 0    | 0    | 0    | 0    | 0    | 0     | 0    |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |       |                        |      |      |      |      |                        |      |      |      |      |      |       |      |
| Total cooling capacity                  | kW    | 2,69                   | 2,97 | 3,78 | 4,23 | 4,61  | 5,00                   | 3,14 | 3,54 | 4,68 | 5,32 | 5,80                   | 6,30 | NA   |      |      |      |       |      |
| Sensible cooling capacity               | kW    | 2,21                   | 2,46 | 3,17 | 3,59 | 3,95  | 4,34                   | 2,47 | 2,78 | 3,71 | 4,26 | 4,70                   | 5,18 |      |      |      |      |       |      |
| Water flow                              | l/s   | 0,13                   | 0,14 | 0,19 | 0,21 | 0,23  | 0,25                   | 0,15 | 0,17 | 0,23 | 0,26 | 0,28                   | 0,31 |      |      |      |      |       |      |
|   | l/h   | 470                    | 520  | 670  | 750  | 810   | 890                    | 550  | 620  | 820  | 930  | 1020                   | 1110 |      |      |      |      |       |      |
| Water pressure drop                     | kPa   | 16,8                   | 20,3 | 31,3 | 37,9 | 43,9  | 50,8                   | 21   | 26,4 | 43,7 | 54   | 62,9                   | 72,7 |      |      |      |      |       |      |
| Water volume                            | l     | 1,4                    |      |      |      |       |                        | 1,8  |      |      |      |                        |      |      |      |      |      |       |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |       |                        |      |      |      |      |                        |      |      |      |      |      |       |      |
| Heating capacity                        | kW    | 3,45                   | 3,87 | 5,08 | 5,75 | 6,27  | 6,80                   | 3,56 | 4,04 | 5,41 | 6,14 | 6,68                   | 7,18 | NA   |      |      |      |       |      |
| Water flow                              | l/s   | 0,17                   | 0,19 | 0,24 | 0,28 | 0,30  | 0,33                   | 0,17 | 0,19 | 0,26 | 0,30 | 0,32                   | 0,35 |      |      |      |      |       |      |
|   | l/h   | 600                    | 670  | 880  | 1000 | 1090  | 1180                   | 620  | 700  | 940  | 1070 | 1160                   | 1250 |      |      |      |      |       |      |
| Water pressure drop                     | kPa   | 21,6                   | 26,1 | 41,5 | 51,3 | 59,5  | 68,6                   | 25,3 | 31,3 | 51,4 | 64   | 74                     | 83,8 |      |      |      |      |       |      |
| Water volume                            | l     | 1,4                    |      |      |      |       |                        | 1,8  |      |      |      |                        |      |      |      |      |      |       |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |       |                        |      |      |      |      |                        |      |      |      |      |      |       |      |
| Total cooling capacity                  | kW    | NA                     |      |      |      |       | 2,70                   | 3,00 | 3,86 | 4,33 | 4,71 | 5,11                   | 2,92 | 3,27 | 4,32 | 4,93 | 5,44 | 5,98  |      |
| Sensible cooling capacity               | kW    |                        |      |      |      |       | 2,20                   | 2,45 | 3,19 | 3,62 | 3,98 | 4,37                   | 2,35 | 2,64 | 3,51 | 4,04 | 4,49 | 4,99  |      |
| Water flow                              | l/s   |                        |      |      |      |       | 0,13                   | 0,15 | 0,19 | 0,21 | 0,23 | 0,25                   | 0,14 | 0,16 | 0,21 | 0,24 | 0,27 | 0,29  |      |
|   | l/h   |                        |      |      |      |       | 470                    | 530  | 680  | 760  | 830  | 910                    | 510  | 570  | 760  | 870  | 960  | 1060  |      |
| Water pressure drop                     | kPa   |                        |      |      |      |       | 17,9                   | 22   | 34,3 | 41,8 | 48,3 | 55,8                   | 18   | 22,4 | 37,4 | 47   | 55,5 | 65,6  |      |
| Water volume                            | l     |                        |      |      |      |       | 1,1                    |      |      |      |      | 1,4                    |      |      |      |      |      |       |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |       |                        |      |      |      |      |                        |      |      |      |      |      |       |      |
| Heating capacity                        | kW    | NA                     |      |      |      |       | 2,99                   | 3,29 | 4,14 | 4,60 | 4,95 | 5,32                   | 3,44 | 3,86 | 5,00 | 5,57 | 5,96 | 6,31  |      |
|   | l/s   |                        |      |      |      |       | 0,07                   | 0,08 | 0,10 | 0,11 | 0,12 | 0,13                   | 0,08 | 0,09 | 0,12 | 0,14 | 0,14 | 0,15  |      |
| Water flow                              | l/h   |                        |      |      |      |       | 260                    | 290  | 360  | 400  | 430  | 470                    | 300  | 340  | 440  | 490  | 520  | 550   |      |
| Water pressure drop                     | kPa   |                        |      |      |      |       | 5,9                    | 6,8  | 9,6  | 11,4 | 12,8 | 14,4                   | 6,8  | 8,1  | 12,1 | 14,3 | 16   | 17,6  |      |
| Water volume                            | l     |                        |      |      |      |       |                        |      |      |      |      | 0,5                    |      |      |      |      | 0,6  |       |      |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |      |       | 230V ±10% - 1ph - 50Hz |      |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |       |      |
| Maximum capacity                        | W     | 2000                   |      |      |      |       | 2000                   |      |      |      |      | 2000                   |      |      |      |      |      |       |      |
| Current input                           | A     | 9,1                    |      |      |      |       | 9,1                    |      |      |      |      | 9,1                    |      |      |      |      |      |       |      |
| Sound levels                            |       |                        |      |      |      |       |                        |      |      |      |      |                        |      |      |      |      |      |       |      |
| Sound power level (global)              | dB(A) | 42                     | 46   | 53   | 57   | 59    | 62                     | 42   | 46   | 53   | 57   | 59                     | 62   | 42   | 46   | 53   | 57   | 59    | 62   |
| Electrical data, motor                  |       |                        |      |      |      |       |                        |      |      |      |      |                        |      |      |      |      |      |       |      |
| Power input                             | W     | 58                     | 67   | 99   | 118  | 137   | 170                    | 58   | 67   | 99   | 118  | 137                    | 170  | 58   | 67   | 99   | 118  | 137   | 170  |
| Current input                           | A     | 0,26                   | 0,30 | 0,43 | 0,52 | 0,60  | 0,74                   | 0,26 | 0,30 | 0,43 | 0,52 | 0,60                   | 0,74 | 0,26 | 0,30 | 0,43 | 0,52 | 0,60  | 0,74 |
| FCEER [energy class] - 2 pipes          |       | 42 [E]                 |      |      |      |       | 51 [E]                 |      |      |      |      |                        |      |      |      |      |      |       |      |
| FCCOP [energy class]                    |       | 56 [E]                 |      |      |      |       | 58 [E]                 |      |      |      |      |                        |      |      |      |      |      |       |      |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      |       | 43 [E]                 |      |      |      |      | 47 [E]                 |      |      |      |      |      |       |      |
| FCCOP [energy class]                    |       |                        |      |      |      |       | 47 [E]                 |      |      |      |      | 55 [E]                 |      |      |      |      |      |       |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NL                                    | 529   |                        |      |      |      |       | 539  |                        |      |      |      |       | 549  |                        |      |       |      |       |      |
|---|-------|------------------------|------|------|------|-------|------|------------------------|------|------|------|-------|------|------------------------|------|-------|------|-------|------|
| Fan speed                               | 2V    | 4V                     | 5V   | 6V   | 8V   | 10V   | 2V   | 4V                     | 5.5V | 6V   | 8V   | 10V   | 2V   | 4V                     | 5.5V | 6V    | 8V   | 10V   |      |
| (Eurovent certification speeds)         | (L)   |                        | (M)  | (H)  |      | (Max) | (L)  |                        | (M)  | (H)  |      | (Max) | (L)  |                        | (M)  | (H)   |      | (Max) |      |
| Air flow                                | l/s   | 82                     | 141  | 172  | 188  | 231   | 255  | 82                     | 141  | 179  | 187  | 230   | 254  | 81                     | 140  | 179   | 187  | 230   |      |
|   | m³/h  | 294                    | 508  | 618  | 675  | 831   | 918  | 294                    | 507  | 645  | 673  | 828   | 915  | 290                    | 505  | 644,5 | 674  | 829   |      |
| Available static pressure               | Pa    | 0                      | 0    | 0    | 0    | 0     | 0    | 0                      | 0    | 0    | 0    | 0     | 0    | 0                      | 0    | 0     | 0    | 0     |      |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
| Total cooling capacity                  | kW    | 1,65                   | 2,60 | 3,04 | 3,26 | 3,80  | 4,06 | 1,70                   | 2,99 | 3,78 | 3,93 | 4,69  | 5,06 | NA                     |      |       |      |       |      |
| Sensible cooling capacity               | kW    | 1,33                   | 2,14 | 2,52 | 2,71 | 3,19  | 3,44 | 1,36                   | 2,36 | 2,98 | 3,10 | 3,72  | 4,04 |                        |      |       |      |       |      |
| Water flow                              | l/s   | 0,08                   | 0,13 | 0,15 | 0,16 | 0,18  | 0,20 | 0,08                   | 0,14 | 0,18 | 0,19 | 0,23  | 0,24 |                        |      |       |      |       |      |
|   | l/h   | 280                    | 450  | 530  | 560  | 660   | 710  | 290                    | 520  | 650  | 680  | 810   | 880  |                        |      |       |      |       |      |
| Water pressure drop                     | kPa   | 6,8                    | 15,3 | 20,6 | 23,5 | 30,8  | 34,7 | 6,7                    | 18,6 | 29,1 | 31,5 | 42,9  | 48,9 |                        |      |       |      |       |      |
| Water volume                            | l     | 1,4                    |      |      |      |       |      | 1,8                    |      |      |      |       |      |                        |      |       |      |       |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
| Heating capacity                        | kW    | 1,90                   | 3,25 | 3,90 | 4,22 | 5,03  | 5,43 | 1,70                   | 3,32 | 4,26 | 4,44 | 5,35  | 5,79 | NA                     |      |       |      |       |      |
| Water flow rate                         | l/s   | 0,09                   | 0,16 | 0,19 | 0,20 | 0,24  | 0,26 | 0,08                   | 0,16 | 0,21 | 0,21 | 0,26  | 0,28 |                        |      |       |      |       |      |
|   | l/h   | 330                    | 570  | 680  | 730  | 870   | 940  | 300                    | 580  | 740  | 770  | 930   | 1010 |                        |      |       |      |       |      |
| Water pressure drop                     | kPa   | 8,3                    | 19,6 | 26,5 | 30,3 | 40,7  | 46,5 | 7,6                    | 22,6 | 34,2 | 36,7 | 50,4  | 57,9 |                        |      |       |      |       |      |
| Water volume                            | l     | 1,4                    |      |      |      |       |      | 1,8                    |      |      |      |       |      |                        |      |       |      |       |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
| Total cooling capacity                  | kW    | NA                     |      |      |      |       |      | 1,59                   | 2,60 | 3,19 | 3,31 | 3,88  | 4,15 | 1,64                   | 2,79 | 3,49  | 3,63 | 4,33  |      |
| Sensible cooling capacity               | kW    |                        |      |      |      |       |      | 1,29                   | 2,12 | 2,62 | 2,72 | 3,21  | 3,46 | 1,33                   | 2,25 | 2,83  | 2,94 | 3,53  | 3,84 |
| Water flow                              | l/s   |                        |      |      |      |       |      | 0,08                   | 0,13 | 0,15 | 0,16 | 0,19  | 0,20 | 0,08                   | 0,13 | 0,17  | 0,18 | 0,21  | 0,23 |
|   | l/h   |                        |      |      |      |       |      | 270                    | 450  | 550  | 570  | 670   | 720  | 280                    | 480  | 605   | 630  | 750   | 810  |
| Water pressure drop                     | kPa   |                        |      |      |      |       |      | 6,7                    | 16,2 | 24   | 25,7 | 33,8  | 38,2 | 6,3                    | 16,1 | 24,65 | 26,6 | 36,7  | 42,5 |
| Water volume                            | l     |                        |      |      |      |       |      | 1,1                    |      |      |      |       |      | 1,4                    |      |       |      |       |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
| Heating capacity                        | kW    | NA                     |      |      |      |       |      | 1,80                   | 2,84 | 3,43 | 3,54 | 4,10  | 4,38 | 1,76                   | 3,23 | 4,04  | 4,20 | 4,95  |      |
|   | l/s   |                        |      |      |      |       |      | 0,04                   | 0,07 | 0,08 | 0,09 | 0,10  | 0,11 | 0,04                   | 0,08 | 0,10  | 0,10 | 0,12  |      |
| Water flow                              | l/h   |                        |      |      |      |       |      | 160                    | 250  | 300  | 310  | 360   | 380  | 150                    | 280  | 355   | 370  | 430   |      |
| Water pressure drop                     | kPa   |                        |      |      |      |       |      | 3                      | 5,5  | 7,2  | 7,6  | 9,5   | 10,5 | 2,7                    | 6,2  | 8,65  | 9,2  | 11,9  |      |
| Water volume                            | l     |                        |      |      |      |       |      |                        |      |      |      |       |      | 0,5                    |      |       |      |       |      |
| Electric heater                         |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
|   |       | 230V ±10% - 1ph - 50Hz |      |      |      |       |      | 230V ±10% - 1ph - 50Hz |      |      |      |       |      | 230V ±10% - 1ph - 50Hz |      |       |      |       |      |
| Maximum capacity                        | W     | 2000                   |      |      |      |       |      | 2000                   |      |      |      |       |      | 2000                   |      |       |      |       |      |
| Current input                           | A     | 9,1                    |      |      |      |       |      | 9,1                    |      |      |      |       |      | 9,1                    |      |       |      |       |      |
| Sound levels                            |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
| Sound power level (global)              | dB(A) | 32                     | 43   | 47   | 51   | 55    | 58   | 32                     | 43   | 49   | 51   | 55    | 58   | 32                     | 43   | 49    | 51   | 55    |      |
| Electrical data, motor                  |       |                        |      |      |      |       |      |                        |      |      |      |       |      |                        |      |       |      |       |      |
| Power input                             | W     | 4                      | 11   | 18   | 24   | 43    | 58   | 4                      | 11   | 21   | 24   | 43    | 58   | 4                      | 11   | 21    | 24   | 43    |      |
| Current input                           | A     | 0,04                   | 0,09 | 0,13 | 0,17 | 0,28  | 0,39 | 0,04                   | 0,09 | 0,15 | 0,17 | 0,28  | 0,39 | 0,04                   | 0,09 | 0,15  | 0,17 | 0,28  |      |
| FCEER [energy class] - 2 pipes          |       | 233 [A]                |      |      |      |       |      | 241 [A]                |      |      |      |       |      |                        |      |       |      |       |      |
| FCCOP [energy class]                    |       | 296 [A]                |      |      |      |       |      | 268 [A]                |      |      |      |       |      |                        |      |       |      |       |      |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      |       |      | 213 [A]                |      |      |      |       |      | 227 [A]                |      |       |      |       |      |
| FCCOP [energy class]                    |       |                        |      |      |      |       |      | 248 [B]                |      |      |      |       |      | 265 [A]                |      |       |      |       |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

## 7.4 - Physical and electrical data at Eurovent conditions - 42NH - Sizes 2 and 3

With G3 filter - without plenum

| 42NH                                    |       | 225       |      |      |      |      | 235       |      |      |      |      | 229       |      |      |       |
|---|-------|-----------|------|------|------|------|-----------|------|------|------|------|-----------|------|------|-------|
| Fan speed                               |       | R5        | R4   | R3   | R2   | R1   | R5        | R4   | R3   | R2   | R1   | 2V        | 7V   | 8V   | 10V   |
| (Eurovent certification speeds)         |       | (L)       |      |      | (M)  | (H)  | (L)       |      |      | (M)  | (H)  | (L)       | (M)  | (H)  |       |
| Air flow                                | l/s   | 23        | 47   | 58   | 63   | 76   | 23        | 47   | 58   | 63   | 76   | 25        | 64   | 70   | 81,11 |
|   | m³/h  | 81        | 170  | 209  | 228  | 272  | 81        | 170  | 209  | 228  | 272  | 91        | 229  | 253  | 292   |
| Available static pressure               | Pa    | 6         | 28   | 42   | 50   | 71   | 6         | 28   | 42   | 50   | 71   | 8         | 50   | 61   | 81    |
| Cooling mode, two pipes <sup>(1)</sup>  |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
| Total cooling capacity                  | kW    | 0,48      | 0,96 | 1,14 | 1,22 | 1,42 | 0,54      | 1,10 | 1,32 | 1,42 | 1,66 | 0,55      | 1,26 | 1,36 | 1,52  |
| Sensible cooling capacity               | kW    | 0,37      | 0,76 | 0,90 | 0,97 | 1,14 | 0,40      | 0,84 | 1,00 | 1,08 | 1,28 | 0,43      | 1,00 | 1,09 | 1,23  |
| Water flow                              | l/s   | 0,02      | 0,05 | 0,06 | 0,06 | 0,07 | 0,03      | 0,05 | 0,06 | 0,07 | 0,08 | 0,03      | 0,06 | 0,07 | 0,075 |
|   | l/h   | 80        | 170  | 200  | 220  | 250  | 90        | 190  | 230  | 250  | 290  | 90        | 220  | 240  | 270   |
| Water pressure drop                     | kPa   | 3,6       | 11,2 | 15,6 | 17,9 | 23,3 | 3,4       | 8,5  | 11,9 | 13,7 | 18,2 | 4,3       | 18   | 21,1 | 25,5  |
| Water volume                            | l     | 0,4       |      |      |      |      | 0,5       |      |      |      |      | 0,4       |      |      |       |
| Heating mode, two pipes <sup>(2)</sup>  |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
| Heating capacity                        | kW    | 0,57      | 1,14 | 1,37 | 1,47 | 1,71 | 0,62      | 1,27 | 1,54 | 1,67 | 1,96 | 0,64      | 1,48 | 1,61 | 1,81  |
| Water flow                              | l/s   | 0,03      | 0,06 | 0,07 | 0,07 | 0,08 | 0,03      | 0,06 | 0,08 | 0,08 | 0,09 | 0,03      | 0,07 | 0,08 | 0,086 |
|   | l/h   | 100       | 200  | 240  | 260  | 300  | 110       | 220  | 270  | 290  | 340  | 110       | 260  | 280  | 310   |
| Water pressure drop                     | kPa   | 4,5       | 12,9 | 17,4 | 19,6 | 25,2 | 3,3       | 10   | 13,5 | 15,4 | 20   | 5,4       | 19,8 | 22,8 | 27,9  |
| Water volume                            | l     | 0,4       |      |      |      |      | 0,5       |      |      |      |      | 0,4       |      |      |       |
| Cooling mode, four pipes <sup>(1)</sup> |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
| Total cooling capacity                  | kW    | NA        |      |      |      |      | 0,44      | 0,84 | 0,99 | 1,07 | 1,24 | NA        |      |      |       |
| Sensible cooling capacity               | kW    |           |      |      |      |      | 0,36      | 0,71 | 0,84 | 0,90 | 1,06 |           |      |      |       |
| Water flow                              | l/s   |           |      |      |      |      | 0,02      | 0,04 | 0,05 | 0,05 | 0,06 |           |      |      |       |
|   | l/h   |           |      |      |      |      | 80        | 150  | 180  | 190  | 220  |           |      |      |       |
| Water pressure drop                     | kPa   |           |      |      |      |      | 2,3       | 4    | 5,20 | 5,9  | 7,6  |           |      |      |       |
| Water volume                            | l     |           |      |      |      |      | 0,3       |      |      |      |      |           |      |      |       |
| Heating mode, four pipes <sup>(3)</sup> |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
| Heating capacity                        | kW    | NA        |      |      |      |      | 0,68      | 1,35 | 1,61 | 1,72 | 1,98 | NA        |      |      |       |
| Water flow                              | l/s   |           |      |      |      |      | 0,02      | 0,03 | 0,04 | 0,04 | 0,05 |           |      |      |       |
|   | l/h   |           |      |      |      |      | 60        | 120  | 140  | 150  | 170  |           |      |      |       |
| Water pressure drop                     | kPa   |           |      |      |      |      | 1,8       | 3,8  | 4,7  | 5,2  | 6,4  |           |      |      |       |
| Water volume                            | l     |           |      |      |      |      | 0,2       |      |      |      |      |           |      |      |       |
| Electric heater                         |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
|   |       | 230V ±10% |      |      |      |      | 230V ±10% |      |      |      |      | 230V ±10% |      |      |       |
| Maximum capacity                        | W     | 1000      |      |      |      |      | 1000      |      |      |      |      | 1000      |      |      |       |
| Current input                           | A     | 4,6       |      |      |      |      | 4,6       |      |      |      |      | 4,6       |      |      |       |
| Sound levels                            |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
| Sound power level (return and radiated) | dB(A) | 32        | 43   | 48   | 49   | 53   | 32        | 43   | 48   | 49   | 53   | 36        | 50   | 52   | 56    |
| Sound power level (supply)              | dB(A) | 31        | 40   | 46   | 49   | 52   | 31        | 40   | 46   | 49   | 52   | 37        | 51   | 53   | 58    |
| Electrical data, motor                  |       |           |      |      |      |      |           |      |      |      |      |           |      |      |       |
| Power input                             | W     | 13        | 20   | 41   | 43   | 44   | 13        | 20   | 41   | 43   | 44   | 3         | 18   | 22   | 33    |
| Current input                           | A     | 0,13      | 0,16 | 0,22 | 0,23 | 0,24 | 0,13      | 0,16 | 0,22 | 0,23 | 0,24 | 0,05      | 0,22 | 0,28 | 0,39  |
| FCEER [energy class] - 2 pipes          |       | 37 [D]    |      |      |      |      | 43 [C]    |      |      |      |      | 95 [A]    |      |      |       |
| FCCOP [energy class]                    |       | 46 [C]    |      |      |      |      | 51 [C]    |      |      |      |      | 117 [A]   |      |      |       |
| FCEER [energy class] - 4 pipes          |       |           |      |      |      |      | 33 [D]    |      |      |      |      |           |      |      |       |
| FCCOP [energy class]                    |       |           |      |      |      |      | 54 [C]    |      |      |      |      |           |      |      |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH                                    |       | 239       |      |      |      | 279       |      |      |      | 289       |      |      |      |
|---|-------|-----------|------|------|------|-----------|------|------|------|-----------|------|------|------|
| Fan speed                               |       | 2V        | 7V   | 8V   | 10V  | 2V        | 6V   | 7V   | 10V  | 2V        | 6V   | 7V   | 10V  |
| (Eurovent certification speeds)         |       | (L)       | (M)  | (H)  |      | (L)       | (M)  | (H)  |      | (L)       | (M)  | (H)  |      |
| Air flow                                | l/s   | 25        | 64   | 70   | 81   | 32        | 85   | 97   | 124  | 36        | 96   | 108  | 134  |
|   | m³/h  | 91        | 229  | 253  | 292  | 116       | 305  | 349  | 446  | 128       | 347  | 387  | 481  |
| Available static pressure               | Pa    | 8         | 50   | 61   | 81   | 7         | 50   | 65   | 107  | 7         | 50   | 62   | 96   |
| Cooling mode, two pipes <sup>(1)</sup>  |       |           |      |      |      |           |      |      |      |           |      |      |      |
| Total cooling capacity                  | kW    | 0,62      | 1,45 | 1,58 | 1,78 | 0,78      | 1,86 | 2,07 | 2,45 | 1,00      | 2,44 | 2,67 | 3,15 |
| Sensible cooling capacity               | kW    | 0,46      | 1,11 | 1,22 | 1,38 | 0,59      | 1,44 | 1,61 | 1,94 | 0,71      | 1,79 | 1,97 | 2,35 |
| Water flow                              | l/s   | 0,03      | 0,07 | 0,08 | 0,09 | 0,04      | 0,09 | 0,10 | 0,12 | 0,05      | 0,12 | 0,13 | 0,16 |
|   | l/h   | 110       | 250  | 280  | 310  | 130       | 320  | 360  | 430  | 170       | 420  | 470  | 560  |
| Water pressure drop                     | kPa   | 3,7       | 13,8 | 16,2 | 20,4 | 4,7       | 21,9 | 26,9 | 36,1 | 4,4       | 21   | 25,1 | 33,5 |
| Water volume                            | l     | 0,5       |      |      |      | 0,5       |      |      |      | 0,6       |      |      |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |           |      |      |      |           |      |      |      |           |      |      |      |
| Heating capacity                        | kW    | 0,70      | 1,68 | 1,84 | 2,09 | 0,88      | 2,17 | 2,44 | 2,98 | 1,05      | 2,78 | 3,09 | 3,79 |
| Water flow                              | l/s   | 0,03      | 0,08 | 0,09 | 0,10 | 0,04      | 0,11 | 0,12 | 0,14 | 0,05      | 0,13 | 0,15 | 0,18 |
|   | l/h   | 120       | 290  | 320  | 360  | 150       | 380  | 420  | 520  | 180       | 480  | 540  | 660  |
| Water pressure drop                     | kPa   | 3,9       | 15,5 | 18   | 22,2 | 5,7       | 23,7 | 28,9 | 40,7 | 4,9       | 23,3 | 27,8 | 39,5 |
| Water volume                            | l     | 0,5       |      |      |      | 0,5       |      |      |      | 0,6       |      |      |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |           |      |      |      |           |      |      |      |           |      |      |      |
| Total cooling capacity                  | kW    | 0,49      | 1,10 | 1,19 | 1,33 | 0,60      | 1,39 | 1,53 | 1,79 | 0,94      | 2,17 | 2,35 | 2,72 |
| Sensible cooling capacity               | kW    | 0,41      | 0,93 | 1,01 | 1,14 | 0,50      | 1,19 | 1,32 | 1,57 | 0,68      | 1,66 | 1,81 | 2,13 |
| Water flow                              | l/s   | 0,02      | 0,05 | 0,06 | 0,06 | 0,03      | 0,07 | 0,08 | 0,09 | 0,04      | 0,11 | 0,11 | 0,13 |
|   | l/h   | 80        | 190  | 210  | 230  | 100       | 240  | 270  | 320  | 160       | 380  | 410  | 480  |
| Water pressure drop                     | kPa   | 2,4       | 6    | 6,8  | 8,4  | 2,8       | 8,9  | 10,7 | 14,5 | 5,9       | 26   | 30   | 39   |
| Water volume                            | l     | 0,3       |      |      |      | 0,3       |      |      |      | 0,4       |      |      |      |
| Heating mode, four pipes <sup>(3)</sup> |       |           |      |      |      |           |      |      |      |           |      |      |      |
| Heating capacity                        | kW    | 0,77      | 1,73 | 1,88 | 2,09 | 0,96      | 2,16 | 2,37 | 2,75 | 0,97      | 2,29 | 2,53 | 3,09 |
| Water flow                              | l/s   | 0,02      | 0,04 | 0,04 | 0,05 | 0,02      | 0,05 | 0,06 | 0,07 | 0,03      | 0,06 | 0,06 | 0,08 |
|   | l/h   | 70        | 150  | 160  | 180  | 80        | 190  | 210  | 240  | 90        | 200  | 220  | 270  |
| Water pressure drop                     | kPa   | 2         | 5,3  | 5,9  | 6,9  | 2,5       | 7,3  | 8,4  | 10,6 | 2,5       | 7,8  | 9,1  | 12,5 |
| Water volume                            | l     | 0,2       |      |      |      | 0,2       |      |      |      | 0,3       |      |      |      |
| Electric heater                         |       | 230V ±10% |      |      |      | 230V ±10% |      |      |      | 230V ±10% |      |      |      |
| Maximum capacity                        | W     | 1000      |      |      |      | 1000      |      |      |      | 1000      |      |      |      |
| Current input                           | A     | 4,6       |      |      |      | 4,6       |      |      |      | 4,6       |      |      |      |
| Sound levels                            |       |           |      |      |      |           |      |      |      |           |      |      |      |
| Sound power level (return and radiated) | dB(A) | 36        | 50   | 52   | 56   | 34        | 52   | 54   | 61   | 36        | 54   | 57   | 61   |
| Sound power level (supply)              | dB(A) | 37        | 51   | 53   | 58   | 34        | 55   | 58   | 64   | 35        | 56   | 59   | 65   |
| Electrical data, motor                  |       |           |      |      |      |           |      |      |      |           |      |      |      |
| Power input                             | W     | 3         | 18   | 22   | 33   | 4         | 25   | 36   | 70   | 7         | 36   | 49   | 50   |
| Current input                           | A     | 0,05      | 0,22 | 0,28 | 0,39 | 0,06      | 0,29 | 0,40 | 0,75 | 0,08      | 0,31 | 0,40 | 0,91 |
| FCEER [energy class] - 2 pipes          |       | 109[A]    |      |      |      | 98 [A]    |      |      |      | 85 [A]    |      |      |      |
| FCCOP [energy class]                    |       | 130 [A]   |      |      |      | 118 [A]   |      |      |      | 97 [A]    |      |      |      |
| FCEER [energy class] - 4 pipes          |       | 84 [B]    |      |      |      | 74 [B]    |      |      |      | 78 [B]    |      |      |      |
| FCCOP [energy class]                    |       | 138 [A]   |      |      |      | 123 [A]   |      |      |      | 84 [B]    |      |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH  |                   | 325                    |      |      |      |      | 335                    |      |      |      |      |
|---|-------------------|------------------------|------|------|------|------|------------------------|------|------|------|------|
| Fan speed                                     |                   | R5                     | R4   | R3   | R2   | R1   | R5                     | R4   | R3   | R2   | R1   |
| (Eurovent certification speeds)               |                   |                        | (L)  | (M)  | (H)  | Max  |                        | (L)  | (M)  | (H)  | Max  |
| Air flow                                      | l/s               | 55                     | 79   | 102  | 131  | 160  | 55                     | 79   | 102  | 131  | 160  |
|   | m <sup>3</sup> /h | 197                    | 284  | 366  | 471  | 577  | 197                    | 284  | 366  | 471  | 577  |
| Available static pressure                     | Pa                | 14                     | 30   | 50   | 83   | 124  | 14                     | 30   | 50   | 83   | 124  |
| <b>Cooling mode, two pipes<sup>(1)</sup></b>  |                   |                        |      |      |      |      |                        |      |      |      |      |
| Total cooling capacity                        | kW                | 0,94                   | 1,27 | 1,55 | 1,87 | 2,16 | 1,10                   | 1,57 | 1,98 | 2,48 | 2,95 |
| Sensible cooling capacity                     | kW                | 0,76                   | 1,06 | 1,31 | 1,61 | 1,89 | 0,84                   | 1,22 | 1,55 | 1,96 | 2,36 |
| Water flow                                    | l/s               | 0,05                   | 0,07 | 0,08 | 0,10 | 0,11 | 0,06                   | 0,08 | 0,10 | 0,13 | 0,15 |
|   | l/h               | 180                    | 240  | 290  | 350  | 400  | 210                    | 290  | 370  | 460  | 540  |
| Water pressure drop                           | kPa               | 5,9                    | 9,6  | 13,6 | 19,1 | 24,2 | 5                      | 9    | 15   | 23   | 31   |
| Water volume                                  | l                 | 0,7                    |      |      |      |      | 0,9                    |      |      |      |      |
| <b>Heating mode, two pipes<sup>(2)</sup></b>  |                   |                        |      |      |      |      |                        |      |      |      |      |
| Heating capacity                              | kW                | 1,36                   | 1,87 | 2,30 | 2,77 | 3,18 | 0,57                   | 2,11 | 2,66 | 3,30 | 3,88 |
| Water flow                                    | l/s               | 0,07                   | 0,09 | 0,11 | 0,13 | 0,15 | 0,07                   | 0,10 | 0,13 | 0,16 | 0,19 |
|   | l/h               | 240                    | 320  | 400  | 480  | 550  | 260                    | 370  | 460  | 570  | 680  |
| Water pressure drop                           | kPa               | 10,9                   | 16,7 | 22,7 | 30,3 | 37,7 | 8,2                    | 13,9 | 20,3 | 29,2 | 38,5 |
| Water volume                                  | l                 | 0,7                    |      |      |      |      | 0,9                    |      |      |      |      |
| <b>Cooling mode, four pipes<sup>(1)</sup></b> |                   |                        |      |      |      |      |                        |      |      |      |      |
| Total cooling capacity                        | kW                | NA                     |      |      |      |      | 1,15                   | 1,58 | 1,94 | 2,34 | 2,70 |
| Sensible cooling capacity                     | kW                |                        |      |      |      |      | 0,86                   | 1,21 | 1,51 | 1,86 | 2,18 |
| Water flow                                    | l/s               |                        |      |      |      |      | 0,06                   | 0,08 | 0,10 | 0,12 | 0,14 |
|   | l/h               |                        |      |      |      |      | 220                    | 290  | 360  | 430  | 500  |
| Water pressure drop                           | kPa               |                        |      |      |      |      | 8,5                    | 14,5 | 21,0 | 28,6 | 36,3 |
| Water volume                                  | l                 |                        |      |      |      |      | 0,6                    |      |      |      |      |
| <b>Heating mode, four pipes<sup>(3)</sup></b> |                   |                        |      |      |      |      |                        |      |      |      |      |
| Heating capacity                              | kW                | NA                     |      |      |      |      | 1,71                   | 2,32 | 2,81 | 3,31 | 3,69 |
| Water flow                                    | l/s               |                        |      |      |      |      | 0,04                   | 0,06 | 0,07 | 0,08 | 0,09 |
|   | l/h               |                        |      |      |      |      | 150                    | 200  | 250  | 290  | 320  |
| Water pressure drop                           | kPa               |                        |      |      |      |      | 6,4                    | 10,2 | 13,8 | 18   | 21,6 |
| Water volume                                  | l                 |                        |      |      |      |      | 0,3                    |      |      |      |      |
| <b>Electric heater</b>                        |                   | 230V ±10% - 1ph - 50Hz |      |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |
| Maximum capacity                              | W                 | 1600                   |      |      |      |      | 1600                   |      |      |      |      |
| Current input                                 | A                 | 7,3                    |      |      |      |      | 7,3                    |      |      |      |      |
| <b>Sound levels</b>                           |                   |                        |      |      |      |      |                        |      |      |      |      |
| Sound power level (return and radiated)       | dB(A)             | 42                     | 45   | 49   | 56   | 60   | 42                     | 45   | 49   | 56   | 60   |
| Sound power level (supply)                    | dB(A)             | 46                     | 48   | 54   | 61   | 66   | 46                     | 48   | 54   | 61   | 66   |
| <b>Electrical data, motor</b>                 |                   |                        |      |      |      |      |                        |      |      |      |      |
| Power input                                   | W                 | 109                    | 126  | 146  | 168  | 190  | 109                    | 126  | 146  | 168  | 190  |
| Current input                                 | A                 | 0,50                   | 0,57 | 0,65 | 0,75 | 0,88 | 0,50                   | 0,57 | 0,65 | 0,75 | 0,88 |
| FCEER [energy class] - 2 pipes                |                   | 10 [E]                 |      |      |      |      | 13 [E]                 |      |      |      |      |
| FCCOP [energy class]                          |                   | 15 [E]                 |      |      |      |      | 17 [E]                 |      |      |      |      |
| FCEER [energy class] - 4 pipes                |                   |                        |      |      |      |      | 13 [E]                 |      |      |      |      |
| FCCOP [energy class]                          |                   |                        |      |      |      |      | 19 [E]                 |      |      |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.



## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH                                    |       | 329                    |      |      |      | 339     |       |      |      |
|---|-------|------------------------|------|------|------|---------|-------|------|------|
| Fan speed                               |       | 2V                     | 3.7V | 4.5V | 10V  | 2V      | 3.7V  | 4.5V | 10V  |
| (Eurovent certification speeds)         |       | (L)                    | (M)  | (H)  | Max  | (L)     | (M)   | (H)  | Max  |
| Air flow                                | l/s   | 59                     | 125  | 147  | 212  | 59      | 124   | 146  | 212  |
|   | m³/h  | 213                    | 450  | 528  | 764  | 212     | 447   | 527  | 763  |
| Available static pressure               | Pa    | 11                     | 50,1 | 69   | 143  | 11      | 50    | 70   | 145  |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |         |       |      |      |
| Total cooling capacity                  | kW    | 1,11                   | 1,93 | 2,15 | 2,64 | 1,29    | 2,50  | 2,85 | 3,70 |
| Sensible cooling capacity               | kW    | 0,92                   | 1,68 | 1,89 | 2,38 | 1,01    | 2,00  | 2,29 | 3,04 |
| Water flow                              | l/s   | 0,05                   | 0,10 | 0,11 | 0,13 | 0,06    | 0,12  | 0,14 | 0,19 |
|   | l/h   | 190                    | 342  | 380  | 480  | 220     | 433   | 500  | 670  |
| Water pressure drop                     | kPa   | 6,5                    | 18   | 22   | 32,7 | 6,6     | 22    | 28   | 45,3 |
| Water volume                            | l     | 0,7                    |      |      |      | 0,9     |       |      |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |         |       |      |      |
| Heating capacity                        | kW    | 1,46                   | 2,68 | 3,01 | 3,74 | 1,61    | 3,16  | 3,61 | 4,70 |
| Water flow                              | l/s   | 0,07                   | 0,13 | 0,14 | 0,18 | 0,08    | 0,15  | 0,17 | 0,23 |
|   | l/h   | 250                    | 466  | 520  | 650  | 280     | 547   | 625  | 820  |
| Water pressure drop                     | kPa   | 11,9                   | 28,7 | 34,3 | 49,2 | 9,0     | 27,2  | 34,1 | 53,5 |
| Water volume                            | l     | 0,7                    |      |      |      | 0,9     |       |      |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |         |       |      |      |
| Total cooling capacity                  | kW    | NA                     |      |      |      | 1,22    | 2,38  | 2,65 | 3,30 |
| Sensible cooling capacity               | kW    |                        |      |      |      | 1,03    | 1,90  | 2,15 | 2,75 |
| Water flow                              | l/s   |                        |      |      |      | 0,06    | 0,11  | 0,13 | 0,17 |
|   | l/h   |                        |      |      |      | 230     | 410   | 470  | 600  |
| Water pressure drop                     | kPa   |                        |      |      |      | 9,5     | 26,8  | 32,6 | 49,6 |
| Water volume                            | l     |                        |      |      |      | 0,6     |       |      |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |         |       |      |      |
| Heating capacity                        | kW    | NA                     |      |      |      | 1,82    | 3,20  | 3,51 | 4,34 |
| Water flow                              | l/s   |                        |      |      |      | 0,04    | 0,08  | 0,08 | 0,11 |
|   | l/h   |                        |      |      |      | 160     | 278   | 305  | 380  |
| Water pressure drop                     | kPa   |                        |      |      |      | 7,0     | 17,14 | 19,9 | 28,6 |
| Water volume                            | l     |                        |      |      |      |         |       |      |      |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |      |         |       |      |      |
| Maximum capacity                        | W     | 1600                   |      |      |      | 1600    |       |      |      |
| Current input                           | A     | 7,3                    |      |      |      | 7,3     |       |      |      |
| Sound levels                            |       |                        |      |      |      |         |       |      |      |
| Sound power level (return and radiated) | dB(A) | 37                     | 54   | 58   | 67   | 37      | 54    | 58   | 67   |
| Sound power level (supply)              | dB(A) | 40                     | 59   | 63   | 71   | 40      | 59    | 63   | 71   |
| Electrical data, motor                  |       |                        |      |      |      |         |       |      |      |
| Power input                             | W     | 8                      | 37   | 58,5 | 174  | 8       | 37    | 58,5 | 172  |
| Current input                           | A     | 0,11                   | 0,57 | 0,79 | 1,35 | 0,11    | 0,57  | 0,79 | 1,35 |
| FCEER [energy class] - 2 pipes          |       | 73 [B]                 |      |      |      | 90 [A]  |       |      |      |
| FCCOP [energy class]                    |       | 104 [A]                |      |      |      | 118 [A] |       |      |      |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      | 85 [A]  |       |      |      |
| FCCOP [energy class]                    |       |                        |      |      |      | 127 [A] |       |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

### 7.5 - Physical and electrical data at Eurovent conditions - 42NH - Size 4

With G3 filter - without plenum

| 42NH                                    |       | 425                    |      |      |      |      | 435                    |      |      |      |      |    |
|---|-------|------------------------|------|------|------|------|------------------------|------|------|------|------|----|
| Fan speed                               |       | R5                     | R4   | R3   | R2   | R1   | R5                     | R4   | R3   | R2   | R1   |    |
| (Eurovent certification speeds)         |       | (L)                    | (M)  | (H)  |      | Max  | (L)                    | (M)  | (H)  |      | Max  |    |
| Air flow                                | l/s   | 89                     | 140  | 166  | 189  | 197  | 89                     | 140  | 166  | 189  | 197  |    |
|   | m³/h  | 320                    | 505  | 599  | 679  | 709  | 320                    | 505  | 599  | 679  | 709  |    |
| Available static pressure               |       | Pa                     | 20   | 50   | 70   | 90   | 98                     | 20   | 50   | 70   | 90   | 98 |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |      |                        |      |      |      |      |    |
| Total cooling capacity                  | kW    | 1,72                   | 2,60 | 3,01 | 3,30 | 3,40 | 1,84                   | 3,07 | 3,62 | 4,02 | 4,14 |    |
| Sensible cooling capacity               | kW    | 1,37                   | 2,10 | 2,44 | 2,71 | 2,80 | 1,44                   | 2,36 | 2,79 | 3,12 | 3,22 |    |
| Water flow                              | l/s   | 0,09                   | 0,13 | 0,15 | 0,16 | 0,17 | 0,09                   | 0,15 | 0,18 | 0,20 | 0,20 |    |
|   | l/h   | 310                    | 460  | 530  | 580  | 600  | 330                    | 540  | 640  | 710  | 730  |    |
| Water pressure drop                     | kPa   | 8,7                    | 18   | 22,6 | 26,5 | 28   | 10                     | 25,1 | 33,9 | 40   | 42,1 |    |
| Water volume                            | l     | 1,0                    |      |      |      |      | 1,3                    |      |      |      |      |    |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |      |                        |      |      |      |      |    |
| Heating capacity                        | kW    | 1,98                   | 3,16 | 3,75 | 4,22 | 4,39 | 2,02                   | 3,32 | 3,99 | 4,53 | 4,72 |    |
| Water flow                              | l/s   | 0,09                   | 0,15 | 0,18 | 0,20 | 0,21 | 0,10                   | 0,16 | 0,19 | 0,22 | 0,23 |    |
|   | l/h   | 340                    | 550  | 650  | 730  | 760  | 350                    | 580  | 690  | 790  | 820  |    |
| Water pressure drop                     | kPa   | 9,3                    | 19,8 | 26,3 | 32,2 | 34,5 | 10,6                   | 23,8 | 32,4 | 40,2 | 43,2 |    |
| Water volume                            | l     | 1,0                    |      |      |      |      | 1,3                    |      |      |      |      |    |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |      |                        |      |      |      |      |    |
| Total cooling capacity                  | kW    | NA                     |      |      |      |      | 1,76                   | 2,66 | 3,06 | 3,36 | 3,45 |    |
| Sensible cooling capacity               | kW    |                        |      |      |      |      | 1,39                   | 2,14 | 2,49 | 2,75 | 2,84 |    |
| Water flow                              | l/s   |                        |      |      |      |      | 0,09                   | 0,13 | 0,15 | 0,16 | 0,17 |    |
|   | l/h   |                        |      |      |      |      | 320                    | 470  | 540  | 590  | 610  |    |
| Water pressure drop                     | kPa   |                        |      |      |      |      | 11,3                   | 23,5 | 29,8 | 34,7 | 36,5 |    |
| Water volume                            | l     |                        |      |      |      |      | 0,9                    |      |      |      |      |    |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |      |                        |      |      |      |      |    |
| Heating capacity                        | kW    | NA                     |      |      |      |      | 2,13                   | 3,51 | 4,14 | 4,64 | 4,81 |    |
| Water flow                              | l/s   |                        |      |      |      |      | 0,05                   | 0,09 | 0,10 | 0,11 | 0,12 |    |
|   | l/h   |                        |      |      |      |      | 190                    | 310  | 360  | 410  | 420  |    |
| Water pressure drop                     | kPa   |                        |      |      |      |      | 10                     | 22,4 | 29,7 | 36   | 38,3 |    |
| Water volume                            | l     |                        |      |      |      |      | 0,5                    |      |      |      |      |    |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |    |
| Maximum capacity                        | W     | 2000                   |      |      |      |      | 2000                   |      |      |      |      |    |
| Current input                           | A     | 9,1                    |      |      |      |      | 9,1                    |      |      |      |      |    |
| Sound levels                            |       |                        |      |      |      |      |                        |      |      |      |      |    |
| Sound power level (return and radiated) | dB(A) | 43                     | 51   | 55   | 57   | 58   | 43                     | 51   | 55   | 57   | 58   |    |
| Sound power level (supply)              | dB(A) | 47                     | 54   | 58   | 60   | 61   | 47                     | 54   | 58   | 60   | 61   |    |
| Electrical data, motor                  |       |                        |      |      |      |      |                        |      |      |      |      |    |
| Power input                             | W     | 79                     | 87   | 94   | 103  | 117  | 79                     | 87   | 94   | 103  | 117  |    |
| Current input                           | A     | 0,43                   | 0,51 | 0,62 | 0,67 | 0,72 | 0,43                   | 0,51 | 0,62 | 0,67 | 0,72 |    |
| FCEER [energy class] - 2 pipes          |       | 25 [E]                 |      |      |      |      | 28 [D]                 |      |      |      |      |    |
| FCCOP [energy class]                    |       | 29 [D]                 |      |      |      |      | 30 [D]                 |      |      |      |      |    |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      |      | 26 [D]                 |      |      |      |      |    |
| FCCOP [energy class]                    |       |                        |      |      |      |      | 32 [D]                 |      |      |      |      |    |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH                                    |       | 429                    |       |      |      |      | 439                    |       |      |      |      |      |      |      |      |      |
|---|-------|------------------------|-------|------|------|------|------------------------|-------|------|------|------|------|------|------|------|------|
| Fan speed                               |       | 2V                     | 3.7V  | 5V   | 7V   | 9V   | 2V                     | 3.7V  | 5V   | 7V   | 9V   |      |      |      |      |      |
| (Eurovent certification speeds)         |       | (L)                    | (M)   | (H)  |      | Max  | (L)                    | (M)   | (H)  |      | Max  |      |      |      |      |      |
| Air flow                                | l/s   | 61                     | 129   | 159  | 212  | 219  | 61                     | 129   | 159  | 212  | 219  |      |      |      |      |      |
|   | m³/h  | 218                    | 464,2 | 574  | 764  | 787  | 218                    | 464,2 | 574  | 764  | 787  |      |      |      |      |      |
| Available static pressure               | Pa    | 11                     | 50,4  | 76   | 135  | 143  | 11                     | 50,4  | 76   | 135  | 143  |      |      |      |      |      |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |       |      |      |      |                        |       |      |      |      |      |      |      |      |      |
| Total cooling capacity                  | kW    | 1,26                   | 2,46  | 2,90 | 3,56 | 3,61 | 1,22                   | 2,85  | 3,50 | 4,31 | 4,35 |      |      |      |      |      |
| Sensible cooling capacity               | kW    | 1,00                   | 1,99  | 2,37 | 2,95 | 2,99 | 0,99                   | 2,21  | 2,70 | 3,38 | 3,42 |      |      |      |      |      |
| Water flow                              | l/s   | 0,06                   | 0,12  | 0,14 | 0,18 | 0,18 | 0,06                   | 0,14  | 0,17 | 0,21 | 0,22 |      |      |      |      |      |
|   | l/h   | 220                    | 426   | 510  | 640  | 650  | 210                    | 494   | 610  | 770  | 780  |      |      |      |      |      |
| Water pressure drop                     | kPa   | 4,8                    | 15,82 | 21,3 | 30,7 | 31,7 | 4,8                    | 21,51 | 31,9 | 45,6 | 46,7 |      |      |      |      |      |
| Water volume                            | l     | 1,0                    |       |      |      |      | 1,3                    |       |      |      |      |      |      |      |      |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |       |      |      |      |                        |       |      |      |      |      |      |      |      |      |
| Heating capacity                        | kW    | 1,34                   | 2,91  | 3,59 | 4,69 | 4,80 | 1,38                   | 3,03  | 3,81 | 5,05 | 5,17 |      |      |      |      |      |
| Water flow                              | l/s   | 0,06                   | 0,14  | 0,17 | 0,23 | 0,23 | 0,07                   | 0,15  | 0,18 | 0,24 | 0,25 |      |      |      |      |      |
|   | l/h   | 230                    | 504   | 620  | 820  | 830  | 240                    | 528   | 660  | 880  | 900  |      |      |      |      |      |
| Water pressure drop                     | kPa   | 5,2                    | 17,31 | 24,5 | 38,5 | 40,1 | 5,8                    | 20,57 | 29,9 | 48,4 | 50,5 |      |      |      |      |      |
| Water volume                            | l     | 1,0                    |       |      |      |      | 1,3                    |       |      |      |      |      |      |      |      |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |       |      |      |      |                        |       |      |      |      |      |      |      |      |      |
| Total cooling capacity                  | kW    | NA                     |       |      |      |      | 1,28                   | 2,52  | 2,97 | 3,59 | 3,63 |      |      |      |      |      |
| Sensible cooling capacity               | kW    |                        |       |      |      |      | 1,02                   | 2,03  | 2,41 | 2,97 | 3,01 |      |      |      |      |      |
| Water flow                              | l/s   |                        |       |      |      |      | 0,06                   | 0,12  | 0,14 | 0,18 | 0,18 |      |      |      |      |      |
|   | l/h   |                        |       |      |      |      | 220                    | 436   | 520  | 640  | 650  |      |      |      |      |      |
| Water pressure drop                     | kPa   |                        |       |      |      |      | 6,1                    | 20,71 | 28,4 | 39,6 | 40,7 |      |      |      |      |      |
| Water volume                            | l     | NA                     |       |      |      |      | 0,9                    |       |      |      |      |      |      |      |      |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |       |      |      |      |                        |       |      |      |      |      |      |      |      |      |
| Heating capacity                        | kW    |                        |       |      |      |      | NA                     |       |      |      |      | 1,34 | 3,21 | 3,97 | 5,10 | 5,21 |
| Water flow                              | l/s   |                        |       |      |      |      |                        |       |      |      |      | 0,03 | 0,08 | 0,10 | 0,13 | 0,13 |
|   | l/h   |                        |       |      |      |      |                        |       |      |      |      | 120  | 279  | 350  | 450  | 460  |
| Water pressure drop                     | kPa   | 5                      | 19,45 | 27,7 | 42,5 | 44,1 |                        |       |      |      |      |      |      |      |      |      |
| Water volume                            | l     | 230V ±10% - 1ph - 50Hz |       |      |      |      | 0,5                    |       |      |      |      |      |      |      |      |      |
| Electric heater                         |       |                        |       |      |      |      | 230V ±10% - 1ph - 50Hz |       |      |      |      |      |      |      |      |      |
| Maximum capacity                        | W     |                        |       |      |      |      | 1600                   |       |      |      |      |      |      |      |      |      |
| Current input                           | A     |                        |       |      |      |      | 7,3                    |       |      |      |      |      |      |      |      |      |
| Sound levels                            |       |                        |       |      |      |      |                        |       |      |      |      |      |      |      |      |      |
| Sound power level (return and radiated) | dB(A) | 37                     | 54    | 60   | 66   | 66   | 37                     | 54    | 60   | 66   | 66   |      |      |      |      |      |
| Sound power level (supply)              | dB(A) | 40                     | 62    | 67   | 72   | 72   | 40                     | 62    | 67   | 72   | 72   |      |      |      |      |      |
| Electrical data, motor                  |       |                        |       |      |      |      |                        |       |      |      |      |      |      |      |      |      |
| Power input                             | W     | 8                      | 36,3  | 74   | 147  | 174  | 8                      | 36,3  | 74   | 147  | 174  |      |      |      |      |      |
| Current input                           | A     | 0,12                   | 0,43  | 0,98 | 1,26 | 1,31 | 0,12                   | 0,43  | 0,98 | 1,26 | 1,31 |      |      |      |      |      |
| FCEER [energy class] - 2 pipes          |       | 86 [A]                 |       |      |      |      | 92 [A]                 |       |      |      |      |      |      |      |      |      |
| FCCOP [energy class]                    |       | 100 [A]                |       |      |      |      | 104 [A]                |       |      |      |      |      |      |      |      |      |
| FCEER [energy class] - 4 pipes          |       |                        |       |      |      |      | 88 [A]                 |       |      |      |      |      |      |      |      |      |
| FCCOP [energy class]                    |       |                        |       |      |      |      | 106 [A]                |       |      |      |      |      |      |      |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

## 7.6 - Physical and electrical data at Eurovent conditions - 42NH - Size 5

With G3 filter - without plenum

| 42NH                                    |       | 525    |      |      |      |      | 535    |      |      |      |      | 545                    |      |      |      |      |                        |  |  |  |  |
|---|-------|--------|------|------|------|------|--------|------|------|------|------|------------------------|------|------|------|------|------------------------|--|--|--|--|
| Fan speed                               |       | R5     | R4   | R3   | R2   | R1   | R5     | R4   | R3   | R2   | R1   | R5                     | R4   | R3   | R2   | R1   |                        |  |  |  |  |
| (Eurovent certification speeds)         |       | (L)    | (M)  | (H)  |      | Max  | (L)    | (M)  | (H)  |      | Max  | (L)                    | (M)  | (H)  |      | Max  |                        |  |  |  |  |
| Air flow                                | l/s   | 213    | 240  | 257  | 268  | 279  | 213    | 240  | 257  | 268  | 279  | 213                    | 240  | 257  | 268  | 279  |                        |  |  |  |  |
|   | m³/h  | 767    | 863  | 924  | 964  | 1004 | 767    | 863  | 924  | 964  | 1004 | 767                    | 863  | 925  | 964  | 1004 |                        |  |  |  |  |
| Available static pressure               |       | Pa     | 40   | 50   | 57   | 62   | 68     | 40   | 50   | 57   | 62   | 68                     | 40   | 50   | 57   | 62   | 68                     |  |  |  |  |
| Cooling mode, two pipes <sup>(1)</sup>  |       |        |      |      |      |      |        |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Total cooling capacity                  | kW    | 3,52   | 3,84 | 4,03 | 4,15 | 4,25 | 4,33   | 4,77 | 5,05 | 5,21 | 5,36 | NA                     |      |      |      |      |                        |  |  |  |  |
| Sensible cooling capacity               | kW    | 2,94   | 3,23 | 3,41 | 3,51 | 3,62 | 3,41   | 3,79 | 4,02 | 4,16 | 4,29 |                        |      |      |      |      |                        |  |  |  |  |
| Water flow                              | l/s   | 0,17   | 0,19 | 0,20 | 0,20 | 0,21 | 0,21   | 0,23 | 0,25 | 0,26 | 0,26 |                        |      |      |      |      |                        |  |  |  |  |
|   | l/h   | 620    | 680  | 710  | 730  | 750  | 760    | 840  | 890  | 920  | 940  |                        |      |      |      |      |                        |  |  |  |  |
| Water pressure drop                     | kPa   | 28,5   | 32,3 | 35   | 36,8 | 38,5 | 38,2   | 45,3 | 49,6 | 52,3 | 55   |                        |      |      |      |      |                        |  |  |  |  |
| Water volume                            | l     | 1,4    |      |      |      |      | 1,8    |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Heating mode, two pipes <sup>(2)</sup>  |       |        |      |      |      |      |        |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Heating capacity                        | kW    | 4,72   | 5,19 | 5,47 | 5,64 | 5,81 | 5,00   | 5,53 | 5,84 | 6,03 | 6,20 | NA                     |      |      |      |      |                        |  |  |  |  |
| Water flow rate                         | l/s   | 0,23   | 0,25 | 0,26 | 0,27 | 0,28 | 0,24   | 0,27 | 0,28 | 0,29 | 0,30 |                        |      |      |      |      |                        |  |  |  |  |
|   | l/h   | 820    | 900  | 950  | 980  | 1010 | 870    | 960  | 1020 | 1050 | 1080 |                        |      |      |      |      |                        |  |  |  |  |
| Water pressure drop                     | kPa   | 36,5   | 43   | 47,1 | 49,7 | 52,2 | 45     | 53,4 | 58,7 | 62   | 65,1 |                        |      |      |      |      |                        |  |  |  |  |
| Water volume                            | l     | 1,4    |      |      |      |      | 1,8    |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Cooling mode, four pipes <sup>(1)</sup> |       |        |      |      |      |      |        |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Total cooling capacity                  | kW    | NA     |      |      |      |      | 3,59   | 3,93 | 4,13 | 4,25 | 4,36 | 3,99                   | 4,40 | 4,66 | 4,82 | 4,97 |                        |  |  |  |  |
| Sensible cooling capacity               | kW    |        |      |      |      |      | 2,96   | 3,25 | 3,43 | 3,55 | 3,65 | 3,23                   | 3,58 | 3,81 | 3,95 | 4,08 |                        |  |  |  |  |
| Water flow                              | l/s   |        |      |      |      |      | 0,18   | 0,19 | 0,20 | 0,21 | 0,21 | 0,19                   | 0,22 | 0,23 | 0,24 | 0,24 |                        |  |  |  |  |
|   | l/h   |        |      |      |      |      | 640    | 690  | 730  | 750  | 770  | 700                    | 780  | 820  | 850  | 880  |                        |  |  |  |  |
| Water pressure drop                     | kPa   |        |      |      |      |      | 30,6   | 35,5 | 38,7 | 40,5 | 42,5 | 32,8                   | 38,9 | 43   | 45,6 | 47,9 |                        |  |  |  |  |
| Water volume                            | l     |        |      |      |      |      |        |      |      |      |      | 1,1                    |      |      |      |      | 1,4                    |  |  |  |  |
| Heating mode, four pipes <sup>(3)</sup> |       |        |      |      |      |      |        |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Heating capacity                        | kW    | NA     |      |      |      |      | 3,89   | 4,21 | 4,41 | 4,52 | 4,64 | 4,67                   | 5,10 | 5,34 | 5,48 | 5,61 |                        |  |  |  |  |
| Water flow                              | l/s   |        |      |      |      |      | 0,09   | 0,10 | 0,11 | 0,11 | 0,11 | 0,11                   | 0,13 | 0,13 | 0,13 | 0,14 |                        |  |  |  |  |
|   | l/h   |        |      |      |      |      | 340    | 370  | 390  | 400  | 410  | 410                    | 450  | 470  | 480  | 490  |                        |  |  |  |  |
| Water pressure drop                     | kPa   |        |      |      |      |      | 8,7    | 9,9  | 10,6 | 11,1 | 11,5 | 10,8                   | 12,4 | 13,4 | 14   | 14,5 |                        |  |  |  |  |
| Water volume                            | l     |        |      |      |      |      |        |      |      |      |      | 0,5                    |      |      |      |      | 0,6                    |  |  |  |  |
| Electric heater                         |       |        |      |      |      |      |        |      |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      | 230V ±10% - 1ph - 50Hz |  |  |  |  |
| Maximum capacity                        | W     | 2000   |      |      |      |      | 2000   |      |      |      |      | 2000                   |      |      |      |      |                        |  |  |  |  |
| Current input                           | A     | 9,1    |      |      |      |      | 9,1    |      |      |      |      | 9,1                    |      |      |      |      |                        |  |  |  |  |
| Sound levels                            |       |        |      |      |      |      |        |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Sound power level (return and radiated) | dB(A) | 55     | 56   | 57   | 58   | 58   | 55     | 56   | 57   | 58   | 58   | 55                     | 56   | 57   | 58   | 58   |                        |  |  |  |  |
| Sound power level (supply)              | dB(A) | 55     | 57   | 59   | 60   | 61   | 55     | 57   | 59   | 60   | 61   | 55                     | 57   | 59   | 60   | 61   |                        |  |  |  |  |
| Electrical data, motor                  |       |        |      |      |      |      |        |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| Power input                             | W     | 105    | 113  | 117  | 124  | 134  | 105    | 113  | 117  | 124  | 134  | 105                    | 113  | 117  | 124  | 134  |                        |  |  |  |  |
| Current input                           | A     | 0,59   | 0,64 | 0,67 | 0,71 | 0,76 | 0,59   | 0,64 | 0,67 | 0,71 | 0,76 | 0,59                   | 0,64 | 0,67 | 0,71 | 0,76 |                        |  |  |  |  |
| FCEER [energy class] - 2 pipes          |       | 34 [D] |      |      |      |      | 42 [C] |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| FCCOP [energy class]                    |       | 45 [C] |      |      |      |      | 48 [C] |      |      |      |      |                        |      |      |      |      |                        |  |  |  |  |
| FCEER [energy class] - 4 pipes          |       |        |      |      |      |      | 34 [D] |      |      |      |      | 38 [D]                 |      |      |      |      |                        |  |  |  |  |
| FCCOP [energy class]                    |       |        |      |      |      |      | 37 [D] |      |      |      |      | 45 [C]                 |      |      |      |      |                        |  |  |  |  |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH                                    | 529   |                        |      |      |      | 539                    |      |      |      |                        | 549  |      |      |      |      |      |
|---|-------|------------------------|------|------|------|------------------------|------|------|------|------------------------|------|------|------|------|------|------|
| Fan speed                               | 2V    | 5V                     | 6V   | 8V   | 10V  | 2V                     | 5V   | 6V   | 8V   | 10V                    | 2V   | 5V   | 6V   | 8V   | 10V  |      |
| (Eurovent certification speeds)         | (L)   | (M)                    | (H)  |      | Max  | (L)                    | (M)  | (H)  |      | Max                    | (L)  | (M)  | (H)  |      | Max  |      |
| Air flow                                | l/s   | 85                     | 213  | 244  | 307  | 347                    | 85   | 213  | 244  | 307                    | 347  | 85   | 213  | 244  | 307  | 347  |
|   | m³/h  | 306                    | 765  | 878  | 1105 | 1249                   | 306  | 765  | 878  | 1105                   | 1249 | 306  | 765  | 878  | 1105 | 1249 |
| Available static pressure               | Pa    | 8                      | 50   | 66   | 104  | 133                    | 8    | 50   | 66   | 104                    | 133  | 8    | 50   | 66   | 104  | 133  |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |      |                        |      |      |      |                        |      |      |      |      |      |      |
| Total cooling capacity                  | kW    | 1,70                   | 3,57 | 3,93 | 4,54 | 4,86                   | 1,77 | 4,37 | 4,88 | 5,72                   | 6,13 | NA   |      |      |      |      |
| Sensible cooling capacity               | kW    | 1,37                   | 2,98 | 3,31 | 3,89 | 4,19                   | 1,41 | 3,46 | 3,88 | 4,63                   | 5,01 |      |      |      |      |      |
| Water flow                              | l/s   | 0,08                   | 0,17 | 0,19 | 0,22 | 0,24                   | 0,08 | 0,21 | 0,24 | 0,28                   | 0,30 |      |      |      |      |      |
|   | l/h   | 290                    | 620  | 690  | 800  | 870                    | 300  | 760  | 850  | 1010                   | 1090 |      |      |      |      |      |
| Water pressure drop                     | kPa   | 7,2                    | 28,4 | 33   | 42,9 | 49,1                   | 7,2  | 38,1 | 46,5 | 61,6                   | 70,3 |      |      |      |      |      |
| Water volume                            | l     | 1,4                    |      |      |      | 1,8                    |      |      |      |                        |      |      |      |      |      |      |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |      |                        |      |      |      |                        |      |      |      |      |      |      |
| Heating capacity                        | kW    | 1,98                   | 4,71 | 5,26 | 6,20 | 6,68                   | 1,80 | 4,99 | 5,61 | 6,61                   | 7,07 | NA   |      |      |      |      |
| Water flow                              | l/s   | 0,09                   | 0,23 | 0,26 | 0,30 | 0,32                   | 0,09 | 0,24 | 0,27 | 0,32                   | 0,34 |      |      |      |      |      |
|   | l/h   | 340                    | 820  | 920  | 1080 | 1160                   | 310  | 870  | 980  | 1150                   | 1230 |      |      |      |      |      |
| Water pressure drop                     | kPa   | 8,8                    | 36,4 | 44   | 58,3 | 66,4                   | 8,4  | 44,8 | 54,8 | 72,6                   | 81,6 |      |      |      |      |      |
| Water volume                            | l     | 1,4                    |      |      |      | 1,8                    |      |      |      |                        |      |      |      |      |      |      |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |      |                        |      |      |      |                        |      |      |      |      |      |      |
| Total cooling capacity                  | kW    | NA                     |      |      |      | 1,65                   | 3,64 | 4,01 | 4,64 | 4,97                   | 1,73 | 4,03 | 4,51 | 5,35 | 6,02 |      |
| Sensible cooling capacity               | kW    |                        |      |      |      | 1,34                   | 3,00 | 3,33 | 3,92 | 4,23                   | 1,39 | 3,28 | 3,68 | 4,42 | 5,04 |      |
| Water flow                              | l/s   |                        |      |      |      | 0,08                   | 0,18 | 0,19 | 0,23 | 0,25                   | 0,08 | 0,19 | 0,22 | 0,26 | 0,29 |      |
|   | l/h   |                        |      |      |      | 280                    | 630  | 700  | 820  | 890                    | 300  | 700  | 790  | 940  | 1030 |      |
| Water pressure drop                     | kPa   |                        |      |      |      | 7,2                    | 30,5 | 36,3 | 47,3 | 54                     | 6,8  | 32,8 | 40   | 54,3 | 62   |      |
| Water volume                            | l     |                        |      |      |      | 1,1                    |      |      |      | 1,4                    |      |      |      |      |      |      |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |      |                        |      |      |      |                        |      |      |      |      |      |      |
| Heating capacity                        | kW    | NA                     |      |      |      | 1,87                   | 3,88 | 4,26 | 4,90 | 5,23                   | 1,88 | 4,66 | 5,16 | 5,91 | 7,44 |      |
| Water flow                              | l/s   |                        |      |      |      | 0,04                   | 0,09 | 0,10 | 0,12 | 0,13                   | 0,04 | 0,11 | 0,13 | 0,14 | 0,18 |      |
|   | l/h   |                        |      |      |      | 160                    | 340  | 370  | 430  | 460                    | 160  | 410  | 450  | 520  | 650  |      |
| Water pressure drop                     | kPa   |                        |      |      |      | 3,2                    | 8,7  | 10,1 | 12,6 | 14                     | 2,9  | 10,8 | 12,7 | 15,8 | 22   |      |
| Water volume                            | l     |                        |      |      |      | 0,5                    |      |      |      | 0,6                    |      |      |      |      |      |      |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |      |
| Maximum capacity                        | W     | 2000                   |      |      |      | 2000                   |      |      |      | 2000                   |      |      |      |      |      |      |
| Current input                           | A     | 9,1                    |      |      |      | 9,1                    |      |      |      | 9,1                    |      |      |      |      |      |      |
| Sound levels                            |       |                        |      |      |      |                        |      |      |      |                        |      |      |      |      |      |      |
| Sound power level (return and radiated) | dB(A) | 35                     | 53   | 57   | 63   | 66                     | 35   | 53   | 57   | 63                     | 66   | 35   | 53   | 57   | 63   | 66   |
| Sound power level (supply)              | dB(A) | 36                     | 57   | 61   | 66   | 70                     | 36   | 57   | 61   | 66                     | 70   | 36   | 57   | 61   | 66   | 70   |
| Electrical data, motor                  |       |                        |      |      |      |                        |      |      |      |                        |      |      |      |      |      |      |
| Power input                             | W     | 9                      | 52   | 78   | 146  | 212                    | 9    | 52   | 78   | 146                    | 212  | 9    | 52   | 78   | 146  | 212  |
| Current input                           | A     | 0,12                   | 0,67 | 0,95 | 1,58 | 1,88                   | 0,12 | 0,67 | 0,95 | 1,58                   | 1,88 | 0,12 | 0,67 | 0,95 | 1,58 | 1,88 |
| FCEER [energy class] - 2 pipes          |       | 94 [A]                 |      |      |      | 107 [A]                |      |      |      |                        |      |      |      |      |      |      |
| FCCOP [energy class]                    |       | 122 [A]                |      |      |      | 120 [A]                |      |      |      |                        |      |      |      |      |      |      |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |      | 93 [A]                 |      |      |      | 101 [A]                |      |      |      |      |      |      |
| FCCOP [energy class]                    |       |                        |      |      |      | 107 [A]                |      |      |      | 118 [A]                |      |      |      |      |      |      |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

## 7.7 - Physical and electrical data at Eurovent conditions - 42NH - Sizes 6 and 7

With G3 filter - without plenum

| 42NH                                    |       | 635                    |      |      |       |       | 645                    |      |       |       |       |    |
|---|-------|------------------------|------|------|-------|-------|------------------------|------|-------|-------|-------|----|
| Fan speed                               |       | R5                     | R4   | R3   | R2    | R1    | R5                     | R4   | R3    | R2    | R1    |    |
| (Eurovent certification speeds)         |       |                        | (L)  | (M)  | (H)   | Max   |                        | (L)  | (M)   | (H)   | Max   |    |
| Air flow                                | l/s   | 200                    | 298  | 397  | 460   | 499   | 200                    | 298  | 397   | 460   | 499   |    |
|   | m³/h  | 720                    | 1072 | 1428 | 1657  | 1796  | 720                    | 1072 | 1428  | 1657  | 1796  |    |
| Available static pressure               |       | Pa                     | 13   | 28   | 50    | 67    | 79                     | 13   | 28    | 50    | 67    | 79 |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |       |       |                        |      |       |       |       |    |
| Total cooling capacity                  | kW    | 4,03                   | 5,81 | 7,31 | 8,08  | 8,47  | 4,57                   | 6,80 | 8,62  | 9,52  | 9,97  |    |
| Sensible cooling capacity               | kW    | 3,17                   | 4,62 | 5,94 | 6,67  | 7,06  | 3,44                   | 5,14 | 6,65  | 7,49  | 7,92  |    |
| Water flow                              | l/s   | 0,20                   | 0,29 | 0,36 | 0,40  | 0,42  | 0,23                   | 0,33 | 0,42  | 0,47  | 0,49  |    |
|   | l/h   | 720                    | 1030 | 1290 | 1430  | 1500  | 820                    | 1200 | 1520  | 1680  | 1760  |    |
| Water pressure drop                     | kPa   | 12,3                   | 24   | 35   | 41,3  | 45,1  | 12,1                   | 25   | 38,6  | 45,1  | 49    |    |
| Water volume                            | l     | 1,5                    |      |      |       |       | 2                      |      |       |       |       |    |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |       |       |                        |      |       |       |       |    |
| Heating capacity                        | kW    | 5,21                   | 7,59 | 9,76 | 11,00 | 11,67 | 5,56                   | 8,21 | 10,59 | 11,92 | 12,64 |    |
| Water flow                              | l/s   | 0,25                   | 0,37 | 0,47 | 0,53  | 0,56  | 0,27                   | 0,40 | 0,51  | 0,58  | 0,61  |    |
|   | l/h   | 910                    | 1320 | 1700 | 1910  | 2030  | 970                    | 1430 | 1840  | 2070  | 2200  |    |
| Water pressure drop                     | kPa   | 15,9                   | 29,7 | 45,6 | 56    | 62,1  | 14,8                   | 28,1 | 43,4  | 53,1  | 58,8  |    |
| Water volume                            | l     | 1,5                    |      |      |       |       | 2,0                    |      |       |       |       |    |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |       |       |                        |      |       |       |       |    |
| Total cooling capacity                  | kW    | NA                     |      |      |       |       | 3,80                   | 5,38 | 6,63  | 7,22  | 7,52  |    |
| Sensible cooling capacity               | kW    |                        |      |      |       |       | 3,05                   | 4,40 | 5,56  | 6,18  | 6,50  |    |
| Water flow                              | l/s   |                        |      |      |       |       | 0,19                   | 0,27 | 0,33  | 0,36  | 0,37  |    |
|   | l/h   |                        |      |      |       |       | 680                    | 960  | 1180  | 1280  | 1340  |    |
| Water pressure drop                     | kPa   |                        |      |      |       |       | 11,1                   | 20,9 | 29,9  | 34,4  | 37,1  |    |
| Water volume                            | l     |                        |      |      |       |       | 1,3                    |      |       |       |       |    |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |       |       |                        |      |       |       |       |    |
| Heating capacity                        | kW    | NA                     |      |      |       |       | 4,92                   | 6,79 | 8,05  | 8,57  | 8,82  |    |
| Water flow                              | l/s   |                        |      |      |       |       | 0,12                   | 0,17 | 0,20  | 0,21  | 0,21  |    |
|   | l/h   |                        |      |      |       |       | 430                    | 600  | 710   | 750   | 770   |    |
| Water pressure drop                     | kPa   |                        |      |      |       |       | 6,6                    | 10,8 | 14,2  | 15,7  | 16,5  |    |
| Water volume                            | l     |                        |      |      |       |       | 0,7                    |      |       |       |       |    |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |       |       | 230V ±10% - 1ph - 50Hz |      |       |       |       |    |
| Maximum capacity                        | W     | 3200                   |      |      |       |       | 3200                   |      |       |       |       |    |
| Current input                           | A     | 14,6                   |      |      |       |       | 14,6                   |      |       |       |       |    |
| Sound levels                            |       |                        |      |      |       |       |                        |      |       |       |       |    |
| Sound power level (return and radiated) | dB(A) | 50                     | 56   | 58   | 61    | 62    | 50                     | 56   | 58    | 61    | 62    |    |
| Sound power level (supply)              | dB(A) | 50                     | 59   | 62   | 65    | 66    | 50                     | 59   | 62    | 65    | 66    |    |
| Electrical data, motor                  |       |                        |      |      |       |       |                        |      |       |       |       |    |
| Power input                             | W     | 185                    | 217  | 225  | 242   | 286   | 185                    | 217  | 225   | 242   | 286   |    |
| Current input                           | A     | 0,96                   | 1,11 | 1,28 | 1,38  | 1,55  | 0,96                   | 1,11 | 1,28  | 1,38  | 1,55  |    |
| FCEER [energy class] - 2 pipes          |       | 29 [D]                 |      |      |       |       | 34 [D]                 |      |       |       |       |    |
| FCCOP [energy class]                    |       | 38 [D]                 |      |      |       |       | 41 [C]                 |      |       |       |       |    |
| FCEER [energy class] - 4 pipes          |       |                        |      |      |       |       | 26 [D]                 |      |       |       |       |    |
| FCCOP [energy class]                    |       |                        |      |      |       |       | 33 [D]                 |      |       |       |       |    |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.



## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH  |                   | 639                    |      |      |      | 649                    |      |      |       |
|---|-------------------|------------------------|------|------|------|------------------------|------|------|-------|
| Fan speed                                     |                   | 2V                     | 6V   | 7V   | 10V  | 2V                     | 7V   | 8V   | 10V   |
| (Eurovent certification speeds)               |                   | (L)                    | (M)  | (H)  | Max  | (L)                    | (M)  | (H)  | Max   |
| Air flow                                      | l/s               | 102                    | 269  | 303  | 389  | 90                     | 327  | 364  | 426   |
|   | m <sup>3</sup> /h | 368                    | 967  | 1089 | 1400 | 323                    | 1176 | 1310 | 1532  |
| Available static pressure                     | Pa                | 7                      | 50   | 63   | 105  | 4                      | 50   | 62   | 85    |
| <b>Cooling mode, two pipes<sup>(1)</sup></b>  |                   |                        |      |      |      |                        |      |      |       |
| Total cooling capacity                        | kW                | 1,76                   | 5,44 | 5,99 | 7,21 | 1,87                   | 7,49 | 8,14 | 9,04  |
| Sensible cooling capacity                     | kW                | 1,40                   | 4,34 | 4,80 | 5,85 | 1,51                   | 5,71 | 6,25 | 7,04  |
| Water flow                                    | l/s               | 0,08                   | 0,26 | 0,29 | 0,36 | 0,09                   | 0,36 | 0,39 | 0,44  |
|   | l/h               | 300                    | 950  | 1050 | 1280 | 320                    | 1300 | 1420 | 1590  |
| Water pressure drop                           | kPa               | 3,5                    | 20,3 | 24,6 | 34,2 | 3,7                    | 29,1 | 34,4 | 41,3  |
| Water volume                                  | l                 | 1,5                    |      |      |      | 2                      |      |      |       |
| <b>Heating mode, two pipes<sup>(2)</sup></b>  |                   |                        |      |      |      |                        |      |      |       |
| Heating capacity                              | kW                | 2,19                   | 6,90 | 7,70 | 9,60 | 2,33                   | 8,94 | 9,84 | 11,21 |
| Water flow                                    | l/s               | 0,11                   | 0,33 | 0,37 | 0,46 | 0,11                   | 0,43 | 0,48 | 0,54  |
|   | l/h               | 380                    | 1200 | 1340 | 1670 | 410                    | 1550 | 1710 | 1950  |
| Water pressure drop                           | kPa               | 4,1                    | 25,3 | 30,4 | 44,4 | 3,7                    | 32,5 | 38,3 | 47,8  |
| Water volume                                  | l                 | 1,5                    |      |      |      | 2                      |      |      |       |
| <b>Cooling mode, four pipes<sup>(1)</sup></b> |                   |                        |      |      |      |                        |      |      |       |
| Total cooling capacity                        | kW                | NA                     |      |      |      | 1,83                   | 5,90 | 6,33 | 6,91  |
| Sensible cooling capacity                     | kW                |                        |      |      |      | 1,48                   | 4,87 | 5,27 | 5,85  |
| Water flow                                    | l/s               |                        |      |      |      | 0,09                   | 0,29 | 0,31 | 0,34  |
|   | l/h               |                        |      |      |      | 310                    | 1030 | 1110 | 1230  |
| Water pressure drop                           | kPa               |                        |      |      |      | 3,6                    | 23,9 | 27,7 | 32    |
| Water volume                                  | l                 |                        |      |      |      | 1,3                    |      |      |       |
| <b>Heating mode, four pipes<sup>(3)</sup></b> |                   |                        |      |      |      |                        |      |      |       |
| Heating capacity                              | kW                | NA                     |      |      |      | 2,17                   | 7,22 | 7,70 | 8,30  |
| Water flow                                    | l/s               |                        |      |      |      | 0,05                   | 0,18 | 0,19 | 0,20  |
|   | l/h               |                        |      |      |      | 190                    | 630  | 670  | 730   |
| Water pressure drop                           | kPa               |                        |      |      |      | 2,3                    | 11,9 | 13,2 | 14,9  |
| Water volume                                  | l                 |                        |      |      |      | 0,7                    |      |      |       |
| <b>Electric heater</b>                        |                   | 230V ±10% - 1ph - 50Hz |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |       |
| Maximum capacity                              | W                 | 3200                   |      |      |      | 3200                   |      |      |       |
| Current input                                 | A                 | 14,6                   |      |      |      | 14,6                   |      |      |       |
| <b>Sound levels</b>                           |                   |                        |      |      |      |                        |      |      |       |
| Sound power level (return and radiated)       | dB(A)             | 38                     | 58   | 61   | 67   | 38                     | 61   | 64   | 67    |
| Sound power level (supply)                    | dB(A)             | 46                     | 60   | 63   | 69   | 46                     | 63   | 66   | 69    |
| <b>Electrical data, motor</b>                 |                   |                        |      |      |      |                        |      |      |       |
| Power input                                   | W                 | 8                      | 76   | 106  | 222  | 9                      | 111  | 153  | 233   |
| Current input                                 | A                 | 0,09                   | 0,71 | 1,02 | 2,01 | 0,09                   | 0,71 | 1,02 | 2,01  |
| FCEER [energy class] - 2 pipes                |                   | 92 [A]                 |      |      |      | 83 [B]                 |      |      |       |
| FCCOP [energy class]                          |                   | 122 [A]                |      |      |      | 105 [A]                |      |      |       |
| FCEER [energy class] - 4 pipes                |                   |                        |      |      |      | 70 [B]                 |      |      |       |
| FCCOP [energy class]                          |                   |                        |      |      |      | 89 [A]                 |      |      |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH                                    |       | 735                    |      |      |       |       | 745                    |      |       |       |       |
|---|-------|------------------------|------|------|-------|-------|------------------------|------|-------|-------|-------|
| Fan speed                               |       | R5                     | R4   | R3   | R2    | R1    | R5                     | R4   | R3    | R2    | R1    |
| (Eurovent certification speeds)         |       |                        |      | (L)  | (M)   | (H)   |                        |      | (L)   | (M)   | (H)   |
| Air flow                                | l/s   | 148                    | 218  | 374  | 533   | 600   | 148                    | 218  | 374   | 533   | 600   |
|   | m³/h  | 534                    | 785  | 1346 | 1918  | 2161  | 534                    | 785  | 1346  | 1918  | 2161  |
| Available static pressure               | Pa    | 4                      | 8    | 25   | 50    | 63    | 4                      | 8    | 25    | 50    | 63    |
| Cooling mode, two pipes <sup>(1)</sup>  |       |                        |      |      |       |       |                        |      |       |       |       |
| Total cooling capacity                  | kW    | 3,19                   | 4,66 | 7,62 | 9,97  | 10,76 | 3,43                   | 5,09 | 8,52  | 11,32 | 12,25 |
| Sensible cooling capacity               | kW    | 2,42                   | 3,55 | 5,92 | 7,98  | 8,72  | 2,55                   | 3,77 | 6,41  | 8,75  | 9,60  |
| Water flow                              | l/s   | 0,16                   | 0,23 | 0,38 | 0,49  | 0,53  | 0,17                   | 0,25 | 0,42  | 0,56  | 0,60  |
|   | l/h   | 580                    | 840  | 1360 | 1770  | 1910  | 620                    | 910  | 1510  | 2000  | 2160  |
| Water pressure drop                     | kPa   | 9,1                    | 18,1 | 42,5 | 66,4  | 75,8  | 7,9                    | 16   | 41,8  | 66,2  | 75,9  |
| Water volume                            | l     | 2                      |      |      |       |       | 2,6                    |      |       |       |       |
| Heating mode, two pipes <sup>(2)</sup>  |       |                        |      |      |       |       |                        |      |       |       |       |
| Heating capacity                        | kW    | 3,81                   | 5,46 | 9,03 | 12,49 | 13,86 | 3,85                   | 5,62 | 9,55  | 13,38 | 14,88 |
| Water flow                              | l/s   | 0,18                   | 0,26 | 0,44 | 0,60  | 0,67  | 0,19                   | 0,27 | 0,46  | 0,65  | 0,72  |
|   | l/h   | 660                    | 950  | 1570 | 2170  | 2410  | 670                    | 980  | 1660  | 2330  | 2590  |
| Water pressure drop                     | kPa   | 10,7                   | 19,1 | 44,7 | 78,2  | 93,7  | 9                      | 16,3 | 39,5  | 70,5  | 84,8  |
| Water volume                            | l     | 2                      |      |      |       |       | 2,6                    |      |       |       |       |
| Cooling mode, four pipes <sup>(1)</sup> |       |                        |      |      |       |       |                        |      |       |       |       |
| Total cooling capacity                  | kW    | 2,80                   | 3,95 | 6,29 | 8,28  | 8,99  | 3,33                   | 4,94 | 8,11  | 10,46 | 11,18 |
| Sensible cooling capacity               | kW    | 2,22                   | 3,17 | 5,16 | 6,96  | 7,61  | 2,50                   | 3,69 | 6,18  | 8,25  | 8,96  |
| Water flow                              | l/s   | 0,14                   | 0,20 | 0,31 | 0,41  | 0,44  | 0,17                   | 0,25 | 0,40  | 0,51  | 0,55  |
|   | l/h   | 510                    | 720  | 1130 | 1480  | 1600  | 600                    | 890  | 1440  | 1850  | 1980  |
| Water pressure drop                     | kPa   | 8,9                    | 16,5 | 36   | 56,8  | 65,6  | 9,9                    | 20,3 | 47,6  | 72,9  | 81,9  |
| Water volume                            | l     | 1,3                    |      |      |       |       | 1,7                    |      |       |       |       |
| Heating mode, four pipes <sup>(3)</sup> |       |                        |      |      |       |       |                        |      |       |       |       |
| Heating capacity                        | kW    | 3,64                   | 5,20 | 8,43 | 11,16 | 12,13 | 4,14                   | 6,31 | 10,54 | 13,74 | 14,80 |
| Water flow                              | l/s   | 0,09                   | 0,13 | 0,21 | 0,27  | 0,29  | 0,10                   | 0,15 | 0,26  | 0,33  | 0,36  |
|   | l/h   | 320                    | 460  | 740  | 980   | 1060  | 360                    | 550  | 920   | 1200  | 1300  |
| Water pressure drop                     | kPa   | 5,1                    | 8,6  | 18,5 | 29,7  | 34,3  | 5,4                    | 10,2 | 23,6  | 36,9  | 41,9  |
| Water volume                            | l     | 0,7                    |      |      |       |       | 0,9                    |      |       |       |       |
| Electric heater                         |       | 230V ±10% - 1ph - 50Hz |      |      |       |       | 230V ±10% - 1ph - 50Hz |      |       |       |       |
| Maximum capacity                        | W     | 3200                   |      |      |       |       | 3200                   |      |       |       |       |
| Current input                           | A     | 14,6                   |      |      |       |       | 14,6                   |      |       |       |       |
| Sound levels                            |       |                        |      |      |       |       |                        |      |       |       |       |
| Sound power level (return and radiated) | dB(A) | 41                     | 48   | 57   | 63    | 64    | 41                     | 48   | 57    | 63    | 64    |
| Sound power level (supply)              | dB(A) | 42                     | 48   | 58   | 66    | 68    | 42                     | 48   | 58    | 66    | 68    |
| Electrical data, motor                  |       |                        |      |      |       |       |                        |      |       |       |       |
| Power input                             | W     | 174                    | 227  | 282  | 316   | 356   | 174                    | 227  | 282   | 316   | 356   |
| Current input                           | A     | 0,84                   | 1,08 | 1,40 | 1,74  | 1,86  | 0,84                   | 1,08 | 1,40  | 1,74  | 1,86  |
| FCEER [energy class] - 2 pipes          |       | 29 [D]                 |      |      |       |       | 32 [D]                 |      |       |       |       |
| FCCOP [energy class]                    |       | 34 [D]                 |      |      |       |       | 37 [D]                 |      |       |       |       |
| FCEER [energy class] - 4 pipes          |       | 24 [E]                 |      |      |       |       | 30 [D]                 |      |       |       |       |
| FCCOP [energy class]                    |       | 32 [D]                 |      |      |       |       | 39 [D]                 |      |       |       |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

(1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.

(2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.

(3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

| 42NH  |                   | 739                    |       |       |       | 749                    |       |       |       |
|---|-------------------|------------------------|-------|-------|-------|------------------------|-------|-------|-------|
| Fan speed                                     |                   | 2V                     | 7V    | 8V    | 10V   | 2V                     | 7V    | 8V    | 10V   |
| (Eurovent certification speeds)               |                   | (L)                    | (M)   | (H)   | Max   | (L)                    | (M)   | (H)   | Max   |
| Air flow                                      | l/s               | 124                    | 441   | 477   | 529   | 124                    | 441   | 477   | 529   |
|   | m <sup>3</sup> /h | 445                    | 1586  | 1717  | 1906  | 445                    | 1586  | 1717  | 1906  |
| Available static pressure                     | Pa                | 4                      | 50    | 59    | 72    | 4                      | 50    | 59    | 72    |
| <b>Cooling mode, two pipes<sup>(1)</sup></b>  |                   |                        |       |       |       |                        |       |       |       |
| Total cooling capacity                        | kW                | 2,79                   | 8,84  | 9,34  | 10,00 | 2,97                   | 9,94  | 10,56 | 11,34 |
| Sensible cooling capacity                     | kW                | 2,16                   | 6,99  | 7,43  | 8,01  | 2,25                   | 7,60  | 8,11  | 8,78  |
| Water flow                                    | l/s               | 0,13                   | 0,43  | 0,45  | 0,49  | 0,14                   | 0,48  | 0,51  | 0,55  |
|   | l/h               | 480                    | 1540  | 1630  | 1760  | 510                    | 1730  | 1840  | 1990  |
| Water pressure drop                           | kPa               | 6,6                    | 52,7  | 58,2  | 65,9  | 5,8                    | 51,8  | 57,7  | 65,7  |
| Water volume                                  | l                 | 2                      |       |       |       | 2,6                    |       |       |       |
| <b>Heating mode, two pipes<sup>(2)</sup></b>  |                   |                        |       |       |       |                        |       |       |       |
| Heating capacity                              | kW                | 3,22                   | 10,51 | 11,31 | 12,42 | 3,22                   | 11,19 | 12,07 | 13,30 |
| Water flow                                    | l/s               | 0,16                   | 0,51  | 0,55  | 0,60  | 0,16                   | 0,54  | 0,58  | 0,64  |
|   | l/h               | 560                    | 1830  | 1970  | 2160  | 560                    | 1950  | 2100  | 2310  |
| Water pressure drop                           | kPa               | 8,3                    | 58    | 65,8  | 77,4  | 6,6                    | 51,8  | 59,1  | 69,8  |
| Water volume                                  | l                 | 2                      |       |       |       | 2,6                    |       |       |       |
| <b>Cooling mode, four pipes<sup>(1)</sup></b> |                   |                        |       |       |       |                        |       |       |       |
| Total cooling capacity                        | kW                | 2,51                   | 7,33  | 7,75  | 8,31  | 2,89                   | 9,36  | 9,86  | 10,50 |
| Sensible cooling capacity                     | kW                | 2,02                   | 6,10  | 6,48  | 6,99  | 2,21                   | 7,27  | 7,71  | 8,29  |
| Water flow                                    | l/s               | 0,12                   | 0,36  | 0,38  | 0,41  | 0,14                   | 0,45  | 0,48  | 0,51  |
|   | l/h               | 430                    | 1280  | 1360  | 1470  | 500                    | 1630  | 1720  | 1840  |
| Water pressure drop                           | kPa               | 6,7                    | 44,7  | 49,5  | 56,4  | 7,1                    | 58,7  | 64,6  | 72,4  |
| Water volume                                  | l                 | 1,3                    |       |       |       | 1,7                    |       |       |       |
| <b>Heating mode, four pipes<sup>(3)</sup></b> |                   |                        |       |       |       |                        |       |       |       |
| Heating capacity                              | kW                | 3,07                   | 9,65  | 10,28 | 11,11 | 3,36                   | 12,02 | 12,75 | 13,68 |
| Water flow                                    | l/s               | 0,08                   | 0,24  | 0,25  | 0,27  | 0,08                   | 0,29  | 0,31  | 0,33  |
|   | l/h               | 270                    | 850   | 900   | 970   | 290                    | 1050  | 1120  | 1200  |
| Water pressure drop                           | kPa               | 4                      | 23,3  | 25,9  | 29,5  | 4,1                    | 29,4  | 32,5  | 36,7  |
| Water volume                                  | l                 | 0,7                    |       |       |       | 0,9                    |       |       |       |
| <b>Electric heater</b>                        |                   | 230V ±10% - 1ph - 50Hz |       |       |       | 230V ±10% - 1ph - 50Hz |       |       |       |
| Maximum capacity                              | W                 | 3000                   |       |       |       | 3000                   |       |       |       |
| Current input                                 | A                 | 13,7                   |       |       |       | 13,7                   |       |       |       |
| <b>Sound levels</b>                           |                   |                        |       |       |       |                        |       |       |       |
| Sound power level (return and radiated)       | dB(A)             | 45                     | 60    | 62    | 63    | 45                     | 60    | 62    | 63    |
| Sound power level (supply)                    | dB(A)             | 44                     | 61    | 63    | 65    | 44                     | 61    | 63    | 65    |
| <b>Electrical data, motor</b>                 |                   |                        |       |       |       |                        |       |       |       |
| Power input                                   | W                 | 10                     | 137   | 177   | 240   | 10                     | 137   | 177   | 240   |
| Current input                                 | A                 | 0,11                   | 1,11  | 1,38  | 1,85  | 0,11                   | 1,11  | 1,38  | 1,85  |
| FCEER [energy class] - 2 pipes                |                   | 87 [A]                 |       |       |       | 96 [A]                 |       |       |       |
| FCCOP [energy class]                          |                   | 109 [A]                |       |       |       | 113 [A]                |       |       |       |
| FCEER [energy class] - 4 pipes                |                   | 75 [B]                 |       |       |       | 92 [A]                 |       |       |       |
| FCCOP [energy class]                          |                   | 101 [A]                |       |       |       | 120 [A]                |       |       |       |

Fan speed: L = Low, M = Medium, H = High



Eurovent certified values

- (1) Eurovent conditions: inlet air temperature = 27 °C db/47 % RH – water inlet temperature = 7 °C, water temperature difference = 5 K.  
 (2) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 50 °C, water flow identical to cooling mode.  
 (3) Eurovent conditions: inlet air temperature = 20 °C, water inlet temperature = 70 °C, water temperature difference = 10K.

## 7 - 42NH AND 42NL PERFORMANCE DATA

### 7.8 - Electrical data

#### 7.8.1 - 42NL

42NL 2-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| R1    | 0,35 | 80  | 138   | 495    | 0              |
|       | 0,35 | 80  | 136   | 490    | 3              |
|       | 0,35 | 79  | 131   | 470    | 12             |
|       | 0,35 | 79  | 125   | 450    | 19             |
|       | 0,35 | 78  | 119   | 430    | 26             |
|       | 0,35 | 77  | 114   | 410    | 33             |
|       | 0,34 | 77  | 108   | 390    | 38             |
|       | 0,34 | 76  | 103   | 370    | 44             |
|       | 0,34 | 76  | 97    | 350    | 48             |
|       | 0,34 | 75  | 92    | 330    | 53             |
|       | 0,34 | 75  | 86    | 310    | 57             |
|       | 0,34 | 75  | 81    | 290    | 60             |
|       | 0,33 | 73  | 56    | 200    | 73             |
| R2    | 0,28 | 65  | 125   | 450    | 0              |
|       | 0,28 | 65  | 119   | 430    | 7              |
|       | 0,28 | 64  | 114   | 410    | 14             |
|       | 0,28 | 64  | 108   | 390    | 21             |
|       | 0,27 | 63  | 103   | 370    | 27             |
|       | 0,27 | 63  | 97    | 350    | 33             |
|       | 0,27 | 62  | 92    | 330    | 38             |
|       | 0,27 | 62  | 86    | 310    | 43             |
|       | 0,27 | 61  | 81    | 290    | 48             |
|       | 0,26 | 61  | 75    | 270    | 52             |
|       | 0,26 | 60  | 69    | 250    | 56             |
|       | 0,26 | 59  | 64    | 230    | 60             |
|       | 0,26 | 59  | 58    | 210    | 63             |
|       | 0,26 | 58  | 53    | 190    | 67             |
| R3    | 0,23 | 54  | 110   | 394    | 0              |
|       | 0,23 | 53  | 103   | 370    | 10             |
|       | 0,23 | 53  | 97    | 350    | 18             |
|       | 0,23 | 52  | 92    | 330    | 25             |
|       | 0,23 | 51  | 86    | 310    | 30             |
|       | 0,23 | 51  | 81    | 290    | 35             |
|       | 0,23 | 50  | 75    | 270    | 40             |
|       | 0,22 | 50  | 69    | 250    | 44             |
|       | 0,22 | 49  | 64    | 230    | 49             |
|       | 0,22 | 49  | 58    | 210    | 53             |
|       | 0,21 | 48  | 53    | 190    | 57             |
|       | 0,21 | 48  | 47    | 170    | 62             |
|       | 0,21 | 48  | 42    | 150    | 68             |
| R4    | 0,20 | 45  | 96    | 345    | 0              |
|       | 0,20 | 45  | 94    | 340    | 2              |
|       | 0,20 | 45  | 89    | 320    | 9              |
|       | 0,20 | 44  | 83    | 300    | 15             |
|       | 0,19 | 44  | 78    | 280    | 21             |
|       | 0,19 | 43  | 72    | 260    | 27             |
|       | 0,19 | 43  | 67    | 240    | 32             |
|       | 0,19 | 42  | 61    | 220    | 38             |
|       | 0,18 | 42  | 56    | 200    | 43             |
|       | 0,18 | 41  | 50    | 180    | 49             |
|       | 0,18 | 41  | 44    | 160    | 55             |
| R5    | 0,14 | 31  | 69    | 247    | 0              |
|       | 0,14 | 31  | 68    | 245    | 1              |
|       | 0,14 | 31  | 65    | 235    | 4              |
|       | 0,13 | 31  | 56    | 200    | 13             |
|       | 0,13 | 31  | 50    | 180    | 18             |
|       | 0,13 | 31  | 47    | 170    | 21             |
|       | 0,13 | 31  | 44    | 160    | 24             |
|       | 0,13 | 30  | 42    | 150    | 27             |
|       | 0,13 | 30  | 39    | 140    | 30             |
|       | 0,13 | 30  | 36    | 130    | 33             |
|       | 0,13 | 29  | 33    | 120    | 36             |
|       | 0,13 | 29  | 31    | 110    | 39             |
| R6    | 0,12 | 28  | 61    | 211    | 0              |
|       | 0,12 | 27  | 50    | 180    | 6              |
|       | 0,12 | 27  | 47    | 170    | 8              |
|       | 0,12 | 27  | 44    | 160    | 11             |
|       | 0,12 | 27  | 42    | 150    | 13             |
|       | 0,12 | 27  | 39    | 140    | 15             |
|       | 0,12 | 27  | 36    | 130    | 18             |
|       | 0,12 | 27  | 28    | 100    | 26             |

## Key

I Current drawn by the fan motor

P Power input to the fan motor

42NL 2-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| 10V   | 0,14 | 13  | 103   | 370    | 0              |
|       | 0,13 | 13  | 97    | 350    | 4              |
|       | 0,13 | 13  | 90    | 325    | 9              |
|       | 0,13 | 13  | 94    | 340    | 6              |
|       | 0,13 | 13  | 89    | 320    | 10             |
|       | 0,13 | 12  | 83    | 300    | 14             |
|       | 0,12 | 12  | 78    | 280    | 18             |
|       | 0,11 | 10  | 56    | 200    | 30             |
|       | 0,09 | 8   | 28    | 100    | 42             |
| 9V    | 0,12 | 12  | 97    | 350    | 0              |
|       | 0,12 | 12  | 90    | 325    | 5              |
|       | 0,12 | 11  | 83    | 300    | 10             |
|       | 0,12 | 11  | 76    | 275    | 15             |
|       | 0,12 | 10  | 69    | 250    | 19             |
|       | 0,11 | 10  | 63    | 225    | 23             |
|       | 0,11 | 9   | 56    | 200    | 26             |
|       | 0,10 | 9   | 49    | 175    | 29             |
|       | 0,09 | 8   | 28    | 100    | 37             |
| 8V    | 0,11 | 10  | 89    | 320    | 0              |
|       | 0,11 | 10  | 83    | 300    | 4              |
|       | 0,11 | 9   | 75    | 270    | 10             |
|       | 0,10 | 9   | 67    | 240    | 14             |
|       | 0,10 | 8   | 58    | 210    | 19             |
|       | 0,09 | 8   | 50    | 180    | 22             |
|       | 0,09 | 7   | 42    | 150    | 26             |
|       | 0,09 | 7   | 33    | 120    | 30             |
|       | 0,08 | 7   | 25    | 90     | 33             |
| 7V    | 0,10 | 9   | 81    | 292    | 0              |
|       | 0,10 | 8   | 76    | 275    | 3              |
|       | 0,09 | 8   | 69    | 250    | 8              |
|       | 0,09 | 8   | 64    | 230    | 11             |
|       | 0,09 | 7   | 58    | 210    | 14             |
|       | 0,08 | 7   | 42    | 150    | 21             |
|       | 0,08 | 6   | 28    | 100    | 26             |
|       | 0,07 | 6   | 21    | 75     | 28             |
| 6V    | 0,08 | 7   | 74    | 261    | 0              |
|       | 0,07 | 7   | 69    | 250    | 2              |
|       | 0,07 | 6   | 64    | 230    | 4              |
|       | 0,07 | 6   | 58    | 210    | 7              |
|       | 0,07 | 6   | 53    | 190    | 10             |
|       | 0,07 | 6   | 47    | 170    | 13             |
|       | 0,07 | 5   | 42    | 150    | 15             |
|       | 0,07 | 5   | 31    | 110    | 20             |
|       | 0,07 | 5   | 21    | 75     | 23             |
| 5V    | 0,06 | 5   | 65    | 235    | 0              |
|       | 0,06 | 5   | 60    | 215    | 2              |
|       | 0,06 | 5   | 56    | 200    | 4              |
|       | 0,06 | 5   | 50    | 180    | 7              |
|       | 0,06 | 5   | 44    | 160    | 9              |
|       | 0,06 | 5   | 39    | 140    | 11             |
|       | 0,06 | 4   | 33    | 120    | 13             |
|       | 0,06 | 4   | 28    | 100    | 15             |
|       | 0,05 | 4   | 17    | 60     | 18             |
| 4V    | 0,06 | 5   | 58    | 210    | 0              |
|       | 0,06 | 4   | 56    | 200    | 1              |
|       | 0,06 | 4   | 49    | 175    | 4              |
|       | 0,06 | 4   | 42    | 150    | 7              |
|       | 0,06 | 4   | 35    | 125    | 10             |
|       | 0,06 | 4   | 28    | 100    | 12             |
|       | 0,06 | 4   | 21    | 75     | 14             |
|       | 0,05 | 3   | 14    | 50     | 16             |
| 3V    | 0,06 | 4   | 51    | 182    | 0              |
|       | 0,06 | 3   | 47    | 170    | 1              |
|       | 0,06 | 3   | 42    | 150    | 3              |
|       | 0,05 | 3   | 28    | 100    | 8              |
|       | 0,05 | 3   | 14    | 50     | 11             |
| 2V    | 0,05 | 3   | 43    | 155    | 0              |
|       | 0,05 | 3   | 38    | 135    | 2              |
|       | 0,05 | 3   | 32    | 115    | 3              |
|       | 0,05 | 3   | 26    | 95     | 5              |
|       | 0,04 | 2   | 11    | 40     | 8              |

Qv Air flow

ESP Available external static pressure

R Fixed speed

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NL 3-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| R1    | 0,44 | 99  | 168   | 605    | 0              |
|       | 0,44 | 99  | 167   | 600    | 3              |
|       | 0,43 | 98  | 161   | 580    | 11             |
|       | 0,43 | 96  | 156   | 560    | 18             |
|       | 0,42 | 95  | 150   | 540    | 25             |
|       | 0,41 | 94  | 144   | 520    | 31             |
|       | 0,41 | 93  | 139   | 500    | 37             |
|       | 0,41 | 92  | 133   | 480    | 43             |
|       | 0,40 | 91  | 128   | 460    | 48             |
|       | 0,40 | 90  | 122   | 440    | 53             |
|       | 0,39 | 90  | 117   | 420    | 58             |
|       | 0,39 | 89  | 111   | 400    | 62             |
| R2    | 0,39 | 89  | 106   | 380    | 66             |
|       | 0,39 | 88  | 100   | 360    | 70             |
|       | 0,37 | 86  | 154   | 555    | 0              |
|       | 0,37 | 85  | 153   | 550    | 2              |
|       | 0,36 | 84  | 147   | 530    | 11             |
|       | 0,35 | 82  | 142   | 510    | 20             |
|       | 0,35 | 81  | 136   | 490    | 27             |
|       | 0,34 | 80  | 131   | 470    | 34             |
|       | 0,34 | 79  | 125   | 450    | 40             |
|       | 0,34 | 78  | 119   | 430    | 46             |
|       | 0,33 | 77  | 114   | 410    | 51             |
|       | 0,33 | 77  | 108   | 390    | 56             |
| R3    | 0,33 | 76  | 103   | 370    | 61             |
|       | 0,32 | 75  | 97    | 350    | 65             |
|       | 0,32 | 75  | 92    | 330    | 69             |
|       | 0,32 | 75  | 90    | 325    | 70             |
|       | 0,32 | 74  | 143   | 515    | 0              |
|       | 0,31 | 73  | 139   | 500    | 8              |
|       | 0,31 | 72  | 133   | 480    | 16             |
|       | 0,30 | 71  | 128   | 460    | 24             |
|       | 0,30 | 70  | 122   | 440    | 31             |
|       | 0,29 | 69  | 117   | 420    | 37             |
|       | 0,29 | 68  | 111   | 400    | 43             |
|       | 0,29 | 67  | 106   | 380    | 48             |
| R4    | 0,28 | 66  | 100   | 360    | 53             |
|       | 0,28 | 65  | 94    | 340    | 57             |
|       | 0,28 | 64  | 89    | 320    | 62             |
|       | 0,27 | 64  | 83    | 300    | 66             |
|       | 0,27 | 63  | 78    | 280    | 69             |
|       | 0,27 | 62  | 124   | 445    | 0              |
|       | 0,27 | 62  | 122   | 440    | 4              |
|       | 0,26 | 60  | 117   | 420    | 13             |
|       | 0,26 | 59  | 111   | 400    | 22             |
|       | 0,25 | 57  | 106   | 380    | 30             |
|       | 0,25 | 57  | 100   | 360    | 37             |
| R5    | 0,24 | 56  | 94    | 340    | 43             |
|       | 0,24 | 55  | 89    | 320    | 48             |
|       | 0,24 | 55  | 83    | 300    | 54             |
|       | 0,24 | 54  | 78    | 280    | 58             |
|       | 0,24 | 54  | 72    | 260    | 63             |
|       | 0,23 | 54  | 67    | 240    | 67             |
|       | 0,20 | 45  | 94    | 340    | 0              |
|       | 0,19 | 44  | 89    | 320    | 7              |
|       | 0,19 | 43  | 83    | 300    | 15             |
|       | 0,18 | 42  | 78    | 280    | 22             |
|       | 0,18 | 42  | 72    | 260    | 29             |
| R6    | 0,18 | 41  | 67    | 240    | 36             |
|       | 0,18 | 41  | 61    | 220    | 42             |
|       | 0,18 | 41  | 56    | 200    | 48             |
|       | 0,16 | 38  | 83    | 300    | 0              |
|       | 0,16 | 37  | 78    | 280    | 7              |
|       | 0,16 | 37  | 72    | 260    | 14             |
|       | 0,16 | 37  | 67    | 240    | 20             |
|       | 0,16 | 37  | 61    | 220    | 26             |
|       | 0,16 | 36  | 56    | 200    | 32             |
|       | 0,16 | 36  | 50    | 180    | 38             |
|       | 0,15 | 36  | 44    | 160    | 44             |

## Key

I Current drawn by the fan motor

P Power input to the fan motor

Qv Air flow rate

ESP Available external static pressure

R Fixed speed

42NL 3-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| 10V   | 0,39 | 49  | 168   | 605    | 0              |
|       | 0,39 | 49  | 167   | 600    | 2              |
|       | 0,38 | 48  | 161   | 580    | 8              |
|       | 0,37 | 47  | 156   | 560    | 14             |
|       | 0,37 | 46  | 150   | 540    | 20             |
|       | 0,36 | 45  | 144   | 520    | 27             |
|       | 0,35 | 44  | 139   | 500    | 33             |
|       | 0,34 | 43  | 133   | 480    | 39             |
|       | 0,31 | 39  | 111   | 400    | 64             |
| 9V    | 0,35 | 41  | 153   | 550    | 0              |
|       | 0,34 | 40  | 147   | 530    | 9              |
|       | 0,33 | 39  | 142   | 510    | 17             |
|       | 0,31 | 38  | 136   | 490    | 24             |
|       | 0,30 | 37  | 131   | 470    | 31             |
|       | 0,30 | 37  | 125   | 450    | 37             |
|       | 0,29 | 36  | 119   | 430    | 43             |
|       | 0,28 | 35  | 114   | 410    | 49             |
|       | 0,27 | 33  | 103   | 370    | 59             |
| 8V    | 0,30 | 34  | 144   | 517    | 0              |
|       | 0,30 | 34  | 142   | 510    | 3              |
|       | 0,28 | 33  | 136   | 490    | 11             |
|       | 0,27 | 32  | 131   | 470    | 19             |
|       | 0,26 | 31  | 125   | 450    | 25             |
|       | 0,25 | 31  | 119   | 430    | 31             |
|       | 0,24 | 30  | 114   | 410    | 37             |
|       | 0,23 | 27  | 97    | 350    | 51             |
|       | 0,22 | 26  | 89    | 320    | 56             |
| 7V    | 0,27 | 33  | 133   | 480    | 0              |
|       | 0,26 | 32  | 128   | 460    | 6              |
|       | 0,25 | 31  | 122   | 440    | 13             |
|       | 0,24 | 30  | 117   | 420    | 19             |
|       | 0,24 | 29  | 111   | 400    | 24             |
|       | 0,23 | 29  | 106   | 380    | 29             |
|       | 0,23 | 28  | 100   | 360    | 33             |
|       | 0,22 | 25  | 83    | 300    | 44             |
|       | 0,20 | 23  | 69    | 250    | 53             |
| 6V    | 0,17 | 20  | 119   | 430    | 0              |
|       | 0,16 | 19  | 111   | 400    | 8              |
|       | 0,16 | 18  | 106   | 380    | 13             |
|       | 0,16 | 18  | 100   | 360    | 17             |
|       | 0,15 | 17  | 94    | 340    | 21             |
|       | 0,15 | 16  | 83    | 300    | 28             |
|       | 0,14 | 15  | 69    | 250    | 37             |
|       | 0,13 | 14  | 56    | 200    | 46             |
|       | 0,12 | 14  | 53    | 190    | 48             |
| 5V    | 0,14 | 15  | 103   | 370    | 0              |
|       | 0,13 | 14  | 97    | 350    | 5              |
|       | 0,13 | 14  | 92    | 330    | 10             |
|       | 0,13 | 13  | 86    | 310    | 14             |
|       | 0,12 | 13  | 81    | 290    | 18             |
|       | 0,12 | 12  | 75    | 270    | 22             |
|       | 0,12 | 12  | 69    | 250    | 25             |
|       | 0,11 | 11  | 56    | 200    | 33             |
|       | 0,09 | 10  | 42    | 150    | 42             |
| 4V    | 0,10 | 10  | 89    | 320    | 0              |
|       | 0,10 | 9   | 83    | 300    | 4              |
|       | 0,10 | 9   | 78    | 280    | 9              |
|       | 0,09 | 9   | 72    | 260    | 12             |
|       | 0,09 | 8   | 67    | 240    | 15             |
|       | 0,09 | 8   | 61    | 220    | 18             |
|       | 0,09 | 8   | 56    | 200    | 21             |
|       | 0,09 | 7   | 42    | 150    | 26             |
|       | 0,08 | 7   | 28    | 100    | 32             |
| 3V    | 0,08 | 7   | 69    | 250    | 0              |
|       | 0,08 | 6   | 56    | 200    | 10             |
|       | 0,07 | 6   | 42    | 150    | 16             |
|       | 0,07 | 5   | 28    | 100    | 21             |
|       | 0,05 | 4   | 14    | 50     | 26             |
| 2V    | 0,06 | 4   | 54    | 195    | 0              |
|       | 0,06 | 4   | 42    | 150    | 6              |
|       | 0,06 | 4   | 28    | 100    | 10             |
|       | 0,05 | 3   | 14    | 50     | 13             |
|       | 0,05 | 3   | 7     | 25     | 15             |

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NL 4-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| R1    | 0.69 | 157 | 299   | 1075   | 0                 |
|       | 0.69 | 156 | 292   | 1050   | 6                 |
|       | 0.68 | 155 | 278   | 1000   | 17                |
|       | 0.68 | 154 | 264   | 950    | 26                |
|       | 0.67 | 152 | 250   | 900    | 35                |
|       | 0.67 | 150 | 236   | 850    | 42                |
|       | 0.66 | 149 | 222   | 800    | 50                |
|       | 0.65 | 147 | 208   | 750    | 56                |
|       | 0.65 | 145 | 194   | 700    | 62                |
|       | 0.64 | 144 | 181   | 650    | 68                |
|       | 0.63 | 142 | 167   | 600    | 73                |
|       | 0.63 | 141 | 153   | 550    | 78                |
| R2    | 0.57 | 129 | 267   | 960    | 0                 |
|       | 0.57 | 129 | 264   | 950    | 3                 |
|       | 0.56 | 128 | 257   | 925    | 10                |
|       | 0.56 | 127 | 250   | 900    | 16                |
|       | 0.55 | 126 | 242   | 870    | 23                |
|       | 0.55 | 125 | 233   | 840    | 29                |
|       | 0.54 | 123 | 225   | 810    | 35                |
|       | 0.54 | 122 | 217   | 780    | 40                |
|       | 0.53 | 121 | 208   | 750    | 45                |
|       | 0.52 | 118 | 181   | 650    | 59                |
|       | 0.51 | 116 | 167   | 600    | 65                |
|       | 0.50 | 114 | 153   | 550    | 70                |
| R3    | 0.49 | 113 | 233   | 840    | 0                 |
|       | 0.49 | 111 | 228   | 820    | 7                 |
|       | 0.48 | 110 | 222   | 800    | 14                |
|       | 0.48 | 109 | 217   | 780    | 20                |
|       | 0.47 | 107 | 211   | 760    | 26                |
|       | 0.47 | 106 | 206   | 740    | 31                |
|       | 0.46 | 105 | 200   | 720    | 35                |
|       | 0.46 | 104 | 194   | 700    | 39                |
|       | 0.46 | 103 | 189   | 680    | 43                |
|       | 0.45 | 103 | 183   | 660    | 46                |
|       | 0.45 | 102 | 178   | 640    | 49                |
|       | 0.44 | 99  | 153   | 550    | 60                |
| R4    | 0.43 | 98  | 208   | 750    | 0                 |
|       | 0.42 | 96  | 201   | 725    | 9                 |
|       | 0.41 | 94  | 194   | 700    | 17                |
|       | 0.40 | 92  | 188   | 675    | 24                |
|       | 0.40 | 91  | 181   | 650    | 30                |
|       | 0.39 | 89  | 174   | 625    | 35                |
|       | 0.39 | 89  | 167   | 600    | 40                |
|       | 0.38 | 88  | 160   | 575    | 44                |
|       | 0.38 | 87  | 153   | 550    | 48                |
|       | 0.38 | 87  | 146   | 525    | 51                |
|       | 0.38 | 86  | 139   | 500    | 55                |
|       | 0.37 | 86  | 132   | 475    | 58                |
| R5    | 0.30 | 68  | 149   | 535    | 0                 |
|       | 0.30 | 68  | 147   | 530    | 3                 |
|       | 0.29 | 66  | 139   | 500    | 14                |
|       | 0.29 | 65  | 133   | 480    | 20                |
|       | 0.28 | 65  | 128   | 460    | 24                |
|       | 0.28 | 64  | 122   | 440    | 28                |
|       | 0.28 | 64  | 119   | 430    | 30                |
|       | 0.28 | 64  | 117   | 420    | 31                |
|       | 0.28 | 64  | 114   | 410    | 33                |
|       | 0.28 | 64  | 111   | 400    | 35                |
|       | 0.28 | 64  | 108   | 390    | 36                |
|       | 0.28 | 63  | 106   | 380    | 37                |
| R6    | 0.25 | 57  | 129   | 465    | 0                 |
|       | 0.25 | 57  | 125   | 450    | 5                 |
|       | 0.25 | 56  | 119   | 430    | 11                |
|       | 0.25 | 56  | 114   | 410    | 17                |
|       | 0.24 | 56  | 108   | 390    | 21                |
|       | 0.24 | 55  | 103   | 370    | 25                |
|       | 0.24 | 55  | 97    | 350    | 28                |
|       | 0.24 | 55  | 92    | 330    | 31                |
|       | 0.24 | 55  | 86    | 310    | 33                |

## Key

I Current drawn by the fan motor  
P Power input to the fan motor

42NL 4-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 0.80 | 99  | 226   | 815    | 0                 |
|       | 0.79 | 99  | 222   | 800    | 7                 |
|       | 0.79 | 99  | 215   | 775    | 19                |
|       | 0.79 | 99  | 208   | 750    | 31                |
|       | 0.78 | 98  | 201   | 725    | 43                |
|       | 0.77 | 97  | 194   | 700    | 54                |
|       | 0.76 | 95  | 188   | 675    | 64                |
|       | 0.74 | 93  | 181   | 650    | 74                |
|       | 0.73 | 91  | 174   | 625    | 83                |
|       | 0.75 | 91  | 217   | 780    | 0                 |
|       | 0.72 | 89  | 208   | 750    | 14                |
|       | 0.70 | 87  | 201   | 725    | 26                |
| 9V    | 0.69 | 85  | 194   | 700    | 36                |
|       | 0.67 | 83  | 188   | 675    | 46                |
|       | 0.66 | 81  | 181   | 650    | 56                |
|       | 0.64 | 79  | 174   | 625    | 65                |
|       | 0.63 | 77  | 167   | 600    | 73                |
|       | 0.61 | 75  | 160   | 575    | 81                |
| 8V    | 0.65 | 78  | 207   | 745    | 0                 |
|       | 0.63 | 76  | 201   | 725    | 8                 |
|       | 0.60 | 73  | 194   | 700    | 19                |
|       | 0.58 | 71  | 188   | 675    | 29                |
|       | 0.57 | 70  | 181   | 650    | 38                |
|       | 0.56 | 68  | 174   | 625    | 46                |
|       | 0.55 | 66  | 167   | 600    | 53                |
|       | 0.54 | 65  | 160   | 575    | 60                |
|       | 0.53 | 64  | 153   | 550    | 67                |
|       | 0.54 | 58  | 192   | 690    | 0                 |
| 7V    | 0.53 | 58  | 188   | 675    | 5                 |
|       | 0.50 | 57  | 181   | 650    | 13                |
|       | 0.48 | 55  | 174   | 625    | 21                |
|       | 0.46 | 54  | 167   | 600    | 28                |
|       | 0.44 | 53  | 160   | 575    | 35                |
|       | 0.43 | 52  | 153   | 550    | 42                |
|       | 0.42 | 51  | 146   | 525    | 49                |
|       | 0.41 | 49  | 139   | 500    | 55                |
|       | 0.38 | 42  | 169   | 610    | 0                 |
|       | 0.37 | 42  | 167   | 600    | 3                 |
| 6V    | 0.35 | 41  | 160   | 575    | 10                |
|       | 0.33 | 40  | 153   | 550    | 17                |
|       | 0.32 | 39  | 146   | 525    | 24                |
|       | 0.31 | 38  | 139   | 500    | 31                |
|       | 0.30 | 36  | 132   | 475    | 37                |
|       | 0.30 | 35  | 125   | 450    | 44                |
|       | 0.29 | 34  | 118   | 425    | 49                |
|       | 0.29 | 30  | 150   | 540    | 0                 |
| 5V    | 0.28 | 29  | 146   | 525    | 3                 |
|       | 0.27 | 28  | 139   | 500    | 9                 |
|       | 0.25 | 28  | 132   | 475    | 15                |
|       | 0.24 | 27  | 125   | 450    | 21                |
|       | 0.23 | 26  | 118   | 425    | 27                |
|       | 0.22 | 25  | 111   | 400    | 32                |
|       | 0.22 | 24  | 104   | 375    | 37                |
|       | 0.21 | 23  | 97    | 350    | 41                |
|       | 0.18 | 18  | 124   | 445    | 0                 |
|       | 0.17 | 18  | 118   | 425    | 4                 |
| 4V    | 0.16 | 17  | 111   | 400    | 8                 |
|       | 0.15 | 17  | 104   | 375    | 13                |
|       | 0.14 | 16  | 97    | 350    | 17                |
|       | 0.14 | 15  | 90    | 325    | 21                |
|       | 0.13 | 15  | 83    | 300    | 25                |
|       | 0.13 | 14  | 76    | 275    | 28                |
|       | 0.13 | 13  | 69    | 250    | 32                |
|       | 0.12 | 11  | 97    | 350    | 0                 |
|       | 0.11 | 10  | 83    | 300    | 8                 |
|       | 0.10 | 9   | 69    | 250    | 15                |
| 3V    | 0.10 | 9   | 56    | 200    | 21                |
|       | 0.09 | 8   | 42    | 150    | 26                |
|       | 0.07 | 6   | 67    | 240    | 0                 |
| 2V    | 0.07 | 5   | 56    | 200    | 4                 |
|       | 0.07 | 5   | 42    | 150    | 9                 |
|       | 0.06 | 4   | 28    | 100    | 12                |
|       | 0.06 | 4   | 14    | 50     | 15                |

Qv Air flow

ESP Available external static pressure

R Fixed speed



## 7 - 42NH AND 42NL PERFORMANCE DATA

42NL 5-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| R1    | 0,74 | 170 | 358   | 1290   | 0              |
|       | 0,74 | 169 | 354   | 1275   | 2              |
|       | 0,73 | 168 | 347   | 1250   | 6              |
|       | 0,73 | 167 | 340   | 1225   | 10             |
|       | 0,73 | 166 | 333   | 1200   | 14             |
|       | 0,72 | 164 | 319   | 1150   | 21             |
|       | 0,71 | 162 | 306   | 1100   | 28             |
|       | 0,70 | 160 | 292   | 1050   | 35             |
|       | 0,69 | 158 | 278   | 1000   | 41             |
|       | 0,69 | 156 | 264   | 950    | 48             |
|       | 0,68 | 155 | 250   | 900    | 54             |
|       | 0,66 | 150 | 208   | 750    | 71             |
| R2    | 0,60 | 137 | 313   | 1125   | 0              |
|       | 0,60 | 136 | 306   | 1100   | 5              |
|       | 0,59 | 135 | 299   | 1075   | 9              |
|       | 0,59 | 134 | 292   | 1050   | 13             |
|       | 0,58 | 132 | 278   | 1000   | 21             |
|       | 0,57 | 129 | 264   | 950    | 29             |
|       | 0,56 | 128 | 250   | 900    | 37             |
|       | 0,55 | 126 | 236   | 850    | 44             |
|       | 0,54 | 124 | 222   | 800    | 51             |
|       | 0,54 | 122 | 208   | 750    | 58             |
|       | 0,53 | 121 | 194   | 700    | 64             |
|       | 0,52 | 119 | 181   | 650    | 70             |
| R3    | 0,52 | 118 | 275   | 990    | 0              |
|       | 0,51 | 116 | 264   | 950    | 8              |
|       | 0,50 | 115 | 257   | 925    | 13             |
|       | 0,50 | 113 | 250   | 900    | 18             |
|       | 0,49 | 112 | 243   | 875    | 23             |
|       | 0,49 | 111 | 236   | 850    | 28             |
|       | 0,48 | 110 | 229   | 825    | 32             |
|       | 0,48 | 109 | 222   | 800    | 37             |
|       | 0,47 | 108 | 215   | 775    | 41             |
|       | 0,47 | 107 | 208   | 750    | 45             |
|       | 0,46 | 106 | 194   | 700    | 53             |
|       | 0,45 | 103 | 167   | 600    | 66             |
| R4    | 0,43 | 99  | 233   | 840    | 0              |
|       | 0,43 | 97  | 222   | 800    | 10             |
|       | 0,42 | 95  | 215   | 775    | 15             |
|       | 0,42 | 94  | 208   | 750    | 21             |
|       | 0,41 | 94  | 201   | 725    | 26             |
|       | 0,41 | 93  | 194   | 700    | 31             |
|       | 0,40 | 92  | 188   | 675    | 35             |
|       | 0,40 | 91  | 181   | 650    | 39             |
|       | 0,40 | 90  | 174   | 625    | 43             |
|       | 0,40 | 90  | 167   | 600    | 47             |
|       | 0,39 | 89  | 160   | 575    | 51             |
|       | 0,39 | 89  | 153   | 550    | 54             |
| R5    | 0,30 | 67  | 169   | 610    | 0              |
|       | 0,30 | 67  | 167   | 600    | 2              |
|       | 0,30 | 67  | 160   | 575    | 8              |
|       | 0,29 | 66  | 153   | 550    | 13             |
|       | 0,29 | 66  | 146   | 525    | 17             |
|       | 0,29 | 66  | 139   | 500    | 22             |
|       | 0,29 | 65  | 132   | 475    | 26             |
|       | 0,29 | 65  | 125   | 450    | 30             |
|       | 0,28 | 64  | 118   | 425    | 34             |
|       | 0,28 | 64  | 111   | 400    | 37             |
|       | 0,28 | 64  | 104   | 375    | 41             |
|       | 0,28 | 63  | 97    | 350    | 45             |
| R6    | 0,26 | 58  | 149   | 535    | 0              |
|       | 0,25 | 58  | 139   | 500    | 8              |
|       | 0,25 | 57  | 132   | 475    | 12             |
|       | 0,25 | 57  | 125   | 450    | 16             |
|       | 0,25 | 57  | 118   | 425    | 20             |
|       | 0,25 | 57  | 111   | 400    | 24             |
|       | 0,25 | 56  | 104   | 375    | 27             |
|       | 0,25 | 56  | 97    | 350    | 31             |
|       | 0,25 | 56  | 90    | 325    | 35             |

## Key

I Current drawn by the fan motor  
P Power input to the fan motor

42NL 5-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| 10V   | 0,39 | 58  | 254   | 915    | 0              |
|       | 0,39 | 57  | 250   | 900    | 3              |
|       | 0,37 | 55  | 236   | 850    | 11             |
|       | 0,36 | 54  | 222   | 800    | 18             |
|       | 0,35 | 52  | 208   | 750    | 26             |
|       | 0,34 | 50  | 194   | 700    | 33             |
|       | 0,33 | 49  | 181   | 650    | 41             |
|       | 0,32 | 47  | 167   | 600    | 48             |
|       | 0,29 | 44  | 139   | 500    | 62             |
|       | 0,34 | 51  | 243   | 875    | 0              |
|       | 0,34 | 50  | 236   | 850    | 4              |
|       | 0,32 | 48  | 222   | 800    | 11             |
| 9V    | 0,31 | 46  | 208   | 750    | 18             |
|       | 0,30 | 44  | 194   | 700    | 25             |
|       | 0,28 | 42  | 181   | 650    | 32             |
|       | 0,27 | 41  | 167   | 600    | 38             |
|       | 0,26 | 39  | 153   | 550    | 45             |
|       | 0,24 | 36  | 125   | 450    | 58             |
| 8V    | 0,28 | 43  | 229   | 825    | 0              |
|       | 0,28 | 42  | 222   | 800    | 4              |
|       | 0,26 | 39  | 208   | 750    | 10             |
|       | 0,25 | 37  | 194   | 700    | 16             |
|       | 0,24 | 36  | 181   | 650    | 23             |
|       | 0,23 | 34  | 167   | 600    | 29             |
|       | 0,22 | 33  | 153   | 550    | 35             |
|       | 0,22 | 32  | 139   | 500    | 42             |
|       | 0,20 | 30  | 111   | 400    | 54             |
|       | 0,22 | 33  | 208   | 750    | 0              |
|       | 0,21 | 31  | 194   | 700    | 6              |
|       | 0,20 | 29  | 181   | 650    | 13             |
| 7V    | 0,19 | 28  | 167   | 600    | 19             |
|       | 0,19 | 27  | 153   | 550    | 25             |
|       | 0,18 | 26  | 139   | 500    | 31             |
|       | 0,17 | 25  | 125   | 450    | 36             |
|       | 0,17 | 24  | 111   | 400    | 42             |
|       | 0,15 | 22  | 83    | 300    | 52             |
|       | 0,17 | 24  | 186   | 670    | 0              |
|       | 0,16 | 23  | 181   | 650    | 3              |
|       | 0,16 | 22  | 167   | 600    | 9              |
|       | 0,15 | 21  | 153   | 550    | 14             |
|       | 0,14 | 20  | 139   | 500    | 20             |
|       | 0,14 | 19  | 125   | 450    | 24             |
| 6V    | 0,13 | 18  | 111   | 400    | 29             |
|       | 0,13 | 17  | 97    | 350    | 34             |
|       | 0,11 | 15  | 69    | 250    | 42             |
|       | 0,13 | 18  | 169   | 610    | 0              |
|       | 0,13 | 17  | 167   | 600    | 1              |
|       | 0,12 | 16  | 153   | 550    | 5              |
| 5V    | 0,12 | 16  | 139   | 500    | 10             |
|       | 0,11 | 15  | 125   | 450    | 14             |
|       | 0,11 | 14  | 111   | 400    | 19             |
|       | 0,10 | 13  | 97    | 350    | 23             |
|       | 0,10 | 13  | 83    | 300    | 27             |
|       | 0,09 | 11  | 56    | 200    | 35             |
|       | 0,09 | 11  | 139   | 500    | 0              |
|       | 0,08 | 10  | 125   | 450    | 4              |
|       | 0,08 | 10  | 111   | 400    | 8              |
|       | 0,08 | 9   | 97    | 350    | 12             |
|       | 0,07 | 9   | 83    | 300    | 16             |
|       | 0,07 | 8   | 69    | 250    | 20             |
| 4V    | 0,07 | 8   | 56    | 200    | 23             |
|       | 0,06 | 7   | 42    | 150    | 26             |
|       | 0,06 | 7   | 28    | 100    | 29             |
|       | 0,06 | 7   | 111   | 400    | 0              |
|       | 0,06 | 7   | 97    | 350    | 4              |
|       | 0,06 | 6   | 83    | 300    | 8              |
| 3V    | 0,06 | 6   | 69    | 250    | 11             |
|       | 0,05 | 5   | 28    | 100    | 19             |
|       | 0,04 | 4   | 83    | 295    | 0              |
|       | 0,04 | 4   | 69    | 250    | 2              |
| 2V    | 0,04 | 4   | 56    | 200    | 5              |
|       | 0,04 | 3   | 42    | 150    | 7              |
|       | 0,04 | 3   | 28    | 100    | 9              |

Qv Air flow

ESP Available external static pressure

R Fixed speed

## 7 - 42NH AND 42NL PERFORMANCE DATA

## 7.8.2 - 42NH

42NH 2-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| R1    | 0,24 | 54  | 143   | 515    | 0                 |
|       | 0,24 | 54  | 142   | 510    | 3                 |
|       | 0,24 | 53  | 136   | 490    | 12                |
|       | 0,24 | 53  | 131   | 470    | 20                |
|       | 0,23 | 52  | 125   | 450    | 28                |
|       | 0,23 | 51  | 119   | 430    | 35                |
|       | 0,23 | 51  | 114   | 410    | 41                |
|       | 0,22 | 50  | 108   | 390    | 47                |
|       | 0,22 | 49  | 103   | 370    | 52                |
|       | 0,21 | 48  | 97    | 350    | 57                |
|       | 0,21 | 47  | 92    | 330    | 61                |
|       | 0,19 | 43  | 69    | 250    | 74                |
| R2    | 0,18 | 41  | 56    | 200    | 80                |
|       | 0,17 | 39  | 42    | 150    | 85                |
|       | 0,23 | 50  | 99    | 355    | 0                 |
|       | 0,22 | 48  | 93    | 335    | 12                |
|       | 0,22 | 46  | 88    | 315    | 23                |
|       | 0,21 | 45  | 82    | 295    | 32                |
|       | 0,20 | 43  | 76    | 275    | 41                |
|       | 0,20 | 42  | 71    | 255    | 49                |
|       | 0,19 | 40  | 65    | 235    | 56                |
|       | 0,18 | 39  | 60    | 215    | 62                |
|       | 0,18 | 38  | 57    | 205    | 65                |
|       | 0,18 | 37  | 54    | 195    | 68                |
| R3    | 0,18 | 36  | 51    | 185    | 70                |
|       | 0,17 | 36  | 49    | 175    | 72                |
|       | 0,17 | 35  | 46    | 165    | 74                |
|       | 0,17 | 35  | 43    | 155    | 76                |
|       | 0,16 | 34  | 40    | 145    | 78                |
|       | 0,16 | 33  | 38    | 135    | 80                |
|       | 0,22 | 48  | 79    | 285    | 0                 |
|       | 0,22 | 47  | 74    | 265    | 12                |
|       | 0,21 | 45  | 68    | 245    | 24                |
|       | 0,20 | 44  | 65    | 235    | 29                |
|       | 0,20 | 42  | 63    | 225    | 35                |
|       | 0,20 | 41  | 60    | 215    | 39                |
| R4    | 0,19 | 40  | 57    | 205    | 44                |
|       | 0,19 | 39  | 54    | 195    | 49                |
|       | 0,18 | 38  | 51    | 185    | 53                |
|       | 0,18 | 37  | 49    | 175    | 56                |
|       | 0,18 | 36  | 46    | 165    | 60                |
|       | 0,17 | 35  | 43    | 155    | 63                |
|       | 0,17 | 34  | 40    | 145    | 67                |
|       | 0,16 | 33  | 38    | 135    | 69                |
|       | 0,16 | 32  | 35    | 125    | 72                |
|       | 0,16 | 20  | 54    | 195    | 0                 |
|       | 0,16 | 20  | 53    | 190    | 7                 |
|       | 0,16 | 20  | 51    | 185    | 13                |
| R5    | 0,16 | 20  | 50    | 180    | 18                |
|       | 0,16 | 20  | 49    | 175    | 23                |
|       | 0,15 | 20  | 47    | 170    | 28                |
|       | 0,15 | 20  | 46    | 165    | 33                |
|       | 0,15 | 20  | 44    | 160    | 37                |
|       | 0,15 | 19  | 42    | 150    | 46                |
|       | 0,14 | 19  | 39    | 140    | 53                |
|       | 0,14 | 19  | 36    | 130    | 59                |
|       | 0,14 | 19  | 33    | 120    | 65                |
|       | 0,13 | 13  | 35    | 125    | 0                 |
|       | 0,13 | 13  | 32    | 115    | 9                 |
|       | 0,13 | 13  | 31    | 110    | 13                |
| R5    | 0,13 | 13  | 29    | 105    | 17                |
|       | 0,13 | 13  | 28    | 100    | 21                |
|       | 0,13 | 13  | 26    | 95     | 25                |
|       | 0,13 | 13  | 25    | 90     | 29                |
|       | 0,12 | 13  | 24    | 85     | 33                |
|       | 0,12 | 13  | 22    | 80     | 36                |
|       | 0,12 | 13  | 21    | 75     | 40                |
|       | 0,12 | 13  | 19    | 70     | 43                |
|       | 0,12 | 13  | 18    | 65     | 46                |
|       | 0,12 | 13  | 17    | 60     | 49                |

42NH 229 &amp; 239 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 0,39 | 47  | 169   | 610    | 0                 |
|       | 0,38 | 47  | 167   | 600    | 2                 |
|       | 0,36 | 44  | 153   | 550    | 15                |
|       | 0,35 | 42  | 139   | 500    | 29                |
|       | 0,33 | 40  | 125   | 450    | 43                |
|       | 0,31 | 37  | 111   | 400    | 57                |
|       | 0,29 | 35  | 97    | 350    | 70                |
|       | 0,26 | 32  | 69    | 250    | 90                |
|       | 0,25 | 30  | 42    | 150    | 101               |
| 9V    | 0,34 | 40  | 161   | 580    | 0                 |
|       | 0,31 | 37  | 139   | 500    | 19                |
|       | 0,28 | 33  | 111   | 400    | 45                |
|       | 0,26 | 31  | 97    | 350    | 58                |
|       | 0,25 | 29  | 83    | 300    | 70                |
|       | 0,24 | 28  | 69    | 250    | 79                |
|       | 0,23 | 26  | 56    | 200    | 86                |
|       | 0,22 | 26  | 49    | 175    | 89                |
|       | 0,22 | 26  | 42    | 150    | 91                |
| 8V    | 0,28 | 32  | 147   | 530    | 0                 |
|       | 0,27 | 31  | 139   | 500    | 7                 |
|       | 0,26 | 30  | 133   | 480    | 12                |
|       | 0,25 | 29  | 128   | 460    | 17                |
|       | 0,25 | 29  | 122   | 440    | 22                |
|       | 0,24 | 28  | 117   | 420    | 26                |
|       | 0,21 | 24  | 83    | 300    | 53                |
|       | 0,19 | 21  | 56    | 200    | 70                |
|       | 0,18 | 20  | 42    | 150    | 75                |
| 7V    | 0,22 | 24  | 133   | 480    | 0                 |
|       | 0,21 | 24  | 125   | 450    | 8                 |
|       | 0,20 | 23  | 111   | 400    | 20                |
|       | 0,19 | 21  | 97    | 350    | 30                |
|       | 0,18 | 20  | 83    | 300    | 40                |
|       | 0,16 | 18  | 69    | 250    | 48                |
|       | 0,15 | 17  | 56    | 200    | 56                |
|       | 0,14 | 15  | 42    | 150    | 62                |
|       | 0,13 | 15  | 35    | 125    | 66                |
| 6V    | 0,16 | 18  | 119   | 430    | 0                 |
|       | 0,16 | 18  | 111   | 400    | 6                 |
|       | 0,15 | 16  | 97    | 350    | 16                |
|       | 0,14 | 15  | 83    | 300    | 25                |
|       | 0,13 | 14  | 69    | 250    | 34                |
|       | 0,12 | 13  | 56    | 200    | 41                |
|       | 0,11 | 12  | 42    | 150    | 47                |
|       | 0,11 | 11  | 35    | 125    | 50                |
|       | 0,10 | 11  | 28    | 100    | 52                |
| 5V    | 0,12 | 13  | 106   | 380    | 0                 |
|       | 0,12 | 13  | 97    | 350    | 5                 |
|       | 0,11 | 12  | 83    | 300    | 14                |
|       | 0,10 | 11  | 69    | 250    | 22                |
|       | 0,09 | 10  | 56    | 200    | 29                |
|       | 0,09 | 9   | 42    | 150    | 34                |
|       | 0,08 | 8   | 35    | 125    | 37                |
|       | 0,08 | 8   | 28    | 100    | 39                |
|       | 0,08 | 7   | 25    | 90     | 40                |
| 4V    | 0,09 | 10  | 90    | 325    | 0                 |
|       | 0,09 | 9   | 83    | 300    | 4                 |
|       | 0,09 | 9   | 78    | 280    | 7                 |
|       | 0,09 | 8   | 72    | 260    | 10                |
|       | 0,09 | 8   | 67    | 240    | 13                |
|       | 0,08 | 8   | 56    | 200    | 19                |
|       | 0,08 | 7   | 42    | 150    | 24                |
|       | 0,07 | 6   | 28    | 100    | 28                |
|       | 0,06 | 6   | 21    | 75     | 29                |
| 3V    | 0,07 | 6   | 72    | 260    | 0                 |
|       | 0,07 | 5   | 56    | 200    | 7                 |
|       | 0,07 | 5   | 39    | 140    | 14                |
|       | 0,06 | 4   | 28    | 100    | 17                |
|       | 0,06 | 4   | 22    | 80     | 19                |
| 2V    | 0,05 | 4   | 50    | 180    | 0                 |
|       | 0,05 | 3   | 44    | 160    | 4                 |
|       | 0,05 | 3   | 39    | 140    | 6                 |
|       | 0,05 | 3   | 28    | 100    | 9                 |
|       | 0,05 | 3   | 17    | 60     | 11                |

## Key

I Current drawn by the fan motor

P Power input to the fan motor

Qv Air flow

ESP Available external static pressure

R Fixed speed

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NH 279 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 0,75 | 93  | 225   | 810    | 0                 |
|       | 0,75 | 93  | 222   | 800    | 3                 |
|       | 0,71 | 88  | 194   | 700    | 31                |
|       | 0,69 | 85  | 181   | 650    | 46                |
|       | 0,66 | 82  | 167   | 600    | 62                |
|       | 0,63 | 78  | 153   | 550    | 77                |
|       | 0,60 | 74  | 139   | 500    | 93                |
|       | 0,57 | 71  | 125   | 450    | 109               |
| 9V    | 0,55 | 67  | 111   | 400    | 124               |
|       | 0,65 | 81  | 213   | 767    | 0                 |
|       | 0,65 | 80  | 208   | 750    | 6                 |
|       | 0,63 | 78  | 194   | 700    | 20                |
|       | 0,61 | 76  | 181   | 650    | 34                |
|       | 0,59 | 73  | 167   | 600    | 49                |
|       | 0,57 | 70  | 153   | 550    | 63                |
|       | 0,54 | 66  | 139   | 500    | 78                |
| 8V    | 0,49 | 60  | 111   | 400    | 106               |
|       | 0,46 | 56  | 97    | 350    | 120               |
|       | 0,51 | 63  | 196   | 705    | 0                 |
|       | 0,51 | 63  | 194   | 700    | 1                 |
|       | 0,50 | 61  | 181   | 650    | 14                |
|       | 0,48 | 59  | 167   | 600    | 27                |
|       | 0,46 | 56  | 153   | 550    | 40                |
|       | 0,44 | 53  | 139   | 500    | 54                |
| 7V    | 0,42 | 50  | 125   | 450    | 67                |
|       | 0,37 | 45  | 97    | 350    | 93                |
|       | 0,34 | 40  | 69    | 250    | 117               |
|       | 0,40 | 48  | 176   | 635    | 0                 |
|       | 0,39 | 47  | 167   | 600    | 10                |
|       | 0,38 | 45  | 153   | 550    | 22                |
|       | 0,36 | 43  | 139   | 500    | 34                |
|       | 0,34 | 41  | 125   | 450    | 46                |
| 6V    | 0,32 | 38  | 111   | 400    | 57                |
|       | 0,30 | 36  | 97    | 350    | 67                |
|       | 0,29 | 33  | 83    | 300    | 78                |
|       | 0,25 | 29  | 56    | 200    | 98                |
|       | 0,29 | 33  | 150   | 540    | 0                 |
|       | 0,27 | 32  | 139   | 500    | 11                |
|       | 0,26 | 30  | 125   | 450    | 24                |
|       | 0,24 | 28  | 111   | 400    | 34                |
| 5V    | 0,23 | 26  | 97    | 350    | 44                |
|       | 0,21 | 24  | 83    | 300    | 53                |
|       | 0,20 | 23  | 69    | 250    | 61                |
|       | 0,19 | 21  | 56    | 200    | 70                |
|       | 0,18 | 20  | 42    | 150    | 78                |
|       | 0,20 | 22  | 129   | 465    | 0                 |
|       | 0,20 | 22  | 125   | 450    | 4                 |
|       | 0,18 | 21  | 111   | 400    | 15                |
| 4V    | 0,17 | 19  | 97    | 350    | 24                |
|       | 0,16 | 18  | 83    | 300    | 32                |
|       | 0,15 | 16  | 69    | 250    | 40                |
|       | 0,14 | 15  | 56    | 200    | 47                |
|       | 0,13 | 14  | 42    | 150    | 54                |
|       | 0,12 | 13  | 28    | 100    | 60                |
|       | 0,13 | 15  | 110   | 395    | 0                 |
|       | 0,12 | 14  | 97    | 350    | 8                 |
| 3V    | 0,12 | 13  | 83    | 300    | 16                |
|       | 0,11 | 12  | 69    | 250    | 24                |
|       | 0,10 | 11  | 56    | 200    | 30                |
|       | 0,10 | 11  | 49    | 175    | 33                |
|       | 0,10 | 10  | 42    | 150    | 36                |
|       | 0,09 | 9   | 35    | 125    | 38                |
|       | 0,09 | 9   | 28    | 100    | 40                |
|       | 0,08 | 8   | 83    | 300    | 0                 |
| 2V    | 0,08 | 8   | 69    | 250    | 7                 |
|       | 0,07 | 7   | 56    | 200    | 13                |
|       | 0,07 | 6   | 42    | 150    | 19                |
|       | 0,06 | 5   | 14    | 50     | 27                |
|       | 0,06 | 5   | 61    | 200    | 0                 |
|       | 0,05 | 5   | 47    | 170    | 4                 |
|       | 0,05 | 4   | 33    | 120    | 8                 |
|       | 0,05 | 4   | 19    | 70     | 12                |

42NH 289 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 0,91 | 116 | 207   | 745    | 0                 |
|       | 0,90 | 114 | 201   | 725    | 8                 |
|       | 0,88 | 112 | 194   | 700    | 17                |
|       | 0,84 | 107 | 181   | 650    | 37                |
|       | 0,80 | 102 | 167   | 600    | 56                |
|       | 0,75 | 96  | 153   | 550    | 75                |
|       | 0,71 | 91  | 139   | 500    | 93                |
|       | 0,64 | 82  | 111   | 400    | 123               |
| 9V    | 0,60 | 76  | 83    | 300    | 142               |
|       | 0,85 | 108 | 203   | 725    | 0                 |
|       | 0,83 | 105 | 194   | 700    | 9                 |
|       | 0,79 | 101 | 181   | 650    | 26                |
|       | 0,75 | 95  | 167   | 600    | 45                |
|       | 0,70 | 90  | 153   | 550    | 64                |
|       | 0,66 | 85  | 139   | 500    | 83                |
|       | 0,62 | 80  | 125   | 450    | 100               |
| 8V    | 0,59 | 76  | 111   | 400    | 115               |
|       | 0,55 | 71  | 83    | 300    | 132               |
|       | 0,68 | 85  | 194   | 680    | 0                 |
|       | 0,67 | 84  | 181   | 650    | 10                |
|       | 0,65 | 82  | 167   | 600    | 24                |
|       | 0,62 | 78  | 153   | 550    | 40                |
|       | 0,58 | 73  | 139   | 500    | 58                |
|       | 0,54 | 69  | 125   | 450    | 76                |
| 7V    | 0,50 | 64  | 111   | 400    | 93                |
|       | 0,47 | 60  | 97    | 350    | 107               |
|       | 0,45 | 56  | 83    | 300    | 118               |
|       | 0,51 | 64  | 164   | 595    | 0                 |
|       | 0,49 | 62  | 153   | 550    | 13                |
|       | 0,46 | 58  | 139   | 500    | 28                |
|       | 0,43 | 54  | 125   | 450    | 45                |
|       | 0,40 | 50  | 111   | 400    | 61                |
| 6V    | 0,37 | 46  | 97    | 350    | 76                |
|       | 0,34 | 42  | 83    | 300    | 89                |
|       | 0,32 | 40  | 69    | 250    | 100               |
|       | 0,31 | 38  | 56    | 200    | 106               |
|       | 0,38 | 47  | 140   | 505    | 0                 |
|       | 0,36 | 45  | 132   | 475    | 11                |
|       | 0,34 | 42  | 118   | 425    | 28                |
|       | 0,31 | 38  | 104   | 375    | 44                |
| 5V    | 0,28 | 35  | 90    | 325    | 58                |
|       | 0,26 | 32  | 76    | 275    | 70                |
|       | 0,25 | 30  | 63    | 225    | 80                |
|       | 0,24 | 29  | 49    | 175    | 85                |
|       | 0,18 | 20  | 42    | 150    | 78                |
|       | 0,27 | 33  | 124   | 445    | 0                 |
|       | 0,26 | 32  | 118   | 425    | 6                 |
|       | 0,25 | 31  | 111   | 400    | 12                |
| 4V    | 0,23 | 28  | 97    | 350    | 26                |
|       | 0,21 | 25  | 83    | 300    | 39                |
|       | 0,19 | 23  | 69    | 250    | 50                |
|       | 0,18 | 21  | 56    | 200    | 59                |
|       | 0,17 | 20  | 42    | 150    | 64                |
|       | 0,12 | 13  | 28    | 100    | 60                |
|       | 0,18 | 21  | 100   | 360    | 0                 |
|       | 0,18 | 21  | 97    | 350    | 3                 |
| 3V    | 0,16 | 19  | 83    | 300    | 15                |
|       | 0,15 | 17  | 69    | 250    | 26                |
|       | 0,14 | 16  | 63    | 225    | 31                |
|       | 0,14 | 16  | 56    | 200    | 35                |
|       | 0,13 | 15  | 49    | 175    | 39                |
|       | 0,12 | 14  | 42    | 150    | 43                |
|       | 0,12 | 13  | 35    | 125    | 46                |
|       | 0,12 | 13  | 72    | 260    | 0                 |
| 2V    | 0,11 | 12  | 56    | 200    | 10                |
|       | 0,10 | 11  | 42    | 150    | 19                |
|       | 0,09 | 9   | 28    | 100    | 28                |
|       | 0,08 | 8   | 22    | 80     | 31                |
|       | 0,08 | 7   | 46    | 165    | 0                 |
|       | 0,08 | 7   | 42    | 150    | 3                 |
|       | 0,07 | 7   | 35    | 125    | 8                 |
|       | 0,07 | 6   | 28    | 100    | 13                |

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NH 3-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| R1    | 0,88 | 201 | 199   | 716    | 0                 |
|       | 0,88 | 201 | 194   | 700    | 12                |
|       | 0,88 | 200 | 192   | 690    | 20                |
|       | 0,88 | 200 | 189   | 680    | 28                |
|       | 0,87 | 199 | 186   | 670    | 37                |
|       | 0,87 | 198 | 183   | 660    | 46                |
|       | 0,87 | 197 | 181   | 650    | 56                |
|       | 0,85 | 195 | 174   | 625    | 80                |
|       | 0,84 | 192 | 167   | 600    | 105               |
|       | 0,82 | 190 | 160   | 575    | 129               |
|       | 0,81 | 186 | 153   | 550    | 151               |
|       | 0,79 | 183 | 146   | 525    | 170               |
| R2    | 0,75 | 173 | 159   | 572    | 0                 |
|       | 0,75 | 173 | 158   | 570    | 2                 |
|       | 0,75 | 173 | 153   | 550    | 16                |
|       | 0,75 | 172 | 147   | 530    | 32                |
|       | 0,75 | 171 | 142   | 510    | 49                |
|       | 0,74 | 170 | 136   | 490    | 66                |
|       | 0,73 | 168 | 131   | 470    | 84                |
|       | 0,72 | 166 | 125   | 450    | 101               |
|       | 0,71 | 164 | 119   | 430    | 118               |
|       | 0,70 | 161 | 114   | 410    | 133               |
|       | 0,69 | 158 | 108   | 390    | 146               |
|       | 0,68 | 155 | 103   | 370    | 157               |
| R3    | 0,67 | 152 | 97    | 350    | 166               |
|       | 0,64 | 145 | 86    | 310    | 172               |
|       | 0,65 | 150 | 124   | 448    | 0                 |
|       | 0,65 | 150 | 124   | 445    | 2                 |
|       | 0,65 | 148 | 111   | 400    | 30                |
|       | 0,64 | 147 | 106   | 380    | 41                |
|       | 0,64 | 146 | 100   | 360    | 52                |
|       | 0,63 | 144 | 94    | 340    | 64                |
|       | 0,63 | 143 | 89    | 320    | 77                |
|       | 0,62 | 141 | 83    | 300    | 91                |
|       | 0,62 | 140 | 81    | 290    | 99                |
|       | 0,61 | 139 | 78    | 280    | 108               |
| R4    | 0,61 | 138 | 75    | 270    | 115               |
|       | 0,61 | 137 | 72    | 260    | 121               |
|       | 0,57 | 129 | 94    | 340    | 0                 |
|       | 0,57 | 128 | 88    | 315    | 16                |
|       | 0,57 | 127 | 83    | 300    | 23                |
|       | 0,56 | 127 | 81    | 290    | 27                |
|       | 0,56 | 126 | 78    | 280    | 31                |
|       | 0,56 | 125 | 75    | 270    | 35                |
|       | 0,56 | 125 | 72    | 260    | 38                |
|       | 0,56 | 124 | 69    | 250    | 43                |
|       | 0,55 | 124 | 67    | 240    | 47                |
|       | 0,55 | 124 | 64    | 230    | 51                |
| R5    | 0,55 | 123 | 61    | 220    | 55                |
|       | 0,55 | 123 | 58    | 210    | 61                |
|       | 0,55 | 124 | 50    | 180    | 75                |
|       | 0,50 | 111 | 65    | 233    | 0                 |
|       | 0,49 | 110 | 63    | 225    | 4                 |
|       | 0,49 | 109 | 56    | 200    | 15                |
|       | 0,49 | 109 | 53    | 190    | 18                |
|       | 0,49 | 109 | 50    | 180    | 21                |
|       | 0,49 | 108 | 47    | 170    | 24                |
|       | 0,49 | 108 | 44    | 160    | 27                |
|       | 0,48 | 107 | 39    | 140    | 34                |
|       | 0,48 | 107 | 33    | 120    | 42                |
|       | 0,48 | 107 | 28    | 100    | 50                |

## Key

I Current drawn by the fan motor

P Power input to the fan motor

Qv Air flow rate

ESP Available external static pressure

R Fixed speed

42NH 3-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 1,34 | 174 | 278   | 1000   | 0                 |
|       | 1,34 | 174 | 264   | 950    | 35                |
|       | 1,34 | 174 | 250   | 900    | 66                |
|       | 1,34 | 174 | 236   | 850    | 95                |
|       | 1,34 | 174 | 222   | 800    | 124               |
|       | 1,33 | 173 | 208   | 750    | 151               |
|       | 1,33 | 173 | 194   | 700    | 177               |
|       | 1,32 | 172 | 181   | 650    | 201               |
|       | 1,32 | 172 | 153   | 550    | 242               |
|       | 1,34 | 174 | 278   | 1000   | 0                 |
|       | 1,34 | 174 | 264   | 950    | 35                |
|       | 1,34 | 174 | 250   | 900    | 66                |
| 9V    | 1,34 | 174 | 236   | 850    | 95                |
|       | 1,34 | 174 | 222   | 800    | 124               |
|       | 1,33 | 173 | 208   | 750    | 151               |
|       | 1,33 | 173 | 194   | 700    | 177               |
|       | 1,32 | 172 | 167   | 600    | 223               |
|       | 1,32 | 172 | 153   | 550    | 242               |
|       | 1,34 | 174 | 278   | 1000   | 0                 |
|       | 1,34 | 174 | 264   | 950    | 35                |
|       | 1,34 | 174 | 250   | 900    | 66                |
|       | 1,34 | 174 | 236   | 850    | 95                |
|       | 1,34 | 174 | 222   | 800    | 124               |
|       | 1,33 | 173 | 208   | 750    | 151               |
| 8V    | 1,33 | 173 | 194   | 700    | 177               |
|       | 1,32 | 172 | 167   | 600    | 223               |
|       | 1,32 | 172 | 139   | 500    | 258               |
|       | 1,23 | 167 | 275   | 989    | 0                 |
|       | 1,23 | 167 | 271   | 975    | 7                 |
|       | 1,22 | 165 | 264   | 950    | 20                |
|       | 1,20 | 161 | 250   | 900    | 45                |
|       | 1,11 | 151 | 222   | 800    | 93                |
|       | 1,01 | 140 | 194   | 700    | 137               |
|       | 0,95 | 129 | 167   | 600    | 174               |
|       | 0,91 | 122 | 139   | 500    | 201               |
|       | 0,90 | 120 | 111   | 400    | 216               |
| 7V    | 0,98 | 136 | 263   | 945    | 0                 |
|       | 0,95 | 128 | 236   | 850    | 36                |
|       | 0,91 | 123 | 222   | 800    | 56                |
|       | 0,89 | 118 | 208   | 750    | 75                |
|       | 0,82 | 113 | 194   | 700    | 93                |
|       | 0,70 | 103 | 167   | 600    | 125               |
|       | 0,68 | 93  | 139   | 500    | 149               |
|       | 0,61 | 86  | 111   | 400    | 161               |
|       | 0,58 | 81  | 83    | 300    | 159               |
|       | 0,69 | 100 | 235   | 845    | 0                 |
|       | 0,68 | 92  | 222   | 800    | 12                |
|       | 0,59 | 82  | 194   | 700    | 42                |
| 6V    | 0,55 | 75  | 167   | 600    | 73                |
|       | 0,50 | 69  | 139   | 500    | 102               |
|       | 0,45 | 62  | 111   | 400    | 127               |
|       | 0,33 | 45  | 69    | 250    | 149               |
|       | 0,31 | 41  | 63    | 225    | 150               |
|       | 0,28 | 36  | 56    | 200    | 151               |
|       | 0,41 | 57  | 197   | 710    | 0                 |
|       | 0,41 | 57  | 194   | 700    | 3                 |
|       | 0,35 | 51  | 167   | 600    | 28                |
|       | 0,35 | 44  | 139   | 500    | 52                |
|       | 0,31 | 38  | 111   | 400    | 73                |
|       | 0,27 | 34  | 83    | 300    | 90                |
| 5V    | 0,25 | 32  | 56    | 200    | 101               |
|       | 0,24 | 32  | 42    | 150    | 105               |
|       | 0,24 | 32  | 36    | 130    | 105               |
|       | 0,25 | 30  | 153   | 550    | 0                 |
|       | 0,24 | 28  | 139   | 500    | 10                |
|       | 0,22 | 24  | 111   | 400    | 30                |
|       | 0,17 | 19  | 69    | 250    | 54                |
|       | 0,14 | 15  | 28    | 100    | 63                |
|       | 0,08 | 9   | 83    | 300    | 0                 |
|       | 0,08 | 8   | 69    | 250    | 7                 |
|       | 0,08 | 8   | 56    | 200    | 13                |
|       | 0,07 | 7   | 42    | 150    | 18                |
| 4V    | 0,07 | 7   | 28    | 100    | 23                |
|       | 0,07 | 7   | 28    | 100    | 23                |

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NH 4-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| R1    | 0,72 | 161 | 369   | 1330   | 0                 |
|       | 0,71 | 158 | 361   | 1300   | 6                 |
|       | 0,67 | 150 | 333   | 1200   | 25                |
|       | 0,63 | 142 | 306   | 1100   | 42                |
|       | 0,60 | 134 | 278   | 1000   | 58                |
|       | 0,58 | 128 | 250   | 900    | 73                |
|       | 0,56 | 125 | 236   | 850    | 80                |
|       | 0,55 | 122 | 222   | 800    | 87                |
|       | 0,54 | 119 | 208   | 750    | 93                |
|       | 0,53 | 117 | 194   | 700    | 99                |
|       | 0,52 | 114 | 181   | 650    | 106               |
|       | 0,50 | 112 | 167   | 600    | 111               |
|       | 0,49 | 109 | 153   | 550    | 117               |
|       | 0,47 | 105 | 125   | 450    | 128               |
| R2    | 0,67 | 148 | 325   | 1170   | 0                 |
|       | 0,65 | 145 | 319   | 1150   | 5                 |
|       | 0,60 | 134 | 292   | 1050   | 27                |
|       | 0,55 | 123 | 264   | 950    | 47                |
|       | 0,52 | 115 | 236   | 850    | 64                |
|       | 0,49 | 107 | 208   | 750    | 80                |
|       | 0,47 | 104 | 194   | 700    | 87                |
|       | 0,46 | 101 | 181   | 650    | 94                |
|       | 0,44 | 98  | 167   | 600    | 101               |
|       | 0,43 | 95  | 153   | 550    | 107               |
|       | 0,42 | 93  | 139   | 500    | 113               |
|       | 0,40 | 90  | 125   | 450    | 120               |
|       | 0,40 | 89  | 118   | 425    | 123               |
|       | 0,39 | 88  | 111   | 400    | 126               |
| R3    | 0,62 | 133 | 246   | 885    | 0                 |
|       | 0,57 | 124 | 236   | 850    | 16                |
|       | 0,54 | 119 | 229   | 825    | 26                |
|       | 0,52 | 114 | 222   | 800    | 36                |
|       | 0,50 | 110 | 215   | 775    | 44                |
|       | 0,48 | 107 | 208   | 750    | 51                |
|       | 0,46 | 101 | 194   | 700    | 63                |
|       | 0,44 | 97  | 181   | 650    | 73                |
|       | 0,43 | 94  | 167   | 600    | 80                |
|       | 0,41 | 91  | 153   | 550    | 87                |
|       | 0,40 | 88  | 139   | 500    | 95                |
|       | 0,38 | 84  | 125   | 450    | 103               |
|       | 0,37 | 82  | 118   | 425    | 107               |
|       | 0,36 | 79  | 111   | 400    | 113               |
| R4    | 0,51 | 109 | 171   | 615    | 0                 |
|       | 0,49 | 104 | 167   | 600    | 12                |
|       | 0,46 | 98  | 160   | 575    | 29                |
|       | 0,44 | 94  | 153   | 550    | 44                |
|       | 0,42 | 90  | 146   | 525    | 55                |
|       | 0,40 | 86  | 139   | 500    | 65                |
|       | 0,39 | 84  | 132   | 475    | 72                |
|       | 0,38 | 82  | 125   | 450    | 79                |
|       | 0,37 | 80  | 118   | 425    | 84                |
|       | 0,36 | 78  | 111   | 400    | 89                |
|       | 0,35 | 76  | 104   | 375    | 94                |
|       | 0,34 | 74  | 97    | 350    | 99                |
|       | 0,33 | 71  | 90    | 325    | 104               |
|       | 0,31 | 68  | 83    | 300    | 111               |
| R5    | 0,43 | 87  | 115   | 415    | 0                 |
|       | 0,42 | 86  | 111   | 400    | 8                 |
|       | 0,41 | 85  | 108   | 390    | 15                |
|       | 0,40 | 84  | 106   | 380    | 21                |
|       | 0,39 | 82  | 103   | 370    | 28                |
|       | 0,39 | 81  | 100   | 360    | 36                |
|       | 0,38 | 79  | 97    | 350    | 43                |
|       | 0,37 | 78  | 94    | 340    | 50                |
|       | 0,36 | 76  | 92    | 330    | 57                |
|       | 0,35 | 75  | 89    | 320    | 63                |
|       | 0,35 | 73  | 86    | 310    | 69                |
|       | 0,34 | 72  | 83    | 300    | 74                |
|       | 0,33 | 71  | 81    | 290    | 78                |
|       | 0,32 | 70  | 78    | 280    | 81                |

## Key

I Current drawn by the fan motor

P Power input to the fan motor

Qv Air flow rate

ESP Available external static pressure

R Fixed speed

42NH 4-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 1,34 | 174 | 292   | 1050   | 0                 |
|       | 1,34 | 174 | 278   | 1000   | 25                |
|       | 1,34 | 173 | 264   | 950    | 54                |
|       | 1,34 | 174 | 250   | 900    | 82                |
|       | 1,34 | 174 | 236   | 850    | 109               |
|       | 1,33 | 174 | 222   | 800    | 136               |
|       | 1,33 | 173 | 208   | 750    | 163               |
|       | 1,32 | 173 | 194   | 700    | 188               |
|       | 1,32 | 172 | 181   | 650    | 214               |
|       | 1,34 | 174 | 292   | 1050   | 0                 |
| 9V    | 1,34 | 174 | 278   | 1000   | 25                |
|       | 1,34 | 173 | 264   | 950    | 54                |
|       | 1,34 | 174 | 250   | 900    | 82                |
|       | 1,34 | 174 | 236   | 850    | 109               |
|       | 1,33 | 174 | 222   | 800    | 136               |
|       | 1,33 | 173 | 208   | 750    | 163               |
|       | 1,32 | 173 | 194   | 700    | 188               |
|       | 1,32 | 172 | 181   | 650    | 214               |
|       | 1,34 | 174 | 292   | 1050   | 0                 |
|       | 1,34 | 174 | 278   | 1000   | 25                |
| 8V    | 1,34 | 173 | 264   | 950    | 54                |
|       | 1,34 | 174 | 250   | 900    | 82                |
|       | 1,34 | 174 | 236   | 850    | 109               |
|       | 1,33 | 174 | 222   | 800    | 136               |
|       | 1,33 | 173 | 208   | 750    | 163               |
|       | 1,32 | 173 | 194   | 700    | 188               |
|       | 1,32 | 172 | 181   | 650    | 214               |
|       | 1,29 | 169 | 291   | 1046   | 0                 |
|       | 1,28 | 167 | 271   | 975    | 40                |
|       | 1,25 | 165 | 264   | 950    | 54                |
| 7V    | 1,12 | 157 | 236   | 850    | 103               |
|       | 1,10 | 145 | 208   | 750    | 140               |
|       | 1,02 | 134 | 181   | 650    | 168               |
|       | 0,94 | 125 | 153   | 550    | 190               |
|       | 0,93 | 122 | 139   | 500    | 198               |
|       | 0,92 | 120 | 125   | 450    | 206               |
|       | 1,04 | 140 | 275   | 991    | 0                 |
|       | 1,01 | 133 | 250   | 900    | 38                |
|       | 0,98 | 128 | 236   | 850    | 58                |
|       | 0,93 | 123 | 222   | 800    | 76                |
| 6V    | 0,90 | 118 | 208   | 750    | 93                |
|       | 0,86 | 113 | 194   | 700    | 108               |
|       | 0,78 | 103 | 167   | 600    | 135               |
|       | 0,71 | 93  | 139   | 500    | 158               |
|       | 0,65 | 86  | 111   | 400    | 177               |
|       | 0,82 | 108 | 252   | 906    | 0                 |
|       | 0,71 | 92  | 222   | 800    | 33                |
|       | 0,69 | 89  | 215   | 775    | 41                |
|       | 0,66 | 87  | 208   | 750    | 48                |
|       | 0,60 | 79  | 181   | 650    | 72                |
| 5V    | 0,56 | 72  | 153   | 550    | 92                |
|       | 0,51 | 66  | 125   | 450    | 109               |
|       | 0,49 | 62  | 111   | 400    | 117               |
|       | 0,46 | 58  | 97    | 350    | 125               |
|       | 0,46 | 58  | 211   | 759    | 0                 |
|       | 0,41 | 51  | 181   | 650    | 26                |
|       | 0,39 | 49  | 167   | 600    | 38                |
|       | 0,37 | 46  | 153   | 550    | 48                |
|       | 0,35 | 43  | 139   | 500    | 58                |
|       | 0,32 | 40  | 125   | 450    | 66                |
| 4V    | 0,30 | 37  | 111   | 400    | 74                |
|       | 0,30 | 35  | 104   | 375    | 77                |
|       | 0,29 | 34  | 97    | 350    | 81                |
|       | 0,25 | 31  | 167   | 600    | 0                 |
|       | 0,23 | 27  | 139   | 500    | 18                |
|       | 0,22 | 24  | 111   | 400    | 34                |
|       | 0,19 | 20  | 83    | 300    | 46                |
|       | 0,18 | 19  | 76    | 275    | 49                |
|       | 0,10 | 10  | 91    | 327    | 0                 |
|       | 0,10 | 9   | 69    | 250    | 8                 |
| 2V    | 0,09 | 8   | 56    | 200    | 12                |
|       | 0,08 | 7   | 42    | 150    | 16                |
|       | 0,08 | 7   | 35    | 125    | 17                |
|       | 0,08 | 7   | 35    | 125    | 17                |

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NH 5-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| R1    | 0,76 | 168 | 403   | 1450   | 0                 |
|       | 0,74 | 163 | 389   | 1400   | 9                 |
|       | 0,70 | 154 | 361   | 1300   | 26                |
|       | 0,67 | 147 | 333   | 1200   | 41                |
|       | 0,64 | 140 | 306   | 1100   | 55                |
|       | 0,61 | 134 | 278   | 1000   | 68                |
|       | 0,59 | 128 | 250   | 900    | 80                |
|       | 0,57 | 123 | 222   | 800    | 92                |
|       | 0,54 | 118 | 194   | 700    | 105               |
|       | 0,53 | 113 | 167   | 600    | 117               |
|       | 0,51 | 108 | 139   | 500    | 131               |
|       | 0,50 | 105 | 125   | 450    | 138               |
| R2    | 0,49 | 103 | 111   | 400    | 146               |
|       | 0,71 | 156 | 378   | 1360   | 0                 |
|       | 0,69 | 152 | 361   | 1300   | 11                |
|       | 0,65 | 143 | 333   | 1200   | 28                |
|       | 0,61 | 135 | 306   | 1100   | 43                |
|       | 0,57 | 126 | 278   | 1000   | 57                |
|       | 0,54 | 119 | 250   | 900    | 71                |
|       | 0,51 | 112 | 222   | 800    | 85                |
|       | 0,48 | 106 | 194   | 700    | 98                |
|       | 0,48 | 103 | 167   | 600    | 112               |
|       | 0,48 | 101 | 139   | 500    | 127               |
|       | 0,49 | 102 | 125   | 450    | 135               |
| R3    | 0,50 | 103 | 111   | 400    | 143               |
|       | 0,67 | 147 | 343   | 1235   | 0                 |
|       | 0,65 | 143 | 333   | 1200   | 8                 |
|       | 0,63 | 137 | 319   | 1150   | 18                |
|       | 0,60 | 132 | 306   | 1100   | 28                |
|       | 0,58 | 128 | 292   | 1050   | 37                |
|       | 0,56 | 123 | 278   | 1000   | 45                |
|       | 0,54 | 119 | 264   | 950    | 53                |
|       | 0,52 | 115 | 250   | 900    | 60                |
|       | 0,51 | 111 | 236   | 850    | 67                |
|       | 0,49 | 108 | 222   | 800    | 74                |
|       | 0,47 | 101 | 194   | 700    | 88                |
| R4    | 0,44 | 95  | 167   | 600    | 103               |
|       | 0,41 | 90  | 139   | 500    | 119               |
|       | 0,39 | 85  | 111   | 400    | 137               |
|       | 0,64 | 137 | 299   | 1075   | 0                 |
|       | 0,63 | 134 | 292   | 1050   | 7                 |
|       | 0,59 | 127 | 278   | 1000   | 20                |
|       | 0,56 | 122 | 264   | 950    | 32                |
|       | 0,54 | 116 | 250   | 900    | 43                |
|       | 0,51 | 111 | 236   | 850    | 52                |
|       | 0,49 | 107 | 222   | 800    | 61                |
|       | 0,47 | 103 | 208   | 750    | 70                |
|       | 0,46 | 100 | 194   | 700    | 77                |
| R5    | 0,45 | 97  | 181   | 650    | 85                |
|       | 0,43 | 92  | 153   | 550    | 98                |
|       | 0,41 | 89  | 111   | 400    | 122               |
|       | 0,59 | 123 | 247   | 890    | 0                 |
|       | 0,55 | 116 | 236   | 850    | 15                |
|       | 0,51 | 109 | 222   | 800    | 31                |
|       | 0,48 | 104 | 208   | 750    | 45                |
|       | 0,46 | 99  | 194   | 700    | 56                |
|       | 0,44 | 95  | 181   | 650    | 66                |
|       | 0,42 | 92  | 167   | 600    | 75                |
|       | 0,41 | 89  | 153   | 550    | 83                |
|       | 0,39 | 86  | 139   | 500    | 91                |
| R5    | 0,38 | 84  | 132   | 475    | 95                |
|       | 0,37 | 82  | 125   | 450    | 99                |
|       | 0,35 | 77  | 111   | 400    | 108               |

## Key

I Current drawn by the fan motor

P Power input to the fan motor

Qv Air flow rate

ESP Available external static pressure

R Fixed speed

42NH 5-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 1,88 | 252 | 513   | 1845   | 0                 |
|       | 1,88 | 252 | 500   | 1800   | 17                |
|       | 1,88 | 252 | 472   | 1700   | 51                |
|       | 1,88 | 249 | 444   | 1600   | 77                |
|       | 1,87 | 242 | 417   | 1500   | 98                |
|       | 1,80 | 232 | 389   | 1400   | 114               |
|       | 1,72 | 219 | 361   | 1300   | 127               |
|       | 1,52 | 190 | 306   | 1100   | 151               |
|       | 1,31 | 159 | 250   | 900    | 181               |
| 9V    | 1,85 | 236 | 506   | 1820   | 0                 |
|       | 1,84 | 235 | 500   | 1800   | 5                 |
|       | 1,79 | 228 | 472   | 1700   | 30                |
|       | 1,73 | 221 | 444   | 1600   | 53                |
|       | 1,68 | 213 | 417   | 1500   | 74                |
|       | 1,62 | 205 | 389   | 1400   | 92                |
|       | 1,49 | 187 | 333   | 1200   | 125               |
|       | 1,35 | 167 | 278   | 1000   | 152               |
|       | 1,21 | 147 | 222   | 800    | 176               |
| 8V    | 1,58 | 198 | 481   | 1730   | 0                 |
|       | 1,56 | 195 | 472   | 1700   | 6                 |
|       | 1,49 | 187 | 444   | 1600   | 24                |
|       | 1,43 | 178 | 417   | 1500   | 42                |
|       | 1,31 | 162 | 361   | 1300   | 75                |
|       | 1,20 | 146 | 306   | 1100   | 105               |
|       | 1,08 | 130 | 250   | 900    | 132               |
|       | 0,97 | 115 | 194   | 700    | 154               |
|       | 0,85 | 100 | 139   | 500    | 172               |
| 7V    | 1,27 | 156 | 431   | 1550   | 0                 |
|       | 1,22 | 150 | 417   | 1500   | 9                 |
|       | 1,15 | 139 | 389   | 1400   | 26                |
|       | 1,08 | 130 | 361   | 1300   | 43                |
|       | 1,03 | 123 | 333   | 1200   | 58                |
|       | 0,98 | 116 | 306   | 1100   | 72                |
|       | 0,93 | 110 | 278   | 1000   | 86                |
|       | 0,84 | 98  | 222   | 800    | 108               |
|       | 0,65 | 73  | 139   | 500    | 134               |
| 6V    | 0,95 | 112 | 383   | 1380   | 0                 |
|       | 0,92 | 108 | 375   | 1350   | 5                 |
|       | 0,89 | 103 | 361   | 1300   | 12                |
|       | 0,77 | 89  | 306   | 1100   | 39                |
|       | 0,73 | 83  | 278   | 1000   | 52                |
|       | 0,69 | 79  | 250   | 900    | 63                |
|       | 0,66 | 74  | 222   | 800    | 74                |
|       | 0,62 | 70  | 194   | 700    | 84                |
|       | 0,45 | 49  | 111   | 400    | 108               |
| 5V    | 0,69 | 100 | 235   | 845    | 0                 |
|       | 0,68 | 92  | 222   | 800    | 12                |
|       | 0,59 | 82  | 194   | 700    | 42                |
|       | 0,55 | 75  | 167   | 600    | 73                |
|       | 0,50 | 69  | 139   | 500    | 102               |
|       | 0,45 | 62  | 111   | 400    | 127               |
|       | 0,33 | 45  | 69    | 250    | 149               |
|       | 0,31 | 41  | 63    | 225    | 150               |
|       | 0,28 | 36  | 56    | 200    | 151               |
| 4V    | 0,49 | 54  | 281   | 1010   | 0                 |
|       | 0,48 | 53  | 278   | 1000   | 1                 |
|       | 0,39 | 42  | 250   | 900    | 11                |
|       | 0,32 | 34  | 222   | 800    | 21                |
|       | 0,28 | 29  | 194   | 700    | 29                |
|       | 0,25 | 26  | 167   | 600    | 37                |
|       | 0,24 | 25  | 139   | 500    | 44                |
|       | 0,25 | 25  | 111   | 400    | 49                |
|       | 0,26 | 26  | 83    | 300    | 54                |
| 3V    | 0,24 | 25  | 213   | 765    | 0                 |
|       | 0,24 | 24  | 208   | 750    | 2                 |
|       | 0,22 | 23  | 194   | 700    | 6                 |
|       | 0,19 | 18  | 139   | 500    | 21                |
|       | 0,14 | 14  | 69    | 250    | 33                |
| 2V    | 0,12 | 11  | 143   | 515    | 0                 |
|       | 0,12 | 11  | 139   | 500    | 1                 |
|       | 0,11 | 10  | 111   | 400    | 7                 |
|       | 0,10 | 9   | 83    | 300    | 12                |
|       | 0,09 | 7   | 42    | 150    | 18                |



## 7 - 42NH AND 42NL PERFORMANCE DATA

42NH 6-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| R1    | 1,55 | 350 | 643   | 2315   | 0              |
|       | 1,55 | 348 | 639   | 2300   | 4              |
|       | 1,48 | 334 | 611   | 2200   | 23             |
|       | 1,43 | 321 | 583   | 2100   | 40             |
|       | 1,37 | 309 | 556   | 2000   | 55             |
|       | 1,32 | 297 | 528   | 1900   | 67             |
|       | 1,27 | 286 | 500   | 1800   | 78             |
|       | 1,22 | 276 | 472   | 1700   | 88             |
|       | 1,18 | 266 | 444   | 1600   | 96             |
|       | 1,14 | 257 | 417   | 1500   | 103            |
|       | 1,10 | 248 | 389   | 1400   | 109            |
|       | 1,06 | 239 | 361   | 1300   | 115            |
| R2    | 0,95 | 215 | 278   | 1000   | 132            |
|       | 1,38 | 298 | 556   | 2000   | 1              |
|       | 1,29 | 280 | 528   | 1900   | 31             |
|       | 1,22 | 263 | 500   | 1800   | 52             |
|       | 1,15 | 248 | 472   | 1700   | 66             |
|       | 1,08 | 234 | 444   | 1600   | 77             |
|       | 1,03 | 222 | 417   | 1500   | 85             |
|       | 0,97 | 211 | 389   | 1400   | 92             |
|       | 0,92 | 200 | 361   | 1300   | 99             |
|       | 0,88 | 190 | 333   | 1200   | 107            |
|       | 0,83 | 180 | 306   | 1100   | 116            |
|       | 0,79 | 170 | 278   | 1000   | 125            |
| R3    | 0,74 | 161 | 250   | 900    | 133            |
|       | 0,70 | 151 | 222   | 800    | 139            |
|       | 1,28 | 274 | 454   | 1635   | 0              |
|       | 1,24 | 264 | 444   | 1600   | 13             |
|       | 1,12 | 240 | 417   | 1500   | 41             |
|       | 1,07 | 229 | 403   | 1450   | 51             |
|       | 1,03 | 220 | 389   | 1400   | 60             |
|       | 0,99 | 211 | 375   | 1350   | 66             |
|       | 0,95 | 203 | 361   | 1300   | 73             |
|       | 0,92 | 196 | 347   | 1250   | 78             |
|       | 0,88 | 189 | 333   | 1200   | 84             |
|       | 0,86 | 183 | 319   | 1150   | 90             |
| R4    | 0,83 | 177 | 306   | 1100   | 95             |
|       | 0,78 | 167 | 278   | 1000   | 107            |
|       | 0,67 | 144 | 222   | 800    | 126            |
|       | 1,11 | 227 | 305   | 1097   | 0              |
|       | 1,06 | 218 | 299   | 1075   | 31             |
|       | 1,02 | 209 | 292   | 1050   | 53             |
|       | 0,98 | 201 | 285   | 1025   | 65             |
|       | 0,95 | 194 | 278   | 1000   | 72             |
|       | 0,92 | 188 | 271   | 975    | 76             |
|       | 0,89 | 183 | 264   | 950    | 80             |
|       | 0,87 | 179 | 257   | 925    | 85             |
|       | 0,86 | 175 | 250   | 900    | 89             |
| R5    | 0,84 | 172 | 243   | 875    | 94             |
|       | 0,83 | 169 | 236   | 850    | 99             |
|       | 0,81 | 166 | 229   | 825    | 104            |
|       | 0,96 | 188 | 201   | 723    | 0              |
|       | 0,94 | 183 | 199   | 715    | 23             |
|       | 0,89 | 175 | 194   | 700    | 50             |
|       | 0,87 | 170 | 192   | 690    | 59             |
|       | 0,85 | 166 | 189   | 680    | 65             |
|       | 0,83 | 163 | 186   | 670    | 69             |
|       | 0,82 | 160 | 183   | 660    | 73             |
|       | 0,81 | 158 | 181   | 650    | 77             |
|       | 0,79 | 155 | 178   | 640    | 82             |
|       | 0,78 | 153 | 175   | 630    | 87             |
|       | 0,77 | 151 | 172   | 620    | 91             |
|       | 0,76 | 149 | 169   | 610    | 96             |

## Key

- I Current drawn by the fan motor  
P Power input to the fan motor  
Qv Air flow rate  
ESP Available external static pressure  
R Fixed speed

42NH 6-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP            |
|-------|------|-----|-------|--------|----------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter (Pa) |
| 10V   | 2,01 | 280 | 522   | 1880   | 0              |
|       | 1,97 | 275 | 514   | 1850   | 8              |
|       | 1,91 | 266 | 500   | 1800   | 21             |
|       | 1,80 | 251 | 472   | 1700   | 45             |
|       | 1,72 | 239 | 444   | 1600   | 67             |
|       | 1,65 | 229 | 417   | 1500   | 87             |
|       | 1,59 | 221 | 389   | 1400   | 105            |
|       | 1,54 | 213 | 361   | 1300   | 121            |
|       | 1,35 | 183 | 278   | 1000   | 157            |
|       | 1,77 | 238 | 506   | 1820   | 0              |
|       | 1,75 | 235 | 500   | 1800   | 4              |
|       | 1,64 | 221 | 472   | 1700   | 26             |
| 9V    | 1,56 | 209 | 444   | 1600   | 45             |
|       | 1,49 | 200 | 417   | 1500   | 63             |
|       | 1,44 | 192 | 389   | 1400   | 80             |
|       | 1,34 | 177 | 333   | 1200   | 110            |
|       | 1,22 | 161 | 278   | 1000   | 138            |
|       | 1,13 | 150 | 250   | 900    | 151            |
|       | 1,42 | 194 | 450   | 1620   | 0              |
| 8V    | 1,39 | 190 | 444   | 1600   | 4              |
|       | 1,22 | 167 | 403   | 1450   | 37             |
|       | 1,11 | 152 | 361   | 1300   | 64             |
|       | 1,04 | 141 | 319   | 1150   | 86             |
|       | 0,98 | 133 | 278   | 1000   | 105            |
|       | 0,92 | 124 | 236   | 850    | 121            |
|       | 0,83 | 111 | 194   | 700    | 137            |
|       | 0,69 | 92  | 153   | 550    | 152            |
|       | 1,02 | 141 | 403   | 1450   | 0              |
|       | 0,97 | 133 | 389   | 1400   | 10             |
| 7V    | 0,89 | 121 | 361   | 1300   | 29             |
|       | 0,83 | 112 | 333   | 1200   | 46             |
|       | 0,79 | 106 | 306   | 1100   | 61             |
|       | 0,75 | 102 | 278   | 1000   | 74             |
|       | 0,72 | 98  | 250   | 900    | 86             |
|       | 0,67 | 92  | 208   | 750    | 101            |
|       | 0,43 | 54  | 111   | 400    | 124            |
|       | 0,71 | 93  | 361   | 1300   | 0              |
| 6V    | 0,68 | 88  | 333   | 1200   | 18             |
|       | 0,64 | 83  | 306   | 1100   | 33             |
|       | 0,60 | 78  | 278   | 1000   | 46             |
|       | 0,55 | 73  | 250   | 900    | 56             |
|       | 0,51 | 68  | 222   | 800    | 65             |
|       | 0,47 | 63  | 194   | 700    | 75             |
|       | 0,44 | 58  | 167   | 600    | 85             |
|       | 0,39 | 45  | 97    | 350    | 105            |
| 5V    | 0,50 | 69  | 319   | 1150   | 0              |
|       | 0,49 | 65  | 306   | 1100   | 6              |
|       | 0,46 | 59  | 278   | 1000   | 19             |
|       | 0,43 | 54  | 250   | 900    | 30             |
|       | 0,40 | 50  | 222   | 800    | 40             |
|       | 0,38 | 47  | 194   | 700    | 48             |
|       | 0,35 | 43  | 167   | 600    | 56             |
|       | 0,32 | 39  | 139   | 500    | 63             |
| 4V    | 0,24 | 28  | 83    | 300    | 72             |
|       | 0,35 | 46  | 256   | 920    | 0              |
|       | 0,33 | 44  | 250   | 900    | 3              |
|       | 0,28 | 36  | 222   | 800    | 14             |
|       | 0,25 | 31  | 194   | 700    | 23             |
|       | 0,23 | 29  | 167   | 600    | 30             |
|       | 0,22 | 28  | 139   | 500    | 36             |
|       | 0,21 | 25  | 111   | 400    | 42             |
| 3V    | 0,18 | 21  | 83    | 300    | 47             |
|       | 0,17 | 19  | 75    | 270    | 49             |
|       | 0,19 | 22  | 194   | 700    | 0              |
|       | 0,16 | 19  | 167   | 600    | 9              |
|       | 0,14 | 17  | 139   | 500    | 16             |
|       | 0,13 | 15  | 111   | 400    | 21             |
|       | 0,11 | 12  | 56    | 200    | 29             |
|       | 0,09 | 10  | 139   | 500    | 0              |
| 2V    | 0,09 | 10  | 125   | 450    | 3              |
|       | 0,08 | 9   | 97    | 350    | 8              |
|       | 0,08 | 8   | 69    | 250    | 12             |
|       | 0,07 | 7   | 42    | 150    | 15             |

## 7 - 42NH AND 42NL PERFORMANCE DATA

42NH7-5 (AC multi-speed version)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| R1    | 2,03 | 456 | 785   | 2830   | 0                 |
|       | 2,01 | 451 | 778   | 2800   | 3                 |
|       | 1,94 | 435 | 750   | 2700   | 14                |
|       | 1,87 | 419 | 722   | 2600   | 24                |
|       | 1,80 | 404 | 694   | 2500   | 34                |
|       | 1,73 | 390 | 667   | 2400   | 43                |
|       | 1,61 | 361 | 611   | 2200   | 60                |
|       | 1,49 | 335 | 556   | 2000   | 76                |
|       | 1,38 | 311 | 500   | 1800   | 90                |
|       | 1,27 | 287 | 444   | 1600   | 103               |
|       | 1,18 | 266 | 389   | 1400   | 115               |
|       | 1,09 | 246 | 333   | 1200   | 127               |
|       | 1,00 | 227 | 278   | 1000   | 138               |
| R2    | 1,74 | 385 | 629   | 2265   | 0                 |
|       | 1,68 | 371 | 611   | 2200   | 10                |
|       | 1,59 | 350 | 583   | 2100   | 24                |
|       | 1,50 | 331 | 556   | 2000   | 38                |
|       | 1,42 | 313 | 528   | 1900   | 50                |
|       | 1,34 | 296 | 500   | 1800   | 61                |
|       | 1,27 | 281 | 472   | 1700   | 72                |
|       | 1,20 | 266 | 444   | 1600   | 81                |
|       | 1,14 | 252 | 417   | 1500   | 90                |
|       | 1,09 | 240 | 389   | 1400   | 98                |
|       | 1,03 | 228 | 361   | 1300   | 106               |
|       | 0,98 | 217 | 333   | 1200   | 113               |
|       | 0,82 | 180 | 222   | 800    | 138               |
| R3    | 1,40 | 302 | 390   | 1405   | 0                 |
|       | 1,39 | 300 | 389   | 1400   | 2                 |
|       | 1,24 | 267 | 361   | 1300   | 39                |
|       | 1,11 | 239 | 333   | 1200   | 67                |
|       | 1,00 | 216 | 306   | 1100   | 88                |
|       | 0,91 | 197 | 278   | 1000   | 102               |
|       | 0,87 | 189 | 264   | 950    | 108               |
|       | 0,84 | 182 | 250   | 900    | 113               |
|       | 0,81 | 175 | 236   | 850    | 118               |
|       | 0,78 | 169 | 222   | 800    | 122               |
|       | 0,76 | 164 | 208   | 750    | 127               |
|       | 1,08 | 229 | 219   | 790    | 0                 |
| R4    | 1,06 | 224 | 217   | 780    | 16                |
|       | 1,04 | 219 | 214   | 770    | 30                |
|       | 1,01 | 215 | 211   | 760    | 43                |
|       | 0,99 | 210 | 208   | 750    | 54                |
|       | 0,97 | 206 | 206   | 740    | 64                |
|       | 0,95 | 202 | 203   | 730    | 72                |
|       | 0,93 | 198 | 200   | 720    | 80                |
|       | 0,93 | 196 | 199   | 715    | 83                |
|       | 0,92 | 194 | 197   | 710    | 86                |
|       | 0,90 | 190 | 194   | 700    | 92                |
|       | 0,83 | 175 | 181   | 650    | 108               |
|       | 0,77 | 163 | 167   | 600    | 114               |
| R5    | 0,84 | 175 | 149   | 537    | 0                 |
|       | 0,83 | 172 | 147   | 530    | 9                 |
|       | 0,81 | 169 | 144   | 520    | 21                |
|       | 0,80 | 165 | 142   | 510    | 32                |
|       | 0,78 | 162 | 139   | 500    | 42                |
|       | 0,77 | 159 | 136   | 490    | 52                |
|       | 0,75 | 156 | 133   | 480    | 60                |
|       | 0,74 | 153 | 131   | 470    | 68                |
|       | 0,73 | 151 | 128   | 460    | 75                |
|       | 0,71 | 148 | 125   | 450    | 81                |
|       | 0,70 | 146 | 122   | 440    | 87                |

### Key

I Current drawn by the fan motor

P Power input to the fan motor

Qv Air flow rate

ESP Available external static pressure

R Fixed speed

42NH 7-9 (EC brushless motor)

| Speed | I    | P   | Qv    | Qv     | ESP               |
|-------|------|-----|-------|--------|-------------------|
|       | (A)  | (W) | (l/s) | (m³/h) | G3 Filter<br>(Pa) |
| 10V   | 1,85 | 247 | 635   | 2285   | 0                 |
|       | 1,79 | 247 | 625   | 2250   | 9                 |
|       | 1,78 | 246 | 583   | 2100   | 40                |
|       | 1,71 | 236 | 528   | 1900   | 72                |
|       | 1,60 | 219 | 472   | 1700   | 94                |
|       | 1,38 | 185 | 389   | 1400   | 114               |
|       | 1,11 | 148 | 306   | 1100   | 126               |
|       | 0,86 | 114 | 222   | 800    | 136               |
| 9V    | 1,78 | 247 | 635   | 2285   | 0                 |
|       | 1,79 | 247 | 625   | 2250   | 9                 |
|       | 1,78 | 246 | 583   | 2100   | 40                |
|       | 1,71 | 236 | 528   | 1900   | 72                |
|       | 1,60 | 219 | 472   | 1700   | 94                |
|       | 1,38 | 185 | 389   | 1400   | 114               |
|       | 1,11 | 148 | 306   | 1100   | 126               |
|       | 0,86 | 114 | 222   | 800    | 136               |
| 8V    | 1,38 | 187 | 547   | 1980   | 0                 |
|       | 1,38 | 186 | 542   | 1960   | 6                 |
|       | 1,36 | 185 | 528   | 1900   | 19                |
|       | 1,30 | 176 | 472   | 1700   | 59                |
|       | 1,23 | 166 | 417   | 1500   | 86                |
|       | 1,15 | 154 | 361   | 1300   | 104               |
|       | 1,04 | 140 | 306   | 1100   | 117               |
|       | 0,93 | 123 | 250   | 900    | 128               |
| 7V    | 0,86 | 114 | 222   | 800    | 134               |
|       | 1,11 | 142 | 517   | 1860   | 0                 |
|       | 1,11 | 142 | 514   | 1850   | 2                 |
|       | 1,11 | 142 | 500   | 1800   | 13                |
|       | 1,06 | 137 | 444   | 1600   | 48                |
|       | 0,98 | 129 | 389   | 1400   | 70                |
|       | 0,89 | 119 | 333   | 1200   | 85                |
|       | 0,80 | 107 | 278   | 1000   | 97                |
| 6V    | 0,71 | 94  | 222   | 800    | 109               |
|       | 0,67 | 88  | 194   | 700    | 115               |
|       | 0,85 | 106 | 469   | 1690   | 1                 |
|       | 0,84 | 106 | 458   | 1650   | 8                 |
|       | 0,84 | 105 | 444   | 1600   | 16                |
|       | 0,82 | 103 | 417   | 1500   | 30                |
|       | 0,79 | 100 | 389   | 1400   | 42                |
|       | 0,76 | 96  | 361   | 1300   | 51                |
| 5V    | 0,73 | 91  | 333   | 1200   | 59                |
|       | 0,66 | 82  | 278   | 1000   | 71                |
|       | 0,51 | 61  | 167   | 600    | 95                |
|       | 0,59 | 72  | 406   | 1460   | 0                 |
|       | 0,58 | 72  | 389   | 1400   | 10                |
|       | 0,57 | 70  | 361   | 1300   | 22                |
|       | 0,54 | 67  | 333   | 1200   | 32                |
|       | 0,52 | 64  | 306   | 1100   | 40                |
| 4V    | 0,49 | 59  | 278   | 1000   | 45                |
|       | 0,46 | 55  | 250   | 900    | 49                |
|       | 0,42 | 51  | 222   | 800    | 53                |
|       | 0,34 | 41  | 139   | 500    | 69                |
|       | 0,38 | 45  | 329   | 1185   | 0                 |
|       | 0,37 | 44  | 319   | 1150   | 5                 |
|       | 0,35 | 41  | 278   | 1000   | 21                |
|       | 0,33 | 39  | 250   | 900    | 28                |
| 3V    | 0,31 | 36  | 222   | 800    | 32                |
|       | 0,29 | 34  | 194   | 700    | 36                |
|       | 0,27 | 31  | 167   | 600    | 41                |
|       | 0,22 | 25  | 111   | 400    | 50                |
|       | 0,26 | 26  | 83    | 300    | 54                |
|       | 0,22 | 25  | 247   | 890    | 1                 |
|       | 0,21 | 23  | 222   | 800    | 11                |
|       | 0,18 | 20  | 167   | 600    | 21                |
| 2V    | 0,16 | 18  | 111   | 400    | 28                |
|       | 0,16 | 17  | 83    | 300    | 31                |
|       | 0,11 | 11  | 164   | 590    | 0                 |
|       | 0,11 | 11  | 153   | 550    | 4                 |
|       | 0,10 | 10  | 139   | 500    | 8                 |
|       | 0,10 | 9   | 111   | 400    | 12                |
|       | 0,08 | 7   | 56    | 200    | 18                |



## DUCTABLE FAN COIL UNIT



Ductable unit for suspended ceiling or raised floor

Extra flat unit for better integration in renovation or new build projects

Optimised energy consumption level

Flexible configuration to meet the different requirements of buildings

Managed comfort

# 42EP



The Carrier 42EP range is available in 3 casing sizes with a 2-pipe coil, 2-pipe coil plus electric heater or 4-pipe coil. The total cooling capacity range is from 0.4 to 4.2 kW and the heating capacity range is 0.5 to 5 kW in the 2-pipe configuration and 0.5 to 4.8 kW with 4 pipes (Eurovent conditions)



CARRIER participates in the ECP programme for FC/FCP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## 1 - FUNCTIONS AND CONFIGURATIONS

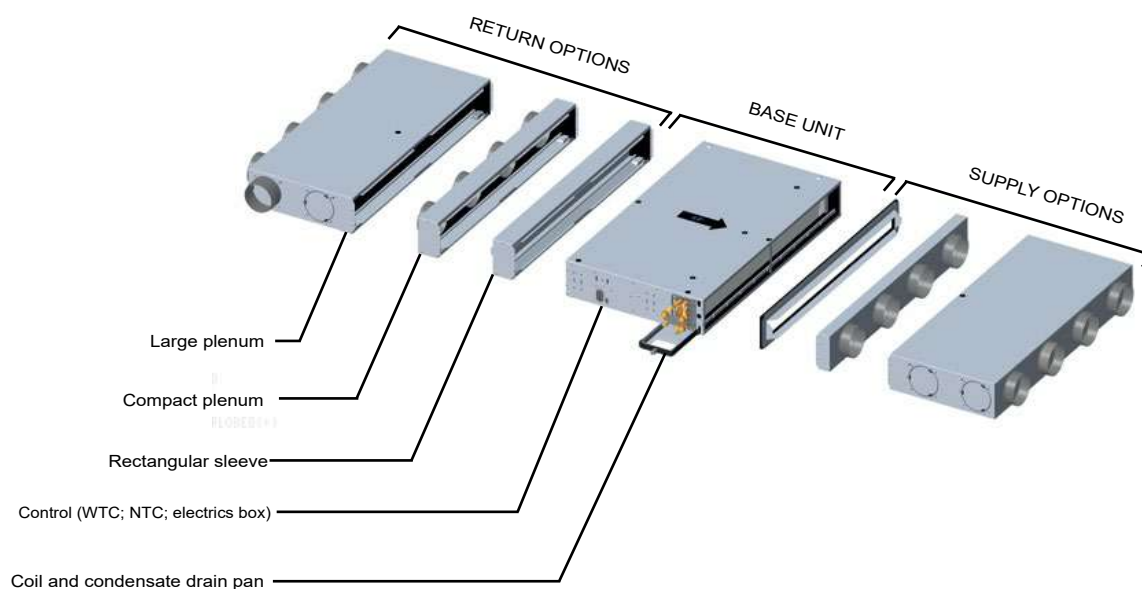
- New generation slimline ductable fan coil (150 mm high) which can be adapted to both the new build and renovation markets to gain height underneath the suspended ceiling and improve the well-being of occupants.
- Equipped with an innovative fan combined with a low energy consumption (LEC) electronically commutated motor that meets the new building energy performance objectives thanks to auto-adaptive adjustment of the air flow rate from 0 to 100% ensuring perfect cooling and heating conditions in the room.
- G3 filter as standard.
- Safe factory installed electric heater with a wide choice of output levels.
- Low water pressure drop with factory installed valves.
- Factory-fitted options (valves and controllers) for fast and easy installation in suspended ceilings.
- The 42EP is available for fitting either in a suspended ceiling or a raised floor
- High operating pressure (above 150 Pa) with managed flow rate losses

### 1.1 - Configuration and flexibility

Each size of the 42EP can be supplied:

- with free return and/or direct air supply
- with a rectangular sleeve on the return and/or on the supply air
- with return plenums and/or supply air plenums to meet the requirements of installations with spigots with a diameter of 125 mm.

The illustration below shows the available plenum configurations with spigots with a diameter of 125 mm.



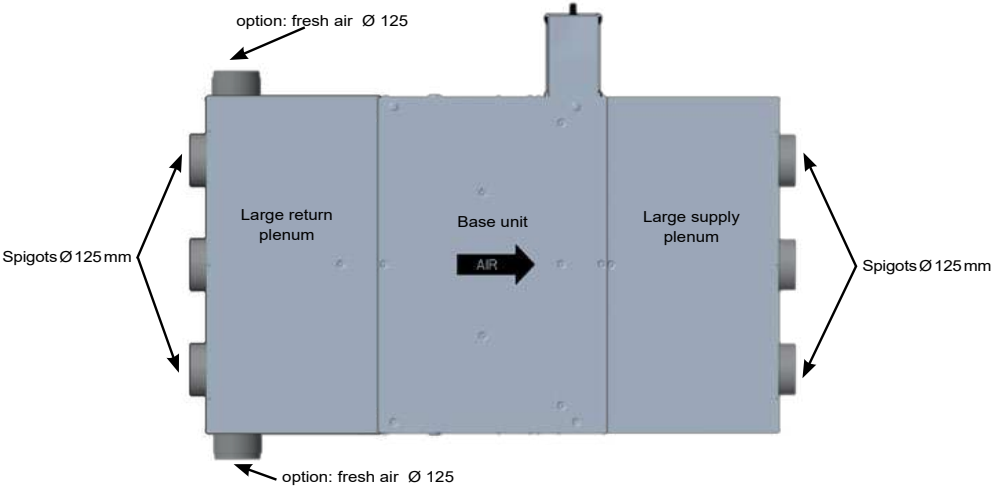
1 - FUNCTIONS AND CONFIGURATIONS

1.2 - Configuration with plenum with linear arrangement

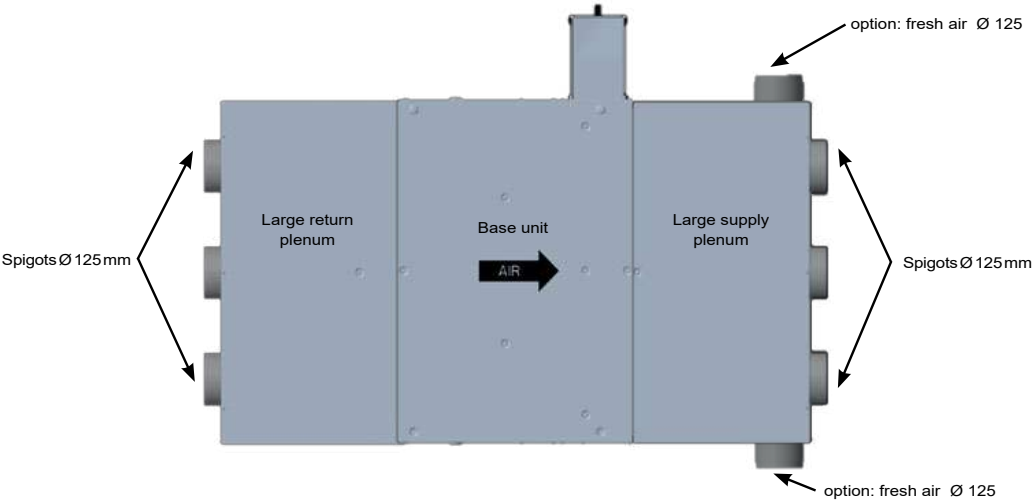
Option of a Compact or Large plenum with spigots with a diameter of 125 mm  
(\*) = Minimum number of spigots required to ensure sufficient available static pressure and fan reliability.

| Number of spigots |         |         |         |
|-------------------|---------|---------|---------|
|                   | 42EP0xx | 42EP1xx | 42EP2xx |
| Ø125 mm           | 2       | 3       | 4       |

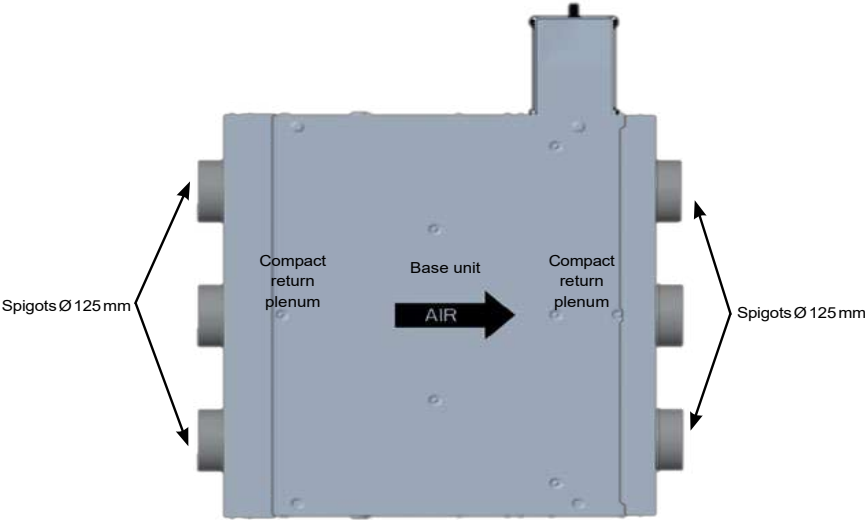
Large plenum with or without fresh air on the return



Large plenum with or without fresh air on the supply air



Compact plenum (fresh air not available)



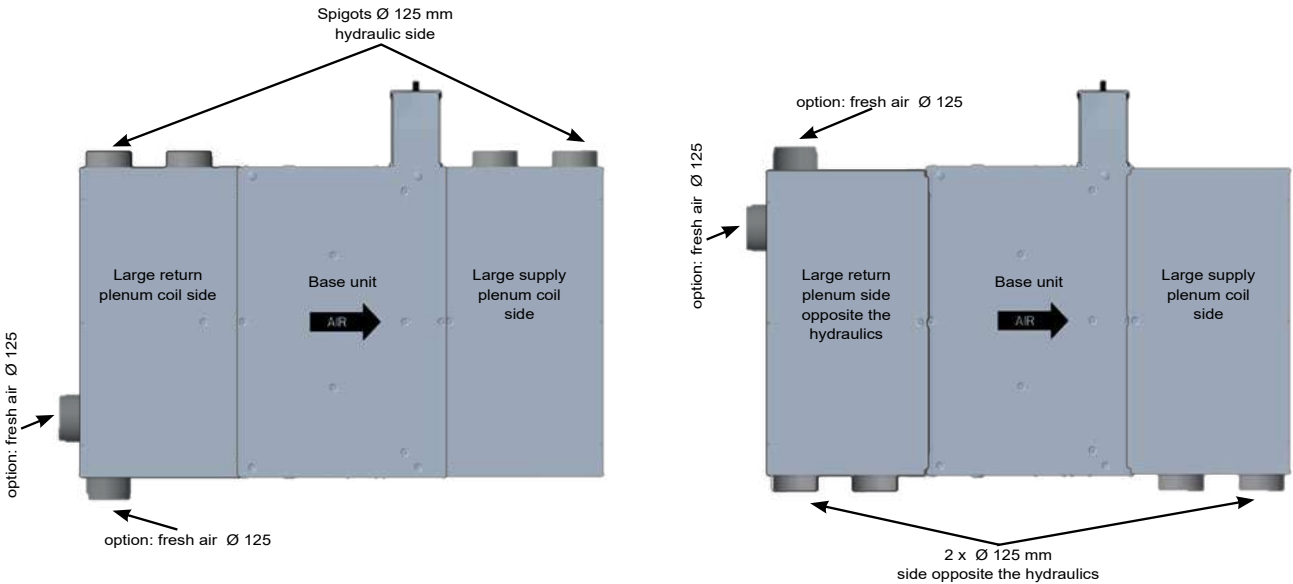


1 - FUNCTIONS AND CONFIGURATIONS

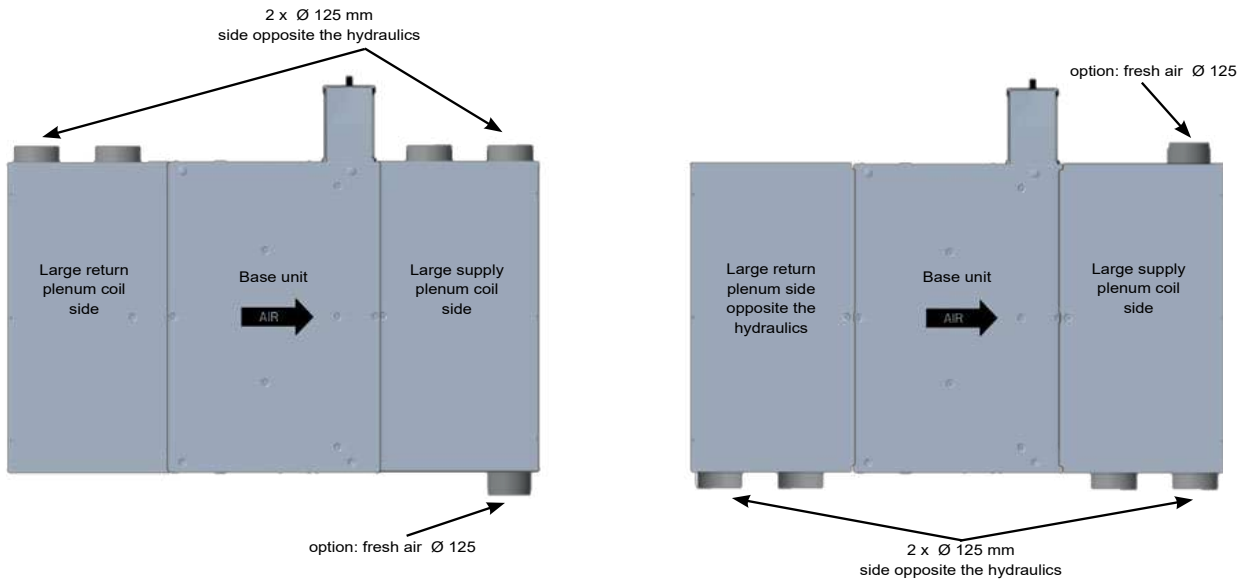
1.3 - Configurations with lateral plenum (U-shaped)

| Ø125 mm | Number of spigots |         |         |
|---------|-------------------|---------|---------|
|         | 42EP0xx           | 42EP1xx | 42EP2xx |
|         | 2                 | 2       | 2       |

Large plenum with or without fresh air on the return



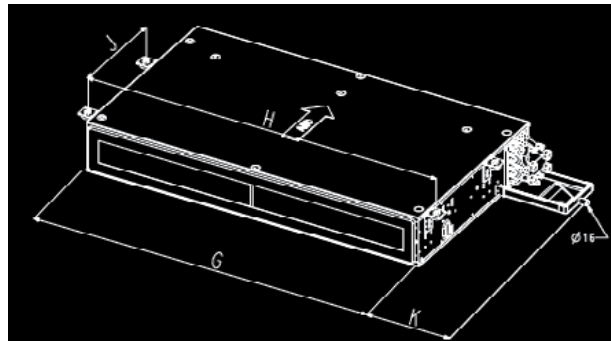
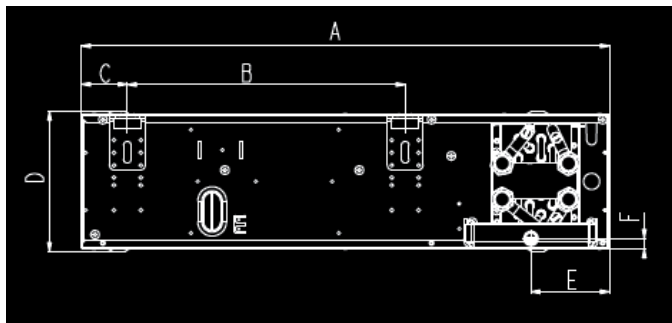
Large plenum with or without fresh air on the supply air (Fresh air pressure available on the supply air must be greater than 200 Pa)



## 2 - DIMENSIONAL DRAWINGS

**NOTE:** All the plans shown are set up with the coil on the right; units set up with the coil on the left are strict symmetrical. The unit is shown in a suspended ceiling; it is available in a raised floor depending on the configuration (see type key on page 16)

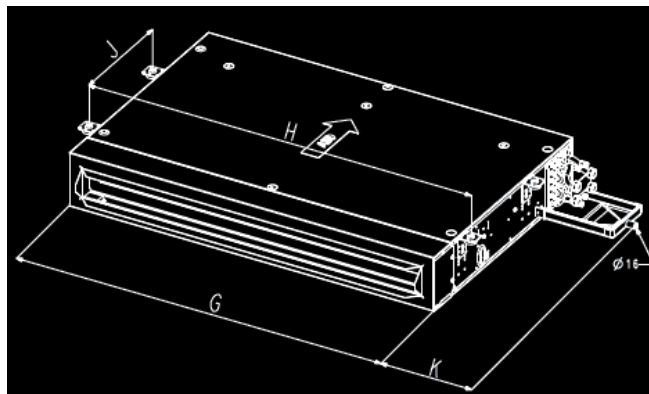
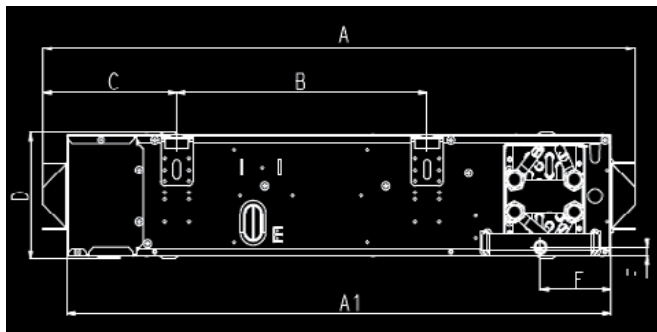
### Standard unit with return and supply without rectangular sleeves fitted



| Dimensions in mm |     |     |     |
|------------------|-----|-----|-----|
| Size             | 0xx | 1xx | 2xx |
| A                | 589 | 589 | 589 |
| B                | 310 | 310 | 310 |
| C                | 51  | 51  | 51  |
| D                | 156 | 156 | 156 |
| E                | 87  | 87  | 87  |
| F                | 15  | 15  | 15  |

| Dimensions in mm |     |      |      |
|------------------|-----|------|------|
| Size             | 2xx | 3xx  | 4xx  |
| G                | 520 | 820  | 1020 |
| H                | 569 | 869  | 1069 |
| J                | 310 | 310  | 310  |
| K                | 329 | 228  | 228  |
| G + K            | 849 | 1048 | 1248 |
| Weight* [kg]     | 12  | 16   | 21   |


### Standard unit with rectangular sleeves on the return and supply



| Dimensions in mm |          |          |          |
|------------------|----------|----------|----------|
| Size             | 0xx      | 1xx      | 2xx      |
| A                | 733      | 733      | 733      |
| B                | 310      | 310      | 310      |
| C                | 165      | 165      | 165      |
| D                | 156      | 156      | 156      |
| E                | 87       | 87       | 87       |
| F                | 15       | 15       | 15       |
| Sleeves          | 451 x 81 | 751 x 81 | 951 x 81 |

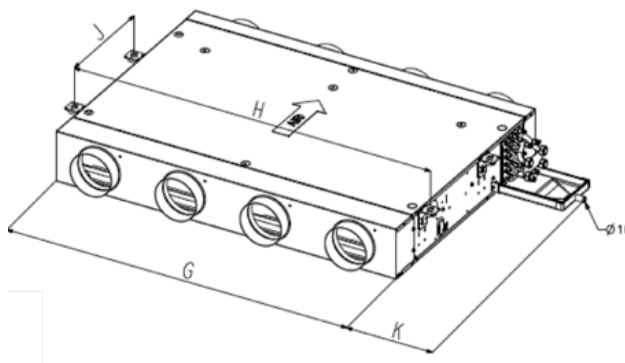
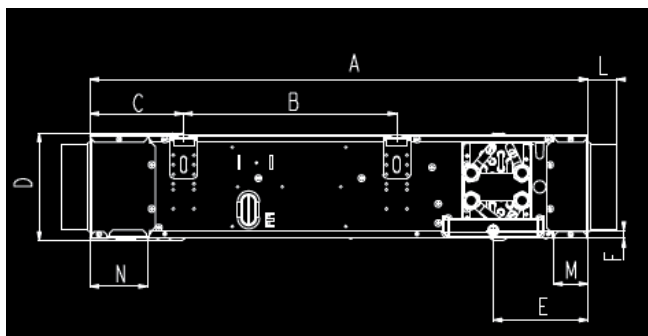
| Dimensions in mm |     |      |      |
|------------------|-----|------|------|
| Size             | 0xx | 1xx  | 2xx  |
| A1               | 674 | 674  | 674  |
| G                | 520 | 820  | 1020 |
| H                | 569 | 869  | 1069 |
| J                | 310 | 310  | 310  |
| K                | 329 | 228  | 228  |
| G + K            | 849 | 1048 | 1248 |
| Weight* [kg]     | 13  | 18   | 25   |

#### KEY

\* Maximum weight - without option - without water  
 Air flow direction

## 2 - DIMENSIONAL DRAWINGS

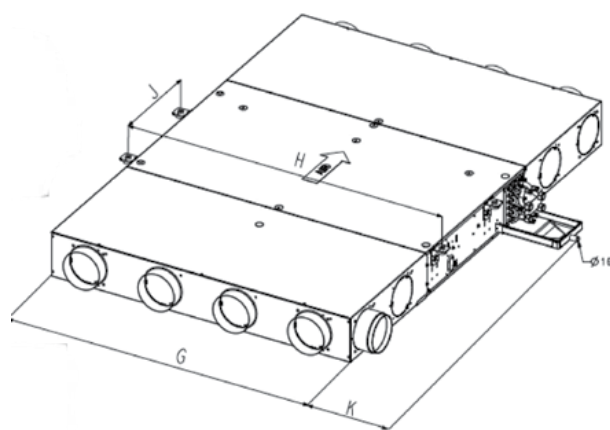
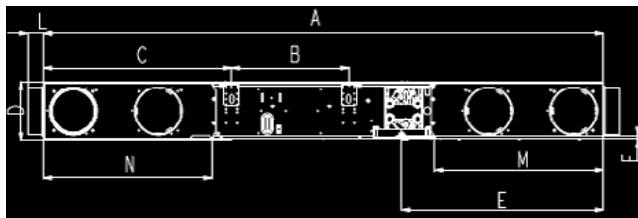
Standard unit with compact plenum with linear arrangement on the return and supply air (optimised length)



| Dimensions in mm |     |     |     |
|------------------|-----|-----|-----|
| Size             | 0xx | 1xx | 2xx |
| A                | 724 | 724 | 724 |
| B                | 310 | 310 | 310 |
| C                | 136 | 136 | 136 |
| D                | 156 | 156 | 156 |
| E                | 138 | 138 | 138 |
| F                | 15  | 15  | 15  |
| M                | 50  | 50  | 50  |
| N                | 83  | 83  | 83  |
| L                | 42  | 42  | 42  |

| Dimensions in mm |     |      |      |
|------------------|-----|------|------|
| Size             | 0xx | 1xx  | 2xx  |
| G                | 520 | 820  | 1020 |
| H                | 569 | 869  | 1069 |
| J                | 310 | 310  | 310  |
| K                | 329 | 228  | 228  |
| G + K            | 849 | 1048 | 1248 |
| Weight* [kg]     | 15  | 21   | 28   |

Standard unit with large plenum with linear arrangement on the return and supply air



| Dimensions in mm |      |      |      |
|------------------|------|------|------|
| Size             | 0xx  | 1xx  | 2xx  |
| A                | 1482 | 1482 | 1482 |
| B                | 310  | 310  | 310  |
| C                | 498  | 498  | 498  |
| D                | 156  | 156  | 156  |
| E                | 534  | 534  | 534  |
| F                | 15   | 15   | 15   |
| M                | 446  | 446  | 446  |
| N                | 446  | 446  | 446  |
| L                | 62   | 62   | 62   |

| Dimensions in mm |     |      |      |
|------------------|-----|------|------|
| Size             | 0xx | 1xx  | 2xx  |
| G                | 520 | 820  | 1020 |
| H                | 569 | 869  | 1069 |
| J                | 310 | 310  | 310  |
| K                | 329 | 228  | 228  |
| G + K            | 849 | 1048 | 1248 |
| Weight* [kg]     | 24  | 33   | 42   |

### KEY

\* Maximum weight - without option - without water  
 Air flow direction

## 3 - MAIN MODULES AND COMPONENTS

### 3.1 - Casing

In order to further enhance occupant comfort, this product range offers especially low noise levels. The casing is made of galvanised sheet steel with full high-efficiency internal lining for optimised thermal and sound insulation of the unit.

In order to comply with the various local regulations (fire class) the fan-coil unit is available with both class M1 type insulation (according to NF P 92-507) and Euroclass level B-s3-d0 (according to EN 13501). It is also equipped with anti-vibration mounts as standard.

In order to reduce the dimensions to the minimum, the units are equipped with high-efficiency heat exchangers with very high cooling capacity/treated air flow ratios. The condensate drain pan height is optimised.

### 3.2 - Fan motor assemblies.

#### 3.2.1 - Low-consumption fan motor (variable-speed LEC motor)

##### Motor description

- Permanent magnet brushless motor
- Electronically commutated
- Class B winding insulation, varnish class F
- See operating limits in section 8

42EP units are equipped with LEC fan motors, controlled by a 0-10 V signal, which can be actuated by Carrier NTC or WTC controllers.

NOTE: In this case, the minimum control signal that allows the motor to start is 2 V for the two- and four-pipe versions; for versions equipped with electric heaters, please refer to section 9.

If the product is supplied without a Carrier control device, verification of EMC conformity is the responsibility of the installer.

### 3.3 - Fan wiring solutions

#### 3.3.1 - Unit with bare wires (standard)

The motor cable is left for the customer to connect up using its own resources.

The variable-speed low energy consumption (LEC) motor must be actuated by a 0-10 VDC signal.

#### 3.3.2 - Variable-speed low energy consumption (LEC) fan motor with electrics box

This option allows the installer to connect the unit directly to the electrical terminal strip installed in the electrics box. The electrics box can be opened with a screwdriver.

The 0-10 VDC signal that controls the variable-speed fan is directly accessible at the terminal strip.

### 3.3.3 - Fuse holder or circuit breaker option

A fuse holder or a circuit breaker can be fitted to the units as an option.

### 3.4 - Hydraulic coil

- Aluminium fins mechanically bonded by expansion onto copper pipes
- 1/2-inch threaded female water inlet and outlet couplings
- Air bleed valves and drain valves as standard.
- Operating pressure 1600 kPa.

The coil, condensate drain pan and coil access door form a drawer which is easy to remove.

### 3.5 - Single unit condensate drain pan

As standard, the unit is equipped with a single unit condensate drain pan made from polypropylene and insulated with 5 mm of foam.

Drain connection diameter: Ø 16 mm external

HB fire rating (as per standard UL94).

As an option, the unit can be equipped with an aluminium pan insulated with 5 mm of foam.

This pan is compulsory if an electric heater is to be used

### 3.6 - Filter

#### 3.6.1 - Specifications

42EP units include a non-regenerative G3 filter as standard in compliance with EN 779.

The "without filter" option is only available for units with a plenum or a rectangular sleeve on the return side to ensure that a duct can be connected when the unit is operating.

To prevent fouling of the coil, Carrier recommends the use of a filter installed either in the fan coil unit or in the return air grille.

## 4 - OPTIONS SPECIFICATIONS

### 4.1 - Electric heater (option for 2-pipe coil)

Resistive wire type heater

- Supply voltage: 230 V - 1 ph - 50 Hz
- Heater size and capacity per unit (+5% ; -10%):

| Electric heater capacity | Low       | Medium    | High       | Very High  |
|--------------------------|-----------|-----------|------------|------------|
| 42EP 0x9                 | 1 x 500 W | 1 x 800 W | NA         | NA         |
| 42EP 1x9                 | 1 x 500 W | 1 x 800 W | 1 x 1000 W | NA         |
| 42EP 2x9                 | 1 x 500 W | 1 x 800 W | 1 x 1000 W | 1 x 1600 W |

- The heater is protected with a dual safety device:
  - a) Self-holding automatically reset integrated safety thermostat
  - b) Destructive thermofuse link
- Available for 2-pipe coil only.

**WARNING: A minimum supply air flow rate must be maintained to avoid damaging the electric heaters.**

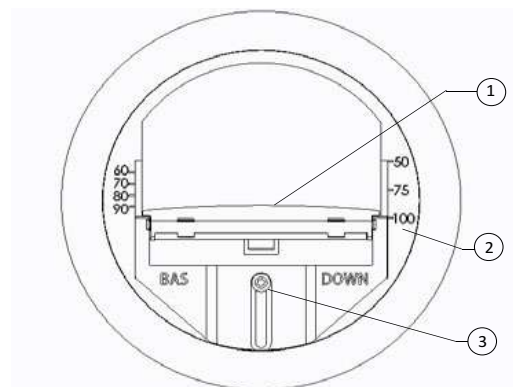
**A minimum control signal of 3 V is selected by default with the Carrier electronic controller (NTC / WTC).**

### 4.2 - Fresh air controller (option)

#### 4.2.1 - Constant volume fresh air controller

The coil can be fitted with a constant fresh air flow controller adjustable from 15 m<sup>3</sup>/h to 180 m<sup>3</sup>/h to allow the fresh air intake and the air change rate to be controlled.

The fresh air supply may be located in the supply plenum, or in the return plenum.



**Example: Range 50-100 m<sup>3</sup>/h**

- 1 Air Damper
- 2 Fresh airflow damper position setting (in m<sup>3</sup>/h)
- 3 Airflow adjustment screw

The fresh air controller may be modified on site by relocating the damper (adjustable screw). Three ranges of air-controller are provided: 15 to 50m<sup>3</sup>/h, 60 to 100m<sup>3</sup>/h and 110 to 180m<sup>3</sup>/h.

**IMPORTANT: If an optional return air temperature sensor is provided, the constant fresh air flow rate must not exceed 50 % of the unit supply air flow rate at minimum speed.**

**NOTE: To operate correctly, the fresh air flow controller requires a differential pressure in the range of 60 Pa to 210 Pa.**

#### 4.2.2 - Variable volume fresh air controller

The unit can be equipped with an optional variable fresh air flow controller from 0-55 l/s (0-200 m<sup>3</sup>/h). It is connected to the numeric Carrier controller and can regulate the fresh air intake in two ways:

- Either using a fixed rate set by the installer that can be reconfigured as required
- Or based on the CO<sub>2</sub> level; in this case it is connected to a CO<sub>2</sub> sensor via the Carrier numeric controller.



**NOTE: with the variable fresh air flow controller, the pressure upstream of the fresh air duct must be 180 Pa. The fresh air flow controller is not supplied fitted.**

## 4 - OPTIONS SPECIFICATIONS

### 4.3 - Valves and actuators

**NOTE:** The motor/valve assembly is normally closed.

#### 4.3.1 - Valve actuators

A wide choice of actuators is available with two- or four-way valve bodies (three-way with integral bypass) to offer the right solution for any controller type and customer requirement, from on/off to proportional types, with either 230 V or 24 V power supply:

- On/off 230 V actuator
- On/off 24 V actuator
- Floating 3-point 230 V actuator
- Floating 3-point 24 V actuator
- Modulating 0-10 V/24 V actuator

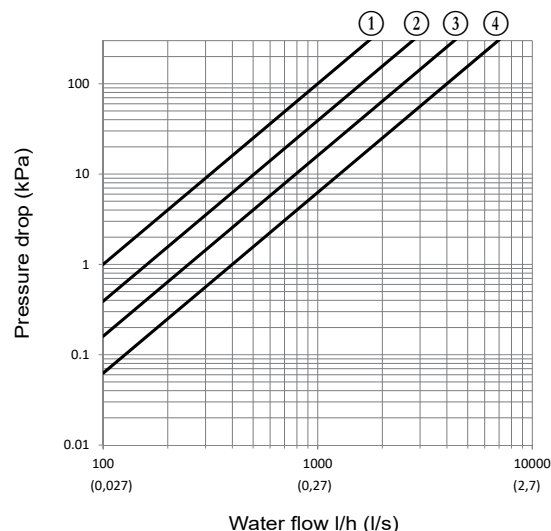
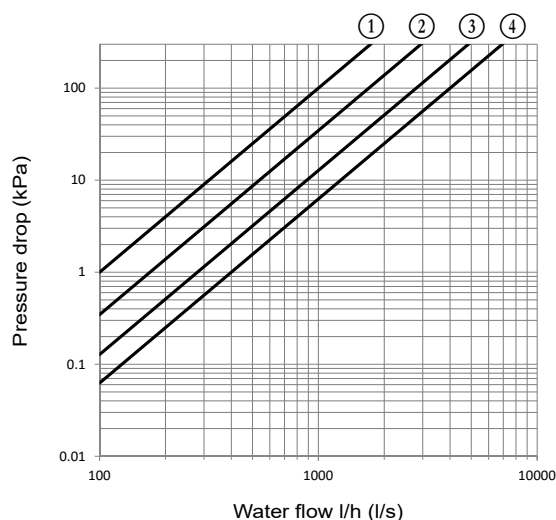
When combined with LEC motors and WTC or NTC controllers, floating 3-point 230 V actuators are recommended to increase energy savings and enhance comfort.

**NOTE:** 24 V power supply actuators are not compatible with Carrier controllers (Thermostats A/B/C/D, WTC and NTC).

#### 4.3.2 - Standard two-way valve body and three-way valve body (with integral bypass)

##### Specifications of 1/2" two-way and three-way valves

- 1/2" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body
- Nominal size DN15 for 1/2" valve
- Nominal pressure: PN 16 bar





## 4 - OPTIONS SPECIFICATIONS

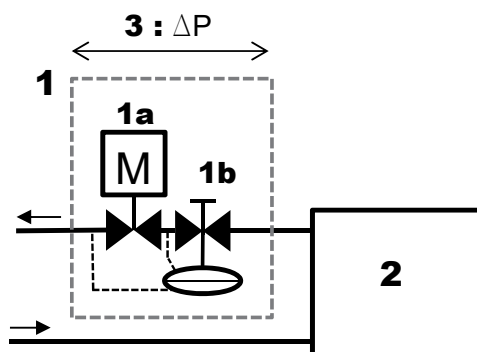
### 4.3.3 - Two way balancing valve body

Two-way valves with embedded balancing technology are available as an option. The CARRIER automatic balancing two-way valve combines the functionality of a dynamic balancing valve and a control valve in one product.



The dynamic balancing function maintains a constant differential pressure over the control valve.

The control valve regulates the flow by means of a variable orifice which is controlled by the actuator.



#### Key

1. Two-way valve with balancing function
  - 1a. Valve actuator for waterflow control
  - 1b. Differential pressure controller & balancing feature
2. Fan-coil unit
3. Minimum operating pressure drop at nominal waterflow: 20 kPa for sizes 4 and 5

The constant differential pressure across the control valve ensures accurate control and maximises valve authority, independently of the pressure conditions inside the system.

### Advantages compared to the two-way valve

- Improved and reliable commissioning. The water flow can be set and controlled on site.
- Higher energy efficiency due to optimal waterflow and maximized valve authority.
- Enhanced comfort thanks to stable and precise ambient temperature control.

### Specifications for automatic balancing 2-way valves

- 1" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body
- Nominal size DN 20 for 1" valve
- Nominal pressure: PN 16 bar
- Minimum operating differential pressure = 20 kPa at nominal flow.

## 4.4 - Water hoses (option)

### 4.4.1 - Materials

- Pipes: EPDM-based elastomer (Ethylene Propylene Diene Monomer)
- Braid: 304L stainless steel
- Insulation: cellular foam rubber with M1 fire rating (9 mm thick, flexible water pipes).

### 4.4.2 - Specifications

- Minimum bend radius (insulated pipes): 106 mm
- The water hoses are designed for treated or untreated water.
- Maximum operating pressure: 16 bar
- 1/2" female gas couplings with flat gaskets
- Length: 1 m.

## 4 - OPTIONS SPECIFICATIONS

### 4.5 - Sensors (option)

#### 4.5.1 - Water temperature sensor

A water temperature sensor can be provided as an option for NTC and WTC controllers.

- For 2-pipe coil: The sensor is installed on a cooling/heating water pipe (for change-over function).
- For 4-pipe coil: The sensor is installed on a heating water pipe (for cold-draft function that prevents the operation of the unit when the heating network is off).

While the fan coil unit is delivered with an electrics box, the "water temperature sensor" option is actually a switch that will be connected to the Carrier thermostat.

**NOTE:**

- *The water sensor option (switch) with electrical box is only available for 2-pipe coil without electric heater.*
- *A water probe can also be provided as an accessory only in order to use the cold draft function of the thermostat.*

#### 4.5.2 - Air temperature sensors

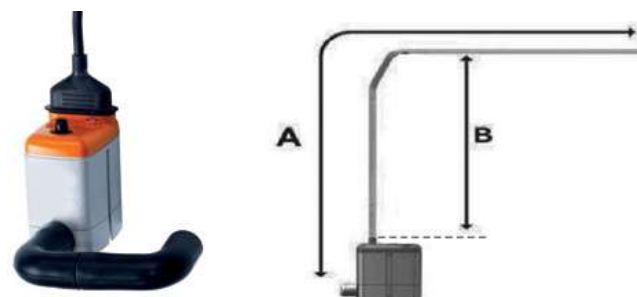
Two factory-fitted air temperature sensors are available as an option for NTC and WTC controllers. They measure the temperature at the supply and/or return side.

### 4.6 - Condensate pump (option)

The condensate pump option is designed to fit on the side of the unit drain pan. Electrical power supply 230V-50/60Hz.

Condensate pump discharge performances:

| TABLE OF ACTUAL DISCHARGE (l/h) |                                       |      |      |      |
|---------------------------------|---------------------------------------|------|------|------|
| Discharge head (B)              | Total length of pipe (Ø int. 6 mm ) A |      |      |      |
|                                 | 5 m                                   | 10 m | 20 m | 30 m |
| 0 m                             | 20                                    | 19   | 18   | 17   |
| 2 m                             | 16                                    | 15   | 14   | 13,5 |
| 4 m                             | 11,5                                  | 11   | 10,5 | 10   |
| 6 m                             |                                       | 8,5  | 7,5  | 6,5  |
| 8 m                             |                                       | 6    | 5    | 4    |
| 10 m                            |                                       | 4    | 3,5  | 2,5  |



| Technical characteristics         |                                       |
|-----------------------------------|---------------------------------------|
| Max. flow rate                    | 20 l/h -10%                           |
| Max. recommended discharge height | 10 m                                  |
| Max. manometric pressure          | 14 m                                  |
| Max sound level at 1 m distance   | < 28 dBA                              |
| Electrical supply                 | 230V +10%/-15% - 50/60Hz              |
| Max. input Power                  | 16 W (pour 230V/50Hz)                 |
| Rated current                     | 65 mA (pour 230V/50Hz)                |
| Detection levels                  | ON : 18 mm, OFF : 12 mm, AL : 21.5 mm |
| Alarm contact                     | Contact NC : 8A maxi – 250V           |
| Thermal protection                | 90°C (auto reset)                     |
| Operating cycle (duty factor)     | 100%                                  |
| Protection (selon NF EN 60529)    | IPX4                                  |

## 5 - CONTROL

The unit can be supplied with a wide range of Carrier controls. These offer functions to suit the various application requirements, summarised in the table below.

|  | Thermostats | NTC | WTC |
|--|-------------|-----|-----|
| <b>Communication Protocols</b>   |             |     |     |
| Carrier Communication Network (CCN) Aquasmart compatible   |             | x   |     |
| BACnet MSTP  |             |     | x   |
| LON  |             |     | x   |
| <b>Control algorithms</b>  |             |     |     |
| On-off   | x           |     |     |
| Proportional-integral  |             | x   | x   |
| Carrier Energy saving algorithm  |             | x   | x   |
| <b>Fan control</b>   |             |     |     |
| AC motors 3 speeds descreet  | Type A&B    | x   | x   |
| Automatic optimum fan speed selection  | x           | x   | x   |
| EC motors 3 speeds descreet  | Type C&D    | x   | x   |
| EC motors Variable speed   |             | x   | x   |
| <b>Water Valve management</b>  |             |     |     |
| Air flow control only (no water valve)   | x           |     |     |
| 230V On-off actuators  | x           | x   | x   |
| 230V Modulating actuators (floating 3pts)  |             | x   | x   |
| <b>Main functions</b>  |             |     |     |
| Setpoint control   | x           | x   | x   |
| Occupied/unoccupied mode   | x           | x   | x   |
| Frost protection mode  | x           | x   | x   |
| Window / Door contact input  | x           | x   | x   |
| Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)                   | Type A&C    | x   | x   |
| Measurement of water inlet temperature to prevent cold-draft (4 pipes and 2 pipes + electric heater) | Type B&D    | x   | x   |
| Manual changeover  | x           | x   | x   |
| Frost protection mode  | x           | x   | x   |
| Continuous ventilation within dead-band  | x           | x   | x   |
| Periodical ventilation within dead-band  | x           | x   | x   |
| On-site configuration  | x           | x   | x   |
| Unit grouping Master/Slave   | x           | x   | x   |
| Cassette Louvers control   |             | x   | x   |
| Supply air temperature monitoring limiting   |             | x   | x   |
| Electric heater loadshed   |             | x   | x   |
| Dirty filter alarm   |             | x   | x   |
| Alarm reporting  |             | x   | x   |
| Indoor Air Quality control (CO <sub>2</sub> sensor)  |             | o   | o   |
| Demand control ventilation (DCV) (0-10V fresh air valve)   |             | o   | o   |
| Free cooling mode  |             |     | o   |
| Presence detection   |             |     | o   |
| <b>User interfaces</b>   |             |     |     |
| Automatic or manual fan speed control  | x           | x   | x   |
| Setpoint adjustment  | x           | x   | x   |
| Occupancy (eco) button   | x           | x   | o   |
| Digital display  |             | o   | o   |
| Remote control (infra-red)   |             | o   | o   |
| CO <sub>2</sub> sensor   |             | o   | o   |
| Luminosity sensor  |             |     | o   |
| Motion detection   |             |     | o   |
| Easy connection RJ45 jack (on wall mounted UI)   |             |     | x   |
| <b>Light &amp; Blinds management</b>   |             |     |     |
| Light power modules  |             |     | o   |
| Blinds power modules   |             |     | o   |
| <b>Control kit</b>   |             |     |     |
| On site control kit solution   |             |     | o   |

### Key

X Feature available as standard

O Optional

**NOTE:** for the features and specifications of the Carrier controllers outlined above, refer to the technical documentation for each controller.

Upon special request, other controller types can be factory-installed on the units (supplied by Carrier or the customer).

## 6 - LIST OF PRODUCT SPECIFICATIONS

| Feature name                      | Digit no. type key | Value | Description  | Compatibility   |
|-----------------------------------|--------------------|-------|--|---|
| Range                             | 1-2                | 42    |  |   |
|                                   | 3-4                | EP    |  |   |
| Chassis size                      | 5                  | 0     | Chassis size 0   |   |
|                                   |                    | 1     | Chassis size 1   |   |
|                                   |                    | 2     | Chassis size 2   |   |
| Coil efficiency                   | 6                  | 2     | Standard   | in 2-pipe only  |
|                                   |                    | 3     | Medium   | in 2-pipe only  |
|                                   |                    | 4     | Medium   | in 4-pipe only  |
| Motor type                        | 7                  | 9     | LEC low consumption motor                                  |   |
| Connection and coil type          | 8                  | F     | 2-pipe coil left-hand                                      | connection: in the air flow direction   |
|                                   |                    | G     | 2-pipe coil right-hand                                     |   |
|                                   |                    | C     | 4-pipe coil left-hand                                      |   |
|                                   |                    | D     | 4-pipe coil right-hand                                     |   |
| Control                           | 9                  | -     | Bare wires   |   |
|                                   |                    | E     | Electrics box  |   |
|                                   |                    | K     | NTC  |   |
|                                   |                    | L     | WTC LON  |   |
|                                   |                    | M     | WTC BACNET   |   |
| Valve body                        | 10                 | -     | Without valve  |   |
|                                   |                    | G     | 2-way valve  | changeover sensor not compatible with two-way valve and automatic balancing 2-way valve |
|                                   |                    | H     | 3-way valve with by-pass                                   |   |
|                                   |                    | L     | Automatic balancing 2-way valve without pressure tapings   |   |
|                                   |                    | T     | Automatic balancing 2-way valve with pressure tapings      |   |
| Electric heater                   | 11                 | -     | Without electric heater                                    |   |
|                                   |                    | E     | 500 W electric heater                                      |   |
|                                   |                    | F     | 800 W electric heater                                      |   |
|                                   |                    | G     | 1000 W electric heater                                     | Not available in Size 0   |
|                                   |                    | H     | 1600 W electric heater                                     | Not available in Size 0 & 1   |
| Valve actuator                    | 12                 | -     | Without actuator   |   |
|                                   |                    | A     | 230 V ON/OFF actuator                                      |   |
|                                   |                    | C     | 3-point 230 V actuator                                     |   |
|                                   |                    | B     | 24 V ON/OFF actuator                                       | not available with CARRIER control  |
|                                   |                    | D     | 3-point 24 V actuator                                      | not available with CARRIER control  |
|                                   |                    | E     | Modulating 0-10 V/24 V actuator                            | not available with CARRIER control  |
|                                   |                    | P     | Modulating PWM 230 V actuator                              | only for electrics box or WTC   |
| Return plenum                     | 13                 | -     | Without  |   |
|                                   |                    | A     | Rectangular sleeve   |   |
|                                   |                    | B     | Compact plenum   | number of spigots according to size see sect.1.2  |
|                                   |                    | C     | Large plenum (linear arrangement)                          |   |
|                                   |                    | D     | Large plenum (lateral arrangement) hydraulic side          |   |
| Supply plenum                     | 14                 | E     | Large plenum (lateral arrangement) opposite the hydraulics |   |
|                                   |                    | -     | Without  |   |
|                                   |                    | A     | Rectangular sleeve   |   |
|                                   |                    | B     | Compact plenum   | number of spigots according to size see sect.1.2  |
|                                   |                    | C     | Large plenum (linear arrangement)                          |   |
|                                   |                    | D     | Large plenum (lateral arrangement) hydraulic side          |   |
| Spigot diameter on the return     | 15                 | -     | Without  |   |
|                                   |                    | A     | Ø 125 mm   |   |
| Spigot diameter on the supply air | 16                 | -     | Without  |   |
|                                   |                    | A     | Ø 125 mm   |   |

Key:

☐ Basic configuration

## 6 - LIST OF PRODUCT SPECIFICATIONS

| Feature name                     | Digit no.<br>type key | Value | Description   | Compatibility                             |
|----------------------------------|-----------------------|-------|---|---|
| <b>Filtration</b>                | 17                    | -     | Without   | compulsory plenum or sleeve on the return |
|                                  |                       | V     | G3  |   |
| <b>Condensate pan</b>            | 18                    | P     | Plastic   |   |
|                                  |                       | A     | Aluminium   | Compulsory with electric heater           |
| <b>Fresh air</b>                 | 19                    | -     | Without   |   |
|                                  |                       | A     | DN125 spigot only   |   |
|                                  |                       | B     | Module MR DN125 15-50 m3/h                                      | Only available with Large plenum          |
|                                  |                       | C     | Module MR DN125 50-100 m3/h                                     |   |
|                                  |                       | D     | Module MR DN125 100-125 m3/h                                    |   |
|                                  |                       | E     | DN 125 adapter for fresh air valve (must be ordered separately) |   |
| <b>Fresh air position</b>        | 20                    | -     | Without   |   |
|                                  |                       | A     | On the return, hydraulic side                                   | Only available with Large plenum          |
|                                  |                       | B     | On the return, opposite the hydraulics                          |   |
|                                  |                       | C     | On the linear return  |   |
|                                  |                       | D     | On the supply air, opposite the hydraulics                      |   |
|                                  |                       | F     | On the supply air, hydraulic side                               |   |
| <b>Relay for electric heater</b> | 21                    | -     | Without   |   |
|                                  |                       | R     | with relay  | Only for "electrics box" option           |
| <b>Electrical protection</b>     | 22                    | -     | Without   |   |
|                                  |                       | F     | Fuse disconnect switch  |   |
|                                  |                       | C     | Circuit breaker   |   |
| <b>Air sensor</b>                | 23                    | -     | Without   |   |
|                                  |                       | A     | Return sensor   | only for Control = NTC or WTC             |
|                                  |                       | B     | Supply air sensor   |   |
|                                  |                       | C     | Return air sensor & supply air sensor                           |   |
| <b>Water temperature sensor</b>  | 24                    | -     | Without   |   |
|                                  |                       | A     | With water temperature sensor                                   | changeover sensor with four-way valve     |
| <b>Spigot protection</b>         | 25                    | -     | Without   |   |
|                                  |                       | A     | Hose protection   |   |
| <b>Hose</b>                      | 26                    | -     | Without   |   |
|                                  |                       | F     | With hoses  |   |
| <b>Specific labelling</b>        | 27                    | -     | Without specific labelling                                      |   |
|                                  |                       | A     | Individual specific labelling                                   |   |
|                                  |                       | B     | Specific labelling for the pallet                               |   |
|                                  |                       | C     | Individual and pallet specific labelling                        |   |
| <b>Application</b>               | 28                    | C     | Suspended ceiling   |   |
|                                  |                       | F     | Raised floor  |   |

Key:



Basic configuration

## 7 - 42EP PERFORMANCE DATA

### 7.1 - Physical and electrical data at Eurovent conditions - 42EP - Size 0

With G3 filter - without plenum

| 42EP 2-Pipe                  |        | 029                    |       |       |       |       |       |       |       | 039                    |       |       |       |       |       |       |       |
|------------------------------|--------|------------------------|-------|-------|-------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|
| Fan speed                    |        | 2                      | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 2                      | 3     | 4     | 5     | 6     | 7     | 8     | 9     |
|                              |        | LS                     |       | MS    |       |       | HS    |       |       | LS                     |       |       | MS    |       | HS    |       |       |
| Débit d'air                  | m³/h   | 67                     | 115   | 157   | 197   | 231   | 273   | 305   | 324   | 74                     | 128   | 177   | 222   | 266   | 317   | 355   | 379   |
| Operating pressure           | Pa     | 9                      | 27    | 50    | 78    | 107   | 150   | 187   | 211   | 6                      | 17    | 32    | 50    | 72    | 102   | 128   | 146   |
| Cooling mode, 2-pipe*        |        |                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |
| Total cooling capacity       | kW     | 0,4                    | 0,6   | 0,8   | 0,9   | 1,1   | 1,2   | 1,3   | 1,3   | 0,5                    | 0,8   | 1,0   | 1,2   | 1,4   | 1,6   | 1,7   | 1,8   |
| Sensible cooling capacity    | kW     | 0,3                    | 0,5   | 0,7   | 0,8   | 0,9   | 1,0   | 1,1   | 1,2   | 0,4                    | 0,6   | 0,8   | 1,0   | 1,2   | 1,4   | 1,5   | 1,6   |
| Water flow rate              | l/h    | 71                     | 106   | 136   | 161   | 181   | 203   | 217   | 222   | 87                     | 137   | 178   | 214   | 245   | 278   | 300   | 310   |
| Water pressure drop          | kPa    | 1                      | 3     | 5     | 6     | 8     | 10    | 12    | 12    | 1                      | 2     | 3     | 5     | 6     | 8     | 10    | 11    |
| Water volume                 | l      | 1,0                    |       |       |       |       |       |       |       | 1,3                    |       |       |       |       |       |       |       |
| Heating mode, 2-pipe*        |        |                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |
| Heating capacity             | kW     | 0,5                    | 0,8   | 1,0   | 1,2   | 1,4   | 1,6   | 1,8   | 1,9   | 0,6                    | 1,0   | 1,3   | 1,6   | 1,8   | 2,1   | 2,3   | 2,5   |
| Water flow rate              | l/h    | 91                     | 136   | 176   | 212   | 241   | 277   | 304   | 322   | 103                    | 165   | 219   | 268   | 312   | 363   | 400   | 426   |
| Water pressure drop          | kPa    | 2                      | 4     | 6     | 8     | 9     | 11    | 13    | 14    | 1                      | 3     | 4     | 6     | 7     | 9     | 11    | 12    |
| Water volume                 | l      |                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |
| Electric heater              |        | 230V ±10% - 1ph - 50Hz |       |       |       |       |       |       |       | 230V ±10% - 1ph - 50Hz |       |       |       |       |       |       |       |
| Maximum capacity             | W      | 800                    |       |       |       |       |       |       |       | 800                    |       |       |       |       |       |       |       |
| Input current                | A      | 3,7                    |       |       |       |       |       |       |       | 3,7                    |       |       |       |       |       |       |       |
| Low capacity                 | W      | 500                    |       |       |       |       |       |       |       | 500                    |       |       |       |       |       |       |       |
| Input current                | A      | 2,3                    |       |       |       |       |       |       |       | 2,3                    |       |       |       |       |       |       |       |
| Sound levels                 |        |                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |
| Supply air sound power level | dB(A)  | 31                     | 41    | 48    | 53    | 56    | 59    | 62    | 64    | 32                     | 42    | 48    | 53    | 57    | 60    | 63    | 65    |
| Radiated+sound power level   | dB(A)  | 30                     | 40    | 46    | 51    | 54    | 57    | 60    | 62    | 31                     | 40    | 47    | 51    | 55    | 58    | 61    | 63    |
| Motor electrical data        |        |                        |       |       |       |       |       |       |       |                        |       |       |       |       |       |       |       |
| Power input                  | W      | 4                      | 8     | 13    | 22    | 38    | 59    | 82    | 86    | 4                      | 8     | 13    | 21    | 34    | 53    | 73    | 86    |
| Current                      | A      | 0,043                  | 0,063 | 0,094 | 0,147 | 0,223 | 0,335 | 0,447 | 0,553 | 0,043                  | 0,063 | 0,094 | 0,147 | 0,223 | 0,335 | 0,447 | 0,553 |
| FCEER [energy class]         | 2-pipe | 60                     | C     |       |       |       |       |       |       | 68                     | B     |       |       |       |       |       |       |
| FCCOP [energy class]         | 2-pipe | 78                     | B     |       |       |       |       |       |       | 84                     | B     |       |       |       |       |       |       |

Declared speeds: LS = Low Speed | MS = Medium Speed | HS = High Speed



Eurovent certified values

\* Eurovent conditions: Air inlet = 27 °C (19 °C wb) – water inlet = 7 °C, ΔT 5K

\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 45 °C, ΔT 5K

\*\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 65 °C, ΔT 10K



## 7 - 42EP PERFORMANCE DATA

| 42EP 4-Pipe                       |                   | 049   |       |       |       |       |       |       |       |
|-----------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Fan speed                         |                   | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     |
|                                   |                   | LS    |       |       | MS    |       | HS    |       |       |
| Air flow                          | m <sup>3</sup> /h | 78    | 122   | 173   | 214   | 255   | 308   | 345   | 368   |
| Operating pressure                | Pa                | 7     | 16    | 33    | 50    | 72    | 104   | 131   | 148   |
| <b>Cooling mode, 4-pipe*</b>      |                   |       |       |       |       |       |       |       |       |
| Total cooling capacity            | kW                | 0,5   | 0,8   | 1,0   | 1,2   | 1,4   | 1,6   | 1,7   | 1,8   |
| Sensible cooling capacity         | kW                | 0,4   | 0,6   | 0,8   | 1,0   | 1,1   | 1,3   | 1,5   | 1,6   |
| Water flow rate                   | l/h               | 93    | 133   | 176   | 208   | 238   | 274   | 295   | 305   |
| Water pressure drop               | kPa               | 1     | 2     | 3     | 5     | 6     | 8     | 9     | 10    |
| Water volume                      | l                 | 1,3   |       |       |       |       |       |       |       |
| <b>Heating mode, 4-pipe***</b>    |                   |       |       |       |       |       |       |       |       |
| Heating capacity                  | kW                | 0,8   | 1,1   | 1,3   | 1,5   | 1,7   | 2,0   | 2,2   | 2,3   |
| Water flow rate                   | l/h               | 139   | 183   | 229   | 266   | 300   | 342   | 371   | 391   |
| Water pressure drop               | kPa               | 3     | 6     | 8     | 11    | 13    | 16    | 18    | 19    |
| Water volume                      | l                 | 0,5   |       |       |       |       |       |       |       |
| <b>Sound levels</b>               |                   |       |       |       |       |       |       |       |       |
| Supply air sound power level      | dB(A)             | 32    | 41    | 48    | 53    | 57    | 60    | 62    | 65    |
| Intake+radiated sound power level | dB(A)             | 31    | 40    | 47    | 51    | 55    | 58    | 60    | 62    |
| <b>Motor electrical data</b>      |                   |       |       |       |       |       |       |       |       |
| Power input                       | W                 | 4     | 8     | 13    | 22    | 38    | 59    | 82    | 86    |
| Current                           | A                 | 0,043 | 0,063 | 0,094 | 0,147 | 0,223 | 0,335 | 0,447 | 0,553 |
| FCEER [energy class]              | 4-pipe            | 69    | B     |       |       |       |       |       |       |
| FCCOP [energy class]              | 4-pipe            | 97    | A     |       |       |       |       |       |       |

Declared speeds: LS = Low Speed | MS = Medium Speed | HS = High Speed



Eurovent certified values

- \* Eurovent conditions: Air inlet = 27 °C (19 °C wb) – water inlet = 7 °C, ΔT 5K  
 \*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 45 °C, ΔT 5K  
 \*\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 65 °C, ΔT 10K

## 7 - 42EP PERFORMANCE DATA

### 7.2 - Physical and electrical data at Eurovent conditions - 42EP - Size 1

With G3 filter - without plenum

| 42EP 2-Pipe                  |        | 129                    |      |      |      |      |      |      |      | 139                    |      |      |      |      |      |      |      |
|------------------------------|--------|------------------------|------|------|------|------|------|------|------|------------------------|------|------|------|------|------|------|------|
| Fan speed                    |        | 2                      | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 2                      | 3    | 4    | 5    | 5,7  | 7    | 8    | 9    |
|                              |        | LS                     |      | MS   |      |      | HS   |      |      | LS                     |      |      |      | MS   | HS   |      |      |
| Air flow                     | m³/h   | 85                     | 137  | 182  | 220  | 267  | 310  | 346  | 365  | 97                     | 171  | 218  | 271  | 310  | 378  | 420  | 446  |
| Operating pressure           | Pa     | 11                     | 28   | 50   | 73   | 108  | 145  | 180  | 202  | 5                      | 15   | 25   | 38   | 50   | 74   | 92   | 104  |
| Cooling mode, 2-pipe*        |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Total cooling capacity       | kW     | 0,6                    | 0,9  | 1,2  | 1,3  | 1,5  | 1,7  | 1,8  | 1,9  | 0,7                    | 1,2  | 1,5  | 1,8  | 2,0  | 2,4  | 2,5  | 2,6  |
| Sensible cooling capacity    | kW     | 0,4                    | 0,7  | 0,9  | 1,0  | 1,2  | 1,3  | 1,4  | 1,5  | 0,5                    | 0,9  | 1,1  | 1,4  | 1,5  | 1,8  | 2,0  | 2,1  |
| Water flow rate              | l/h    | 120                    | 180  | 230  | 260  | 310  | 350  | 380  | 390  | 128                    | 212  | 261  | 313  | 346  | 406  | 436  | 452  |
| Water pressure drop          | kPa    | 4                      | 9    | 14   | 18   | 23   | 28   | 32   | 34   | 3                      | 7    | 11   | 15   | 19   | 24   | 28   | 30   |
| Water volume                 | l      | 1,4                    |      |      |      |      |      |      |      | 2,0                    |      |      |      |      |      |      |      |
| Heating mode, 2-pipe*        |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Heating capacity             | kW     | 0,7                    | 1,0  | 1,3  | 1,5  | 1,8  | 2,0  | 2,2  | 2,3  | 0,8                    | 1,3  | 1,7  | 2,0  | 2,3  | 2,7  | 3,0  | 3,1  |
| Water flow rate              | l/h    | 120                    | 180  | 230  | 260  | 310  | 350  | 380  | 390  | 136                    | 230  | 287  | 349  | 389  | 466  | 510  | 540  |
| Water pressure drop          | kPa    | 4                      | 8    | 13   | 17   | 22   | 27   | 31   | 33   | 2                      | 6    | 10   | 13   | 16   | 21   | 25   | 27   |
| Water volume                 | l      | 1,4                    |      |      |      |      |      |      |      | 2,0                    |      |      |      |      |      |      |      |
| Electric heater              |        | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |      |      |
| Maximum capacity             | W      | 1000                   |      |      |      |      |      |      |      | 1000                   |      |      |      |      |      |      |      |
| Input current                | A      | 4,6                    |      |      |      |      |      |      |      | 4,6                    |      |      |      |      |      |      |      |
| Medium capacity              |        | 800                    |      |      |      |      |      |      |      | 800                    |      |      |      |      |      |      |      |
| Input current                | A      | 3,7                    |      |      |      |      |      |      |      | 3,7                    |      |      |      |      |      |      |      |
| Low capacity                 |        | 500                    |      |      |      |      |      |      |      | 500                    |      |      |      |      |      |      |      |
| Input current                | A      | 2,3                    |      |      |      |      |      |      |      | 2,3                    |      |      |      |      |      |      |      |
| Sound levels                 |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Supply air sound power level | dB(A)  | 32                     | 43   | 50   | 55   | 59   | 62   | 65   | 67   | 33                     | 43   | 50   | 55   | 58   | 63   | 65   | 68   |
| Radiated+sound power level   | dB(A)  | 33                     | 41   | 48   | 52   | 57   | 60   | 63   | 64   | 30                     | 42   | 47   | 52   | 55   | 60   | 62   | 64   |
| Motor electrical data        |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Power input                  | W      | 5                      | 8    | 16   | 25   | 39   | 60   | 80   | 88   | 5                      | 8    | 16   | 25   | 39   | 60   | 80   | 88   |
| Current                      | A      | 0,05                   | 0,08 | 0,14 | 0,22 | 0,33 | 0,47 | 0,60 | 0,68 | 0,05                   | 0,08 | 0,14 | 0,22 | 0,33 | 0,47 | 0,60 | 0,68 |
| FCEER [energy class]         | 2-pipe | 75                     | B    |      |      |      |      |      |      | 88                     | A    |      |      |      |      |      |      |
| FCCOP [energy class]         | 2-pipe | 76                     | B    |      |      |      |      |      |      | 100                    | A    |      |      |      |      |      |      |

Declared speeds: LS = Low Speed | MS = Medium Speed | HS = High Speed



Eurovent certified values

\* Eurovent conditions: Air inlet = 27 °C (19 °C wb) – water inlet = 7 °C, ΔT 5K

\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 45 °C, ΔT 5K

\*\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 65 °C, ΔT 10K

## 7 - 42EP PERFORMANCE DATA

| 42EP 4-Pipe                       |                   | 149                    |      |      |      |      |      |     |       |
|-----------------------------------|-------------------|------------------------|------|------|------|------|------|-----|-------|
| Fan speed                         |                   | 2                      | 3    | 4    | 5    | 5,8  | 7    | 8   | 9     |
|                                   |                   | LS                     |      |      |      | MS   | HS   |     |       |
| Air flow                          | m <sup>3</sup> /h | 88                     | 151  | 217  | 262  | 306  | 368  | 410 | 437   |
| Operating pressure                | Pa                | 4                      | 12   | 25   | 37   | 50   | 73   | 90  | 102   |
| <b>Cooling mode, 4-pipe*</b>      |                   |                        |      |      |      |      |      |     |       |
| Total cooling capacity            | kW                | 0,7                    | 1,1  | 1,5  | 1,8  | 2,0  | 2,3  | 2,5 | 2,6   |
| Sensible cooling capacity         | kW                | 0,5                    | 0,8  | 1,1  | 1,3  | 1,5  | 1,8  | 2,0 | 2,1   |
| Water flow rate                   | l/h               | 119                    | 191  | 259  | 302  | 339  | 396  | 428 | 444   |
| Water pressure drop               | kPa               | 2                      | 6    | 11   | 14   | 18   | 24   | 27  | 29    |
| Water volume                      | l                 | 1,4                    |      |      |      |      |      |     |       |
| <b>Heating mode, 4-pipe**</b>     |                   |                        |      |      |      |      |      |     |       |
| Heating capacity                  | kW                | 1,0                    | 1,5  | 1,9  | 2,2  | 2,4  | 2,7  | 2,9 | 3,1   |
| Water flow rate                   | l/h               | 174                    | 252  | 325  | 371  | 411  | 470  | 505 | 528   |
| Water pressure drop               | kPa               | 7                      | 15   | 23   | 29   | 33   | 41   | 46  | 50    |
| Water volume                      | l                 | 0,7                    |      |      |      |      |      |     |       |
| <b>Electric heater</b>            |                   | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |     |       |
| Maximum capacity                  | W                 | 1000                   |      |      |      |      |      |     |       |
| Input current                     | A                 | 4,6                    |      |      |      |      |      |     |       |
| <b>Sound levels</b>               |                   |                        |      |      |      |      |      |     |       |
| Supply air sound power level      | dB(A)             | 33                     | 43   | 50   | 55   | 59   | 63   | 65  | 68    |
| Intake+radiated sound power level | dB(A)             | 30                     | 40   | 47   | 52   | 55   | 59   | 62  | 64    |
| <b>Motor electrical data</b>      |                   |                        |      |      |      |      |      |     |       |
| Power input                       | W                 | 5                      | 8    | 16   | 25   | 39   | 60   | 80  | 88    |
| Current                           | A                 | 0,05                   | 0,08 | 0,14 | 0,22 | 0,33 | 0,47 | 0,6 | 0,684 |
| FCEER [energy class]              | 4-pipe            | 82                     | B    |      |      |      |      |     |       |
| FCCOP [energy class]              | 4-pipe            | 112                    | A    |      |      |      |      |     |       |

Declared speeds: LS = Low Speed | MS = Medium Speed | HS = High Speed



Eurovent certified values

\* Eurovent conditions: Air inlet = 27 °C (19 °C wb) – water inlet = 7 °C, ΔT 5K

\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 45 °C, ΔT 5K

\*\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 65 °C, ΔT 10K

## 7 - 42EP PERFORMANCE DATA

### 7.3 - Physical and electrical data at Eurovent conditions - 42EP - Size 2

| 42EP 2-Pipe                  |        | 229                    |      |      |      |      |      |      |      | 239                    |      |      |      |      |      |      |      |
|------------------------------|--------|------------------------|------|------|------|------|------|------|------|------------------------|------|------|------|------|------|------|------|
| Fan speed                    |        | 2                      | 3    | 4    | 4,8  | 6    | 7    | 8    | 9    | 2                      | 3    | 4    | 5    | 6    | 7    | 8    | 9    |
|                              |        | LS                     |      |      | MS   |      | HS   |      |      | LS                     |      |      | MS   |      | HS   |      |      |
| Air flow                     | m³/h   | 147                    | 264  | 394  | 458  | 567  | 677  | 748  | 797  | 141                    | 247  | 364  | 453  | 542  | 649  | 719  | 766  |
| Operating pressure           | Pa     | 5                      | 17   | 37   | 50   | 77   | 109  | 134  | 152  | 5                      | 15   | 32   | 50   | 72   | 103  | 127  | 144  |
| Cooling mode, 2-pipe*        |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Total cooling capacity       | kW     | 1,02                   | 1,61 | 2,23 | 2,48 | 2,88 | 3,22 | 3,38 | 3,45 | 1,11                   | 1,79 | 2,51 | 2,98 | 3,41 | 3,87 | 4,13 | 4,26 |
| Sensible cooling capacity    | kW     | 0,76                   | 1,23 | 1,74 | 1,97 | 2,33 | 2,67 | 2,86 | 2,99 | 0,79                   | 1,31 | 1,88 | 2,26 | 2,63 | 3,04 | 3,30 | 3,47 |
| Water flow rate              | l/h    | 176                    | 277  | 382  | 426  | 494  | 553  | 581  | 593  | 190                    | 306  | 431  | 511  | 586  | 664  | 709  | 731  |
| Water pressure drop          | kPa    | 14                     | 34   | 68   | 87   | 106  | 118  | 127  | 127  | 7                      | 19   | 34   | 45   | 57   | 71   | 81   | 87   |
| Water volume                 | l      | 1,7                    |      |      |      |      |      |      |      | 2,5                    |      |      |      |      |      |      |      |
| Heating mode, 2-pipe*        |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Heating capacity             | kW     | 1,14                   | 1,81 | 2,55 | 2,88 | 3,42 | 3,92 | 4,24 | 4,47 | 1,15                   | 1,89 | 2,71 | 3,27 | 3,83 | 4,45 | 4,87 | 5,16 |
| Water flow rate              | l/h    | 196                    | 312  | 439  | 495  | 589  | 676  | 730  | 770  | 198                    | 326  | 467  | 564  | 659  | 766  | 838  | 889  |
| Water pressure drop          | kPa    | 12                     | 29   | 51   | 62   | 81   | 103  | 117  | 127  | 6                      | 15   | 27   | 38   | 49   | 63   | 73   | 80   |
| Water volume                 | l      | 1,7                    |      |      |      |      |      |      |      | 2,5                    |      |      |      |      |      |      |      |
| Electric heater              |        | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |      |      | 230V ±10% - 1ph - 50Hz |      |      |      |      |      |      |      |
| Maximum capacity             | W      | 1600                   |      |      |      |      |      |      |      | 1600                   |      |      |      |      |      |      |      |
| Input current                | A      | 7,3                    |      |      |      |      |      |      |      | 7,3                    |      |      |      |      |      |      |      |
| High capacity                |        | 1000                   |      |      |      |      |      |      |      | 1000                   |      |      |      |      |      |      |      |
| Input current                | A      | 4,6                    |      |      |      |      |      |      |      | 4,6                    |      |      |      |      |      |      |      |
| Medium capacity              |        | 800                    |      |      |      |      |      |      |      | 800                    |      |      |      |      |      |      |      |
| Input current                | A      | 3,7                    |      |      |      |      |      |      |      | 3,7                    |      |      |      |      |      |      |      |
| Low capacity                 |        | 500                    |      |      |      |      |      |      |      | 500                    |      |      |      |      |      |      |      |
| Input current                | A      | 2,3                    |      |      |      |      |      |      |      | 2,3                    |      |      |      |      |      |      |      |
| Sound levels                 |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Supply air sound power level | dB(A)  | 36                     | 45   | 52   | 56   | 60   | 63   | 66   | 68   | 37                     | 46   | 52   | 57   | 61   | 64   | 66   | 69   |
| Radiated+sound power level   | dB(A)  | 33                     | 43   | 49   | 53   | 58   | 61   | 64   | 66   | 33                     | 43   | 49   | 54   | 58   | 61   | 64   | 66   |
| Motor electrical data        |        |                        |      |      |      |      |      |      |      |                        |      |      |      |      |      |      |      |
| Power input                  | W      | 9                      | 14   | 26   | 38   | 63   | 96   | 133  | 167  | 9                      | 14   | 26   | 38   | 63   | 96   | 133  | 167  |
| Current                      | A      | 0,11                   | 0,16 | 0,25 | 0,38 | 0,58 | 0,84 | 1,08 | 1,31 | 0,11                   | 0,16 | 0,25 | 0,38 | 0,58 | 0,84 | 1,08 | 1,31 |
| FCEER [energy class]         | 2-pipe | 71                     | B    |      |      |      |      |      |      | 78                     | B    |      |      |      |      |      |      |
| FCCOP [energy class]         | 2-pipe | 83                     | B    |      |      |      |      |      |      | 85                     | A    |      |      |      |      |      |      |

Declared speeds: LS = Low Speed | MS = Medium Speed | HS = High Speed



Eurovent certified values

\* Eurovent conditions: Air inlet = 27 °C (19 °C wb) – water inlet = 7 °C, ΔT 5K

\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 45 °C, ΔT 5K

\*\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 65 °C, ΔT 10K

## 7 - 42EP PERFORMANCE DATA

| 42EP 4-Pipe                    |                   | 249  |      |      |      |      |      |       |       |
|--------------------------------|-------------------|------|------|------|------|------|------|-------|-------|
| Fan speed                      |                   | 2    | 3    | 4    | 5    | 6    | 7    | 8     | 9     |
|                                |                   | LS   |      |      | MS   |      | HS   |       |       |
| Air flow                       | m <sup>3</sup> /h | 139  | 247  | 351  | 451  | 532  | 632  | 702   | 755   |
| Operating pressure             | Pa                | 5    | 15   | 31   | 50   | 70   | 99   | 122   | 141   |
| <b>Cooling mode, 4-pipe*</b>   |                   |      |      |      |      |      |      |       |       |
| Total cooling capacity         | kW                | 1,1  | 1,8  | 2,5  | 3,0  | 3,4  | 3,8  | 4,1   | 4,2   |
| Sensible cooling capacity      | kW                | 0,8  | 1,3  | 1,8  | 2,3  | 2,6  | 3,0  | 3,3   | 3,4   |
| Water flow rate                | l/h               | 191  | 316  | 421  | 516  | 583  | 658  | 702   | 729   |
| Water pressure drop            | kPa               | 7    | 19   | 32   | 45   | 55   | 69   | 78    | 86    |
| Water volume                   | l                 | 2,5  |      |      |      |      |      |       |       |
| <b>Heating mode, 4-pipe***</b> |                   |      |      |      |      |      |      |       |       |
| Heating capacity               | kW                | 1,5  | 2,3  | 2,9  | 3,4  | 3,7  | 4,2  | 4,5   | 4,8   |
| Water flow rate                | l/h               | 260  | 393  | 495  | 579  | 641  | 723  | 780   | 825   |
| Water pressure drop            | kPa               | 19   | 39   | 58   | 76   | 90   | 111  | 125   | 136   |
| Water volume                   | l                 | 1,00 |      |      |      |      |      |       |       |
| <b>Sound levels</b>            |                   |      |      |      |      |      |      |       |       |
| Supply air sound power level   | dB(A)             | 37   | 46   | 52   | 57   | 61   | 64   | 66    | 69    |
| Radiated+sound power level     | dB(A)             | 33   | 42   | 49   | 54   | 58   | 61   | 64    | 66    |
| <b>Motor electrical data</b>   |                   |      |      |      |      |      |      |       |       |
| Power input                    | W                 | 9    | 15   | 26   | 43   | 65   | 100  | 133   | 168   |
| Current                        | A                 | 0,11 | 0,16 | 0,25 | 0,38 | 0,58 | 0,84 | 1,083 | 1,308 |
| FCEER [energy class]           | 4-pipe            | 78   | B    |      |      |      |      |       |       |
| FCCOP [energy class]           | 4-pipe            | 98   | A    |      |      |      |      |       |       |

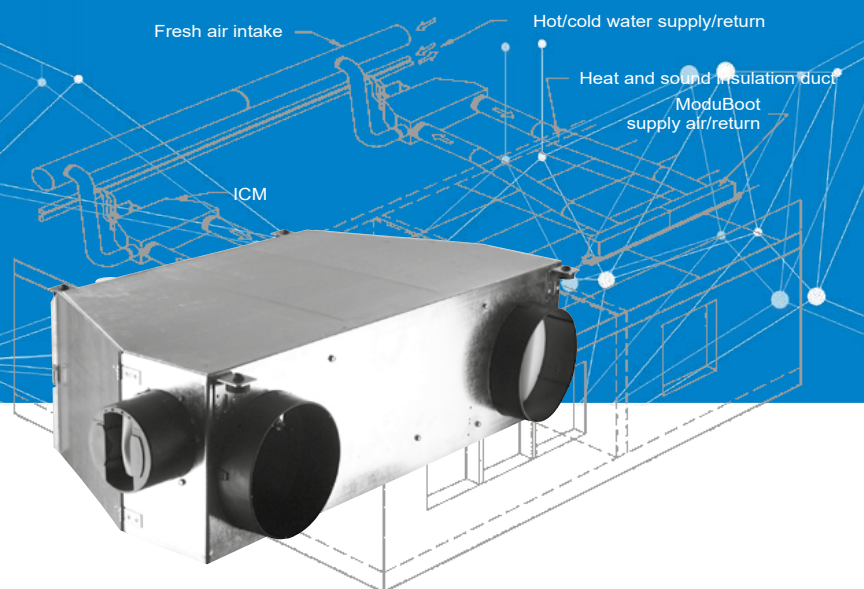
Declared speeds: LS = Low Speed | MS = Medium Speed | HS = High Speed



Eurovent certified values

- \* Eurovent conditions: Air inlet = 27 °C (19 °C wb) – water inlet = 7 °C, ΔT 5K  
 \*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 45 °C, ΔT 5K  
 \*\*\* Eurovent conditions: Air inlet = 20 °C (15 °C wb max) – water inlet = 65 °C, ΔT 10K

## LOW-CONSUMPTION INDIVIDUAL COMFORT MODULE FOR VARIABLE AIR VOLUME SYSTEMS



All-in-one offer: minimal installation costs thanks to factory-tested and -fitted options

Easy integration into a centralised zone

Very low sound level

Available static pressure: 100 to 350 Pa

## 42BJ ICM LEC

Total cooling capacity 0.5 – 6.0 kW  
Total heating capacity 0.5 - 12.2 kW

The Carrier 42BJ ICM (Individual Comfort Module) is a compact air conditioning system available in 3 sizes, designed for conditioning rooms measuring 25 to 50 m<sup>2</sup>.



## OVERVIEW AND ADVANTAGES

The 42BJ module is connected by flexible sound-absorbing ducts (heat insulated air discharge duct) to one or more plenums incorporating a linear diffuser which is seamlessly integrated into the suspended ceiling of the room to be air-conditioned (CARRIER ModuBoots 35BD/35SR range).

The units can be fitted in suspended ceilings or raised floors, ideally in corridors, where they are connected to hot water, chilled water and fresh air circuits.

These circuits installed in the building's circulation zones (for easy maintenance) never cross into air-conditioned spaces. Only the 35BD/35SR diffuser(s), inert components of the system, are located in the occupied space. This means that maintenance is performed outside of the occupied space and facilitates programming when the building is occupied.

The Individual Comfort Module has been designed to be ultra quiet; moreover, thanks to its available static pressure, it can be located away from the air-conditioned space.

### ■ Comfort

The 42BJ ICM LEC can be equipped with a Carrier digital control, providing each occupant with a remote user interface located on their desktop or wall, enabling individual selection of preferred comfort conditions:

- Room temperature of the room
- Forced air function (quick renewal of air in the office)
- Set to occupied or unoccupied mode by the user of each ICM LEC to meet energy-saving requirements.

The Aquasmart Evolution is used to control and optimise each module according to the requirements of the operator or local regulations. Thanks to this central energy-monitoring system, the comfort conditions can be controlled at all times to obtain the best balance between energy savings and individual comfort.

If the product is supplied without a Carrier control device, the integrator is responsible for ensuring EMC conformity.

### Air quality

#### ■ Indoor Air quality (IAQ)

Carrier is committed to developing a system for managing Indoor Air Quality (IAQ) built into air conditioning units. A major innovation which paves the way for the air conditioning systems of the future.

In this application, each individual comfort module (ICM LEC) is equipped with a fresh air intake control and high-efficiency filtration to successfully protect against any type of pollutant.

This therefore guarantees excellent indoor air quality as explained below in 2 steps:

- High-efficiency filtration: type F5 or F6
- Fresh air flow modulation: CARRIER units may be equipped with a fresh air flow modulation system to control the air flow diffused in a room.

#### ■ Three objectives:

Adapt the ventilation flow rate to the actual occupancy of the rooms.

Maintain excellent indoor air quality to ensure the comfort and health of occupants, in accordance with the labour code.

Control energy costs relating to air change in rooms to avoid "over-ventilating" the building and to minimise operating costs, particularly when the building is unoccupied.

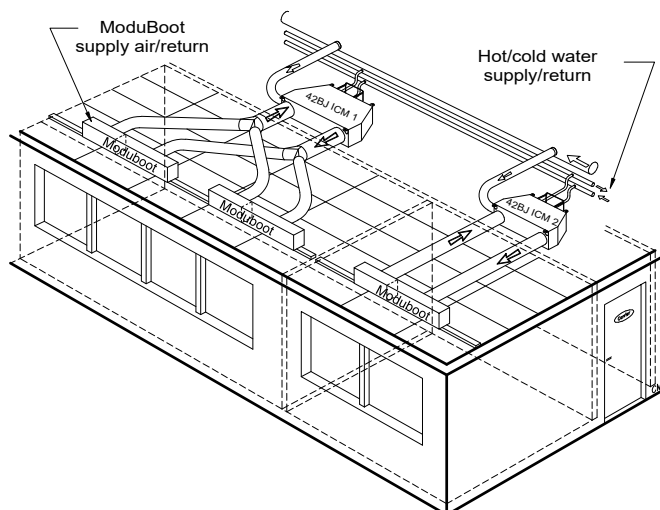
#### ■ Operating principle

The occupants of a room release an average of 0.0045 l/s (16.2 l/h) of CO<sub>2</sub>. A CO<sub>2</sub> sensor, located in the terminal's return air duct, measures the concentration of the room air conditioned by the unit. This concentration measured represents the actual occupancy of the room.

This sensor sends a signal to the Carrier digital controller which, in turn, sends a signal to actuate the fresh air valve:

If the concentration of CO<sub>2</sub> is below a threshold value: the fresh air flow is at minimum or zero,

if it is above: the flow rate is increased to the maximum level set.



## CODES

|              | Range |   |   |   | Size |   | Modification index | Coils | Supply and return air plenum | Valves | Valve actuators | Control | Sensors | Filters and access | Fresh air | Motor wiring |
|--------------|-------|---|---|---|------|---|--------------------|-------|------------------------------|--------|-----------------|---------|---------|--------------------|-----------|--------------|
| Product ref. | 4     | 2 | B | J | 1    | 9 | D                  | A     | T                            | C      | A               | A       | A       | G                  | -         | W            |
| Digit        | 1     | 2 | 3 | 4 | 5    | 6 | 7                  | 8     | 9                            | 10     | 11              | 12      | 13      | 14                 | 15        | 16           |

| Digit 5/6 |   |
|-----------|---|
| 1         | 9 |
| 2         | 9 |
| 4         | 9 |

| Digit 7 |   |
|---------|---|
|         | D |

| Digit 8 |  |
|---------|--|
| A       | = 2 RH pipes                                   |
| B       | = 2 LH pipes                                   |
| C       | = 4 RH pipes                                   |
| D       | = 4 LH pipes                                   |
| E       | = 2 pipes/2 RH wires (LP) (PTC 2 wired stages) |
| F       | = 2 pipes/2 LH wires (LP) (PTC 2 wired stages) |
| G       | = 2 pipes/2 RH wires (HP) (PTC 5 wired stages) |
| H       | = 2 pipes/2 LH wires (HP) (PTC 5 wired stages) |
| J       | = 2 pipes/2 RH wires (MP) (PTC 4 wired stages) |
| K       | = 2 pipes/2 LH wires (MP) (PTC 4 wired stages) |

| Digit 9      |  |
|--------------|--|
| T            | = 1x supply air collar, 1x return air collar |
| Sizes 19-29: | Ø200 mm                                      |
| Size 49:     | Ø250 mm                                      |

| Digit 10 |   |
|----------|---|
| -        | = No valves                                     |
| C        | = 2-way valve                                   |
| D        | = 4-way valve                                   |
| J        | = 2-way valve + insulated flexible connections  |
| K        | = 4-way valves + insulated flexible connections |

| Digit 15 |   |
|----------|---|
| -        | = None  |
| A        | = Ø125 mm collar (without flow controller)        |
| B        | = Ø125 mm fixed 30 m³/h flow controller           |
| C        | = Ø125 mm adjustable 60 -160 m³/h flow controller |
| E        | = Ø125 mm adapter for motorised fresh air valve   |

| Digit 14 |                                       |
|----------|---------------------------------------|
| F        | = Access from under filter F5         |
| G        | = Access from side STANDARD filter F5 |
| H        | = Access from above filter F5         |
| K        | = Access from under filter F6         |
| L        | = Access from side filter F6          |
| M        | = Access from above filter F6         |

| Digit 13 |  |
|----------|--|
| -        | = None   |
| A        | = Return sensor  |
| B        | = Supply air sensor  |
| C        | = Changeover sensor  |
| D        | = Supply air + return sensors                                |
| F        | = Return + Changeover sensors                                |
| G        | = Supply air + Changeover sensors                            |
| E        | = Return + Supply air + Changeover sensors                   |
| H        | = CO <sub>2</sub> sensor                                     |
| J        | = Return air + CO <sub>2</sub> sensors                       |
| K        | = Supply air + CO <sub>2</sub> sensors                       |
| L        | = Changeover + CO <sub>2</sub> sensors                       |
| M        | = Return + Supply air + CO <sub>2</sub> sensors              |
| N        | = Return air + Changeover + CO <sub>2</sub> sensors          |
| P        | = Supply air + Changeover + CO <sub>2</sub> sensors          |
| Q        | = Return + Supply air + Changeover + CO <sub>2</sub> sensors |

| Digit 12 |  |
|----------|--|
| -        | = None   |
| A        | = NTC control                                      |
| K        | = NTC control + fuse disconnect switch             |
| D        | = NTC control + IAQ board                          |
| L        | = NTC control + IAQ board + fuse disconnect switch |
| S        | = WTC LON control                                  |
| T        | = WTC BACNET control                               |
| U        | = WTC LON control + fuse disconnect switch         |
| V        | = WTC BACNET control + fuse disconnect switch      |

| Digit 11 |  |
|----------|--|
| -        | = None                                     |
| A        | = 230 V ON/OFF actuator                    |
| C        | = 3-POINT 230 V actuator (with NTC or WTC) |

## TECHNICAL DESCRIPTION

### ■ Frame:

The 42BJ ICM LEC features a galvanised steel sheet metal box; the inside is covered with sound and heat insulation (fire protection rating M1)

■ "LEC" fan motor assembly with electronically commutated variable-speed direct-drive motor (commonly called an "EC motor"), controlled by a 0-10 V signal enabling it to operate over a broad range of rotation speeds

### ■ Water coil

Aluminium fins mechanically bonded by expansion onto a copper tube.

1/2" gas union nut inlet/outlet connections. Air bleed valves as standard. Coil attached to the condensate pan and coil access door forming a drawer which is easily removed for maintenance.

Coils available:

- 2 pipes with changeover or for use with an electric heater
- 4 pipes.

### ■ PTC electric heater

Positive Temperature Coefficient

The PTC electric heater belongs to a new generation of powerful heater rods which combine two technologies: electric heating and surface temperature limitation (cutting-edge technology based on the use of ceramics).

The actual cooling capacity depends on the air flow and its inlet temperature.

This modern technology guarantees safe, self-regulation of the cooling capacity. Moreover, each coil is equipped with a safety thermostat with automatic reset (contact opens when the temperature rises, triggered at 70 °C and average differential 20 K).

**Warning:** Before carrying out any work on the electric heater, the mains power supply to the unit must be disconnected.

Enhanced comfort without stratification: Supply air temperature = 35 °C



### ■ Thermoformed condensate pan

Main condensate pan under the coil and auxiliary pan under the valves forming a packaged assembly to prevent any risks of leaks. As the coil is placed on the fan intake to facilitate spraying, condensate is drained via a check valve, the height of the water between the main pan and the auxiliary pan is sufficient to overcome the negative pressure inside the unit. A siphon does not need to be fitted with this device.

Insulated auxiliary pan.

Drain ext. dia. 16 mm.

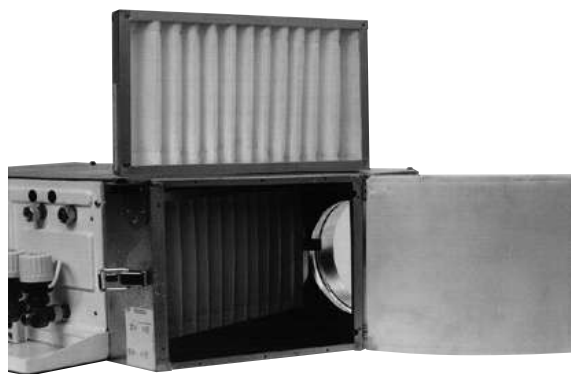
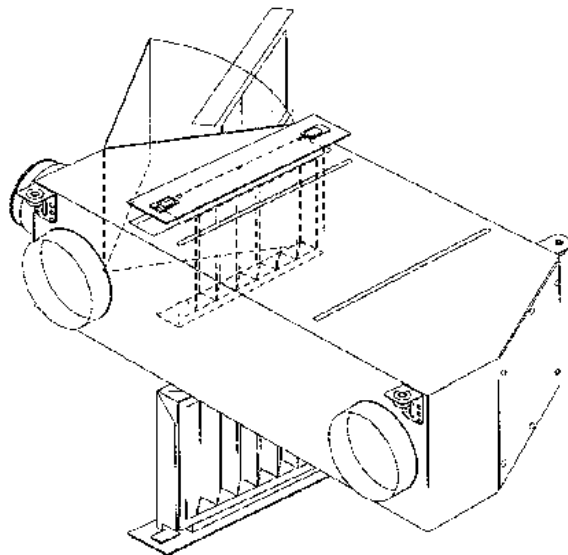
### ■ Filter and access

The Carrier Individual Comfort Module is equipped with a high-efficiency type F5 or F6 filter.

Fire protection rating for the medium is M1, metal frame.

The filter can be accessed via one of 3 sides of the 42BJ ICM LEC:

- Access from above: for use in a raised floor
- Access from below: for use in a suspended ceiling
- Side access: all uses



# TECHNICAL DESCRIPTION

## ■ Constant fresh air flow controller (optional)

The Individual Comfort Module can be equipped with a constant fresh air flow controller, for controlling the air intake and air change. Depending on the room occupancy, the constant fresh air flow controller may prove essential.

Range of fresh air flow controllers available:

8.3 l/s or 30 m³/h (-10%; + 20%)

16.6 l/s or 60 m³/h (-10%; + 20%)

The fresh air feed is located before the water coils. The collar retaining the controller is made from ABS, connection diameter:

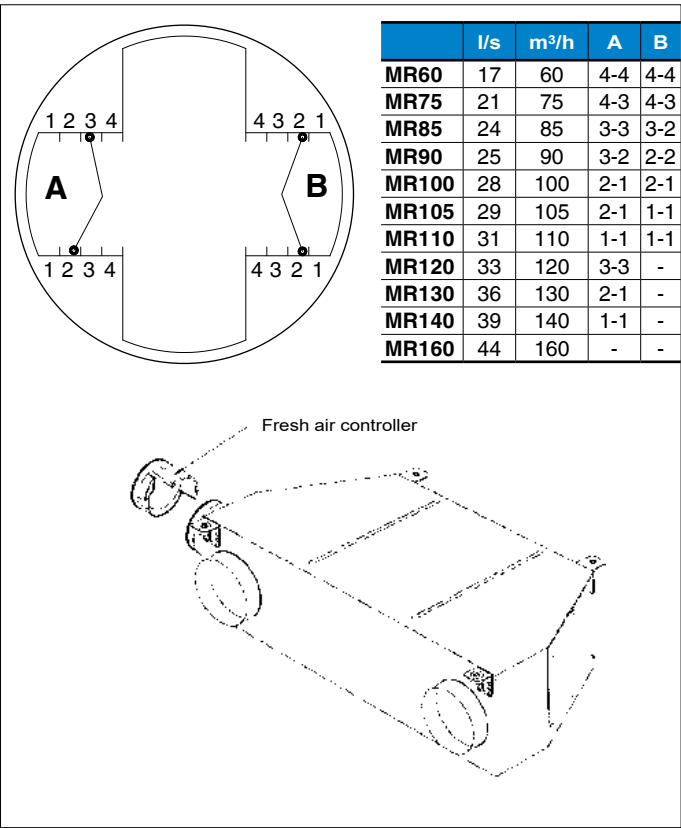
- 125 mm for 16.6 l/s (60 m³/h controller)
- 74 mm for 8.3 l/s (30 m³/h controller).

**Important:** if the 42BJ ICM LEC is equipped with a return air temperature sensor, the constant fresh air flow must not exceed 50% of the unit supply air flow rate at low speed.

**Note:** The 16.6 l/s (60 m³/h) fresh air controller can be modified on site by moving or removing two plastic restrictors to increase capacity up to a maximum constant fresh air flow of 44.4 l/s (160 m³/h).

A label affixed to the 42BJ explains how to adjust the setting of the two plastic restrictors.

**Note:** the 8.3 l/s (30 m³/h) constant fresh air flow controller requires a differential pressure of 50 Pa to 200 Pa to operate. The 16.6 l/s (60 m³/h) constant fresh air flow controller requires a differential pressure of 70 Pa to 200 Pa.



## OPTIONS

### Valves

#### ■ Valve actuators

A range of actuators is available with two- or four-way valve bodies (three-way with integral bypass) to offer the appropriate solution for any controller type and customer requirement, from on/off to proportional types, with 230 V power supply

- 230 V ON/OFF actuator
- Floating 3-point 230 V actuator

When combined with LEC motors and WTC or NTC controllers, floating 3-point 230-V actuators are recommended to increase energy savings and enhance comfort.

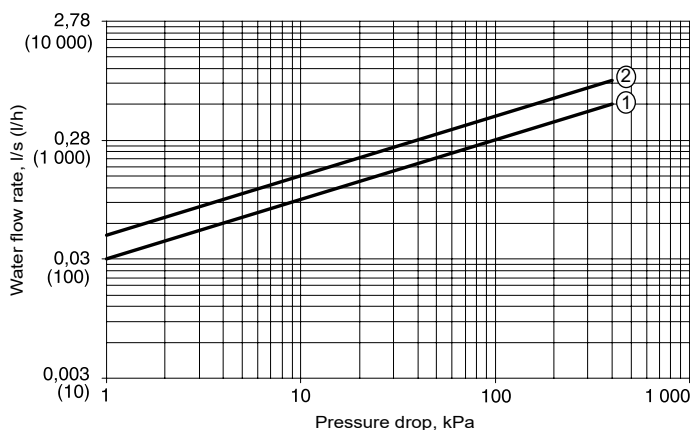
#### ■ 1/2" two-way valve body

- G1/2" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body.
- DN 15 for 1/2" valve
- Fluid: water and glycol solution (max. 40% glycol)
- Operating range: 2-90 °C
- Rated pressure: 1600 kPa (RP 16 bar)
- Kvs = 1.6

#### ■ Three-way 1/2" valve body (with integral bypass)

- G1/2" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body.
- DN 15 for 1/2" valve
- Fluid: water and glycol solution (max. 40% glycol)
- Operating range: 2-90 °C
- Rated pressure: 1600 kPa (RP 16 bar)
- Kvs = 1

### Valve pressure drop



1 Kvs = 1  
2 Kvs = 1.6

### Flexible connections

- Pipe: EPDM elastomer
- 304L stainless braid
- Connections: brass
- Insulation: cellular elastomer with M1 fire resistance rating, Ø18 mm
- thickness 9 mm, class 3 (in accordance with standard EN 12828).
- Maximum hot operating temperature 90 °C
- water mixture max. 40% ethylene glycol or propylene glycol
- Operating pressure: 1600 kPa (16 bar)
- Minimum curve radius: 106 mm
- 1/2" union nut connections
- Length: approx. 1 m

### Transducers and sensors

#### ■ Water temperature sensor

A water temperature sensor can be provided as an option for NTC and WTC controllers

- For 2-pipe coil: The sensor is installed on a hot/cold water pipe (for changeover function).
- For 4-pipe coil: The sensor is installed on a hot water pipe (for cold-draught function that prevents the operation of the unit when the hot water network is off).

#### ■ Air temperature sensors

Two air temperature sensors, factory fitted, are available as an option for NTC and WTC controllers. They measure the air temperature at the inlet and/or at the outlet side.

#### ■ CO<sub>2</sub> sensor

For indoor air quality control, a CO<sub>2</sub> sensor is available as an option for NTC and WTC controllers. The sensor is factory fitted at the inlet side.

## OPTIONS

### Accessories

There are many accessories available to facilitate installation of the 42BJ ICM LEC. Contact your local representative.

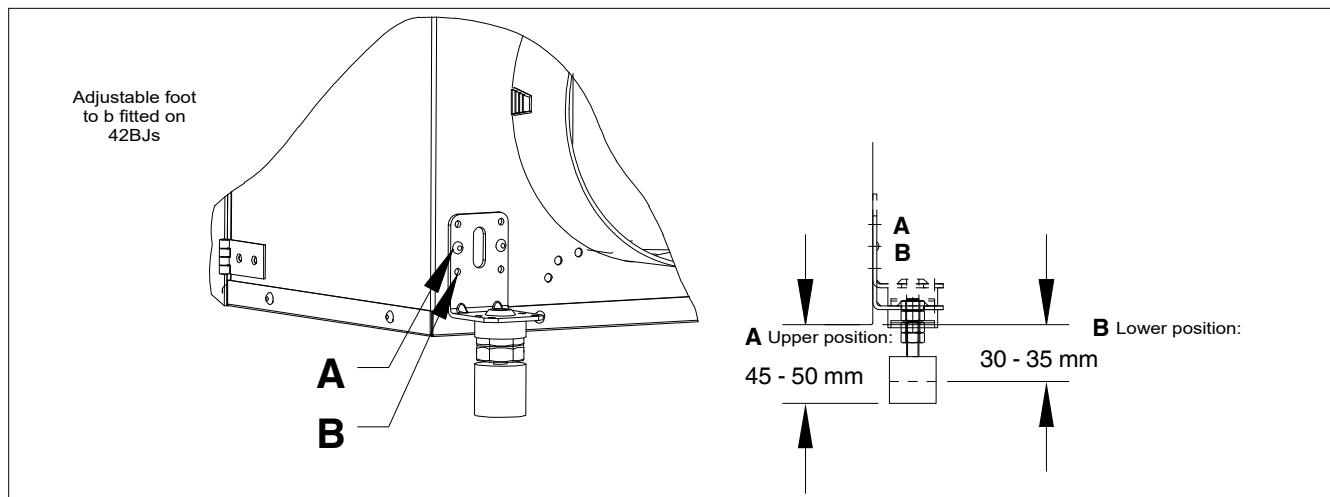
#### ■ Condensate drain pump

A condensate drain pump can be installed on 42BJ ICM LECs either before (ideally) or after the units are installed in suspended ceilings or raised floors.

#### ■ Adjustable feet for installation of the 42BJ ICM LEC in a raised floor: Allow for filter access from above or the side.

The 42BJ ICM LEC can be installed in a raised floor; anti-vibration adjustable feet are sold as accessories and designed to be installed on site. Contact your local representative.

### Fitting procedure





## CONTROL

The unit can be supplied with a wide range of Carrier controls. These controls offer functions to suit the various application requirements, summarised in the table below.

|  | Thermostats | NTC | WTC |
|--|-------------|-----|-----|
| <b>Communication Protocols</b>   |             |     |     |
| Carrier Communication Network (CCN) Aquasmart compatible   |             | x   |     |
| BACnet MSTP  |             |     | x   |
| LON  |             |     | x   |
| <b>Control algorithms</b>  |             |     |     |
| On-off   | x           |     |     |
| Proportional-integral  |             | x   | x   |
| Carrier Energy saving algorithm  |             | x   | x   |
| <b>Fan control</b>   |             |     |     |
| 3 fixed speeds for AC motors   | Type A&B    | x   | x   |
| Automatic optimum fan speed selection  | x           | x   | x   |
| 3 fixed speeds for EC motors   | Type C&D    | x   | x   |
| EC motors Variable speed   |             | x   | x   |
| <b>Water Valve management</b>  |             |     |     |
| Air flow control only (no water valve)   | x           |     |     |
| 230 V On-off actuators   | x           | x   | x   |
| 230 V Modulating actuators (floating 3pts)   |             | x   | x   |
| <b>Main functions</b>  |             |     |     |
| Setpoint control   | x           | x   | x   |
| Occupied/unoccupied mode   | x           | x   | x   |
| Frost protection mode  | x           | x   | x   |
| Window/Door switch input   | x           | x   | x   |
| Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)                     | Type A&C    | x   | x   |
| Measurement of water inlet temperature to prevent cold-draught (4 pipes and 2 pipes + electric heater) | Type B&D    | x   | x   |
| Manual changeover  | x           | x   | x   |
| Frost protection mode  | x           | x   | x   |
| Continuous ventilation within dead-band  | x           | x   | x   |
| Periodical ventilation within dead-band  | x           | x   | x   |
| On-site configuration  | x           | x   | x   |
| Unit grouping Master/Slave   | x           | x   | x   |
| Cassette Louvers control   |             | x   | x   |
| Supply air temperature monitoring limiting   |             | x   | x   |
| Electrical heater loadshed   |             | x   | x   |
| Dirty filter alarm   |             | x   | x   |
| Alarm reporting  |             | x   | x   |
| Indoor Air Quality control (CO <sub>2</sub> sensor)  |             | o   | o   |
| Demand-controlled ventilation (DCV) (0-10 V fresh air valve)   |             | o   | o   |
| Free cooling mode  |             |     | o   |
| Presence detection   |             |     | o   |
| <b>User interfaces</b>   |             |     |     |
| Automatic or manual fan speed control  | x           | x   | x   |
| Setpoint adjustment  | x           | x   | x   |
| Occupancy (eco) button   | x           | x   | o   |
| Digital display  |             | o   | o   |
| Remote control (infra-red)   |             | o   | o   |
| CO <sub>2</sub> sensor   |             | o   | o   |
| Luminosity sensor  |             |     | o   |
| Motion detection   |             |     | o   |
| Easy connection RJ45 jack (on wall mounted UI)   |             |     | x   |
| <b>Light &amp; Blinds management</b>   |             |     |     |
| Light power modules  |             |     | o   |
| Blinds power modules   |             |     | o   |
| <b>Control kit</b>   |             |     |     |
| On site control kit solution   |             |     | o   |

### Key

X Feature available as standard

O Optional

**NOTE:** Please refer to the technical documentation for the aforementioned Carrier controller for details of the applicable specifications and characteristics. Upon special request other controller types can be factory-installed on the units (supplied by Carrier or the customer).

## TECHNICAL AND ELECTRICAL CHARACTERISTICS

| 42BJ  |       | 1.9  |      |      | 2.9       |      |      | 4.9       |      |      |
|---|-------|--|------|------|-----------|------|------|-----------|------|------|
| Ventilation speeds <sup>(1)</sup>                           |       | L  | M    | H    | L         | M    | H    | L         | M    | H    |
| Voltage   | V     | 2  | 5    | 10   | 2         | 6    | 10   | 2         | 8    | 10   |
| Air flow  | l/s   | 40   | 113  | 189  | 52        | 160  | 223  | 69        | 231  | 244  |
|   | m³/h  | 144  | 405  | 680  | 187       | 576  | 804  | 250       | 831  | 880  |
| Available static pressure                                   | Pa    | 6  | 50   | 141  | 5         | 50   | 97   | 5         | 50   | 56   |
| Cooling mode <sup>(2)</sup>                                 |       |  |      |      |           |      |      |           |      |      |
| Total cooling capacity                                      | kW    | 1,06   | 2,46 | 3,43 | 1,37      | 3,88 | 5,09 | 2,09      | 5,23 | 5,41 |
| Sensible cooling capacity                                   | kW    | 0,77   | 1,88 | 2,7  | 0,96      | 2,84 | 3,77 | 1,45      | 3,81 | 3,95 |
| Water flow rate   | l/h   | 180  | 430  | 620  | 240       | 680  | 910  | 360       | 920  | 960  |
|   | l/s   | 0,05   | 0,12 | 0,17 | 0,07      | 0,19 | 0,25 | 0,10      | 0,26 | 0,27 |
| Water pressure drop   | kPa   | 4,3  | 17,3 | 31,6 | 4,4       | 25,8 | 42,1 | 11,9      | 60,9 | 65,2 |
| Heating mode, two pipes <sup>(3)</sup>                      |       |  |      |      |           |      |      |           |      |      |
| Heating capacity  | kW    | 1,04   | 2,46 | 3,55 | 1,33      | 3,93 | 5,27 | 1,97      | 5,54 | 5,79 |
| Water flow rate   | l/h   | 180  | 430  | 620  | 230       | 680  | 920  | 340       | 960  | 1010 |
|   | l/s   | 0,05   | 0,12 | 0,17 | 0,06      | 0,19 | 0,26 | 0,09      | 0,27 | 0,28 |
| Water pressure drop   | kPa   | 4,1  | 14,9 | 27,7 | 4,3       | 23   | 37,9 | 12,4      | 70,9 | 76,6 |
| Water capacity  | L     | 0,9  | 0,9  | 0,9  | 1,2       | 1,2  | 1,2  | 1,5       | 1,5  | 1,5  |
| Heating mode, four pipes <sup>(4)</sup>                     |       |  |      |      |           |      |      |           |      |      |
| Heating capacity  | kW    | 1,32   | 2,62 | 3,48 | 1,76      | 3,76 | 4,52 | 2,63      | 5,73 | 5,92 |
| Water flow rate   | l/h   | 120  | 230  | 300  | 150       | 330  | 400  | 230       | 500  | 520  |
|   | l/s   | 0,03   | 0,06 | 0,08 | 0,04      | 0,09 | 0,11 | 0,06      | 0,14 | 0,14 |
| Water pressure drop   | kPa   | 2,4  | 5,8  | 9    | 3,5       | 10,4 | 14,1 | 14,1      | 53,6 | 56,7 |
| Water capacity  | L     | 0,2  | 0,2  | 0,2  | 0,29      | 0,29 | 0,29 | 0,45      | 0,45 | 0,45 |
| Electric heater   |       | 1 ph - 50 Hz - 230 V                                 |      |      |           |      |      |           |      |      |
| Maximum capacity  | kW    | 0,5  | 1,9  | 2,23 | 0,75      | 2,12 | 2,25 | 1         | 2,25 | 2,25 |
| Maximum input current                                       | A     | 11   | 11   | 11   | 11        | 11   | 11   | 11        | 11   | 11   |
| Sound levels  |       |  |      |      |           |      |      |           |      |      |
| Lw (global): Global sound power level                       | dB(A) | 38   | 58   | 67   | 38        | 63   | 69   | 42        | 70   | 72   |
| Lw (inlet + radiated): Sound power level, return + radiated | dB(A) | 35   | 50   | 59   | 35        | 52   | 59   | 38        | 60   | 61   |
| Lw (outlet): Sound power level, supply air                  | dB(A) | 36   | 57   | 66   | 34        | 63   | 69   | 40        | 70   | 72   |
| Lp (global): Sound pressure level <sup>(5)</sup>            | dB(A) | 21   | 41   | 50   | 21        | 46   | 52   | 25        | 53   | 55   |
| NC value <sup>(5)</sup>                                     | dB(A) | 14   | 35   | 46   | 18        | 42   | 48   | 18        | 48   | 50   |
| NR value <sup>(5)</sup>                                     | dB(A) | 16   | 37   | 48   | 20        | 44   | 50   | 20        | 50   | 52   |
| Electrical data, motor                                      |       | 1 ph - 50 Hz - 230 V; low energy consumption EC type |      |      |           |      |      |           |      |      |
| Power input   | W     | 6  | 46   | 159  | 8         | 67   | 175  | 7         | 148  | 186  |
| F5 or F6 air filter   | mm    | 240 x 400  |      |      | 240 x 550 |      |      | 315 x 550 |      |      |
| Physical data   |       | 1/2" gas   |      |      | 1/2" gas  |      |      | 1/2" gas  |      |      |
| Heating and cooling coils connection diameter               | in    | 1/2" gas   |      |      | 1/2" gas  |      |      | 1/2" gas  |      |      |
| Connection collar diameter                                  | mm    | 200  |      |      | 200       |      |      | 250       |      |      |
| Height (standard)   | mm    | 270  |      |      | 270       |      |      | 345       |      |      |
| Width (standard)  | mm    | 665  |      |      | 815       |      |      | 815       |      |      |
| Length (standard)   | mm    | 900  |      |      | 1100      |      |      | 1100      |      |      |
| Unit weight (standard)                                      | kg    | 31   |      |      | 40        |      |      | 50        |      |      |

(1) Fan speed: L = Low, M = Medium, H = High

(2) Conditions: Air inlet temperature 27 °C/47% RH, water inlet temperature 7 °C, water temperature difference 5 K.

(3) Conditions: Air inlet temperature 20 °C/% RH, water inlet temperature 45 °C, water temperature difference 5 K.

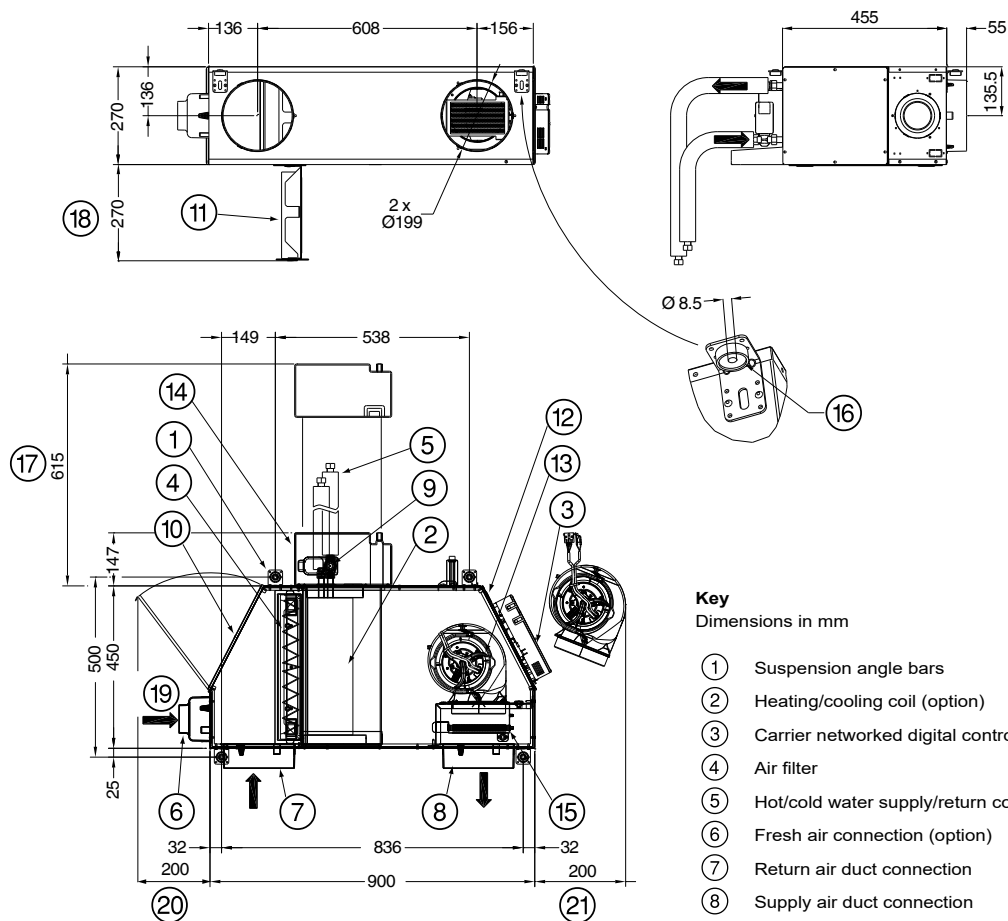
(4) Conditions: Air inlet temperature 20 °C/% RH, water inlet temperature 65 °C, water temperature difference 10 K.

(5) Based on hypothetical noise attenuation of the room and the system of -17 dB(A).

## DIMENSIONS AND CLEARANCE

## 42BJ ICM LEC 1.9

Servo on left

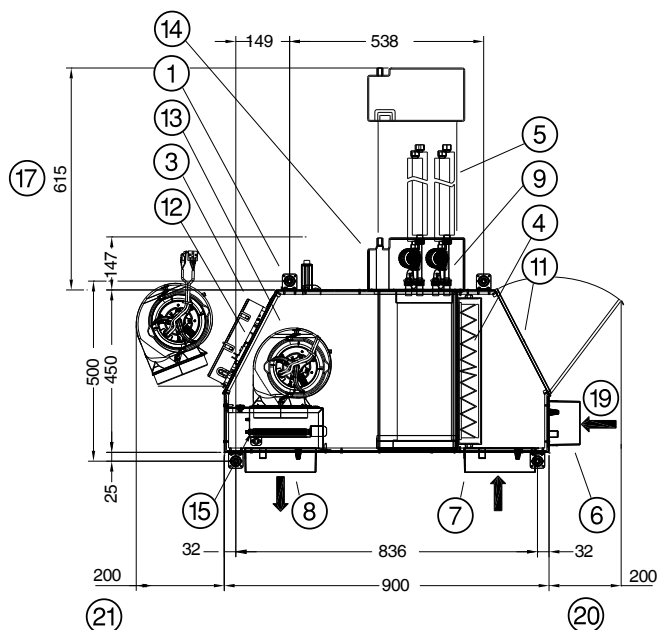


## Key

Dimensions in mm

- ① Suspension angle bars
- ② Heating/cooling coil (option)
- ③ Carrier networked digital control
- ④ Air filter
- ⑤ Hot/cold water supply/return connection
- ⑥ Fresh air connection (option)
- ⑦ Return air duct connection
- ⑧ Supply air duct connection
- ⑨ Water flow control valves (option)
- ⑩ Side filter access door
- ⑪ Motor access door
- ⑫ LEC fan motor assembly
- ⑬ Condensate drain pan
- ⑭ Electric heater (option)
- ⑮ Electric heater
- ⑯ Rubber damper
- ⑰ Coil-pan assembly free space
- ⑱ Free space for filter access via base (option)
- ⑲ Fresh air (option)
- ⑳ Side filter access free space
- ㉑ Fan free space

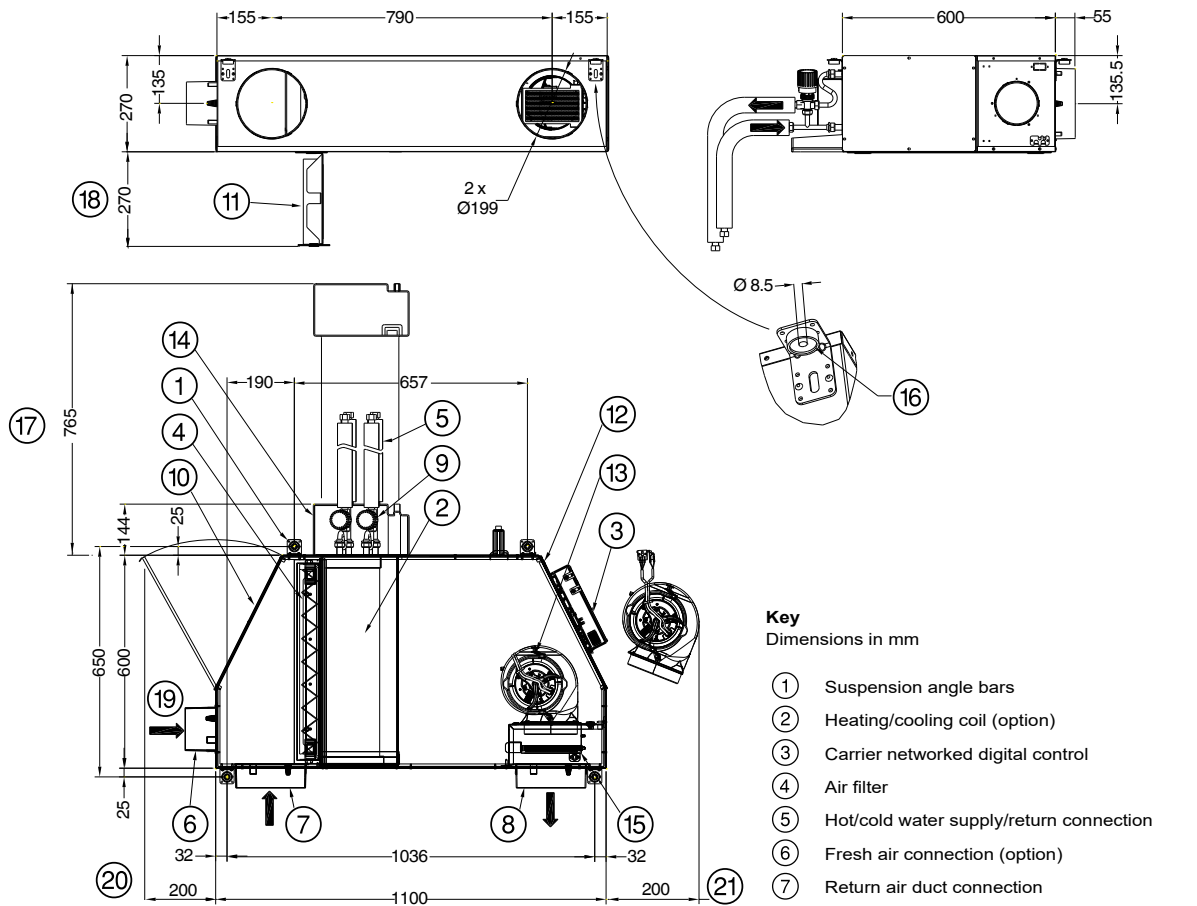
Servo on right



## DIMENSIONS AND CLEARANCE

### 42BJ ICM LEC 2.9

#### Servo on left

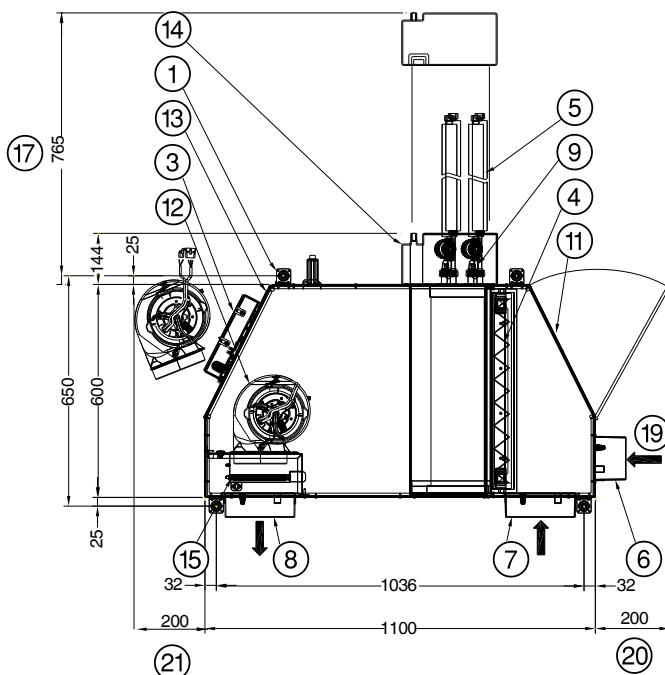


#### Key

Dimensions in mm

- ① Suspension angle bars
- ② Heating/cooling coil (option)
- ③ Carrier networked digital control
- ④ Air filter
- ⑤ Hot/cold water supply/return connection
- ⑥ Fresh air connection (option)
- ⑦ Return air duct connection
- ⑧ Supply air duct connection
- ⑨ Water flow control valves (option)
- ⑩ Side filter access door
- ⑪ Motor access door
- ⑫ LEC fan motor assembly
- ⑬ Condensate drain pan
- ⑭ Electric heater (option)
- ⑮ Electric heater
- ⑯ Rubber damper
- ⑰ Coil-pan assembly free space
- ⑱ Free space for filter access via base (option)
- ⑲ Fresh air (option)
- ⑳ Side filter access free space
- ㉑ Fan free space

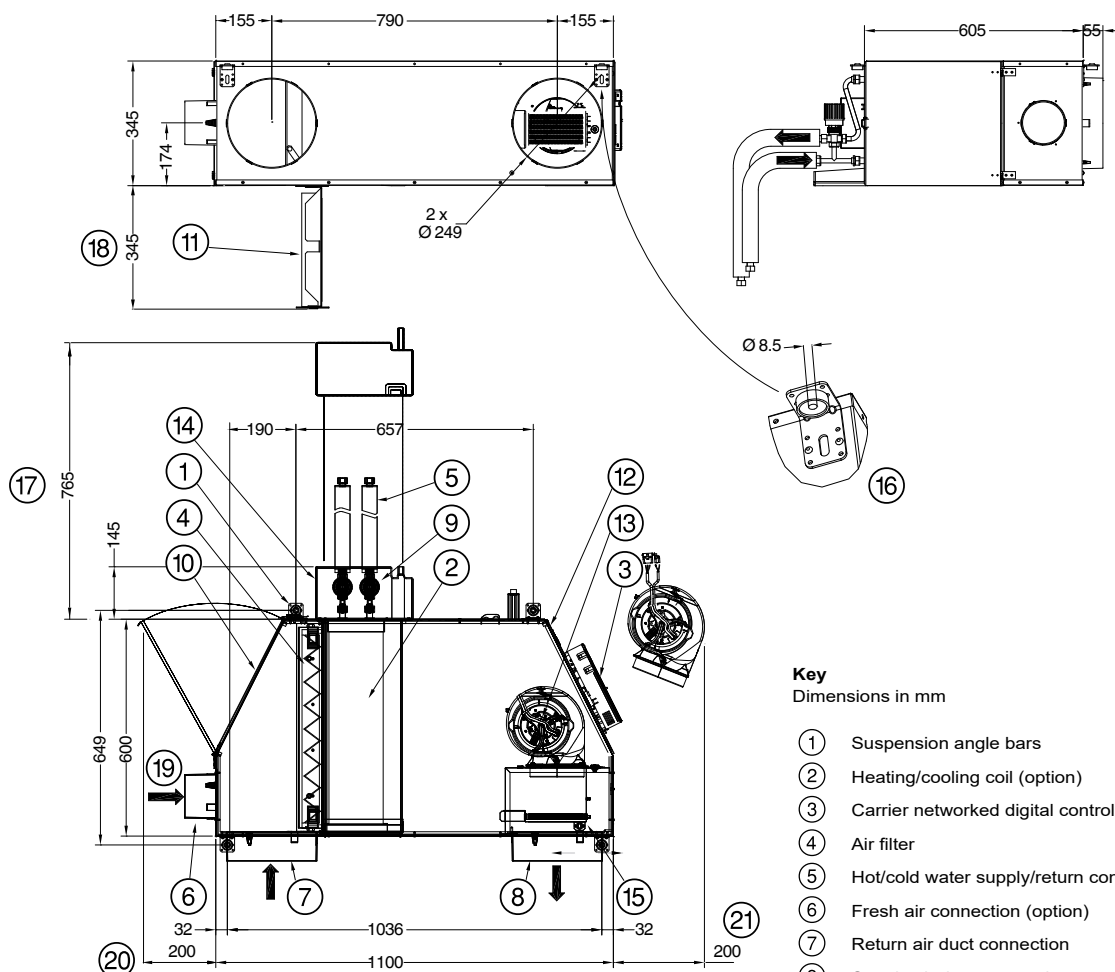
#### Servo on right



## DIMENSIONS AND CLEARANCE

## 42BJ ICM LEC 4.9

## Servo on left

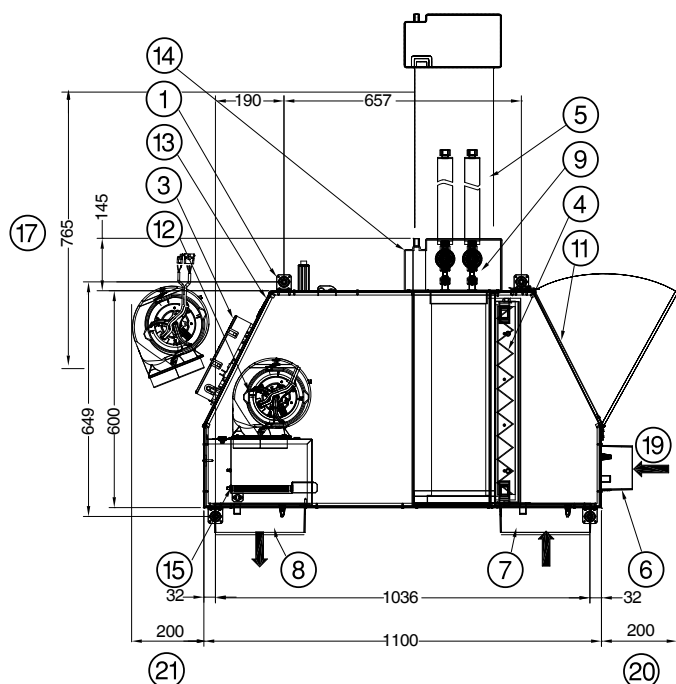


## Key

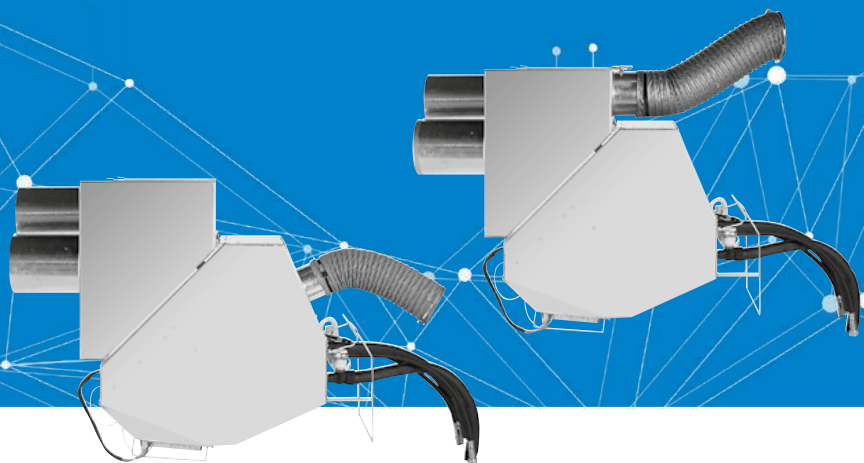
Dimensions in mm

- ① Suspension angle bars
- ② Heating/cooling coil (option)
- ③ Carrier networked digital control
- ④ Air filter
- ⑤ Hot/cold water supply/return connection
- ⑥ Fresh air connection (option)
- ⑦ Return air duct connection
- ⑧ Supply air duct connection
- ⑨ Water flow control valves (option)
- ⑩ Side filter access door
- ⑪ Motor access door
- ⑫ LEC fan motor assembly
- ⑬ Condensate drain pan
- ⑭ Electric heater (option)
- ⑮ Electric heater
- ⑯ Rubber damper
- ⑰ Coil-pan assembly free space
- ⑱ Free space for filter access via base (option)
- ⑲ Fresh air (option)
- ⑳ Side filter access free space
- ㉑ Fan free space

## Servo on right



## AIR TREATMENT MODULES



# 42GR



Two sizes with two-pipe plus electric heater or four-pipe coils, with an air flow range from 103 to 109 l/s, a cooling capacity of 3.1 kW and a heating capacity range from 2.9 to 3.5 kW.

Decentralised compact ducted chilled-water fan coil system, designed for installation in plant rooms. This allows centralised service and maintenance.

Reliable and efficient heating and cooling for office blocks and institutional buildings.

The LEC (low energy consumption) fan motor assembly is available as standard. This direct-drive motor is electronically commutated (EC motor), controlled by a 0–10 V signal and allows precise, simple and quiet unit operation in a wide range of rotational speeds in variation from the original speed.



## PHYSICAL DATA

| 42GR  |                   | 1.9   |          |          | 2.9       |          |          |
|---|-------------------|---|----------|----------|-----------|----------|----------|
| <b>Fan speed *</b>                              |                   | <b>L</b>  | <b>M</b> | <b>H</b> | <b>L</b>  | <b>M</b> | <b>H</b> |
| <b>Variable Speed</b>                           | V                 | 4   | 6        | 10       | 4         | 6        | 10       |
| Air Flow Rate                                   | l/s               | 44  | 70       | 100      | 52        | 88       | 123      |
|   | m <sup>3</sup> /h | 160   | 250      | 360      | 187       | 316      | 441      |
| External Static Pressure                        | Pa                | 64  | 151      | 310      | 57        | 164      | 320      |
| <b>Cooling Mode **</b>                          |                   |   |          |          |           |          |          |
| Total cooling capacity                          | kW                | 1,32  | 1,86     | 2,36     | 1,67      | 2,65     | 3,44     |
| Sensible cooling capacity                       | kW                | 0,92  | 1,33     | 1,72     | 1,13      | 1,81     | 2,37     |
| Water flow rate                                 | l/h               | 230   | 330      | 430,0    | 290       | 460      | 610      |
|   | l/s               |   |          |          |           |          |          |
| Water pressure drop                             | kPa               | 7   | 12,9     | 19,9     | 4         | 8,5      | 13,4     |
| <b>Two-pipe heating Mode ***</b>                |                   |   |          |          |           |          |          |
| Heating capacity                                | kW                | 1,32  | 1,95     | 2,65     | 1,49      | 2,39     | 3,16     |
| Water flow rate                                 | l/h               | 230   | 340      | 460      | 260       | 420      | 550      |
|   | l/s               |   |          |          |           |          |          |
| Water pressure drop                             | kPa               | 6,6   | 12,2     | 20,3     | 3,7       | 7,2      | 11,1     |
| Water content                                   | l                 | 0,83  |          |          | 1,5       |          |          |
| <b>Four-pipe heating Mode ****</b>              |                   |   |          |          |           |          |          |
| Heating capacity                                | kW                | 1,44  | 1,92     | 2,39     | 1,86      | 2,76     | 3,45     |
| Water flow rate                                 | l/h               | 130   | 170      | 210      | 160       | 240      | 300      |
|   | l/s               |   |          |          |           |          |          |
| Water pressure drop                             | kPa               | 2,5   | 3,6      | 4,7      | 4,4       | 7,8      | 11,2     |
| Water content                                   | l                 | 0,17  |          |          |           |          |          |
| <b>Electrical heater</b>                        |                   | 1 ph - 50 Hz - 230 V                                  |          |          |           |          |          |
| Maximum capacity                                | kW                | 1,7   |          |          | 1,8       |          |          |
| Maximum current drawn                           | A                 | 11  |          |          | 11        |          |          |
| <b>Sounds levels</b>                            |                   |   |          |          |           |          |          |
| Lw (global): Sound power level                  | dB(A)             | 45  | 57       | 65       | 51        | 60       | 66       |
| Lw (inlet + radiated): Sound power level        | dB(A)             | 41  | 50       | 59       | 49        | 58       | 64       |
| Lw (outlet): Sound power level                  | dB(A)             | 43  | 56       | 64       | 46        | 55       | 61       |
| Lp (global): Sound pressure level ‡             | dB(A)             | 28  | 40       | 48       | 34        | 43       | 49       |
| NC level ‡                                      | dB(A)             | 24  | 36       | 44       | 29        | 36       | 43       |
| NR level ‡                                      | dB(A)             | 26  | 38       | 46       | 31        | 38       | 45       |
| <b>Electrical data, motor</b>                   |                   | 1 ph - 50 Hz - 230 V ; type EC low energy consumption |          |          |           |          |          |
| Power input                                     | W                 | 15  | 42       | 113      | 16        | 56       | 137      |
| <b>Air filter F5 or F6</b>                      | mm                | 225 x 350   |          |          | 395 x 350 |          |          |
| <b>Physical data</b>                            |                   |   |          |          |           |          |          |
| Connection diameter, chilled and hot-water coil | in                | 1/2" gaz  |          |          | 1/2" gaz  |          |          |
| Length (standard)                               | mm                | 960   |          |          | 960       |          |          |
| Height (standard)                               | mm                | 962   |          |          | 962       |          |          |
| Depth (standard)                                | mm                | 250   |          |          | 420       |          |          |
| Unit weight (standard)                          | kg                | 35  |          |          | 50        |          |          |

\* Fan speed: L= Low, M: Medium, H=High

\*\* Cooling mode: Entering air temperature 27°C/47% rh, entering/leaving water temperature 7°C/12°C

\*\*\* Heating mode (2 pipe): Entering air temperature 20°C, entering/leaving water temperature 45°C/40°C.

\*\*\*\* Heating mode (4 pipe)s: Entering air temperature 20°C, entering/leaving water temperature 65°C/55°C

‡ Based on an hypothetical attenuation for the room and the air distribution system of -17dB(A)

## COOLING CAPACITIES, KW

## 42GR19

| Water temperatures (°C)<br>Inlet - Outlet |     | Relative Humidity 50 %              |      |      |          |      |      |          |      |      |          |      |      |           |      |      |
|---|-----|-------------------------------------|------|------|----------|------|------|----------|------|------|----------|------|------|-----------|------|------|
|   |     | Air flow rate l/s (m³/h)            |      |      |          |      |      |          |      |      |          |      |      |           |      |      |
|   |     | 28 (100)                            |      |      | 56 (200) |      |      | 83 (300) |      |      | 97 (350) |      |      | 111 (400) |      |      |
|   |     | Dry bulb Air Temperature inlet (°C) |      |      |          |      |      |          |      |      |          |      |      |           |      |      |
|   |     | 27                                  | 25   | 23   | 27       | 25   | 23   | 27       | 25   | 23   | 27       | 25   | 23   | 27        | 25   | 23   |
| 6 - 12                                    | TC  | 0.94                                | 0.78 | 0.64 | 1.70     | 1.40 | 1.10 | 2.32     | 1.91 | 1.51 | 2.60     | 2.13 | 1.69 | 2.85      | 2.34 | 1.86 |
|   | SHC | 0.61                                | 0.55 | 0.49 | 1.14     | 1.01 | 0.89 | 1.60     | 1.42 | 1.26 | 1.81     | 1.61 | 1.43 | 2.01      | 1.79 | 1.59 |
|   | TSA | 8.7                                 | 8.7  | 8.5  | 9.9      | 9.9  | 9.8  | 11.0     | 10.8 | 10.5 | 11.4     | 11.2 | 10.8 | 11.9      | 11.6 | 11.2 |
|   | DE  | 134                                 | 112  | 91   | 243      | 200  | 157  | 332      | 273  | 216  | 371      | 305  | 242  | 407       | 335  | 266  |
| 7 - 12                                    | TC  | 0.91                                | 0.75 | 0.60 | 1.66     | 1.36 | 1.07 | 2.27     | 1.87 | 1.47 | 2.54     | 2.09 | 1.65 | 2.78      | 2.29 | 1.82 |
|   | SHC | 0.60                                | 0.53 | 0.47 | 1.12     | 1.00 | 0.88 | 1.58     | 1.41 | 1.24 | 1.79     | 1.59 | 1.41 | 1.98      | 1.77 | 1.57 |
|   | TSA | 9.1                                 | 9.1  | 9.1  | 10.2     | 10.1 | 10.0 | 11.2     | 11.0 | 10.7 | 11.7     | 11.4 | 11.0 | 12.1      | 11.8 | 11.3 |
|   | DE  | 156                                 | 129  | 102  | 284      | 234  | 183  | 390      | 322  | 252  | 436      | 360  | 283  | 478       | 394  | 312  |
| 8 - 13                                    | TC  | 0.83                                | 0.67 | 0.53 | 1.51     | 1.22 | 0.94 | 2.08     | 1.67 | 1.30 | 2.32     | 1.88 | 1.46 | 2.54      | 2.07 | 1.62 |
|   | SHC | 0.56                                | 0.50 | 0.44 | 1.06     | 0.93 | 0.82 | 1.50     | 1.32 | 1.16 | 1.69     | 1.50 | 1.33 | 1.88      | 1.67 | 1.48 |
|   | TSA | 10.1                                | 10.2 | 9.9  | 11.1     | 11.1 | 10.8 | 12.0     | 11.8 | 11.4 | 12.5     | 12.2 | 11.7 | 12.9      | 12.5 | 12.0 |
|   | DE  | 143.3                               | 116  | 92   | 260      | 209  | 161  | 357      | 288  | 223  | 398      | 322  | 252  | 436       | 356  | 279  |
| 10 - 15                                   | TC  | 0.67                                | 0.54 | 0.42 | 1.21     | 0.95 | 0.73 | 1.67     | 1.31 | 1.03 | 1.87     | 1.48 | 1.17 | 2.06      | 1.64 | 1.30 |
|   | SHC | 0.49                                | 0.44 | 0.39 | 0.93     | 0.82 | 0.72 | 1.32     | 1.16 | 1.02 | 1.51     | 1.32 | 1.16 | 1.68      | 1.48 | 1.29 |
|   | TSA | 12.2                                | 12.0 | 11.4 | 13.0     | 12.8 | 12.3 | 13.7     | 13.4 | 12.8 | 14.0     | 13.6 | 13.1 | 14.3      | 13.9 | 13.3 |
|   | DE  | 115                                 | 92   | 71   | 208      | 163  | 126  | 287      | 226  | 178  | 322      | 254  | 201  | 354       | 282  | 224  |

## 42GR29

| Water temperatures<br>(°C)<br>Inlet - Outlet |     | Relative Humidity 50 %              |      |      |          |      |      |          |      |      |           |      |      |           |      |      |           |      |      |
|--|-----|-------------------------------------|------|------|----------|------|------|----------|------|------|-----------|------|------|-----------|------|------|-----------|------|------|
|  |     | Air flow rate l/s (m³/h)            |      |      |          |      |      |          |      |      |           |      |      |           |      |      |           |      |      |
|  |     | 28 (100)                            |      |      | 56 (200) |      |      | 83 (300) |      |      | 111 (400) |      |      | 139 (500) |      |      | 167 (600) |      |      |
|  |     | Dry bulb Air Temperature inlet (°C) |      |      |          |      |      |          |      |      |           |      |      |           |      |      |           |      |      |
|  |     | 27                                  | 25   | 23   | 27       | 25   | 23   | 27       | 25   | 23   | 27        | 25   | 23   | 27        | 25   | 23   | 27        | 25   | 23   |
| 6 - 12                                       | TC  | 1.03                                | 0.88 | 0.72 | 1.95     | 1.64 | 1.30 | 2.81     | 2.34 | 1.86 | 3.58      | 2.98 | 2.37 | 4.28      | 3.57 | 2.84 | 4.91      | 4.10 | 3.28 |
|  | SHC | 0.65                                | 0.59 | 0.53 | 1.26     | 1.12 | 0.99 | 1.83     | 1.63 | 1.44 | 2.36      | 2.11 | 1.86 | 2.86      | 2.56 | 2.26 | 3.32      | 2.98 | 2.65 |
|  | TSA | 7.1                                 | 7.2  | 7.3  | 7.9      | 8.1  | 8.2  | 8.5      | 8.7  | 8.7  | 9.1       | 9.1  | 9.1  | 9.7       | 9.6  | 9.5  | 10.2      | 10.1 | 9.8  |
|  | DE  | 147                                 | 126  | 103  | 279      | 234  | 186  | 401      | 335  | 266  | 513       | 427  | 339  | 612       | 510  | 406  | 702       | 587  | 469  |
| 7 - 12                                       | TC  | 0.98                                | 0.83 | 0.67 | 1.88     | 1.57 | 1.24 | 2.71     | 2.25 | 1.78 | 3.46      | 2.88 | 2.27 | 4.14      | 3.44 | 2.72 | 4.76      | 3.96 | 3.15 |
|  | SHC | 0.63                                | 0.57 | 0.50 | 1.22     | 1.09 | 0.96 | 1.78     | 1.59 | 1.40 | 2.31      | 2.06 | 1.82 | 2.80      | 2.50 | 2.21 | 3.26      | 2.91 | 2.59 |
|  | TSA | 7.9                                 | 8.0  | 8.0  | 8.4      | 8.6  | 8.7  | 9.0      | 9.1  | 9.1  | 9.5       | 9.5  | 9.4  | 10.0      | 10.0 | 9.8  | 10.6      | 10.4 | 10.1 |
|  | DE  | 168                                 | 142  | 115  | 323      | 269  | 213  | 466      | 387  | 305  | 595       | 494  | 390  | 711       | 591  | 468  | 818       | 679  | 541  |
| 8 - 13                                       | TC  | 0.90                                | 0.76 | 0.60 | 1.73     | 1.41 | 1.09 | 2.48     | 2.03 | 1.57 | 3.17      | 2.59 | 2.00 | 3.78      | 3.11 | 2.41 | 4.34      | 3.57 | 2.78 |
|  | SHC | 0.60                                | 0.53 | 0.47 | 1.15     | 1.02 | 0.89 | 1.68     | 1.49 | 1.30 | 2.18      | 1.93 | 1.69 | 2.64      | 2.35 | 2.07 | 3.08      | 2.74 | 2.42 |
|  | TSA | 9.0                                 | 9.0  | 9.0  | 9.5      | 9.7  | 9.7  | 10.0     | 10.1 | 10.0 | 10.5      | 10.5 | 10.3 | 11.0      | 10.9 | 10.7 | 11.5      | 11.2 | 11.0 |
|  | DE  | 155.4                               | 130  | 103  | 297      | 243  | 188  | 427      | 349  | 269  | 544       | 445  | 344  | 650       | 534  | 413  | 747       | 613  | 477  |
| 10 - 15                                      | TC  | 0.75                                | 0.60 | 0.46 | 1.41     | 1.11 | 0.84 | 2.02     | 1.59 | 1.20 | 2.57      | 2.02 | 1.54 | 3.08      | 2.43 | 1.87 | 3.54      | 2.80 | 2.18 |
|  | SHC | 0.53                                | 0.46 | 0.41 | 1.01     | 0.89 | 0.78 | 1.48     | 1.30 | 1.14 | 1.93      | 1.69 | 1.48 | 2.34      | 2.06 | 1.81 | 2.74      | 2.41 | 2.13 |
|  | TSA | 11.0                                | 11.0 | 10.8 | 11.6     | 11.7 | 11.4 | 12.0     | 12.0 | 11.7 | 12.4      | 12.3 | 11.9 | 12.8      | 12.6 | 12.2 | 13.2      | 12.9 | 12.4 |
|  | DE  | 129                                 | 104  | 79   | 242      | 190  | 144  | 347      | 273  | 206  | 443       | 348  | 266  | 530       | 418  | 322  | 609       | 482  | 375  |

## Legend:

TC - Total cooling capacity, kW

SHC - Sensible heat capacity, kW

TSA - Air discharge temperature, °C

WF - Water flow, l/s

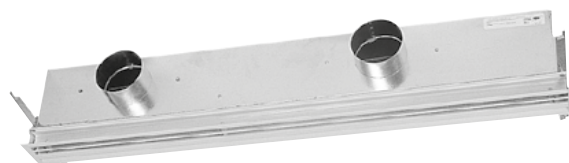
## OPTIONS/ACCESSORIES

- Custom-made product on request

## FEATURES AND ADVANTAGES

- Two sizes with two-pipe plus electric heater or four-pipe coils, with an air flow range from 103 to 109 l/s, a cooling capacity of 3.1 kW and a heating capacity range from 2.9 to 3.5 kW.
- Decentralised compact ducted chilled-water fan coil system, designed for installation in plant rooms. This allows centralised service and maintenance.
- Reliable and efficient heating and cooling for office blocks and institutional buildings.
- High efficiency EU6 filter.
- Extremely low sound level.
- The LEC (low energy consumption) fan motor assembly is available as standard. This direct-drive motor is electronically commutated (EC motor), controlled by a 0–10 V signal and allows precise, simple and quiet unit operation in a wide range of rotational speeds in variation from the original speed.
- High-pressure centrifugal fans, compatible with air diffusion systems up to 300 Pa.
- Compatible with the 35BD air diffuser range.
- Safe factory-installed electric heater for single or two-stage hot water heating.
- Available with demand control ventilation (DCV) and CO<sub>2</sub> sensor.
- Can be equipped with a UV-PCO IAQ module.
- Low hydraulic pressure drop with a valve mounted, compatible with all chiller pump kits.
- Quick installation with factory-installed options (controls, valves).
- Available with NTC controller (Aquasmart Evolution) or WTC controller (LON or BACNET)

### 35BD linear diffuser (supply and return air)



## ELECTRICAL DATA

### 42GR19

| Control (Volts) | I (A) | Cos  | Puis. (W) | Qv (m³/h) | Qv (l/s) | P (Pa) |
|-----------------|-------|------|-----------|-----------|----------|--------|
| 10V             | 0.90  | 0.54 | 112       | 492       | 137      | 2      |
|                 | 0.90  | 0.54 | 112       | 447       | 124      | 106    |
|                 | 0.91  | 0.53 | 112       | 397       | 110      | 232    |
|                 | 0.90  | 0.53 | 111       | 351       | 97       | 327    |
|                 | 0.91  | 0.53 | 112       | 303       | 84       | 418    |
|                 | 0.90  | 0.54 | 112       | 254       | 71       | 497    |
|                 | 0.80  | 0.53 | 98        | 197       | 55       | 560    |
| 9V              | 0.90  | 0.54 | 112       | 489       | 136      | 3      |
|                 | 0.90  | 0.54 | 111       | 448       | 125      | 98     |
|                 | 0.90  | 0.54 | 112       | 399       | 111      | 224    |
|                 | 0.92  | 0.53 | 112       | 349       | 97       | 330    |
|                 | 0.85  | 0.53 | 103       | 301       | 84       | 387    |
|                 | 0.78  | 0.52 | 93        | 249       | 69       | 413    |
|                 | 0.70  | 0.51 | 82        | 201       | 56       | 449    |
| 8V              | 0.61  | 0.50 | 71        | 154       | 43       | 485    |
|                 | 0.92  | 0.53 | 112       | 489       | 136      | 2      |
|                 | 0.92  | 0.53 | 111       | 449       | 125      | 93     |
|                 | 0.84  | 0.52 | 101       | 397       | 110      | 184    |
|                 | 0.77  | 0.51 | 91        | 349       | 97       | 239    |

| Control (Volts) | I (A) | Cos  | Puis. (W) | Qv (m³/h) | Qv (l/s) | P (Pa) |
|-----------------|-------|------|-----------|-----------|----------|--------|
| 8V              | 0.70  | 0.51 | 81        | 301       | 83       | 285    |
|                 | 0.63  | 0.50 | 72        | 249       | 69       | 319    |
|                 | 0.57  | 0.49 | 63        | 198       | 55       | 345    |
|                 | 0.50  | 0.48 | 55        | 152       | 42       | 374    |
| 7V              | 0.75  | 0.51 | 88        | 450       | 125      | 1      |
|                 | 0.68  | 0.50 | 80        | 399       | 111      | 78     |
|                 | 0.62  | 0.49 | 70        | 350       | 97       | 141    |
|                 | 0.56  | 0.49 | 62        | 301       | 84       | 188    |
|                 | 0.49  | 0.48 | 54        | 249       | 69       | 227    |
|                 | 0.43  | 0.47 | 48        | 198       | 55       | 251    |
|                 | 0.38  | 0.47 | 41        | 154       | 43       | 276    |
| 6V              | 0.34  | 0.46 | 36        | 110       | 31       | 298    |
|                 | 0.48  | 0.55 | 60        | 390       | 108      | 6      |
|                 | 0.44  | 0.54 | 55        | 350       | 97       | 59     |
|                 | 0.39  | 0.54 | 48        | 300       | 83       | 112    |
| 5V              | 0.34  | 0.54 | 42        | 249       | 69       | 157    |
|                 | 0.30  | 0.53 | 36        | 202       | 56       | 181    |
|                 | 0.25  | 0.52 | 30        | 151       | 42       | 194    |
|                 | 0.22  | 0.52 | 26        | 101       | 28       | 221    |
|                 | 0.30  | 0.53 | 37        | 324       | 90       | 2      |
|                 | 0.29  | 0.52 | 35        | 302       | 84       | 28     |
|                 | 0.25  | 0.51 | 29        | 249       | 69       | 74     |

legend:

V - Fan motor control voltage supply

## ELECTRICAL DATA

## 42GR19

| Control<br>(Volts) | I<br>(A) | Cos  | Puis.<br>(W) | Qv     | Qv    | P<br>(Pa) |
|--------------------|----------|------|--------------|--------|-------|-----------|
|                    |          |      |              | (m³/h) | (l/s) |           |
| 5V                 | 0.22     | 0.50 | 25           | 201    | 56    | 103       |
|                    | 0.19     | 0.48 | 21           | 142    | 39    | 123       |
|                    | 0.17     | 0.45 | 18           | 102    | 28    | 143       |
| 4V                 | 0.18     | 0.51 | 21           | 256    | 71    | 3         |
|                    | 0.15     | 0.50 | 17           | 199    | 55    | 46        |
|                    | 0.13     | 0.49 | 15           | 149    | 41    | 72        |
|                    | 0.11     | 0.48 | 13           | 104    | 29    | 82        |
|                    | 0.10     | 0.48 | 11           | 66     | 18    | 98        |

legend:

V - Fan motor control voltage supply

## 42GR29

| Control<br>(Volts) | I<br>(A) | Cos  | Puis.<br>(W) | Qv<br>(m³/h) | Qv<br>(l/s) | P<br>(Pa) |
|--------------------|----------|------|--------------|--------------|-------------|-----------|
| 10V                | 1.44     | 0.55 | 179          | 806          | 224         | 2         |
|                    | 1.39     | 0.55 | 172          | 763          | 212         | 52        |
|                    | 1.37     | 0.53 | 165          | 728          | 202         | 94        |
|                    | 1.34     | 0.54 | 162          | 695          | 193         | 126       |
|                    | 1.31     | 0.52 | 159          | 590          | 164         | 224       |
|                    | 1.29     | 0.51 | 150          | 527          | 147         | 271       |
|                    | 1.21     | 0.53 | 146          | 497          | 138         | 290       |
|                    | 1.15     | 0.54 | 141          | 459          | 128         | 305       |
|                    | 1.02     | 0.54 | 128          | 374          | 104         | 352       |
|                    | 0.96     | 0.52 | 113          | 320          | 89          | 369       |
|                    | 0.78     | 0.52 | 94           | 183          | 51          | 406       |
| 9V                 | 1.24     | 0.51 | 150          | 754          | 209         | 4         |
|                    | 1.24     | 0.52 | 148          | 716          | 199         | 47        |
|                    | 1.18     | 0.55 | 147          | 676          | 188         | 92        |
|                    | 1.07     | 0.53 | 140          | 621          | 173         | 151       |
|                    | 1.17     | 0.56 | 136          | 562          | 156         | 200       |
|                    | 1.05     | 0.54 | 127          | 511          | 142         | 239       |
|                    | 1.02     | 0.55 | 123          | 436          | 121         | 278       |
|                    | 0.86     | 0.54 | 108          | 373          | 104         | 307       |
|                    | 0.74     | 0.52 | 89           | 260          | 72          | 335       |
|                    | 0.68     | 0.52 | 82           | 186          | 52          | 350       |
| 8V                 | 0.81     | 0.53 | 101          | 658          | 183         | 0         |
|                    | 0.81     | 0.53 | 101          | 605          | 168         | 62        |
|                    | 0.85     | 0.52 | 101          | 557          | 155         | 108       |
|                    | 0.86     | 0.54 | 105          | 506          | 140         | 153       |
|                    | 0.82     | 0.56 | 99           | 454          | 126         | 184       |
|                    | 0.73     | 0.54 | 90           | 404          | 112         | 209       |
|                    | 0.67     | 0.50 | 81           | 350          | 97          | 236       |
|                    | 0.60     | 0.52 | 69           | 302          | 84          | 249       |
|                    | 0.56     | 0.49 | 64           | 253          | 70          | 257       |
|                    | 0.48     | 0.56 | 56           | 158          | 44          | 273       |
|                    | 0.57     | 0.52 | 69           | 563          | 156         | 0         |
| 7V                 | 0.56     | 0.55 | 69           | 517          | 144         | 48        |
|                    | 0.55     | 0.52 | 67           | 478          | 133         | 71        |
|                    | 0.57     | 0.49 | 71           | 431          | 120         | 115       |

legend:

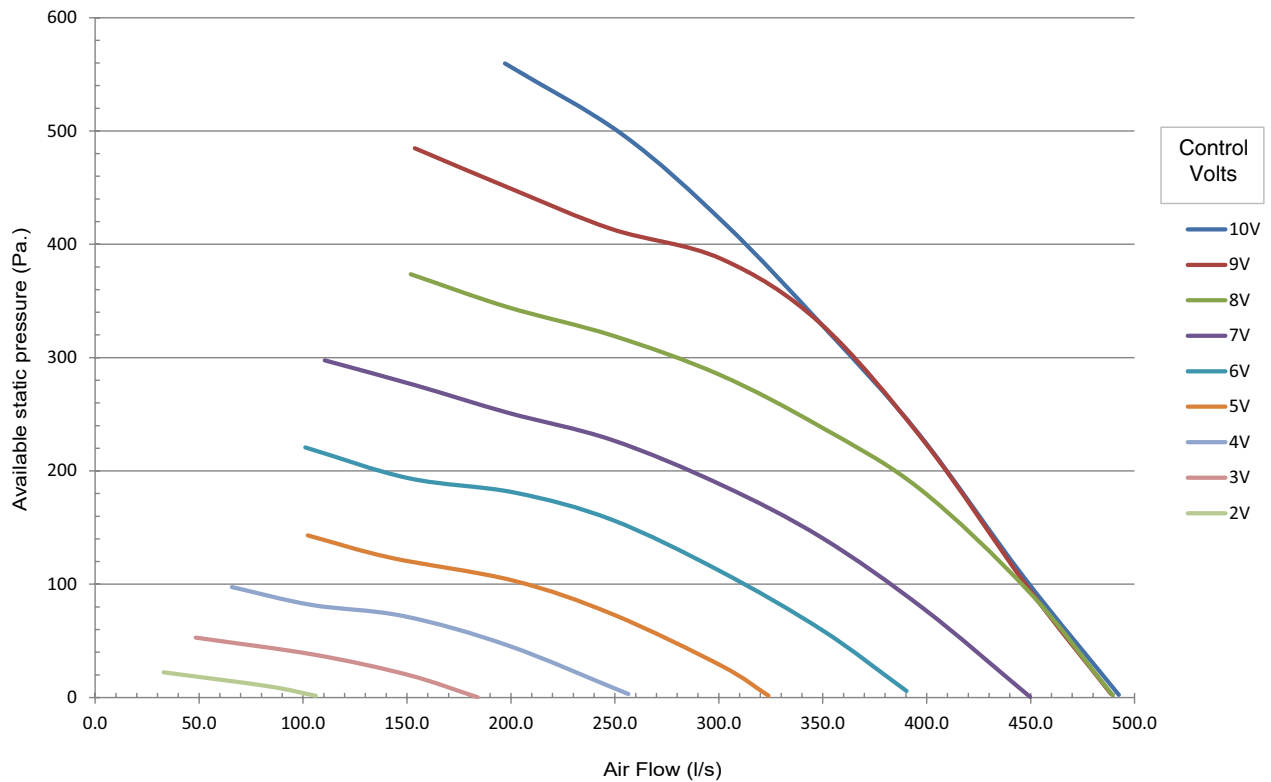
V - Fan motor control voltage supply

| Control<br>(Volts) | I<br>(A) | Cos  | Puis.<br>(W) | Qv     | Qv    | P<br>(Pa) |
|--------------------|----------|------|--------------|--------|-------|-----------|
|                    |          |      |              | (m³/h) | (l/s) |           |
| 3V                 | 0.11     | 0.45 | 11           | 184    | 51    | 0         |
|                    | 0.10     | 0.42 | 10           | 151    | 42    | 20        |
| 3V                 | 0.09     | 0.41 | 8            | 106    | 29    | 38        |
|                    | 0.07     | 0.40 | 7            | 48     | 13    | 53        |
| 2V                 | 0.06     | 0.39 | 5            | 106    | 29    | 2         |
|                    | 0.06     | 0.39 | 5            | 83     | 23    | 10        |
|                    | 0.05     | 0.38 | 4            | 33     | 9     | 22        |

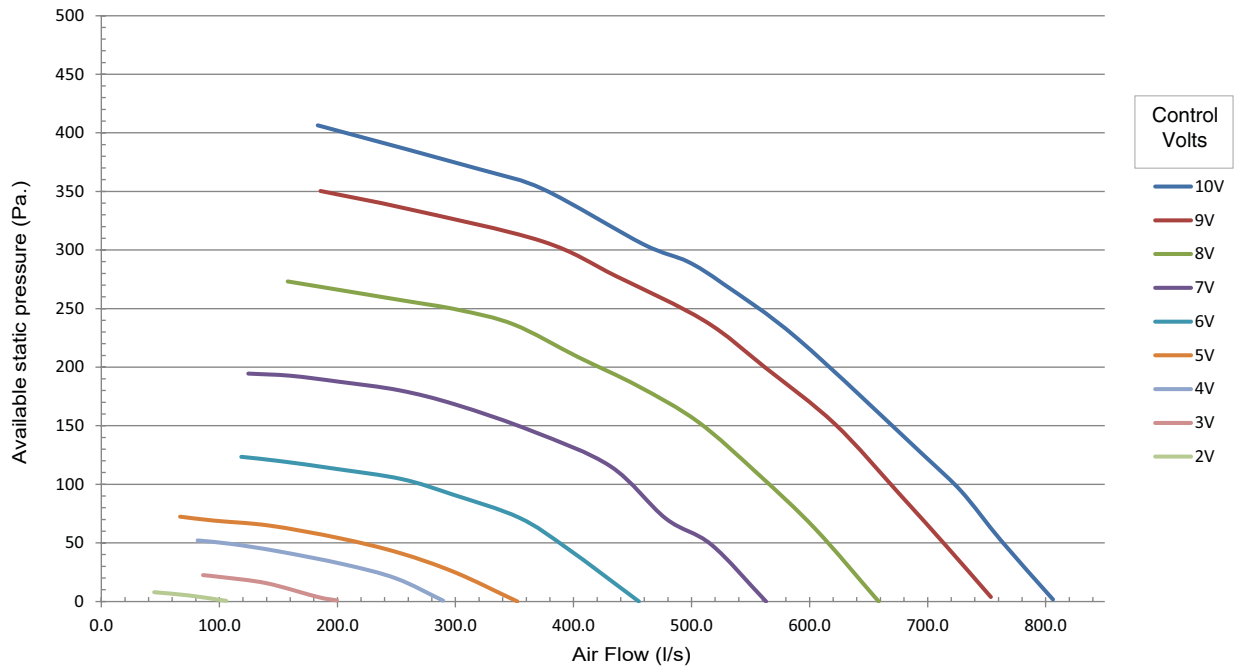
| Control<br>(Volts) | I<br>(A) | Cos  | Puis.<br>(W) | Qv<br>(m³/h) | Qv<br>(l/s) | P<br>(Pa) |
|--------------------|----------|------|--------------|--------------|-------------|-----------|
| 7V                 | 0.52     | 0.55 | 63           | 366          | 102         | 145       |
|                    | 0.45     | 0.53 | 51           | 301          | 84          | 168       |
|                    | 0.41     | 0.52 | 47           | 252          | 70          | 180       |
|                    | 0.39     | 0.51 | 45           | 201          | 56          | 188       |
|                    | 0.35     | 0.49 | 40           | 160          | 45          | 193       |
|                    | 0.33     | 0.46 | 36           | 124          | 35          | 195       |
|                    | 0.36     | 0.49 | 39           | 455          | 126         | 0         |
| 6V                 | 0.35     | 0.48 | 39           | 395          | 110         | 45        |
|                    | 0.35     | 0.53 | 40           | 354          | 98          | 72        |
|                    | 0.31     | 0.53 | 33           | 298          | 83          | 91        |
|                    | 0.29     | 0.49 | 32           | 254          | 71          | 104       |
|                    | 0.26     | 0.73 | 28           | 198          | 55          | 113       |
|                    | 0.23     | 1.00 | 25           | 151          | 42          | 120       |
|                    | 0.21     | 1.00 | 23           | 119          | 33          | 123       |
| 5V                 | 0.22     | 0.91 | 23           | 352          | 98          | 0         |
|                    | 0.21     | 1.00 | 21           | 300          | 83          | 25        |
|                    | 0.18     | 1.00 | 19           | 252          | 70          | 42        |
|                    | 0.17     | 1.00 | 17           | 201          | 56          | 54        |
|                    | 0.15     | 1.00 | 14           | 142          | 40          | 65        |
|                    | 0.14     | 1.00 | 12           | 95           | 26          | 69        |
|                    | 0.13     | 1.00 | 12           | 67           | 19          | 72        |
| 4V                 | 0.16     | 1.00 | 15           | 290          | 80          | 1         |
|                    | 0.14     | 1.00 | 15           | 249          | 69          | 20        |
|                    | 0.14     | 1.00 | 14           | 205          | 57          | 32        |
|                    | 0.13     | 1.00 | 12           | 150          | 42          | 43        |
|                    | 0.12     | 1.00 | 10           | 110          | 31          | 49        |
|                    | 0.13     | 1.00 | 10           | 82           | 23          | 52        |
| 3V                 | 0.11     | 1.00 | 8            | 200          | 55          | 1         |
|                    | 0.10     | 1.00 | 8            | 184          | 51          | 4         |
|                    | 0.09     | 1.00 | 7            | 140          | 39          | 16        |
|                    | 0.10     | 1.00 | 7            | 101          | 28          | 21        |
|                    | 0.09     | 1.00 | 7            | 86           | 24          | 22        |
| 2V                 | 0.07     | 1.00 | 4            | 106          | 29          | 1         |
|                    | 0.06     | 1.00 | 2            | 74           | 21          | 5         |
|                    | 0.07     | 1.00 | 4            | 45           | 12          | 8         |

## AIR FLOW/AVAILABLE STATIC PRESSURE DATA

### 42GR19



### 42GR29



#### legend:

V - Fan motor control voltage supply

## SOUND POWER LEVEL

## 42GR19

| Volts | Type | Octave band frequency (Hz) |     |     |    |    |    |       |
|-------|------|----------------------------|-----|-----|----|----|----|-------|
|       |      | 125                        | 250 | 500 | 1K | 2K | 4K | dB(A) |
| 10V   | SUP  | 49                         | 51  | 47  | 60 | 60 | 54 | 64    |
|       | RET  | 39                         | 43  | 41  | 46 | 49 | 39 | 52    |
|       | RAD  | 50                         | 48  | 51  | 55 | 53 | 46 | 58    |
|       | SUP  | 48                         | 51  | 46  | 59 | 58 | 52 | 62    |
| 9V    | RET  | 39                         | 42  | 40  | 47 | 46 | 38 | 51    |
|       | RAD  | 47                         | 47  | 50  | 54 | 51 | 45 | 57    |
|       | SUP  | 47                         | 50  | 45  | 58 | 56 | 51 | 61    |
| 8V    | RET  | 38                         | 42  | 39  | 48 | 44 | 37 | 50    |
|       | RAD  | 48                         | 47  | 49  | 53 | 50 | 44 | 56    |
|       | SUP  | 44                         | 47  | 43  | 56 | 51 | 47 | 58    |
| 7V    | RET  | 35                         | 38  | 36  | 43 | 39 | 32 | 45    |
|       | RAD  | 46                         | 43  | 47  | 50 | 45 | 40 | 53    |
|       | SUP  | 41                         | 43  | 40  | 54 | 46 | 42 | 56    |
| 6V    | RET  | 31                         | 34  | 33  | 38 | 34 | 28 | 41    |
|       | RAD  | 44                         | 40  | 44  | 47 | 41 | 35 | 49    |
|       | SUP  | 36                         | 39  | 36  | 48 | 40 | 38 | 49    |
| 5V    | RET  | 26                         | 29  | 30  | 34 | 27 | 24 | 36    |
|       | RAD  | 39                         | 36  | 41  | 42 | 36 | 33 | 45    |
|       | SUP  | 32                         | 34  | 32  | 41 | 34 | 32 | 43    |
| 4V    | RET  | 22                         | 23  | 26  | 31 | 21 | 20 | 32    |
|       | RAD  | 34                         | 32  | 37  | 38 | 31 | 29 | 41    |
|       | SUP  | 28                         | 30  | 28  | 35 | 28 | 27 | 37    |
| 3V    | RET  | 17                         | 20  | 23  | 27 | 17 | 16 | 29    |
|       | RAD  | 30                         | 28  | 33  | 34 | 26 | 24 | 37    |
|       | SUP  | 25                         | 28  | 26  | 32 | 25 | 23 | 34    |
| 2V    | RET  | 15                         | 18  | 20  | 25 | 15 | 15 | 27    |
|       | RAD  | 27                         | 25  | 30  | 31 | 22 | 20 | 33    |

## 42GR29

| Volts | Type | Octave band frequency (Hz) |     |     |    |    |    |       |
|-------|------|----------------------------|-----|-----|----|----|----|-------|
|       |      | 125                        | 250 | 500 | 1K | 2K | 4K | dB(A) |
| 10V   | SUP  | 66                         | 64  | 60  | 50 | 46 | 52 | 61    |
|       | RET  | 66                         | 54  | 53  | 48 | 50 | 45 | 57    |
|       | RAD  | 61                         | 56  | 56  | 58 | 58 | 51 | 63    |
|       | SUP  | 65                         | 62  | 58  | 48 | 45 | 50 | 60    |
| 9V    | RET  | 65                         | 52  | 51  | 47 | 48 | 43 | 55    |
|       | RAD  | 60                         | 55  | 54  | 57 | 56 | 49 | 62    |
|       | SUP  | 64                         | 60  | 57  | 47 | 43 | 48 | 58    |
| 8V    | RET  | 63                         | 50  | 49  | 45 | 46 | 41 | 53    |
|       | RAD  | 59                         | 54  | 53  | 56 | 54 | 46 | 60    |
|       | SUP  | 61                         | 57  | 53  | 44 | 38 | 43 | 55    |
| 7V    | RET  | 61                         | 48  | 47  | 44 | 43 | 38 | 51    |
|       | RAD  | 56                         | 50  | 50  | 54 | 51 | 42 | 57    |
|       | SUP  | 58                         | 53  | 49  | 42 | 34 | 38 | 51    |
| 6V    | RET  | 59                         | 45  | 45  | 42 | 39 | 34 | 48    |
|       | RAD  | 54                         | 47  | 48  | 52 | 47 | 37 | 54    |
|       | SUP  | 54                         | 48  | 44  | 38 | 26 | 29 | 46    |
| 5V    | RET  | 54                         | 39  | 39  | 36 | 30 | -  | 42    |
|       | RAD  | 49                         | 41  | 42  | 47 | 39 | -  | 49    |
|       | SUP  | 49                         | 43  | 38  | 34 | 18 | 20 | 40    |
| 4V    | RET  | 49                         | 34  | 32  | 30 | 21 | -  | 36    |
|       | RAD  | 45                         | 36  | 36  | 42 | 31 | -  | 43    |
|       | SUP  | 41                         | 36  | 33  | 28 | 16 | -  | 34    |
| 3V    | RET  | 43                         | 31  | 30  | 28 | 18 | -  | 30    |
|       | RAD  | 36                         | 30  | 31  | 34 | 27 | -  | 37    |
|       | SUP  | 34                         | 29  | 27  | 22 | 14 | -  | 28    |
| 2V    | RET  | 38                         | 29  | 28  | 26 | 15 | -  | 23    |
|       | RAD  | 28                         | 24  | 25  | 26 | 23 | -  | 30    |

## Legend:

V - Fan motor control voltage supply

SUP - Supply (dB re = 10-12 W)

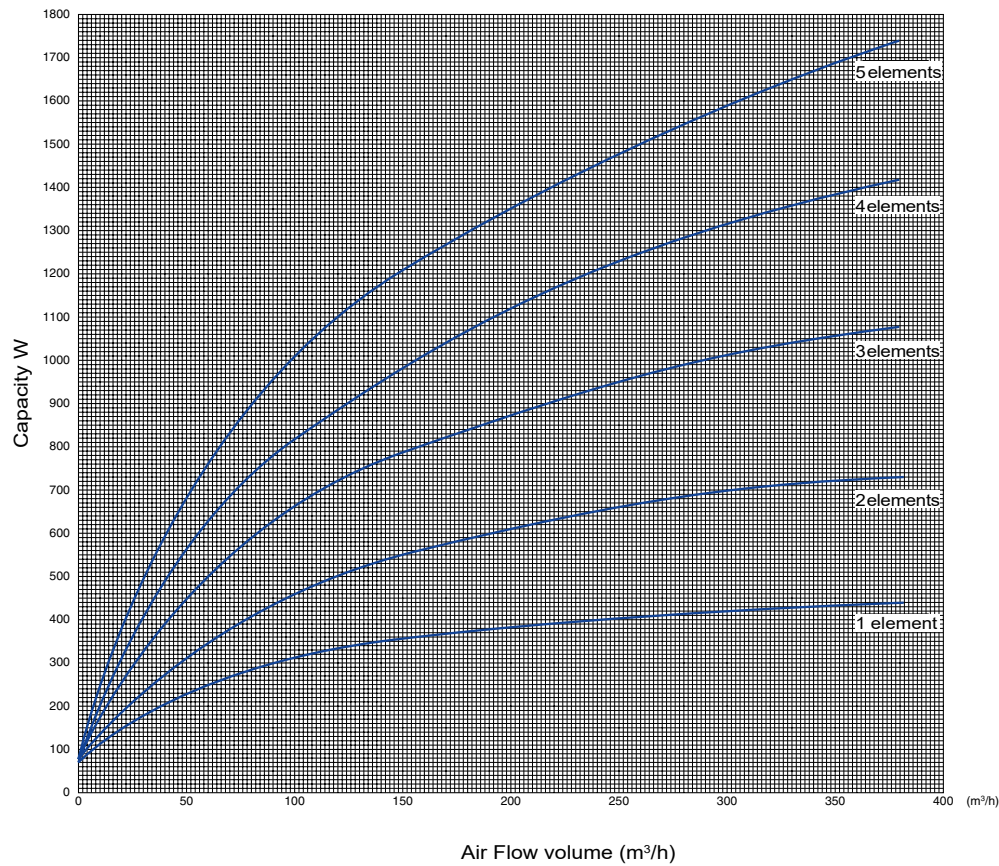
RET - Return (dB re = 10-12 W)

RAD - Radiated (dB re = 10-12 W)

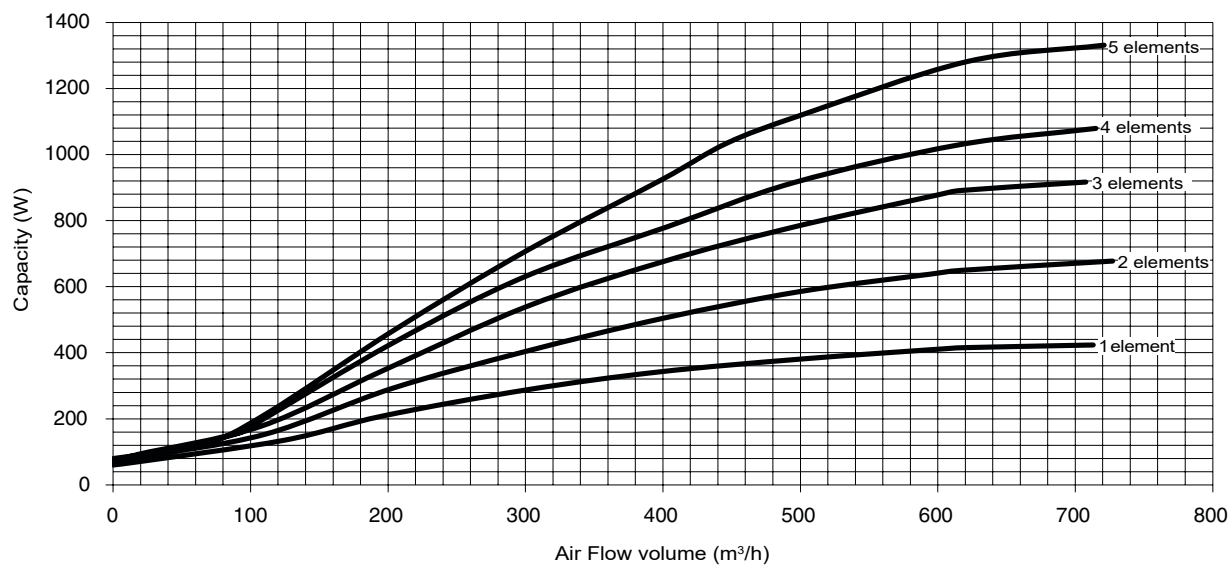


ELECTRICAL HEATER PERFORMANCES

42GR Size 19

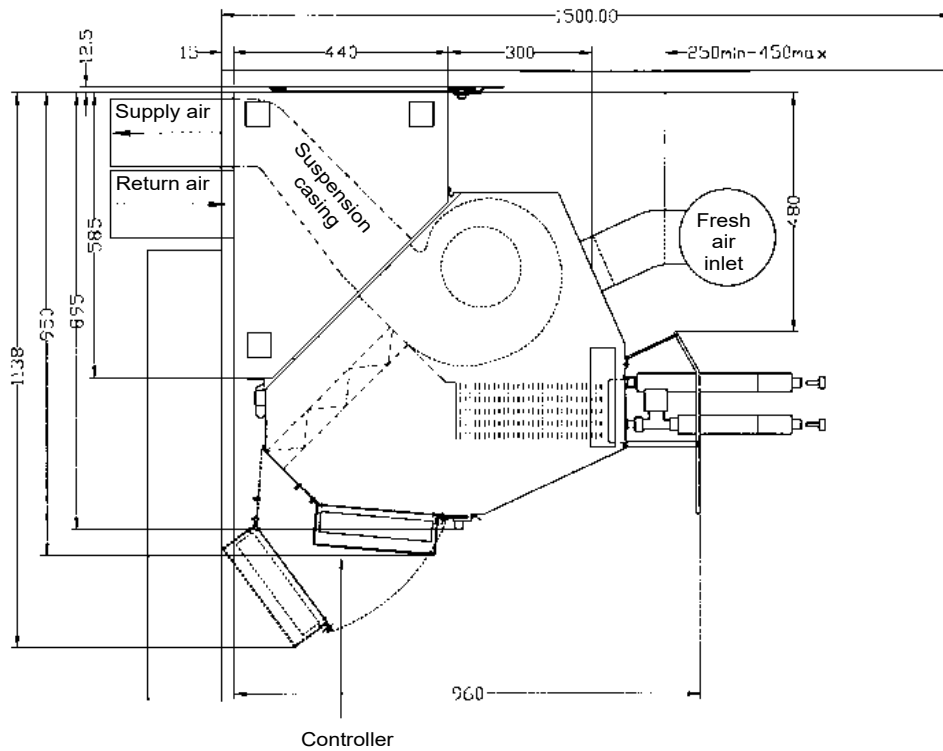


42GR Size 29



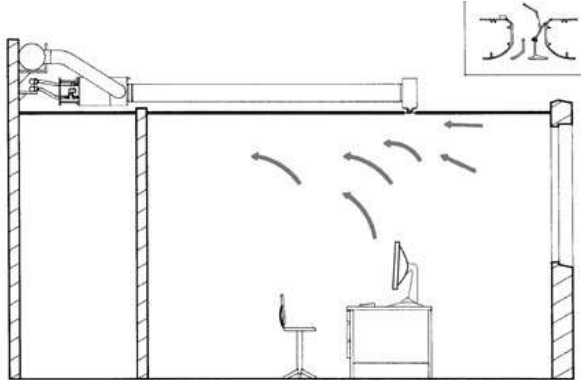
## DIMENSIONS/CLEARANCES, MM

### Standard installation

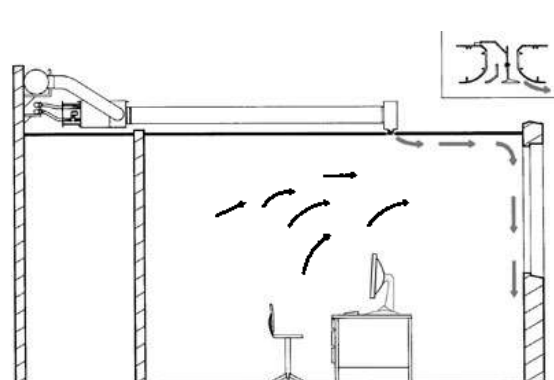


### Air distribution with Optimix linear diffusers

Cooling air flow



Heating air flow





## HIGH WALL FAN COIL



Easy installation  
Modern & design  
Low energy consumption  
Low noise level

## 42WM

Cooling capacity 1.2-3.8 kW  
Heating capacity 1.3-4.3 kW

The 42WM is an hydronic high wall fan coil available in 2 models and 4 sizes

The modern and appealing design of the unit in RAL 9003 colour allows the use in any environment.

All the models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.



CARRIER participates in the ECP programme for LCP/HP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## GAMME

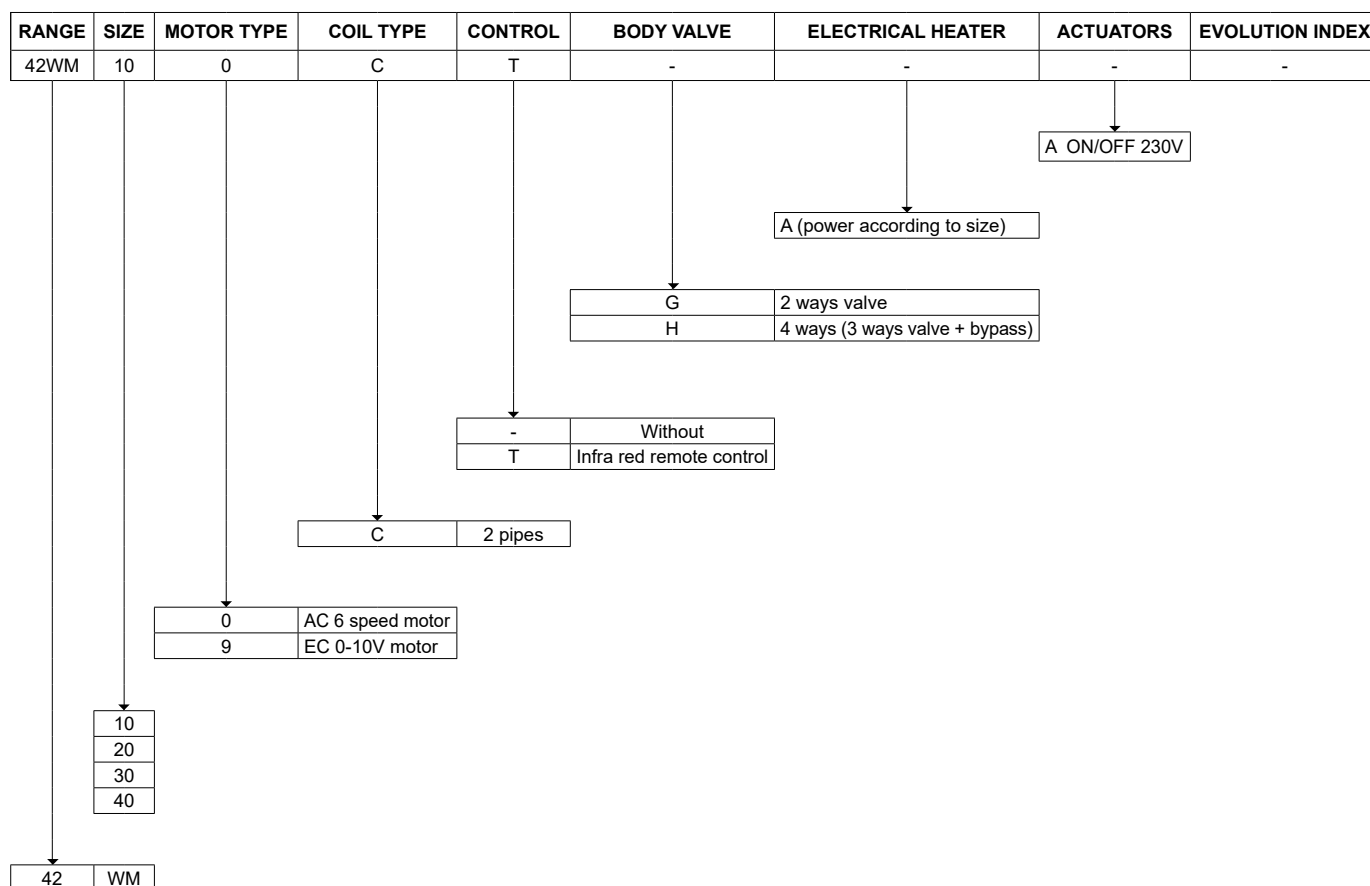
The 42WM range includes 2 models and 4 sizes .

It covers a range of cooling capacity from 1.2 kW to 3.8 kW at Eurovent conditions

The 42WM is available in :

- 2 pipe system heating or cooling
- 2 pipes and electrical heater cooling and/or heating + electrical heater

## CODIFICATION



## TECHNICAL DESCRIPTION

### Casing

Made of auto-extinguishing ABS UL94 HB plastic with high specifications and great resistance to aging.  
The diffusion flap is adjusted manually in the basic version, with remote control in T version.

### Air Filter

Washable-regenerable synthetic filter, readily accessible.

### Fan Assembly

Made of plastic tangential fan.

### Electric motor

#### AC version

The motor is for single phase power supply and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B. The speeds connected in the factory are indicated by "MIN, MED and MAX" in the following tables.

#### EC version

Electronic motor with permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phases frequency modulated, wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of 230-240V and frequency of 50- 60Hz.

### Heat exchange coil

It is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.

The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.  
The connections are on the left side facing the unit only.

### Electrical heater (option)

The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.

The electric heaters are single phase 230V supply.

The electric heater is fitted with a overheat protection.

The unit is fitted with two safety thermostats:

- one thermostat with manual reset;
- one thermostat with automatic reset

### Condensate Collection Tray

Made from polypropylene; the outside diameter of the condensate discharge pipe is 16mm.

### Installation template

A cardboard installation template is supplied with every unit to help the mounting on the wall.

### Options fitted in factory

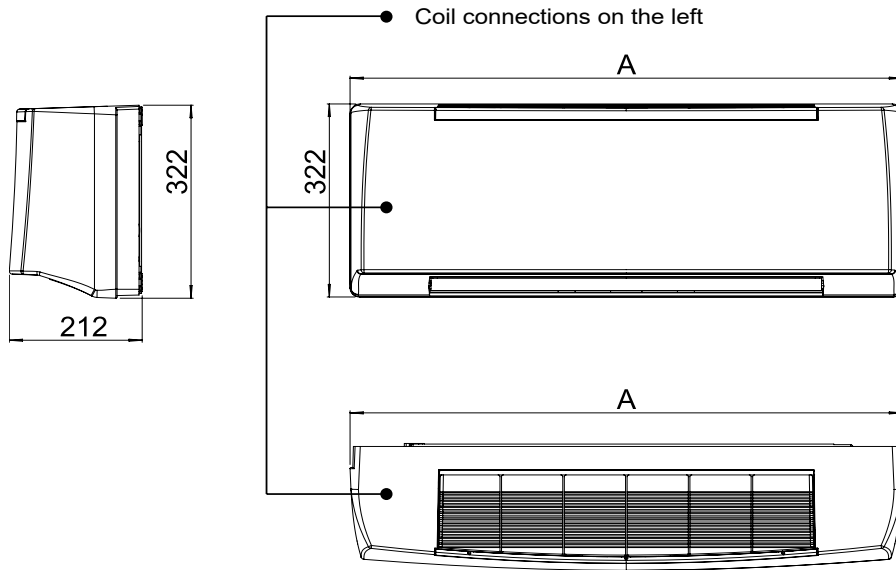
- 2 ways valve
- 3 ways valve
- ON/OFF 230V actuator
- control with infra-red remote

### Accessories available in kit

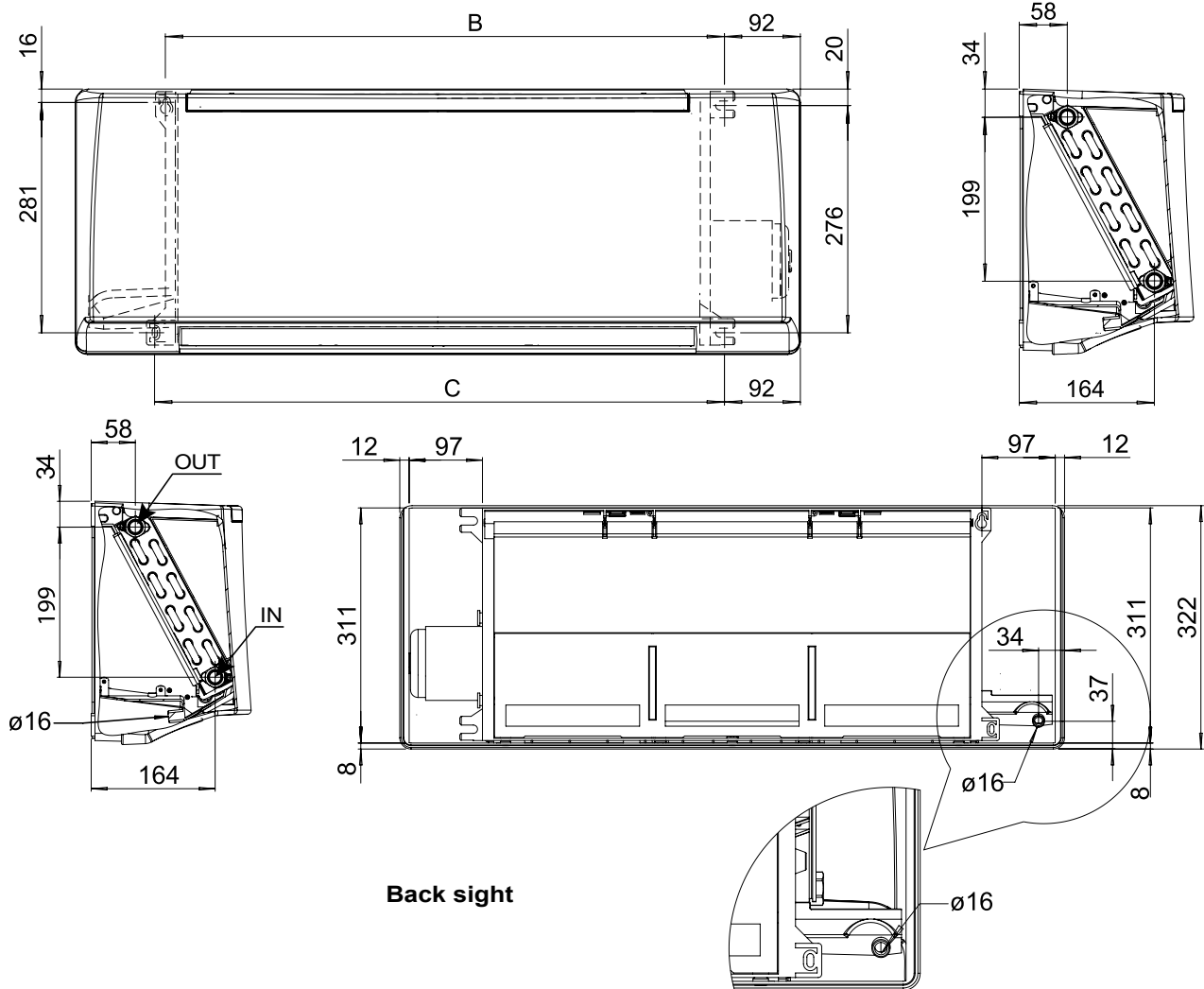
- Condensate drain pump
- Kit 2 ways valve
- Kit 3 ways valve



## DIMENSION, WEIGHT

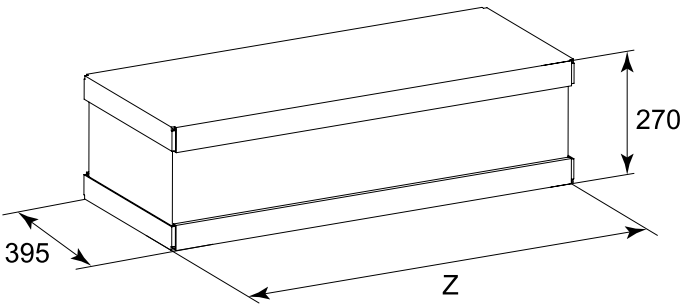


### Mounting Dimension



Back sight

DIMENSION, WEIGHT



Dimension (mm)

| Model | 10  | 20  | 30   | 40   |
|-------|-----|-----|------|------|
| A     | 880 | 880 | 1185 | 1185 |
| B     | 678 | 678 | 983  | 983  |
| C     | 691 | 691 | 996  | 996  |
| Z     | 950 | 950 | 1255 | 1255 |

Weight (kg)

| Model         | Weight packed unit |    |    |    | Weight unpacked unit |    |    |    |
|---------------|--------------------|----|----|----|----------------------|----|----|----|
|               | 10                 | 20 | 30 | 40 | 10                   | 20 | 30 | 40 |
| without valve | 12                 | 12 | 16 | 16 | 10                   | 10 | 13 | 13 |
| with valve    | 13                 | 13 | 17 | 17 | 11                   | 11 | 14 | 14 |

## TECHNICAL CHARACTERISTIC

Max. entering water temperature..... + 70 °C

Min. entering water temperature..... + 6 °C

for entering water temperatures below + 6°C, contact technical support

Max. rated pressure.....1000 kPa (10 bars)

Max. ambient temperature with electric coil in heating mode: 25°C.

### Water content (l)

| Model  | 10   | 20   | 30   | 40   |
|--------|------|------|------|------|
| Liters | 0,85 | 0,85 | 1,28 | 1,28 |

### Installation height (m)

| Model   | sizes 10 to 40 |
|---------|----------------|
| Minimum | 2              |
| Maximum | 3              |

### AC motor electrical data (max. absorption)

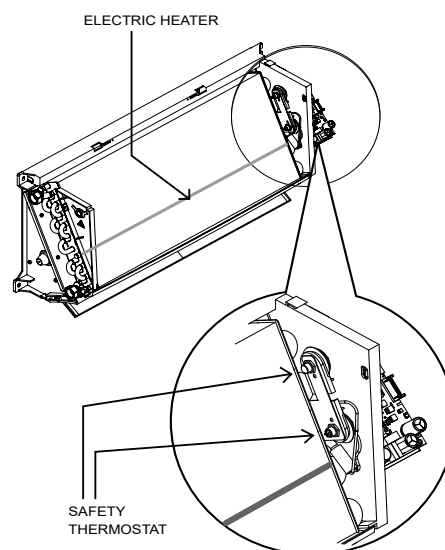
| Model      |   | 42WM100 | 42WM200 | 42WM300 | 42WM400 |
|------------|---|---------|---------|---------|---------|
| 230/1 50Hz | W | 30      | 32      | 46      | 48      |
|            | A | 0,16    | 0,16    | 0,23    | 0,23    |

### EC Motor electrical data (max. absorption)

| Model      |   | 42WM109 | 42WM209 | 42WM309 | 42WM409 |
|------------|---|---------|---------|---------|---------|
| 230/1 50Hz | W | 15      | 21      | 20      | 30      |
|            | A | 0,14    | 0,19    | 0,18    | 0,26    |

### Electrical heater

| Model  | 42WM100/109            | 42WM200/209            | 42WM300/309            | 42WM400/409            |
|--|------------------------|------------------------|------------------------|------------------------|
| Nominal installed power                            | 1000 Watt              | 1000 Watt              | 1500 Watt              | 1500 Watt              |
| Nominal power voltage                              | 230V ~                 | 230V ~                 | 230V ~                 | 230V ~                 |
| Number and section of connecting wires             | 3 x 1,5mm <sup>2</sup> | 3 x 1,5mm <sup>2</sup> | 3 x 1,5mm <sup>2</sup> | 3 x 1,5mm <sup>2</sup> |
| Current input                                      | 4,5 A                  | 4,5 A                  | 7 A                    | 7 A                    |
| Recommended fuse (Type gG) for overload protection | 6 A                    | 6 A                    | 8 A                    | 8 A                    |



## EUROVENT PERFORMANCES

## 2-pipe units

| Size    | Speed | Air flow<br>m³/h | Heating<br>capacity<br>W | Pressure<br>Drop<br>kPa | Cooling Capacity |               | Pressure<br>Drop<br>kPa | Pabs<br>W | Lw<br>dB(A) | LP *<br>dB(A) | EUROVENT<br>FCEER | EUROVENT<br>FCCOP |
|---------|-------|------------------|--------------------------|-------------------------|------------------|---------------|-------------------------|-----------|-------------|---------------|-------------------|-------------------|
|         |       |                  |                          |                         | Total<br>W       | Sensible<br>W |                         |           |             |               | Class             | Class             |
| 42WM100 | 1     | 205              | 1 340                    | 4,5                     | 1 230            | 910           | 4,8                     | 12        | 35          | 26            | C                 | C                 |
|         | 2     | 270              | 1 680                    | 6,8                     | 1 490            | 1 130         | 6,8                     | 14        | 41          | 32            |                   |                   |
|         | 3     | 340              | 2 020                    | 9,4                     | 1 750            | 1 330         | 9,2                     | 17        | 46          | 37            |                   |                   |
|         | 4     | 375              | 2 180                    | 10,8                    | 1 850            | 1 440         | 10,1                    | 18        | 48          | 39            |                   |                   |
|         | 5     | 470              | 2 585                    | 14,7                    | 2 150            | 1 680         | 13,2                    | 24        | 52          | 43            |                   |                   |
|         | 6     | 500              | 2 705                    | 15,9                    | 2 230            | 1 745         | 14,1                    | 30        | 53          | 44            |                   |                   |
| 42WM200 | 1     | 250              | 1580                     | 6,1                     | 1 420            | 1 060         | 6,2                     | 12        | 39          | 30            | C                 | C                 |
|         | 2     | 305              | 1850                     |                         | 1 640            | 1 230         | 8,0                     | 14        | 43          | 34            |                   |                   |
|         | 3     | 365              | 2130                     | 10,4                    | 1 820            | 1 410         | 9,8                     | 18        | 47          | 38            |                   |                   |
|         | 4     | 400              | 2290                     |                         | 1 953            | 1 495         | 11,1                    | 20        | 49          | 40            |                   |                   |
|         | 5     | 480              | 2620                     | 15,1                    | 2 160            | 1 730         | 13,3                    | 24        | 53          | 44            |                   |                   |
|         | 6     | 545              | 2880                     |                         | 2 350            | 1 855         | 15,5                    | 30        | 55          | 46            |                   |                   |
| 42WM300 | 1     | 280              | 1890                     | 9,1                     | 1 870            | 1 330         | 11,2                    | 16        | 35          | 26            | C                 | C                 |
|         | 2     | 375              | 1130                     | 13,8                    | 2 300            | 1 670         | 16,2                    | 21        | 40          | 31            |                   |                   |
|         | 3     | 480              | 2930                     | 20,1                    | 2 770            | 2 030         | 22,7                    | 26        | 45          | 36            |                   |                   |
|         | 4     | 545              | 3230                     | 24,1                    | 3 000            | 2 240         | 26,2                    | 29        | 48          | 39            |                   |                   |
|         | 5     | 730              | 4040                     | 35,9                    | 3 630            | 2 755         | 37,1                    | 38        | 55          | 46            |                   |                   |
|         | 6     | 780              | 4240                     | 39,2                    | 3 770            | 2 880         | 39,8                    | 46        | 57          | 48            |                   |                   |
| 42WM400 | 1     | 300              | 2 000                    | 10,1                    | 1 980            | 1 409         | 12,4                    | 17        | 36          | 27            | C                 | C                 |
|         | 2     | 440              | 2730                     | 22,2                    | 2 600            | 1 910         | 23,0                    | 23        | 43          | 34            |                   |                   |
|         | 3     | 500              | 3020                     | 28,2                    | 2 845            | 2 090         | 30,3                    | 27        | 46          | 37            |                   |                   |
|         | 4     | 610              | 3530                     | 35,2                    | 3 230            | 2 440         | 34,0                    | 32        | 51          | 42            |                   |                   |
|         | 5     | 675              | 3800                     | 39,9                    | 3 460            | 2 610         | 40,4                    | 35        | 54          | 45            |                   |                   |
|         | 6     | 790              | 4280                     | 49,8                    | 3 760            | 2 930         | 45,1                    | 48        | 57          | 48            |                   |                   |

| Size    | Speed<br>(Voltage) | Air flow<br>m³/h | Heating<br>capacity<br>W | Pressure<br>Drop<br>kPa | Cooling Capacity |               | Pressure<br>Drop<br>kPa | Pabs<br>W | Lw<br>dB(A) | LP *\$<br>(A) | EUROVENT<br>FCEER | EUROVENT<br>FCCOP |
|---------|--------------------|------------------|--------------------------|-------------------------|------------------|---------------|-------------------------|-----------|-------------|---------------|-------------------|-------------------|
|         |                    |                  |                          |                         | Total<br>W       | Sensible<br>W |                         |           |             |               | Class             | Class             |
| 42WM109 | 1V                 | 190              | 1 260                    | 4,0                     | 1 160            | 850           | 5,0                     | 6         | 37          | 28            | B                 | B                 |
|         | 3V                 | 240              | 1 530                    | 5,7                     | 1 390            | 1 025         | 6,0                     |           | 39          | 30            |                   |                   |
|         | 5V                 | 290              | 1 780                    | 7,5                     | 1 570            | 1 190         | 7,7                     | 9         | 46          | 37            |                   |                   |
|         | 7,5V               | 355              | 2 090                    | 10,0                    | 1 810            | 1 370         | 9,6                     |           | 48          | 39            |                   |                   |
|         | 10V                | 415              | 2 350                    | 12,4                    | 1 990            | 1 560         | 11,2                    | 15        | 52          | 43            |                   |                   |
| 42WM209 | 1V                 | 260              | 1 630                    | 6,4                     | 1 460            | 1 090         | 6,9                     | 7         | 40          | 31            | B                 | B                 |
|         | 3V                 | 315              | 1 900                    | 8,4                     | 1 680            | 1 260         | 8,3                     |           | 44          | 35            |                   |                   |
|         | 5V                 | 375              | 2 180                    | 10,8                    | 1 860            | 1 450         | 10,1                    | 12        | 47          | 38            |                   |                   |
|         | 7,5V               | 440              | 2 460                    | 13,4                    | 2 070            | 1 600         | 12,3                    |           | 51          | 42            |                   |                   |
|         | 10V                | 510              | 2 740                    | 16,3                    | 2 240            | 1 810         | 13,7                    | 21        | 55          | 46            |                   |                   |
| 42WM309 | 1V                 | 270              | 1 830                    | 8,7                     | 1 820            | 1 300         | 10,7                    | 6         | 37          | 28            | A                 | A                 |
|         | 3V                 | 345              | 2 240                    | 12,5                    | 2 200            | 1 580         | 14,9                    |           | 42          | 33            |                   |                   |
|         | 5V                 | 420              | 2 630                    | 16,6                    | 2 520            | 1 850         | 19,0                    | 11        | 45          | 36            |                   |                   |
|         | 7,5V               | 420              | 3 110                    | 11,5                    | 2 930            | 2 160         | 25,1                    |           | 49          | 40            |                   |                   |
|         | 10V                | 620              | 3 570                    | 28,8                    | 3 270            | 2 480         | 30,4                    | 20        | 53          | 44            |                   |                   |
| 42WM409 | 1V                 | 375              | 2 400                    | 14,1                    | 2 330            | 1 690         | 16,5                    | 9         | 43          | 34            | A                 | A                 |
|         | 3V                 | 465              | 2 850                    | 19,3                    | 2 720            | 1 990         | 21,9                    |           | 46          | 37            |                   |                   |
|         | 5V                 | 550              | 3 260                    | 24,4                    | 3 030            | 2 270         | 26,6                    | 16        | 49          | 40            |                   |                   |
|         | 7,5V               | 665              | 3 760                    | 31,7                    | 3 430            | 2 590         | 33,4                    |           | 53          | 44            |                   |                   |
|         | 10V                | 770              | 4 200                    | 38,6                    | 3 720            | 2 890         | 38,7                    | 30        | 57          | 48            |                   |                   |

## EUROVENT conditions

Cooling mode : Entering air temperature : 27°C/19°C<sub>BH</sub>, entering/leaving water temperature : 7°C/12°C

Heating mode : Entering air temperature : 20°C, entering/leaving water temperature: 45°C/40°C

\* Acoustic pressure level is based on an hypothetical sound attenuation of the room of 9 dB(A)

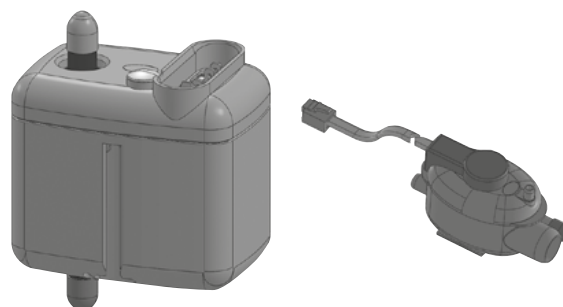


Eurovent certified values

## ACCESSORIES

### Condensate drain pump

|                              |   | Code    |
|------------------------------|---|---------|
| Not fitted on the unit       |   | 9025309 |
| Height for vertical flow (m) | Water flow (l/h) depending on the length of horizontal flow |         |
|                              | 5m  | 10 m    |
| 1                            | 7,6   | 7,2     |
| 2                            | 5,6   | 5,2     |
| 3                            | 4,0   | 3,7     |
| 4                            | 3,2   | 2,9     |



### Wall or concealed installation kit

| Model | ID        | Code    |
|-------|-----------|---------|
| 10-20 | KIF 10-20 | 9025191 |
| 30-40 | KIF 30-40 | 9025193 |

Wall or concealed installation kit to be used as an installation template or in case the right connections are previously designed (the units are provided only with left connections).

The technical space within the frame allows to unit the right connections of the installation and the left connections of the unit. Two variants are available:

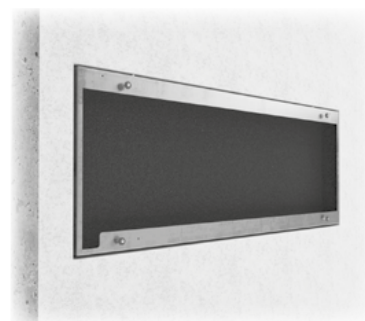
- Recessed box installation
- Wall installation with aesthetic frame.

In the first case the frame is recessed, whereas in the second case it fits the unit esthetically.

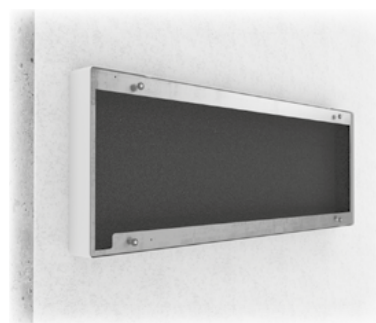
The aesthetic frame characteristics are:

- Galvanized steel painted RAL 9003
- Pre-drilled panels for cables and ductworks
- Internal insulation.

### Recessed box installation

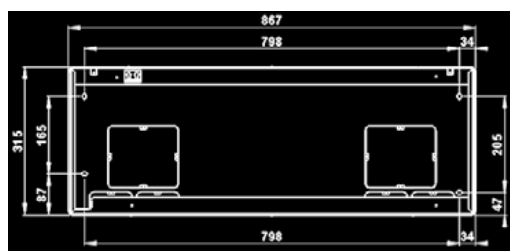


### Wall installation

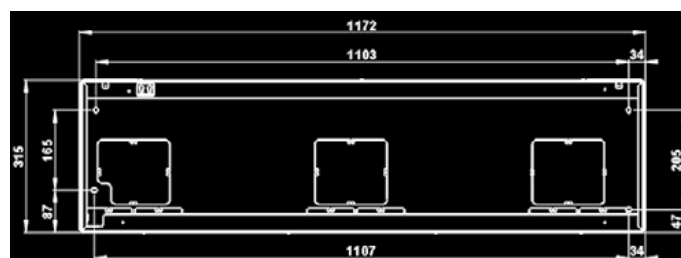


### Dimensions

Gr. 1 - 2



Gr. 3 - 4



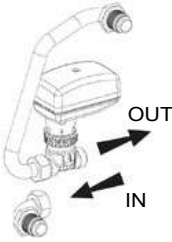
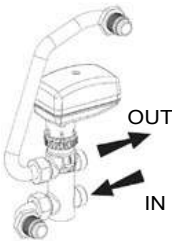
ACCESSORIES

3 way valve

| Mod.  | Valve |      |     | Code       |
|-------|-------|------|-----|------------|
|       | DN    | (Ø)  | Kvs | Not fitted |
| 10-20 | 15    | 1/2" | 1,6 | 9025321H   |
| 30-40 | 20    | 3/4" | 2,5 | 9025323H   |

2 way valve

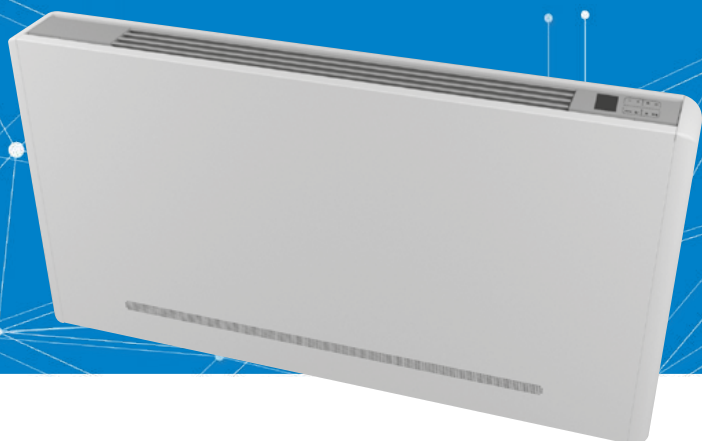
| Mod.  | Valve |      |     | Code       |
|-------|-------|------|-----|------------|
|       | DN    | (Ø)  | Kvs | Not fitted |
| 10-20 | 15    | 1/2" | 1,6 | 9025311H   |
| 30-40 | 20    | 3/4" | 2,5 | 9025313H   |







## EXTRA SLIM



Extra slim  
(129 mm depth 370mm height)

Easy installation

Elegant design and reduced  
dimensions

Low energy consumption

Low noise level

## 42SI

Cooling capacity : 0.55 kW to 2.9 kW  
Heating capacity : 0.57 kW to 2.5 kW

The 42SI is an hydronic slim wall fan coil available in 4 models (with or without cabinet - standart or low height) and 5 sizes

The slim cabinet version can be installed in any ambient thanks to its elegant design and reduced dimensions (depth is only 129 mm).

All the models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.

The range consists of the following versions:

SIC - standard version with cabinet

SIR - compact version with cabinet

SIN - standard version without cabinet

SIL - compact version without cabinet



CARRIER participates in the ECP programme for FC/FCP  
Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## RANGE

The 42SI range includes 4 models and 5 sizes .

It covers a range of cooling capacity from 0.55 kW to 2.9 kW at Eurovent conditions

The 42SI is available in :

- 2 pipe system heating or cooling
- 4 pipes system heating/cooling

## CODIFICATION

| Range |   |   |   | Casing- Size & motor type |   |   | Coil Type | Control | Body Valve | Electrical heater | Actuators | Modification index |
|-------|---|---|---|---------------------------|---|---|-----------|---------|------------|-------------------|-----------|--------------------|
| 4     | 2 | S | I | C                         | 2 | 9 | F         | -       | -          | -                 | A         |                    |
| 1     | 2 | 3 | 4 | 5                         | 6 | 7 | 8         | 9       | 10         | 11                | 12        | 13                 |

### Digit 12

' - = without

A = ON/OFF 230V ACTUATOR

### Digit 11

- = without

### Digit 10

' - = without

G = 2 WAYS VALVE GROUP

H = 3 WAYS VALVE GROUP

### Digit 9

- = without

A = With Electronic control & user interface built-in

B = With Electronic control & command built-in with Wifi

C= With Electronic control (without wall user interface)

### Digit 8

F = 2 pipes Left

G = 2 pipes Right

C = 4 pipes Left

D = 4 pipes Right

### Digit 5 - 6 - 7

|   |   |   |   |
|---|---|---|---|
| C | 2 | 9 | Size 2 _ Standard Height with cabinet_ EC motor     |
| C | 4 | 9 | Size 4 _ Standard Height with cabinet_ EC motor     |
| C | 6 | 9 | Size 6 _ Standard Height with cabinet_ EC motor     |
| C | 8 | 9 | Size 8 _ Standard Height with cabinet_ EC motor     |
| C | 9 | 9 | Size 9 _ Standard Height with cabinet_ EC motor     |
| R | 2 | 9 | Size 2 _ Low Height (370 mm) with cabinet_ EC motor |
| R | 4 | 9 | Size 4 _ Low Height (370 mm) with cabinet_ EC motor |
| R | 6 | 9 | Size 6 _ Low Height (370 mm) with cabinet_ EC motor |
| R | 8 | 9 | Size 8 _ Low Height (370 mm) with cabinet_ EC motor |
| R | 9 | 9 | Size 9 _ Low Height (370 mm) with cabinet_ EC motor |
| N | 2 | 9 | Size 2 _ Standard Height without cabinet_ EC motor  |
| N | 4 | 9 | Size 4 _ Standard Height without cabinet_ EC motor  |
| N | 6 | 9 | Size 6 _ Standard Height without cabinet_ EC motor  |
| N | 8 | 9 | Size 8 _ Standard Height without cabinet_ EC motor  |
| N | 9 | 9 | Size 9 _ Standard Height without cabinet_ EC motor  |
| L | 2 | 9 | Size 2 _ Low Height without cabinet_ EC motor       |
| L | 4 | 9 | Size 4 _ Low Height without cabinet_ EC motor       |
| L | 6 | 9 | Size 6 _ Low Height without cabinet_ EC motor       |
| L | 8 | 9 | Size 8 _ Low Height without cabinet_ EC motor       |
| L | 9 | 9 | Size 9 _ Low Height without cabinet_ EC motor       |

## TECHNICAL DESCRIPTION

### Frame

Made with high-resistance electrolytically zinc-coated metal.

### Casing (for 42SIC & 42SIR version)

Air intake grid made with electrolytically zinc-coated sheet metal painted with oven-dried epoxy powders, with quick-release device to clean the filters.

Reversible air outlet grid made with aluminium painted with oven-dried epoxy powders (metallic silver paint). Its generous size enhances its high mechanical strength

### For 42SIC 2 pipes :

Lateral made in plastic (RAL9003)

Front panel made with electrolytically zinc-coated sheet metal painted with oven-dried epoxy powders

### For 42SIC 4 pipes & 42SIR (low height) :

Sides and front panel made with electrolytically zinc-coated sheet metal painted with oven-dried epoxy powders (RAL 9003)

### Air Filter

Polypropylene filter, washable or regenerable.

### Fan Motor

Tangential fan made from synthetic material with staggered fins mounted on EPDM anti-vibration supports. Statically and dynamically balanced rotor, assembled directly on the motor's shaft.

Single phase electric motor fitted on anti-vibration EPDM supports.

### Heat exchange coil

It is made with copper pipes and aluminium fins with high efficiency coils . 3/4 Eurokonus threaded fittings compliant with the requirements of the new EU Standards.

### Condensate drip Tray

Made in ABS the outside diameter of the condensate discharge pipe is 14mm.

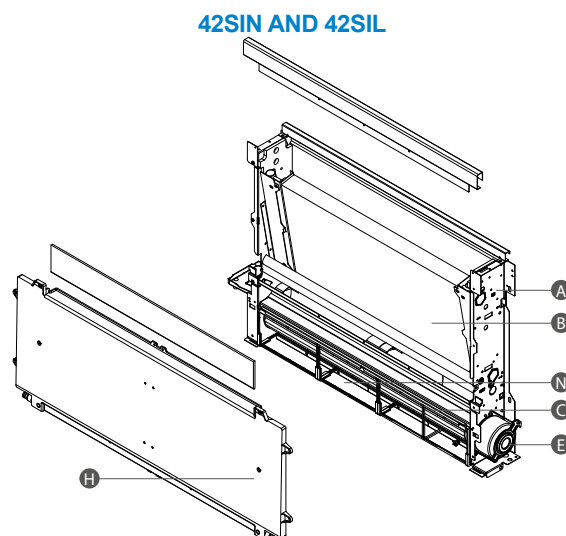
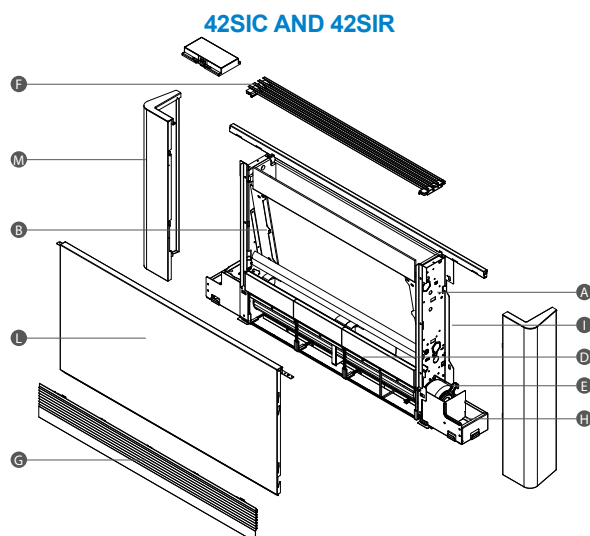
### Options fitted in factory

- 2 ways valve
- 3 ways valve
- ON/OFF 230V actuator
- electronic control with user interface built-in

### Accessories available in kit

- Kit 2 ways valve
- Kit 3 ways valve
- Back panel RAL9010 for cabinet version (42SIC or 42SIR)
- White color feet for covering floor pipes
- White color support feet
- In-wall box for vertical concealed version (42SIN or 42SIL)
- Front panel RAL90032 'equipped with return grill and supply adjustable blade for vertical concealed version (42SIN or 42SIL)
- LCD TOUCH electronic wall mounted control panel with or without WIFI module color black or white

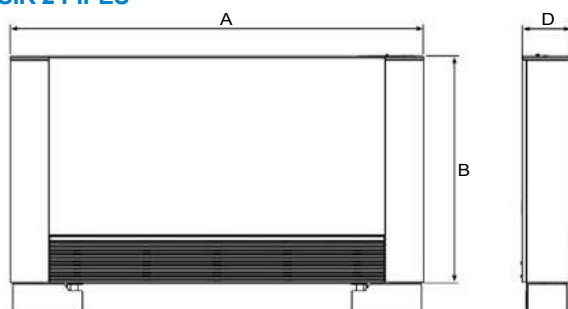
## TECHNICAL DESCRIPTION



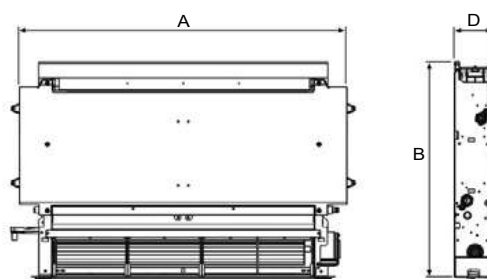
|            |                             |  |
|------------|-----------------------------|--|
| <b>A-I</b> | Supporting structure        | Made of electro-galvanised sheet metal / compressed wire acoustic insulation.  |
| <b>B</b>   | Exchange battery            | Manufactured from copper tubes and aluminum fins with high efficiency turbulence (turbine). Eurokonus 3/ 4 threaded connections, in accordance with the new EU standardization requirements. The coil is equipped with a water temperature sensor. |
| <b>C-D</b> | Fan motor assembly          | Tangential fan in synthetic material with offset blades (very quiet operation) mounted on EPDM anti-vibration mounts. Statically and dynamically balanced rotor, directly splined to the motor shaft.  |
| <b>E</b>   | Electric motor              | Single-phase unit mounted on EPDM anti-vibration supports.   |
| <b>F</b>   | Supply grid                 | Made of powder-coated aluminum (metallic silver color), kiln-dried. The generous size reinforces the high mechanical resistance.   |
| <b>G</b>   | Return grid                 | Made of electro-galvanized sheet metal painted with oven-dried epoxy powders (metallic silver or RAL 9010), with quick access for filter cleaning and safety microswitch.  |
| <b>H</b>   | Condensate pan              | Condensate pan drip tray in impact-resistant ABS (for horizontal installation, SL/ SLI versions optional).   |
| <b>L</b>   | Front panel                 | Made of electro-galvanized sheet metal painted with oven dried epoxy powder (metallic silver or RAL 9010).   |
| <b>M</b>   | Removable side panels       | For inspection of the compartment, electrical or hydraulic connections.  |
| <b>N</b>   | Filter                      | Polypropylene honeycomb, dustable by washing or blowing. G1 class according to EN 779.   |
| <b>O</b>   | Condensate drain connection | To convey the condensate to a suitable location for drainage.  |

## DIMENSION, WEIGHT

With cabinet version : 42SIC 2 PIPES - 42SIC 4 PIPES - 42SIR 2 PIPES



Without cabinet version : 42SIN 2-PIPE - 42SIN 4-PIPE - 42SIL 2 PIPE



### 42SIC 2 PIPES

| DIMENSIONS    |    | 42SIC29F/G | 42SIC49F/G | 42SIC69F/G | 42SIC89F/G | 42SIC99F/G |
|---------------|----|------------|------------|------------|------------|------------|
| A             | mm | 735        | 935        | 1135       | 1335       | 1535       |
| B             | mm | 579        | 579        | 579        | 579        | 579        |
| D             | mm | 129        | 129        | 129        | 129        | 129        |
| <b>WEIGHT</b> |    |            |            |            |            |            |
| Net weight    | kg | 17         | 20         | 23         | 26         | 29         |

### 42SIC 4 PIPES

| DIMENSIONS    |    | 42SIC29C/D | 42SIC49C/D | 42SIC69C/D | 42SIC89C/D | 42SIC99C/D |
|---------------|----|------------|------------|------------|------------|------------|
| A             | mm | 737        | 937        | 1137       | 1337       | 1537       |
| B             | mm | 639        | 639        | 639        | 639        | 639        |
| D             | mm | 131        | 131        | 131        | 131        | 131        |
| <b>WEIGHT</b> |    |            |            |            |            |            |
| Net weight    | kg | 18         | 21         | 25         | 28         | 32         |

### 42SIR 2 PIPES

| DIMENSIONS    |    | 42SIR29F/G | 42SIR49F/G | 42SIR69F/G | 42SIR89F/G | 42SIR99F/G |
|---------------|----|------------|------------|------------|------------|------------|
| A             | mm | 735        | 935        | 1135       | 1335       | 1535       |
| B             | mm | 379        | 379        | 379        | 379        | 379        |
| D             | mm | 129        | 129        | 129        | 129        | 129        |
| <b>WEIGHT</b> |    |            |            |            |            |            |
| Net weight    | kg | 12         | 14         | 16         | 19         | 23         |

### 42SIN 2-PIPES

| DIMENSIONS    |    | 42SIN29F/G | 42SIN49F/G | 42SIN69F/G | 42SIN89F/G | 42SIN99F/G |
|---------------|----|------------|------------|------------|------------|------------|
| A             | mm | 525        | 725        | 925        | 1125       | 1325       |
| B             | mm | 576        | 576        | 576        | 576        | 576        |
| D             | mm | 126        | 126        | 126        | 126        | 126        |
| <b>WEIGHT</b> |    |            |            |            |            |            |
| Net weight    | kg | 9          | 12         | 15         | 18         | 21         |



## OPERATING LIMITS

Water Temperature min : 4°C

Water Temperature maxi : 80°C

Air ambient temperature min. : 5°C

Air ambient temperature maxi. : 32°C

## HYDRAULIC CONNECTIONS

### POSITION OF CONNECTION AND POSSIBLE INVERSION

The standard configuration of the machines has the hydraulic connections on the left and the control panels on the right.

If the positions must be inverted, the operation can be performed directly in factory on request.

The position of the hydraulic connections can be inverted from left to right during installation.

The choice and the dimension of the hydraulic lines are the responsibility of the designer, who must operate in accordance with good practice regulations and laws in force.

|                 |     | 29  | 49  | 69  | 89  | 99  |
|-----------------|-----|-----|-----|-----|-----|-----|
| <b>Distance</b> |     |     |     |     |     |     |
| Water flow rate | l/h | 215 | 390 | 525 | 700 | 890 |
| Ø Steel         | "   | 1/2 | 1/2 | 1/2 | 3/4 | 3/4 |
| Ø Copper        | mm  | 14  | 16  | 18  | 18  | 22  |
| Ø Multilayer    | mm  | 16  | 18  | 20  | 20  | 26  |

The condensate drain pan must be suitably sized (minimal internal pipe diameter of at least 16mm) and the pipework must be positioned so that always maintain a certain slope along the route (never less than 1%)

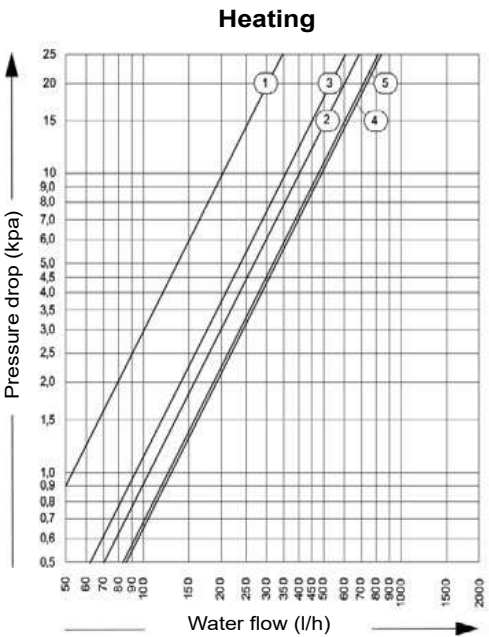
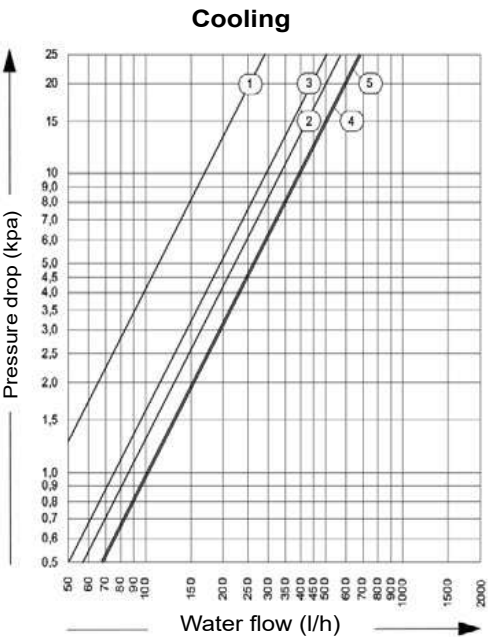
In vertical installation, the drain pipe is connected directly to the drainage tray positioned below the side panel, under the hydraulic connections.

# FLOW RATE - PRESSURE DROP CHARTS

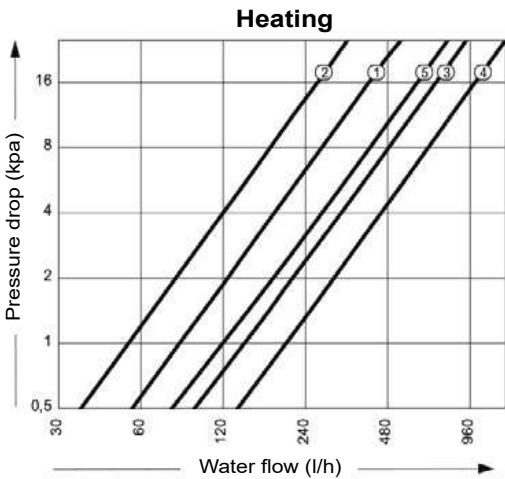
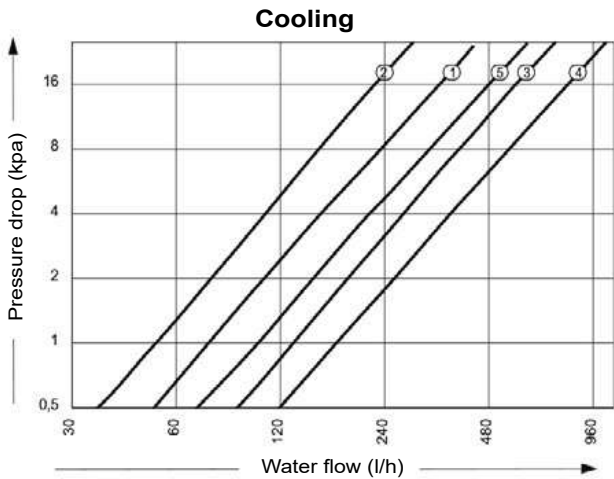
## Key

- 1 29 model
- 2 49 model
- 3 69 model
- 4 89 model
- 5 99 model

## 42SIC - 42SIN



## 42SIR - 42SIL



## THERMAL PERFORMANCES

### 2 PIPES

| PERFORMANCE                            |         |       | 42SIC29F/G<br>42SIN29F/G | 42SIR29F/G<br>42SIL29F/G | 42SIC49F/G<br>42SIN49F/G | 42SIR49F/G<br>42SIL49F/G | 42SIC69F/G<br>42SIN69F/G |
|--|---------|-------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Total cooling capacity                 | a       | kW    | 0,91                     | 0,51                     | 2,12                     | 1,21                     | 2,81                     |
| Sensible cooling capacity              | a       | kW    | 0,73                     | 0,43                     | 1,72                     | 1,01                     | 2,11                     |
| Water flow rate                        | a       | L/h   | 157                      | 88                       | 365                      | 208                      | 483                      |
| Water pressure drop                    | a       | kPa   | 12,1                     | 4,1                      | 8,2                      | 11,2                     | 17,1                     |
| Heating capacity                       | b       | kW    | 1,02                     | 0,61                     | 2,21                     | 1,51                     | 3,02                     |
| Water flow rate                        | b       | L/h   | 175                      | 105                      | 380                      | 260                      | 519                      |
| Water pressure loss                    | b       | kPa   | 9,1                      | 5,2                      | 9,2                      | 16,1                     | 19,1                     |
| HYDRAULIC FEATURES                     |         |       |                          |                          |                          |                          |                          |
| Coil water content                     | L       |       | 0,47                     | 0,28                     | 0,8                      | 0,5                      | 1,13                     |
| Maximum operating pressure             | bar     |       | 10                       | 10                       | 10                       | 10                       | 10                       |
| Hydraulic connections                  | EK      |       | 3/4                      |                          |                          |                          |                          |
| AERAULIC DATA                          |         |       |                          |                          |                          |                          |                          |
| Maximum airflow                        | d       | m³/h  | 146                      | 113                      | 294                      | 228                      | 438                      |
| Airflow at medium speed (AUTO mode)"   |         | m³/h  | 90                       | 63                       | 210                      | 155                      | 318                      |
| Airflow at minimum ventilation speed   |         | m³/h  | 49                       | 35                       | 118                      | 84                       | 180                      |
| Maximum static pressure available      |         | Pa    | 10                       | 10                       | 10                       | 10                       | 13                       |
| ELECTRICAL DATA                        |         |       |                          |                          |                          |                          |                          |
| Power supply voltage                   | V/ph/Hz |       | 230/1/50                 |                          |                          |                          |                          |
| Maximum electrical power consumption   | W       |       | 11                       | 11                       | 19                       | 19                       | 20                       |
| Maximum current input                  | A       |       | 0,11                     | 0,11                     | 0,16                     | 0,16                     | 0,18                     |
| Abs. Electrical power at minimum speed | W       |       | 5                        | 3                        | 4                        | 4                        | 6                        |
| SOUND LEVEL                            |         |       |                          |                          |                          |                          |                          |
| Sound Power at maximum speed           | db(A)   |       | 51                       | 51                       | 53                       | 53                       | 54                       |
| Sound pressure at maximum airflow      | e       | db(A) | 41                       | 39                       | 42                       | 40                       | 44                       |
| Sound pressure at average airflow      | e       | db(A) | 33                       | 33                       | 34                       | 33                       | 34                       |
| Sound pressure at minimum airflow      | e       | db(A) | 24                       | 24                       | 25                       | 25                       | 26                       |

(a) Inlet water temperature 7°C, outlet water temperature 12°C, ambient air temperature 27°C dry bulb and 19°C wet bulb (UNI EN 1397).

(b) Inlet water temperature 45°C, outlet water temperature 40°C, air temperature 20°C (UNI EN 1397 standard).

(c) Inlet water temperature 65°C, outlet water temperature 55°C, ambient air temperature 20°.

(d) Airflow measured with clean filters.

(e) Sound pressure measured at a distance of 1 metre according to ISO7779

## THERMAL PERFORMANCES

### 2 PIPES

| PERFORMANCE                            |         |       | 42SIR69F/G<br>42SIL69F/G | 42SIC89F/G<br>42SIN89F/G | 42SIR89F/G<br>42SIL89F/G | 42SIC99F/G<br>42SIN99F/G | 42SIR99F/G<br>42SIL99F/G |
|--|---------|-------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Total cooling capacity                 | a       | kW    | 1,62                     | 3,30                     | 2,12                     | 3,71                     | 2,60                     |
| Sensible cooling capacity              | a       | kW    | 1,44                     | 2,71                     | 1,99                     | 2,90                     | 2,34                     |
| Water flow rate                        | a       | L/h   | 279                      | 568                      | 365                      | 638                      | 447                      |
| Water pressure drop                    | a       | kPa   | 5,1                      | 18,0                     | 5,3                      | 21,2                     | 7,2                      |
| Heating capacity                       | b       | kW    | 2,03                     | 3,81                     | 2,62                     | 4,32                     | 3,11                     |
| Water flow rate                        | b       | L/h   | 349                      | 655                      | 451                      | 743                      | 535                      |
| Water pressure loss                    | b       | kPa   | 7,3                      | 21,2                     | 8,1                      | 23,3                     | 10,2                     |
| HYDRAULIC FEATURES                     |         |       |                          |                          |                          |                          |                          |
| Coil water content                     | L       |       | 0,61                     | 1,46                     | 0,77                     | 1,8                      | 0,9                      |
| Maximum operating pressure             | bar     |       | 10                       | 10                       | 10                       | 10                       | 10                       |
| Hydraulic connections                  | EK      |       | 3/4                      |                          |                          |                          |                          |
| AERAULIC DATA                          |         |       |                          |                          |                          |                          |                          |
| Maximum airflow                        | d       | m³/h  | 331                      | 567                      | 440                      | 663                      | 489                      |
| Airflow at medium speed<br>(AUTO mode) |         | m³/h  | 229                      | 410                      | 283                      | 479                      | 344                      |
| Airflow at minimum ventilation speed   |         | m³/h  | 124                      | 247                      | 138                      | 262                      | 167                      |
| Maximum static pressure available      |         | Pa    | 10                       | 13                       | 10                       | 13                       | 10                       |
| ELECTRICAL DATA                        |         |       |                          |                          |                          |                          |                          |
| Power supply voltage                   | V/ph/Hz |       | 230/1/50                 |                          |                          |                          |                          |
| Maximum electrical power consumption   | W       |       | 20                       | 29                       | 29                       | 33                       | 33                       |
| Maximum current input                  | A       |       | 0,18                     | 0,26                     | 0,26                     | 0,28                     | 0,28                     |
| Abs. Electrical power at minimum speed | W       |       | 4                        | 5                        | 4                        | 5                        | 5                        |
| SOUND LEVEL                            |         |       |                          |                          |                          |                          |                          |
| Sound Power at maximum speed           |         | dB(A) | 54                       | 55                       | 55                       | 57                       | 57                       |
| Sound pressure at maximum airflow      | e       | dB(A) | 41                       | 46                       | 42                       | 47                       | 43                       |
| Sound pressure at average airflow      | e       | dB(A) | 34                       | 35                       | 34                       | 38                       | 36                       |
| Sound pressure at minimum airflow      | e       | dB(A) | 25                       | 26                       | 26                       | 28                       | 27                       |

(a) Inlet water temperature 7°C, outlet water temperature 12°C, ambient air temperature 27°C dry bulb and 19°C wet bulb (UNI EN 1397).

(b) Inlet water temperature 45°C, outlet water temperature 40°C, air temperature 20°C (UNI EN 1397 standard).

(c) Inlet water temperature 65°C, outlet water temperature 55°C, ambient air temperature 20°.

(d) Airflow measured with clean filters.

(e) Sound pressure measured at a distance of 1 metre according to ISO7779



## COMPACT AIR HANDLING UNIT



The modular Ultra-Slim  
AHU is the guaranteed  
perfect solution

Ideal for a compact  
installation

Available in single-flow or  
aligned or adjacent dual-  
flow versions

# 39CQ

Air flow: 1000-6000m<sup>3</sup>/h

The 39CQ air handling unit is a modular ventilation unit, which can be configured to meet all your requirements whilst complying with current standards.

It is available in several versions: single-flow, aligned dual-flow, adjacent dual-flow.

The 39CQ AHU is used for fresh air change, air recirculation, air extraction and air handling using its filtration, heating, cooling, recovery and ventilation functions...



## USE

There are three different installations in the range, so it can be adapted to meet your needs:

- horizontal ceiling-mounted version, accessed from underneath,
- horizontal floor-mounted version, accessed from the top,
- vertical wall-mounted version, accessed via the front.

It is available in three sizes to meet all your needs, able to handle air flows from 1000 to 6000 m<sup>3</sup>/h.

At 400 mm thick, it is ultra compact and can be fitted into the tightest of spaces.

This range is particularly well-suited to tertiary buildings:

- administration, offices,
- education facilities, libraries, community centres,
- cafés, hotels, restaurants,
- shopping centres, nursing homes, healthcare facilities,
- collective housing

All installations requiring ventilation.

## RANGE

The 39CQ range comprises 3 sizes from 1000 to 6000 m<sup>3</sup>/h.

There are four standardised lengths of casing, adapted to the configuration and options selected.

The AHU will therefore comprise one or several casings, depending on your selection; 610, 830, 1100 and 1400 mm modules.

| 39CQ   | 025  | 040  |   | 060        |
|--|--|--|---|------------|
| Assembly   | Ceiling-mounted (C), Floor-mounted (F), Vertical (V) |  |   |            |
| Width/Height   | 750*400  | 1310*400   |   | 1880*400   |
| Nominal air flow (m³/h) (Speed: 3.1 m/s across finned layer) | 2000   | 4000   |   | 6000       |
| Plug fan, AC motor   | Plug fan   | 1  | 1 | 2          |
|  | Electric motor                                       | 1  | 1 | 2          |
|  | Available power                                      | 0.55 kW - 4-pole/1.1 kW - 2-pole/1.4 kW - 2 pole |   |            |
|  | Number of inverters                                  | 1  | 1 | 1          |
| Plug fan, AC motor   | Plug fan   | 1  | 1 | 2          |
|  | EC motor   | 1  | 1 | 2          |
|  | Available power                                      | 1 kW   |   |            |
| Pleated filters  | G4 / M5 / F7 HEE / F9 HEE                            |  |   |            |
| Opacimetric filters (Short flexible pockets)                 | M6 / F7  |  |   |            |
| Opacimetric filters (Rigid pockets)                          | M6 / F7 / F8 / F9                                    |  |   |            |
| Hydraulic heating coil                                       | 1/2/3 rows   | 1/2/4 rows                                       |   | 1/2/4 rows |
| Hydraulic cooling coil                                       | 3/4/6 rows   |  |   |            |
| Direct expansion cooling oil                                 | 3/6 rows   |  |   |            |
| Electric heating coil  | 15 kW  | 24 kW  |   | 33 kW      |
| Adjacent plate heat exchanger                                | Yes  | Yes  |   | No         |

## DESCRIPTION

### Casing

- Double-skin panels made from sheet steel, galvanised on both sides, thickness 8/10 mm
- RAL 7035 lacquer coated finish on external panels
- M0/A1 fire rating
- Mineral wool, thickness 25 mm

### Connection and utilities

- Hydraulic connection possible on the right or left (to be specified when ordering).
- The access doors are positioned according to the choice of model:
  - horizontal ceiling-mounted model: access doors located underneath the unit,
  - horizontal floor-mounted model: access doors located on top of the unit,
  - vertical wall-mounted model: access doors on the front of the unit

### Damper

- Uncased external damper
- Damper in choice of sealing class 1 or 3, as per EN 1751
- Damper thickness 110 mm and height 310 mm
- Optional servomotor

### Filtration

- Filter cell with universal dimensions
- Three filtration stages possible per air flow rate
- Pleated filters in efficiency class G4, M5, F7 and F9 HPE
- Short bag filters in efficiency classes M6 to F7
- Rigid bag filters in efficiency classes M6 to F9
- Pressure tapping as standard on each filtration stage
- Option, pressure switch, pressure gauge, ...

## DESCRIPTION

### Heat exchange coil

- Hydraulic coil
  - Copper tubes, aluminium fins
  - Choice of 3 coil sizes for each AHU size
  - Optional frost protection thermostat with automatic reset
  - Condensate drain pan in stainless steel
- Evaporator coil
  - Copper tubes, aluminium fins
  - Choice of 3 coil sizes for each AHU size
  - Stainless condensate drain pan

- Electric heater
  - Shielded resistors in scrolled finned pipes
  - 2 high-limit safety thermostats: one automatic and one manual reset
  - Anti-radiation screen, depending on the upstream and downstream elements

#### Output power supplied by the electric heaters

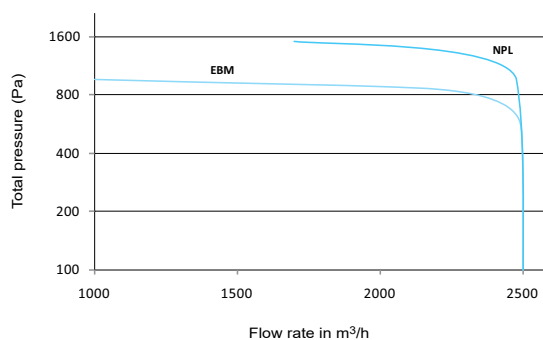
| AHU size | Main casing      | Additional box   |                  |
|----------|------------------|------------------|------------------|
|          | 2 stages         | 2 stages         | 4 stages         |
| 025      | 2 * 7.5 = 15 kW  | 2 * 7.5 = 15 kW  | 4 * 7.5 = 30 kW  |
| 040      | 2 * 12 = 24 kW   | 2 * 12 = 24 kW   | 4 * 12 = 48 kW   |
| 060      | 2 * 16.5 = 33 kW | 2 * 16.5 = 33 kW | 4 * 16.5 = 66 kW |

### Ventilation

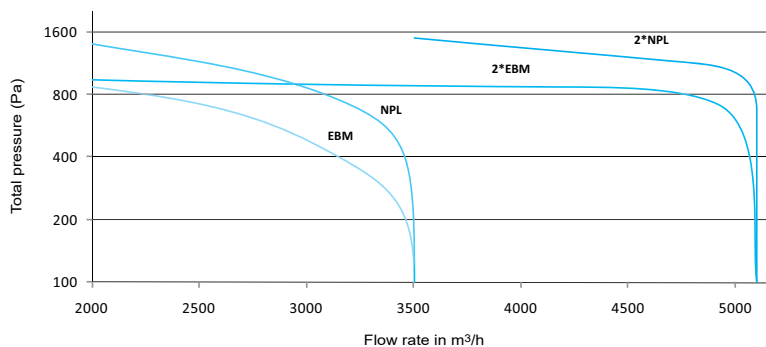
- "Plug Fan" type direct drive FMA.
- 1 or 2 FMA for each air flow rate, depending on the size and conditions.
- Plug fan combined with a motor at the end of the shaft.
- AC motor with optional frequency inverter.
- EC motor (electronically commutated motor with built-in variable speed control).

| 39CQ  | 025                             | 040  | 060  |
|---|---------------------------------|--|------|
| Assembly  | Ceiling-/floor-mounted/vertical |  |      |
| Nominal air flow (m <sup>3</sup> /h) (Speed: 3.1 m/s across finned layer) | 2000                            | 4000   | 6000 |
| Plug fan, AC motor  | Plug fan                        | 1  | 2    |
|   | Electric motor                  | 1  | 2    |
|   | Available power                 | 0.55 kW - 4-pole/1.1 kW - 2-pole/1.4 kW - 2 pole |      |
|   | Number of inverters             | 1  | 1    |
| Plug fan, EC motor  | Plug fan                        | 1  | 2    |
|   | EC motor                        | 1  | 2    |
|   | Available power                 | 1 kW   |      |

39CQ 025

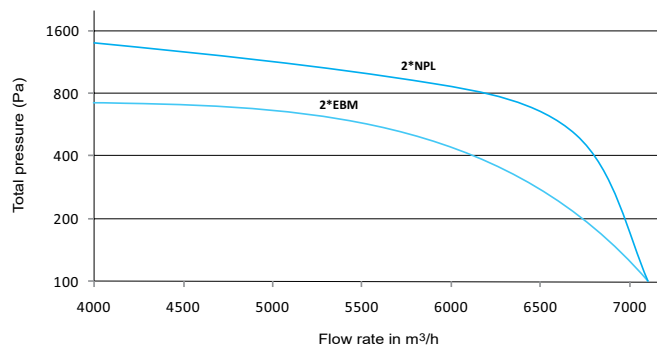


39CQ 040



## DESCRIPTION

### 39CQ 060



### Accessories and options

- 2-channel mixing box: 3 air flow positions available
- 3-way mixing box
- Angled or straight plenum
- Sound attenuator
- Adjacent plate heat exchanger (sizes 025 and 040 only)
- Control

### Control

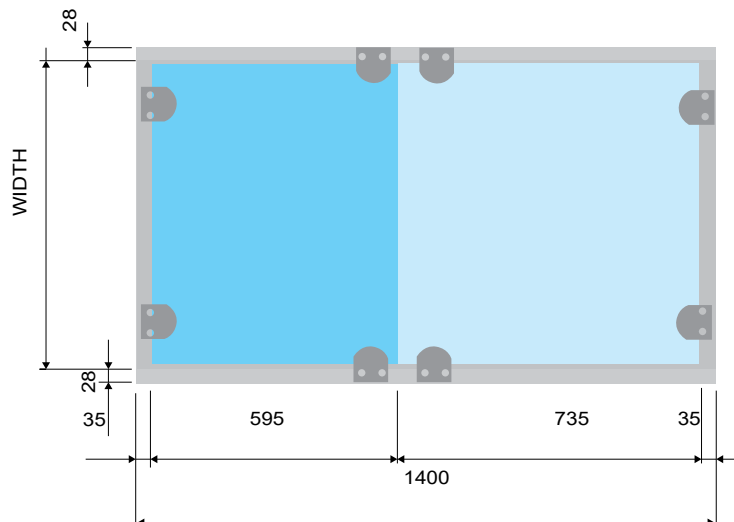
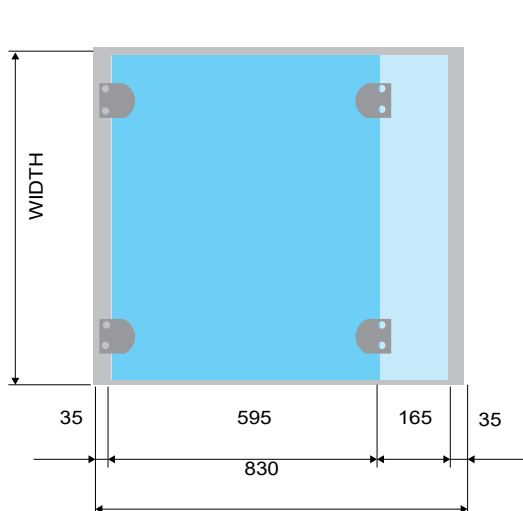
- Electrics box for power, control and internal regulation of the unit, comprising as standard:
  - Three-phase 400 V power supply + Earth
  - main disconnect switch
  - protected transformer
  - protection and control of all electrical components by a circuit-breaker and switch

- peripheral options and power terminal block
- surface-mounted electric heater unit, or delivered unassembled
- control by factory preprogrammed controller, algorithm created in-house
- hand-held cabled micro-terminal
- fault summary contact
- control by constant flow/constant pressure/CO<sup>2</sup>
- pressure and temperature sensors, depending on the selection
- numerous options and functions available

## SPACE REQUIREMENTS AND DIMENSIONS:

| DIMENSIONAL SPECIFICATIONS  |  |            |            |
|-----------------------------|--|------------|------------|
| AHU size                    | 025  | 040        | 060        |
| External dimensions (in mm) | 750 * 400  | 1310 * 400 | 1880 * 400 |
| Casing length (in mm)       | 610 - 830 - 1100 - 1400: Four standardised lengths of casing, automatically adapted to the components and options selected |            |            |

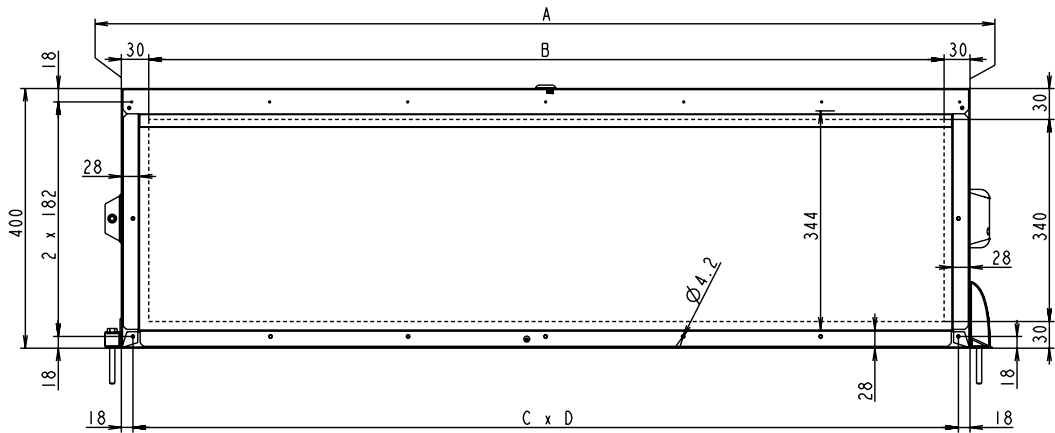
- 610 mm module ▶ 1 x 540 mm door
- 830 mm module ▶ 1 x 595 mm door
- 1100 mm module ▶ 1 x 595 mm door + 1 x 435 mm door
- 1400 mm module ▶ 1 x 595 mm door + 1 x 735 mm door



# AIR CONNECTION

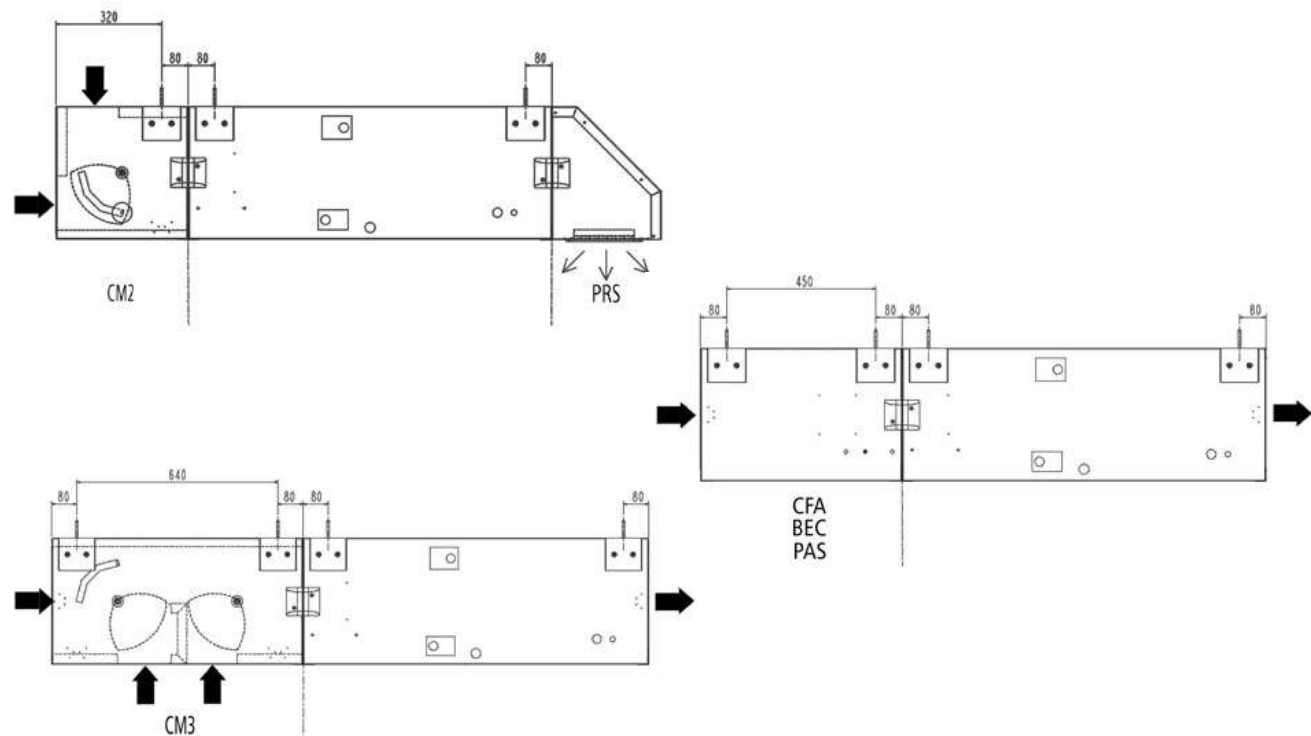
## Air connection

Air connection AHU intake - AHU discharge - Mixing and plate heat exchanger



|          | A    | B    | C | D     |
|----------|------|------|---|-------|
| 39CQ 025 | 750  | 690  | 3 | 238   |
| 39CQ 040 | 1310 | 1250 | 6 | 212,3 |
| 39CQ 060 | 1880 | 1820 | 8 | 230,5 |

## Examples of compositions





## HIGH-EFFICIENCY DUAL-FLOW AIR HANDLING UNIT



Plug & play unit  
(built-in control)

Class A+ across  
entire range

Classic / Vertical dual-flow

High-efficiency  
heat recovery unit

High performance plug fan

## 39HX

The 39HX dual-flow air handling unit is a PLUG & PLAY ventilation unit equipped with a highly efficient heat recovery unit with plug fans and high performance EC motors, designed to meet all the requirements of recent ecodesign regulations.

Unit supplied ready to use, prewired, preprogrammed in the factory and supplied with a remote control.

It draws clean, fresh air indoors using, on average, 80% less energy than that needed for air conditioning (cooling and heating).



[www.eurovent-certification.com](http://www.eurovent-certification.com)



## USE

These units are designed for use in the following applications:

- Administrative buildings, Offices
- Education facilities, Libraries, Community centres
- Cafés, Hotels, Restaurants
- Shopping Centres
- Nursing homes, Healthcare facilities
- Collective Housing

⇒ All facilities where ventilation is required.

| Specifications       | Class |
|----------------------|-------|
| Mechanical strength  | D2    |
| Airtightness         | L1    |
| Filter bypass leak   | F9    |
| Thermal transmission | T3    |
| Thermal bridge       | TB2   |

**39HXE & HXEZ models:** 9 sizes, air flow from 300 to 18,000 m<sup>3</sup>/h. Floor-mounted horizontal unit with horizontal air flows and air connections on the sides.

**39HXEZ model:** 9 sizes, air flow from 300 to 18,000 m<sup>3</sup>/h.

Wheel equipped with a purge sector as standard

**39HXA model:** 5 sizes, air flow from 350 to 8500 m<sup>3</sup>/h.

**39HXC model:** 5 sizes, air flow from 300 to 6600 m<sup>3</sup>/h.

Floor-mounted horizontal unit with horizontal air flows and air connections on the sides.

**39HXV model:** 3 sizes, air flow from 300 to 2600 m<sup>3</sup>/h. Floor-mounted vertical unit with vertical air flows and air connections on the top.

### High energy-efficiency heat recovery unit

Depending on its layout, the 39HX offers two different high-efficiency heat recovery systems:



"CONTRA FLOW" plate heat exchanger fitted with a bypass (C, V, H models)



Rotary heat exchanger (39HXA and 39HXE & HXEZ models) Optimal heat recovery all year round

## RANGE

### Classic 39HXC, 39HXE & 39HXEZ

| Sizes | Nominal flow rate (m <sup>3</sup> /h) | Max. power* (kW) | Max current* (A) | Voltage (V) |
|-------|---------------------------------------|------------------|------------------|-------------|
| 010   | 1000                                  | 1,43             | 6,2              | 1-Ph 230    |
| 020   | 2000                                  | 2,50             | 3,6              | 3-Ph 400    |
| 030   | 3000                                  | 3,82             | 5,5              |             |
| 040   | 4000                                  | 4,23             | 6,1              |             |
| 050   | 5000                                  | 4,23             | 6,1              |             |
| 060   | 6000                                  | 6,03             | 8,7              |             |
| 075   | 7500                                  | 6,03             | 8,7              |             |
| 100   | 10000                                 | 12,06            | 17,4             |             |
| 150   | 15000                                 | 15,45            | 22,3             |             |

### 39HXA

| Sizes | Nominal flow rate (m <sup>3</sup> /h) | Max. power* (kW) | Max current* (A) | Voltage (V) |
|-------|---------------------------------------|------------------|------------------|-------------|
| 010   | 1000                                  | 1,2              | 5,4              | 1-Ph 230    |
| 020   | 2000                                  | 2,5              | 2,9              | 3-Ph 400    |
| 030   | 3000                                  | 4,2              | 6,1              |             |
| 050   | 5000                                  | 6,1              | 8,8              |             |
| 075   | 7500                                  | 7,1              | 10,3             |             |

### Vertical 39HXV

| Sizes | Nominal flow rate (m <sup>3</sup> /h) | Max. power* (kW) | Max current* (A) | Voltage (V) |
|-------|---------------------------------------|------------------|------------------|-------------|
| 007   | 1000                                  | 1,43             | 6,2              | 1-Ph 230    |
| 015   | 1500                                  | 2,50             | 3,6              | 3-Ph 400    |
| 020   | 2000                                  | 2,50             | 3,6              |             |

\* These values are provided for guidance only and are based on a standard dual-flow unit without electric heater option.

## DESCRIPTION

### Casing

- Double-skin panels made from steel sheet metal, galvanised on both sides, thickness 8/10 mm.
- RAL 7035 grey precoated external panels.
- Class M0/A1.
- Mineral wool, 50 mm thick.

### Filtration

- M5 HEE, F7 HEE, F9 HEE filters.
- Filter cells kept compressed by a special system to ensure a leaktight seal.
- HXC, HXV models: fouling value monitored by analogue sensor and displayed by the controller.
- HXA model: pressure switch control on each air flow. Pressure switch status displayed by the controller.

### Ventilation

- Plug fan driven by an electronically commutated motor (EC motor, built-in variable speed control).

### Heat recovery units

- "Contra Flow" plate heat exchanger equipped with a motorised bypass (HXC and HXV models). Efficiency greater than 80% across the range of air flows.
- Rotary heat exchanger equipped with variable rotation speed control (39HXC & HXV models).
  - ⇒ Efficiency greater than 80% at nominal flow rate.
- Purge sector as standard (39HXC model)
- Constant speed rotary heat exchanger (HXA model)
  - ⇒ Efficiency greater than 80% at nominal flow rate.

### Hydraulic coil

- Copper pipes, aluminium fins.
- Coil can be integrated or additional (cased).
- With the accessory fitted, 2- or 3-way control valve and 0-10 V actuator controlled by 39HX Control for setpoint accuracy.
- Stainless steel condensate drain pan (cooling coil or mixed coil only).

### Electric heaters

- High-limit safety thermostat with automatic and manual reset.
- Control by 2-stage on/off operation fully controlled by 39HX Control.

### DX coil

- Copper tubes, aluminium fins.
- For reversible heating/cooling operation.
- Internal space optimised for VRV units.
- Stainless steel condensate drain pan.

List of outdoor units optimised for 39HXA DX available on request.

### Electrics box

- Electrics box for power, control and internal regulation of the unit, comprising as standard:
  - Power supply (3-Ph 400 V + Earth or 1-Ph 230 V + Earth).
  - Main disconnect switch.
  - Protected transformer.
  - Protection and control of all electrical components by a circuit breaker and contact switch.
  - Peripheral options and power terminal block.
  - Factory-programmed PLC control.
  - Hand-held cabled micro-terminal.
  - Fault summary contact.
  - 3 temperature sensors.
  - 4 pressure sensors (2 pressure sensors and 2 pressure switches on the 39HXA model).
  - Control unit option for factory-fitted/wired DX unit (39HXA model)

### Accessories

Damper formed of airfoil blades, powered by a servomotor  
On/off with return spring.  
Flexible sleeve.  
Adjustable feet.  
CO<sub>2</sub> air quality sensor.  
Roof.  
Canopy.  
Mixing section.  
Remote ambience control.  
ModBus RTU, KNX, ModBus communication  
TCP, Bacnet IP, web interface.

| MODELS & SIZES              | Power (kW) | Current (A) | Voltage (V) |
|-----------------------------|------------|-------------|-------------|
| C 010 & E & EZ 010<br>V 007 | 4,5        | 20          | 1-Ph 230    |
| V 015 (additional casing)   | 7,20       | 11          |             |
| V 015                       | 8,1        | 12          |             |
| C 020 & E & EZ 020          | 10,8       | 16          |             |
| C 030 & E & EZ 030          | 12,6       | 19          |             |
| C 040 & E & EZ 040          | 16,8       | 25          |             |
| E & EZ 050                  | 19,8       | 29          |             |
| C 060 & E & EZ 060          | 22,8       | 34          |             |
| E & EZ 075                  | 31,2       | 46          |             |
| E & EZ 100                  | 50         | 74          |             |
| E & EZ 150                  | 65         | 96          | 3-Ph 400    |

## CONTROL

### 39HX Control

The 39HX features, as standard, an electrics box equipped with a factory-programmed PLC and a hand-held micro-terminal.

| 39HX Control function                     |   |  |                        | Included | Options* |
|---|---|--|------------------------|----------|----------|
| <b>Fan time schedule</b>                  | Built-in timer: management in series  | 4 events per year, per week and per day  |                        | X        |          |
| <b>Safety</b>                             | Frost protection  | By fresh air temperature control   |                        | X        |          |
|   |   | By monitoring the pressure difference from the heat recovery unit on the flow of exhaust air (analogue sensor) |                        |          | X        |
|   | Monitoring of sensor status   |  |                        | X        |          |
|   | Monitoring operation values (thresholds)  |  |                        | X        |          |
|   | Operating control of EC fan motor assemblies  |  |                        | X        |          |
|   | Filter fouling control<br>(via analogue sensor or pressure switch, depending on the model)                        |  |                        | X        |          |
|   | Fault summary   |  |                        | X        |          |
| <b>Alarms</b>                             | Fire monitoring (input available for potential free (dry) contact (normally closed))                              |  |                        | X        |          |
|   | Management of alarms and log (100)  |  |                        | X        |          |
| <b>Control mode</b>                       | Control of return air or supply air temperature   |  |                        | X        |          |
|   | Regulated temperature control based on outdoor temperature  |  |                        | X        |          |
|   | Control of room temperature with a room terminal  |  |                        |          | X        |
| <b>Hot air and/or cold air production</b> | Gradual action on the 2- or 3-way control valve on the hydraulic coil   |  |                        |          | X        |
|   | Gradual action on the electric heater TRIAC   |  |                        |          | X        |
|   | On/Off action on the various stages of the electric heater  |  |                        |          | X        |
| <b>DX*** coil</b>                         | Gradual action on a VRV outdoor unit  |  |                        |          | X        |
|   | Heating/cooling control   |  |                        |          | X        |
|   | Optimised defrost cycle management  |  |                        |          | X        |
| <b>Free cooling</b>                       | Shut-down of the rotary heat exchanger (HXE & HXEZ and HXA models)  |  |                        | X        |          |
|   | Opening of the bypass on the Contra Flow plate heat exchanger (HXC and HXH models)                                |  |                        | X        |          |
| <b>Night cooling function</b>             | Shut-down of the rotary heat exchanger (HXE & HXEZ and HXA models)  |  |                        | X        |          |
|   | Opening of the bypass on the Contra Flow plate heat exchanger (HXC and HXH models)                                |  |                        | X        |          |
| <b>Efficiency optimisation</b>            | Variation of the rotation speed of the rotary recovery unit (HXE & HXEZ model)                                    |  |                        | X        |          |
| <b>Configuration of the air flow rate</b> | 2 air flow rate setpoints per air flow  |  |                        | X        |          |
|   | Display of the air flow rate  |  |                        | X        |          |
| <b>Constant flow rate operation</b>       | Keeps the air flow rate constant regardless of how fouled the filters are   |  |                        | X        |          |
| <b>Modulation of flow rates operation</b> | Single zone   | 0-10V signal   | CO <sub>2</sub> sensor |          | X        |
|   |   | Contact  | Presence contact       |          | X        |
|   | Multi zone  | External contact   |                        |          | X        |
|   |   | Air supply duct constant pressure operation  |                        |          | X        |
| <b>Communicating mode</b>                 | Management by CMS   | ModBus RS485 protocol  |                        |          | X        |
|   |   | KNX protocol   |                        |          | X        |
|   |   | ModBus TCP/BACNET IP protocol  |                        |          | X        |
|   |   | Web interface  |                        |          | X        |
| <b>Miscellaneous</b>                      | Colour touchscreen interface with synoptic  |  |                        |          | X        |
|   | Languages supported (French/English/German/Dutch/Spanish/Italian)   |  |                        | X        |          |
|   | Integrated temperature sensors (*3: fresh air supply and extraction, exhaust air extraction)                      |  |                        | X        |          |
|   | Integrated pressure checks<br>(*4: fresh air and exhaust air filter fouling level, fresh air and exhaust air fan) |  |                        | X        |          |
|   | Damper control  |  |                        |          | X        |
|   | Information provided to the user via the hand-held micro terminal   |  |                        | X        |          |
|   | Contact for controlling the pumps for the hydraulic coils (with operating control)**                              |  |                        | X        |          |
|   | Contact for controlling an external outdoor heat production system (boiler, etc.)**                               |  |                        | X        |          |
|   | Contact for controlling a humidifier**  |  |                        | X        |          |
|   | Electric heater load shedding input**   |  |                        | X        |          |

Option\*: Requires the component to be selected as an option: damper, coil, CO<sub>2</sub> sensor, etc.

\*\* Except 39HXA model

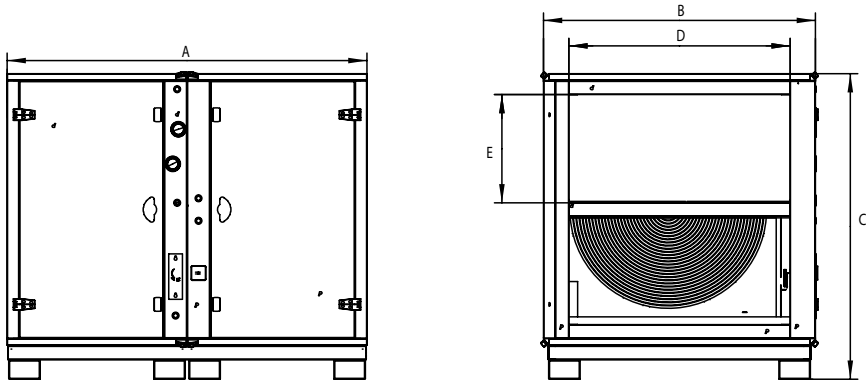
\*\*\* Only available on the 39HXA model

# AIR FLOW DIMENSIONS AND ORIENTATION

## Classic 39HXC, 39HXE & HXEZ & 39HXA

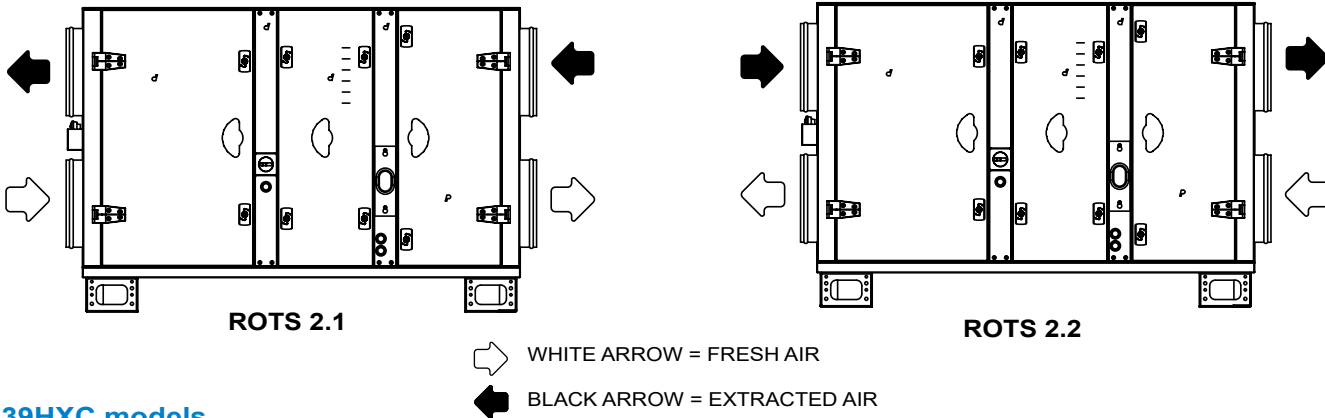
| Sizes | 39HXC, 39HXE & HXEZ & 39HXA |                   |                    |        |           |           |              |     |      |      |
|-------|-----------------------------|-------------------|--------------------|--------|-----------|-----------|--------------|-----|------|------|
|       | Height (C)<br>(mm)          | Width (B)<br>(mm) | Length (A)<br>(mm) |        |           |           | Weight (kg)* |     |      |      |
|       |                             |                   | HXC                | HXA    | HXE       | HXEZ      | HXC          | HXA | HXE  | HXEZ |
| 010   | 958                         | 810               | 1580               | 1266** | 1266      | 1480      | 200          | 180 | 201  | 273  |
| 020   | 1158                        | 1010              | 1150 + 800         | 1310** | 510+800   | 800+800   | 350          | 250 | 309  | 382  |
| 030   | 1359                        | 1210              | 1264 + 800         | 1600   | 800+800   | 1264+800  | 465          | 330 | 432  | 556  |
| 040   | 1659                        | 1510              | 1264 + 800         | -      | 800+800   | 1264+800  | 580          | -   | 558  | 654  |
| 050   | 1659                        | 1510              | -                  | 1600   | 800+800   | 1264+800  | -            | 445 | 604  | 704  |
| 060   | 1959                        | 1810              | 1407 + 800         | -      | 800+800   | 1407+800  | 765          | -   | 702  | 742  |
| 075   | 1959                        | 1810              | -                  | 1600   | 800+800   | 1407+800  | -            | 580 | 751  | 811  |
| 100   | 2090                        | 1920              | -                  | -      | 1100+1100 | 1820+1100 | -            | -   | 955  | 1065 |
| 150   | 2340                        | 2192              | -                  | -      | 1100+1200 | 1820+1200 | -            | -   | 1250 | 1357 |

\* Without internal option.  
 \*\* Circular coupling; protrudes 47 mm on either side.

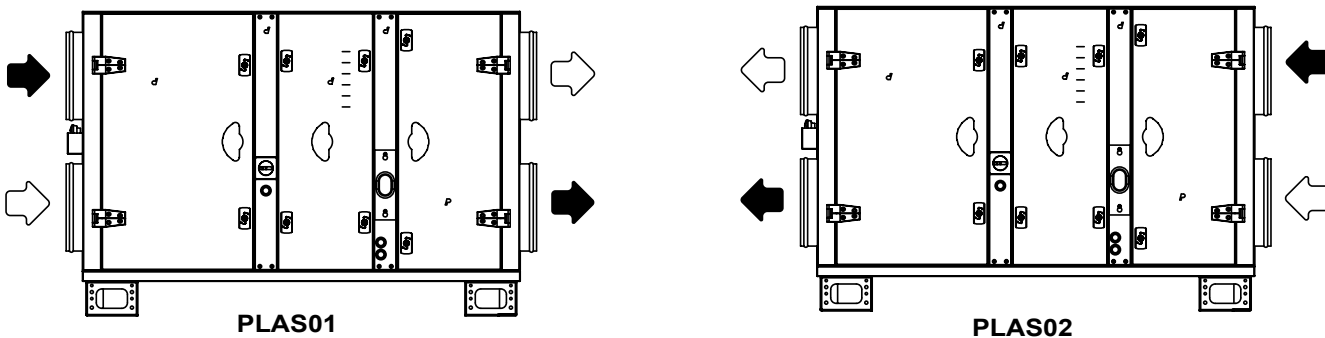


## AIR FLOW ORIENTATION

### 39HXE & HXEZ, 39HXA models



### 39HXC models



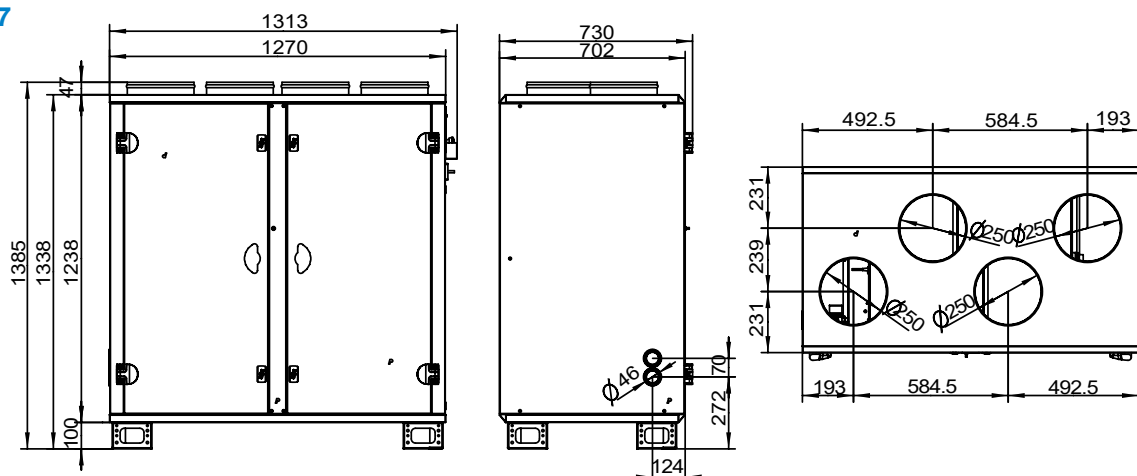
## AIR FLOW DIMENSIONS AND ORIENTATION

### Vertical 39HXV

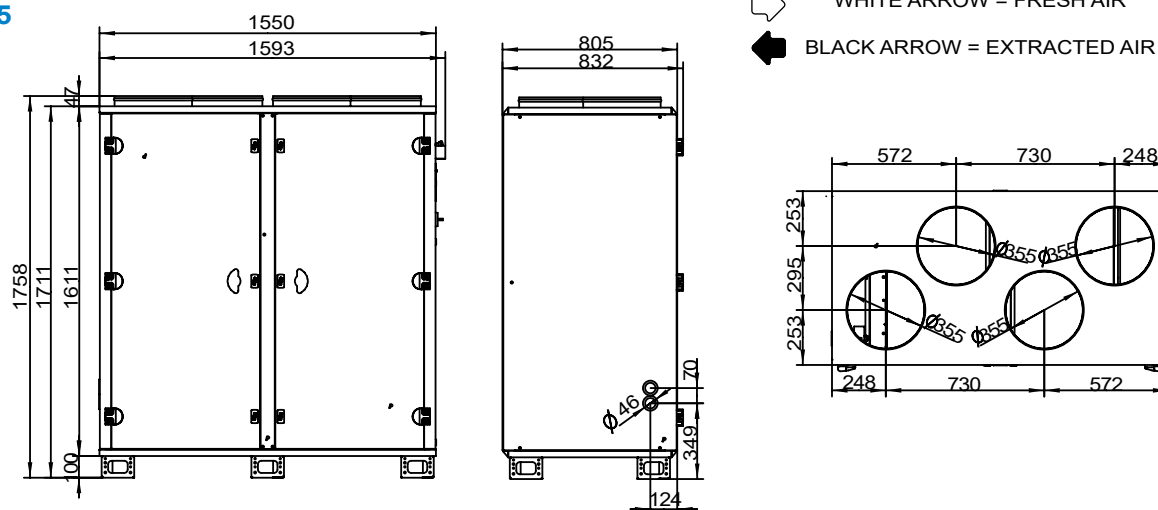
| Sizes | Dimensions |        |       | Weight (kg)* |
|-------|------------|--------|-------|--------------|
|       | Height     | Length | Width |              |
| 007   | 1385       | 1313   | 730   | 202          |
| 015   | 1758       | 1593   | 832   | 330          |
| 020   | 1901       | 1735   | 832   | 389          |

\* Without internal option

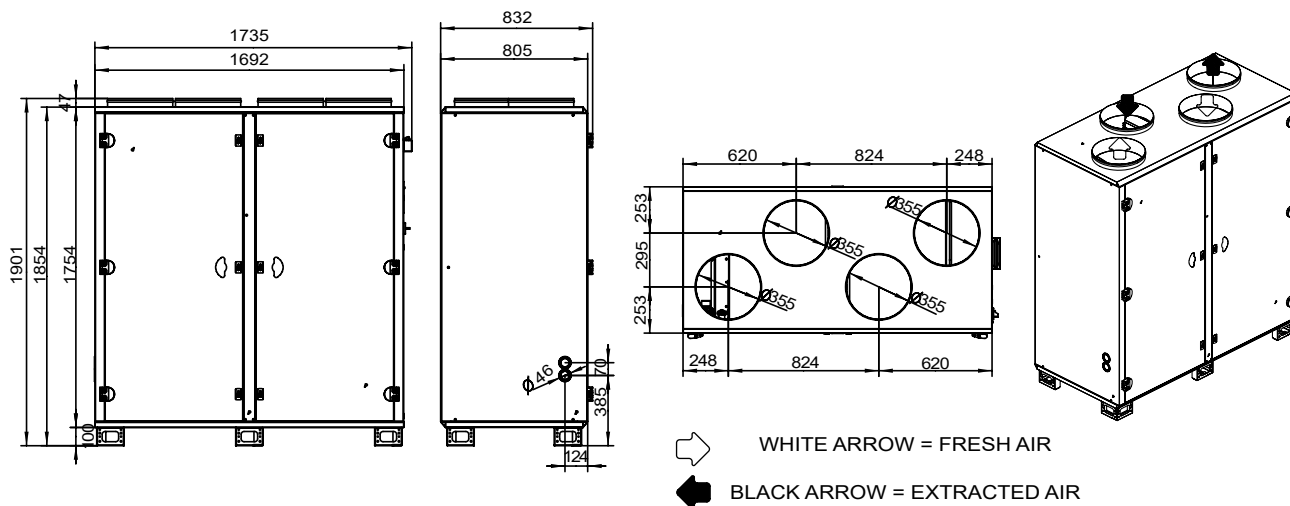
#### Size 007



#### Size 015



#### Size 020

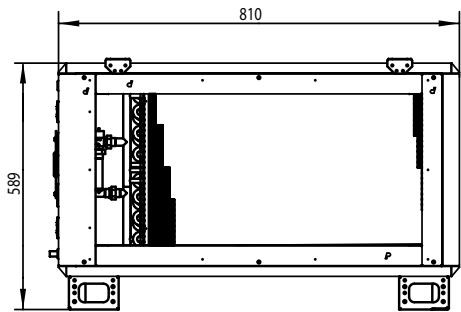


# AIR FLOW DIMENSIONS AND ORIENTATION

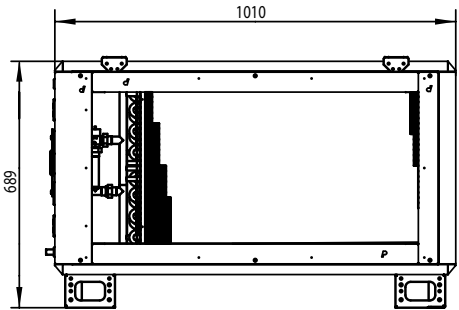
Additional casing (MUST ONLY BE POSITIONED IN A HORIZONTAL AIR FLOW)

| 39HX MODELS                              | Additional casing sizes (mm) | Weight (kg) |
|--|------------------------------|-------------|
| E & EZ 010 & C 010<br>V 007              | Size1<br>589 x 400 x 810     | 49 kg       |
| E & EZ 020 & C 020<br>V 015 & V 020      | Size 2<br>689 x 400 x 1010   | 62 kg       |
| E & EZ 030 & C 030                       | Size 3<br>759 x 400 x 1210   | 68 kg       |
| E & EZ 040 & E & EZ 050<br>C 040 & C 050 | Size 4<br>909 x 400 x 1510   | 88 kg       |
| E & EZ 060 & E & EZ 075<br>C 060 & C 075 | Size 5<br>1059 x 400 x 1810  | 112 kg      |

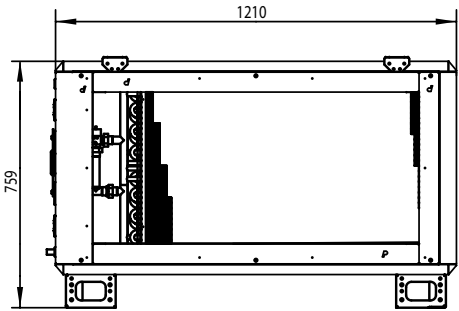
Size 1



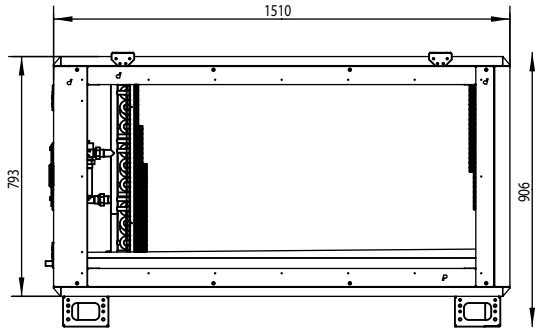
Size 2



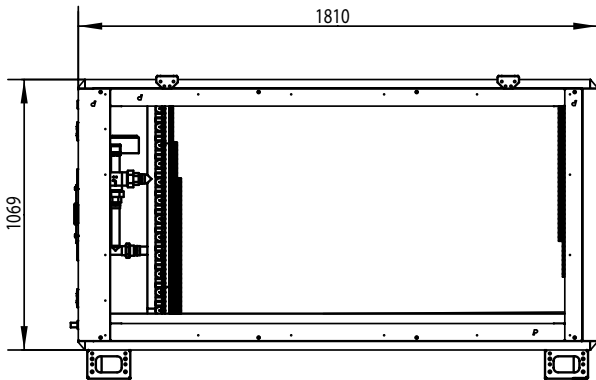
Size 3



Size 4



Size 5







## AIR HANDLING UNIT



AHU for multiple applications

Designed to conform  
to standards EN 13053  
and EN 1886

For all service sector, industry  
and healthcare environments

39CP C hygienic version

39CP D hygienic version  
DIN 1946-4 compliant.

VDI 6022 option.

## 39CP

Air flow: 1000 to 30,000m<sup>3</sup>/h

### Air handling unit: 39CP

The new range of 39CP air handling units is the latest generation of AHUs developed to meet the EN 1886 and EN13053 standards, integrating the most innovative components (high efficiency filters, heat recovery systems, EC fans, variable speed controllers, etc.).

This range has been designed to meet rigorous and stringent environmental requirements. As confirmation of its quality processes, the production facility has received certifications in the following standards: ISO 9001, ISO14001, ISO18001.

The 39CP range has EUROVENT AHU programme certification. This generation has been designed to meet these criteria, providing a high level of thermal classification, and ensuring it is suited for every application.

The range was developed by the European Air Side research and test center. It was designed using cutting edge digital resources, and all steps were confirmed by testing in climatic test and acoustic chambers.

The test center also enables CARRIER to offer its customers performance tests on manufactured products before they leave the facility in certain cases.

The painting, machining, panelwork, frame, fitting of gaskets, welding, and control tests are performed on production lines devoted entirely to the 39CP range.

The facility also produces air-water or refrigerant exchangers. Carrier uses its own calculating and sizing tools.

These factors give Carrier complete control of both its performances and its procurement cycles.

All of the above aspects combine to help create a high quality product which gives you complete satisfaction in a diverse range of applications, from offices and service sector administration to industrial processes and controlled environments in industry, satisfying also the healthcare requirements.



CARRIER participates in the ECP programme for  
39CP range Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)

## USE

The 39CP range is designed for the service, industry and healthcare sector to meet different requirements in terms of air mixing, filtration, heating, refrigeration, dehumidification, humidification, ventilation, recovery and sound attenuation. It is available as a horizontally-mounted version for installation indoors or outdoors with a roof and accessories to protect it from the weather. The range is available in a single or dual-flow version.

Thanks to the broad spectrum of solutions on offer, and the product's excellent modularity, the specifications for this product always comply with the EN 13053 and EN 1886 standards, whatever its configuration.

### 39CP L: tertiary sector applications



- Casing resistance: class D2
- Casing airtightness: class L1 (-400 Pa)/ L2 (+700 Pa)
- Thermal transmission: class T3 (option T2)
- Thermal bridging factor: class TB3 (option TB2)
- Filter bypass: class F9

### 39CP H and 39CP C: multiple applications



- Casing resistance: class D1
- Casing airtightness: class L1
- Thermal transmission: class T2
- Thermal bridging factor: class TB1
- Filter bypass: class F9

The standard EN-1886, define the main construction features for Air Handling units.

Among most important features we have :

**Thermal transmittance** [W.m-2.K-1]: The heat flow per area and temperature difference through the casing of the air handling unit.

**Thermal bridging factor** [-]: The ratio between the lowest temperature difference between any point on the external surface and the mean internal air temperature and the mean air-to-air temperature difference

Carrier 39CP range can be upgraded from T3/TB3 to T2/TB2 offering improved technical features and significant energy savings.

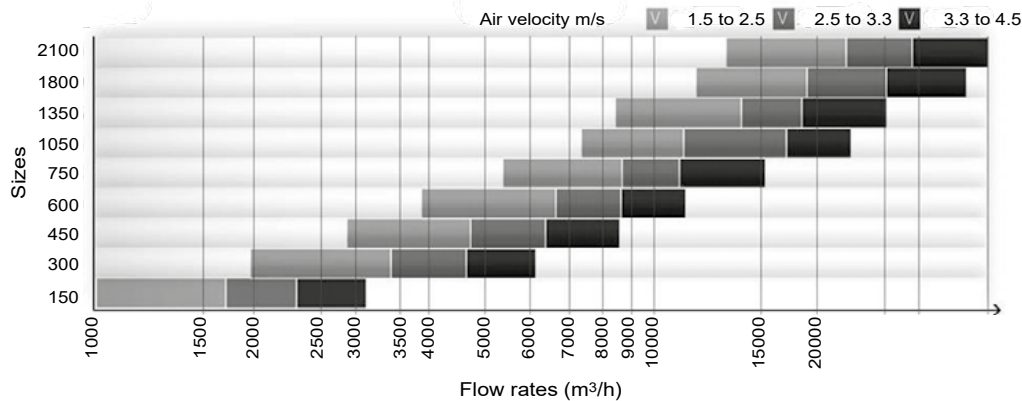
## RANGE

The 39CP segment 1 range consists of 9 sizes to handle air flow rates from 1000 to 30,000 m<sup>3</sup>/h.

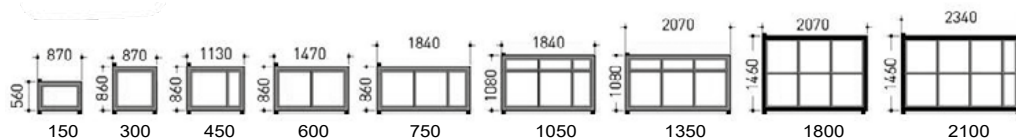
The diagram below is used to pre-select the required size according to:

- The air velocity in the front active section of the heat exchange coils
- The air flow rate to be handled.

**Selection table**



**AHU section by sizes (mm)**



## GENERAL DESCRIPTION OF THE 39CP RANGES

### Casing

- Self-supporting panel construction up to size 2100
- Double-skin panels with 50 mm mineral wool insulation with long fibres with a high insulation coefficient.
- Moulded high strength bi-component polyurethane gaskets for the casing and door, guaranteeing a perfect seal.
- Inside of the AHU is perfectly smooth and even, with no protruding screws, as per the specifications in European standard EN 13053 (no internal handles).
- Doors hung on high quality frames, guaranteeing durability, performance and easy access for maintenance with adjustable hinges, external twist-lock handles and decompression system.
- AHUs delivered in several units are equipped with specific factory-fitted assembly pieces, which ensure perfect alignment to simplify assembly.
- Each component unit of the AHU is equipped with an 80 mm ground insulation frame and multifunction ergonomic supports (handling, assembly).
- Each component is fitted with its own service panels. This allows independent removal for each function.

Standard:

#### 39CP L

- Conventional double-skin panels
- External wall made from sheet metal with RAL 7035 lacquer coating
- Internal wall made from Z275 galvanised steel

#### 39CP H

- Highly-insulated panels, with thermal bridge break profiles
- External wall made from sheet metal with RAL 7035 lacquer coating
- Internal wall made from Z275 galvanised steel

#### 39CP C

- Highly-insulated panels, with thermal bridge break profiles
- External wall made from galvanised steel with RAL 7035 lacquer coating
- Internal wall made from galvanised steel with RAL 7035 lacquer coating

## GENERAL DESCRIPTION OF THE 39CP RANGES

| OPTIONS AVAILABLE PER RANGE  | 39CP L   | 39CP H   | 39CP C   |
|--|----------|----------|----------|
| Textured RAL 7035 paintwork on external panels                             | Standard | Standard | Standard |
| Textured RAL 7035 paintwork on internal panels                             | X        | X        | Standard |
| Internal and/or external panels in 304 L or Z3CN 18.10 stainless steel     | NA       | X        | X        |
| Internal and/or external panels in 316 L or Z3CND 17.11.02 stainless steel | NA       | X        | X        |
| Stainless steel indoor baseframe   | X        | X        | X        |
| Sloped stainless steel indoor baseframe with drainage                      | NA       | X        | X        |
| Galvanised ground insulation frame (h = 80mm)                              | Standard | Standard | Standard |
| Painted frame  | X        | X        | X        |
| Stainless steel frame  | NA       | X        | X        |
| Factory-assembled AHU on common rack : max size 1350 or maximum length 6 m | X        | X        | X        |
| Container kit (for assembled air handling unit)                            | X        | X        | X        |
| Adjustable support feet with 60 mm extension                               | X        | X        | X        |
| Fixed extension feet up to 400 mm  | X        | X        | X        |
| Sloped roof for outdoor mounting   | X        | X        | X        |
| Louvres with grilles to match external casing finish                       | X        | X        | X        |
| Protective cover for external components to match external casing finish   | X        | X        | X        |
| Factory-fitted cable raceway   | X        | X        | X        |
| Lateral technical unit   | NA       | X        | X        |
| DIN 1946-4 hygienic option   | NA       | NA       | X        |

X Option

NA Not applicable

### Mixing and air intakes

The air inlet and mixing section may be installed at the intake, inserted between the functions or installed at the device outlet.

These functions are equipped with dampers formed of counter-rotating profiled blades, with lateral gaskets, and driven by conrods.

These dampers are installed outside of or inside the casing, depending on the solution chosen.

Independent control of the louvres: manual, motorised or ready to be motorised

The functions provided depend on the selection:

- Isolation damper
- Two-way mixing with air intake
- Two-way flow distributions: top, front or lateral
- Three-way mixing: aligned, stacked or juxtaposed

Depending on the finishes:

#### 39CP L

- Class 1 galvanised steel blades and frame compliant with EN1751

#### 39CP H / 39CP C

- Class 3 aluminium blades and frame compliant with EN1751

| OPTIONS AVAILABLE PER RANGE                                 | 39CP L           | 39CP H           | 39CP C           |
|---|------------------|------------------|------------------|
| Servomotor operated damper                                  | Kit              | Kit              | Kit              |
| Manual operated damper                                      | X                | X                | X                |
| Class 3 damper with defrosting system                       | X                | X                | X                |
| Class 4 airtightness damper compliant with EN 1751          | NA               | X                | X                |
| Polyester coated face and bypass dampers (frame and blades) | X                | X                | X                |
| Stainless steel 304L damper                                 | NA               | X                | X                |
| Stainless steel drain pan                                   | X                | X                | X                |
| Hinged access door  | X <sup>(1)</sup> | X <sup>(1)</sup> | X <sup>(1)</sup> |
| Lift-off door   | X                | X <sup>(1)</sup> | X <sup>(1)</sup> |
| Porthole on door  | X                | X                | X                |
| 230V bulkhead light   | X                | X                | X                |
| Door contact switch   | NA               | X                | X                |

(1) Availability depends on the configuration

X Option

NA Not applicable

## GENERAL DESCRIPTION OF THE 39CP RANGES

### Filters

To meet the requirements of all the applications, a very wide range of filter efficiencies, technologies and dimensions is available.

Across the entire range, and for each type of filter, cells with international dimensions of 24" x 24" and 12" x 24" are available.

On sizes 150 to 1350, compact filters which are 50mm thick are available in full section (FS) to optimise energy consumption.

Different types of filter assembly are available, depending on the efficiency level, technology and location within the AHU.

There are 6 specific assembly systems:

**Assembly A** available for filters with international dimensions and **Assembly A FS** for filters with a full section

- Traditional tracks designed for efficiency levels G1 to M6:  
For Compact cells, 50 mm thick, side door

**Assembly B** available for filters with international dimensions and **Assembly B FS** for filters with a full section

- Compressible tracks designed for efficiency levels G4 to F9 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with side door.

**Assembly C** for filters with international dimensions:

- Universal frames designed for efficiency levels G4 to F9, E10 or Activated Carbon (urban pollution) for Compact cells and flexible or rigid bag with access section and side door

**Assembly D** for Absolute filters with international dimensions

- Absolute large-media frames for EPA and HEPA Absolute cubic cells

**Assembly E** for Absolute filters with international dimensions

- Absolute plate for EPA and HEPA Absolute cubic cells for industrial applications (e.g. pharmaceuticals).

**Assembly F** for Cubic carbon filters with international dimensions

- Large-media frames for Activated Carbon cubic cells.

| Description   | Construction Code | Assembly     | Efficiency <sup>(1)</sup> | Cell descriptive code                             |
|---|-------------------|--------------|---------------------------|---|
| 50mm flat metal filter  | C                 | A or C       | G1                        | Galvanised steel metal medium and frame           |
| 50mm flat filter  | C                 | A, B or C    | G4                        | Galvanised steel metal frame and synthetic medium |
|   |                   |              | M5                        |   |
|   |                   |              | M6                        |   |
|   |                   |              | F7                        |   |
| 50mm flat filter (full section) up to size 1350                   | C FS              | A FS or B FS | G4                        | Galvanised steel metal frame and synthetic medium |
|   |                   |              | M5                        |   |
|   |                   |              | M6                        |   |
|   |                   |              | F7                        |   |
| 292mm rigid bag filter  | RBHHE             | B or C       | M6                        | Polypropylene frame and fibreglass medium         |
|   |                   |              | F7                        |   |
|   |                   |              | F8                        |   |
|   |                   |              | F9                        |   |
| 380mm short flexible bag filter                                   | SB                | B or C       | E10                       | Galvanised steel metal frame and synthetic medium |
|   |                   |              | G4                        |   |
|   |                   |              | M5                        |   |
|   |                   |              | M6                        |   |
| 600mm long flexible bag filter                                    | LB                | B or C       | F7                        | Galvanised steel metal frame and synthetic medium |
|   |                   |              | F9                        |   |
|   |                   |              | M6                        |   |
| 292mm Absolute filter   | CUBIC 610x610     | D or E       | E10                       | Polypropylene frame and fibreglass medium         |
|   |                   |              | H13                       |   |
|   |                   |              | H14                       |   |
| 292 mm rigid bag carbon filter + fine filter, std universal frame | RBHHE             | B or C       | Carbon+F7                 | Polypropylene frame, synthetic + carbon medium    |
| Flexible carbon bag filter + 600mm long bag fine filter           | LB                | B or C       | Carbon + F7               | ABS frame, synthetic + carbon medium              |
| 292mm rigid bag carbon filter                                     | RBHHE             | B or C       | Carbon                    | Carbon polypropylene frame                        |
| Cubic carbon filter   | CUBIC 595x595     | F            | Carbon                    | Metal frame + carbon panel                        |

C: 50 mm compact filter  
C FS: 50 mm compact filter, full section  
RBHHE: 290mm rigid bag filter  
SB: 380mm short flexible bag filter  
LB: 600 mm long flexible bag filter  
CUBIC: 292 mm cubic

(1) Carrier 39CP software offers the equivalent classification of the filters according the ISO 16890



## GENERAL DESCRIPTION OF THE 39CP RANGES

| OPTIONS AVAILABLE PER RANGE                                    | 39CP L   | 39CP H   | 39CP C   |
|--|----------|----------|----------|
| Lift-off door  | Standard | Standard | Standard |
| Filter pressure tapping  | Standard | Standard | Standard |
| Pressure tapping per filter stage                              | Standard | Standard | Standard |
| Additional filter set  | X        | X        | X        |
| Galvanized steel drip tray                                     | X        | X        | X        |
| Stainless steel drip tray                                      | X        | X        | X        |
| Liquid manometer (supplied loosely in a kit)                   | X        | X        | X        |
| Differential pressure switch                                   | X        | X        | X        |
| Magnehelic pressure gauge (supplied loosely in a kit)          | X        | X        | X        |
| Double glass porthole  | X        | X        | X        |
| 230V bulkhead light (supplied loosely)                         | X        | X        | X        |
| 230V bulkhead light and wired to external switch               | X        | X        | X        |
| Door contact switch  | X        | X        | X        |
| Filter slide rails painted                                     | X        | X        | Standard |
| Filter frame painted   | X        | X        | Standard |
| 304 L or 316 L stainless steel slide rails                     | X        | X        | X        |
| Stainless steel frontal access filter frame (fine filters •F") | X        | X        | X        |
| Painted filter frame (EPA/HEPA filters)                        | X        | X        | Standard |
| Stainless steel filter frame (HEPA filters •H")                | X        | X        | X        |
| Hatch for pressure measurement                                 | NA       | X        | X        |

X Option

NA Not applicable

### Plate heat recovery system

Three efficiency levels available: from 60% to 85%

The plate heat exchangers are always equipped with a total bypass on fresh air and access door to the servomotor

Condensate drain pan on exhaust air side, made from galvanised steel with condensate drain piping as standard

Available in a stacked configuration for all sizes

Access door to the condensate drain pan(s)

In the standard construction, the heat exchanger has aluminium plates, and can be used routinely up to an air temperature of 90°C (if the plate heat exchanger is a component of an AHU, the standard limit temperature is 80°C). The leakage flow rate is 0.1%, the nominal flow rate for a pressure difference of 400 Pa between the 2 air streams.

| OPTIONS AVAILABLE PER RANGE  | 39CP L   | 39CP H   | 39CP C   |
|--|----------|----------|----------|
| Pre-painted aluminium plates                                       | X        | X        | X        |
| Condensate drain pan (exhaust air side) stainless steel            | X        | X        | X        |
| Condensate drain pan (fresh air side) galvanised                   | X        | X        | X        |
| Condensate drain pan (fresh air side) stainless steel              | X        | X        | X        |
| Paint on baffle, partition and support                             | X        | X        | X        |
| Plate exchangers components made of 304 L or 316 L stainless steel | NA       | X        | X        |
| Painted bypass damper  | X        | X        | X        |
| Stainless steel bypass damper                                      | NA       | X        | X        |
| Servomotor or manual damper operation                              | X        | X        | X        |
| Pressure tappings in intake and exhaust                            | Standard | Standard | Standard |
| Additional access door   | X        | X        | X        |
| Door inspection window   | x        | x        | x        |

X Option

NA Not applicable General description of the 39CP ranges

## GENERAL DESCRIPTION OF THE 39CP RANGES

### Rotary heat recovery system

Three efficiency levels available: from 75% to 85%

- Corrugated aluminium fins
- Adjustable peripheral gasket to guarantee a minimum leak flow rate
- Lateral inspection panel

- Constant speed gear motor (230 / 400 V three-phase power supply)
- Maintenance-free ball bearing

| OPTIONS AVAILABLE PER RANGE   | 39CP L | 39CP H | 39CP C |
|---|--------|--------|--------|
| Gear motor and variable frequency drive for variable speeds from 0 to 10 rpm – 230 V single-phase | X      | X      | X      |
| Coated aluminium heat recovery wheel  | X      | X      | X      |
| Hygroscopic heat recovery wheel (for humidity exchange)   | X      | X      | X      |
| Enthalpic heat recovery wheel (for total power exchange)  | X      | X      | X      |
| Condensates drain pan   | NA     | X      | X      |
| 316 stainless steel drain pan   | NA     | X      | X      |
| Indoor panels polyester coated  | NA     | X      | X      |
| Indoor panels in 304 L or 316 L stainless steel   | NA     | X      | X      |
| Pressure tapings  | X      | X      | X      |
| Purge sector  | X      | X      | X      |
| Door porthole   | X      | X      | X      |

X Option  
NA Not applicable

### Heating coil

Fluids:

- **Hot water**
  - Construction with copper tubes and aluminium fins.
  - Maximum primary fluid temperature = 120 °C.
  - Operating pressure for water: 8 bar as standard - Higher pressures on consultation.
  - Removable sealing flanges between the casing and manifolds (up to 3" diameter prevent damage to the sealing system during connection operations).

Depending on the type of coil and the diameters required, the manifolds and supply tubes are:

- Copper tubes with unions up to a diam. of 2"1/2.
- Grooved steel tubes for larger diameters.

- **Superheated water**
  - Construction with steel tubes and aluminium fins.
  - Maximum primary fluid temperature = 200 °C.
  - Operating pressure for water: 30 bar max.
  - Supply manifolds and tubes made from steel with smooth ends.
- **Refrigerant**
  - Construction with copper tubes and aluminium fins.
  - Supply tubes made from copper with smooth ends.
- **Steam**
  - Max pressure 2 to 8 bar - stainless steel tubes, aluminium fins.
  - Manifolds and supply tubes are stainless steel tubes with smooth ends

| OPTIONS AVAILABLE PER RANGE  | 39CP L | 39CP H | 39CP C |
|--|--------|--------|--------|
| Smooth pipe coil (without fins)  | X      | X      | X      |
| Superheated water coil   | X      | X      | X      |
| Steam coil   | X      | X      | X      |
| Condensation coil  | X      | X      | X      |
| Pressure tapping, upstream and downstream                              | X      | X      | X      |
| Precoated fins/ max. primary fluid temperature 110°C                   | X      | X      | X      |
| Stainless steel water coil   | X      | X      | X      |
| ALTENA treatment, max. temperature 160°C                               | X      | X      | X      |
| HERESITE treatment, max. temperature 180°C                             | X      | X      | X      |
| Copper fins coil   | X      | X      | X      |
| 304 L or 316 L stainless steel tracks                                  | X      | X      | X      |
| 304 L or 316 L stainless steel slide rails                             | X      | X      | X      |
| Standard screw flanges   | Kit    | Kit    | Kit    |
| Stainless steel screw flanges  | Kit    | Kit    | Kit    |
| Quick connections kit (copper tubes) (victaulic type)                  | Kit    | Kit    | Kit    |
| Threaded connections (steel tubes)                                     | Kit    | Kit    | Kit    |
| Frost protection thermostat ( manual reset)                            | X      | X      | X      |
| Frost protection thermostat with automatic reset (supplied loose item) | X      | X      | X      |
| Frost protection thermostat with automatic reset (factory fitted)      | X      | X      | X      |

X Option  
NA Not applicable

## GENERAL DESCRIPTION OF THE 39CP RANGES

### Electric heater

- Shielded resistors in stainless steel scrolled finned tubes
- Connected to copper strips.
- Double insulation assembly.

- Equipped with two safety thermostats: first with manual reset, second with automatic reset.

| OPTIONS AVAILABLE PER RANGE                | 39CP L | 39CP H | 39CP C |
|--|--------|--------|--------|
| Slide rails painted                        | X      | X      | X      |
| 304 L or 316 L stainless steel slide rails | X      | X      | X      |
| 304 L or 316 L stainless steel coil casing | X      | X      | X      |
| Single- or three-phase connection          | X      | X      | X      |

X Option

NA Not applicable

### Cooling coil

- Chilled water / direct expansion coil
- Construction with copper tubes and aluminium fins.
- Operating pressure for water: 8 bar as standard - Higher pressures on consultation.
- Inclined condensate drain pan with drain pipes to be connected to a siphon on site.
- Droplet separator as standard if necessary, as an option on request.
- Removable sealing flanges between the casing and manifolds up to 3" diameter, preventing damage to the sealing system during connection operations.

Depending on the type of coil and the diameters required, the manifolds and supply tubes are:

- Copper tubes with unions up to a diam. of 2"1/2.
- Grooved steel tubes for larger diameters.
- Direct expansion evaporation
  - Construction with copper tubes and aluminium fins.
  - Inclined condensate drain pan with drain pipes to be connected to a siphon on site.
  - Droplet separator as standard if necessary, as an option on request.
  - Standard smooth copper refrigerant supply tubes (supplied capped)
  - Manifold on fluid intake as standard.

| OPTIONS AVAILABLE PER RANGE                                  | 39CP L                    | 39CP H | 39CP C |
|--|---------------------------|--------|--------|
| Chilled water coil   | X                         | X      | X      |
| Direct expansion evaporation coil                            | X                         | X      | X      |
| Access panel on droplet separator                            | as standard if compulsory |        |        |
| Precoated fins/ max. primary fluid temperature 110°C         | X                         | X      | X      |
| Stainless steel tubes coil                                   | X                         | X      | X      |
| Copper fins coil   | X                         | X      | X      |
| ALTENA treatment, max. temperature 160°C                     | X                         | X      | X      |
| HERESITE treatment, max. temperature 180°C                   | X                         | X      | X      |
| Slide rails painted  | X                         | X      | X      |
| Stainless steel slide rails                                  | X                         | X      | X      |
| 304 L or 316 L stainless steel coil casing                   | X                         | X      | X      |
| 316 L stainless steel condensate drain pan                   | X                         | X      | X      |
| 316L stainless steel hygienic drain pan                      | NA                        | X      | X      |
| Insulated drain pan (cell foam)                              | X                         | X      | X      |
| Headers/elbows insulation                                    | X                         | X      | X      |
| All stainless steel droplet separator (frame and medium)     | X                         | X      | X      |
| Polypropylene blade droplet separator, galvanised frame      | X                         | X      | X      |
| Polypropylene blade droplet separator, stainless steel frame | NA                        | X      | X      |
| Aluminium blade droplet separator, galvanised frame          | NA                        | X      | X      |
| Aluminium blade droplet separator, stainless steel frame     | NA                        | X      | X      |
| Pressure tapping, upstream and downstream                    | X                         | X      | X      |
| Standard screw flanges                                       | Kit                       | Kit    | Kit    |
| Stainless steel screw flanges                                | Kit                       | Kit    | Kit    |
| Tubes with quick connections (copper tubes) (victaulic type) | Kit                       | Kit    | Kit    |
| Threaded connections (steel tubes)                           | Kit                       | Kit    | Kit    |
| Frost protection sensor support                              | X                         | X      | X      |

X Option

NA Not applicable

## GENERAL DESCRIPTION OF THE 39CP RANGES

### Fans

- Forward-curved dual-inlet fan.
- Backward-curved dual-inlet fan.
- Steel scroll and impeller.
- Belt and pulley transmission on the dual-inlet fans.
- Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Metal impeller plug fan turbine with AC motor
- Assembly on anti-vibration frame with flexible internal sleeve and damper mounts.
- Standard motor: asynchronous three-phase, 230 / 400 V
- 50 Hz up to 3 kW - 400 V - 50 Hz from 4 kW, IP 55 protection, class F with PTC
- Steel plug fan with EC motor with integrated variator, three-phase 400 V n- 50 Hz
- Inspection hatch with bolts in compliance with the "MECHANICAL SAFETY" specification in the EN 1886 standard and the machinery directive.

| OPTIONS AVAILABLE PER RANGE   | 39CP L   | 39CP H   | 39CP C   |
|---|----------|----------|----------|
| Forward curved centrifugal fan with pulley belt transmission                            | X        | X        | X        |
| Backward curved centrifugal fan with pulley belt transmission                           | X        | X        | X        |
| Plug fan with asynchronous motor  | X        | X        | X        |
| EC plug fan   | X        | X        | X        |
| Flush mounted panel   | X        | X        | X        |
| Access panel mounted on hinges  | Standard | Standard | Standard |
| Pressure tapings  | X        | X        | X        |
| Door contact switch   | X        | X        | X        |
| Panel window  | X        | X        | X        |
| Smoke detector (NF S61961)  | X        | X        | X        |
| 230V Bulkhead light (supplied loose item)   | X        | X        | X        |
| 230V Bulkhead light fitted and wired to an external switch                              | X        | X        | X        |
| Anticorrosion painting for wheel and motor assembly (centrifugal and AC plug fan motor) | X        | X        | X        |
| Stainless steel wheel and motor assembly (centrifugal and AC motor plug fan)            | NA       | X        | X        |
| Anticorrosion painting for EC fan wheel   | NA       | X        | X        |
| Protection grill for centrifugal fan  | X        | X        | X        |
| Screened door protection  | X        | X        | X        |
| Housing for belt - pulley transmission  | X        | X        | X        |
| 2 motors set in parallel  | X        | X        | X        |
| Motor support on rails  | X        | X        | X        |
| Variable frequency drive (supplied loose item)  | X        | X        | X        |
| Variable frequency drive factory fitted   | X        | X        | X        |
| Door switch factory fitted  | X        | X        | X        |
| Door switch ( supplied loose item)  | X        | X        | X        |
| Anti recirculation damper for fan   | X        | X        | X        |

X Option  
NA Not applicable

### Sound attenuator

- Different lengths of baffle depending on the required attenuation.
- Mineral wool of different densities, the faces are covered with an anti-erosion shield.
- Galvanised panels.

| OPTIONS AVAILABLE PER RANGE          | 39CP L                  | 39CP H | 39CP C |
|--------------------------------------|-------------------------|--------|--------|
| Baffle lengths (in mm)               | 600 - 900 - 1200 - 1500 |        |        |
| Anti shredding glass cloth           | NA                      | X      | X      |
| Polyester coated slide rails         | X                       | X      | X      |
| Epoxy painted sheet metal baffles    | X                       | X      | X      |
| 304 L or 316 L stainless steel rails | X                       | X      | X      |

X Option  
NA Not applicable

## GENERAL DESCRIPTION OF THE 39CP RANGES

### Standalone production steam humidifier

With steam production (standalone with electrodes)

The supply includes

- Aluminium steam distributor.
- Steamer with electrical cabinet and controller (IP20).
- Proportional or on/off control.

- Duct/cylinder connection.

- Condensate return tubes and connections.
- Three-phase 400 V - 415 V supply voltage depending on capacity
- Min and max supply water conductivity limits 125 - 1250 microsiemens/cm (8000 - 800 ohm).
- Hardness of supply water 15 - 30 degrees (French).

| OPTIONS AVAILABLE PER RANGE  | 39CP L | 39CP H | 39CP C |
|--|--------|--------|--------|
| Stainless steel  | X      | X      | X      |
| Galvanised droplet separator                                       | X      | X      | X      |
| Stainless steel droplet separator                                  | X      | X      | X      |
| Double glass porthole  | X      | X      | X      |
| 230V Bulkhead light factory fitted and wired to an external switch | X      | X      | X      |
| Flush mounted panel  | X      | X      | X      |
| Door contact switch  | X      | X      | X      |

X Option

NA Not applicable

### Control

The electrical box is integrated into the unit and the electrical cables are protected by an enclosed cable raceway, factory-fitted.

The unit can be supplied as a single unit, equipped with a control which is fully assembled and tested in the factory if it is formed of one block, or a multi-block assembled on the optional multi-block frame.

Plug & Play solution: the electrics box is powered by a 400 V + earth power supply

The control software for the 39CP range enables the following:

- Temperature regulation\*: sensor on supply air / return air / room air
- Humidification and dehumidification regulation\*: sensor on return or room air
- Fan management: constant flow / constant pressure
- Filter fouling management (4-stage filtration as maximum)
- Single-zone air quality management (CO<sub>2</sub>) sensor on return air or room air
- Water coils: cooling/heating/mixed/direct expansion (3 maximum)
  - 2-way valve

• Three-way valve.

- Electric heater (4-stage heaters as maximum)
- Proportional and On/Off control
- 1 TRIAC type proportional stage (compulsory)
- Independent power supply, control by the AHU PLC.
- Steam humidifier with electrode:
  - Independent power supply, control by the AHU PLC.
- Management of cooling modes: Free cooling / Night cooling
- Management of frost protection faults
- Fire protection
- Communication board available:
  - Modbus RTU RS485 / Modbus TCP IP / KNX / BACNET IP

The control does not enable the following elements to be managed:

- Steam coil / Superheated water coil / Glycol/water mix coils / Condenser coil
- Make-up / gas burner
- Adiabatic humidifier

\* availability depends on options; see specific control document

### Extra accessories:

| OPTIONS AVAILABLE PER RANGE   | 39CP L | 39CP H | 39CP C |
|---|--------|--------|--------|
| Flexible sleeves  | X      | X      | X      |
| Insulated flexible sleeves for the outside of the casing                      | X      | X      | X      |
| Rain protection hood (supplied with grill)                                    | X      | X      | X      |
| Additional protection grill   | X      | X      | X      |
| Factory-assembled AHU on common rack :<br>max size 1350 or maximum length 6 m | X      | X      | X      |

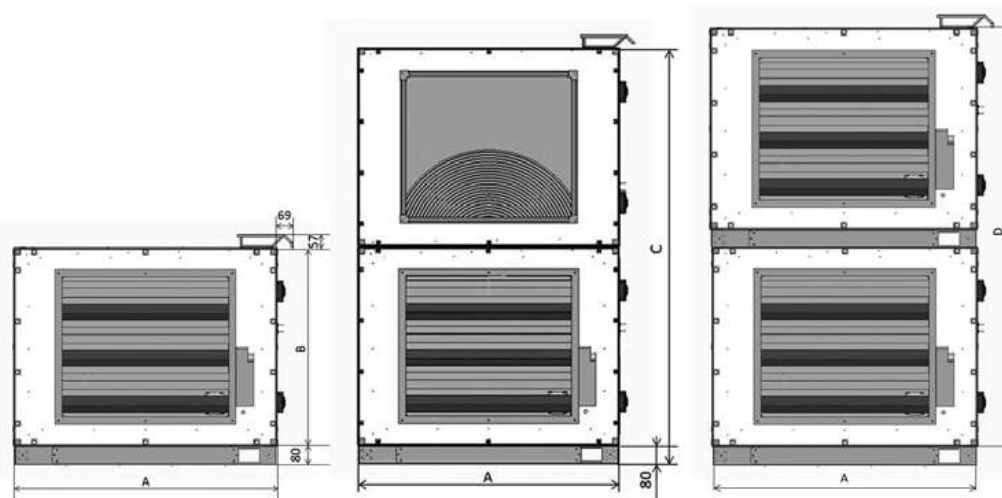
X Option

NA Not applicable

## DIMENSIONS

### External dimensions and raceway details\*

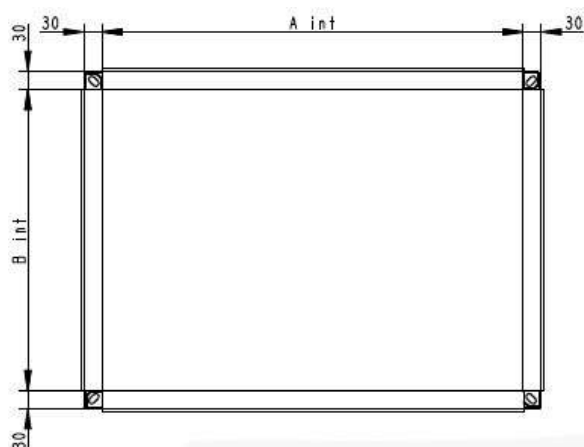
\* raceway optional



| Sizes | Casing external dimension |      |      |      | Block length <sup>(1)</sup> |
|-------|---------------------------|------|------|------|-----------------------------|
|       | A                         | B    | C    | D    |                             |
| 150   | 870                       | 560  | 1122 |      | 250 < L < 2800              |
| 300   | 870                       | 860  | 1722 |      | 250 < L < 2800              |
| 450   | 1130                      | 860  | 1722 |      | 250 < L < 2800              |
| 600   | 1470                      | 860  | 1722 |      | 250 < L < 2800              |
| 750   | 1840                      | 860  | 1722 |      | 250 < L < 2800              |
| 1050  | 1840                      | 1080 | 2162 |      | 250 < L < 2800              |
| 1350  | 2070                      | 1080 | 2162 |      | 250 < L < 2800              |
| 1800  | 2070                      | 1460 |      | 3000 | 250 < L < 2800              |
| 2100  | 2340                      | 1460 |      | 3000 | 250 < L < 2300              |

(1) Length excluding the unit end panel

### Connection flanges



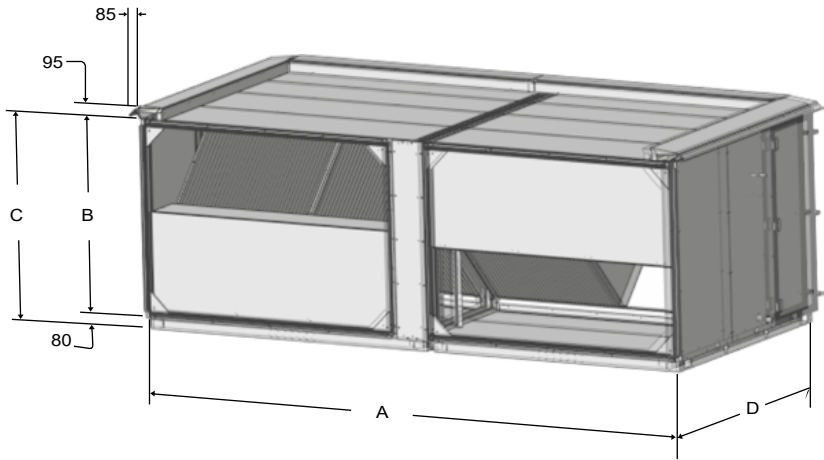
- Reference 00: Lateral air intake
- Reference 1: Air intake, small section
- Reference 2: Air intake, large section
- Reference 3: Scroll fan discharge air intake

| 39CP L                      |   | 150 | 300 | 450 | 600  | 750  | 1050 | 1350 | 1800 | 2100 |
|-----------------------------|---|-----|-----|-----|------|------|------|------|------|------|
| 39CP H                      |   |     |     |     |      |      |      |      |      |      |
| 39CP C                      |   |     |     |     |      |      |      |      |      |      |
| Reference 00 - LATERAL      | A | 320 | 320 | 470 | 620  | 720  | 770  | 970  | 870  | 970  |
|                             | B | 370 | 670 | 670 | 670  | 670  | 870  | 870  | 1270 | 1270 |
| Reference 1 - SMALL SECTION | A | 515 | 515 | 775 | 1115 | 1485 | 1485 | 1715 | 1715 | 1985 |
|                             | B | 220 | 370 | 370 | 370  | 370  | 470  | 470  | 670  | 670  |
| Reference 2 - LARGE SECTION | A | 515 | 515 | 775 | 1115 | 1485 | 1485 | 1715 | 1715 | 1985 |
|                             | B | 370 | 670 | 670 | 670  | 670  | 870  | 870  | 1270 | 1270 |
| Reference 3: FAN DISCHARGE  | A | -   | 520 | 520 | 520  | 520  | 620  | 620  | 920  | 920  |
|                             | B | -   | 520 | 520 | 520  | 520  | 620  | 620  | 920  | 920  |



DIMENSIONS

**SIDE-BY-SIDE CONFIGURATION** is available for 39 CP L , 39CP H ,39 CP C in sizes 1800 and 2100.  
This configuration is available in **T2/TB2 39CP configurations** and **with PLATES HEAT EXCHANGER** heat recovery.



| Sizes | Casing external dimension |      |      |                  |
|-------|---------------------------|------|------|------------------|
|       | A                         | B    | C    | D <sup>(1)</sup> |
| 60    | 4390                      | 1460 | 1540 | 2000             |
| 70    | 4930                      | 1460 | 1540 | 2000             |

(1) Length excluding the 23 mm unit end panel at each end  
This configuration is useful for indoor and outdoor installations , as it has reduced dimensions, that makes it ideal for refurbishment jobs and also for outdoor installation as it can be easily hidden by an aesthetical structure.  
Component's accessibility is improved, and weight / load distribution is more equilibrated, which makes easier for transport and maintenance operations.

## AIR HANDLING UNITS



## 39HQ

Air flow 5000-130000 m<sup>3</sup>/h

Airovision is a modular construction that can be fully customised to provide the required performance for any application.

Special new casings encompass only high-quality components, including filters, heat recovery systems, fan assemblies, cooling and heating coils, humidifiers and attenuators.

The Airovision range also pays special attention to air quality and reduction of the energy required to cool, heat, humidify and supply the conditioned air.

Airovision is available in a large selection of sizes and arrangements, suitable for many different applications.



Controls (Option)

**AIROVISION®**



[www.eurovent-certification.com](http://www.eurovent-certification.com)

## OPTIONS

- 100% stainless steel
- Direct-drive fans
- All types of humidification systems, including infrasonic
- Flat pack option for site assembly
- Heat recovery systems (run-around coil, plate heat exchanger and thermal wheels)
- Wide selection of standard accessories
- 316L stainless steel drain pan with PVC wall lining in the outside air inlet section and filter section
- Plug fan EC motors
- Pro-Dialog controller with human interface (local or remote installation)

## FEATURES AND ADVANTAGES

- Airovision is a modular construction that can be fully customised to provide the required performance for any application.
- Special new casings encompass only high-quality components, including filters, heat recovery systems, fan assemblies, cooling and heating coils, humidifiers and attenuators.
- The Airovision range also pays special attention to air quality and reduction of the energy required to cool, heat, humidify and supply the conditioned air.
- Airovision is available in a large selection of sizes and arrangements, suitable for many different applications.
- Applications include leisure and event complexes, theatres, museums, libraries, offices in companies and government institutions, shopping centers, super-markets, department stores and educational establishments, as well as oil drilling rigs, airports and cruise ships.
- In addition Airovision is also ideal in health care and in industries with stringent hygiene requirements.

### Environmentally sound

- No paint treatment required after the production process
- 100% recyclable components
- Low energy usage due to optimised component selection
- High-efficiency heat recovery systems available

### Technical specification (in accordance with EN1886)

- Heat transfer factor class T2
- Thermal bridging factor TB 2
- Air tightness class B (L2)
- Mechanical strength class 1A (DI)
- Filter bypass leakage
  - class F7 for standard slide-in construction
  - class F9 for special slide-in construction
  - class F9 for built-in construction

### High-efficiency centrifugal fan



### Special sorption heat recovery wheels



### Filters are easily removable



### Generously sized access doors



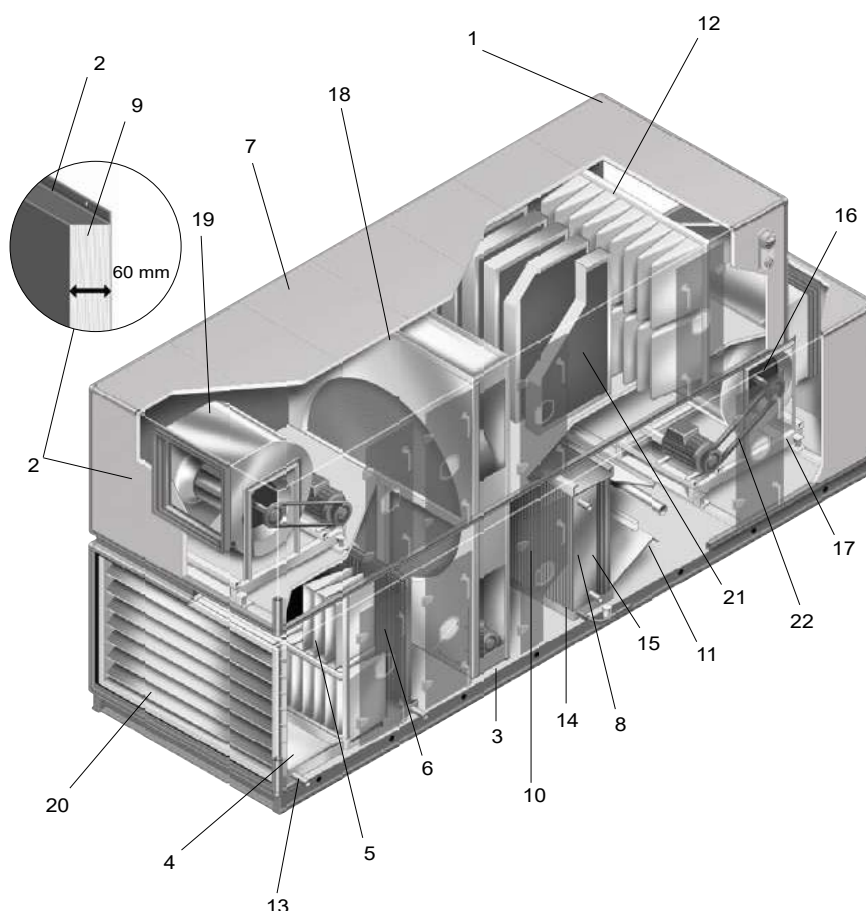
## FEATURES AND ADVANTAGES

### Rigid construction

- 1 Carrier profiled steel frame construction with purpose-built corner and center posts
- 2 Panels with 60 mm thick thermal insulation
- 3 Robust base frame made of galvanised steel box profile

### High corrosion resistance

- 4 316L stainless steel drain pan with PVC wall lining in the outside air inlet section and filter section (option)
- 5 Filters held in 316L stainless steel frames
- 6 Anti-corrosion protection available
- 7 Internal and external panels made of high-quality prepainted galvanised sheet steel
- 8 Cooling coils with integrated stainless steel drain pan and plastic droplet eliminator housed in an aluminium frame
- 9 Special panel design and frame detail eliminate the risk of condensation forming in the panels



### Easy maintenance

- 10 Various inspection options with generously sized clear opening access doors
- 11 Completely smooth internal surfaces
- 12 Filters easily removable
- 13 Drain pan in the outside air inlet section and filter section equipped with drain (option)
- 14 Cooling coil drain pan fully accessible for cleaning/disinfection
- 15 Moisture eliminator after the cooling coil easily removable
- 16 Long-life fan and motor bearings
- 17 Fans removable from the side

### High-quality built-in components

- 18 Special sorption heat recovery wheels for optimised recovery of heat, cold and humidity
- 19 High-efficiency centrifugal low-noise fans, mounted on vibration isolators with low transmission factor
- 20 Aluminium dampers with UV-resistant double nylon bearings
- 21 Skrim faced sound absorption splitters
- 22 Matched high-efficiency belt drives

## FEATURES AND ADVANTAGES

Central station air handling unit range (based on a nominal filter loading of 1.11 m³/s)

| Width \ Height | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12    | 13    | 14    |
|----------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| 2.5            | 0.56 | 0.69 | 0.83 |      |      |      |      |      |       |       |       |
| 4              | 1.11 | 1.39 | 1.67 | 1.81 | 2.22 | 2.50 | 2.78 | 3.06 | 3.33  |       |       |
| 6              | 1.67 | 2.22 | 2.50 | 2.92 | 3.33 | 3.75 | 4.17 | 4.72 | 5.00  | 5.56  | 5.83  |
| 8              |      |      | 3.33 | 3.89 | 4.44 | 5.00 | 5.56 | 6.11 | 6.67  | 7.22  | 7.78  |
| 10             |      |      |      |      | 5.56 | 6.39 | 6.94 | 7.64 | 8.33  | 9.03  | 9.72  |
| 12             |      |      |      |      |      | 7.50 | 8.33 | 9.17 | 10.00 | 10.83 | 11.67 |
| 14             |      |      |      |      |      |      |      |      | 11.67 | 12.78 | 13.61 |
| 16             |      |      |      |      |      |      |      |      |       | 14.44 | 15.56 |
| 18             |      |      |      |      |      |      |      |      |       |       |       |
| 20             |      |      |      |      |      |      |      |      |       |       |       |

| Width \ Height | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24    | 25    |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2.5            |       |       |       |       |       |       |       |       |       |       |       |
| 4              |       |       |       |       |       |       |       |       |       |       |       |
| 6              | 6.39  | 6.67  | 7.22  | 7.50  |       |       |       |       |       |       |       |
| 8              | 8.33  | 8.89  | 9.44  | 10.00 | 10.56 | 11.11 | 11.67 | 12.22 | 12.78 | 13.33 |       |
| 10             | 10.56 | 11.11 | 11.94 | 12.50 | 13.33 | 13.89 | 14.72 | 15.28 | 16.11 | 16.67 | 17.50 |
| 12             | 12.50 | 13.33 | 14.44 | 15.00 | 15.83 | 16.67 | 17.50 | 18.33 | 19.17 | 20.00 | 20.83 |
| 14             | 14.72 | 15.56 | 16.67 | 17.50 | 18.61 | 19.44 | 20.56 | 21.39 | 22.50 | 23.33 | 24.44 |
| 16             | 16.67 | 17.78 | 18.89 | 20.00 | 21.11 | 22.22 | 23.33 | 24.44 | 25.56 | 26.67 | 27.78 |
| 18             |       |       |       | 22.50 | 23.89 | 25.00 | 26.39 | 27.50 | 28.89 | 30.00 | 31.39 |
| 20             |       |       |       |       |       | 27.78 | 29.17 | 30.56 | 31.94 | 33.33 | 34.72 |

Preferred range
  Combination with heat recovery
  Other sizes

Note: All air flow values are in m³/s. Larger unit sizes are possible.

Module dimension : 160 mm

External width : n x module plus 98 mm

External height : n x module plus 98 mm

Base frame height : 60 mm or 62 mm

Example : type 39HQ12.10

Width : 12 x 160 plus 98 = 2.018 mm

Height : 10 x 160 plus 98 = 1.698 mm

Nominal air flow : 8.33 m³/s

## AIR HANDLING UNIT



# 39CZ

Air flow: 6000 to 60000 m<sup>3</sup>/h

The 39CZ range is designed for the service sector, industry and healthcare markets, to meet different requirements in terms of air mixing, filtration, heating, refrigeration, dehumidification, humidification, ventilation, recovery and sound attenuation. It is available as a horizontally-mounted version for installation indoors or outdoors with a roof and protection accessories. The range is available in a single or dual-flow version.

Thanks to the broad spectrum of solutions on offer, and the product's excellent modularity, the specifications for this product will always comply with the EN 13053 and EN 1886 standards, whatever its configuration.

AHU for all applications

Designed to meet the  
EN 13053 and EN 1886  
standards

The effective solution for  
service sector, industry and  
healthcare applications



CARRIER participates in the ECP programme for  
39CZ range Check ongoing validity of certificate:  
[www.eurovent-certification.com](http://www.eurovent-certification.com)



## USE

External wall with RAL 7035 paint

Compliance with the provisions of the EN 13053 standard

Classification in accordance with European standard EN 1886

Casing resistance: class D1

Casing airtightness: class L1

Filter bypass leak: class F9

Thermal transmittance: class T2

Thermal bridge factor: class TB2

## RANGE

The 39CZ range consists of 14 sizes to handle air flow rates from 6000 to 60000 m<sup>3</sup>/h.

The diagram below shows how to preselect the necessary size based on:

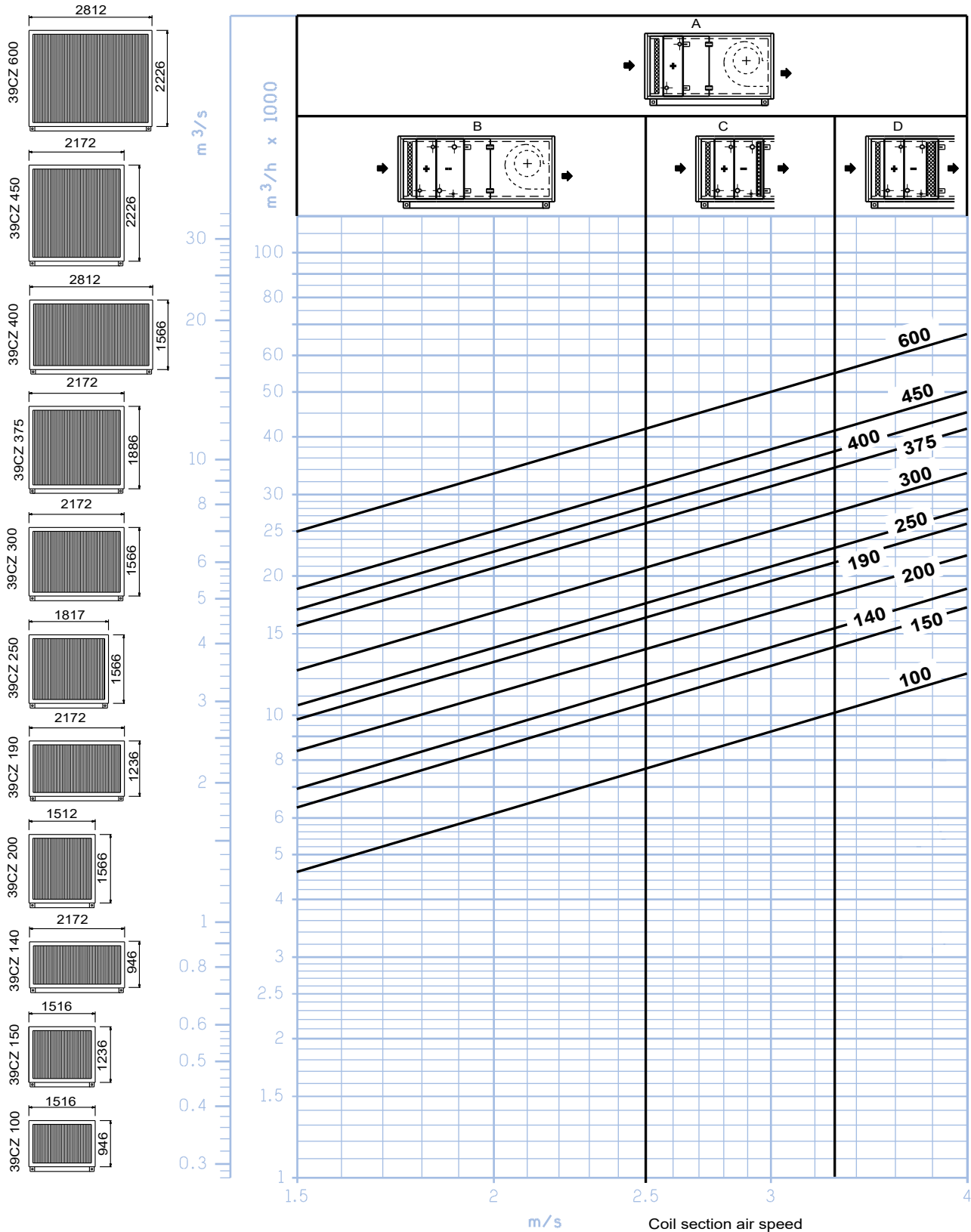
- The flow speed in the active front section of the exchanger coils.
- The air flow rate to be handled.



## RANGE

The diagrams show the standard compositions with the usage limit corresponding to the components.

- Air heater (A).
- Air conditioning unit without droplet separator (b).
- With drain screen separator (C).
- With blade-type separator (D)



## DESCRIPTION

### Casing

- Double-skin panel with 50 mm mineral insulation with long fibres reinforced by welded fibreglass material,
- Peripheral frame fitted or mounting brackets in stainless steel,
- Depending on the size, double-skin panels, galvanised, coated, smooth walls with no protruding screws as per EN 13053.

Construction structure depending on AHU sizes.

- Sizes 100 to 150: panels screwed onto an aluminium structure sunk into the casing.
- Sizes 200 to 600: panels screwed onto an aluminium double honeycomb structure offering high resistance to flexing.

- Air handling units consist of multi-block components or mono-block components if the composition and size allow.
- All of our blocks can be disassembled on the installation site.

At least one removable panel per function in accordance with EN 13053, access panel as standard on functions requiring maintenance.

Lift-off panels on offset hinges, equipped with slow closing latches in composite material, polyamide handles, large section square porthole in accordance with EN 13053.

| OPTIONS AVAILABLE PER RANGE                                 | 39CZ ST | 39CZ CL & HE |
|---|---------|--------------|
| Adjustable support feet + 35/+ 60 mm                        | X       | X            |
| Support feet risers up to 400 mm                            | X       | X            |
| Stainless steel ground insulation casing (h: 100)           | X       | X            |
| Epoxy or polyurethane paint on int. and ext. panels         | X       | X            |
| Int. and ext. panels in pre-painted RAL 9010 sheet metal    |         | standard     |
| Int. and ext. panels in 304 L stainless steel or Z3CN 18.10 | X       | X            |
| Flat stainless steel base                                   | X       | X            |
| Inclined stainless steel base (per block)                   | X       | X            |
| Reinforced insulation                                       | X       | X            |
| Roof for OUTDOOR model                                      | X       | X            |
| Screened canopies for OUTDOOR model                         | X       | X            |

### Damper

- Isolation damper
- Safety damper (CH38)
- Control damper

All the dampers consist of airfoil blades, counter rotating with lateral seals and driven by toothed wheels or control rods. Steel frame and aluminium blades on 39CZ ST CL & HE Class 3 in accordance with EN1751. These dampers are installed on the inside or outside of the casing, depending on the solution chosen. Louvre control: manual, motorised or to be motorised.

| OPTIONS AVAILABLE PER RANGE                       | 39 CZ ST | 39 CZ CL & HE |
|---|----------|---------------|
| Servomotor  | kit      | kit           |
| Mechanism electric heaters <-25°C                 | X        | X             |
| Toothed wheels                                    | standard | standard      |
| Control rods                                      | X        | X             |
| Class 4 sealing in accordance with EN 1751        |          | X             |
| Polyurethane frame paint                          | X        | standard      |
| Polyurethane or epoxy paint on louvres and frames | X        | X             |
| Frame and dampers in stainless steel sheet        |          | X             |

## DESCRIPTION

### Boxes

#### Air intake boxes (AHU intake)

Single air intake, mixing, economiser mixing.

#### Air discharge box (AHU discharge)

Directional, distribution.

Assembly of combined louvres outside or inside the casing for the task defined by the section chosen. Manual control, motorised or to be motorised.

| OPTIONS AVAILABLE PER RANGE                                       | 39 CZ ST | 39 CZ CL&HE |
|---|----------|-------------|
| Servomotor  | kit      | kit         |
| Mechanism electric heaters for fresh air at a temperature < -25°C | X        | X           |
| Toothed wheels  | standard | standard    |
| Control rods  | X        | X           |
| Class 4 sealing in accordance with EN 1751                        |          | X           |
| Galvanised safety base with drain                                 | X        | X           |
| Stainless steel sheet safety base with drain                      | X        | X           |
| Polyurethane or epoxy paint on louvres and frames                 | X        | X           |
| Lighting not connected (if access provided)                       | kit      | kit         |
| Lighting wired to switch (if access provided)                     | X        | X           |
| Double glass porthole   | X        | X           |
| Lift-off panel (louvre control on opposite side)                  | X        | X           |
| Hinged door (louvre control on opposite side)                     | X        | X           |

### Filters

- G2 & G4 efficiency, M5 to F9, H10 to H14 (with the equivalence of the new ISO 16890 filtration standard) or activated carbon with international dimensions mounted on compressible tracks, on universal frame or large-media frames with pressure tappings on each filtration stage, EN 1886 Filter bypass leakage classification (F9 classification).
  - Fitting system equipment for filter cells for all 3 ranges.
  - 4 Standardised assembly systems
- Assembly 0:** traditional tracks for full section G4 cells.
- Assembly 1:** compressible tracks (horizontal extension), G2 and G4 efficiency, 65 to 90 % gravimetric (GRAVI) efficiency with side door.
- Assembly 2:** compressible tracks (horizontal and vertical extension), M5 to F9 efficiency, 40 to 98 % opacimetric (OPA) efficiency with side door.
- Assembly 3:** 3U universal frames or 3B large-media frames, M5 to H10 efficiency for universal frames, 40 % OPA to 85 % MPPS efficiency, H10 to H14 efficiency for large-media frames, 85 to 99.995 % MPPS efficiency.
- Activated carbon:** a model with activated carbon cells for urban pollution can also be installed in assembly 2 or 3 (universal frame); another for specific pollution must be installed in a large-media frame.

## DESCRIPTION

| OPTIONS AVAILABLE PER RANGE                          | 39 CZ ST         | 39 CZ CL & HE    |
|--|------------------|------------------|
| Lift-off panel or hinged door                        | X                | X                |
| Galvanised safety container                          | X                | X                |
| Stainless steel safety container                     |                  | X                |
| Pressure tapping per filter stage                    | standard         | standard         |
| Liquid pressure gauge                                | kit              | kit              |
| Contact pressure gauge                               | kit              | kit              |
| Magnehelic pressure gauge                            | kit or assembled | kit or assembled |
| Double glass porthole                                | X                | X                |
| Lighting not connected                               | kit              | kit              |
| Lighting wired to switch                             | X                | X                |
| Door contact   | kit or assembled | assembled        |
| Polyurethane or epoxy paint on tracks and frames     | X                | X                |
| Paint on frame:                                      | X                | standard         |
| polyurethane   | X                |                  |
| Stainless steel tracks                               | X                | standard         |
| Stainless steel universal frame (•F" fine filters)   | X                | X                |
| Stainless steel large-media frame (HEPA •H" filters) | X                | X                |
| Pressurised door (assembly 3 downstream of the fan)  | standard         | standard         |
| Opening for DOP injection/Hatch for DOP measurement  |                  | X                |

## DESCRIPTION

### Heating coil

- For hot water
  - Construction with copper tubes and aluminium fins.
  - Maximum primary fluid temperature = 120 °C.
  - Operating pressure for water: 8 bar as standard - Higher pressures on consultation.

Depending on the type of coil and the diameters required, the manifolds and supply tubes are:

- Copper or steel tubes with unions up to 3" diameter.
  - Steel tubes with smooth ends for larger diameters.
  - Removable sealing flanges between the casing and manifolds (up to 3" diameter prevent damage to the sealing system during connection operations).
- For superheated water
    - Construction with steel tubes and aluminium fins.
    - Maximum primary fluid temperature = 200 °C.
    - Operating pressure for water: 30 bar max.
    - Supply manifolds and tubes made from steel with smooth ends.

- For refrigerant fluid
  - Construction with steel tubes and aluminium fins.
  - Supply tubes made from copper with smooth ends.
- For steam (on consultation)
  - Low pressure < 2 bar - copper tubes, aluminium fins.
  - High pressure 2 to 8 bar - cupronickel or stainless steel tubes depending on the size of the AHU, the pressure and the steam quality.
  - Supply manifolds and tubes made from steel or stainless steel with smooth ends.

| OPTIONS AVAILABLE PER RANGE                   | 39 CZ ST | 39 CZ CL & HE |
|---|----------|---------------|
| Hot water coil in stock                       | X        | X             |
| Standard circuit coil                         | X        | X             |
| Superheated water coil                        | X        | X             |
| Steam coil                                    | X        | X             |
| Condensation coil                             | X        | X             |
| Antifreeze probe slide                        | X        | X             |
| Frost protection thermostat supplied in a kit | X        | X             |
| Frost protection thermostat supplied mounted  | X        | X             |
| Pressure tapplings, upstream and downstream   | X        | X             |
| Precoated fins/primary fluid max. T° 110°C    | X        | X             |
| Coil with ALTENA treatment max. T° 160°C      | X        | X             |
| Coil with HERESITE treatment max. T° 180°C    | X        | X             |
| Copper fins                                   | X        | X             |
| Galvanised steel safety container             | X        | X             |
| Stainless steel safety container              | X        | X             |
| Epoxy paint on tracks                         | X        | standard      |
| Stainless steel tracks                        | X        | X             |
| Stainless steel coil panels                   | X        | X             |
| Screw flanges and counter-flanges             | kit      | kit           |
| Tubes with quick connections                  | X        | X             |

### Electric heater

- Shielded resistors in scrolled stainless steel finned tubes
- Connection to copper strips.
- Double insulation assembly.
- Safety thermostat with automatic and manual reset as standard.

- To commission the heater: refer to the manual supplied with each unit.
- Take the necessary precautions to prevent abnormal heating when the fan is switched off (ensure post ventilation).

| OPTIONS AVAILABLE PER RANGE            | 39 CZ ST | 39 CZ CL & HE |
|--|----------|---------------|
| Safety thermostat with automatic reset | standard | standard      |
| Three-phase or single-phase connection | X        | X             |
| Painted tracks                         | X        | standard      |
| Stainless steel tracks                 | X        | X             |
| Stainless steel heater panels          | X        | X             |



## DESCRIPTION

### Cooling coil

Inclined condensate drain pan in accordance with EN 13053,

- Chilled water
  - Construction with copper tubes and aluminium fins.
  - Operating pressure for water: 8 bar as standard - Higher pressures on consultation.
  - Inclined condensate drain pan with drain pipes to be connected to a siphon on site.
  - Droplet separator as standard if necessary, as an option on request.

Depending on the type of coil and the diameters required, the manifolds and supply tubes are:

- Copper or steel tubes with unions up to 3" diameter.
- Steel tubes with smooth ends for larger diameters.
- Removable sealing flanges between the casing and manifolds up to 3" diameter prevent damage to the sealing system during connection operations.

- Direct expansion evaporation
  - Construction with copper tubes and aluminium fins.
  - Inclined condensate drain pan with drain pipes to be connected to a siphon on site.
  - Droplet separator as standard if necessary, as an option on request.
  - Standard smooth copper refrigerant supply tubes (supplied capped)
  - Manifold on fluid intake as standard.
  - Removable panel for accessing the expansion valve and solenoid valve incorporated in the casing (the valve and solenoid valve may be supplied assembled if the coil is connected to a CARRIER condensation unit).

| OPTIONS AVAILABLE PER RANGE                                     | 39 CZ ST                  | 39 CZ CL & HE             |
|---|---------------------------|---------------------------|
| Chilled water coil in stock                                     | X                         | X                         |
| Standard circuit chilled water coil                             | X                         | X                         |
| Direct expansion evaporation coil                               | X                         | X                         |
| Access panel on droplet separator                               | as standard if compulsory |                           |
| Pressure tapings, upstream and downstream                       | X                         | X                         |
| Precoated fins  | X                         | X                         |
| Coil with ALTENA treatment                                      | X                         | X                         |
| Coil with HERESITE treatment                                    | X                         | X                         |
| Copper fins   | X                         | X                         |
| Stainless tube exchanger, aluminium fins                        | X                         | X                         |
| Stainless steel condensate drain pan                            | X                         | standard                  |
| Heat insulation of pan, elbows and manifolds                    | X                         | X                         |
| Painted tracks  | X                         | standard                  |
| Stainless steel tracks  | X                         | X                         |
| Hygiene pan   |                           | X standard on HE          |
| Stainless steel heater panels                                   | X                         | X                         |
| Fully galvanised droplet separator                              | as standard if compulsory |                           |
| Droplet separator with galvanised frame, stainless steel medium | X                         | X                         |
| 100% stainless steel droplet separator, frame and medium        | X                         | as standard if compulsory |
| Droplet separator with polypropylene blades                     | as standard if compulsory |                           |
| Screw flanges and counter-flanges                               | kit                       | kit                       |
| Tubes with quick connections                                    | X                         | X                         |

## DESCRIPTION

### Adiabatic humidifiers

- Spray - Efficiency 80 to 90%
  - Stainless steel module with sloped bottom, door for inspection, maintenance and replacement of the drain screens and droplet separator.
  - 2 or 3 spray ramps (depending on efficiency).
  - Drain screens.
  - Water tank with its supply equipment.

| OPTIONS AVAILABLE PER RANGE                                       | 39 CZ ST | 39 CZ CL & HE |
|---|----------|---------------|
| 400 V three-phase pump and recirculation accessories              | X        | X             |
| Double glass porthole   | X        | standard      |
| Lighting not connected  | kit      | kit           |
| Lighting connected on switch                                      | X        | X             |
| Droplet separator with galvanised frame with stainless steel mesh | X        | standard      |
| Fully stainless steel droplet separator                           | X        | X             |
| Water tank pan spray washer                                       | X        | X             |
| Hydraulic connection for UV treatment of recirculated water       | X        | X             |

### Steam humidifiers

- Without steam production
 

The supply includes:

  - Stainless steel steam distributor
  - Permissible steam pressure range (0.2 to 3.5 bar)
  - Cast iron steam/water separator
  - Main steam valve
  - 24 V or 240 V on/off or progressive servomotor

| OPTIONS AVAILABLE PER RANGE                                   | 39 CZ ST | 39 CZ CL & HE |
|---|----------|---------------|
| Galvanised steel safety container                             | X        | X             |
| Stainless steel safety container                              | X        | X             |
| Fully galvanised droplet separator                            | X        | X             |
| Droplet separator with galvanised frame, stainless steel mesh | X        | X             |
| Fully stainless steel droplet separator                       | X        | X             |
| Double glass porthole   | X        | X             |
| Lighting not connected  | kit      | kit           |
| Lighting connected on switch                                  | X        | X             |
| Lift-off panel  | X        | X             |

- With steam production (standalone with electrodes)
 

The supply includes:

  - Aluminium steam distributor.
  - Steamer with electrical cabinet and controller (IP 20).
  - Proportional or on/off control.
  - Humidity controller or control sensor.
  - Duct/cylinder connection.
  - Condensate return tubes and connections.
  - 230 V single-phase or 400 V - 415 V three-phase supply voltage.
  - Min and max supply water conductivity limits 125 - 1250 microsiemens/cm (8000 - 800 ohm).
  - Hardness of supply water 15 - 30 degrees (French).

| OPTIONS AVAILABLE PER RANGE                                   | 39 CZ ST | 39 CZ CL & HE |
|---|----------|---------------|
| Galvanised safety container                                   | X        | X             |
| Stainless steel safety container                              | X        | X             |
| Fully galvanised droplet separator                            | X        | X             |
| Droplet separator with galvanised frame, stainless steel mesh | X        | X             |
| Fully stainless steel droplet separator                       | X        | X             |
| Double glass porthole   | X        | standard      |
| Lighting not connected  | kit      | kit           |
| Lighting connected on switch                                  | X        | standard      |
| Lift-off panel  | X        | X             |

- With steam production (standalone with heaters) on consultation

## DESCRIPTION

### Fans

- Forward-curved dual-inlet fan.
- Backward-curved dual-inlet fan.
- Plug fan.
- EC plug fan.
- Steel scroll and impeller.
- Assembly on anti-vibration frame.
- Connection via internal flexible sleeve.
- Ball bearings mounted in fan inlets.
- Belt and pulley transmission on the dual-inlet fans.
- Standard motor: asynchronous three-phase, 230 / 400 V - 50 Hz up to 4 kW - 400 V - 50 Hz from 5.5 kW, IP 55 protection, class F with PTC.

| OPTIONS AVAILABLE PER RANGE                         | 39 CZ ST         | 39 CZ CL & HE    |
|---|------------------|------------------|
| Fan with forward-curved blades and transmission     | X                | X                |
| Fan with backward-curved blades and transmission    | X                | X                |
| Plug fan  | X                | standard         |
| EC plug fan   | X                | X                |
| Sparkproof fan                                      | X                | X                |
| Spring mounts                                       | standard         | standard         |
| Lift-off panel                                      | X                | X                |
| Hinged door   | standard         | standard         |
| Pressurised door (plug fan), hinged for sizes > 250 | standard         | standard         |
| Pressure connections                                | X                | X                |
| Holes with blanking covers                          | X                | X                |
| Door contact  | kit or assembled | kit or assembled |
| Galvanised steel safety container                   | X                | X                |
| Stainless steel safety container                    | X                | X                |
| Double glass porthole                               | X                | X                |
| Smoke detector (NF S61961)                          | kit              | kit              |
| Lighting not connected                              | kit              | kit              |
| Lighting connected on switch                        | X                | X                |
| Paint on casing and bracket                         | X                | standard         |
| Stainless steel casing, bracket                     | X                | X                |
| Inspection hatch and vent on scroll                 | X                | X                |
| Epoxy painted scroll and impeller                   | X                | standard         |
| Screens on inlets                                   | X                | X                |
| Door protection                                     | X                | X                |
| Belt housing  | X                | X                |
| 2 motors fitted                                     | X                | X                |

### Heat recovery unit

- Plate
  - Standard construction or HEE plate heat exchanger.
  - The heat exchanger has aluminium plates. This component can be used normally up to an air temperature of 150 °C (if the plate heat exchanger is an AHU component, the standard temperature limit is 80 °C with a differential pressure of 1000 Pa and a leak flow rate between the 2 air streams (EXHAUST/INTAKE) of less than 1 %.
  - Condensate drain pan on exhaust air side, made from galvanised steel with condensate drain piping as standard.

| OPTIONS AVAILABLE PER RANGE                                | 39 CZ ST | 39 CZ CL & HE |
|--|----------|---------------|
| For stacked AHUs   | X        | X             |
| For side by side AHUs                                      | X        | X             |
| G4 prefilter and M5 filter incorporated depending on size  | X        | X             |
| Bypass on fresh air  | X        | X             |
| Coated aluminium plates                                    | X        | X             |
| Epoxy paint on internal panels                             | X        | X             |
| Pressure tapping on the 4 air handling orifices            | X        | X             |
| Stainless steel condensate drain pan                       | X        | X             |
| Damper control, manual, motorised or ready to be motorised | X        | X             |

## DESCRIPTION

### ■ Rotating

- Corrugated aluminium exchange medium.
- Adjustable midway and peripheral gasket to guarantee a minimum leak flow rate.
- Lateral inspection panel.

- Constant speed gear motor (230/400 V three-phase power supply).
- Maintenance-free ball bearing.
- For sensible power exchange as standard.

| OPTIONS AVAILABLE PER RANGE   | 39 CZ ST | 39 CZ CL & HE |
|---|----------|---------------|
| Gear motor and variable frequency drive for variable speeds from 0 to 10 rpm – 230 V single-phase | X        | X             |
| Coated aluminium rotor  | X        | X             |
| Hygroscopic rotor for total power exchange  | X        | X             |
| Polyurethane or epoxy painted internal panels   | X        | X             |
| Stainless steel internal panels   | X        | X             |
| Pressure tapping on the 4 air handling orifices   | X        | X             |

### Sound attenuators

- Baffles.
- Mineral wool of different densities, the faces are covered with an anti-erosion shield.
- Galvanised panels.

| OPTIONS AVAILABLE PER RANGE        | 39 CZ ST                | 39 CZ CL & HE |
|------------------------------------|-------------------------|---------------|
| Baffle length                      | 500 - 900 - 1200 - 1500 |               |
| Coating with fray-resistant fabric | X                       | standard      |
| Painted mounting tracks            | X                       | standard      |
| Painted baffle panels              | X                       | standard      |
| Stainless steel baffle panels      | X                       | X             |

### Accessories

| OPTIONS AVAILABLE PER RANGE                                      | 39 CZ ST | 39 CZ CL & HE |
|--|----------|---------------|
| Standard flexible sleeves for the outside of the casing          | X        | X             |
| Insulated flexible sleeves for the outside of the casing         | X        | X             |
| Rain protection frame with bird screen                           | X        | X             |
| Grille frame for protection of the air handling orifices on AHUs | X        | X             |

## BLOCK AND AHU DIMENSIONS

Table of "L" block lengths available (all integrated elements), the total length of the AHUs is obtained by adding 25 mm to each end.

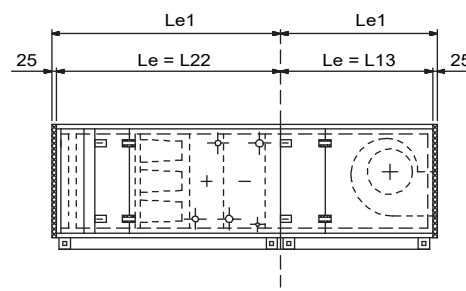
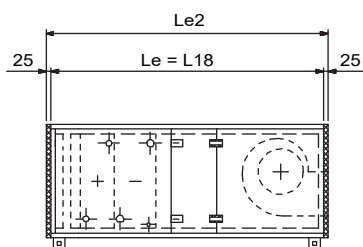
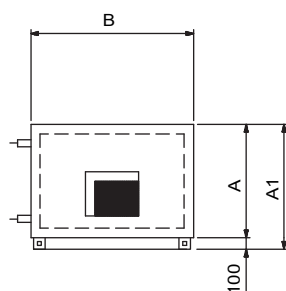
|                          |            | Unit No. | 100 to 450 | 400 & 600 |
|--------------------------|------------|----------|------------|-----------|
| block/AHU maximum length | length "L" |          |            |           |
|                          |            | L2       | 200        |           |
|                          |            | L3       | 300        |           |
|                          |            | L4       | 400        |           |
|                          |            | L5       | 500        |           |
|                          |            | L6       | 600        |           |
|                          |            | L7       | 700        |           |
|                          |            | L8       | 800        |           |
|                          |            | L9       | 900        |           |
|                          |            | L10      | 1000       |           |
|                          |            | L11      | 1100       |           |
|                          |            | L12      | 1200       |           |
|                          |            | L13      | 1300       |           |
|                          |            | L14      | 1400       |           |
|                          |            | L15      | 1500       |           |
|                          |            | L16      | 1600       |           |
|                          |            | L17      | 1700       |           |
|                          |            | L18      | 1800       |           |
|                          |            | L19      | 1900       |           |
|                          |            | L20      | 2000       |           |
|                          |            | L21      | 2100       |           |
|                          |            | L23      | 2300       | 2300      |
| 400 & 600                |            | L32      | 3200       |           |
| 100 to 450               |            |          |            |           |

### ■ AHU dimensions

L length of integrated elements

Le 1 length of integrated elements + 1 end panel

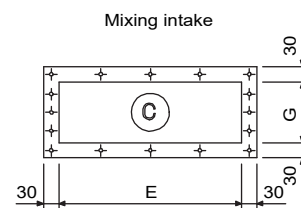
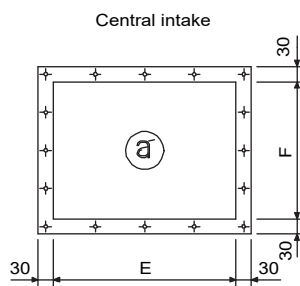
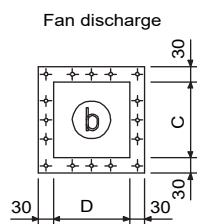
Le 2 length of integrated elements + 2 end panels



| Unit No. | 100  | 150  | 140  | 200  | 190  | 250  | 300  | 375  | 400  | 450  | 600  |
|----------|------|------|------|------|------|------|------|------|------|------|------|
| A        | 946  | 1236 | 946  | 1566 | 1236 | 1566 | 1566 | 1886 | 1566 | 2226 | 2226 |
| A1       | 1046 | 1336 | 1046 | 1666 | 1336 | 1666 | 1668 | 1986 | 1666 | 2326 | 2326 |
| B        | 1516 | 1516 | 2172 | 1516 | 2172 | 1817 | 2172 | 2172 | 2812 | 2172 | 2812 |

## BLOCK AND AHU DIMENSIONS

### ■ Connection flanges



| Unit No. | 100  | 150  | 140  | 200  | 190  | 250  | 300  | 375  | 400  | 450  | 600  |
|----------|------|------|------|------|------|------|------|------|------|------|------|
| <b>C</b> | 514  | 574  | 514  | 724  | 574  | 814  | 914  | 1024 | 914  | 1144 | 1144 |
| <b>D</b> | 514  | 574  | 514  | 724  | 574  | 814  | 914  | 1024 | 914  | 1144 | 1144 |
| <b>E</b> | 1260 | 1260 | 1860 | 1260 | 1860 | 1560 | 1860 | 1860 | 2510 | 1860 | 2510 |
| <b>F</b> | 610  | 1010 | 610  | 1310 | 1010 | 1310 | 1310 | 1510 | 1310 | 1810 | 1810 |
| <b>G</b> | 310  | 410  | 310  | 610  | 410  | 610  | 610  | 760  | 610  | 910  | 910  |





**NEW**

## OPTICLEAN™ 39UV AIR SCRUBBER



AIR SCRUBBER

Portable solution

Multi purpose  
Recirculation or negative air  
machine

**AIR SCRUBBER**

HEPA filters with M5 pre-filter

Provides safety conditions for  
locals without fresh air entry

Multiple applications :  
commercial, healthcare, retail,  
education, hotel

## OptiClean™ 39UV

- 3 models
- Pre-filter pleated synthetic material, M5
- High efficient long-life HEPA filters
- Nominal airflow 1000 – 1800 – 2500 m<sup>3</sup>/h
- Vertical design for smaller footprint compared to many competitors
- Portable and adaptable to nearly any installation
- Heavy duty locking casters for easy and smooth transport
- Red lighted indicator to alert user when filters are overloaded (generally means maintenance is required)
- 2.5 meters long power cord with strain relief
- Power cable access from rear of the unit
- Plug F / G / J type
- 230V / 50hz / 1Ph Power
- Chassis is made from galvanized steel, pre-painted and fully insulated
- Exhaust transition plate as an option
- Diffusion acoustic plenum

## STANDARD FEATURES OPTICLEAN™ 39 UV

The OptiClean™ 39UV AIR SCRUBBER machine is currently designed for commercial, healthcare and administrative applications.

### Negative air operation mode

The OptiClean™ 39UV negative air machine is a portable solution primarily designed to help convert normal hospital rooms into Airborne Infectious Isolation (AII) rooms. Designed to improve indoor air quality for those installations that have no possibility of fresh air inlet, OptiClean™ 39UV uses highly efficient filters and a heavy duty, yet quiet, motor to remove contaminated air from the room. The resulting negative air pressure, or “vacuum effect,” helps limit the spread of air-based contaminants into surrounding areas.

### Recirculation operation mode

If negative pressure is not required, such as in an open-air, temporary hospital, the machine can be used as an air “scrubber,” pulling air in, removing many contaminants, and discharging cleaner air back into the room. In the event of rooms with difficulties in obtaining satisfactory ventilation or to support existing ventilation, placing the equipment in the area to be treated mitigates the contaminant load. They must maintain a significant hourly air movement rate to support the RETENTION and INACTIVATION strategy.



## M5 PREFILTER

The M5 prefilter is installed as machine protection, extending the working life of the HEPA filters and improving the efficiency of the UV lamps.



M5 Prefilter

## HEPA FILTERS: HIGH EFFICIENCY FILTRATION

Those filters have high filtration efficiency and are tested under Standard EN-1822 with MPPS (particle size more difficult to filter or particle size with the least total filtration efficiency). Viruses are normally transmitted through integration into two types of droplets or bioaerosols of human origin (sneezing, coughing, speech, breathing, etc.): “droplet” (droplets > 5 microns) and “droplet nuclei” (< 5 microns). The smaller the size, the longer they stay in the atmosphere. HEPA filters actively participate in the bioaerosol RETENTION strategy, mitigating the droplet transmission mechanism. Large filtering area cell filters (depth 296 mm) have a much higher particle retention capacity than low-depth filters, significantly reducing their maintenance requirements and improving their amortisation. H13 HEPA filters efficiency is 99.95% regarding MPPS. H14 HEPA filters efficiency is 99.995% regarding MPPS.



HEPA filters

## ACTIVATED CHARCOAL FILTRATION

As an air purifying complement, carbon filters with chemical adsorbent are able to eliminate odours by adsorbing gases such as hydrogen sulphide, dimethyl sulphide, mercaptans, nitrogen oxides, formaldehydes, VOCs, formol, ethylene, chlorine, ammonia, mercury, etc.



Charcoal filter

## ULTRAVIOLET LAMPS

UV lamps are involved in the strategy of air cleaning, reducing the concentration pathogenic pollutants. UVC radiation inactivates and inhibits the replication of the nucleic acids (DNA and RNA) in micro-organisms (viruses, bacteria, etc.). Absorption of very high energy over a wavelength of 253 nm results in irreversible damage to the structure of nucleic acids and proteins at a molecular level (Ashrae Fundamentals, Ch. 62, Ultraviolet and surface treatment).

### Technical features of the UV lamps option in Opticlean

| Model              | Number of lamps | Power consumption in Watts | Total power consumption | Amperes (A) | Voltage(V) | Maximum intensity (A) |
|--------------------|-----------------|----------------------------|-------------------------|-------------|------------|-----------------------|
| OptiClean™ 39UV 10 | 2               | 60                         | 120                     | 0,66        | 230        | 1,1                   |
| OptiClean™ 39UV 18 | 4               | 60                         | 240                     | 1,32        | 230        | 2,2                   |
| OptiClean™ 39UV 25 | 4               | 60                         | 240                     | 1,32        | 230        | 2,2                   |

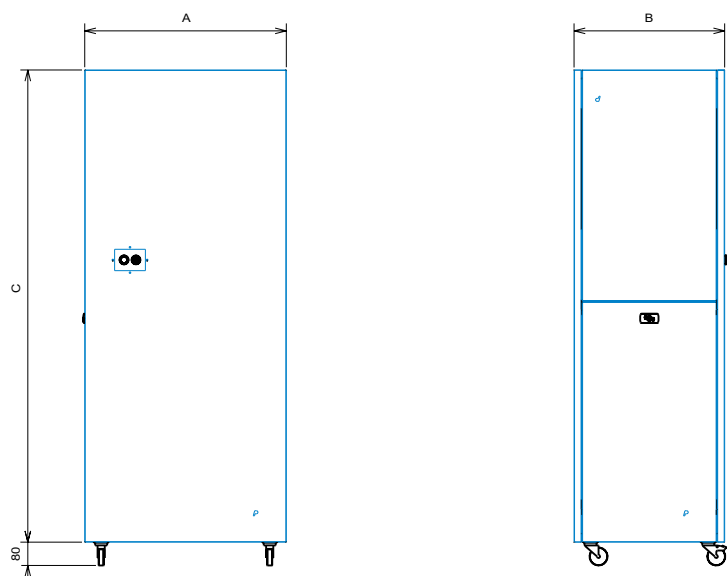
## AVAILABLE FEATURES

| FEATURES   | BASIC | OPTIONS |
|--|-------|---------|
| Casing coated RAL 9010 ( White )                           | X     |         |
| Prefilter M5   | X     |         |
| Absolute Filter H13  | X     |         |
| Absolute Filter H14  |       | X       |
| EC Motor fan   | X     |         |
| Vertical Air diffusion grill                               | X     |         |
| Circular connexion for Duct (dimensions depending on size) |       | X       |
| Additional plenum with horizontal diffusion grille         |       | X       |
| Start and Stop Switch                                      | X     |         |
| Electrical connexion - 230V 1Ph 50 hz                      | X     |         |
| Power cable 2,5 m  | X     |         |
| Filter clogging indicator                                  | X     |         |
| Adjustment potentiometer air flow                          | X     |         |
| Caster (wheels) 360 ° (2 lockable)                         | X     |         |
| Solution 1 Additionnal UV lamps device                     |       | X       |
| Solution 2 Additional Carbon Filter                        |       | X       |

## MODEL NUMBER NOMENCLATURE

|              |   |   |  |   |  |
|--------------|---|---|--|---|--|
| <b>39UV</b>  | <b>X</b>  | <b>X</b>  | <b>OPTIONAL</b><br><b>X</b>  | <b>X</b>  | <b>X</b>   |
| <b>RANGE</b> | <b>SIZE</b><br>1= 1000 m³/h<br>2= 1800 m³/h<br>3= 2500 m³/h | <b>HEPA FILTER</b><br>A= HEPA H13<br>B = HEPA H14 | <b>ADDITIONAL OPTIONS</b><br>4= none<br>5= UVC<br>6= carbon filter | <b>ACCESSORIES</b><br>C= none<br>D= circular connexion for duct SIZE 1<br>H= circular connexion for duct SIZE 2 and 3<br>E= horizontal diffusion grille SIZE 1<br>I= horizontal diffusion grille SIZE 2 and 3 | <b>ELECTRIC PLUG TYPE</b><br>F= Type F (all EU but UK & Ireland)<br>G= Type G (UK & Ireland)<br>J= Type J (Switzerland only) |

## DIMENSIONS AND TECHNICAL DATA



| Dimensions (mm)    | A   | B   | C    |
|--------------------|-----|-----|------|
| OptiClean™ 39UV 10 | 675 | 505 | 1580 |
| OptiClean™ 39UV 18 | 675 | 810 | 1710 |
| OptiClean™ 39UV 25 | 675 | 810 | 1710 |

### Noise level acoustic spectrums (Lw = noise power level)

#### ■ OptiClean™ 39UV 10

| Proportional potentiometer signal | RPM  | Airflow (m³/h) | W   | 125  | 250  | 500  | 1000 | 2000 | 4000 | Lw   |
|-----------------------------------|------|----------------|-----|------|------|------|------|------|------|------|
| 2,5 V                             | 768  | 240            | 8   | 38,5 | 32,9 | 26,9 | 35,2 | 10,2 | 9,2  | 39,9 |
| 5 V                               | 1448 | 520            | 36  | 52,1 | 45,5 | 40,7 | 37,6 | 34,0 | 24,1 | 49,3 |
| 7,5 V                             | 2138 | 840            | 106 | 57,8 | 60,1 | 50,4 | 45,5 | 44,9 | 37,4 | 58,1 |
| 10 V                              | 2498 | 1000           | 169 | 61,3 | 59,8 | 52,8 | 49,5 | 48,7 | 42,2 | 62,1 |

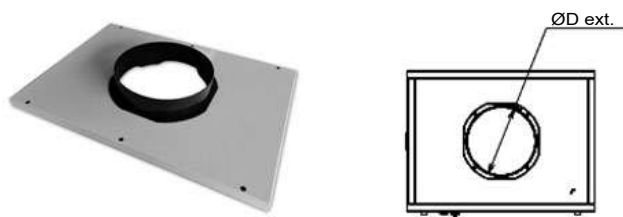
#### ■ OptiClean™ 39UV 18

| Proportional potentiometer signal | RPM  | Airflow (m³/h) | W   | 125  | 250  | 500  | 1000 | 2000 | 4000 | Lw   |
|-----------------------------------|------|----------------|-----|------|------|------|------|------|------|------|
| 2,5V                              | 813  | 490            | 24  | 53,4 | 43,3 | 33,9 | 28,3 | 22,6 | 15,1 | 39,6 |
| 5V                                | 1653 | 1170           | 95  | 70,9 | 64,2 | 54,6 | 49,5 | 43,2 | 38,3 | 60,4 |
| 7,5V                              | 2526 | 1920           | 274 | 67,3 | 76,5 | 66,7 | 61,3 | 55,9 | 51,4 | 70,3 |
| 10V                               | 3219 | 2500           | 535 | 72,9 | 81,3 | 73,4 | 67,8 | 62,7 | 58,7 | 76,9 |

#### ■ OptiClean™ 39UV 25

| Proportional potentiometer signal | rpm  | Airflow (m³/h) | W   | 125  | 250  | 500  | 1000 | 2000 | 4000 | Lw   |
|-----------------------------------|------|----------------|-----|------|------|------|------|------|------|------|
| 2,5V                              | 573  | 600            | 29  | 54,6 | 40,6 | 34,9 | 29,0 | 21,2 | 15,4 | 40,3 |
| 5V                                | 1144 | 1550           | 139 | 72,0 | 60,6 | 53,5 | 47,3 | 39,6 | 35,1 | 58,3 |
| 7,5V                              | 1702 | 2560           | 420 | 76,8 | 73,6 | 65,1 | 58,9 | 51,9 | 47,2 | 68,4 |
| 10V                               | 2049 | 3110           | 741 | 73,7 | 80,1 | 69,8 | 64,4 | 57,8 | 53,0 | 72,6 |

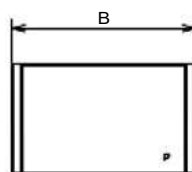
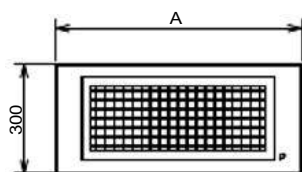
### Duct connections for negative pressure



| Airflow   | D   |
|-----------|-----|
| 2500 m³/h | 355 |
| 1800 m³/h | 355 |
| 1000 m³/h | 250 |

## DIMENSIONS AND TECHNICAL DATA

### Additional Acoustic Horizontal Diffusor \*



| Airflow   | A   | B   | C    |
|-----------|-----|-----|------|
| 2500 m³/h | 675 | 810 | 1710 |
| 1800 m³/h | 675 | 810 | 1710 |
| 1000 m³/h | 675 | 505 | 1580 |

\* 2 dba noise reduction of sound pressure level ( Lp) at 1.5 m

## OPTICLEAN™ 39UV AIR SCRUBBER SERIES

At Carrier, we continue to innovate, seeking new solutions that will improve the quality of HVAC and air conditioning installations. Our experts will advise you on your path towards buildings with healthier, safer and more productive environments, through increasingly efficient and environmentally responsible solutions.



### PLUG & PLAY DESIGN

The design of the equipment is made to simplify your installation as much as possible, making it easier to use for any application.



### 100% CONFIGURABLE

The equipment has different filtration HEPA stages and the possibility to include activated char-coal or germicide system (UV) as an option.



### QUIET

With low sound levels, this unit is ideal for use in spaces with permanent human occupation.



### EASY CLEANING AND MAINTENANCE

Smooth, screwless finishes and easy access to all parts of the unit make the OptiClean™ 39UV easy to clean and maintain.



### HIGH ENERGY EFFICIENCY

The high performance EC motor (with electronic switching) reduces power consumption.



### GREAT VERSATILITY

The OptiClean™ 39UV can be used in 2 different operating modes including negative air pressure and recirculation.

## OTHER INDOOR AIR QUALITY SOLUTIONS

Carrier has developed a comprehensive suite of innovative solutions aimed at ensuring healthier, safer, more efficient and productive indoor environments in key applications, such as commercial offices, healthcare, hospitality, education and retail. From products to improve indoor air quality and remote services to ventilation management of buildings, and comprehensive solutions in public spaces, Carrier is redefining the spaces of the future, today.

- A wide range of AHU's can be customised to each of the solutions, thanks to the wide variety of configurations available to meet the technical requirements of your project.
- Our control solutions optimise air quality at all times, improving comfort and efficiency.
- Carrier offers a wide range of services to monitor your buildings to make them safer and more efficient.







## PRECISION CABINET



For version X

- Compact footprint
- Dual-wall construction
- Fan motor assembly with EC motor (electronically commutated)
- PLC control
- Condenser fan variable speed control

## 50CJ

Cooling capacity: 5-47 kW  
Heating capacity: 4-41 kW  
Air flow: 1300 to 12,000 m<sup>3</sup>/h

Precision air conditioning cabinet specially designed for the air handling requirements (filtration, temperature and humidity control) of computer rooms, telecommunications rooms and specific purpose rooms (electronics, sensitive storage, medical, controlled atmosphere rooms, etc.).

Dual-wall construction. The choice of technology used (self regulation depending on the room loads, EC motor: electronically commutated) can reduce the energy consumption.

This unit is quick and easy to install, and particularly simple to use.

## RANGE

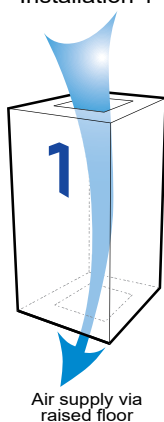
The 50CJ cabinet comes in two versions:

- **50CJ W: Chilled water model:**
  - Cooling capacity range: 5 to 27 kW
  - Flow rate: 800 to 6000 m<sup>3</sup>/h
  - 5 sizes available
- **50CJ X: direct expansion model with exterior air condensation unit:**
  - Cooling capacity range: 7 to 47 kW
  - Flow rate: 800 to 12,000 m<sup>3</sup>/h
  - 11 sizes available

## INSTALLATION

### UNDER installation: reversed air supply

Installation 1

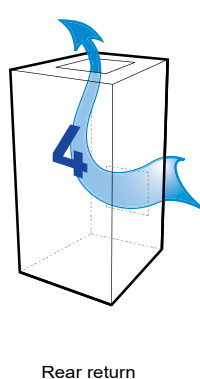


Installation 3

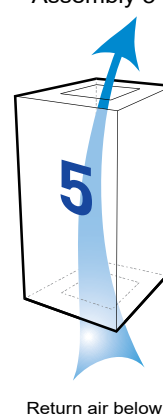


### OVER installation: top air supply

Installation 4



Assembly 5



## QUICK SELECTION

### 50CJ W

#### Cold water coil

| Sizes  | W5    | W8    | W12      | W16       |         | W27       |         |
|--|-------|-------|----------|-----------|---------|-----------|---------|
| Air flow rate (m <sup>3</sup> /h)  | 1 300 | 2 000 | 2 500    | 3 000     | 4 000   | 5 000     | 6 000   |
| *Maximum operating pressure with M5 (ePM10 50%) or F7 (ePm1: 60%) filtration | 400   | 400   | 259      | 400       | 85      | 400       | 324     |
| Total/sensible cooling capacity (kW)   | 5/4.8 | 8/7.6 | 10.5/9.9 | 14.7/13.2 | 18/16.7 | 23.5/21.5 | 27/25.1 |
| Water flow rate (m <sup>3</sup> /h)  | 0,86  | 1,4   | 1,8      | 2,5       | 3,1     | 4         | 4,6     |
| Pressure drop (mWC) (Coil + valve)   | 4,3   | 4,9   | 5,1      | 4,7       | 10      | 4,1       | 5,2     |

\* Maximum operating pressure dependent on air flow rate. Take away approximately 20 Pa if there is a hot water coil on 50CJW  
The operation point can be adjusted directly via the controller. Hence all the air flow/operating pressure combinations are possible, with the values in the table above as the maximum values.

| Correction factors | 7/12 °C | 10/15 °C | 12/18 °C |
|--------------------|---------|----------|----------|
| 22 °C/45%          | 0,84    | 0,58     | 0,44     |
| 24 °C/45%          | 1       | 0,74     | 0,5      |
| 30 °C/35%          | 1,48    | 1,18     | 0,9      |

Correction factors to apply to the cooling capacity based on the outdoor temperature and the return air conditions.

## QUICK SELECTION

## 50CJ W

## Hot water coil

| Sizes                              | W5    | W8   | W12   | W16   | W27   |
|------------------------------------|-------|------|-------|-------|-------|
| Air flow rate (m³/h)               | 1 300 | 2000 | 2 500 | 3 000 | 5 000 |
| Heating capacity (kW)              | 4,5   | 6,2  | 7,5   | 11,9  | 17,8  |
| Water flow rate (m³/h)             | 0,21  | 0,27 | 0,33  | 0,5   | 0,8   |
| Pressure drop (mWC) (Coil + valve) | 1,3   | 2,6  | 4,3   | 2,1   | 2,8   |

Specifications: heating capacity, air 20 °C, pure water 80 °C/60 °C

Correction factors to apply to the heating capacity for 90 °C/70 °C water temperature range: 1.23 and 45 °C/35 °C: 0.37.

## Electric heater

| Sizes                       | W5      | W8       | W12      | W16      | W27      |
|-----------------------------|---------|----------|----------|----------|----------|
| Total electrical power (kW) | 3       | 6        | 9        | 12       |          |
| Electrical power (kW)       | Stage 1 | 3        | 6        | 6        |          |
|                             | Stage 2 | -        | -        | 3        | 6        |
| Number of heaters           | Stage 1 | 3 x 1 kW | 3 x 2 kW | 3 x 2 kW |          |
|                             | Stage 2 | -        | 3 x 1 kW | 3 x 1 kW | 3 x 2 kW |
| Total current (A)           | 4,3     | 8,7      | 13       | 17,3     |          |

2 stage or TRIAC electric heater, depending on the option selected

## 50CJ X

## Cooling coil

| Sizes  | X5    | X8     | X10      | X12     | X15     | X19     | X24       | X31       | X36   | X38     | X48     |
|--|-------|--------|----------|---------|---------|---------|-----------|-----------|-------|---------|---------|
| Air flow rate (m³/h)   | 1 300 | 2 000  | 2 500    | 3 000   | 4 000   | 5 000   | 6 000     | 7 000     | 8 000 | 10 000  | 12 000  |
| *Maximum operating pressure with M5 (ePM10 50%) or F7 (ePm1: 60%) filtration | 400   | 400    | 276      | 400     | 89      | 400     | 324       | 273       | 26    | 330     | 21      |
| Total/sensible cooling capacity (kW)   | 7.2/6 | 8/7.65 | 10.6/9.7 | 11/10.9 | 15/14.7 | 19/18.6 | 23.2/22.4 | 30.1/27.9 | 35/32 | 38/37.4 | 47/45.4 |

\* Maximum operating pressure dependent on air flow rate. Take away approximately 20 Pa if there is a hot water coil on 50CJ X  
The operation point can be adjusted directly via the controller. Hence all the air flow/operating pressure combinations are possible, with the values in the table above as the maximum values.

| Correction factors | 30 °C | 32 °C | 35 °C | 40 °C |
|--------------------|-------|-------|-------|-------|
| 24 °C/50%          | 1,02  | 1     | 0,98  | 0,93  |
| 26 °C/50%          | 1,06  | 1,04  | 1,02  | 0,98  |

Correction factors to apply to the cooling capacity based on the outdoor temperature and the return air conditions.

## Hot water coil

| Sizes                              | X5    | X8    | X10   | X12   | X15   | X19   | X24   | X31   | X36   | X38    | X48    |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| Air flow rate (m³/h)               | 1 300 | 2 000 | 2 500 | 3 000 | 4 000 | 5 000 | 6 000 | 7 000 | 8 000 | 10 000 | 12 000 |
| Heating capacity (kW)              | 4,5   | 6,2   | 7,5   | 11,9  | 13,7  | 17,8  | 19,5  | 25,8  | 27,6  | 37,5   | 40,9   |
| Water flow rate (m³/h)             | 0,21  | 0,27  | 0,33  | 0,5   | 0,6   | 0,8   | 0,9   | 1,1   | 1,2   | 1,65   | 1,8    |
| Pressure drop (mWC) (Coil + valve) | 1,3   | 2,6   | 4,3   | 2,1   | 2,8   | 1     | 1,2   | 1,7   | 1,9   | 2,8    | 3,3    |

Specifications: heating capacity, air 20 °C, pure water 80 °C/60 °C

Correction factors to apply to the heating capacity for 90 °C/70 °C water temperature range: 1.23 and 45 °C/35 °C: 0.37.

## Electric heater

| Sizes                       | X5      | X8       | X10      | X12      | X15      | X19      | X24      | X31      | X36      | X38      | X48      |
|-----------------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Total electrical power (kW) | 3       | 6        | 9        | 12       | 18       | 24       |          |          |          |          |          |
| Electrical power (kW)       | Stage 1 | 3        | 6        | 6        | 6        | 6        | 6        | 6        | 6        | 6        | 6        |
|                             | Stage 2 | -        | -        | 3        | 3        | 6        | 6        | 6        | 6        | 6        | 6        |
| Number of heaters           | Stage 1 | 3 x 1 kW | 3 x 2 kW | 3 x 2 kW | 3 x 2 kW | 3 x 4 kW | 3 x 4 kW | 3 x 4 kW | 3 x 4 kW | 3 x 4 kW | 3 x 4 kW |
|                             | Stage 2 | -        | 3 x 1 kW | 3 x 1 kW | 3 x 2 kW | 3 x 2 kW | 3 x 2 kW | 3 x 2 kW | 3 x 2 kW | 3 x 4 kW | 3 x 4 kW |
| Total current (A)           | 4,3     | 8,7      | 13       | 17,3     | 26       | 34,6     |          |          |          |          |          |

2 stage or TRIAC electric heater, depending on the option selected

## INDOOR UNIT TECHNICAL DESCRIPTION

### ■ Casing

Dual-wall construction.

RAL 7035 grey pre-lacquered panel, removable:

- 1 mm pre-lacquered exterior panels,
- Glass wool, thickness 25 mm, class M0 (A2-s1),
- 0.8 mm galvanised interior panels.

### ■ Filtration

- EN 779-2012 efficiency: M5
- ISO16890 efficiency: ePM10 50%.
- Options:
  - EN 779-2012 efficiency: F7
  - ISO16890 efficiency: ePM1: 60%.
- Optional (excl. 50CJX 5/8/10 and 50CJW5/8/12):
  - Dual filtration M5 (ePM10 50%) +F7 (ePM1:60%).
- Filter cells tightly compressed against counter-frame by a gasket to ensure a completely leaktight seal.
- Fouling level monitored by an analogue pressure sensor.

\* except for models W 5/8/12 and X 5/8/12.

### ■ Cooling coil cross-section

- Copper tube coil, aluminium fins.
- Aluminium condensate drain pan.
- Model W with 2- or 4-way control valve fitted and connected. Optional thermally insulated flexible connections
- Model X with thermostatic expansion valve.

### ■ Ventilation section

- Direct drive centrifugal fan, associated with an electronically commutated (EC motor).
- EC motor: fan adaptation via manual adjustment or "self-regulating" adjustment by the controller, depending on the room load - system air control.
- EC electric motor 1-Ph/230 V/50-60 Hz, 4-pole, class F.
- Air flow rate monitored by an analogue pressure sensor.

### ■ Electrics box

Electrical power and control box consisting of:

- Power supply: 3-Ph/400V/50Hz+T+N.
- Emergency stop type disconnect switch.
- Three-phase 400 / 24 V transformer with protection.
- Protection and control of fan motor, and of humidifier and electric heater depending on options selected.
- Regulated by Carrier CCU Controller.
- Return air dry-bulb temperature control.
- Return humidity control:
- Supply humidity control (optional)
- Dehumidification humidity control (optional)
- Options available: water leak detection, fire thermostat and supply air low-limit monitoring.
- Remote control and fault summary contact.
- Condensate drain pump (optional).

### ■ Accessories

- Support base for supply air via raised floor:
- Supply plenum.
- Acoustic plenum with sound trap.
- Motorised damper on intake section.
- Additional water leak sensor.
- Fire thermostat.
- Hydraulic connection kit (chilled water and hot water coils).

## Indoor unit options

### ■ Electric heater

- Fan-controlled operation.
- 2-stage control (except 3 kW electric heater).
- 2-stage or TRIAC control.
- Two high-limit safety thermostats with automatic and manual reset.

### ■ Hot water coil

- 1-row coil made of copper tubes with aluminium fins.
- 2- or 4-way control valve fitted and connected.
- Optional flexible connections.

### ■ Humidifier

Immersed electrode humidifier with humidifier information available directly on the Carrier CCU Controller:

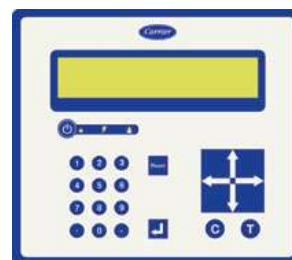
- Stainless steel large surface area electrodes,
- Steam flow rate: 3 kg/h for sizes 50CJW5/8/12 and 50CJX5/8/10)
- Steam flow rate: 8 kg/h for other sizes
- Steam cylinder in a single easy to remove component,
- Filling solenoid valves,
- Drain pump,
- Electronics board for operation management,
- Diffusion jet,
- Water supply connection kit.

Operates on municipal water supply only (water conductivity 350 to 1250  $\mu$ S and hardness 15 to 30 °F). Do not use deionised or softened water.

## Indoor unit regulation

### ■ Unit control and monitoring

#### Carrier CCU Controller



- 160-character display showing the operating instructions, operating states, faults and solutions. Configurable controller.
- Two fault levels.
- Monitoring of operating times.
- RS 485 output with Jbus/ModBus RTU protocol.
- Can manage rotations, backups and top-ups between units.
- BACNET IP or MSTP gateways optional.
- Optional changeover thermostat (only on W).

## DESCRIPTION OF THE CL2 OUTDOOR UNIT (MODEL X)

### ■ Scroll Compressor

- Crankcase resistance on models 50-65-75
- Air-cooled condenser, copper tube coil, aluminium fins
- Propeller fan(s) (1 or 2 depending on models) with EC motor
- All-season operation
- Condensation pressure control by fan variable speed control (pressure sensor)
- Refrigerant connections (FLARE connections)
- External operating temperature limits: -15°C to +45°C
- Casing in recyclable synthetic "ABS" material and UV stabilised, light and very solid. Its exclusive and valuable design, makes it easier to integrate into the visual space.

### ■ Optional equipment

- Anti-vibration mount kit
- Wall support kit (models 28-35)
- Crankcase resistance on models 28-35
- Thermostatic expansion valve kit
- Blygold pump kit



## TECHNICAL AND ELECTRICAL CHARACTERISTICS

### Indoor unit

|                                    |                       | W5 | W8    | W12   | W16    | W27    |        |        |
|------------------------------------|-----------------------|----|-------|-------|--------|--------|--------|--------|
|                                    |                       | X5 | X8    | X10   | X12/15 | X19/24 | X31/36 | X38/48 |
| Fan motor                          | Voltage               | V  | 230 V |       |        |        |        |        |
|                                    | Power                 | kW | 1,036 |       | 1,029  | 2,072  | 2,058  | 3,087  |
|                                    | Current               | A  | 4,51  |       | 4,38   | 9,02   | 8,76   | 13,14  |
| Control circuit (transformer)      | Voltage               | V  | 24 V  |       |        |        |        |        |
|                                    | Current               | A  | 1     |       |        |        |        |        |
| Humidifier (option)                | Voltage               | V  | 400   |       |        |        |        |        |
|                                    | Power                 | kW | 2,25  |       | 6      |        |        |        |
|                                    | Current               | A  | 3,2   |       | 8,7    |        |        |        |
| Electric heater (option)           | Voltage               | V  | 400   |       |        |        |        |        |
|                                    | Power                 | kW | 3     | 6     | 9      | 12     | 18     | 24     |
|                                    | Current               | A  | 4,3   | 8,7   | 13     | 17,3   | 26     | 34,6   |
| Total current without option       | Current               | A  | 5,51  |       | 5,38   | 10,02  | 9,76   | 14,14  |
|                                    | Rating of main switch | A  | 16    |       |        |        |        |        |
| Total current with humidifier      | Current               | A  | 8,71  |       | 14,08  | 18,72  | 18,46  | 22,84  |
|                                    | Rating of main switch | A  | 16    |       |        | 25     |        |        |
| Total current with electric heater | Current               | A  | 9,81  | 14,21 | 18,38  | 27,32  | 35,76  | 48,74  |
|                                    | Rating of main switch | A  | 16    |       | 25     | 40     |        | 63     |
| Total current all options          | Current               | A  | 13,01 | 17,41 | 27,08  | 36,02  | 44,46  | 57,44  |
|                                    | Rating of main switch | A  | 16    | 25    | 40     | 63     |        |        |

### CL2 condensation unit outdoor unit (model X)

| Sizes                                       |                   |                                       | 28                               | 35   | 50         | 65    | 75   |
|---|-------------------|---------------------------------------|----------------------------------|------|------------|-------|------|
| Compressor                                  | Quantity          |                                       | 1                                |      |            |       |      |
|   | Type              |                                       | SCROLL                           |      |            |       |      |
|   | Oil capacity      | l                                     | 1,25                             |      |            | 1,7   |      |
|   | Oil type          |                                       | POE                              |      |            |       |      |
|   | Voltage           |                                       | 400 V - 3 Ph - 50 Hz             |      |            |       |      |
|   | Maximum current   | A                                     | 6,9                              | 7,6  | 10,3       | 11,2  | 14,3 |
| Refrigerant                                 |                   | R410A                                 |                                  |      |            |       |      |
| Refrigerant weight                          | kg                | 1,6                                   |                                  | 2,65 | 2,75       | 3     |      |
| Power and current                           |                   | W/A                                   | 45 W/0.2 A Option <sup>(1)</sup> |      | 45 W/0.2 A |       |      |
| Crankcase heater                            |                   |                                       |                                  |      |            |       |      |
| Coil type                                   |                   | Grooved copper tubes - aluminium fins |                                  |      |            |       |      |
| Fan   | Quantity          |                                       | 1                                |      | 2          |       |      |
|   | Type              |                                       | Propeller                        |      |            |       |      |
|   | Nominal flow rate | m³/h                                  | 2350                             | 2770 | 4700       | 5540  | 5000 |
|   | Speed             | Rpm                                   | 700                              | 904  | 700        | 904   |      |
|   | Maximum current   | A                                     | 0,46                             | 0,97 | 0,92       | 1,94  | 1,94 |
| Rated voltage of unit                       | V                 | 400 V - 3 Ph+N - 50 Hz                |                                  |      |            |       |      |
| Total current                               | A                 | 7,5                                   | 8,3                              | 11,3 | 12,6       | 15,7  |      |
| Start-up current                            | A                 | 36                                    | 49                               | 65,5 | 75,5       | 102,5 |      |
| Electrical cables not supplied*             | mm²               | 5G1.5                                 | 5G2.5                            | 5G4  |            | 5G6   |      |
| Recommended cables for the proximity switch |                   | Am                                    | 10                               |      | 16         |       | 20   |
| Refrigerant connections                     | ø liquid line     | inches                                | 3/8"                             |      |            | 1/2"  |      |
|   | ø intake line     | inches                                | 5/8"                             | 3/4" |            | 7/8"  |      |

\* Cable with 2 or 3 charged conductors in a raceway or duct, exposed mounting, for temperatures below 60 °C and a maximum length of 30 m.

Note: for different conditions, refer to the current standard in the country of installation (example for France: NFC 15-100)

## SOUND PRESSURE LEVEL

### Indoor unit

| Sizes                      | Chilled water model    | 5     | 8     | 12    | 16    | 27    |       |       |       |       |        |        |
|----------------------------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
|                            | Direct expansion model | 5     | 8     | 10    | 12    | 15    | 19    | 24    | 31    | 36    | 38     | 48     |
| Air flow rate (m³/h)       |                        | 1 300 | 2 000 | 2 500 | 3 000 | 4 000 | 5 000 | 6 000 | 7 000 | 8 000 | 10 000 | 12 000 |
| Sound pressure level (dBA) |                        | 49    | 53    | 58    | 57    | 61    | 59    | 63    | 60    | 63    | 60     | 64     |

Sound pressure level of indoor unit at 2 m unrestricted space, air supply connected, +/-3 dB.

### CL2 outdoor unit (model X)

| Sizes                      | 5  | 8  | 10 | 12 | 15 | 19 | 24 | 31   | 36   | 38   | 48   |
|----------------------------|----|----|----|----|----|----|----|------|------|------|------|
| Models                     | 28 | 28 | 35 | 35 | 50 | 65 | 75 | 2x50 | 2x65 | 2x65 | 2X75 |
| Sound pressure level (dBA) | 39 | 39 | 45 | 45 | 43 | 47 | 47 | 46   | 50   | 50   | 50   |

Sound pressure level of outdoor unit, at 5 m, 1.5 m from floor, in a free field, directivity 2 and +/-3 dB.

## COIL WEIGHT AND CONNECTION

### Unit weight

#### Indoor unit

| Chilled water model sizes    | W5  | W8  | W12 | W16 |     | W27 |     |     |     |     |     |
|------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Direct expansion model sizes | X5  | X8  | X10 | X12 | X15 | X19 | X24 | X31 | X36 | X38 | X48 |
| Weight of indoor unit (kg)   | 115 | 120 | 125 | 280 |     | 310 |     | 375 |     | 480 |     |

#### Indoor unit

| Direct expansion units           | X5   | X8   | X10  | X12  | X15  | X19  | X24  | X31  | X36  | X38  | X48  |
|----------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Outdoor units (CL2) no./type     | 1x28 | 1x28 | 1x35 | 1x35 | 1x50 | 1x65 | 1x75 | 2x50 | 2x65 | 2x65 | 2x75 |
| Unit weight of outdoor unit (kg) | 64   | 69   | 69   | 69   | 101  | 112  | 118  | 101  | 112  | 112  | 118  |

### Coil connections

#### Indoor unit

##### Cold water coil

| Sizes                    | W5       | W8       | W12      | W16      | W27    |        |            |
|--------------------------|----------|----------|----------|----------|--------|--------|------------|
| Inlet/outlet connections | G 1/2" M | G 3/4" M | G 3/4" M | G 3/4" M | G 1" M | G 1" M | G 1 1/4" M |
| Condensate drainage*     | Diam 32  |          |          |          |        |        |            |

##### Direct expansion coil

| Sizes                | X5       | X8       | X10      | X12      | X15      | X19        | X24        | X31          | X36          | X38            | X48            |
|----------------------|----------|----------|----------|----------|----------|------------|------------|--------------|--------------|----------------|----------------|
| Intake pipe          | G 5/8" M | G 5/8" M | G 3/4" M | G 7/8" M | G 7/8" M | G 1 1/8" M | G 1 1/8" M | G 2 X 7/8" M | G 2 X 7/8" M | G 2 X 1 1/8" M | G 2 X 1 1/8" M |
| Liquid pipes         | 1/2"     | 1/2"     | 1/2"     | 1/2"     | 1/2"     | 1/2"       | 1/2"       | 2 x 1/2"     | 2 x 1/2"     | 2 x 1/2"       | 2 x 1/2"       |
| Condensate drainage* | Ø 32 mm  |          |          |          |          |            |            |              |              |                |                |

##### Hot water coil

| Chilled water model sizes    | W5       | W8       | W12      | W16      |     | W27      |     |          |     |          |     |
|------------------------------|----------|----------|----------|----------|-----|----------|-----|----------|-----|----------|-----|
| Direct expansion model sizes | X5       | X8       | X10      | X12      | X15 | X19      | X24 | X31      | X36 | X38      | X48 |
| Inlet/outlet connections     | G 1/2" M | G 1/2" M | G 1/2" M | G 1/2" M |     | G 3/4" M |     | G 3/4" M |     | G 3/4" M |     |

#### Outdoor unit

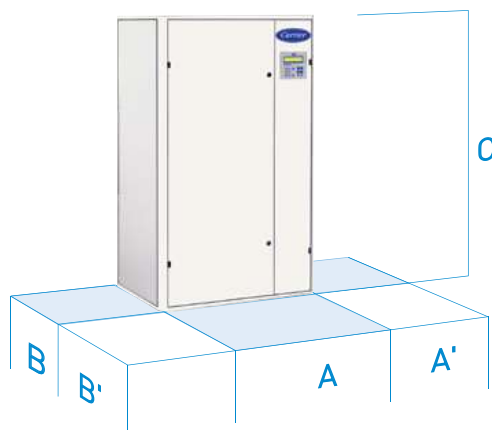
| Direct expansion model sizes | X5      | X8   | X10  | X12  | X15  | X19  | X24  | X31      | X36      | X38      | X48      |
|------------------------------|---------|------|------|------|------|------|------|----------|----------|----------|----------|
| Outdoor units no./type       | 1x28    | 1x28 | 1x35 | 1x35 | 1x50 | 1x65 | 1x75 | 2x50     | 2x65     | 2x65     | 2x75     |
| Intake pipe                  | 5/8"    | 5/8" | 3/4" | 3/4" | 3/4" | 7/8" | 7/8" | 2 x 3/4" | 2 x 7/8" | 2 x 7/8" | 2 x 7/8" |
| Liquid pipes                 | 3/8"    | 3/8" | 3/8" | 3/8" | 3/8" | 3/8" | 1/2" | 2 x 3/8" | 2 x 3/8" | 2 x 3/8" | 2 x 1/2" |
| Condensate drainage*         | Diam 32 |      |      |      |      |      |      |          |          |          |          |

Chilled water coil connections: inlet on threaded coupling and outlet on threaded control valve.

Condensate drain connection on smooth coupling.

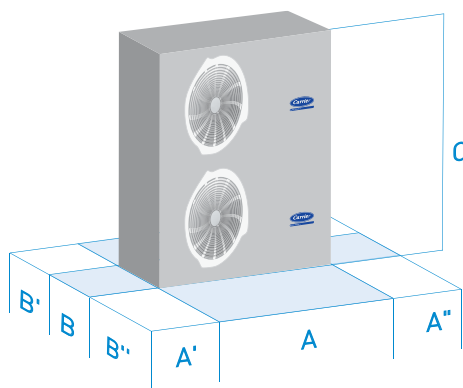
\* Drain connections if optional pump is fitted: Ø 6

## DIMENSIONS AND OPERATING AREA



### Indoor unit

| Units         | Dimensions (mm) |     |     |     |      |
|---------------|-----------------|-----|-----|-----|------|
|               | A               | A'  | B   | B'  | C    |
| W5 or X5      | 675             | 500 | 500 | 700 | 1700 |
| W8 or X8      | 675             | 500 | 500 | 700 | 1700 |
| W12 or X10    | 675             | 500 | 500 | 700 | 1700 |
| W16 or X12/15 | 850             | 500 | 780 | 700 | 1900 |
| W27 or X19/24 | 1150            | 500 | 780 | 700 | 1900 |
| X31/36        | 1490            | 500 | 780 | 700 | 1900 |
| X38/48        | 1990            | 500 | 780 | 700 | 1900 |



### Outdoor unit (CL2)

| Models | Dimensions (mm) |     |      |     |     |      |      |
|--------|-----------------|-----|------|-----|-----|------|------|
|        | A               | A'  | A''  | B   | B'  | B''  | C    |
| 28     | 1035            | 150 | 1000 | 450 | 150 | 1500 | 732  |
| 35     | 1035            | 150 | 1000 | 450 | 150 | 1500 | 732  |
| 50     | 1035            | 150 | 1000 | 450 | 150 | 1500 | 1332 |
| 65     | 1035            | 150 | 1000 | 450 | 150 | 1500 | 1332 |
| 75     | 1035            | 150 | 1000 | 450 | 150 | 1500 | 1332 |

## OPERATING LIMITS

### Chilled water (W)

|                    |                        |  |
|--------------------|------------------------|--|
| Water circuit      | Maximum pressure: PN16 | Minimum water inlet temperature: 5 °C (Consult us for other values)  |
|                    |                        | Maximum water inlet temperature: 80 °C (Consult us for other values)   |
| Indoor temperature |                        | Minimum air inlet temperature: 12 °C, and according to return humidity   |
|                    |                        | Maximum air inlet temperature: 45 °C and according to return humidity (Weight in water, condensed <0.8 g of water/Kg of dry air) |
| Power supply       |                        | 3PH/400V+E+N   |

### Direct expansion (X)

|                     |                 |   |
|---------------------|-----------------|---|
| Indoor temperature  |                 | Minimum air inlet temperature: 18 °C, and according to return humidity  |
|                     |                 | Maximum air outlet temperature: 28 °C and according to return humidity (Weight in water, condensed <0.8 g of water/Kg of dry air) |
| Outdoor temperature |                 | Minimum air inlet temperature: -15 °C   |
|                     |                 | Maximum air inlet temperature: 45 °C  |
| Power supply        | Indoor unit     | 3PH/400V+E+N  |
|                     | Outdoor unit(s) | 3PH/400V+E+N  |



## PRECISION CABINET



Wide range of single unit  
water chillers

Compact and attractive design

EC motor saves energy

Self-adjusting control

Easy installation

## 50CO

Cooling capacity: 40-100 kW  
Heating capacity: 18-73 kW  
Air flow: 10,000 to 27,000 m<sup>3</sup>/h

Close control unit specifically adapted to meet the needs of rooms with a high heat load or sensitive locations (data centres, computer rooms, autocom rooms, etc.).

The choice of technology used (self-adjusting control which adapts to the room loads, electronically commutated EC motor) can reduce energy consumption.

Thanks to its skilful design, the **50CO** integrates seamlessly into its intended location.



## RANGE

### 50CO W Chilled water model

Cooling capacity range: 40 to 127 kW

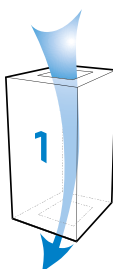
Nominal air flow range: 10,000 to 27,000 m³/h

5 sizes available

## INSTALLATION

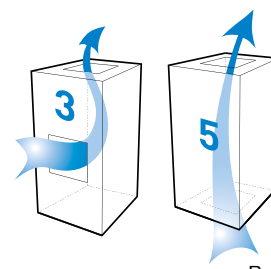
### Fitting UNDER

Air supply via raised floor



### Fitting OVER

Front return



Return air below

## QUICK SELECTION

### Cold water coil

| Sizes  | W40                    |                        | W53                    |                        | W78                    |                        | W100                   |                        |
|--|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Air flow (m³/h)                                | Nominal <sup>(1)</sup> | Maximum <sup>(2)</sup> | Nominal <sup>(1)</sup> | Maximum <sup>(2)</sup> | Nominal <sup>(1)</sup> | Maximum <sup>(2)</sup> | Nominal <sup>(1)</sup> | Maximum <sup>(2)</sup> |
|  | 10 000                 | 13 300                 | 13 300                 | 13 300                 | 18 800                 | 20 500                 | 24 500                 | 27 000                 |
| Maximum operating pressure with M5 filter (Pa) | 400                    | 171                    | 229                    | 229                    | 400                    | 400                    | 343                    | 157                    |
| Maximum operating pressure with F7 filter (Pa) | 400                    | 60                     | 140                    | 140                    | 400                    | 400                    | 261                    | 68                     |
| Sensible cooling capacity (kW)                 | 40                     | 45                     | 55                     | 53                     | 78                     | 78                     | 100                    | 100                    |
| Nominal capacity (kW) *                        | 3,7                    |                        | 3,7                    |                        | 7,1                    |                        | 7,1                    |                        |
| Nominal current (A) *                          | 6,4                    |                        | 6,4                    |                        | 11,8                   |                        | 11,8                   |                        |

(1) Conditions: Return air 24°C 45% (RH) - Water temperature: 7/12°C

(2) Conditions: Return air 26°C 40% (RH) - Water temperature: 10/15°C

\* Excluding electrical heater and humidifier option

### Hot Water Coil (option)

| Sizes                                | W40     |         | W53     |         | W78     |         | W100    |         |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Air flow (m³/h)                      | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum | Nominal | Maximum |
|                                      | 10 000  | 13 300  | 13 300  | 13 300  | 18 800  | 20 500  | 24 500  | 27 000  |
| Heating capacity (kW) <sup>(1)</sup> | 36      | 40      | 44      | 44      | 63      | 66      | 71      | 73      |
| Heating capacity (kW) <sup>(2)</sup> | 18      | 21      | 23      | 23      | 33      | 34      | 37      | 38      |

(1) 17°C - 80/60°C

(2) 17°C - 45/40°C

### Electric heater (option)

| Sizes             | W40  |  | W53 |  | W78  |  | W100 |  |
|-------------------|------|--|-----|--|------|--|------|--|
| Power (kW)        | 12   |  | 18  |  | 24   |  | 33,6 |  |
| Total current (A) | 17,3 |  | 26  |  | 34,7 |  | 48,6 |  |

## QUICK SELECTION

### Humidifier (Option)

| Sizes                  | W40 to W100 |
|------------------------|-------------|
| Steam flow rate (kg/h) | 8           |
| Electrical power (kW)  | 6           |
| Current (A)            | 8,7         |

## DESCRIPTION

### ■ Casing

Dual-wall construction (with MO / A1 fire rating).  
RAL 7035 and 7024 grey precoated removable panel.  
- 0.8mm painted precoated exterior panel.  
- Mineral wool, 25 mm thick.  
- 0.8 mm galvanised interior panel.

### ■ Filtration

Filter cells.  
Filter cells kept compressed against the counter frame with the gasket directly on the filter cells.  
EN 779-2012 efficiency: M5  
ISO16890 efficiency: ePM10 50%  
Or  
EN 779-2012 efficiency: F7  
ISO16890 efficiency: ePM1: 60%  
Filter fouling value monitored by analogue sensor and displayed by the controller.

### ■ Cooling coil cross-section

Copper tubes, aluminium fins.  
Stainless condensate drain pan.  
Stainless coil flanges (option).  
2-way or 3-way control valve fitted and connected.

### ■ Ventilation section

Centrifugal plug fan, associated with an electronically commutated motor (EC motor).  
EC motor: fan adaptation via manual adjustment or "self-regulating" adjustment by the controller, depending on the room load - system air control.

The fan also has a ModBus card which allows faults and settings such as the actual power input, current, rotation speed, etc. to be transmitted.

### ■ Electrics box

Power, command and control electrics box consisting of:  
- 3-phase 400 V power supply + Earth.  
- Main disconnect switch.  
- Three-phase 400 V 50 Hz transformer with protection.  
- Protection and control of all electrical components by a circuit breaker and contact switch.  
- Automatic CARRIER CCU Controller.  
- Return air dry-bulb temperature control.  
- Return humidity control, in supply or dehumidification mode.  
- Water leak detection as standard.  
- Remote control and fault summary contact.

### ■ Accessories (option)

Free cooling box.  
Support sub-base for supply air via raised floor.  
Cased sub-base with grille or damper.  
Supply plenum.  
Motorised damper on intake section.  
Fire thermostat.  
Supply air low limit sensor.  
BACnet gateway (IP or MSTP).  
Raised floor pressure management.  
Changeover thermostat.

## OPTIONS

### ■ Electric heater

Fan-controlled operation.  
Control by 2-stage operation or by progressive action (TRIAC).  
High-limit safety thermostat with automatic and manual reset.

### ■ Hot water coil

1-row coil made of copper tubes with aluminium fins.  
2- or 4-way progressive action valve fitted, and connected.

### ■ Humidifier

Humidifier with immersed electrodes and an electronic board to transmit all information relating to the humidifier directly to the CARRIER CCU Controller.

- Stainless steel large surface area electrodes.
- Flow rate of 8 kg/h, depending on the model.
- Steam cylinder in a single easy to remove component.
- Drain pump and filling solenoid valve.
- Electronics board for operation management.
- Diffusion duct.

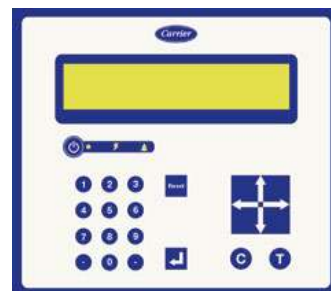
Operates using municipal water supply only (water conductivity of between 350 and 1250 µS inclusive and hardness between 15 and 30 °F). Do not use deionised or softened water.

## CONTROL

Unit control and monitoring:

### CARRIER CCU Controller

- 160-character display showing the operating instructions, operating statuses, faults and solutions. Configurable controller.
- Two fault levels.
- Monitoring of operating times.
- RS 485 output with Jbus/ModBus protocol.
- Master/slave type management possible.
- BACnet gateway (IP or MSTP) optional
- Optional management of pressure in raised floor
- Optional changeover thermostat
- Bus management between the centrifugal plug fan and the controller.
- Transmits fan faults and settings such as the actual power input, current, rotation speed, etc. to the controller.



## ELECTRICAL SPECIFICATIONS

| Sizes                              |                              | W40  | W53  | W78  | W100 |
|------------------------------------|------------------------------|------|------|------|------|
| Fan motor                          | Voltage (V)                  | 400  |      |      |      |
|                                    | Power (kW)                   | 3,4  |      | 6,8  |      |
|                                    | Current (A)                  | 5,4  |      | 10,8 |      |
| Control circuit (transformer)      | Voltage (V)                  | 24   |      |      |      |
|                                    | Current (A)                  | 1    |      |      |      |
| Humidifier (option)                | Voltage (V)                  | 400  |      |      |      |
|                                    | Power (kW)                   | 6    |      |      |      |
|                                    | Current (A)                  | 8,7  |      |      |      |
| Electric heater (option)           | Voltage (V)                  | 400  |      |      |      |
|                                    | Power (kW)                   | 12   | 18   | 24   | 33,6 |
|                                    | Current (A)                  | 17,4 | 26   | 34,6 | 48,4 |
| Total current without option       | Current (A)                  | 6,4  | 6,4  | 11,8 | 11,8 |
|                                    | Disconnect switch rating (A) | 16   |      |      |      |
| Total current with humidifier      | Current (A)                  | 15,1 | 15,1 | 20,5 | 20,5 |
|                                    | Disconnect switch rating (A) | 25   |      | 40   |      |
| Total current with electric heater | Current (A)                  | 23,8 | 32,4 | 46,4 | 60,2 |
|                                    | Disconnect switch rating (A) | 40   |      | 63   | 80   |
| Total current all options          | Current (A)                  | 32,5 | 41,1 | 55,1 | 68,9 |
|                                    | Disconnect switch rating (A) | 40   | 63   |      | 80   |

## CONNECTIONS

### Cold water coil

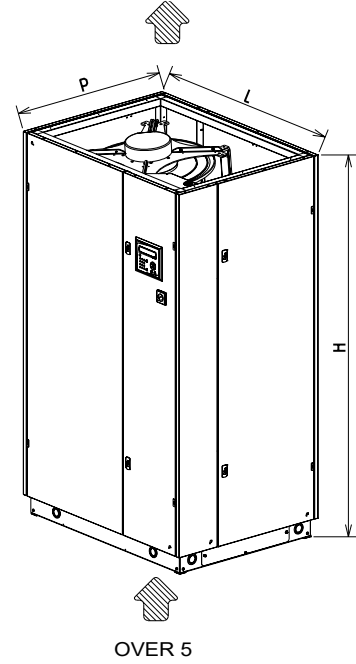
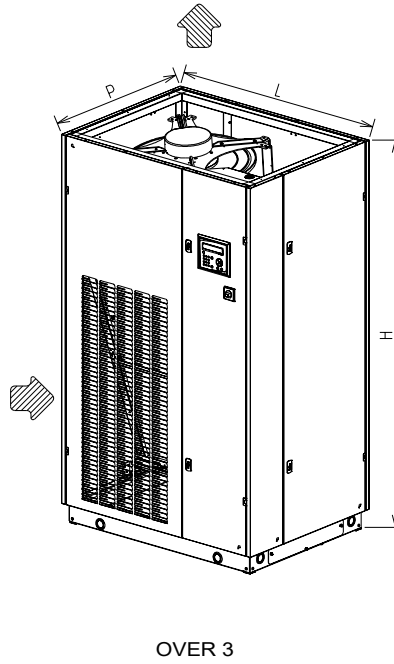
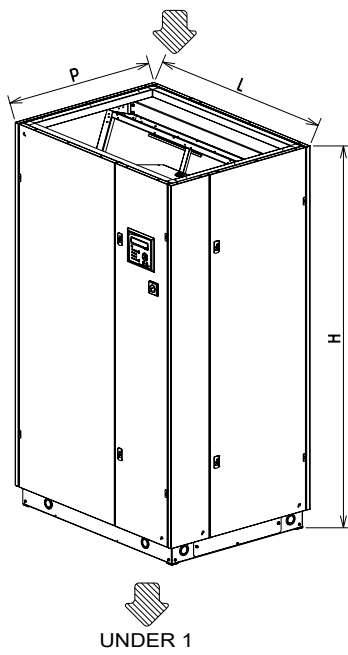
| Sizes  | W40        | W53        | W78        | W100       |
|--------|------------|------------|------------|------------|
| Inlet  | G1"1/4 (M) | G1"1/4 (M) | G1"1/2 (M) | G1"1/2 (M) |
| Outlet | G1"1/4 (F) | G1"1/4 (F) | G1"1/2 (F) | G1"1/2 (F) |

### Hot water coil

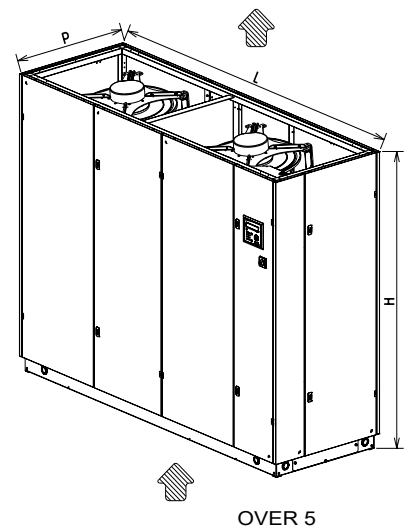
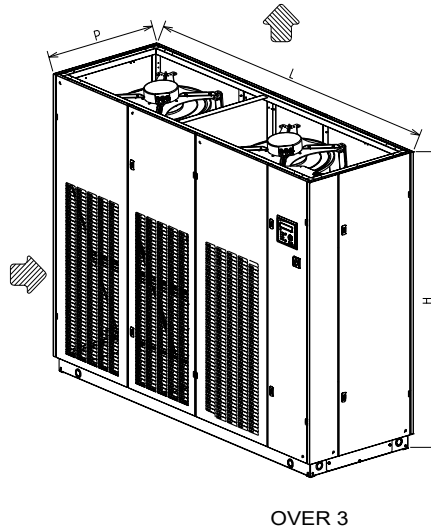
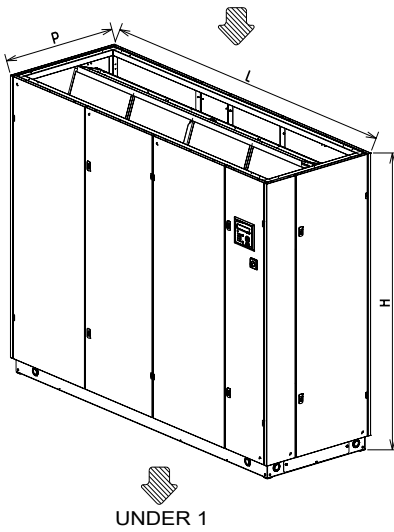
| Sizes  | W40       | W53       | W78       | W100      |
|--------|-----------|-----------|-----------|-----------|
| Inlet  | G3/4" (M) | G3/4" (M) | G3/4" (M) | G3/4" (M) |
| Outlet | G3/4" (M) | G3/4" (M) | G3/4" (M) | G3/4" (M) |

## DIMENSIONS

### W40 - W53



### W78 - W100



| Sizes | Dimensions (mm) |      |     | Weight (kg) |
|-------|-----------------|------|-----|-------------|
|       | H               | L    | D   |             |
| W40   | 1990            | 1190 | 890 | 350         |
| W53   |                 | 1520 |     | 385         |
| W78   |                 | 2070 |     | 545         |
| W100  |                 | 2620 |     | 635         |

## OPERATING LIMITS

|                    |                        |  |
|--------------------|------------------------|--|
| Water circuit      | Maximum pressure: PN16 | Minimum water inlet temperature: 5 °C (Consult us for other values)  |
|                    |                        | Maximum water inlet temperature: 80 °C (Consult us for other values)   |
| Indoor temperature |                        | Minimum air inlet temperature: 12 °C, and according to return humidity   |
|                    |                        | Maximum air inlet temperature: 45 °C and according to return humidity (Weight in water, condensed <0.8 g of water/Kg of dry air) |
| Power supply       |                        | 3PH/400V + earth   |

**NEW**

## PACKAGED ROOFTOP UNITS WITH R-454B



Low environmental impact

High full and part load  
efficiency

Compact and simple to install

Low refrigerant charge

Low sound level

Energy recovery

Variable speed EC fans

## 50FC 020 - 093 R-454B\*

\* Also available in R-410A, in reversible heat pump 50FC and cooling only version 50FE

Nominal cooling capacity 22,4 - 90.4 kW

Nominal heating capacity 22,0 - 89.6 kW



The **50FC R-454B** packaged rooftop range consists of autonomous compact air-air units of horizontal design, rooftop type.

■ **50FC series:** for **reversible heat pump** operation.

The range of available capacities in the series allows for the air conditioning of medium and large surface areas which are common in shopping malls, food retail, logistics and many other commercial and industrial applications.

50FC units are designed for optimized part-load management in achieving the highest levels of seasonal efficiency, exceeding the limits set by regulation.

With its mono-block lightweight construction, the units feature a self-supporting frame, designed to ease the installation and maintenance works.

The units integrate the latest technological innovations:

- Multi-scroll compressors in tandem.
- Electronic expansion valves.
- Variable speed EC fans.
- Auto-adaptative microprocessor control.

For maximum adaptability, a number of options is available to meet any operating requirement:

- Exhaust air energy recovery.
- Economizer.
- Indoor air quality management.
- Installation roofcurbs.
- Zoning with variation of airflow.
- Auxiliary heating modules.
- Extended operation limits.



## R-454B: THE BEST SOLUTION FOR ROOFTOPS



CARRIER offers the best refrigerant choice according to applications, conditions and technologies.



**CO<sub>2</sub> FOOTPRINT**  
REDUCED BY UP TO **80%**

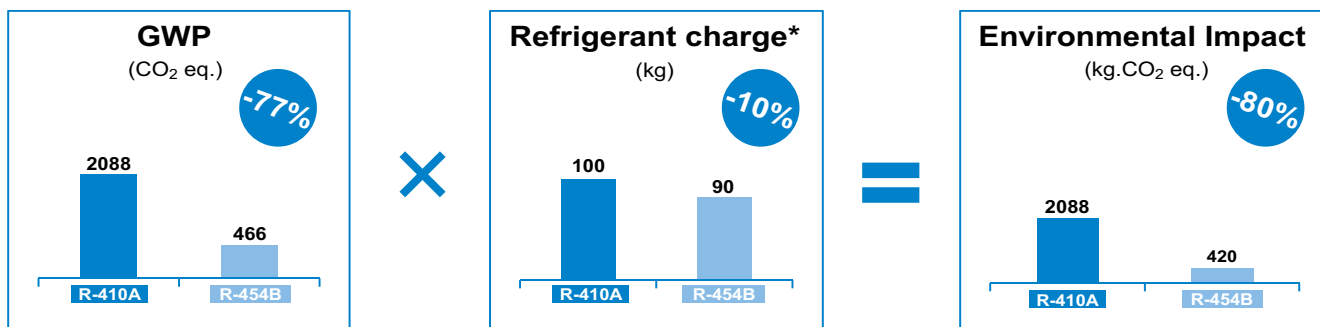
R-454B is currently the ideal refrigeration solution for rooftops. By using R-454B refrigerants, Carrier has reduced the carbon footprint of its version with R-410A by an astonishing 80%.

R-454B is also the right choice economically, reducing the locally imposed tax burden on HFCs based on the CO<sub>2</sub> impact.

The impact of an air conditioning system on global warming of the planet is in large part caused by CO<sub>2</sub> emissions released into the atmosphere when the electricity required to power the unit is produced (**indirect effect**) and in small part by CO<sub>2</sub> emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (**direct effect**).

### Direct effect. Lower environmental impact ⇒ -80% compared to R-410A

- R-454B has zero Ozone Depletion Potential (ODP).
- The Global Warming Potential (GWP) of R-454B is 466, i.e. approximately one third of that of R-410A (GWP 2088), and 30% lower than R-32 (GWP 675).
- The 50FC R-454B cooling charge is reduced by 10% compared to the version using R-410A\*
- The carbon footprint of the 50FC R-454B is therefore 420 (466 x 0.9), i.e. 88% lower than the version using R-410A (2088 x 1).



### Indirect effect. Lower environmental impact ⇒ -3% compared to the already astonishing low consumption in 50FC R-410A



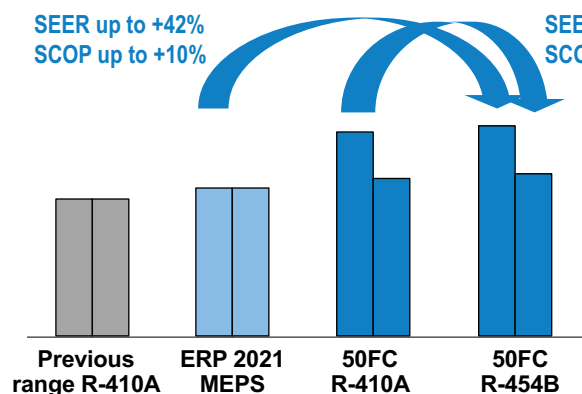
**SEER up to +3% (\*)**: Up to 42% savings vs ErP2021

**SCOP up to +3% (\*)**: Up to 10% savings vs ErP2021

(\*) over the already outstanding performance in 50FC R-410A

The seasonal efficiency of 50FC R-454B is higher than the already outstanding performance in 50FC R-410A.

The savings vs Ecodesign requirements go up to 42% in cooling and 10% in heating with 50FC R-454B.



This performance is the result of the optimize and high quality components rigorously selected:

- R-454B refrigerant with high energy performance.
- New generation of scroll compressors, optimized for R-454B refrigerant, in tandem configuration for high performance in partial load.
- Electronic expansion valves.
- "50FC" control optimizing performance and energy consumption.
- Outdoor EC fans for high efficiency and low noise level.
- Indoor EC plug-fans with pressure transducer.

R-454B is an A2L classified refrigerant thanks to its low flammability.

- The service tools must be certified for A2L refrigerants in accordance with standard ISO 817 or EN378.
- Service technicians must be qualified for brazing components on PED 3 fluid units.

## CUSTOMER BENEFITS

### Outstanding performance

50FC 020-093 units are designed for optimized part-load management in achieving the highest levels of seasonal efficiency, exceeding the limits set by regulation.



The unit integrates the latest technological innovations:

- Multi-scroll compressors in tandem optimized for R-454B refrigerant.
- Electronic expansion valves.
- Outdoor EC fans with variable speed.
- Supply EC plug-fans with direct drive and variable speed.
- Auto-adaptative microprocessor control.



### Adaptability

The range offers a wide range of options and a large set of configurations to customize the unit according to your needs:

- Exhaust air energy recovery.
- Economizer.
- Indoor air quality management.
- Adjustable or adaptation roofcurbs.
- Auxiliary heating systems.
- Extended operation limits up to -15°C in heating.
- 4 zone management with airflow control option.
- Heat recovery water coil.
- Low return temperature option for storage applications.

### Superior reliability

The 50FC range has been designed to ensure robustness throughout the lifecycle of the units. The high-reliability of the units is the result of **high-quality material and components** combined with the **highest quality standards** in terms of manufacturing and laboratory testing.



### Easy and fast installation

With its mono-block lightweight construction, the 50FC units feature a self-supporting frame, designed to ease the installation and maintenance process.

The units are connected directly to an air distribution ductwork without additional elements or equipment, pipes, cables, etc. taking no floor space at all. This design reduces the cost of installation, facilitates a quick connection and ensures reliable operation.

- Vertical supply/return airflow configurations are ideal for new construction or retrofit projects.
- Horizontal airflow configurations are ideal for replacement or applications such as through-the-wall where sound must be attenuated before the duct penetrates the roof.



### Low sound levels

50FC 020-093 units provide a low-noise level during operation thanks to design optimization and the latest technology to meet the most exigent requirements.

Up to **70%** of the operation time below half-load.

Sound level reduction in partial load operation.

**Night operation mode** available with free-cooling and disabling compressors. This also helps to reduce the sound level during night periods.

### Indoor air quality

The 50FC range offers a wide range of technological features dedicated to improve and maintain the highest level of indoor air quality:

- Ventilation
- Filtration
- Quality sensor
- Airflow control
- Active technologies under request

Discover more about Carrier's approach to Healthy Buildings on <https://www.corporate.carrier.com/healthybuildings/>

## KEY FOR CONFIGURATION

| A    | B    | C | D | E | F  | G  | H   | I | J | K | L | M | N   | O    | P    | Q | R | S    | T  | U   | V   | W    | X    | Y    |
|------|------|---|---|---|----|----|-----|---|---|---|---|---|-----|------|------|---|---|------|----|-----|-----|------|------|------|
| 50FC | 0020 | A | 4 | B | B1 | LL | 000 | S | N | A | H | S | 000 | 0000 | 0000 | 0 | 0 | AA00 | 00 | A00 | 000 | AA00 | 0000 | 0000 |

**A: Unit type**

50FC: air/air heat pump

**B: Unit model**

1 circuit: 0020 / 0028 / 0037 / 0040 / 0045 / 0047  
 2 circuits: 0052 / 0058 / 0062 / 0070 / 0074 / 0086 / 0093

**C: Version of the series**

A: Current version

**D: Electrical power**

4: 400V / 3ph + N / 50Hz  
 5: 400V / 3ph / 50Hz

**E: Type of refrigerant**

B: R-454B

**F: Flow + Assembly**

B1: Standard assembly  
 B2: Economizer, 2 dampers  
 BF: 100% fresh air  
 B3: Economizer, 3 dampers  
 BX: Axial fan in return section  
 BP: EC plug-fan in return section  
 BA: Cooling recovery circuit with EC plug-fan in return section  
 BT: Return top box with EC plug-fan or centrifugal fan  
 BB: Cooling recovery circuit with EC plug-fan or centrifugal fan in return top box  
 BW: Heat recovery wheel module

**G: Coil coating : Indoor - Outdoor**

LL - Indoor coil - Outdoor coil  
 L: Aluminium L: Aluminium  
 P: Polyurethane P: Polyurethane  
 N: Inera® N: Inera®  
 Y: Blygold® Y: Blygold®

**H: Heating**

000: Without auxiliary heating  
 BAx: Gas burner, 3 power outputs:  
       x = F (Low) / M (Nominal) / S (High)  
 RAx: Electrical heaters, 3 power outputs:  
       x = F (Low) / M (Nominal) / S (High)  
 HAx: Hot water coil, 2 options:  
       x = S(Standard) / F(Very low outdoor temperature)

**I: Protection for low outdoor temperature**

S: Without protection  
 A: Freeze protection OAT lower than -10°C  
 B: Freeze protection OAT lower than -14°C  
 C: Freeze protection OAT lower than -10°C + spring shut-off dampers  
 D: Freeze protection OAT lower than -14°C + spring shut-off dampers

**J: Supply fan**

F: Low available pressure  
 N: Nominal available pressure (polypropylene)  
 M: Nominal available pressure (aluminium)  
 S: High available pressure

**K: Air filtration + droplet eliminator**

A: G4  
 B: G4+ droplet eliminator  
 C: G4 low pressure drop  
 D: G4 low pressure drop + droplet eliminator  
 E: G4 + M6  
 F: G4 + M6 + droplet eliminator  
 G: G4 + F7  
 H: G4 + F7 + droplet eliminator  
 I: G4 + F9

J: G4 + F9 + droplet eliminator  
 K: G4 l.p.d. + F7  
 L: G4 l.p.d. + F7 + droplet eliminator  
 M: G4 l.p.d. + F9  
 N: G4 l.p.d. + F9 + droplet eliminator  
 O: M6 + F7  
 P: M6 + F7 + droplet eliminator  
 Q: M6 + F9  
 R: M6 + F9 + droplet eliminator  
 S: F7 + F9  
 T: F7 + F9 + droplet eliminator  
 U: F9 + F9  
 V: F9 + F9 + droplet eliminator

**L: Outdoor fan**

L: AC (2-speed)  
 H: EC (electronic)

**M: Insulation**

S: Standard insulation  
 M: Euroclass A2-s1, d0 (M0) insulation

**N: Indoor circuit**

000 - Without optional accessories  
 A: Condensate drain pan in stainless steel  
 A: Room overpressure management  
 A: Filter fouling detector

**O: Outdoor circuit**

0000 - Without optional accessories  
 A: Fresh air safety grid  
 A: Outdoor coil protection grid  
 A: Antivibration mounts  
 A: Droplet eliminator at the fresh air intake

**P: Heat recovery wheel**

0000 - Without optional accessories  
 Unused  
 A: Wheel speed with on/off control  
 B: Wheel speed with variable control  
 A: Channel spacing of 2,0 mm  
 B: Channel spacing of 2,5 mm  
 A: Material: Aluminium  
 B: Material: Aluminium with epoxy  
 C: Material: Hybrid wheel  
 D: Material: aluminium with silicagel

**Q: Extra heating**

0: Without extra heating  
 B: Heat recovery coil  
 C: Preheater (electrical coil) in fresh air (N)  
 D: Preheater (electrical coil) in fresh air (F)

**R: Special applications**

0: Without special applications  
 C: Air zoning  
 D: Low return temperature application  
 I: Low T application + Air zoning  
 L: 100% fresh air  
 M: 100% fresh air + Air zoning

**S: Sensors**

0000 - Without options  
 A: Smoke detection control unit  
 A: CO<sub>2</sub> sensor environment installation  
 B: CO<sub>2</sub> sensor ducted installation  
 C: CO<sub>2</sub> sensor on the pLAN network  
 A: 1 sensor RS485  
 B: 2 sensors RS485  
 C: 3 sensors RS485  
 D: 4 sensors RS485  
 E: 1 sensor NTC  
 A: Ambient temperature sensor  
 B: Ambient temperature+humidity sensor  
 C: Ambient sensor on the pLAN network

**T: Economizer management + Outdoor hum.**

00 - Without economizer + without sensor  
 A: Outdoor humidity sensor on the unit  
 B: Outdoor hum. sensor on pLAN network  
 A: Thermal management  
 B: Thermoenthalpic management  
 C: Enthalpic management

**U: Terminal + Unit communication**

000 - Without terminal + stand-alone unit + without communication card  
 A: Card RS485 Modbus/Canel  
 B: Card Ethernet PCoWeb  
 C: Card RS485 LonWorks®  
 D: Card Ethernet BACnet™  
 E: Card RS485 BACnet™  
 F: Card RS485 Konnex  
 0: Stand-alone unit  
 A: Master unit  
 B: Slave unit  
 A: Graphic terminal in electrical cabinet  
 B: User terminal in electrical cabinet  
 C: Graphic terminal in the cabinet + User terminal remote up to 100 m  
 D: User terminal in the cabinet + Graphic terminal remote up to 200 m  
 E: Graphic terminal in the cabinet + Graphic terminal remote up to 200 m  
 F: Touch panel in electrical cabinet  
 G: Touch panel in the cabinet + Graphic terminal remote up to 200 m  
 H: Touch panel in the cabinet + User terminal remote up to 100 m

**V: Miscellaneous item 1**

000 - Without options  
 A: On-off control of an humidifier  
 B: Proportional control of an humidifier  
 A: Electrical energy meter  
 B: Cooling capacity & elec. energy meter  
 Unused

**W: Miscellaneous item 2**

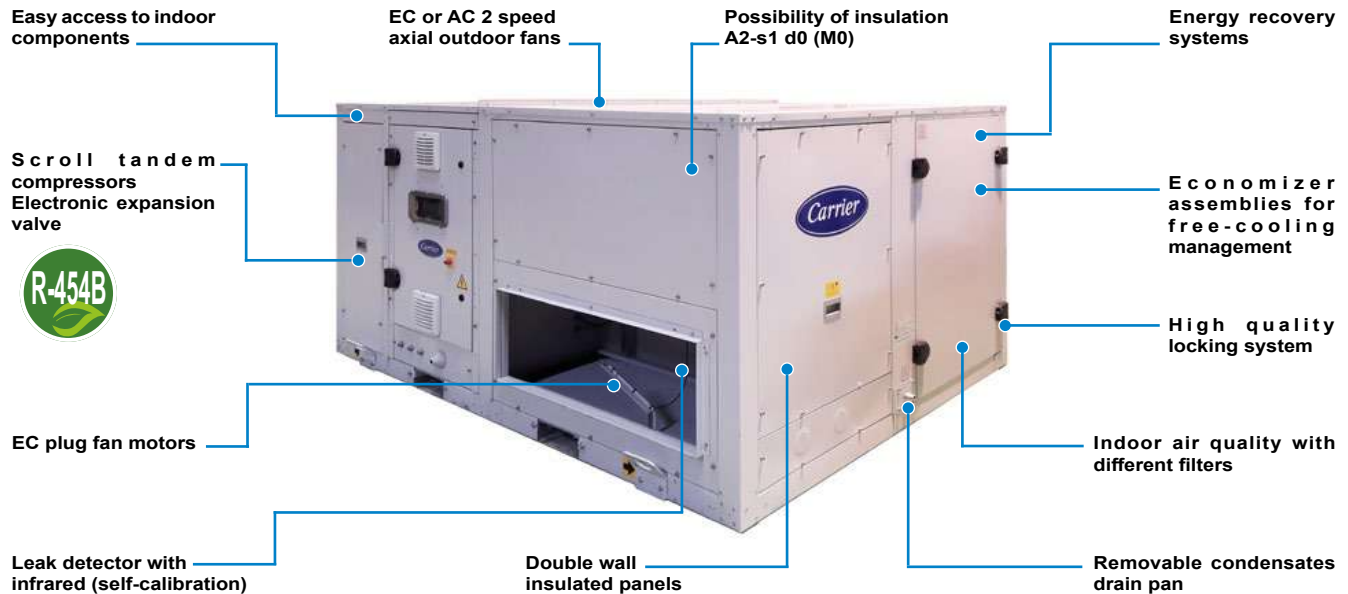
AA00 - Switching devices + std phase relay  
 A: Compressor soft starter  
 A: Varnish protection  
 Unused  
 Unused

**X: Return fan**

0000 - Without return fan  
 A: Centrif., low flow and nominal pressure  
 B: Centrif., low flow and high pressure  
 C: Centrif., nominal flow and nominal press.  
 D: Centrif., nominal flow and high pressure  
 E: Centrif., high flow and nominal pressure  
 F: Centrif., high flow and high pressure  
 G: Centrif., low flow and low pressure  
 H: Centrif., nominal flow and low pressure  
 I: Centrif., high flow and low pressure  
 M: Plug-fan, nominal pressure (aluminium)  
 Unused

**Y: Indoor air direction**

0000 - Lower direction  
 0: Lower supply and lower return  
 1: Lateral supply and lower return  
 2: Lower supply and lateral return  
 3: Lateral supply and lateral return  
 4: Upper supply and lower return  
 5: Lateral supply and upper return  
 6: Upper supply and lateral return  
 7: Lower supply and upper return  
 8: Upper supply and upper return  
 Unused



## UNIT COMPONENTS

### Casing

- New self-supporting frame that allow the transport of two stacked units and without the need for a wooden pallet.
- Casing made of galvanised steel metal. Most parts protected with polyester paint, white colour RAL 7035.
- Removable panels for easy access to all components: electrical cabinet, compressors, fans, filters, etc.

### Outdoor circuit

- Coil with copper pipes and aluminium fins.
- EC electronic axial fan(s) which adapt the rotation speed to the installation's requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the unit's average seasonal efficiency.  
The cover with the motor fan(s) may be lifted to access the inside of the outdoor circuit.

### Indoor circuit

- Thermal and acoustic insulation, in double wall panels and registers, with Euroclass A2-s1, d0 (M0) fire classification.
- Coil with copper pipes and aluminium fins.
- EC electronic supply plug-fans with variable control speed and flow rate controller.
- Reusable gravimetric air filters G4, mounted on a frame. Dual locking system mounted on the access panel to filters.
- Isolated pan of condensate drainage sloping down towards the drain. This pan is removable for easy cleaning.

### Cooling circuit

- Hermetic scroll-type compressors in tandem design, with intermediate discharge valve, that improves the management of stages and the part load efficiencies, assembled over antivibration mounts. Relay for phase-sequence monitoring and phase loss protection.

- Crankcase heater.
- Electronic expansion valve(s).
- Four-way cycle reversing valve(s).
- Acid-resistant filter(s) dryer.
- Cooling design with:
  - 1-air volume: models 020 to 047.
  - 2-air volumes: models 052 to 093.

### Protections

- High pressure pressostat(s).
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Due to the A2L category of refrigerant R-454B (lightly flammable), it requires the installation of a refrigerant leak detector. This detector uses infrared instead of semiconductor technology with no need of calibration (self-calibration), with very fast time response, and high lifetime.  
The detector is installed on a panel next to the supply fans of the indoor circuit. This position ensures the correct reading of the gas concentration in the indoor coil.  
If the unit is connected to a BMS monitoring system, the electronic control is prepared to send an alarm signal in case of leakage detection.  
Note: These units are designed to be installed outdoors in a well ventilated area, but a second leak detector can be installed in the outdoor circuit if in any case it is considered necessary. Available upon request.
- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermic switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.

## UNIT COMPONENTS

### Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Forced ventilation of the electrical cabinet. Protection IP54.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access doors.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor and fan motor contacts.

### "50FC" electronic control

Factory-installed "50FC" control provide the capability for free standing operation or may be linked with a more extensive system. Factory-installed and programmed Modbus communication capability provides simple integration with the building BMS system.

The 50FC range may also be configured to communicate via LonWorks®, BACnet™ MSTP, Konnex, Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP protocols, if required by the application.

The "50FC" control also have the capability to communicate with our supervision solutions: **pCO Web** (1 unit), **BOSS mini** (50 units) and **BOSS** (300 units).

This communication flexibility allows simple system integration, as well as data collection, trending, monitoring and alarm displays. The control provides unparalleled service diagnostic information.

With this control it is also possible to connect to a local pLAN ("50FC" Local Area Network) for a maximum of 15 units, with one unit configured as "Master" and the others as "Slaves". This network allows the exchange of data and information between the units, and depending on the conditions of the installation, share the reading of some probes installed on the unit configured as "Master", temperature setpoints and operating mode. It is also possible to configure one unit as "Back-up" just in case for failure of the another unit on the pLAN network.

- The "50FC" control are your link to a world of simple and easy-to-use rooftop units that offer outstanding performance and value. With the sensors, it maintains control over all the components of the unit and helps optimise the performance of the refrigeration circuits as conditions change, resulting in the following features:

- Higher part load efficiency.
- Better control of temperature.
- Superior reliability.
- High ambient cooling operation at 48°C.
- Low ambient cooling operation at -15°C WB.

- The main functions of this control are:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors cycles.
- Defrosting management.

- Control of the supply air temperature.
  - All-seasons operation via the condensation and evaporation pressure control.
- The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.
- Setpoint compensation based on the outdoor temperature.
  - Hourly and weekly schedule.
  - Fire protection.
  - Diagnosis of faults and general alarm.
  - Management of all the optional components available for the unit: economizer, back-up heating, CO<sub>2</sub> air quality sensor, energy recovery,...

### User interfaces

#### Graphic terminal

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

- This terminal is used to:
  - Carry out initial programming of the unit.
  - Modify operating parameters.
  - Switch the unit ON / OFF.
  - Select the operating mode and adjust the setpoints.
  - Display the variables controlled and sensor values measured.
  - Display the current alarms and their historical record.

#### User terminal (optional)

This terminal can be installed on the electrical cabinet, instead of the graphic terminal. In this case, the remote connection of the graphic terminal is possible.



- This terminal is used to:
  - Switch the unit ON / OFF.
  - Select the operating mode and adjust the setpoints.
  - Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO<sub>2</sub> sensor and opening of the outdoor damper.
  - Display alarms codes.

#### Touch panel (optional)

With the same functions as the graphic terminal, the 4.3 inch touchscreen panel makes interaction between the user and the unit much easier by simplifying navigation between the various screens.





# PHYSICAL DATA WITH R-454B REFRIGERANT (EN-14511-2018)

| 50FC                                |        | 020  | 028      | 037      | 040      | 045      | 047      | 052       | 058      | 062      | 070      | 074      | 086      | 093      |
|-------------------------------------|--------|--|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|
| Cooling capacities                  |        |  |          |          |          |          |          |           |          |          |          |          |          |          |
| Cooling capacity (1)                | kW     | 22,42  | 27,92    | 33,61    | 35,97    | 41,58    | 44,01    | 53,49     | 58,10    | 60,70    | 68,60    | 70,41    | 79,74    | 90,36    |
| Power input (3)                     | kW     | 6,90   | 8,85     | 10,10    | 11,49    | 13,11    | 13,94    | 16,30     | 18,11    | 19,09    | 20,95    | 22,32    | 25,16    | 28,29    |
| EER performance                     |        | 3,25   | 3,15     | 3,33     | 3,13     | 3,17     | 3,16     | 3,28      | 3,21     | 3,18     | 3,27     | 3,15     | 3,17     | 3,19     |
| SEER                                |        | 4,99   | 5,01     | 4,67     | 4,56     | 4,48     | 4,49     | 4,95      | 5,01     | 5,00     | 4,74     | 4,67     | 4,53     | 4,58     |
| ηs                                  |        | 197%   | 197%     | 184%     | 179%     | 176%     | 177%     | 195%      | 197%     | 197%     | 186%     | 184%     | 178%     | 180%     |
| Heating capacities                  |        |  |          |          |          |          |          |           |          |          |          |          |          |          |
| Heating capacity (2)                | kW     | 21,99  | 27,86    | 33,21    | 35,88    | 41,78    | 44,52    | 50,96     | 56,07    | 58,86    | 68,02    | 70,33    | 79,53    | 89,57    |
| Power input (3)                     | kW     | 5,74   | 7,87     | 8,96     | 9,91     | 11,87    | 12,81    | 14,22     | 15,78    | 16,64    | 18,69    | 19,67    | 22,45    | 25,61    |
| COP performance                     |        | 3,83   | 3,54     | 3,71     | 3,62     | 3,52     | 3,48     | 3,58      | 3,55     | 3,54     | 3,64     | 3,58     | 3,54     | 3,50     |
| SCOP                                |        | 3,59   | 3,54     | 3,55     | 3,58     | 3,60     | 3,59     | 3,70      | 3,70     | 3,56     | 3,60     | 3,61     | 3,67     | 3,67     |
| ηs                                  |        | 141%   | 139%     | 139%     | 140%     | 141%     | 141%     | 145%      | 145%     | 140%     | 141%     | 141%     | 144%     | 144%     |
| Outdoor circuit fan                 |        | Electronic axial fan   |          |          |          |          |          |           |          |          |          |          |          |          |
| Nominal air flow                    | m³/h   | 9.000  | 14.500   | 17.000   | 17.000   | 17.000   | 17.750   | 31.000    | 31.000   | 31.000   | 33.000   | 33.000   | 34.500   | 35.000   |
| Available static pressure           | mm.w.c | 5  |          |          |          |          |          |           |          |          |          |          |          |          |
| Number / Diameter                   | mm     | 1 / 630  | 1 / 800  |          |          |          |          |           | 2 / 800  |          |          |          |          |          |
| Ingress protection rating           |        | IP54   | IP55     |          |          |          |          |           | IP55     |          |          |          |          |          |
| Maximum speed                       | r.p.m. | 1.140  | 1.020    |          |          |          |          |           | 1.020    |          |          |          |          |          |
| Motor output                        | kW     | 0,9  | 2,6      |          |          |          |          |           | 2 x 2,6  |          |          |          |          |          |
| Maximum absorbed current            | A      | 1,6  | 3,9      |          |          |          |          |           | 7,8      |          |          |          |          |          |
| Indoor circuit supply fan           |        | Electronic plug-fan  |          |          |          |          |          |           |          |          |          |          |          |          |
| Nominal air flow                    | m³/h   | 5.100  | 6.500    | 8.500    | 8.750    | 9.000    | 9.000    | 12.000    | 12.500   | 12.500   | 15.500   | 15.500   | 16.000   | 16.000   |
| Available static pressure           | mm.w.c | 12   | 12       | 12       | 15       | 15       | 15       | 20        | 20       | 20       | 20       | 20       | 20       | 25       |
| Number / Diameter                   | mm     | 1 / 500  |          | 1 / 500  |          |          |          | 2 / 500   |          |          |          | 2 / 500  |          |          |
| Speed                               | r.p.m. | 1.800  |          | 1.855    |          |          |          | 1.800     |          |          |          | 1.855    |          |          |
| Motor output                        | kW     | 1 x 3,1  |          | 1 x 3,1  |          |          |          | 2 x 3,1   |          |          |          | 2 x 3,1  |          |          |
| Maximum absorbed current            | A      | 4,7  |          | 4,8      |          |          |          | 9,4       |          |          |          | 9,6      |          |          |
| Compressor                          |        | Scroll   |          |          |          |          |          |           |          |          |          |          |          |          |
| No. compressors / stages / circuits |        | 2 / 2 / 1  |          |          |          |          |          | 4 / 4 / 2 |          |          |          |          |          |          |
| Oil type                            |        | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC |          |          |          |          |          |           |          |          |          |          |          |          |
| Volume of oil                       | l      | 2 x 1,24   | 2 x 1,24 | 2 x 1,24 | 2 x 1,72 | 2 x 1,72 | 2 x 1,72 | 4 x 1,24  | 4 x 1,24 | 4 x 1,24 | 4 x 1,24 | 4 x 1,72 | 4 x 1,72 | 4 x 1,72 |
| Electrical characteristics          |        |  |          |          |          |          |          |           |          |          |          |          |          |          |
| Mains voltage                       |        | 400 V / III ph / 50 Hz (±10%)  |          |          |          |          |          |           |          |          |          |          |          |          |
| Power supply                        |        | 3 Wires + Ground + Neutral   |          |          |          |          |          |           |          |          |          |          |          |          |
| Maximum absorbed current            | A      | 21,2   | 27,5     | 26,8     | 29,6     | 34,7     | 34,9     | 51,0      | 55,0     | 54,2     | 53,4     | 59,0     | 64,3     | 69,8     |
| Refrigerant                         |        | R-454B   |          |          |          |          |          |           |          |          |          |          |          |          |
| Global warming potential (4)        | GWP    | 466  |          |          |          |          |          |           |          |          |          |          |          |          |
| Charge                              | kg     | 7,2  | 7,5      | 9,9      | 9,9      | 10,2     | 10,4     | 2 x 5,7   | 2 x 5,8  | 2 x 5,9  | 2 x 9,0  | 2 x 9,1  | 2 x 9,1  | 2 x 9,2  |
| Environment impact                  | tCO2eq | 3,4  | 3,5      | 4,6      | 4,6      | 4,7      | 4,9      | 5,3       | 5,4      | 5,5      | 8,4      | 8,5      | 8,5      | 8,6      |
| Weight                              |        |  |          |          |          |          |          |           |          |          |          |          |          |          |
| B1 assembly                         | kg     | 594  | 617      | 699      | 698      | 704      | 701      | 986       | 986      | 1.004    | 1.146    | 1.146    | 1.135    | 1.160    |

- (1) Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.
- (2) Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.
- (3) Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.
- (4) Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

## Compliance

- Machinery Directive 2006/42/EC (MD)
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Pressure Equipment Directive 2014/68/EU (Category 2) (PED)
- RoHS Directive 2011/65/EU (RoHS)
- Eco-design Directive 2009/125/EC (ECO-DESIGN)
- Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
- Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).


Eurovent  
certified  
values



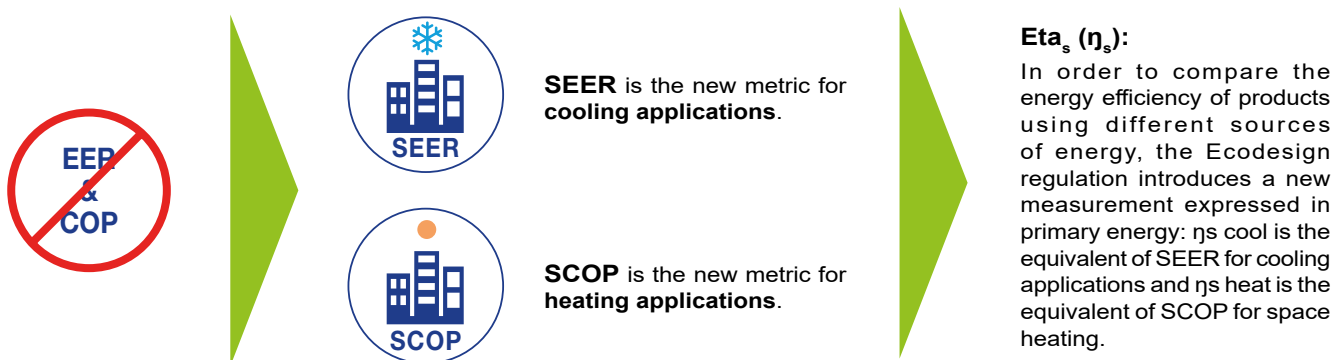
## ECODESIGN REGULATIONS

### New metrics because seasonal efficiency matters

With all new buildings expected to be close to zero energy, calculations of the energy efficiency of buildings require accurate indicators of the efficiency of their equipment. These indicators must be representative of actual operations throughout the year, measuring the performance of equipment on a seasonal basis.

**EER & COP belong to the past.** Now, and in the future, the focus is on seasonal efficiency. With a broad new products range, Carrier is fully engaged to take up the challenge of energy efficiency.

**Compliance with the Ecodesign regulations therefore involves the use of new, more meaningful seasonal efficiency metrics.** The Seasonal Energy Efficiency Ratio (SEER), and Seasonal Coefficient of Performance (SCOP) all ensure precise evaluation of the energy actually consumed by rooftops, by including seasonal variations in their measurements. Previous metrics (EER & COP) measured operations only at a single point, at full thermal load, and were therefore less representative of consumption over entire heating and cooling seasons.



These new seasonal performance metrics are now the key indicator used for rooftops, in all applications.

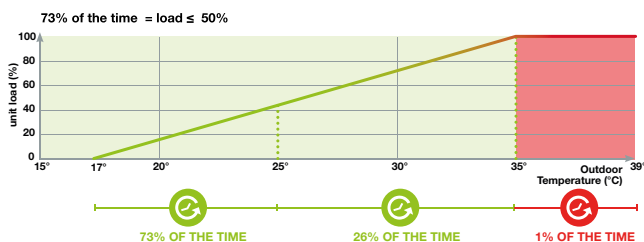
They are calculated according to technical standard **EN 14825** and compliance is mandatory for a product to obtain CE marking.

### Confort cooling

#### SEER - Seasonal Energy Efficiency Ratio



SEER measures the seasonal energy efficiency of rooftops by calculating the ratio between annual cooling demand and annual energy input. It takes into account the energy efficiency achieved for each outdoor temperature weighted by the number of hours observed for each of these temperatures, using actual climate data.



SEER is a new way of measuring the true energy efficiency of rooftops for cooling over an entire year.

This new indicator gives a more realistic indication of the real energy efficiency and environmental impact of a cooling system.

#### Efficiency requirements

Regulation 2016/2281 sets seasonal energy efficiency in  $\text{Eta}_{s, \text{cool}}$  ( $\eta_{s, \text{cool}}$ ). This expresses SEER in terms of primary energy and so makes it possible to compare the energy efficiency of units using different energy sources.

Minimum  $\eta_{s, \text{cool}}$  (SEER) according regulation (EU) 2016/2281:

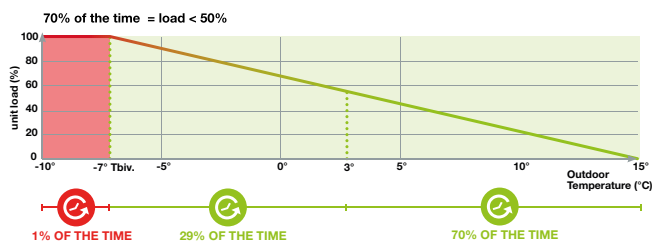
| From 01/2018. Tier1       |      | From 01/2021. Tier2       |      |
|---------------------------|------|---------------------------|------|
| $\eta_{s, \text{cool}}$ % | SEER | $\eta_{s, \text{cool}}$ % | SEER |
| 117                       | 3,00 | 138                       | 3,53 |

### Space heating

#### SCOP – Seasonal Coefficient of Performance



SCOP measures the seasonal energy efficiency of rooftops by calculating the ratio between annual heating demand and annual energy input. It takes into account the energy efficiency achieved at each outdoor temperature of an average climate weighted by the number of hours observed for each of these temperatures.



SCOP is a new way of measuring the true energy efficiency in heating mode over an entire year.

This new indicator gives a more realistic indication of the real energy efficiency and environmental impact of a heating system.

#### Efficiency requirements

Regulation 2016/2281 sets seasonal energy efficiency in  $\text{Eta}_{s, \text{heat}}$  ( $\eta_{s, \text{heat}}$ ). This expresses SCOP in terms of primary energy and so makes it possible to compare the energy efficiency of units using different energy sources.

Minimum  $\eta_{s, \text{heat}}$  (SCOP) according regulation (EU) 2016/2281:

| From 01/2018. Tier1       |      | From 01/2021. Tier2       |      |
|---------------------------|------|---------------------------|------|
| $\eta_{s, \text{heat}}$ % | SCOP | $\eta_{s, \text{heat}}$ % | SCOP |
| 115                       | 2,95 | 125                       | 3,20 |

The technical data sheets (TDS) for CARRIER units are available at [www.ecodesign.hvac.carrier.com](http://www.ecodesign.hvac.carrier.com)

## OPERATING LIMITS

| Inlet air conditions |                     | Cooling   | Heating      |
|----------------------|---------------------|-----------|--------------|
| Indoor coil          | Minimum temperature | 9,7°C WB  | 10°C         |
|                      | Maximum temperature | 24°C WB   | 27°C         |
| Outdoor coil         | Minimum temperature | -10°C (1) | -15°C WB (2) |
|                      | Maximum temperature | 48°C      | 15°C WB      |

- (1) With the condensation pressure control disabled, operation up to 12°C.  
(2) When the outdoor temperature is usually below 5°C WB, the installation of a support element is recommended.

## SOUND LEVELS dB(A)

### Sound power level (LW)

| 50FC        | 020  | 028  | 037  | 040  | 045  | 047  | 052  | 058  | 062  | 070  | 074  | 086  | 093  |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz       | 55,2 | 60,8 | 61,4 | 60,9 | 61,3 | 63,1 | 64,3 | 64,5 | 64,9 | 64,8 | 64,6 | 64,6 | 65,3 |
| 125 Hz      | 64,2 | 66,7 | 68,9 | 66,1 | 70,0 | 71,1 | 69,6 | 69,9 | 71,5 | 72,4 | 71,3 | 71,4 | 74,0 |
| 250 Hz      | 71,8 | 74,8 | 76,1 | 72,9 | 76,3 | 76,4 | 77,0 | 77,7 | 78,9 | 79,7 | 78,4 | 77,9 | 79,3 |
| 500 Hz      | 70,2 | 76,7 | 76,4 | 76,8 | 77,1 | 78,3 | 79,5 | 80,1 | 80,4 | 79,9 | 80,1 | 80,2 | 80,9 |
| 1000 Hz     | 72,0 | 76,2 | 76,3 | 77,5 | 77,3 | 78,2 | 79,4 | 79,9 | 80,2 | 79,8 | 80,4 | 80,6 | 80,7 |
| 2000 Hz     | 69,7 | 73,5 | 74,3 | 75,3 | 74,1 | 75,5 | 77,0 | 77,4 | 77,8 | 77,7 | 78,3 | 78,1 | 77,7 |
| 4000 Hz     | 62,6 | 69,2 | 70,3 | 70,6 | 70,4 | 72,2 | 73,1 | 73,4 | 73,7 | 73,8 | 73,9 | 74,2 | 74,4 |
| 8000 Hz     | 59,0 | 63,7 | 65,5 | 65,8 | 65,6 | 67,5 | 67,9 | 68,2 | 68,6 | 68,9 | 69,1 | 69,4 | 69,6 |
| Total dB(A) | 77,5 | 82,0 | 82,5 | 82,5 | 83,0 | 84,0 | 85,0 | 85,5 | 86,0 | 86,0 | 86,0 | 86,0 | 86,5 |

### Sound pressure level (LP)

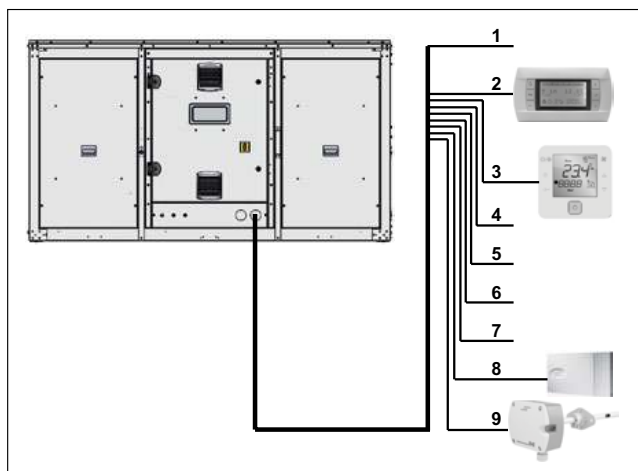
Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| 50FC        | 020  | 028  | 037  | 040  | 045  | 047  | 052  | 058  | 062  | 070  | 074  | 086  | 093  |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A) | 51,0 | 55,5 | 56,0 | 56,0 | 56,5 | 57,5 | 58,3 | 58,8 | 59,3 | 59,3 | 59,1 | 59,1 | 59,6 |

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

## ELECTRICAL CONNECTIONS

| No. | 50FC   | 020 to 093  |
|-----|--|---|
| 1   | Main power supply 400 III (±10%)   | 3 Wires + Ground + Neutral  |
| 2   | Remote connection of graphic terminal (by default installed on the electrical cabinet) (1) | Telephone cable 6 wires standard (RJ12 connector)   |
| 3   | Connection of user terminal (optional) (2)   | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |
| 4   | Remote off/on (optional)   | 2 wires   |
| 5   | General fault signal (opt.) (3)  | 2 wires   |
| 6   | Remote Cooling / Heating (optional upon request)   | 2 wires   |
| 7   | Circulation pump signal for HWC (antifreeze safety) (optional)                             | 1 wire  |
| 8   | Ambient sensor   | NTC 2 wires   |
|     |  | RS485 5 wires (4)   |
| 9   | CO <sub>2</sub> air quality sensor (optional)  | 3 wires   |



- (1) In this case, it's possible to install the user terminal on the electrical cabinet.  
(2) It's necessary that the terminal uses the same power supply that the control board.  
(3) The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier. With these options, possibility of general alarm upon request.  
(4) Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.

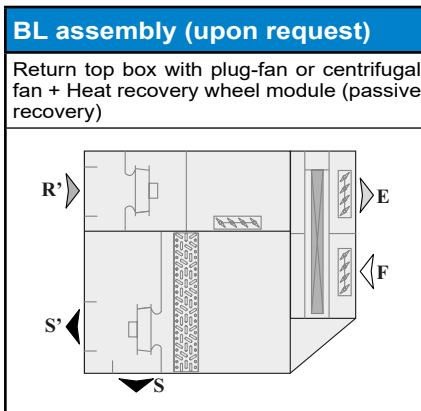
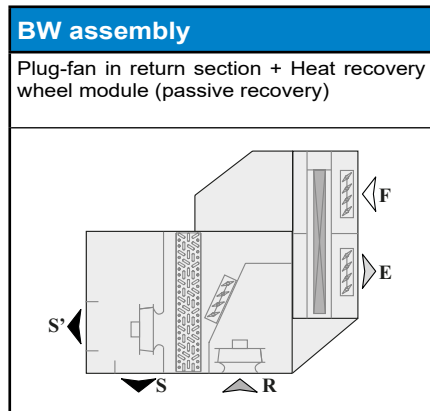
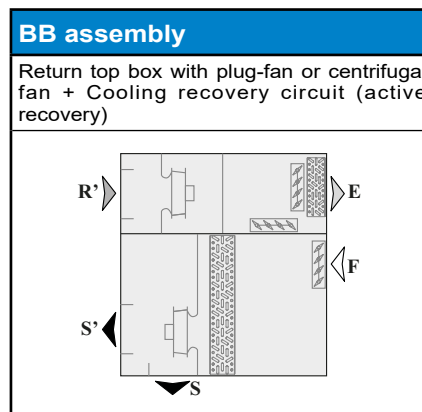
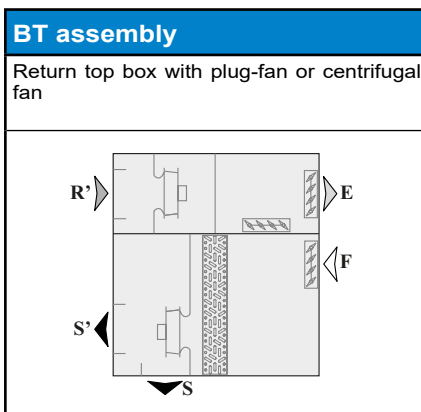
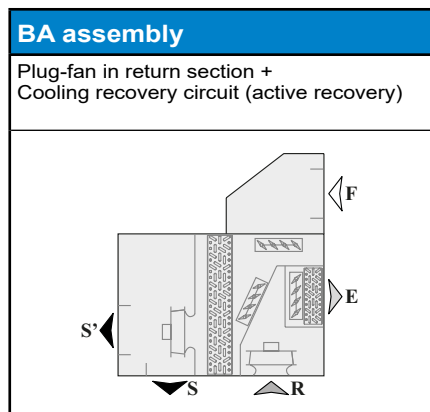
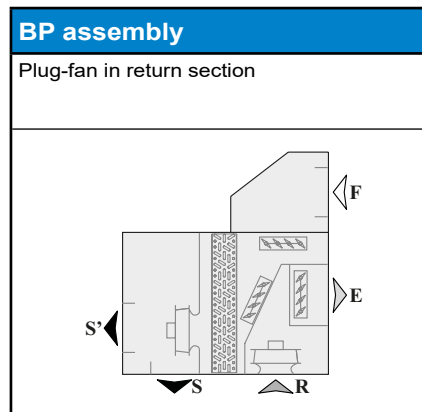
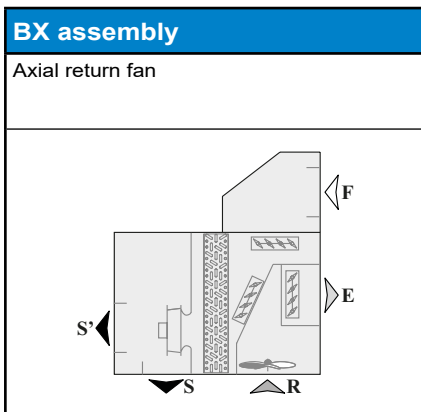
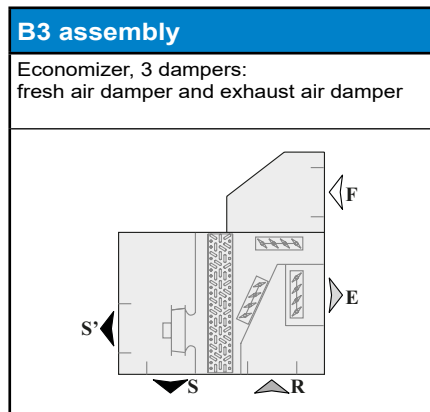
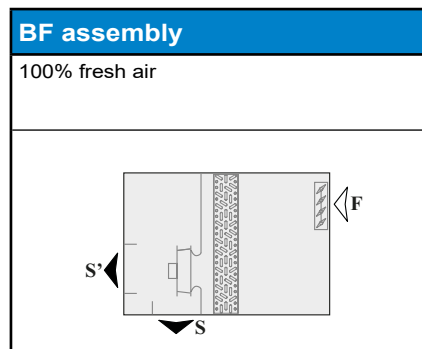
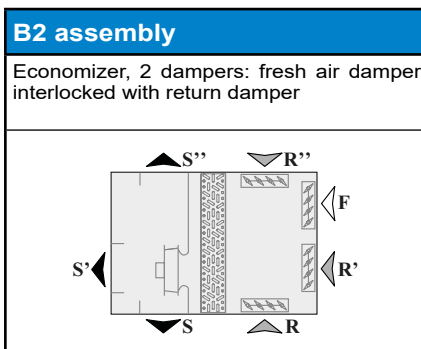
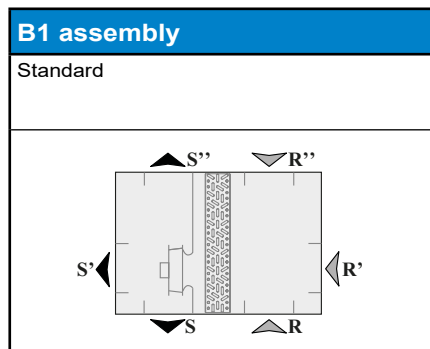
## FACTORY OPTIONS AND ACCESSORIES

| Category                            | Description  | Factory installed option | Field installed accessory |
|-------------------------------------|--|--------------------------|---------------------------|
| Electrical power Flow + Assembly    | 400 V / 3 ph / 50 (without neutral)  | X                        |                           |
|                                     | B2: Economizer, 2 dampers  | X                        |                           |
|                                     | BF: 100% fresh air   | X                        |                           |
|                                     | B3: Economizer, 3 dampers  | X (*)                    |                           |
|                                     | BX: Axial fan in return section  | X (*)                    |                           |
|                                     | BP: Plug-fan in return section   | X (*)                    |                           |
|                                     | BA: Cooling recovery circuit with plug-fan in return section   | X (*)                    |                           |
|                                     | BT: Return top box with plug-fan or centrifugal fan  | X                        |                           |
|                                     | BB: Cooling recovery circuit with plug-fan or centrifugal fan in return top box  | X                        |                           |
|                                     | BW: Heat recovery wheel module   | X (*)                    |                           |
| Coil coating                        | BL: Return top box with plug-fan or centrifugal fan with heat recovery wheel module (upon request)                                     | X (*)                    |                           |
|                                     | Coils with polyurethane precoated aluminium fins and copper pipes  | X                        |                           |
|                                     | INERA® coils with aluminium alloy fins and copper pipes  | X                        |                           |
| Heating                             | Blygold® coating   | X                        |                           |
|                                     | Auxiliary hot water coil : Standard or Very low outdoor temperature  | X                        |                           |
|                                     | Auxiliary electrical heaters   | X                        |                           |
| Protection low temperature          | Warm air heater module with gas burner (supplied installed inside a pre-assembly roofcurb)   |                          | X                         |
|                                     | Freeze protection OAT lower than -10°C   | X                        |                           |
|                                     | Freeze protection OAT lower than -14°C   | X                        |                           |
|                                     | Freeze protection OAT lower than -10°C + spring shut-off dampers   | X                        |                           |
| Supply fan                          | Freeze protection OAT lower than -14°C + spring shut-off dampers   | X                        |                           |
|                                     | Indoor plug-fan with nominal available pressure (Aluminum), low pressure or high pressure  | X                        |                           |
|                                     | Air filtration + droplet eliminator  | X                        | X                         |
|                                     | Droplet eliminator after the indoor air coil   | X                        | X                         |
| Air filtration + droplet eliminator | Low pressure drop G4 filters   | X                        | X                         |
|                                     | G4 filters + M6, F7 or F9 folded filters   | X                        | X                         |
|                                     | Low pressure drop G4 filters + F7 or F9 folded filters   | X                        | X                         |
|                                     | Double stage of folded filters: M6+F7, M6+F9, F7+F9 or F9+F9   | X                        | X                         |
| Outdoor fan                         | Two-speed direct-driven axial fans   | X                        |                           |
| Insulation                          | Thermal and acoustic insulation, Euroclass A2-s1, d0 (M0), in ceramic fibre  | X                        |                           |
| Indoor circuit                      | Condensates drain pan in stainless steel   | X                        | X                         |
|                                     | Room overpressure management   | X                        |                           |
|                                     | Filter fouling detection with differential pressure switch   | X                        |                           |
| Outdoor circuit                     | Fresh air safety grid  | X                        | X                         |
|                                     | Outdoor coil protection grid   | X                        | X                         |
|                                     | Droplet eliminator at the fresh air intake   | X                        | X                         |
|                                     | Antivibration mounts made of rubber  | X                        | X                         |
| Heat recovery wheel                 | Selection of the heat recovery wheel (BW assembly): wheel materials, channel cross section, air filtration and type of speed control   | X                        |                           |
| Extra heating                       | Heat recovery coil   | X (*)                    |                           |
|                                     | Preheater (electrical heater) in fresh air, low or nominal power   |                          | X                         |
| Special applications                | Air zoning   | X (*)                    |                           |
|                                     | Low return temperature application   | X                        |                           |
|                                     | Low return temperature application + Air zoning  | X (*)                    |                           |
|                                     | 100% fresh air (without or with air zoning)  | X                        |                           |
| Sensors                             | NTC ambient temperature sensor on the control board or 1 to 4 sensors with RS485 comm.   | X                        | X                         |
|                                     | Ambient temperature + humidity sensor with RS485 communication. Up to four sensors   | X                        | X                         |
|                                     | CO <sub>2</sub> sensor: environment or ducted installation or installed on a pLAN network  | X                        | X                         |
|                                     | Smoke detection control unit in accordance with the NF S 61-961 standard   | X                        | X                         |
| Economizer + Outd. humidity         | Economizer management: thermal, enthalpic or thermoenthalpic   | X                        | X                         |
|                                     | Outdoor air humidity sensor: supplied with the unit or installed on a pLAN network   | X                        | X                         |
| Terminal + Unit communication       | Graphic terminal installed in the electrical cabinet + User terminal remote up to 100 m  | X                        | X                         |
|                                     | Graphic terminal installed in the electrical cabinet + Graphic terminal remote up to 200 m   | X                        | X                         |
|                                     | User terminal installed in the electrical cabinet  | X                        | X                         |
|                                     | User terminal installed in the electrical cabinet + Graphic terminal remote up to 200 m  | X                        | X                         |
|                                     | Touch panel in the electrical cabinet  | X                        | X                         |
|                                     | Touch panel in the cabinet + Graphic terminal remote up to 200 m   | X                        | X                         |
|                                     | Touch panel in the cabinet + User terminal remote up to 100 m  | X                        | X                         |
|                                     | Unit configuration: stand-alone, master or slave   | X                        | X                         |
|                                     | Communication cards: RS485 Modbus/Carel; Ethernet PCoWeb; RS485 LonWorks®; Ethernet BACnet™; RS485 BACnet™; RS485 Konnex               | X                        | X                         |
| Miscellaneous item 1                | Management of an humidifier with on-off or proportional control  | X                        |                           |
|                                     | Electrical energy meter  | X                        |                           |
|                                     | Cooling capacity and electrical energy meter   | X                        |                           |
| Miscellaneous item 2                | Compressor soft-starter  | X                        |                           |
|                                     | Varnish protection for components on the electrical cabinet: control board, cards and terminals  | X                        |                           |
| Return fan                          | Centrifugal return fan (BB and BT assemblies). 9 combinations of air flow and available pressure                                       | X                        |                           |
|                                     | Return plug-fan with nominal pressure (Aluminium)  | X                        |                           |
| Air direction                       | There are 9 combinations in the direction of airflow with:<br>- Supply: lower, lateral and upper<br>- Return: lower, lateral and upper | X                        |                           |
|                                     |  |                          |                           |
| Roofcurb                            | Pre-assembly roofcurbs with adjustable height  |                          | X                         |
|                                     | Adaptation roofcurbs for replacing units on site   |                          | X                         |

(\*) Part of this option must be installed on-site.

## FACTORY OPTIONS AND ACCESSORIES

### Assembly + Indoor air flow direction



| Legend                       |                              |  |  |
|------------------------------|------------------------------|--|--|
| <b>S</b> Lower air supply    | <b>R</b> Lower air return    |  |  |
| <b>S'</b> Lateral air supply | <b>R'</b> Lateral air return |  |  |
| <b>S''</b> Upper air supply  | <b>R''</b> Upper air return  |  |  |
| <b>F</b> Fresh air intake    | <b>E</b> Exhaust air outlet  |  |  |

Note: only one of the three possible options (lower, lateral or upper) can be selected for both, supply and return.

| Indoor airflow direction                 |  |  |
|--|--|--|
| <b>0</b> Lower supply and lower return   | <b>3</b> Lateral supply and lateral return | <b>6</b> Upper supply and lateral return |
| <b>1</b> Lateral supply and lower return | <b>4</b> Upper supply and lower return     | <b>7</b> Lower supply and upper return   |
| <b>2</b> Lower supply and lateral return | <b>5</b> Lateral supply and upper return   | <b>8</b> Upper supply and upper return   |

## FACTORY OPTIONS AND ACCESSORIES

### Air pressure control in different assemblies

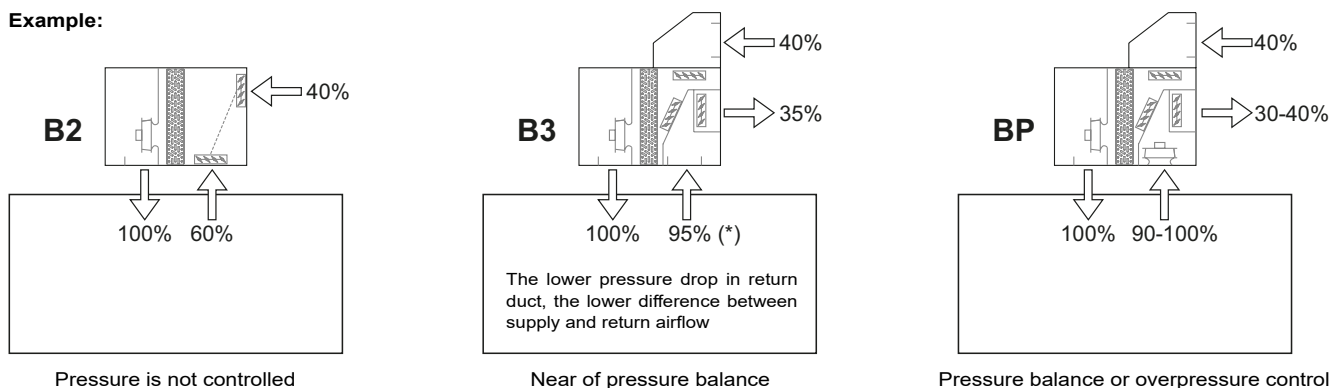
In case of assemblies with fresh air (ventilation) but without extraction air, overpressure will be generated in the building, higher with higher fresh air ratios or in free-cooling mode. It will not generate any issue in buildings with low air tightness and/or with doors frequently opened, but we should prevent in other applications. In assemblies with extraction damper and return fans, this overpressure can be completely avoided (pressure balance), or even controlled with a certain value to prevent infiltrations.

**50FC** is the rooftop with the largest offer in airflow configurations to be able to adapt the unit to any kind of application or request. Please, find below comments and recommendations for each assembly.

| Assembly                             | Fresh air and free-cooling | Return fans | Energy recovery (extraction)  | Pressure control    | Comments and recommendations  |
|--------------------------------------|----------------------------|-------------|-------------------------------|---------------------|---|
| B1                                   | No                         | No          | No                            | No control required | Only for building with <b>no need of fresh air</b> . Pressure balance by default. Same return and supply airflow.   |
| B2                                   | Yes                        | No          | No                            | No control          | Adequate just for buildings with medium or low <b>air tightness</b> and/or doors frequently opened.   |
| B2 + gravity dampers in the building | Yes                        | No          | No                            | High control        | Building overpressure is maintained at the same level than pressure drop before the gravity damper. No limitations in the return pressure drop.   |
| B3                                   | Yes                        | No          | No                            | Medium control      | Recommended only with <b>low pressure drop in the return ductwork</b> (maximum 50 Pa). The maximum building overpressure is at the same level than pressure drop in the return ductwork.  |
| BA, BB                               | Yes                        | Yes         | Yes, Active recovery          | High control        | Return and supply EC plug-fan(s) are always supplied with pressure sensor to adjust the airflow. To manage <b>pressure balance</b> , supply and return are configured with same airflow.  |
| BP, BT                               | Yes                        | Yes         | No                            | Total control       | In case <b>overpressure</b> want to be managed (to avoid infiltration), the return airflow need to be lower than the supply. Differences <b>up to 10%</b> can be always being configured. Additional overpressure with airflow differences <b>up to 20%</b> are possible <b>adding the option "overpressure control" (*)</b> which manages fresh and exhaust dampers independently. |
| BW                                   | Yes                        | Yes         | Yes, Passive recovery (wheel) | Total control       | To maintain overpressure in case of variable fresh air management (with CO <sub>2</sub> sensor option), minimum fresh air ratio need to be configured.  |

(\*) This overpressure option is not available on BA and BB assemblies because this type of control of the dampers penalizes cooling recovery.

#### Example:



## FACTORY OPTIONS AND ACCESSORIES

### Electrical power

- These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

### Coils coating

- Coils with copper pipes and aluminium fins with **polyurethane** coating.

Level of corrosion protection: basic. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).

- Coils with copper pipes and fins of an aluminium alloy **INERA®**.

Level of corrosion protection: basic - medium. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).

- Blygold®** coating.

Level of corrosion protection: medium. This treatment offers more protection than 11000 hours in salt spray test (ASTM B117 NSST) and 4000 hours in acid salt spray test.

For further detailed information, please contact our Customer Service Department.

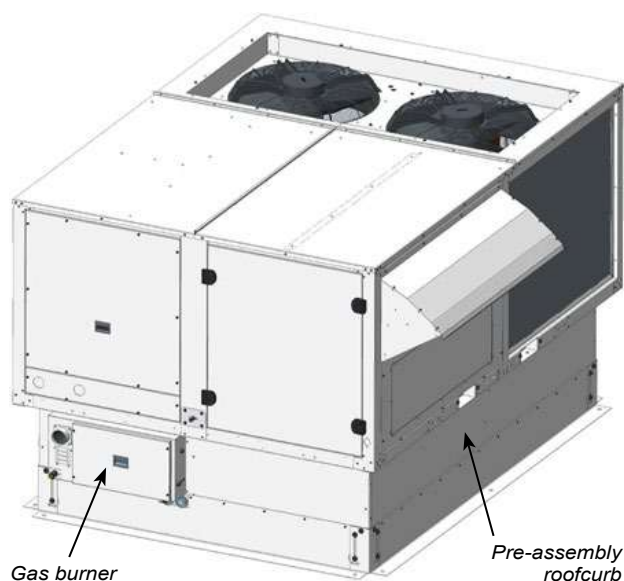
Note: These coating can be applied to various coils (outdoor, indoor and hot water coil) according to the combinations available in our "Selection Software".

### Heating

The unit only can incorporate one of these heating elements:

- Warm air heater module with gas burner** with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb.

Condensation boiler with premixing and modulation technology that allows outputs close to 109% with regard to the lower heating value (LCV).



Note: It's recommended to use the filter fouling detector (optional) in units with gas burner.

Up to 3 values of total power available for each model:

| 50FC          | 020 to 047 | 052 to 062  | 070 to 093  |
|---------------|------------|-------------|-------------|
| BAF (Low)     | PCH020     | unavailable | unavailable |
| BAM (Nominal) | PCH034     | PCH065      | PCH080      |
| BAS (High)    | PCH045     | PCH080      | PCH105      |

- Auxiliary electrical heaters**, with two power stages and on/off control, for assembly and connection inside the unit.

Up to 3 values of total power available for each model:

| 50FC          | 020 to 028  | 037 to 047 | 052 to 093 |
|---------------|-------------|------------|------------|
| RAF (Low)     | 12 kW       | 12 kW      | 18 kW      |
| RAM (Nominal) | 18 kW       | 18 kW      | 27 kW      |
| RAS (High)    | unavailable | 27 kW      | 36 kW      |

- Electrical heaters with proportional control (**upon request**).

- Auxiliary hot water coil**, with three-way valve and proportional control, for assembly inside the unit.

- The unit incorporates a freeze protection thermostat.
- There are two configuration types available:
  - Standard (HAS), with the freeze protection thermostat.
  - Very low outdoor temperature (HAF), with freeze protection technology based on the water temperature. This protection is made up of a circulation pump as well as two sensors inserted in the input and the output of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

Note: on units with this option, air supply only may be lateral (factory-configured).

### Protection for low outdoor temperature

- Freeze protection OAT lower than -10°C. Mandatory for an outdoor temperature lower than -10°C WB.

- Electrical heater for protection of the components of the electrical cabinet.
- Compressor with protection for low temperature.

- Freeze protection OAT lower than -14°C. Mandatory for an outdoor temperature lower than -14°C WB.

In addition to the options of -10°C, this includes:

- Reinforced electrical heater for protection of the components of the electrical cabinet.
- Electrical heater for anti-freeze protection of dampers of the economizer (if applicable).
- Protective kit of the gas burner for low temperature (if applicable).

- Freeze protection OAT lower than -10°C + spring shut-off dampers in case of a power failure.

- Freeze protection OAT lower than -14°C + spring shut-off dampers in case of a power failure.

### Supply fan

- By default, these units are fitted with plug-fans for a nominal available pressure (N), in Polypropylene.



## FACTORY OPTIONS AND ACCESSORIES

The following fans can optionally be supplied:

- F: Low available pressure: except for models 037, 040, 045, 047, 070 and 074.
- M: Nominal available pressure (Aluminium).
- S: High available pressure.

Note: Aluminium fans are rated A2-s1, d0 (M0) and comply with regulations for public premises in France.

Important: the "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

### Air filtration + Droplet eliminator

Options to improve indoor air quality:

- Different combinations of filters are available:
  - Gravimetric filters G4 with low pressure drop.
  - Gravimetric filters G4 of standard type + folded opacimetric filters M6, F7 or F9.
  - Gravimetric filters G4 with low pressure drop + folded opacimetric filters F7 or F9.
  - Double-stage of folded opacimetric filters (M6+F7, M6+F9, F7+F9 or F9+F9).

Classification of these filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
- M6 → ISO ePM10 70%
- F7 → ISO ePM1 50%
- F9 → ISO ePM1 80%

- Droplet eliminator after the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.

Note: with hot water coil it is not possible to assemble the droplet eliminator.

### Outdoor fan

- Two-speed direct-driven axial fan(s). Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.

### Insulation

- Thermal and acoustic insulation in ceramic fibre, with Euroclass fire classification A2-s1, d0 (M0) in panels not removable in contact with the indoor air (top, bottom panel).

Note: the other panels and registers of the indoor circuit always include thermal and acoustic insulation, with Euroclass fire classification A2-s1, d0 (M0).

### Indoor circuit

- Condensate drain pan in stainless steel for corrosion protection.
- Room overpressure management. Assemblies that include a return fan allow the management of airflow differences between supply air and return air of up to 10%, setting up flow setpoints.

Optionally, the fresh air damper and the exhaust damper can be managed independently for greater airflow differences. This option may be necessary to prevent the entry of outside air (BP, BT and BW assemblies).

Note: This option is not available on BA and BB assemblies because this type of control of the dampers penalizes cooling recovery.

- Filter fouling detection with differential pressure switch.

### Outdoor circuit

- Fresh air safety grid (9x9mm).
- Outdoor coil protection grid.
- Antivibration mounts made of rubber.
- Droplet eliminator at the fresh air intake. This one and the thermoenthalpic free-cooling are necessary in cases where a high moisture content in the air is foreseen.

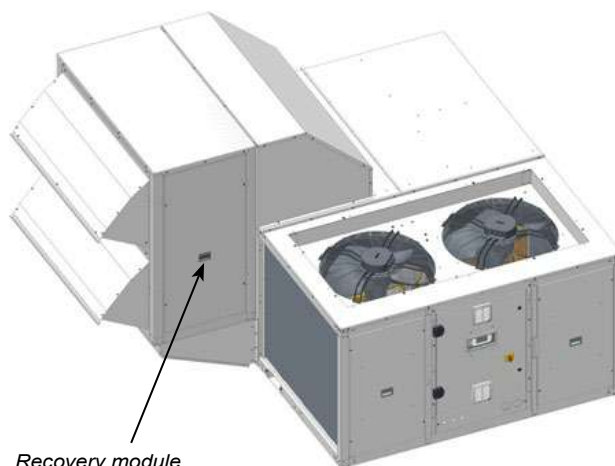
### Heat recovery wheel

- The heat recovery wheel is fitted into a module placed on one side of the unit. This module is supplied disassembled with the unit, for installation on site.

Available with BW assembly.

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors. This option reduces the compressors runtime, ensuring energy saving and benefiting the environment.

The efficiency of energy recovery depends on the wheel selected: wheel material, channel cross section, air filtration and type of speed control.



Recovery module

Note: It's recommended to use a CO<sub>2</sub> air quality sensor (optional) in units with rotary heat exchanger.

### Extra heating

- **Heat recovery coil (HRC).** The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation.

The coil is supplied with a 3-way valve for installation outside the unit but managed by the electronic control.

This option is compatible with B1, B2, BF, BT and BB assemblies.

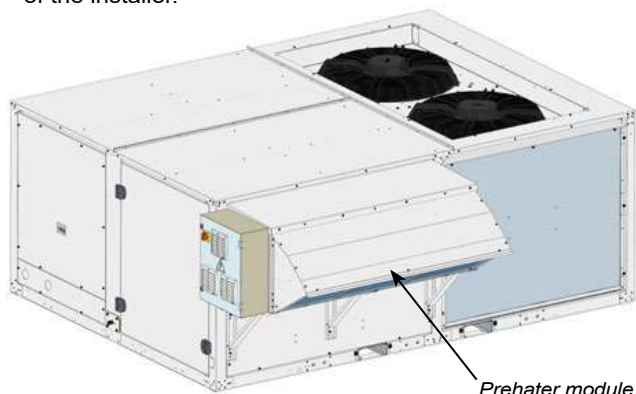
## FACTORY OPTIONS AND ACCESSORIES

- With BF assembly, 100% fresh air, it is possible to incorporate a **preheater module** (electrical heater) coupled to the fresh air intake. This module is supplied in kit for installation on site.

The electrical heater with proportional control will modulate capacity to get the condenser inlet conditions within the operating limits of the cooling circuit in case of very low outdoor temperatures.

Two values of power are available: low (F) and nominal (N).

Note: The electrical connection of the kit is the responsibility of the installer.



### Special applications

- The mounting **100% fresh air** with no return or extraction air flow (BF assembly) will address special requests where return air flow cannot be used, in order to avoid contamination (kitchens, and some other places with indoor odours or other pollutants).

In order to keep the cooling circuit working inside operation limits, and depending on design conditions, the unit could be selected with lower air flow than minimum used for the same size in the rest of assemblies.

Depending on the heating design conditions, it is also necessary to select an additional electrical heating in the fresh air intake (preheater module).

- **Zoning of the air flow** up to 4 different zones.

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all in one operating mode: heating or cooling). This function allows to adapt the indoor air flow to the installation requirements.

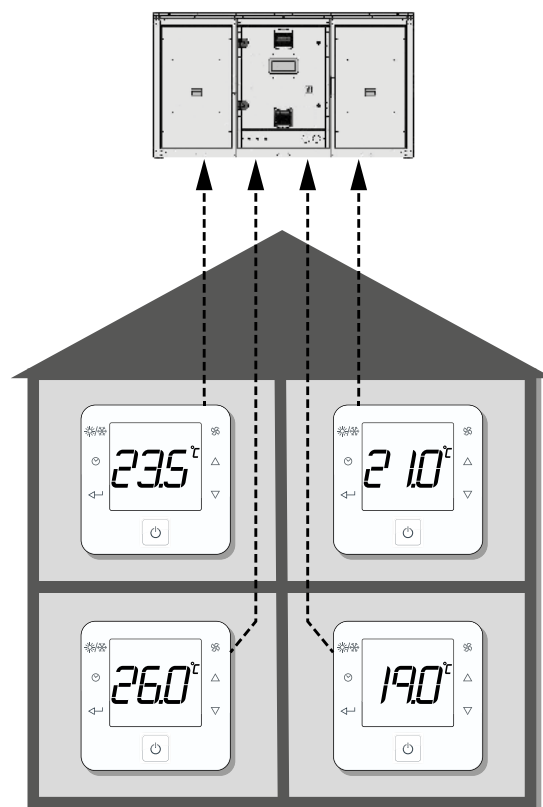
Note: zoning is only possible with plug-fans.

Regulation gives the control signal to the dampers installed in each zone (dampers and servomotors for those dampers not supplied). The unit modifies the air flow and capacity depending on information coming from sensors in each zone and considering active zones in each moment.

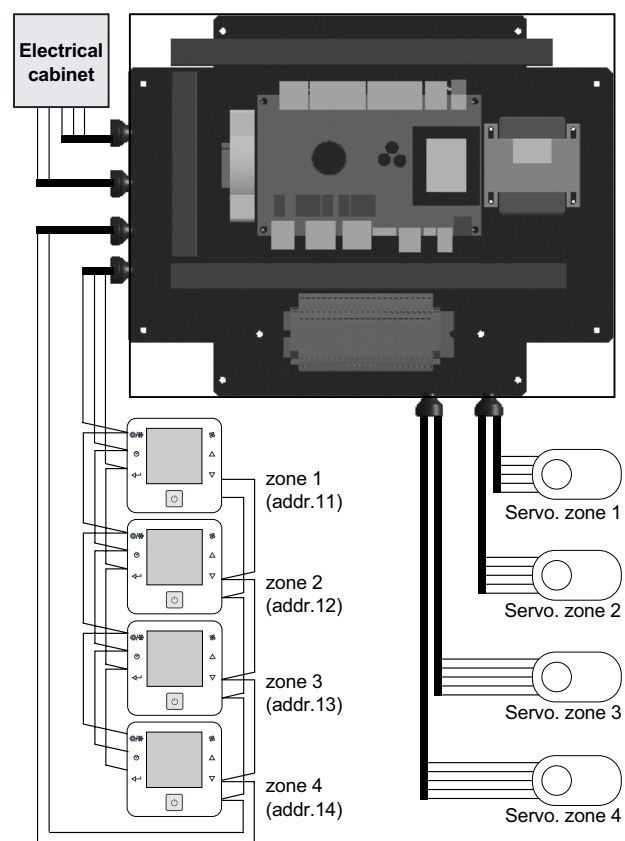
The option includes 4 zone terminals (one for each zone), the additional control board supplied in an independent box to be connected with the 4 terminals, the unit board and also to the servomotors that control dampers in each zone (dampers and servos not supplied).

The temperature information for each zone is coming from temperature sensor integrated inside each zone terminal. It is not needed to install any extra ambient sensor.

Note: In case the unit includes an economizer for enthalpy or thermoenthalpic free cooling (T+H control) an extra return T+H sensor in the offer is required. If the unit additionally includes CO<sub>2</sub> probe, it must be a return probe and not an ambient probe.



In following picture, electronic PCB and 4 zone terminals are detailed. Connections can be found in the "50FC" control manual.



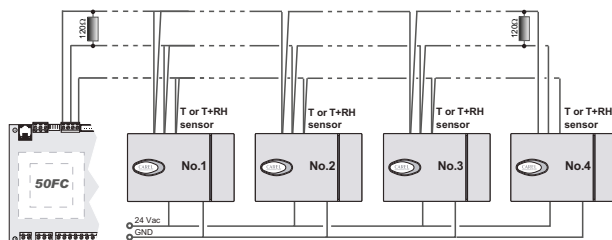
Note: There is a new option with **constant supply pressure** that extends the possibilities for multi-zone management. Available upon request.

## FACTORY OPTIONS AND ACCESSORIES

- **Low return temperature application.** This option is particularly interesting in certain applications for food conservation and it can be used in large storage facilities. With this option, the unit adapts all its devices to manage low return temperature (15°C) in cooling mode. This is possible due to some changes in the control operation parameters. The "Selection Software" includes the option as mandatory when return temperature is lower than 20°C (with 15°C as the minimum allowed value).

### Sensors

- **Ambient temperature sensor(s).** There are 3 options:
  - One NTC sensor connected to the control board.  
Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.
  - Up to four sensors with RS485 communication.
  - Sensor(s) installed on the master unit of the local network (pLAN).
- **Ambient temperature + humidity sensor(s).** Up to four sensors with RS485 communication or installed on the pLAN network. This sensor is compulsory in units with enthalpic or thermoenthalpic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.



- **CO<sub>2</sub> sensor for air quality control.** There are 3 options:
  - Ambient air quality sensor,
  - Return air quality sensor (duct-mounted),
  - Sensor installed on the master unit of the local network (pLAN).
- **Smoke detection** control unit in accordance with the NF S 61-961 standard, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

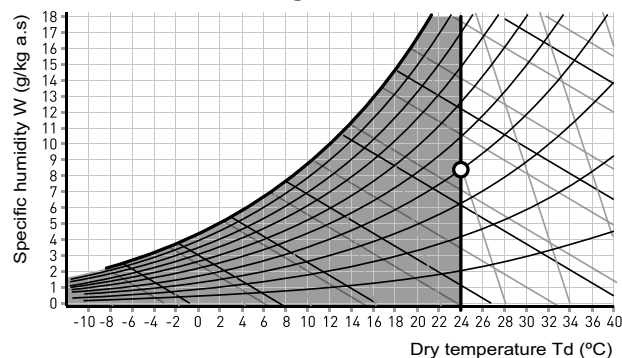
To ensure compliance with the French regulations on Fire safety (ERP), it's possible to select the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

### Economizer management + outdoor humidity

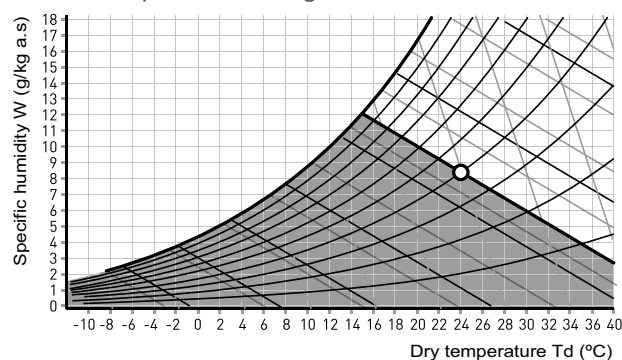
- The economizer allows to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced.  
The percentage of outdoor air can vary between 0% and 100%.  
The economizer management can be:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.

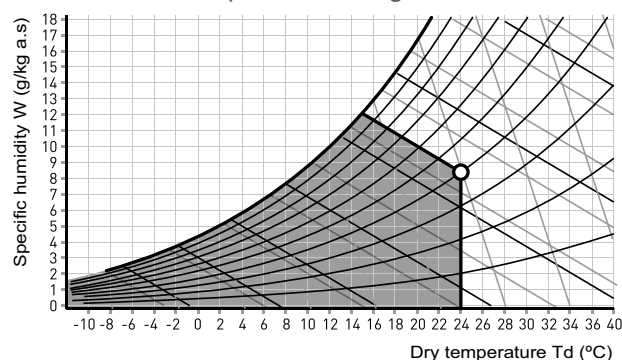
Thermal free-cooling



Enthalpic free-cooling



Thermoenthalpic free-cooling



One function that helps improve energy management is **nocturnal free-cooling**. This feature allows the compressors to be disabled in summer with programming, the unit works providing free-cooling at night, when the outdoor conditions are favorable. This allows the cooling demand to decrease significantly early in the day.

- **Outdoor air humidity sensor** (compulsory in units with optional enthalpic or thermoenthalpic free-cooling).  
There are 2 options:
  - Sensor supplied with the unit.
  - Sensor installed on another unit of the local network (pLAN).

## FACTORY OPTIONS AND ACCESSORIES

### Terminal + unit communication

■ By default, the electronic control is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:

- Graphic terminal installed in the electrical cabinet and User terminal remote up to 100 meters.
- Graphic terminal installed in the electrical cabinet and Graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- User terminal installed in the electrical cabinet, instead of the graphic terminal.
- User terminal installed in the electrical cabinet and Graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- Touch panel installed in the electrical cabinet, instead of the graphic terminal.
- Touch panel installed in the electrical cabinet and Graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- Touch panel installed in the electrical cabinet and User terminal remote up to 100 meters.



Graphic terminal



Touch panel



User terminal

- Control without terminal (for units with shared terminal in a pLAN network).

■ By default, the electronic control is configured for a stand-alone unit, but it is also possible to place it in a pLAN network (Local Area Network) as Master, Slave or Back-up. The maximum number of units that can be configured on a Master/Slave pLAN network is 15, and in case of Back-up units is 2.

Important: to use any of the following functionalities it is necessary to configure in the "Selection software" one unit as Master and the others as Slaves (including the back-up unit). The specific functionality will be configured on site (according to the "50FC control manual").

The pLAN network allows to have the following functionalities depending on the parameterized configuration:

#### - Master/Slave:

It allows to share the graphic terminal, as well as some of the probes installed in the master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO<sub>2</sub> air quality.

#### - Extended Master/Slave:

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

#### - Master/Slave with the same operating mode:

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling-Heating - Ventilation) to the other units.

#### - Back-up in case of alarm:

One unit is configured as a backup unit, in case of malfunction of the other pLAN network unit.

#### - Extended Back-up:

It includes the "Back-up in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Back-up units, it is not possible to share the probes, nor the terminal, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of overpressure dampers (installer responsibility).

■ This control allows the connection to a centralised technical management system by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.



RS485 Carel/Modbus card



Ethernet pCO Web card

### Supervision solutions

Different solutions of supervision are available bases on the dimensions of the installation for unit fitted with Ethernet pCO Web and RS485 Carel / Modbus cards.

#### - pCO Web:

It is the solution for the management and supervision of a single unit if this incorporates the Ethernet pCO Web card.

#### - BOSS:

This is the solution for the management and supervision of air-conditioning installations with up to 300 units.

Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation. It also allows energy meters to be integrated to monitor the installation electricity consumption.



## FACTORY OPTIONS AND ACCESSORIES

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, keyboard and screen.

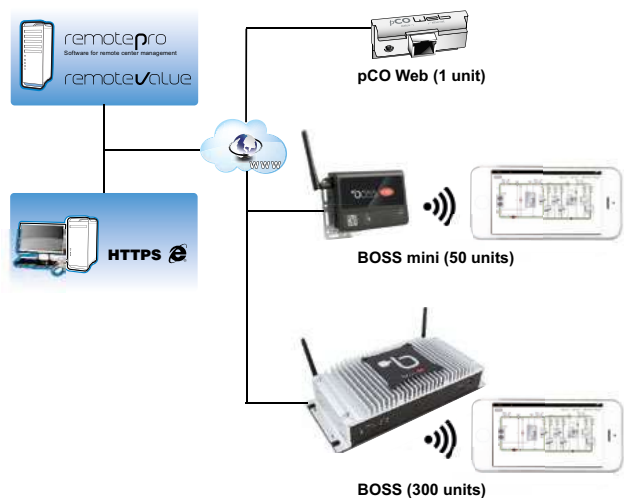
For this option, each unit needs one RS485 Carel / Modbus board.

### - BOSS mini (New)

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device, mouse and keyboard.
- CPU device, monitor, mouse and keyboard.



These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

To control multiple sites remotely, there are special tools dedicated to centralized management, such as **RemotePRO** and **RemoteValue**.

### Miscellaneous item 1

- Management of an humidifier with on-off or proportional control.
- Electrical energy meter for monitoring of the power consumption of the installation.
- Energy meter and calculation of the cooling and heating capacities. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.

### Miscellaneous item 2

- Compressor soft starter.
- Varnish protection for the components on the electrical cabinet: control board, cards and terminals.

### Return fan

- Centrifugal return fan, coupled by pulleys and belts. Electric motor with tensioner, class F, IP55 and internal thermal protection. Turbine with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required. Available in BB and BT assemblies.

There are 9 fan options depending on:

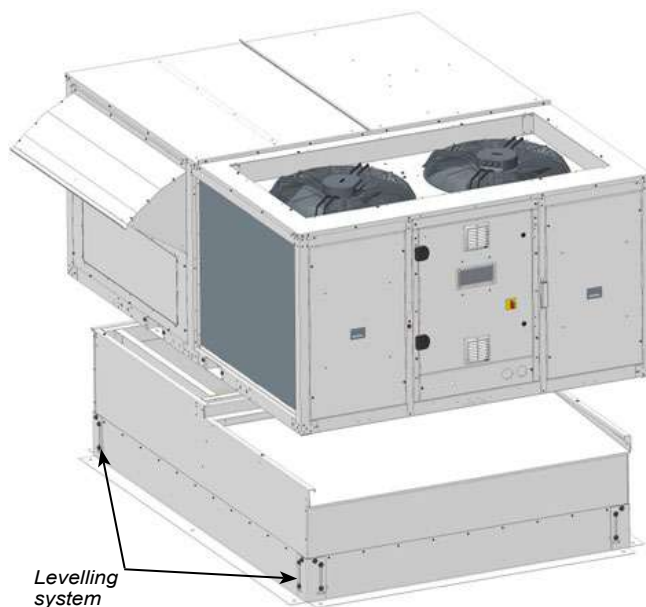
- Air flow: low, nominal and high.
- Available pressure: low, nominal and high.

- Return plug-fan with nominal available pressure, in Aluminium.

### Pre-assembly roofcurbs

- The units can rest on pre-assembly roofcurbs with adjustable height, built in galvanised steel panelling with polyester paint and thermal insulation.

The levelling system uses angle pieces that allow adjustments in the X and Y axes.



- Adaptation roofcurbs ready for direct replacement on site of units from different manufacturers (**upon request**).

## ADDITIONAL FACTORY OPTIONS UPON REQUEST

This chapter contains additional options available upon request, in addition to those already indicated in the table on the previous chapter:

| Description   | Installation in factory | Installation on site |
|---|-------------------------|----------------------|
| Activation of the remote COOLING / HEATING operating mode | ✓                       |                      |
| General alarm signalling by relay                         | ✓                       |                      |
| Mechanical disconnection of stages                        | ✓                       |                      |
| Ventilation mode with 100% fresh air by digital input     | ✓                       |                      |
| Control of supply and return dampers                      |                         | ✓                    |
| Ventilation with differential air pressure sensor         |                         | ✓                    |
| Constant supply pressure                                  |                         | ✓                    |
| Adjustable pre-assembly roofcurbs with higher height      |                         | ✓                    |

### General alarm signalling

"50FC" control allows the management of a relay for remote alarm signalling.

The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier.

In this case, upon request, it would be possible to have a general alarm output in an input/output expansion module.

### Mechanical disconnection of stages

This option allows the mechanical disconnection of stages of compressor and/or electrical heaters using digital inputs. This is especially useful in the following cases:

- To reduce electricity consumption in certain time slots.
- When electricity consumption is limited.

### Ventilation mode with 100% fresh air by digital input

"50FC" control allows to manage a ventilation mode with 100% fresh air through the graphic terminal or by BMS supervision, but on certain occasions it may be interesting to activate this mode through a digital input. This option is especially useful when rapid air renewal is needed, for example in cinema rooms.

### Control of supply and return dampers

This function allows the management of external drive and return dampers located in the ducts, so that the closure of the ducts can be controlled after the unit is stopped. This option can also be useful in installations with Back-up units.

### Ventilation with differential air pressure sensor

In installations with this differential pressure sensor, the percentage of air renewal is adjusted according to the pressure in the room. This option allows dynamic control of the damper opening by measuring the pressure differential between inside and outside.

### Constant supply pressure

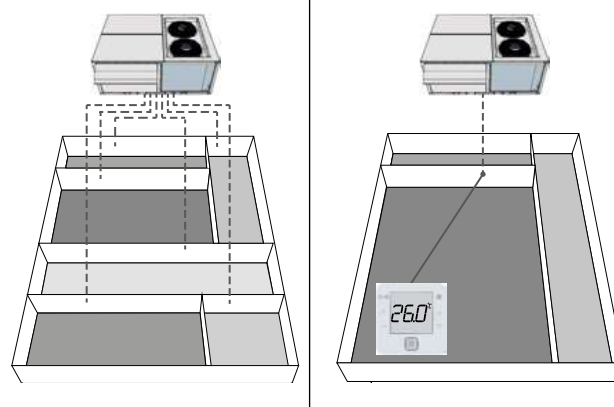
The 50FC range provides the greatest choice in terms of multi-zone management. This new option of "Constant supply pressure" is added to the option "Air flow zoning up to 4 zones".

This function allows to control the air flow to maintain constant pressure in the supply duct, with the setpoint value set by parameter.

The following table provides the comparison of the two solutions to facilitate the correct selection according to the customer needs:

| Characteristics                     | Zoning up to 4 zones  | Constant supply pressure  |
|-------------------------------------|---|---|
| Number of zones                     | Up to 4   | Unlimited   |
| Type of fan                         | Plug-fan  | Plug-fan  |
| Components included                 | 4 zone terminals and a control box  | Differential pressure sensor (range 0 - 1000 Pa)  |
| Dampers and servos per zone         | Not supplied  | Not supplied  |
| Control signal for dampers / servos | Supplied  | Not supplied (external control required)  |
| Control of the damper for each zone | Yes, control carried out by the electronic control  | No (at customer level)  |
| Terminal in each zone               | Yes   | No or just one for the main zone (see "Configurations")   |
| Minimum air flow                    | 35%   | 35% or 10% in ventilation mode (operating only the fans). There is an associated alarm in case of lower airflow. It is necessary to set the minimum damper opening per zone or provide remote stop control in case all dampers are closed |
| Capacity control                    | Based on the ambient temperature conditions of each zone terminal (by default) or the return temperature (optional) | <ul style="list-style-type: none"> <li>• Based on the return conditions (by default)</li> <li>• Based on the environment conditions (configurable), in case of a main zone (see "Configurations")</li> </ul>                              |

| Configurations   |  |
|--|--|
| Capacity control based on the return conditions (by default) | Capacity control based on the environment conditions (configurable)        |
| Several zones  | Several zones (one main zone)  |
| Same comfort priority by zone                                | One main zone. Comfort of all zones depends on the demand of the main zone |



Note: For variable management of fresh air it is necessary to select the optional return air quality probe (CO<sub>2</sub>) (instead of the ambient probe).

There is only one case in which the ambient air quality probe can be used: with constant supply pressure and capacity based on the environmental conditions of the main zone.



## OPTIONS FOR THE OUTDOOR CIRCUIT

### Axial 2-speed outdoor fan

| 50FC                                |      | 020       | 028       | 037    | 040    | 045    | 047    | 052             | 058    | 062    | 070    | 074    | 086    | 093    |
|-------------------------------------|------|-----------|-----------|--------|--------|--------|--------|-----------------|--------|--------|--------|--------|--------|--------|
| Cooling:<br>efficiency with R-454B  | SEER | 4,26      | 3,88      | 3,88   | 3,82   | 3,74   | 3,74   | 3,65            | 3,76   | 3,78   | 3,85   | 3,81   | 3,70   | 3,68   |
|                                     | ηs   | 167%      | 152%      | 152%   | 150%   | 147%   | 147%   | 143%            | 147%   | 148%   | 151%   | 150%   | 145%   | 144%   |
| Heating:<br>efficiency with R-454B  | SCOP | 3,30      | 3,31      | 3,30   | 3,33   | 3,34   | 3,34   | 3,32            | 3,30   | 3,30   | 3,31   | 3,31   | 3,35   | 3,28   |
|                                     | ηs   | 129%      | 129%      | 129%   | 130%   | 131%   | 130%   | 130%            | 129%   | 129%   | 129%   | 129%   | 131%   | 128%   |
| Nominal air flow (m³/h)             |      | 9.000     | 14.500    | 17.000 | 17.000 | 17.000 | 17.750 | 31.000          | 31.000 | 31.000 | 33.000 | 33.000 | 34.500 | 35.000 |
| Available static pressure (mm.w.c.) |      | 4         |           |        |        |        |        |                 |        |        |        |        |        |        |
| Number / Diameter (mm)              |      | 1 / 630   | 1 / 800   |        |        |        |        | 2 / 800         |        |        |        |        |        |        |
| Maximum speed (r.p.m.)              |      | 690 / 840 | 670 / 880 |        |        |        |        | 670 / 880       |        |        |        |        |        |        |
| Output (kW)                         |      | 0,4 / 0,6 | 1,2 / 1,9 |        |        |        |        | 2 x (1,2 / 1,9) |        |        |        |        |        |        |
| Max. absorbed current (A)           |      | 1,2       | 3,9       |        |        |        |        | 2 x 3,9         |        |        |        |        |        |        |

## OPTIONS FOR THE INDOOR CIRCUIT

### Supply plug-fan with different available pressure options

| 50FC  |                           |  | 020     | 028   | 037     | 040   | 045   | 047   | 052     | 058    | 062    | 070    | 074     | 086    | 093    |
|---|---------------------------|--|---------|-------|---------|-------|-------|-------|---------|--------|--------|--------|---------|--------|--------|
| Nominal air flow (m³/h)                     |                           |  | 5.100   | 6.500 | 8.500   | 8.750 | 9.000 | 9.000 | 12.000  | 12.500 | 12.500 | 15.500 | 15.500  | 16.000 | 16.000 |
| Nominal available static pressure (mm.w.c.) |                           |  | 12      | 12    | 12      | 15    | 15    | 15    | 20      | 20     | 20     | 20     | 20      | 20     | 25     |
| Nominal pressure, Aluminium (M)             | Number / Diameter (mm)    |  | 1 / 500 |       | 2 / 560 |       |       |       | 2 / 500 |        |        |        |         |        |        |
|   | Speed (r.p.m.)            |  | 1.855   |       | 1.630   |       |       |       | 1.855   |        |        |        |         |        |        |
|   | Output (kW)               |  | 3,1     |       | 2 x 4,1 |       |       |       | 2 x 3,1 |        |        |        |         |        |        |
|   | Max. absorbed current (A) |  | 4,8     |       | 2 x 6,2 |       |       |       | 2 x 4,8 |        |        |        |         |        |        |
| Low pressure (F)                            | Number / Diameter (mm)    |  | 1 / 500 |       | --      |       |       |       | 1 / 500 |        | --     |        | 2 / 500 |        |        |
|   | Speed (r.p.m.)            |  | 1.350   |       | --      |       |       |       | 2.100   |        | --     |        | 1.800   |        |        |
|   | Output (kW)               |  | 1,3     |       | --      |       |       |       | 4,8     |        | --     |        | 2 x 3,1 |        |        |
|   | Max. absorbed current (A) |  | 2,1     |       | --      |       |       |       | 7,3     |        | --     |        | 2 x 4,7 |        |        |
| High pressure (S)                           | Number / Diameter (mm)    |  | 1 / 500 |       | 2 / 500 |       |       |       | 2 / 500 |        |        |        |         |        |        |
|   | Speed (r.p.m.)            |  | 1.855   |       | 1.800   |       |       |       | 2.100   |        |        |        |         |        |        |
|   | Output (kW)               |  | 3,1     |       | 2 x 3,1 |       |       |       | 2 x 4,8 |        |        |        |         |        |        |
|   | Max. absorbed current (A) |  | 4,8     |       | 2 x 4,7 |       |       |       | 2 x 7,3 |        |        |        |         |        |        |

Note: the value of power input according to the selected flow can be found at our "Selection Software".

### Return plug-fan (BP / BA / BT / BB assemblies)

| 50FC  |                           | 020     | 028   | 037   | 040   | 045   | 047   | 052    | 058         | 062    | 070     | 074    | 086    | 093    |
|---|---------------------------|---------|-------|-------|-------|-------|-------|--------|-------------|--------|---------|--------|--------|--------|
| Nominal air flow (m³/h)                     |                           | 5.100   | 6.500 | 8.500 | 8.750 | 9.000 | 9.000 | 12.000 | 12.500      | 12.500 | 15.500  | 15.500 | 16.000 | 16.000 |
| Nominal available static pressure (mm.w.c.) |                           | 12      | 12    | 12    | 15    | 15    | 15    | 20     | 20          | 20     | 20      | 20     | 20     | 25     |
| Nominal pressure (standard)                 | Number / Diameter (mm)    | 1 / 500 |       |       |       |       |       |        | 2 / 500     |        |         |        |        |        |
|   | Speed (r.p.m.)            | 1.800   |       |       |       |       |       |        | 1.800       |        |         |        |        |        |
|   | Output (kW)               | 3,1     |       |       |       |       |       |        | 2 x 3,1     |        |         |        |        |        |
|   | Max. absorbed current (A) | 4,7     |       |       |       |       |       |        | 2 x 4,7     |        |         |        |        |        |
| Nominal pressure, Aluminium (optional)      | Number / Diameter (mm)    | 1 / 500 |       |       |       |       |       |        | 2 / 500 (*) |        | 2 / 500 |        |        |        |
|   | Speed (r.p.m.)            | 1.855   |       |       |       |       |       |        | 1.855 (*)   |        | 1.855   |        |        |        |
|   | Output (kW)               | 3,1     |       |       |       |       |       |        | 2 x 3,1 (*) |        | 2 x 3,1 |        |        |        |
|   | Max. absorbed current (A) | 4,8     |       |       |       |       |       |        | 2 x 4,8 (*) |        | 2 x 4,8 |        |        |        |

(\*) Only available with BT / BB assemblies.

Note: the value of power input according to the selected flow can be found at our "Selection Software".

## OPTIONS FOR THE INDOOR CIRCUIT

### Return plug-fan (BW assembly)

| 50FC  |                           |         | 020   | 028   | 037     | 040   | 045   | 047     | 052    | 058    | 062     | 070    | 074    | 086    | 093    |
|---|---------------------------|---------|-------|-------|---------|-------|-------|---------|--------|--------|---------|--------|--------|--------|--------|
| Nominal air flow (m³/h)                     |                           |         | 5.100 | 6.500 | 8.500   | 8.750 | 9.000 | 9.000   | 12.000 | 12.500 | 12.500  | 15.500 | 15.500 | 16.000 | 16.000 |
| Nominal available static pressure (mm.w.c.) |                           |         | 12    | 12    | 12      | 15    | 15    | 15      | 20     | 20     | 20      | 20     | 20     | 20     | 25     |
| Nominal pressure (standard)                 | Number / Diameter (mm)    | 1 / 500 |       |       | 1 / 500 |       |       | 2 / 500 |        |        | 2 / 500 |        |        |        |        |
|   | Speed (r.p.m.)            | 1.800   |       |       | 1.855   |       |       | 1.800   |        |        | 1.855   |        |        |        |        |
|   | Output (kW)               | 3,1     |       |       | 3,1     |       |       | 2 x 3,1 |        |        | 2 x 3,1 |        |        |        |        |
|   | Max. absorbed current (A) | 4,7     |       |       | 4,8     |       |       | 2 x 4,7 |        |        | 2 x 4,8 |        |        |        |        |
| Nominal pressure, Aluminium (optional)      | Number / Diameter (mm)    | 1 / 500 |       |       |         |       |       | --      |        |        | 2 / 500 |        |        |        |        |
|   | Speed (r.p.m.)            | 1.855   |       |       |         |       |       | --      |        |        | 1.855   |        |        |        |        |
|   | Output (kW)               | 3,1     |       |       |         |       |       | --      |        |        | 2 x 3,1 |        |        |        |        |
|   | Max. absorbed current (A) | 4,8     |       |       |         |       |       | --      |        |        | 2 x 4,8 |        |        |        |        |

Note: the value of power input according to the selected flow can be found at our "Selection Software".

### Heat recovery wheel module (BW assembly)

This heat recovery wheel is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors.

The return air circulates in half of the heat recovery unit and the ventilation air circulates in the other half, in the opposite direction. As the rotor rotates, very fine channels of air which form the matrix come into contact with the fresh air and the return air in turn, thereby transferring heat and humidity from one to the other.

The efficiency of the recovery depends on the following factors:

#### ■ Wheel diameters:

- 800 mm: models 020 to 047
- 1300 mm: models 052 to 062
- 1600 mm: models 070 to 093

#### ■ Matrix materials:

- Aluminium: sensible heat recovery.
- Epoxy coated aluminium: sensible heat recovery in aggressive environments.
- Hybrid wheel: enthalpic recovery.
- Silicagel coated aluminium: enthalpic recovery with high efficiency in the recovery of latent heat.

#### ■ Channel cross section:

The wheel is formed of two panels of aluminium, one smooth and one fluted. The fluted panel can be provided in two different configurations:

- 2.0 mm cross section: the commonly-used cross section due to its high efficiency and moderate pressure drops.
- 2.5 mm cross section: low pressure drop. Designed for high frontal speeds with low pressure drops.

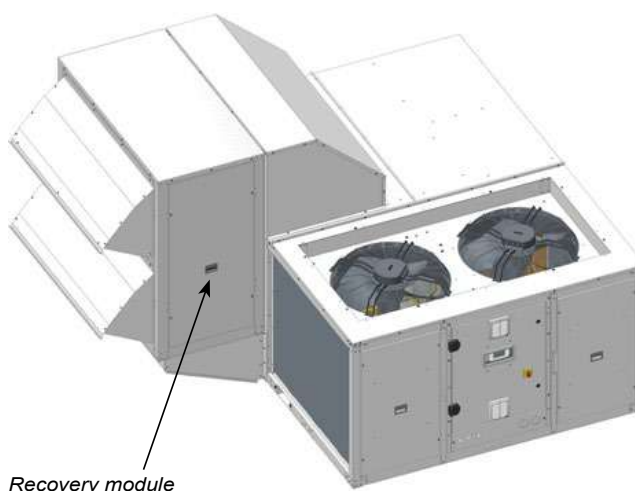
The heat recovery wheel is fitted into a module placed on one side of the unit.

This module features gravimetric filters G4 with low pressure drop both on the fresh air intake and on the exhaust air outlet.

This assembly can be supplied, in option, with a speed drive for the wheel which avoids the risk of ice forming on the wheel during the defrost operation.

Note: It's recommended to use a CO<sub>2</sub> air quality sensor (optional) in units with rotary heat exchanger.

**Important:** the calculations for the selection of a heat recovery wheel according to the parameters described above should be done using our "Selection Software".



### Axial fan in return section (BX assembly)

| 50FC                      |           | 020     | 028   | 037     | 040   | 045   | 047   | 052     | 058    | 062    | 070     | 074    | 086    | 093    |
|---------------------------|-----------|---------|-------|---------|-------|-------|-------|---------|--------|--------|---------|--------|--------|--------|
| Air flow                  | (m³/h)    | 5.100   | 6.500 | 8.500   | 8.750 | 9.000 | 9.000 | 12.000  | 12.500 | 12.500 | 15.500  | 15.500 | 16.000 | 16.000 |
| Available static pressure | (mm.w.c.) | 5       |       |         |       |       |       |         |        |        |         |        |        |        |
| Number / Diameter         | (mm)      | 1 / 500 |       | 2 / 450 |       |       |       | 2 / 500 |        |        | 3 / 500 |        |        |        |
| Output                    | (kW)      | 0,7     |       | 2 x 0.5 |       |       |       | 2 x 0.7 |        |        | 3 x 0.7 |        |        |        |
| Speed                     | (r.p.m.)  | 1.390   |       | 1.360   |       |       |       | 1.390   |        |        | 1.390   |        |        |        |
| Maximum absorbed current  | (A)       | 1,4     |       | 2 x 1,0 |       |       |       | 2 x 1,4 |        |        | 3 x 1,4 |        |        |        |

## OPTIONS FOR THE INDOOR CIRCUIT

## Centrifugal return fan (BT / BB assemblies)

| 50FC   |                              | 020   | 028   | 037    | 040    | 045    | 047    | 052    | 058    | 062    | 070      | 074      | 086      | 093      |
|--|------------------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|----------|----------|----------|----------|
| Option A:<br>Low flow + nominal pressure     | Available pressure (mm.w.c.) | 20    |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 4.080 | 5.200 | 6.800  | 7.000  | 7.200  | 7.200  | 9.600  | 10.000 | 10.000 | 12.400   | 12.400   | 12.800   | 12.800   |
|  | Motor output (kW)            | 0,75  | 1,10  | 1,50   | 2,20   | 2,20   | 2,20   | 2,20   | 2,20   | 2,20   | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 |
|  | Power input (kW)             | 0,73  | 1,20  | 1,46   | 1,65   | 1,73   | 1,73   | 1,88   | 2,06   | 2,06   | 2 x 1,22 | 2 x 1,22 | 2 x 1,30 | 2 x 1,30 |
|  | Max. abs. current (A)        | 2,10  | 3,20  | 4,10   | 6,90   | 6,90   | 6,90   | 6,90   | 6,90   | 6,90   | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 |
|  | Speed (r.p.m.)               | 888   | 976   | 806    | 830    | 839    | 839    | 683    | 696    | 696    | 779      | 779      | 788      | 788      |
|  | OPK code                     | 0671  | 0673  | 0677   | 0684   | 0684   | 0684   | 0682   | 0682   | 0682   | 2 x 0677 | 2 x 0677 | 2 x 0677 | 2 x 0677 |
| Option B:<br>Low flow + high pressure        | Available pressure (mm.w.c.) | 50    |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 4.080 | 5.200 | 6.800  | 7.000  | 7.200  | 7.200  | 9.600  | 10.000 | 10.000 | 12.400   | 12.400   | 12.800   | 12.800   |
|  | Motor output (kW)            | 1,50  | 2,20  | 3,00   | 3,00   | 3,00   | 3,00   | 3,00   | 4,00   | 4,00   | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 |
|  | Power input (kW)             | 1,26  | 1,78  | 2,26   | 2,50   | 2,59   | 2,59   | 2,96   | 3,12   | 3,12   | 2 x 2,02 | 2 x 2,02 | 2 x 2,11 | 2 x 2,11 |
|  | Max. abs. current (A)        | 4,10  | 6,90  | 7,20   | 7,20   | 7,20   | 7,20   | 7,20   | 9,00   | 9,00   | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 |
|  | Speed (r.p.m.)               | 1.326 | 1.341 | 1.133  | 1.139  | 1.142  | 1.142  | 954    | 958    | 958    | 1.130    | 1.130    | 1.131    | 1.131    |
|  | OPK code                     | 0672  | 0674  | 0680   | 0680   | 0680   | 0680   | 0681   | 0683   | 0683   | 2 x 0676 | 2 x 0676 | 2 x 0676 | 2 x 0676 |
| Option C:<br>Nominal flow + nominal pressure | Available pressure (mm.w.c.) | 20    |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 5.100 | 6.500 | 8.500  | 8.750  | 9.000  | 9.000  | 12.000 | 12.500 | 12.500 | 15.500   | 15.500   | 16.000   | 16.000   |
|  | Motor output (kW)            | 1,10  | 1,50  | 1,50   | 2,20   | 2,20   | 2,20   | 2,20   | 2,20   | 2,20   | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 | 2 x 1,50 |
|  | Power input (kW)             | 1,15  | 1,26  | 1,55   | 1,73   | 1,81   | 1,81   | 2,00   | 2,18   | 2,18   | 2 x 1,30 | 2 x 1,30 | 2 x 1,38 | 2 x 1,38 |
|  | Max. abs. current (A)        | 3,20  | 4,10  | 4,10   | 6,90   | 6,90   | 6,90   | 6,90   | 6,90   | 6,90   | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 | 2 x 4,10 |
|  | Speed (r.p.m.)               | 967   | 783   | 656    | 672    | 679    | 679    | 545    | 553    | 553    | 637      | 637      | 644      | 644      |
|  | OPK code                     | 0673  | 0677  | 0678   | 0682   | 0682   | 0682   | 0685   | 0685   | 0685   | 2 x 0678 | 2 x 0678 | 2 x 0678 | 2 x 0678 |
| Option D:<br>Nominal flow + high pressure    | Available pressure (mm.w.c.) | 50    |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 5.100 | 6.500 | 8.500  | 8.750  | 9.000  | 9.000  | 12.000 | 12.500 | 12.500 | 15.500   | 15.500   | 16.000   | 16.000   |
|  | Motor output (kW)            | 2,20  | 2,20  | 3,00   | 3,00   | 3,00   | 3,00   | 4,00   | 4,00   | 4,00   | 2 x 3,00 | 2 x 3,00 | 2 x 3,00 | 2 x 3,00 |
|  | Power input (kW)             | 1,72  | 2,07  | 2,56   | 2,79   | 2,88   | 2,88   | 3,46   | 3,67   | 3,67   | 2 x 2,30 | 2 x 2,30 | 2 x 2,39 | 2 x 2,39 |
|  | Max. abs. current (A)        | 6,90  | 6,90  | 7,20   | 7,20   | 7,20   | 7,20   | 9,00   | 9,00   | 9,00   | 2 x 7,20 | 2 x 7,20 | 2 x 7,20 | 2 x 7,20 |
|  | Speed (r.p.m.)               | 1.338 | 1.130 | 949    | 951    | 953    | 953    | 797    | 799    | 799    | 949      | 949      | 949      | 949      |
|  | OPK code                     | 0674  | 0676  | 0681   | 0681   | 0681   | 0681   | 0686   | 0686   | 0686   | 2 x 0681 | 2 x 0681 | 2 x 0681 | 2 x 0681 |
| Option E:<br>High flow + nominal pressure    | Available pressure (mm.w.c.) | 20    |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 6.120 | 7.800 | 10.200 | 10.500 | 10.800 | 10.800 | 14.400 | 15.000 | 15.000 | 18.600   | 18.600   | 19.200   | 19.200   |
|  | Motor output (kW)            | 1,10  | 1,50  | 2,20   | 2,20   | 2,20   | 2,20   | 3,00   | 4,00   | 4,00   | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 | 2 x 2,20 |
|  | Power input (kW)             | 1,13  | 1,24  | 2,28   | 1,72   | 1,79   | 1,79   | 2,90   | 3,14   | 3,14   | 2 x 1,88 | 2 x 1,88 | 2 x 2,01 | 2 x 2,01 |
|  | Max. abs. current (A)        | 3,20  | 4,10  | 6,90   | 6,90   | 6,90   | 6,90   | 7,20   | 9,00   | 9,00   | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 | 2 x 6,90 |
|  | Speed (r.p.m.)               | 766   | 633   | 711    | 533    | 536    | 536    | 585    | 597    | 597    | 683      | 683      | 693      | 693      |
|  | OPK code                     | 0675  | 0678  | 0682   | 0685   | 0685   | 0685   | 0687   | 0689   | 0689   | 2 x 0682 | 2 x 0682 | 2 x 0682 | 2 x 0682 |
| Option F:<br>High flow + high pressure       | Available pressure (mm.w.c.) | 50    |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 6.120 | 7.800 | 10.200 | 10.500 | 10.800 | 10.800 | 14.400 | 15.000 | 15.000 | 18.600   | 18.600   | 19.200   | 19.200   |
|  | Motor output (kW)            | 2,20  | 2,20  | 4,00   | 4,00   | 4,00   | 4,00   | 5,50   | 5,50   | 5,50   | 2 x 3,00 | 2 x 3,00 | 2 x 4,00 | 2 x 4,00 |
|  | Power input (kW)             | 1,90  | 2,26  | 3,35   | 3,12   | 3,21   | 3,21   | 4,51   | 4,83   | 4,83   | 2 x 2,96 | 2 x 2,96 | 2 x 3,07 | 2 x 3,07 |
|  | Max. abs. current (A)        | 6,90  | 6,90  | 9,00   | 9,00   | 9,00   | 9,00   | 11,60  | 11,60  | 11,60  | 2 x 7,20 | 2 x 7,20 | 2 x 9,00 | 2 x 9,00 |
|  | Speed (r.p.m.)               | 1.131 | 950   | 964    | 796    | 796    | 796    | 809    | 814    | 814    | 954      | 954      | 957      | 957      |
|  | OPK code                     | 0676  | 0679  | 0683   | 0686   | 0683   | 0683   | 0688   | 0688   | 0688   | 2 x 0681 | 2 x 0681 | 2 x 0683 | 2 x 0683 |
| Option G:<br>Low flow + low pressure         | Available pressure (mm.w.c.) | 8     |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 4.080 | 5.200 | 6.800  | 7.000  | 7.200  | 7.200  | 9.600  | 10.000 | 10.000 | 12.400   | 12.400   | 12.800   | 12.800   |
|  | Motor output (kW)            | 0,55  | 0,55  | 1,10   | 1,50   | 1,50   | 1,50   | 1,10   | 1,10   | 1,10   | 2 x 0,55 | 2 x 0,55 | 2 x 1,10 | 2 x 1,10 |
|  | Power input (kW)             | 0,42  | 0,41  | 0,89   | 1,05   | 1,11   | 1,11   | 0,56   | 0,56   | 0,56   | 2 x 0,40 | 2 x 0,40 | 2 x 0,78 | 2 x 0,78 |
|  | Max. abs. current (A)        | 1,60  | 1,60  | 3,20   | 4,10   | 4,10   | 4,10   | 3,20   | 3,20   | 3,20   | 2 x 1,60 | 2 x 1,60 | 2 x 3,20 | 2 x 3,20 |
|  | Speed (r.p.m.)               | 710   | 549   | 670    | 701    | 712    | 712    | 358    | 358    | 358    | 431      | 431      | 646      | 646      |
|  | OPK code                     | 0690  | 0691  | 0694   | 0677   | 0677   | 0677   | 0699   | 0699   | 0699   | 2 x 0693 | 2 x 0693 | 2 x 0694 | 2 x 0694 |
| Option H:<br>Nominal flow + low pressure     | Available pressure (mm.w.c.) | 8     |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 5.100 | 6.500 | 8.500  | 8.750  | 9.000  | 9.000  | 12.000 | 12.500 | 12.500 | 15.500   | 15.500   | 16.000   | 16.000   |
|  | Motor output (kW)            | 0,55  | 0,55  | 1,10   | 0,75   | 1,10   | 1,10   | 1,50   | 1,50   | 1,50   | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 |
|  | Power input (kW)             | 0,41  | 0,40  | 0,80   | 0,66   | 0,56   | 0,56   | 1,16   | 0,95   | 0,95   | 2 x 0,74 | 2 x 0,74 | 2 x 0,80 | 2 x 0,80 |
|  | Max. abs. current (A)        | 1,60  | 1,60  | 3,20   | 2,10   | 3,20   | 3,20   | 4,10   | 4,10   | 4,10   | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 |
|  | Speed (r.p.m.)               | 549   | 431   | 504    | 380    | 358    | 358    | 430    | 410    | 410    | 500      | 500      | 510      | 510      |
|  | OPK code                     | 0691  | 0693  | 0695   | 0697   | 0699   | 0699   | 0698   | 0698   | 0698   | 2 x 0695 | 2 x 0695 | 2 x 0695 | 2 x 0695 |
| Option I:<br>High flow + low pressure        | Available pressure (mm.w.c.) | 8     |       |        |        |        |        |        |        |        |          |          |          |          |
|  | Air flow (m³/h)              | 6.120 | 7.800 | 10.200 | 10.500 | 10.800 | 10.800 | 14.400 | 15.000 | 15.000 | 18.600   | 18.600   | 19.200   | 19.200   |
|  | Motor output (kW)            | 0,75  | 1,50  | 1,10   | 1,50   | 1,50   | 1,50   | 3,00   | 3,00   | 3,00   | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 | 2 x 1,10 |
|  | Power input (kW)             | 0,64  | 1,33  | 0,86   | 0,95   | 1,01   | 1,01   | 1,85   | 2,06   | 2,06   | 2 x 0,56 | 2 x 0,56 | 2 x 0,56 | 2 x 0,56 |
|  | Max. abs. current (A)        | 2,10  | 4,10  | 3,20   | 4,10   | 4,10   | 4,10   | 7,20   | 7,20   | 7,20   | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 | 2 x 3,20 |
|  | Speed (r.p.m.)               | 613   | 752   | 403    | 410    | 416    | 416    | 486    | 501    | 501    | 358      | 358      | 358      | 358      |
|  | OPK code                     | 0692  | 0677  | 0696   | 0698   | 0698   | 0698   | 0700   | 0700   | 0700   | 2 x 0699 | 2 x 0699 | 2 x 0699 | 2 x 0699 |

## OPTIONS FOR THE INDOOR CIRCUIT

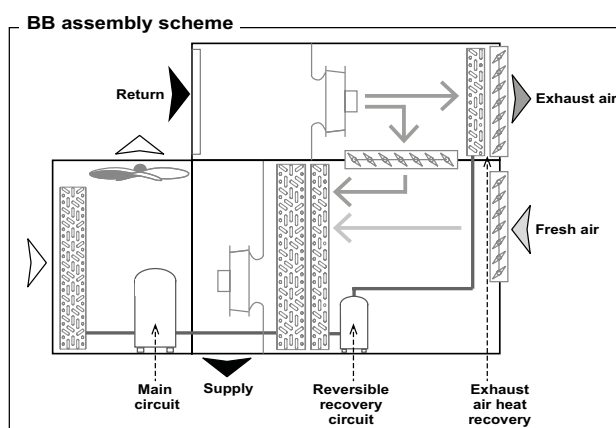
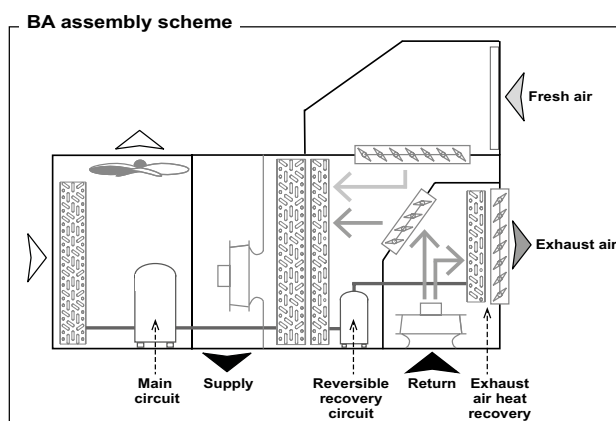
### Cooling recovery circuit (BA / BB assemblies)

Thermodynamic circuit dedicated to the recovery of the extracted air energy, with independent and proportional control, adapted to the air renewal requirements in order to raise the COP, EER and seasonal efficiency of the unit set.

■ The circuit is composed of:

- EC plug-fan in return section.
- Air circuit comprised of coils with copper pipes and aluminium fins.
- Electronic expansion valve.
- Hermetic scroll-type compressor with sound insulation, assembled over antivibration mounts.
- Crankcase heater.
- Four-way cycle reversing valve.
- Anti-acid dehydrator filter.
- High and low pressure transducers.
- Condensates drain pan.

| 50FC                                     | 020 to 028   | 037 to 047 | 052 to 070 | 074 to 093 |
|--|--|------------|------------|------------|
| Compressor type                          | Scroll   |            |            |            |
| No. of compressors / circuits            | 1 / 1  |            |            |            |
| Oil type                                 | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC |            |            |            |
| Volume of oil (l)                        | 1,24   | 1,24       | 1,24       | 1,72       |
| Charge of R-454B (kg)                    | 1,9  | 2,3        | 2,7        | 3,1        |
| Environment impact (tCO <sub>2</sub> eq) | 0,9  | 1,1        | 1,3        | 1,4        |
| Max. absorbed current (A)                | 7,0  | 7,0        | 8,6        | 14,5       |



### Heat recovery coil

The function of the heat recovery coil is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation. This function is managed by the unit's electronic control.

The coil is supplied with a 3-way valve for installation outside the unit but manages by the unit's electronic control.

This option is compatible with B1, B2, BF, BT and BB assemblies.

| 50FC                                       |                                | 020   | 028   | 037   | 040   | 045   | 047   | 052   | 058   | 062   | 070   | 074   | 086   | 093   |
|--|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Air pressure drop                          | (mm.w.c.)                      | 2,6   | 3,9   | 5,0   | 5,5   | 5,7   | 5,7   | 4,3   | 4,6   | 4,6   | 4,5   | 4,5   | 4,7   | 4,7   |
| Water 35/30°C (30% MEG) and inlet air 20°C | Heating capacity (kW)          | 11,20 | 13,00 | 17,02 | 17,52 | 17,76 | 17,76 | 23,67 | 24,62 | 24,62 | 32,77 | 32,77 | 33,37 | 33,37 |
|  | Water flow (m <sup>3</sup> /h) | 2,08  | 2,42  | 3,16  | 3,26  | 3,30  | 3,30  | 4,40  | 4,57  | 4,57  | 6,08  | 6,08  | 6,20  | 6,20  |
|  | Water pressure drop (m.w.c)    | 2,7   | 3,1   | 4,4   | 4,5   | 4,6   | 4,6   | 3,4   | 3,5   | 3,5   | 5,5   | 5,5   | 5,6   | 5,6   |
| Water 35/30°C (30% MEG) and inlet air 15°C | Heating capacity (kW)          | 16,89 | 19,64 | 25,26 | 26,19 | 26,52 | 26,52 | 35,62 | 36,50 | 36,50 | 48,54 | 48,54 | 49,42 | 49,42 |
|  | Water flow (m <sup>3</sup> /h) | 3,14  | 3,65  | 4,69  | 4,87  | 4,93  | 4,93  | 6,61  | 6,77  | 6,77  | 9,01  | 9,01  | 9,17  | 9,17  |
|  | Water pressure drop (m.w.c)    | 4,1   | 4,8   | 7,3   | 7,7   | 7,8   | 7,8   | 5,4   | 5,6   | 5,6   | 9,7   | 9,7   | 9,9   | 9,9   |

Note: the heat recovery coil is not compatible with the hot water coil or the gas burner.

### Correction coefficients

|                         |         |         |         |
|-------------------------|---------|---------|---------|
| Water (inlet air 20°C)  | 30/35°C | * /40°C | * /45°C |
| Correction coefficients | 1,00    | 1,35    | 1,70    |
| % of MEG                | 10%     | 20%     | 30%     |
| Correction coefficients | 1,06    | 1,03    | 1,00    |

### Position of the hydraulic connections

|  |            |                 |     |     |      |
|--|------------|-----------------|-----|-----|------|
|  | 50FC       | Dimensions (mm) |     |     |      |
|  |            | A               | B   | C   | Ø    |
|  | 020 to 047 | 872             | 721 | 443 | 1/2" |
|  | 052 to 062 | 1099            | 721 | 443 | 1/2" |
|  | 070 to 093 | 1099            | 721 | 443 | 3/4" |

## OPTIONS FOR THE INDOOR CIRCUIT

### Auxiliary electrical heaters

Auxiliary electrical heaters, with two power stages and on/off control, for assembly and connection inside the unit.

■ Up to 3 values of total power available for each model:

| 50FC          | 020 to 028  | 037 to 047 | 052 to 093 |
|---------------|-------------|------------|------------|
| RAF (Low)     | 12 kW       | 12 kW      | 18 kW      |
| RAM (Nominal) | 18 kW       | 18 kW      | 27 kW      |
| RAS (High)    | unavailable | 27 kW      | 36 kW      |

■ Characteristics:

| Total power (kW)  | 12             | 18    | 27     | 36      |
|-------------------|----------------|-------|--------|---------|
| Stages power (kW) | 6 + 6          | 9 + 9 | 9 + 18 | 18 + 18 |
| Current (A)       | 17,3           | 26,0  | 39,0   | 52,0    |
| Power supply      | 400 V / III ph |       |        |         |

### Auxiliary hot water coil

Auxiliary hot water coil, with three-way valve and proportional control, for assembly and connection inside the unit.

This option always incorporates a freeze protection thermostat.

| 50FC                             |                              | 020  | 028  | 037  | 040  | 045  | 047  | 052   | 058   | 062   | 070   | 074   | 086   | 093   |
|----------------------------------|------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| Air pressure drop (mm.w.c.)      |                              | 2,4  | 3,5  | 3,5  | 3,6  | 4,3  | 4,3  | 3,4   | 3,6   | 3,6   | 3,5   | 3,7   | 3,7   | 3,7   |
| Water 80/60°C and inlet air 20°C | Heating capacity (kW)        | 27,6 | 32,0 | 47,6 | 48,4 | 49,2 | 49,2 | 95,8  | 98,3  | 98,3  | 129,0 | 129,0 | 131,5 | 131,5 |
|                                  | Water flow (m³/h)            | 1,4  | 1,6  | 2,1  | 2,1  | 2,1  | 2,1  | 2,7   | 2,8   | 2,8   | 3,6   | 3,6   | 3,7   | 3,7   |
|                                  | Water pressure drop (m.w.c.) | 0,2  | 0,3  | 0,5  | 0,5  | 0,5  | 0,5  | 0,5   | 0,5   | 0,5   | 0,9   | 0,9   | 1,0   | 0,9   |
| Water 90/70°C and inlet air 20°C | Heating capacity (kW)        | 34,2 | 39,8 | 58,7 | 59,8 | 90,8 | 90,8 | 118,5 | 121,5 | 121,5 | 158,7 | 158,7 | 161,9 | 161,9 |
|                                  | Water flow (m³/h)            | 1,7  | 2,0  | 2,6  | 2,6  | 2,6  | 2,6  | 3,4   | 3,4   | 3,4   | 4,5   | 4,5   | 4,6   | 4,6   |
|                                  | Water pressure drop (m.w.c.) | 0,3  | 0,4  | 0,7  | 0,7  | 0,8  | 0,8  | 0,7   | 0,7   | 0,7   | 1,3   | 1,4   | 1,4   | 1,4   |

Note: Maximum water inlet temperature 95°C, maximum pressure 4 bar.

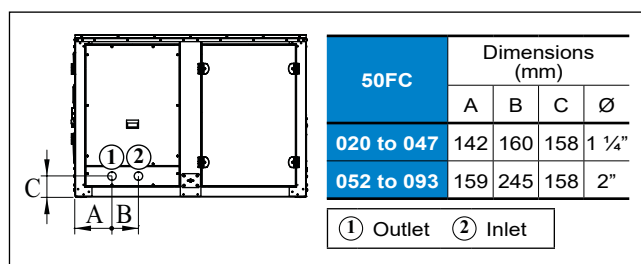
Note: the hot water coil is not compatible with the droplet eliminator after the indoor air coil or the heat recovery coil.

### Position of the hydraulic connections

The inlet/outlet connections of the hot water coil are located inside the unit and the connection is made via the side panel.

In models 052 to 093 it can also be made via the base of the unit using flexible piping (only available for units without pre-assembly roofcurb).

The position of the sheet metal precuts on the side panel are shown in the following diagram.



### "Very low outdoor temperature" option (HAF)

Note: on units with the "Very low outdoor temperature" option, air supply only may be lateral (factory-configured).

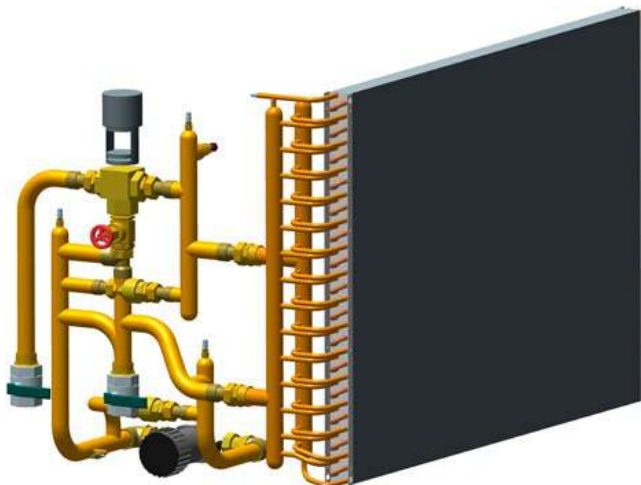
■ This anti-freeze safety incorporates:

- Circulation pump.
- Water temperature sensors located in the inlet and the outlet of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

■ Characteristics of the water circuit:

| 50FC             |                           | 020 to 047 | 052 to 093 |
|------------------|---------------------------|------------|------------|
| Circulation pump | Motor output (W)          | 90         | 140        |
|                  | Max. absorbed current (A) | 0,75       | 1,15       |



## OPTIONS FOR THE INDOOR CIRCUIT

### Preheater in fresh air (BF assembly)

With BF assembly, 100% fresh air, it is possible to incorporate a preheater module (electrical heater) coupled to the fresh air intake. This module is supplied in kit for installation on site.

The electrical heater with proportional control will modulate capacity to get the condenser inlet conditions within the operating limits of the cooling circuit in case of very low outdoor temperatures.

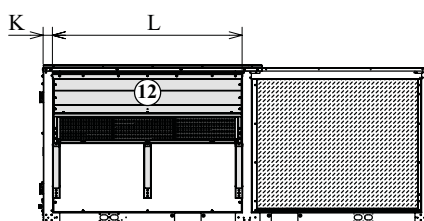
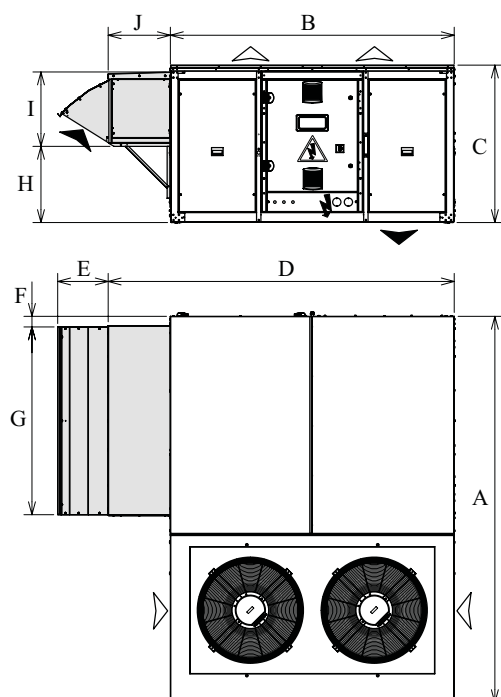
■ 2 values of total power available for each model:

| 50FC          | 020 to 047 | 052 to 062 | 070 to 093 |
|---------------|------------|------------|------------|
| Low power     | 18 kW      | 27 kW      | 36 kW      |
| Nominal power | 36 kW      | 54 kW      | 72 kW      |

■ Characteristics:

| Total power (kW) | 18             | 27   | 36   | 54   | 72    |
|------------------|----------------|------|------|------|-------|
| Current (A)      | 26,0           | 39,0 | 52,0 | 78,0 | 104,0 |
| Power supply     | 400 V / III ph |      |      |      |       |

### Location of the preheater module



#### Legend

All dimensions are given in mm.

△ Outdoor air circulation

▲ Standard indoor air circulation

⑫ Fresh air intake

#### Notes

- Drawings are not contractually binding.
- Before designing an installation, consult the certified dimensional drawings, available on request.

| 50FC       | Dimensions (mm) |       |       |       |     |    |       |     |     |     |    |       |
|------------|-----------------|-------|-------|-------|-----|----|-------|-----|-----|-----|----|-------|
|            | A               | B     | C     | D     | E   | F  | G     | H   | I   | J   | K  | L     |
| 020 to 047 | 2.225           | 1.750 | 1.230 | 2.232 | 391 | 82 | 998   | 591 | 577 | 482 | 73 | 1.013 |
| 052 to 062 | 3.000           | 2.200 | 1.230 | 2.682 | 391 | 82 | 1.455 | 591 | 577 | 482 | 72 | 1.470 |
| 070 to 093 | 3.650           | 2.200 | 1.230 | 2.682 | 391 | 82 | 1.835 | 591 | 577 | 482 | 72 | 1.850 |

### Operating limits with 100% fresh air unit (BF assembly)

#### ■ COOLING mode:

- The maximum outdoor temperature depends on the air flow. The lower air flow, the higher temperature: 33°C DB with nominal air flow, 35°C DB with minimum air flow and 43°C DB with the minimum air flow of the BF assembly (50% lower than in rest of assemblies).

#### ■ HEATING mode:

- Without electrical preheater: minimum outdoor temperature: 7°C with minimum air flow.
- With electrical preheater: the minimum outdoor temperature depends on the model, the air flow and the selected preheater. Refer to the attached table for reference although, depending on the model, this temperature may be lower.

| Minimum outdoor temperature with preheater option | Electrical preheater |               |
|---|----------------------|---------------|
|   | Low power            | Nominal power |
| Nominal air flow                                  | > 2°C                | > -3°C        |
| Minimum air flow of BF assembly                   | > -6°C               | > -15°C       |

### Droplet eliminator after the indoor air coil

Air flow at which it is recommended to install a droplet eliminator after the indoor coil.

| 50FC            | 020   | 028   | 037    | 040    | 045    | 047    | 052    | 058    | 062    | 070    | 074    | 086    | 093    |
|-----------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Air flow (m³/h) | 7.776 | 7.776 | 10.206 | 10.206 | 10.206 | 10.206 | 14.580 | 14.580 | 14.580 | 18.468 | 18.468 | 18.468 | 18.468 |

Note: for operating conditions with high dehumidification in the indoor coil (e.g. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

Note: the droplet eliminator after the indoor coil is not compatible with the hot water coil.



## OPTIONS FOR THE INDOOR CIRCUIT

### Warm air heater module with gas burner

Warm air heater module with gas burner with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb. The 50FC unit with lower air supply will be placed on this roofcurb.

EC certification: 0476CQ0451.

■ Up to 3 values of total power available for each model:

| 50FC          | 020 to 047 | 052 to 062  | 070 to 093  |
|---------------|------------|-------------|-------------|
| BAF (Low)     | PCH020     | unavailable | unavailable |
| BAM (Nominal) | PCH034     | PCH065      | PCH080      |
| BAS (High)    | PCH045     | PCH080      | PCH105      |

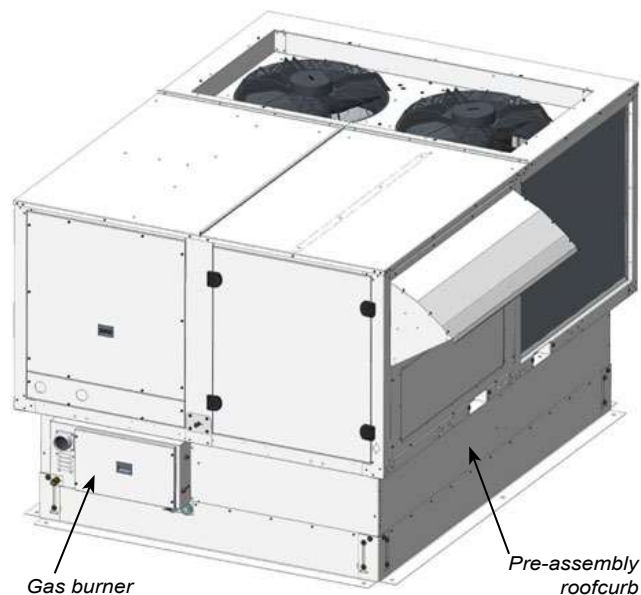
Note: the gas burner is not compatible with the heat recovery coil.

■ The key features of the boiler are:

- Natural or propane gas burner.
- Condensation boiler with premixing and modulation technology that allows outputs close to 109% (Hi performance).
- The premixed burner, in combination with the air/gas valve, ensures a "clean" combustion. Low NOx emissions < 70 mg/kWh HCV (class 5, according to standard EN 297).  
Note: Burners must not exceed NOx:70mg/kWh HCV emission values from January 1<sup>st</sup>, 2021 (according to European Regulations 2016/2281).
- The combustion chamber and the burner are entirely made of stainless steel.
- Electronic controller with microprocessor and multifunction LCD display, located inside the burner, for burner's

control, configuration and diagnostics.

- The electronic control of the unit will only manage the burner connection as heating support depending on the ambient conditions.



Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.

| Model                                  |  |     | PCH020                                    |       | PCH034             |       | PCH045             |       | PCH065             |       | PCH080             |       | PCH105             |        |
|--|--|-----|---|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|--------|
| Type of equipment                      |  |     | B23P - B53P - C13 - C43 - C53 - C63 - C83 |       |                    |       |                    |       |                    |       |                    |       |                    |        |
| EC certification                       |  |     | PIN.                                      |       | 0476CQ0451         |       |                    |       |                    |       |                    |       |                    |        |
| NOx Class                              |  |     | Val                                       |       | 5                  |       |                    |       |                    |       |                    |       |                    |        |
| Heater performance                     | Range  |     | Min.                                      | Max   | Min.               | Max   | Min.               | Max   | Min.               | Max   | Min.               | Max   | Min.               | Max    |
|  | Thermal output (Hi)                                      | kW  | 4,75                                      | 19,00 | 7,60               | 34,85 | 8,50               | 42,00 | 12,40              | 65,00 | 16,40              | 82,00 | 21,00              | 100,00 |
|  | Useful thermal output                                    | kW  | 4,97                                      | 18,18 | 8,13               | 33,56 | 8,97               | 40,45 | 13,40              | 62,93 | 17,77              | 80,03 | 22,77              | 97,15  |
|  | Hi performance (L.C.V.)                                  | %   | 104,63                                    | 95,68 | 106,97             | 96,30 | 105,50             | 96,30 | 108,06             | 96,82 | 108,35             | 97,60 | 108,40             | 97,15  |
|  | Hs performance (H.C.V.)                                  | %   | 94,26                                     | 86,20 | 96,37              | 86,76 | 95,07              | 86,76 | 97,36              | 87,22 | 97,62              | 87,93 | 97,68              | 87,52  |
|  | Flue losses with burner on (Hi)                          | %   | 0,4                                       | 4,3   | 0,6                | 3,7   | 0,5                | 3,7   | 0,2                | 3,2   | 0,3                | 2,4   | 0,2                | 2,8    |
|  | Flue losses with burner off (Hi)                         | %   | <0,1                                      |       |                    |       |                    |       |                    |       |                    |       |                    |        |
|  | Losses in enclosure (1)                                  |     | 0%  |       |                    |       |                    |       |                    |       |                    |       |                    |        |
| Max. condensation (2)                  |  | I/h | 0,4                                       |       | 0,9                |       | 1,1                |       | 2,1                |       | 3,3                |       | 2,7                |        |
| Exhaust gases<br>- Polluting emissions | Carbon monoxide - B1 - (0% of O2) (3)                    | ppm | < 5                                       |       |                    |       |                    |       |                    |       |                    |       |                    |        |
|  | Nitrogen oxides - NOx - (0% of O <sub>2</sub> ) (Hi) (4) |     | 38 mg/kWh - 22 ppm                        |       | 42 mg/kWh - 24 ppm |       | 33 mg/kWh - 19 ppm |       | 39 mg/kWh - 22 ppm |       | 41 mg/kWh - 23 ppm |       | 39 mg/kWh - 22 ppm |        |
|  | Nitrogen oxides - NOx - (0% of O <sub>2</sub> ) (Hs) (5) |     | 34 mg/kWh - 20 ppm                        |       | 38 mg/kWh - 22 ppm |       | 30 mg/kWh - 17 ppm |       | 35 mg/kWh - 20 ppm |       | 37 mg/kWh - 21 ppm |       | 35 mg/kWh - 20 ppm |        |
|  | Available pressure at flue                               | Pa  | 80  |       | 90                 |       | 100                |       | 120                |       |                    |       |                    |        |
| Electrical data                        | Power supply   |     | 230 Vac - 50 Hz single-phase              |       |                    |       |                    |       |                    |       |                    |       |                    |        |
|  | Power input  |     | 11  | 45    | 11                 | 74    | 24                 | 82    | 15                 | 97    | 20                 | 123   | 20                 | 130    |
|  | Power input in stand-by                                  |     | <5  |       |                    |       |                    |       |                    |       |                    |       |                    |        |
|  | Ingress protection rating                                |     | IP X5D                                    |       |                    |       |                    |       |                    |       |                    |       |                    |        |
|  | Operating Temperatures                                   |     | from -15°C to +40°C                       |       |                    |       |                    |       |                    |       |                    |       |                    |        |
| Connections                            | Ø gas connection   | GAS | UNI/ISO 7/1- 3/4"                         |       |                    |       |                    |       |                    |       |                    |       |                    |        |
|  | Ø intake/exhaust pipes                                   | mm  | 80/80                                     |       |                    |       |                    |       |                    |       |                    |       |                    |        |

(1) Enclosure losses match those of the machine housing the PCH.

(2) Max. condensation produced acquired from testing 30%Qn.

(3) Value referenced to cat. H (G20)

(4) Weighted value to EN1020:2009 ref. to class H (G20), referred to Hi (L.C.V.).

(5) Weighted value to EN1020:2009 ref. to class H (G20), referred to Hs (H.C.V.).

## OPTIONS FOR THE INDOOR CIRCUIT

### ■ Gas settings:

| Gas type         | Gas settings                             |      | PCH020   |      | PCH034 |      | PCH045 |      | PCH065        |      | PCH080        |      | PCH105        |       |
|------------------|--|------|--|------|--------|------|--------|------|---------------|------|---------------|------|---------------|-------|
|                  |  |      | min.   | max. | min.   | max. | min.   | max. | min.          | max. | min.          | max. | min.          | max.  |
| G20<br>Cat. E-H  | Air supply pressure                      | mbar | 20 [min 17-max 25]   |      |        |      |        |      |               |      |               |      |               |       |
|                  | Ø pilot nozzle                           | mm   | 0,7  |      |        |      |        |      |               |      |               |      |               |       |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 0,51   | 2,01 | 0,80   | 3,69 | 0,90   | 4,44 | 1,31          | 6,88 | 1,74          | 8,68 | 2,22          | 10,58 |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 8,8  | 9,1  | 8,7    | 9,1  | 8,7    | 9,1  | 8,7           | 9,1  | 8,7           | 9,1  | 8,5           | 9,1   |
|                  | Fumes temperature                        | °C   | 39   | 113  | 31     | 94   | 30     | 94   | 31            | 86   | 26,5          | 70   | 28            | 80    |
|                  | Fume mass flow rate (max.)               | kg/h | 31   |      | 57     |      | 72     |      | 107           |      | 135           |      | 165           |       |
|                  | Gas butterfly valve                      | mm   | 5,8  |      | 7,4    |      | 7,5    |      | 11,0          |      | 12,2          |      | 15,8          |       |
| G25<br>Cat. L-LL | Air supply pressure                      | mbar | 25 [min 17-max 30] (20 for Germany)                              |      |        |      |        |      |               |      |               |      |               |       |
|                  | Ø pilot nozzle                           | mm   | 0,7 (0,75 for Germany)   |      |        |      |        |      |               |      |               |      |               |       |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 0,59   | 2,34 | 0,93   | 4,29 | 1,05   | 5,17 | 1,53          | 8,00 | 2,02          | 10,1 | 2,21          | 12,30 |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 8,8  | 9,0  | 8,6    | 9,0  | 8,8    | 8,9  | 8,8           | 9,2  | 8,6           | 8,9  | 8,8           | 9,0   |
|                  | Fumes temperature                        | °C   | 39   | 113  | 31     | 94   | 30     | 94   | 31            | 86   | 26            | 70   | 28            | 80    |
|                  | Fume mass flow rate (max.)               | kg/h | --   |      |        |      |        |      |               |      |               |      |               |       |
|                  | Gas butterfly valve                      | mm   | 7,4  |      | 8,9    |      | 8,9    |      | Not necessary |      | Not necessary |      | Not necessary |       |
| G30<br>Cat. 3B-P | Air supply pressure                      | mbar | 30 [min 25-max 35] - 50 [min 42,5-max 57,5]                      |      |        |      |        |      |               |      |               |      |               |       |
|                  | Ø pilot nozzle                           | mm   | 0,51   |      |        |      |        |      |               |      |               |      |               |       |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 0,40   | 1,58 | 0,63   | 2,90 | 0,71   | 3,49 | 1,03          | 5,39 | 1,49          | 6,80 | 1,70          | 8,30  |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 10,8   | 11,4 | 10,8   | 11,5 | 10,8   | 10,9 | 10,7          | 11,3 | 10,1          | 10,3 | 10,4          | 10,6  |
|                  | Fumes temperature                        | °C   | 39   | 113  | 31     | 94   | 30     | 94   | 31            | 86   | 26,5          | 70   | 28            | 80    |
|                  | Fume mass flow rate (max.)               | kg/h | --   |      |        |      |        |      |               |      |               |      |               |       |
|                  | Gas butterfly valve                      | mm   | 3,7  |      | 5,0    |      | 5,2    |      | 6,5           |      | 7,0           |      | 9,3           |       |
| G31<br>Cat. 3P   | Air supply pressure                      | mbar | 30 [min 25-max 35] - 37 [min 25-max 45] - 50 [min 42,5-max 57,5] |      |        |      |        |      |               |      |               |      |               |       |
|                  | Ø pilot nozzle                           | mm   | 0,51   |      |        |      |        |      |               |      |               |      |               |       |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 0,39   | 1,55 | 0,62   | 2,85 | 0,70   | 3,43 | 1,01          | 5,31 | 1,34          | 6,70 | 1,47          | 8,18  |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 9,3  | 9,8  | 9,2    | 9,7  | 9,3    | 9,4  | 9,4           | 9,6  | 9,3           | 9,6  | 9,5           | 9,8   |
|                  | Fumes temperature                        | °C   | 39   | 113  | 31     | 94   | 30     | 94   | 31            | 86   | 26,5          | 70   | 28            | 80    |
|                  | Fume mass flow rate (max.)               | kg/h | 24   |      | 45     |      | 58     |      | 84            |      | 107           |      | 130           |       |
|                  | Gas butterfly valve                      | mm   | 3,7  |      | 5,0    |      | 5,2    |      | 6,5           |      | 7,0           |      | 9,3           |       |

### ■ Type of gas used depending on the destination country:

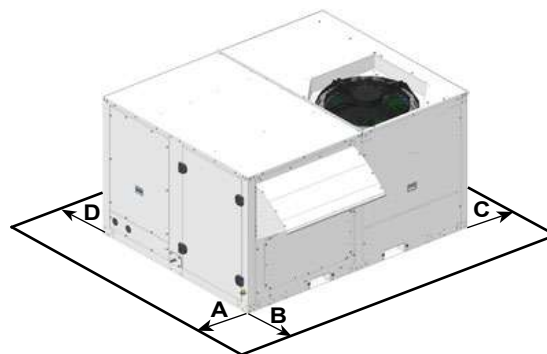
| Country   | Category      | Gas                | Pressure (mbar) | Gas     | Pressure (mbar) |
|---|---------------|--------------------|-----------------|---------|-----------------|
| Austria, Switzerland  | II2H3B/P      | G20                | 20              | G30/G31 | 50              |
| Belgium < 70kW  | I2E(S)B,I3P   | G20/G25            | 20/25           | G31     | 37              |
| Belgium > 70kW  | I2E(R)B,I3P   | G20/G25            | 20/25           | G31     | 37              |
| Germany   | II2ELL3B/P    | G20/G25            | 20              | G30/G31 | 50              |
| Denmark, Finland, Greece, Sweden, Norway, Italy, Czech Republic, Estonia, Lithuania, Slovenia, Albania, Macedonia, Bulgaria, Romania, Croatia, Turkey, Azerbaijan | II2H3B/P      | G20                | 20              | G30/G31 | 30              |
| Spain, United Kingdom, Ireland, Portugal, Slovakia  | II2H3P        | G20                | 20              | G31     | 37              |
| France  | II2Esi3P      | G20/G25            | 20/25           | G31     | 37              |
| Luxembourg  | II2E3P        | G20/G25            | 20              | G31     | 37/50           |
| Netherlands   | II2EK3B/P     | G20/G25.3          | 20/25           | G30/G31 | 30              |
| Hungary   | II2HS3B/P     | G20/G25.1          | 25              | G30/G31 | 30              |
| Cyprus, Malta   | I3B/P         | --                 | --              | G30/G31 | 30              |
| Latvia  | I2H           | G20                | 20              |         |                 |
| Iceland   | I3P           | --                 | --              | G31     | 37              |
| Poland  | II2ELwLs-3B/P | G20/G27/G2.350 (*) | 20/13           | G30/G31 | 37              |
| Russia  | II2H3B/P      | G20                | 20              | G30/G31 | 30              |

(\*) Consult the available burners with G2.350.

## RECOMMENDED SERVICE CLEARANCE

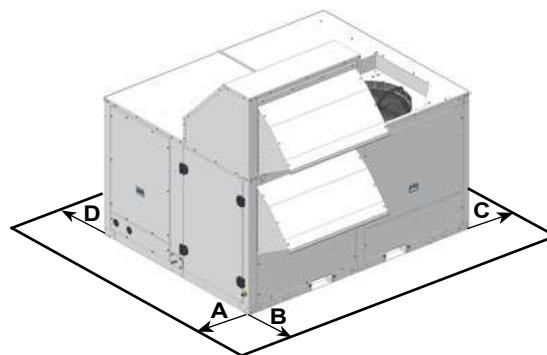
### 50FC 020-028-037-040-045-047: B1, B2 and BF assemblies

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 020 to 047 | 2.225                  | 1.750 | 1.230  | 1.200                  | 1.000 | 1.000 | 1.600 |



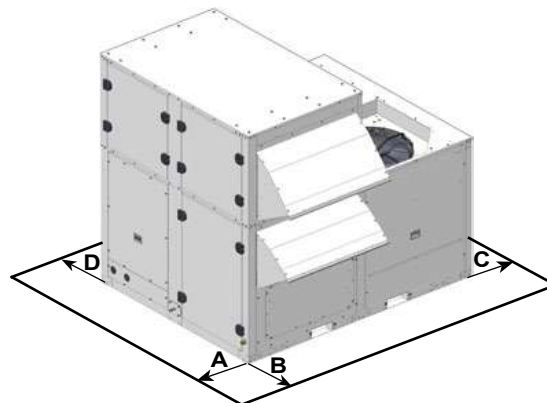
### 50FC 020-028-037-040-045-047: B3, BX, BP and BA assemblies

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 020 to 047 | 2.230                  | 1.755 | 1.905  | 1.200                  | 1.000 | 1.000 | 1.600 |



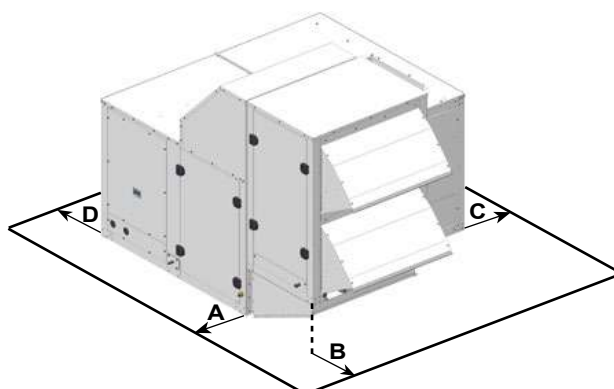
### 50FC 020-028-037-040-045-047: BT and BB assemblies

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 020 to 047 | 2.230                  | 1.760 | 1.975  | 1.200                  | 1.000 | 1.000 | 1.600 |



### 50FC 020-028-037-040-045-047: BW assembly

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 020 to 047 | 2.230                  | 2.565 | 1.905  | 1.200                  | 1.000 | 1.000 | 1.600 |



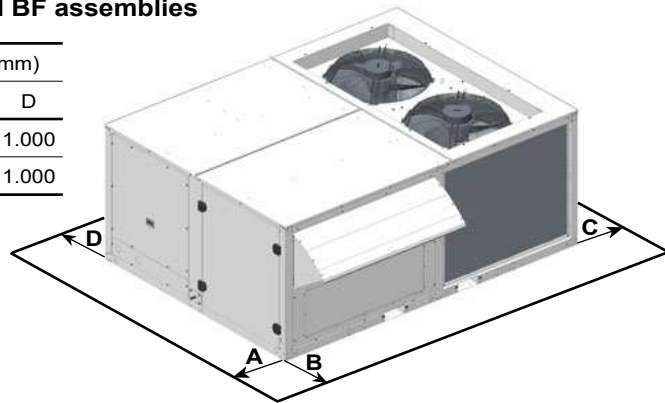
#### NOTE:

- Unit not designed to have overhead obstruction.

## RECOMMENDED SERVICE CLEARANCE

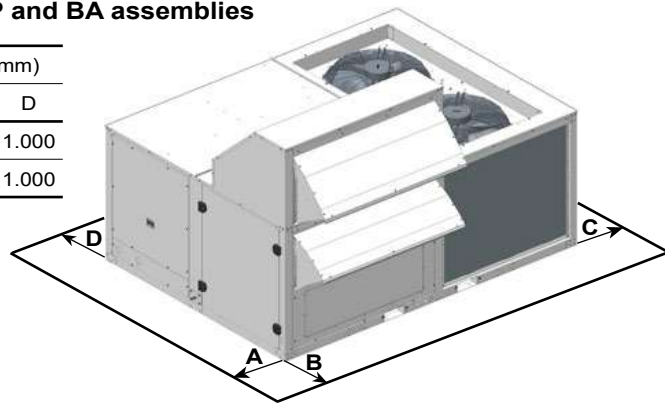
### 50FC 052-058-062-070-074-086-093: B1, B2 and BF assemblies

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 052 to 062 | 3.000                  | 2.200 | 1.230  | 1.600                  | 1.000 | 1.000 | 1.000 |
| 070 to 093 | 3.650                  | 2.200 | 1.230  | 2.000                  | 1.000 | 1.000 | 1.000 |



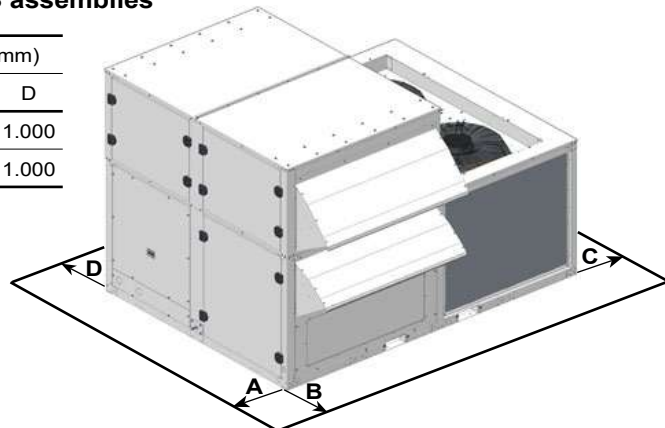
### 50FC 052-058-062-070-074-086-093: B3, BX, BP and BA assemblies

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 052 to 062 | 3.000                  | 2.205 | 1.905  | 1.600                  | 1.000 | 1.000 | 1.000 |
| 070 to 093 | 3.655                  | 2.205 | 1.905  | 2.000                  | 1.000 | 1.000 | 1.000 |



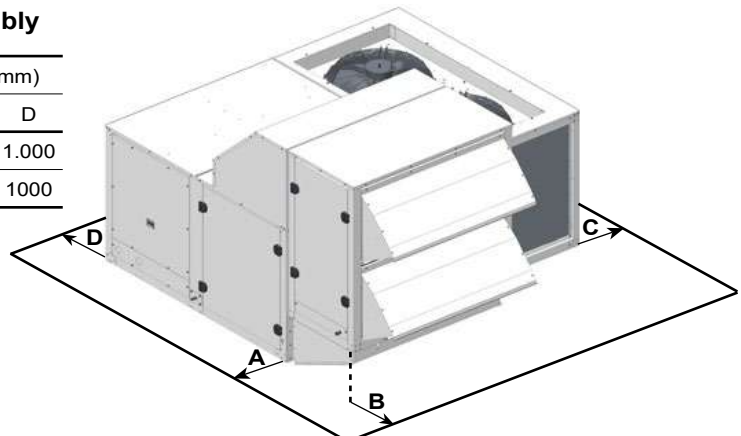
### 50FC 052-058-062-070-074-086-093: BT and BB assemblies

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 052 to 062 | 3.000                  | 2.210 | 1.995  | 1.600                  | 1.000 | 1.000 | 1.000 |
| 070 to 093 | 3.655                  | 2.210 | 1.995  | 2.000                  | 1.000 | 1.000 | 1.000 |



### 50FC 052-058-062-070-074-086-093: BW assembly

| 50FC       | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 052 to 062 | 3.000                  | 3.015 | 1.905  | 1.600                  | 1.000 | 1.000 | 1.000 |
| 070 to 093 | 3.655                  | 3.015 | 1.905  | 2.000                  | 1.000 | 1.000 | 1000  |



#### NOTE:

- Unit not designed to have overhead obstruction.



**NEW**

## PACKAGED ROOFTOP UNITS WITH R-454B



- Low environmental impact
- High full and part load efficiency
- Compact and simple to install
- Low refrigerant charge
- Low sound level
- Energy recovery
- Variable speed EC fans

## 50FF/FC 100 - 280 R-454B\*

\* Also available in R-410A in reversible heat pump 50FC

Nominal cooling capacity 96.6 - 272.9 kW

Nominal heating capacity 97.1 - 299.2 kW

The **50FF/FC R-454B** consists of autonomous and packaged air-to-air units of horizontal construction, rooftop-type design.

■ **50FF series:** for **cooling-only** operation.

■ **50FC series:** for **reversible heat pump** operation.

The range of available capacities in the series allows for the air conditioning of medium and large surface areas which are common in shopping malls, food retail, logistics and many other commercial and industrial applications.

50FF/FC units are designed for optimized part-load management in achieving the highest levels of seasonal efficiency, exceeding the limits set by regulation.

With its mono-block lightweight construction, the units feature a self-supporting frame, designed to ease the installation and maintenance works.

The units integrate the latest technological innovations:

- Multi-scroll compressors in tandem.
- Electronic expansion valves.
- Variable speed EC fans.
- Auto-adaptative microprocessor control.

For maximum adaptability, a number of options is available to meet any operating requirement:

- Exhaust air energy recovery.
- Economizer.
- Indoor air quality management.
- Available static pressure up to 80 mm.w.c.
- Zoning with variation of airflow.
- Installation roofcurbs.
- Auxiliary heating modules.
- Extended operation limits.





## R-454B: THE BEST SOLUTION FOR ROOFTOPS



CARRIER offers the best refrigerant choice according to applications, conditions and technologies.



**CO<sub>2</sub> FOOTPRINT**  
REDUCED BY UP TO **80%**

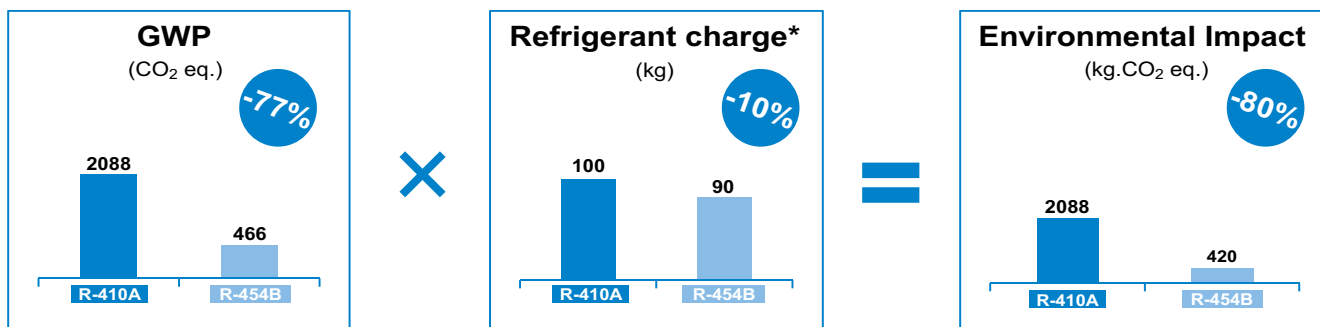
R-454B is currently the ideal refrigeration solution for rooftops. By using R-454B refrigerants, Carrier has reduced the carbon footprint of its version with R-410A by an astonishing 80%.

R-454B is also the right choice economically, reducing the locally imposed tax burden on HFCs based on the CO<sub>2</sub> impact.

The impact of an air conditioning system on global warming of the planet is in large part caused by CO<sub>2</sub> emissions released into the atmosphere when the electricity required to power the unit is produced (**indirect effect**) and in small part by CO<sub>2</sub> emissions linked to uncontrolled emissions of refrigerant with global warming potential into the atmosphere (**direct effect**).

### Direct effect. Lower environmental impact ⇒ -80% compared to R-410A

- R-454B has zero Ozone Depletion Potential (ODP).
- The Global Warming Potential (GWP) of R-454B is 466, i.e. approximately one third of that of R-410A (GWP 2088), and 30% lower than R-32 (GWP 675).
- The 50FF/FC R-454B cooling charge is reduced by 10% compared to the version using R-410A\*
- The carbon footprint of the 50FF/FC R-454B is therefore 420 (466 x 0.9), i.e. 88% lower than the version using R-410A (2088 x 1).



Note: Units with R-410A can benefit from a retrofit kit to use R-454B.

### Indirect effect. Lower environmental impact ⇒ -3% compared to the already astonishing low consumption in 50FC R-410A



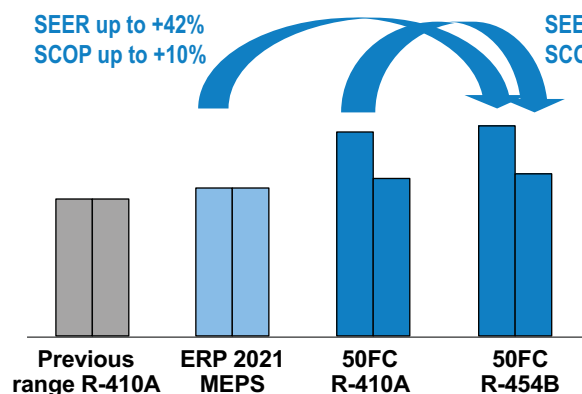
**SEER up to +3% (\*)**: Up to 42% savings vs ErP2021

**SCOP up to +3% (\*)**: Up to 10% savings vs ErP2021

(\*) over the already outstanding performance in 50FC R-410A

The seasonal efficiency of 50FF/FC R-454B is higher than the already outstanding performance in 50FC R-410A.

The savings vs Ecodesign requirements go up to 42% in cooling and 10% in heating with 50FF/FC R-454B.



This performance is the result of the optimize and high quality components rigorously selected:

- R-454B refrigerant with high energy performance.
- New generation of scroll compressors optimized for R-410A and R-454B refrigerant (bivalent compressors) in tandem configuration with 2 frigorific circuits and 4 compressors for high performance in partial load.
- Electronic expansion valves.
- "50FC" control optimizing performance and energy consumption.
- Outdoor EC fans for high efficiency and low noise level.
- Indoor EC plug-fans with pressure transducer.

R-454B is an A2L classified refrigerant thanks to its low flammability.

- The service tools must be certified for A2L refrigerants in accordance with standard ISO 817 or EN378.
- Service technicians must be qualified for brazing components on PED 3 fluid units.

## CUSTOMER BENEFITS

### Outstanding performance

50FF/FC 100-280 units are designed for optimized part-load management in achieving the highest levels of seasonal efficiency, exceeding the limits set by regulation.



The unit integrates the latest technological innovations:

- Multi-scroll compressors in tandem optimized for R-410A and R-454B refrigerant (bivalent compressors).
- Electronic expansion valves.
- Outdoor EC fans with variable speed.
- Supply EC plug-fans with direct drive and variable speed.
- Auto-adaptative microprocessor control.

### Easy and fast installation

With its mono-block lightweight construction, the 50FF/FC units feature a self-supporting frame, designed to ease the installation and maintenance process. The units are connected directly to an air distribution ductwork without additional elements or equipment, pipes, cables, etc. taking no floor space at all. This design reduces the cost of installation, facilitates a quick connection and ensures reliable operation.

- Vertical supply/return airflow configurations are ideal for new construction or retrofit projects.
- Horizontal airflow configurations are ideal for replacement or applications such as through-the-wall where sound must be attenuated before the duct penetrates the roof.



Models 100 to 170



Models 180 to 280

### Adaptability

The range offers a wide range of options and a large set of configurations to customize the unit according to your needs:

- Exhaust air energy recovery.
- Economizer.
- Indoor air quality management.
- Available static pressure up to 800 Pa.
- Adjustable or adaptation roofcurbs.
- Auxiliary heating systems.
- Extended operation limits up to -15°C in heating.
- 4 zone management with airflow control option.
- Heat recovery water coil.
- Low return temperature option for storage applications.
- Double panel option with 50 mm insulation.

### Superior reliability

The 50FF/FC 100-280 range has been designed to ensure robustness throughout the lifecycle of the units. The high-reliability of the units is the result of **high-quality material and components** combined with the **highest quality standards** in terms of manufacturing and laboratory testing.



### Low sound levels

The 50FF/FC range provides a low-noise level during operation thanks to design optimization and the latest technology to meet the most exigent requirements.

Up to **70%** of the operation time below half-load.

Sound level reduction in partial load operation.

**Night operation mode** available with free-cooling and disabling compressors. This also helps to reduce the sound level during night periods.

### Indoor air quality

The 50FF/FC range offers a wide range of technological features dedicated to improve and maintain the highest level of indoor air quality:

- Ventilation
- Filtration
- Quality sensor
- Airflow control
- Active technologies under request

Discover more about Carrier's approach to Healthy Buildings on <https://www.corporate.carrier.com/healthybuildings/>

## KEY FOR CONFIGURATION

| A    | B    | C | D | E | F  | G  | H   | I | J | K | L | M | N   | O    | P    | Q | R | S    | T  | U   | V   | W    | X    | Y    |
|------|------|---|---|---|----|----|-----|---|---|---|---|---|-----|------|------|---|---|------|----|-----|-----|------|------|------|
| 50FC | 0100 | A | 4 | B | B1 | LL | 000 | S | N | A | H | S | 000 | 0000 | 0000 | 0 | 0 | AA00 | 00 | A00 | 000 | AA00 | 0000 | 0000 |

**A: Unit type**

50FF: air/air cooling-only  
50FC: air/air heat pump

**B: Unit model**

2 circuits: 0100 / 0110 / 0120 / 0130 / 0145 / 0160 / 0170 / 0180 / 0200 / 0220 / 0250 / 0280

**C: Version of the series**

A: Current version

**D: Electrical power**

4: 400V / 3ph + N / 50Hz  
5: 400V / 3ph / 50Hz

**E: Type of refrigerant**

B: R-454B

**F: Airflow + Assembly**

B1: Standard  
B2: Economizer, 2 dampers  
BP: Plug-fan in return section  
BA: Cooling recovery circuit with plug-fan in return section  
BT: Return top box with plug-fan or centrifugal fan  
BB: Cooling recovery circuit with plug-fan or centrifugal fan in return top box  
BW: Heat recovery wheel module

**G: Coil coating : Indoor - Outdoor**

LL: Aluminium - Aluminium  
LP: Aluminium - Polyurethane  
LN: Polyurethane - Inera®  
PP: Polyurethane - Polyurethane  
PN: Polyurethane - Inera®  
NN: Inera® - Inera®

**H: Heating**

000: Without auxiliary heating  
BAx: Gas burner, 2 power outputs:  
x = M (Nominal) / S (High)  
RAx: Electrical heaters, 3 power outputs:  
x = F (Low) / M (Nominal) / S (High)  
HAx: Hot water coil:  
x = S (Standard)

**I: Protection for low outdoor temperature**

S: Without protection  
A: Freeze protection OAT lower than -10°C  
B: Freeze protection OAT lower than -14°C  
C: Freeze protection OAT lower than -10°C + spring shut-off dampers  
D: Freeze protection OAT lower than -14°C + spring shut-off dampers

**J: Supply fan**

F: Low available pressure (aluminium)  
N: Nominal available pressure (polypropylene)  
M: Nominal available pressure (aluminium)  
S: High available pressure (aluminium)

**K: Air filtration + droplet eliminator**

A: G4  
B: G4+ droplet eliminator  
C: G4 low pressure drop  
D: G4 low pressure drop + droplet eliminator  
G: G4 + F7  
H: G4 + F7 + droplet eliminator  
K: G4 low pressure drop + F7  
L: G4 low pressure drop + F7 + droplet eliminator  
O: M6 + F7

P: M6 + F7 + droplet eliminator  
S: F7 + F9  
T: F7 + F9 + droplet eliminator

**L: Outdoor fan**

L: AC (2-speed)  
H: EC (electronic)

**M: Insulation**

S: Standard insulation  
M: Insulation M0 with double wall (50mm)

**N: Indoor circuit**

000 - Without optional accessories  
A: Condensate drain pan in stainless steel  
A: Room overpressure management  
A: Filter fouling detector

**O: Outdoor circuit**

0000 - Without optional accessories  
A: Fresh air safety grid  
A: Outdoor coil protection grid  
A: Antivibration mounts  
A: Droplet eliminator at the fresh air intake

**P: Heat recovery wheel**

0000 - Without optional accessories  
4: Wheel diameter: 1500 mm  
5: Wheel diameter: 1800 mm  
6: Wheel diameter: 2000 mm  
7: Wheel diameter: 2200 mm  
A: Wheel speed with on/off control  
B: Wheel speed with variable control  
A: Channel cross section of 2,0 mm  
B: Channel cross section of 2,5 mm  
A: Material : Aluminium  
C: Material : Hybrid wheel  
D: Material : Aluminium with silicagel

**Q: Extra heating**

0: Without extra heating  
B: Heat recovery coil

**R: Special applications**

0: Without special applications  
C: Air zoning  
D: Low return temperature application  
I: Low T application + Air zoning

**S: Sensors**

0000 - Without optional accessories  
A: Smoke detection control unit  
A: CO<sub>2</sub> sensor environment installation  
B: CO<sub>2</sub> sensor ducted installation  
C: CO<sub>2</sub> sensor on the pLAN network  
A: 1 sensor RS485  
B: 2 sensors RS485  
C: 3 sensors RS485  
D: 4 sensors RS485  
E: 1 sensor NTC  
A: Ambient temperature sensor  
B: Ambient temp. + humidity sensor  
C: Ambient sensor on the pLAN network

**T: Economizer management + Outdoor hum.**

00 - Without economizer + without sensor  
A: Outdoor humidity sensor on the unit  
B: Outdoor hum. sensor on pLAN network  
A: Thermal management  
B: Thermoenthalpic management  
C: Enthalpic management

**U: Terminal + Unit communication**

000 - Without terminal + stand-alone unit + without communication card  
A: Card RS485 Modbus/Carel  
B: Card Ethernet PCoWeb  
C: Card RS485 LonWorks®  
D: Card Ethernet BACnet™  
E: Card RS485 BACnet™  
F: Card RS485 Konnex  
0: Stand-alone unit  
A: Master unit  
B: Slave unit  
A: Graphic terminal in electrical cabinet  
B: User terminal in electrical cabinet  
C: Graphic terminal in the cabinet + User terminal remote up to 100 m  
D: User terminal in the cabinet + Graphic terminal remote up to 200 m  
E: Graphic terminal in the cabinet + Graphic terminal remote up to 200 m  
F: Touch panel in electrical cabinet  
G: Touch panel in the cabinet + Graphic terminal remote up to 200 m  
H: Touch panel in the cabinet + User terminal remote up to 100 m

**V: Miscellaneous item 1**

000 - Without optional accessories  
A: On-off control of an humidifier  
B: Proportional control of an humidifier  
A: Electrical energy meter  
B: Cooling capacity & elec. energy meter  
Unused

**W: Miscellaneous item 2**

AA00 - Without optional accessories  
Unused  
A: Varnish protection  
Unused  
Unused

**X: Return fan**

0000 - Without return fan  
A: Centrifugal, low airflow  
C: Centrifugal, nominal airflow  
E: Centrifugal, high airflow  
N: Plug-fan, nominal pressure (polyprop.)  
M: Plug-fan, nominal pressure (aluminium)  
S: Plug-fan, high pressure (aluminium)  
Unused

**Y: Indoor airflow direction**

0000 - Lower direction  
0: Lower supply and lower return (B1, B2, BP, BA and BW assemblies)  
1: Lateral supply and lower return (B1, B2, BP, BA and BW assemblies)  
2: Lower supply and lateral return (B1, B2, BT and BB assemblies)  
3: Lateral supply and lateral return (B1, B2, BT and BB assemblies)  
4: Upper supply and lower return (B1 and B2 assemblies)  
5: Lateral supply and upper return (B1 and B2 assemblies)  
6: Upper supply and lateral return (B1 and B2 assemblies)  
7: Lower supply and upper return (B1 and B2 assemblies)  
8: Upper supply and upper return (B1 and B2 assemblies)  
Unused



## UNIT COMPONENTS

### Casing

- Structure made of galvanised steel metal. Panels and registers in aluminium. Most parts protected with polyester paint, white colour RAL 7035.
- Removable panels for easy access to all components: electrical cabinet, compressors, fans, filters, etc.
- Skids for easy transport in a container. The dimensions of this range allow all models and assemblies to be transported in a container, so that the special SEI4C maritime packaging is not necessary under any circumstances.

### Outdoor circuit

- Coils with copper pipes and aluminium fins.
- EC electronic axial fans which adapt the rotation speed to the installation's requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the unit's average seasonal efficiency. IP55 protection.

### Indoor circuit

- Thermal and acoustic insulation in panels and registers with M1 fire classification.
- Coils with copper pipes and aluminium fins.
- EC electronic supply plug-fans with variable control speed and flow rate controller.
- Reusable gravimetric air filters G4, mounted on a frame. Dual locking system mounted on the access panel to filters.
- Isolated pan of condensates drainage sloping down towards the drain. This pan is removable for easy cleaning in models 100 to 170.

### Cooling circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load

efficiencies, assembled over antivibration mounts. Relay for phase-sequence monitoring and phase loss protection.

- Crankcase heater.
- Electronic expansion valves.
- Four-way cycle reversing valves.
- Acid-resistant filters dryer.
- Cooling design in 2-air volumes.

### Protections

- High pressure pressostats.
- High and low pressure transducers.
- Refrigerant leak control (by low-pressure alarm).
- Due to the A2L category of refrigerant R-454B (lightly flammable), it requires the installation of a refrigerant leak detector. This detector uses infrared instead of semiconductor technology with no need of calibration (self-calibration), with very fast time response, and high lifetime. The detector is installed on a panel next to the supply fans of the indoor circuit. This position ensures the correct reading of the gas concentration in the indoor coil.

If the unit is connected to a BMS monitoring system, the electronic control is prepared to send an alarm signal in case of leakage detection.

Note: These units are designed to be installed outdoors in a well ventilated area, but a second leak detector can be installed in the outdoor circuit if in any case it is considered necessary. Available upon request.

- Compressor discharge temperature control.
- Main door switch.
- Protection for power lines of compressors with manual motor starters and power lines of fan motors with magnetothermic switches. These devices provide protection against overload, short circuit, phase failure and undervoltage.
- Automatic switch in the control circuit.



## UNIT COMPONENTS

### Electrical cabinet

- Complete and fully wired electrical cabinet. Insulated access door to prevent condensation. Forced ventilation of the electrical cabinet. Protection IP54.
- Numeration of wired and identification of components in the electrical cabinet. It permits easy tracing and diagnostics.
- Hinges + quarter-turn latches on the removable access doors.
- Electrical power supply with neutral.
- Main ground connection.
- Compressor and fan motor contacts.

### "50FC" control

Factory-installed "50FC" control provide the capability for free standing operation or may be linked with a more extensive system. Factory-installed and programmed Modbus communication capability provides simple integration with the building BMS system.

The 50FF/FC range may also be configured to communicate via LonWorks®, BACnet™ MSTP, Konnex, Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP protocols, if required by the application.

The "50FC" control also have the capability to communicate with our supervision solutions: **pCO Web** (1 unit), **BOSS mini** (50 units) and **BOSS** (300 units).

This communication flexibility allows simple system integration, as well as data collection, trending, monitoring and alarm displays. The control provides unparalleled service diagnostic information.

With this control it is also possible to connect to a local pLAN ("50FC" Local Area Network) for a maximum of 15 units, with one unit configured as "Master" and the others as "Slaves". This network allows the exchange of data and information between the units, and depending on the conditions of the installation, share the reading of some probes installed on the unit configured as "Master", temperature setpoints and operating mode. It is also possible to configure one unit as "Back-up" just in case for failure of the another unit on the pLAN network.

- The "50FC" control are your link to a world of simple and easy-to-use rooftop units that offer outstanding performance and value. With the sensors, it maintains control over all the components of the unit and helps optimise the performance of the refrigeration circuits as conditions change, resulting in the following features:

- Higher part load efficiency.
- Better control of temperature.
- Superior reliability.
- High ambient cooling operation at 48°C.
- Low ambient cooling operation at -15°C WB.

- The main functions of this control are:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors cycles.
- Defrosting management.

- Control of the supply air temperature.
  - All-seasons operation via the condensation and evaporation pressure control.
- The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.
- Setpoint compensation based on the outdoor temperature.
  - Hourly and weekly schedule.
  - Fire protection.
  - Diagnosis of faults and general alarm.
  - Management of all the optional components available for the unit: economizer, back-up heating, CO<sub>2</sub> air quality sensor, energy recovery,...

### User interfaces

#### Graphic terminal

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.



Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

- This terminal is used to:
  - Carry out initial programming of the unit.
  - Modify operating parameters.
  - Switch the unit ON / OFF.
  - Select the operating mode and adjust the setpoints.
  - Display the variables controlled and sensor values measured.
  - Display the current alarms and their historical record.

#### User terminal (optional)

This terminal can be installed on the electrical cabinet, instead of the graphic terminal. In this case, the remote connection of the graphic terminal is possible.



- This terminal is used to:
  - Switch the unit ON / OFF.
  - Select the operating mode and adjust the setpoints.
  - Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO<sub>2</sub> sensor and opening of the outdoor damper.
  - Display alarms codes.

#### Touch panel (optional)

With the same functions as the graphic terminal, the 4.3 inch touchscreen panel makes interaction between the user and the unit much easier by simplifying navigation between the various screens.





## PHYSICAL DATA WITH R-454B REFRIGERANT (EN-14511-2018)

| 50FF                                |        | 100  | 110                                   | 120     | 130     | 145     | 160     | 170                                   | 180                                   | 200                                   | 220                                   | 250     | 280     |
|-------------------------------------|--------|--|---------------------------------------|---------|---------|---------|---------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------|---------|
| Cooling capacities                  |        |  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Cooling capacity (1)                | kW     | 96,58  | 106,55                                | 115,79  | 126,71  | 140,34  | 154,61  | 162,79                                | 173,75                                | 193,77                                | 213,43                                | 244,29  | 270,96  |
| Power input (3)                     | kW     | 29,63  | 33,30                                 | 36,64   | 38,05   | 44,55   | 50,86   | 54,81                                 | 52,65                                 | 61,51                                 | 71,86                                 | 76,10   | 88,84   |
| EER performance                     |        | 3,26   | 3,20                                  | 3,16    | 3,33    | 3,15    | 3,04    | 2,97                                  | 3,30                                  | 3,15                                  | 2,97                                  | 3,21    | 3,05    |
| SEER                                |        | 5,04   | 4,95                                  | 4,85    | 5,07    | 4,91    | 4,85    | 4,86                                  | 5,16                                  | 5,00                                  | 4,99                                  | 4,92    | 4,83    |
| ηs                                  |        | 199%   | 195%                                  | 191%    | 200%    | 194%    | 191%    | 192%                                  | 204%                                  | 197%                                  | 196%                                  | 194%    | 190%    |
| Outdoor circuit fan                 |        | Electronic axial fan   |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Nominal air flow                    | m³/h   | 44.000   | 44.000                                | 44.000  | 58.000  | 58.000  | 64.000  | 64.000                                | 80.000                                | 86.000                                | 86.000                                | 120.000 | 120.000 |
| Available static pressure           | mm.w.c | 5  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Number / Diameter                   | mm     | 2 / 800  |                                       |         | 2 / 910 |         |         |                                       | 4 / 800                               |                                       |                                       | 4 / 910 |         |
| Maximum speed                       | r.p.m. | 1.100  |                                       |         | 1.070   |         |         |                                       | 1.100                                 |                                       |                                       | 1.070   |         |
| Motor output                        | kW     | 2 x 3,0  |                                       |         | 2 x 3,3 |         |         |                                       | 4 x 3,0                               |                                       |                                       | 4 x 3,3 |         |
| Maximum absorbed current            | A      | 2 x 4,6  |                                       |         | 2 x 5,0 |         |         |                                       | 4 x 4,6                               |                                       |                                       | 4 x 5,0 |         |
| Indoor circuit supply fan           |        | Electronic plug-fan (Polypropylene)  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Nominal air flow                    | m³/h   | 18.000   | 19.800                                | 21.600  | 23.400  | 26.100  | 28.800  | 30.600                                | 32.400                                | 36.000                                | 39.000                                | 40.500  | 45.000  |
| Nominal avail. static pressure      | mm.w.c | 25   | 25                                    | 25      | 30      | 35      | 35      | 35                                    | 35                                    | 35                                    | 35                                    | 35      | 35      |
| Minimum air flow                    | m³/h   | 10.800   |                                       |         | 14.040  |         |         |                                       | 19.440                                |                                       |                                       | 24.300  |         |
| Maximum air flow                    | m³/h   | 25.920   |                                       |         | 36.720  |         |         |                                       | 46.800                                |                                       |                                       | 54.000  |         |
| Number / Diameter                   | mm     | 3 / 500  |                                       |         |         | 4 / 500 |         |                                       | 5 / 500                               |                                       |                                       | 6 / 500 |         |
| Speed                               | r.p.m. | 1.800  |                                       |         |         | 1.800   |         |                                       | 1.800                                 |                                       |                                       | 1.800   |         |
| Motor output                        | kW     | 3 x 3,1  |                                       |         |         | 4 x 3,1 |         |                                       | 5 x 3,1                               |                                       |                                       | 6 x 3,1 |         |
| Maximum absorbed current            | A      | 3 x 4,7  |                                       |         |         | 4 x 4,7 |         |                                       | 5 x 4,7                               |                                       |                                       | 6 x 4,7 |         |
| Compressor                          |        | Scroll   |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| No. compressors / stages / circuits |        | 4 / 4 / 2  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Oil type                            |        | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Volume of oil                       | l      | 4 x 3,0  | $\frac{2 \times 3,0}{+ 2 \times 3,3}$ | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | $\frac{2 \times 3,3}{+ 2 \times 3,6}$ | $\frac{2 \times 3,3}{+ 2 \times 3,6}$ | $\frac{3 \times 3,6}{+ 1 \times 6,1}$ | $\frac{1 \times 3,6}{+ 3 \times 6,1}$ | 4 x 6,1 | 4 x 6,1 |
| Electrical characteristics          |        |  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Mains voltage                       |        | 400 V / III ph / 50 Hz (±10%)  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Power supply                        |        | 3 Wires + Ground + Neutral   |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Maximum absorbed current            | A      | 80,0   | 84,6                                  | 94,6    | 100,7   | 117,3   | 126,6   | 133,7                                 | 146,8                                 | 162,6                                 | 180,0                                 | 202,1   | 223,4   |
| Refrigerant                         |        | R-454B   |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Global warming potential (4)        | GWP    | 466  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| Charge                              | kg     | 31,0   | 31,0                                  | 31,0    | 34,0    | 34,0    | 34,5    | 35,0                                  | 49,0                                  | 51,0                                  | 51,0                                  | 61,0    | 62,0    |
| Environment impact                  | tCO2eq | 14,4   | 14,4                                  | 14,4    | 15,8    | 15,8    | 16,1    | 16,3                                  | 22,8                                  | 23,8                                  | 23,8                                  | 28,4    | 28,9    |
| Weight                              |        |  |                                       |         |         |         |         |                                       |                                       |                                       |                                       |         |         |
| B1 assembly                         | kg     | 1.430  | 1.450                                 | 1.470   | 1.640   | 1.680   | 1.690   | 1.700                                 | 2.265                                 | 2.370                                 | 2.475                                 | 2.795   | 2.860   |

(1) Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.

(3) Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.

(4) Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

### Compliance

- Machinery Directive 2006/42/EC (MD)
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Pressure Equipment Directive 2014/68/EU (Category 3) (PED)
- RoHS Directive 2011/65/EU (RoHS)
- Eco-design Directive 2009/125/EC (ECO-DESIGN)
- Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
- Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).



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# PHYSICAL DATA WITH R-454B REFRIGERANT (EN-14511-2018)

| 50FC                                |        | 100  | 110                  | 120     | 130     | 145     | 160     | 170                  | 180                  | 200                  | 220                  | 250     | 280     |  |
|-------------------------------------|--------|--|----------------------|---------|---------|---------|---------|----------------------|----------------------|----------------------|----------------------|---------|---------|--|
| Cooling capacities                  |        |  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Cooling capacity (1)                | kW     | 97,40  | 106,91               | 116,04  | 126,09  | 140,58  | 154,59  | 162,57               | 175,06               | 194,79               | 214,13               | 246,58  | 272,88  |  |
| Power input (3)                     | kW     | 30,16  | 34,27                | 37,75   | 40,16   | 45,74   | 52,48   | 56,66                | 53,91                | 63,47                | 74,07                | 79,24   | 92,22   |  |
| EER performance                     |        | 3,23   | 3,12                 | 3,07    | 3,14    | 3,07    | 2,95    | 2,87                 | 3,25                 | 3,07                 | 2,89                 | 3,11    | 2,96    |  |
| SEER                                |        | 4,90   | 4,80                 | 4,70    | 4,90    | 4,77    | 4,70    | 4,71                 | 5,01                 | 4,85                 | 4,83                 | 4,74    | 4,68    |  |
| ηs                                  |        | 193%   | 189%                 | 185%    | 193%    | 188%    | 185%    | 186%                 | 197%                 | 191%                 | 190%                 | 186%    | 184%    |  |
| Heating capacities                  |        |  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Heating capacity (2)                | kW     | 97,10  | 106,57               | 117,39  | 127,33  | 143,89  | 157,93  | 165,87               | 183,84               | 203,48               | 227,56               | 271,78  | 299,22  |  |
| Power input (3)                     | kW     | 26,61  | 29,87                | 33,85   | 34,94   | 40,26   | 45,47   | 48,23                | 48,73                | 56,18                | 64,63                | 75,12   | 86,06   |  |
| COP performance                     |        | 3,65   | 3,57                 | 3,47    | 3,64    | 3,57    | 3,47    | 3,44                 | 3,77                 | 3,62                 | 3,52                 | 3,62    | 3,48    |  |
| SCOP                                |        | 3,53   | 3,53                 | 3,51    | 3,50    | 3,49    | 3,42    | 3,44                 | 3,46                 | 3,47                 | 3,46                 | 3,40    | 3,44    |  |
| ηs                                  |        | 138%   | 138%                 | 137%    | 137%    | 137%    | 134%    | 135%                 | 135%                 | 136%                 | 136%                 | 133%    | 135%    |  |
| Outdoor circuit fan                 |        | Electronic axial fan   |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Nominal air flow                    | m³/h   | 44.000   | 44.000               | 44.000  | 58.000  | 58.000  | 64.000  | 64.000               | 80.000               | 86.000               | 86.000               | 120.000 | 120.000 |  |
| Available static pressure           | mm.w.c | 5  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Number / Diameter                   | mm     | 2 / 800  |                      |         | 2 / 910 |         |         |                      | 4 / 800              |                      |                      | 4 / 910 |         |  |
| Maximum speed                       | r.p.m. | 1.100  |                      |         | 1.070   |         |         |                      | 1.100                |                      |                      | 1.070   |         |  |
| Motor output                        | kW     | 2 x 3,0  |                      |         | 2 x 3,3 |         |         |                      | 4 x 3,0              |                      |                      | 4 x 3,3 |         |  |
| Maximum absorbed current            | A      | 2 x 4,6  |                      |         | 2 x 5,0 |         |         |                      | 4 x 4,6              |                      |                      | 4 x 5,0 |         |  |
| Indoor circuit supply fan           |        | Electronic plug-fan (Polypropylene)  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Nominal air flow                    | m³/h   | 18.000   | 19.800               | 21.600  | 23.400  | 26.100  | 28.800  | 30.600               | 32.400               | 36.000               | 39.000               | 40.500  | 45.000  |  |
| Nominal avail. static pressure      | mm.w.c | 25   | 25                   | 25      | 30      | 35      | 35      | 35                   | 35                   | 35                   | 35                   | 35      | 35      |  |
| Minimum air flow                    | m³/h   | 10.800   |                      |         | 14.040  |         |         |                      | 19.440               |                      |                      | 24.300  |         |  |
| Maximum air flow                    | m³/h   | 25.920   |                      |         | 36.720  |         |         |                      | 46.800               |                      |                      | 54.000  |         |  |
| Number / Diameter                   | mm     | 3 / 500  |                      |         |         | 4 / 500 |         |                      |                      | 5 / 500              |                      |         | 6 / 500 |  |
| Speed                               | r.p.m. | 1.800  |                      |         |         | 1.800   |         |                      |                      | 1.800                |                      |         | 1.800   |  |
| Motor output                        | kW     | 3 x 3,1  |                      |         |         | 4 x 3,1 |         |                      |                      | 5 x 3,1              |                      |         | 6 x 3,1 |  |
| Maximum absorbed current            | A      | 3 x 4,7  |                      |         |         | 4 x 4,7 |         |                      |                      | 5 x 4,7              |                      |         | 6 x 4,7 |  |
| Compressor                          |        | Scroll   |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| No. compressors / stages / circuits |        | 4 / 4 / 2  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Oil type                            |        | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Volume of oil                       | l      | 4 x 3,0  | 2 x 3,0<br>+ 2 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 4 x 3,3 | 2 x 3,3<br>+ 2 x 3,6 | 2 x 3,3<br>+ 2 x 3,6 | 3 x 3,6<br>+ 1 x 6,1 | 1 x 3,6<br>+ 3 x 6,1 | 4 x 6,1 | 4 x 6,1 |  |
| Electrical characteristics          |        |  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Mains voltage                       |        | 400 V / III ph / 50 Hz (±10%)  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Power supply                        |        | 3 Wires + Ground + Neutral   |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Maximum absorbed current            | A      | 80,0   | 84,6                 | 94,6    | 100,7   | 117,3   | 126,6   | 133,7                | 146,8                | 162,6                | 180,0                | 202,1   | 223,4   |  |
| Refrigerant                         |        | R-454B   |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Global warming potential (4)        |        | 466  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| Charge                              | kg     | 31,0   | 31,0                 | 31,0    | 34,0    | 34,0    | 34,5    | 35,0                 | 49,0                 | 51,0                 | 51,0                 | 61,0    | 62,0    |  |
| Environment impact                  | tCO2eq | 14,4   | 14,4                 | 14,4    | 15,8    | 15,8    | 16,1    | 16,3                 | 22,8                 | 23,8                 | 23,8                 | 28,4    | 28,9    |  |
| Weight                              |        |  |                      |         |         |         |         |                      |                      |                      |                      |         |         |  |
| B1 assembly                         | kg     | 1.430  | 1.450                | 1.470   | 1.640   | 1.680   | 1.690   | 1.700                | 2.265                | 2.370                | 2.475                | 2.795   | 2.860   |  |

- (1) Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, 19°C WB and 35°C outdoor temperature.  
 (2) Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.  
 (3) Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.  
 (4) Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

## Compliance

- Machinery Directive 2006/42/EC (MD)
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Pressure Equipment Directive 2014/68/EU (Category 3) (PED)
- RoHS Directive 2011/65/EU (RoHS)
- Eco-design Directive 2009/125/EC (ECO-DESIGN)
- Energy Labelling Directive 2017/1369/EU (ECO-LABELLING)
- Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).



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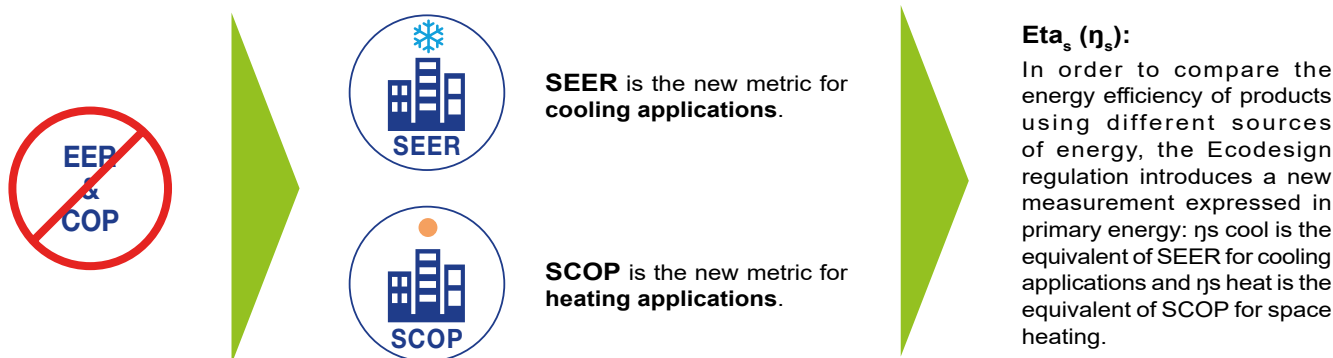
## ECODESIGN REGULATIONS

### New metrics because seasonal efficiency matters

With all new buildings expected to be close to zero energy, calculations of the energy efficiency of buildings require accurate indicators of the efficiency of their equipment. These indicators must be representative of actual operations throughout the year, measuring the performance of equipment on a seasonal basis.

**EER & COP belong to the past.** Now, and in the future, the focus is on seasonal efficiency. With a broad new products range, Carrier is fully engaged to take up the challenge of energy efficiency.

**Compliance with the Ecodesign regulations therefore involves the use of new, more meaningful seasonal efficiency metrics.** The Seasonal Energy Efficiency Ratio (SEER), and Seasonal Coefficient of Performance (SCOP) all ensure precise evaluation of the energy actually consumed by rooftops, by including seasonal variations in their measurements. Previous metrics (EER & COP) measured operations only at a single point, at full thermal load, and were therefore less representative of consumption over entire heating and cooling seasons.



These new seasonal performance metrics are now the key indicator used for rooftops, in all applications.

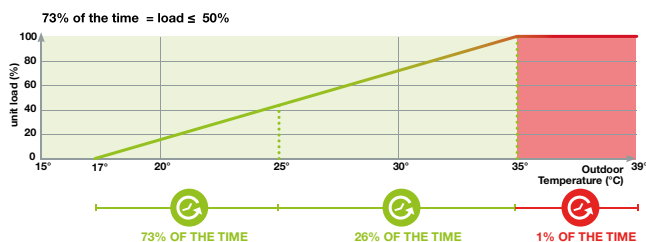
They are calculated according to technical standard **EN 14825** and compliance is mandatory for a product to obtain CE marking.

### Confort cooling

#### SEER - Seasonal Energy Efficiency Ratio



SEER measures the seasonal energy efficiency of rooftops by calculating the ratio between annual cooling demand and annual energy input. It takes into account the energy efficiency achieved for each outdoor temperature weighted by the number of hours observed for each of these temperatures, using actual climate data.



SEER is a new way of measuring the true energy efficiency of rooftops for cooling over an entire year.

This new indicator gives a more realistic indication of the real energy efficiency and environmental impact of a cooling system.

#### Efficiency requirements

Regulation 2016/2281 sets seasonal energy efficiency in  $\eta_{s}$  cool ( $\eta_s$  cool). This expresses SEER in terms of primary energy and so makes it possible to compare the energy efficiency of units using different energy sources.

Minimum  $\eta_{sC}$  (SEER) according regulation (EU) 2016/2281:

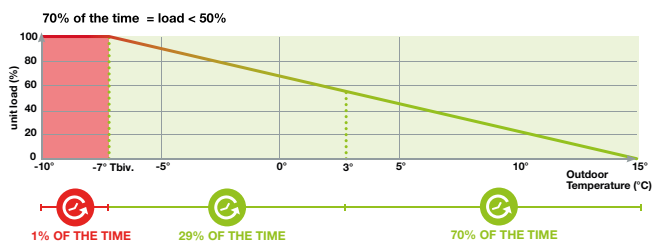
| From 01/2018. Tier1 |      | From 01/2021. Tier2 |      |
|---------------------|------|---------------------|------|
| $\eta_{sC}$ %       | SEER | $\eta_{sC}$ %       | SEER |
| 117                 | 3,00 | 138                 | 3,53 |

### Space heating

#### SCOP – Seasonal Coefficient of Performance



SCOP measures the seasonal energy efficiency of rooftops by calculating the ratio between annual heating demand and annual energy input. It takes into account the energy efficiency achieved at each outdoor temperature of an average climate weighted by the number of hours observed for each of these temperatures.



SCOP is a new way of measuring the true energy efficiency in heating mode over an entire year.

This new indicator gives a more realistic indication of the real energy efficiency and environmental impact of a heating system.

#### Efficiency requirements

Regulation 2016/2281 sets seasonal energy efficiency in  $\eta_{s}$  heat ( $\eta_s$  heat). This expresses SCOP in terms of primary energy and so makes it possible to compare the energy efficiency of units using different energy sources.

Minimum  $\eta_{sH}$  (SCOP) according regulation (EU) 2016/2281:

| From 01/2018. Tier1 |      | From 01/2021. Tier2 |      |
|---------------------|------|---------------------|------|
| $\eta_{sH}$ %       | SCOP | $\eta_{sH}$ %       | SCOP |
| 115                 | 2,95 | 125                 | 3,20 |

The technical data sheets (TDS) for CARRIER units are available at [www.ecodesign.hvac.carrier.com](http://www.ecodesign.hvac.carrier.com)

## OPERATING LIMITS

| Inlet air conditions |                     | Cooling   |      | Heating      |
|----------------------|---------------------|-----------|------|--------------|
|                      |                     | 50FF      | 50FC | 50FC         |
| Indoor coil          | Minimum temperature | 9,7°C WB  |      | 10°C         |
|                      | Maximum temperature | 24°C WB   |      | 27°C         |
| Outdoor coil         | Minimum temperature | -10°C (1) |      | -15°C WB (2) |
|                      | Maximum temperature | 52°C      | 48°C | 15°C WB      |

- (1) With the condensation pressure control disabled, operation up to 12°C.  
 (2) When the outdoor temperature is usually below 5°C WB, the installation of a support element is recommended.

## SOUND LEVELS dB(A)

### Sound power level (LW)

| 50FF/FC     | 100  | 110  | 120  | 130  | 145  | 160  | 170  | 180  | 200  | 220  | 250  | 280  |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz       | 64,6 | 65,1 | 65,6 | 66,1 | 66,6 | 66,9 | 67,1 | 67,1 | 67,9 | 69,1 | 70,6 | 71,6 |
| 125 Hz      | 71,4 | 71,9 | 72,4 | 72,9 | 73,4 | 73,7 | 73,9 | 73,9 | 74,7 | 75,9 | 77,4 | 78,4 |
| 250 Hz      | 77,9 | 78,4 | 78,9 | 79,4 | 79,9 | 80,2 | 80,4 | 80,4 | 81,2 | 82,4 | 83,9 | 84,9 |
| 500 Hz      | 80,2 | 80,7 | 81,2 | 81,7 | 82,2 | 82,5 | 82,7 | 82,7 | 83,5 | 84,7 | 86,2 | 87,2 |
| 1000 Hz     | 80,6 | 81,1 | 81,6 | 82,1 | 82,6 | 82,9 | 83,1 | 83,1 | 83,9 | 85,1 | 86,6 | 87,6 |
| 2000 Hz     | 78,1 | 78,6 | 79,1 | 79,6 | 80,1 | 80,4 | 80,6 | 80,6 | 81,4 | 82,6 | 84,1 | 85,1 |
| 4000 Hz     | 74,2 | 74,7 | 75,2 | 75,7 | 76,2 | 76,5 | 76,7 | 76,7 | 77,5 | 78,7 | 80,2 | 81,2 |
| 8000 Hz     | 69,4 | 69,9 | 70,4 | 70,9 | 71,4 | 71,7 | 71,9 | 71,9 | 72,7 | 73,9 | 75,4 | 76,4 |
| Total dB(A) | 86,0 | 86,5 | 87,0 | 87,5 | 88,0 | 88,3 | 88,5 | 88,5 | 89,3 | 90,5 | 92,0 | 93,0 |

### Sound pressure level (LP)

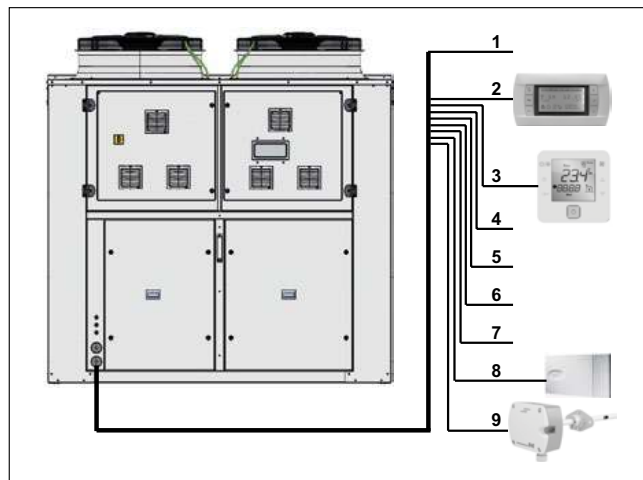
Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| 50FF/FC     | 100  | 110  | 120  | 130  | 145  | 160  | 170  | 180  | 200  | 220  | 250  | 280  |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A) | 58,6 | 59,1 | 59,6 | 60,0 | 60,5 | 60,8 | 61,0 | 60,7 | 61,5 | 62,7 | 64,0 | 65,0 |

Note: The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

## ELECTRICAL CONNECTIONS

| No. | 50FF/FC  |                | 100 to 280  |
|-----|--|----------------|---|
| 1   | Main power supply  | 400 III (±10%) | 3 Wires + Ground + Neutral  |
| 2   | Remote connection of graphic terminal (by default installed on the electrical cabinet) (1) |                | Telephone cable 6 wires standard (RJ12 connector)   |
| 3   | Connection of user terminal (optional) (2)   |                | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |
| 4   | Remote off/on (optional)   |                | 2 wires   |
| 5   | General fault signal (opt.) (3)  |                | 2 wires   |
| 6   | Remote Cooling / Heating (optional upon request)   |                | 2 wires   |
| 7   | Circulation pump signal for HWC (antifreeze safety) (opt.)                                 |                | 1 wire  |
| 8   | Ambient sensor   | NTC            | 2 wires   |
|     |  | RS485          | 5 wires (4)   |
| 9   | CO <sub>2</sub> sensor (optional)  |                | 3 wires   |



- (1) In this case, it's possible to install the user terminal on the electrical cabinet.  
 (2) It's necessary that the terminal uses the same power supply that the control board.  
 (3) The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier. With these options, possibility of general alarm upon request.  
 (4) Up to four RS485 ambient sensors can be connected in series on the field-bus of the control board.

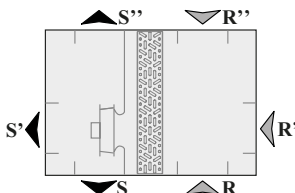
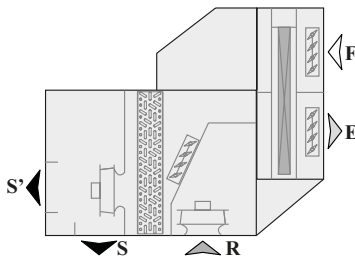
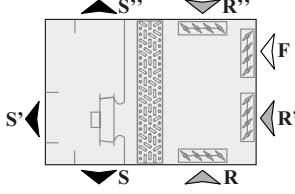
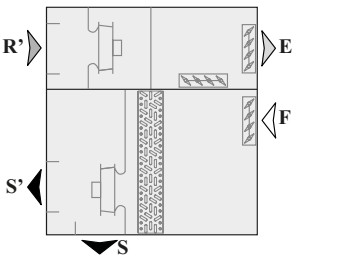
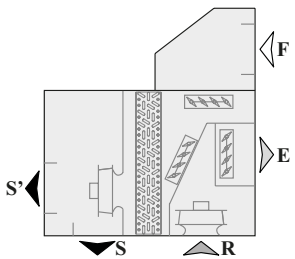
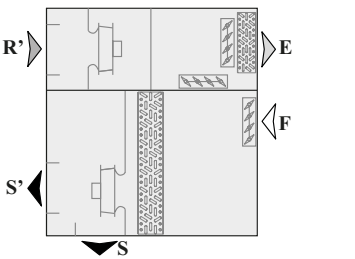
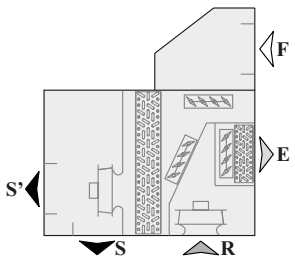
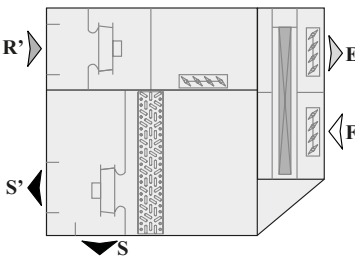
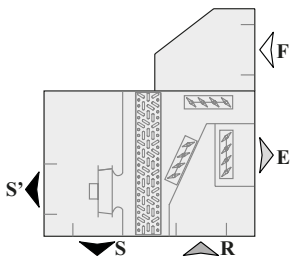
## FACTORY OPTIONS AND ACCESSORIES

| Category                            | Description  | Upon request | Factory installed option | Field installed accessory |
|-------------------------------------|--|--------------|--------------------------|---------------------------|
| Electrical power                    | 400 V / 3 ph / 50 (without neutral)  |              | X                        |                           |
| Airflow + Assembly                  | B2: Economizer, 2 dampers  |              | X                        |                           |
|                                     | BP: Plug-fan in return section   |              | X                        |                           |
|                                     | BA: Cooling recovery circuit with plug-fan in return section   |              | X                        |                           |
|                                     | BT: Return top box with plug-fan or centrifugal fan  |              | X                        |                           |
|                                     | BB: Cooling recovery circuit with plug-fan or centrifugal fan in return top box  |              | X                        |                           |
|                                     | BW: Heat recovery wheel module   |              | X (*)                    |                           |
|                                     | B3: Economizer, 3 dampers  | X            | X                        |                           |
| Coil coating                        | BL: Return top box with plug-fan or centrifugal fan with heat recovery wheel module  | X            | X (*)                    |                           |
|                                     | INERA® coils with aluminium alloy fins and copper pipes  |              | X                        |                           |
|                                     | Coils with polyurethane precoated aluminium fins and copper pipes  |              | X                        |                           |
| Heating                             | Blygold® coating   | X            | X                        |                           |
|                                     | Auxiliary hot water coil: «Standard»   |              | X                        |                           |
|                                     | Auxiliary hot water coil: «Very low outdoor temperature»   | X            | X                        |                           |
|                                     | Auxiliary electrical heaters: on/off control   |              | X                        |                           |
|                                     | Auxiliary electrical heaters: proportional control   | X            | X                        |                           |
| Protection low temperature          | Warm air heater module with gas burner (supplied installed inside a pre-assembly roofcurb)   |              |                          | X                         |
|                                     | Freeze protection OAT lower than -10°C   |              | X                        |                           |
|                                     | Freeze protection OAT lower than -14°C   |              | X                        |                           |
|                                     | Freeze protection OAT lower than -10°C + spring shut-off dampers   |              | X                        |                           |
| Supply fan                          | Freeze protection OAT lower than -14°C + spring shut-off dampers   |              | X                        |                           |
|                                     | Indoor plug-fan with nominal available pressure (Aluminum), low pressure (Aluminum) or high pressure (Aluminum)                            |              | X                        |                           |
| Air filtration + droplet eliminator | Droplet eliminator after the indoor air coil   |              | X                        | X                         |
|                                     | Filters G4 low pressure drop   |              | X                        | X                         |
|                                     | Filters G4 + folded filters F7   |              | X                        | X                         |
|                                     | Filters G4 low pressure drop + folded filters F7   |              | X                        | X                         |
|                                     | Double stage of folded filters: M6+F7, F7+F9   |              | X                        | X                         |
| Outdoor fan                         | Two-speed direct-driven axial fans   |              | X                        |                           |
| Insulation                          | Thermal and acoustic insulation, Euroclass A2-s1, d0 (M0), with double wall (50mm)   |              | X                        |                           |
| Indoor circuit                      | Condensates drain pan in stainless steel   |              | X                        | X                         |
|                                     | Room overpressure management   |              | X                        |                           |
|                                     | Filter fouling detection with differential pressure switch   |              | X                        |                           |
| Outdoor circuit                     | Fresh air safety grid  |              | X                        | X                         |
|                                     | Outdoor coil protection grid   |              | X                        | X                         |
|                                     | Droplet eliminator at the fresh air intake   |              | X                        | X                         |
|                                     | Antivibration mounts made of rubber  |              | X                        | X                         |
| Heat recovery wheel                 | Selection of the heat recovery wheel (BW assembly): diameter, channel cross section, wheel material and and type of speed control          |              | X                        |                           |
| Extra heating                       | Heat recovery coil   |              | X (*)                    |                           |
| Special applications                | Air zoning   |              | X (*)                    |                           |
|                                     | Low return temperature application   |              | X                        |                           |
|                                     | Low return temperature application + Air zoning  |              | X (*)                    |                           |
| Sensors                             | NTC ambient temperature sensor on the control board or 1 to 4 sensors with RS485 comm.   |              | X                        | X                         |
|                                     | Ambient temperature + humidity sensor with RS485 communication. Up to four sensors   |              | X                        | X                         |
|                                     | CO <sub>2</sub> sensor: environment or ducted installation or installed on a pLAN network  |              | X                        | X                         |
|                                     | Smoke detection control unit in accordance with the NF S 61-961 standard   |              | X                        | X                         |
| Economizer + Outd. humidity         | Economizer management: thermal, enthalpic or thermoenthalpic   |              | X                        | X                         |
|                                     | Outdoor air humidity sensor: supplied with the unit or installed on a pLAN network   |              | X                        | X                         |
| Terminal + Unit communication       | Graphic terminal installed in the electrical cabinet + User terminal remote up to 100 m  |              | X                        | X                         |
|                                     | Graphic terminal installed in the electrical cabinet + Graphic terminal remote up to 200 m   |              | X                        | X                         |
|                                     | User terminal installed in the electrical cabinet  |              | X                        | X                         |
|                                     | User terminal installed in the electrical cabinet + Graphic terminal remote up to 200 m  |              | X                        | X                         |
|                                     | Touch panel in the electrical cabinet  |              | X                        | X                         |
|                                     | Touch panel in the cabinet + Graphic terminal remote up to 200 m   |              | X                        | X                         |
|                                     | Touch panel in the cabinet + User terminal remote up to 100 m  |              | X                        | X                         |
|                                     | Unit configuration: stand-alone, master or slave   |              | X                        | X                         |
|                                     | Communication cards: RS485 Modbus/Carel; Ethernet PCoWeb; RS485 LonWorks®; Ethernet BACnet™; RS485 BACnet™; RS485 Konnex                   |              | X                        | X                         |
|                                     | Management of an humidifier with on-off or proportional control  |              | X                        |                           |
| Miscellaneous item 1                | Electrical energy meter  |              | X                        |                           |
|                                     | Cooling capacity and electrical energy meter   |              | X                        |                           |
| Miscellaneous item 2                | Varnish protection for components on the electrical cabinet: control board, cards and terminals  |              | X                        |                           |
| Return fan                          | Centrifugal return fan: 3 airflow options: low, nominal and high   |              | X                        |                           |
|                                     | Return plug-fan: 3 available pressure options: nominal pressure (Polypropylene), nominal pressure (Aluminium) or high pressure (Aluminium) |              | X                        |                           |
| Airflow direction                   | There are 9 combinations in the direction of airflow with:<br>- Supply: lower, lateral and upper<br>- Return: lower, lateral and upper     |              | X                        |                           |
| Roofcurb                            | Pre-assembly roofcurbs with adjustable height  |              |                          | X                         |
|                                     | Adaptation roofcurbs for replacing units on site   | X            |                          | X                         |

(\*) Part of this option must be installed on-site.

## FACTORY OPTIONS AND ACCESSORIES

### Assembly + Indoor air flow direction

|   |   |   |   |
|---|---|---|---|
| <b>B1 assembly</b>  |   | <b>BW assembly</b>  |   |
| Standard  |    | Plug-fan in return section + Heat recovery wheel module (passive recovery)                      |    |
| <b>B2 assembly</b>  |   | <b>BT assembly</b>  |   |
| Economizer, 2 dampers: fresh air damper interlocked with return damper  |    | Return top box with plug-fan or centrifugal fan   |    |
| <b>BP assembly</b>  |   | <b>BB assembly</b>  |   |
| Plug-fan in return section  |  | Return top box with plug-fan or centrifugal fan + Cooling recovery circuit (active recovery)    |  |
| <b>BA assembly</b>  |   | <b>BL assembly (upon request)</b>   |   |
| Plug-fan in return section + Cooling recovery circuit (active recovery)   |  | Return top box with plug-fan or centrifugal fan + Heat recovery wheel module (passive recovery) |  |
| <b>B3 assembly (upon request)</b>   |   | <b>Legend</b>   |   |
| Economizer, 3 dampers: fresh air damper and exhaust air damper  |  | <b>S</b> Lower air supply   | <b>R</b> Lower air return   |
|   |   | <b>S'</b> Lateral air supply  | <b>R'</b> Lateral air return  |
|   |   | <b>S''</b> Upper air supply   | <b>R''</b> Upper air return   |
|   |   | <b>F</b> Fresh air intake   | <b>E</b> Exhaust air outlet   |
| Note: only one of the three possible options (lower, lateral or upper) can be selected for both, supply and return. |   |   |   |

| Indoor airflow direction                 |  |  |
|--|--|--|
| <b>0</b> Lower supply and lower return   | <b>3</b> Lateral supply and lateral return | <b>6</b> Upper supply and lateral return |
| <b>1</b> Lateral supply and lower return | <b>4</b> Upper supply and lower return     | <b>7</b> Lower supply and upper return   |
| <b>2</b> Lower supply and lateral return | <b>5</b> Lateral supply and upper return   | <b>8</b> Upper supply and upper return   |

## FACTORY OPTIONS AND ACCESSORIES

### Air pressure control in different assemblies

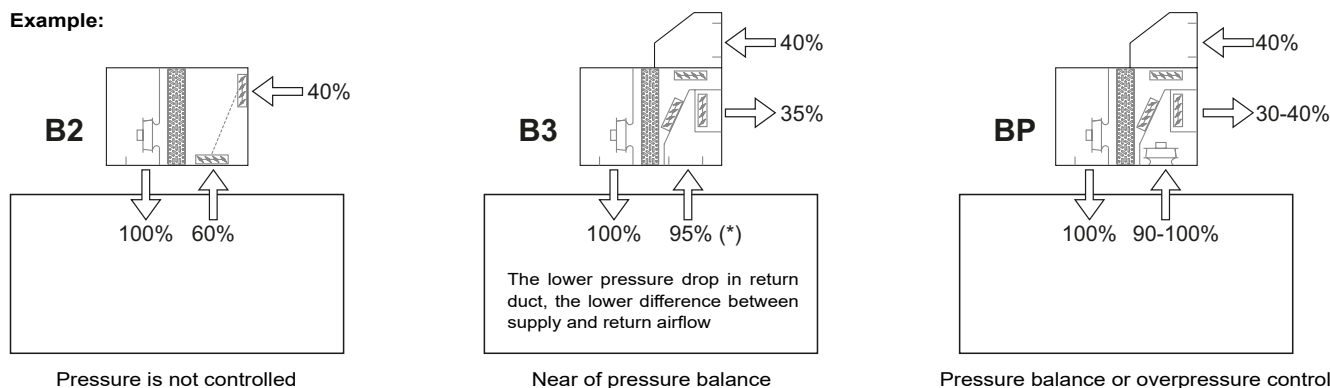
In case of assemblies with fresh air (ventilation) but without extraction air, overpressure will be generated in the building, higher with higher fresh air ratios or in free-cooling mode. It will not generate any issue in buildings with low air tightness and/or with doors frequently opened, but we should prevent in other applications. In assemblies with extraction damper and return fans, this overpressure can be completely avoided (pressure balance), or even controlled with a certain value to prevent infiltrations.

**50FF/FC** is the rooftop with the largest offer in airflow configurations to be able to adapt the unit to any kind of application or request. Please, find below comments and recommendations for each assembly.

| Assembly                             |  | Fresh air and free-cooling | Return fans | Energy recovery (extraction)  | Pressure control    | Comments and recommendations   |
|--------------------------------------|--|----------------------------|-------------|-------------------------------|---------------------|--|
| B1                                   |  | No                         | No          | No                            | No control required | Only for building with <b>no need of fresh air</b> . Pressure balance by default. Same return and supply airflow.  |
| B2                                   |  | Yes                        | No          | No                            | No control          | Adequate just for buildings with medium or low <b>air tightness</b> and/or doors frequently opened.  |
| B2 + gravity dampers in the building |  | Yes                        | No          | No                            | High control        | Building overpressure is maintained at the same level than pressure drop before the gravity damper. No limitations in the return pressure drop.  |
| B3 (upon request)                    |  | Yes                        | No          | No                            | Medium control      | Recommended only with <b>low pressure drop in the return ductwork</b> (maximum 50 Pa). The maximum building overpressure is at the same level than pressure drop in the return ductwork.   |
| BA, BB, BL (upon request)            |  | Yes                        | Yes         | Yes, Active recovery          | High control        | Return and supply EC plug-fan(s) are always supplied with pressure sensor to adjust the airflow.<br>To manage <b>pressure balance</b> , supply and return are configured with same airflow.<br>In case <b>overpressure</b> want to be managed (to avoid infiltration), the return airflow need to be lower than the supply. Differences <b>up to 10%</b> can be always being configured. |
| BP, BT                               |  | Yes                        | Yes         | No                            | Total control       | Additional overpressure with airflow differences <b>up to 20%</b> are possible <b>adding the option "overpressure control" (*)</b> which manages fresh and exhaust dampers independently.  |
| BW                                   |  | Yes                        | Yes         | Yes, Passive recovery (wheel) | Total control       | To maintain overpressure in case of variable fresh air management (with CO <sub>2</sub> sensor option), minimum fresh air ratio need to be configured.   |

(\*) This overpressure option is not available on BA, BB and BL assemblies because this type of control of the dampers penalizes cooling recovery.

#### Example:





## FACTORY OPTIONS AND ACCESSORIES

### Electrical power

- These units can be supplied for the following power supply voltages:

- 400 V / 3 ph + N / 50 Hz (standard)
- 400 V / 3 ph / 50 Hz (optional)

### Coils coating

- Coils with copper pipes and aluminium fins with **polyurethane** coating. Level of corrosion protection: basic. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).
- Coils with copper pipes and fins of an aluminium alloy **INERA®**. Level of corrosion protection: basic - medium. This treatment offers a resistance of more than 1000 hours (ASTM B117 NSST).
- Blygold®** coating (**upon request**). Level of corrosion protection: medium. This treatment offers more protection than 11000 hours in salt spray test (ASTM B117 NSST) and 4000 hours in acid salt spray test.

For further detailed information, please contact our Customer Service Department.

Note: These coating can be applied to various coils (outdoor, indoor and hot water coil) according to the combinations available in the "Selection Software".

### Heating

The unit only can incorporate one of these heating elements:

- Warm air heater module with gas burner** with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb.

The 50FF/FC unit with lower air supply will be placed on this roofcurb.



Note: It's recommended to use the filter fouling detector (optional) in units with gas burner.

Two values of power available for each model:

| 50FF/FC       | 100 to 120 | 130 to 170 | 170 to 280 |
|---------------|------------|------------|------------|
| BAM (Nominal) | PCH080     | PCH130     | PCH160     |
| BAS (High)    | PCH130     | PCH160     | PCH210     |

- Auxiliary electrical heaters**, with two power stages and on/off control, for assembly and connection inside the unit.

Up to 3 values of total power available for each model:

| 50FF/FC    | RAF (Low) | RAM (Nominal) | RAS (High) |
|------------|-----------|---------------|------------|
| 100 to 120 | 27 kW     | 36 kW         | 54 kW      |
| 130 to 170 | 36 kW     | 54 kW         | 72 kW      |
| 180 to 220 | 45 kW     | 72 kW         | 90 kW      |
| 250 to 280 | 54 kW     | 72 kW         | 108 kW     |

- Electrical heater with proportional control (**upon request**).

- Auxiliary hot water coil**, with three-way valve and proportional control, for assembly inside the unit.

The unit incorporates a freeze protection thermostat.

- Optional «Very low outdoor temperature» (**upon request**):

Additional freeze protection technology based on the water temperature. This protection is made up of a circulation pump as well as two sensors inserted in the input and the output of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.

### Protection for low outdoor temperature

- Freeze protection OAT lower than -10°C. Mandatory for an outdoor temperature lower than -10°C WB.

- Electrical heater for protection of the components of the electrical cabinet.
- Compressor with protection for low temperature.

- Freeze protection OAT lower than -14°C. Mandatory for an outdoor temperature lower than -14°C WB.

In addition to the options of -10°C, this includes:

- Reinforced electrical heater for protection of the components of the electrical cabinet.
- Electrical heater for anti-freeze protection of dampers of the economizer (if applicable).
- Protective kit of the gas burner for low temperature (if applicable).

- Freeze protection OAT lower than -10°C + spring shut-off dampers in case of a power failure.

- Freeze protection OAT lower than -14°C + spring shut-off dampers in case of a power failure.

### Supply fan

- By default, these units are fitted with plug-fans for a nominal available pressure (N), in Polypropylene.

The following fans can optionally be supplied:

- F: Low available pressure (Aluminium)
- M: Nominal available pressure (Aluminium)
- S: High available pressure (Aluminium)

## FACTORY OPTIONS AND ACCESSORIES

Note: Aluminium fans are rated A2-s1, d0 (M0) and comply with regulations for public promises in France.

Important: the "Selection Software" will choose the supply fan with lower consumption for the available pressure required.

### Air filtration + Droplet eliminator

Options to improve indoor air quality:

- Different combinations of filters are available:
  - Gravimetric filters G4 with low pressure drop.
  - Gravimetric filters G4 of standard type + folded opacimetric filters F7.
  - Gravimetric filters G4 with low pressure drop + folded opacimetric filters F7.
  - Double-stage of folded opacimetric filters: M6+F7 or F7+F9.

Classification of these filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
- M6 → ISO ePM10 70%
- F7 → ISO ePM1 50%
- F9 → ISO ePM1 80%

- Droplet eliminator after the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.

Note: with hot water coil it is not possible to assemble the droplet eliminator.

### Outdoor fan

- Two-speed direct-driven axial fan(s). Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.

### Insulation

- Thermal and acoustic insulation A2-s1,d0 (M0) with sandwich panels with double wall, 50 mm thick, in all indoor section in contact with airflow.



Standard insulation



M0 insulation

### Indoor circuit

- Condensate drain pan in stainless steel for corrosion protection.
- Filter fouling detection with differential pressure switch.
- Room overpressure management. Assemblies that include a return fan allow the management of airflow differences between supply air and return air of up to 10%, setting up flow setpoints.

Optionally, the fresh air damper and the exhaust damper can be managed independently for greater airflow differences. This option may be necessary to prevent the entry of outside air (BP, BT and BW assemblies).

Note: This option is not available on BA and BB assemblies because this type of control of the dampers penalizes cooling recovery.

### Outdoor circuit

- Fresh air safety grid (9x9mm).
- Outdoor coil protection grid.
- Antivibration mounts made of rubber.
- Droplet eliminator at the fresh air intake. This one and the thermoenthalpic free-cooling are necessary in cases where a high moisture content in the air is foreseen.

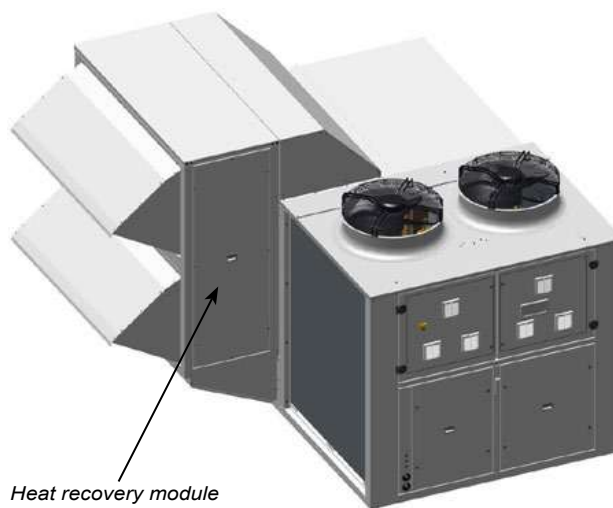
### Heat recovery wheel

- The heat recovery wheel is fitted into a module placed on one side of the unit. This module is supplied disassembled with the unit, for installation on site.

Available with BW assembly, and upon request, with BL assembly.

This rotary recovery unit is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors. This option reduces the compressors runtime, ensuring energy saving and benefiting the environment.

The efficiency of energy recovery depend on the wheel selected: material, wheel diameters, channel cross section and type of speed control.



Heat recovery module

### Extra heating

- Heat recovery coil (HRC). The coil function is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation. The coil is supplied with a 3-way valve for installation outside the unit but manages by the electronic control. This option is compatible with B1, B2, BT and BB assemblies.

## FACTORY OPTIONS AND ACCESSORIES

### Special applications

- **Low return temperature application.** This option is mainly focused to food storage, and can be applied to large warehouses installations.

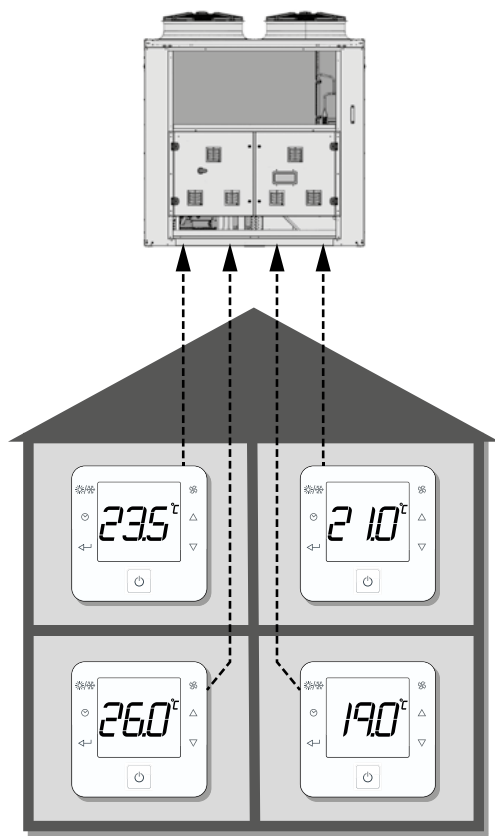
With this option, the unit adapts all its devices to manage low return temperature (15°C) in cooling mode. This is possible due to some changes in the control operation parameters.

The "Selection Software" includes the option as mandatory when return temperature is lower than 20°C (with 15°C as the minimum allowed value).

- **Zoning of the air flow up to 4 different zones.**

This option allows the management of the air flow of the unit to condition up to 4 different zones with a minimum air flow of 35% (all of them in same operating mode: heating or cooling). This function allows to adapt the indoor air flow to the installation requirements.

Note: zoning is only possible with plug-fans.



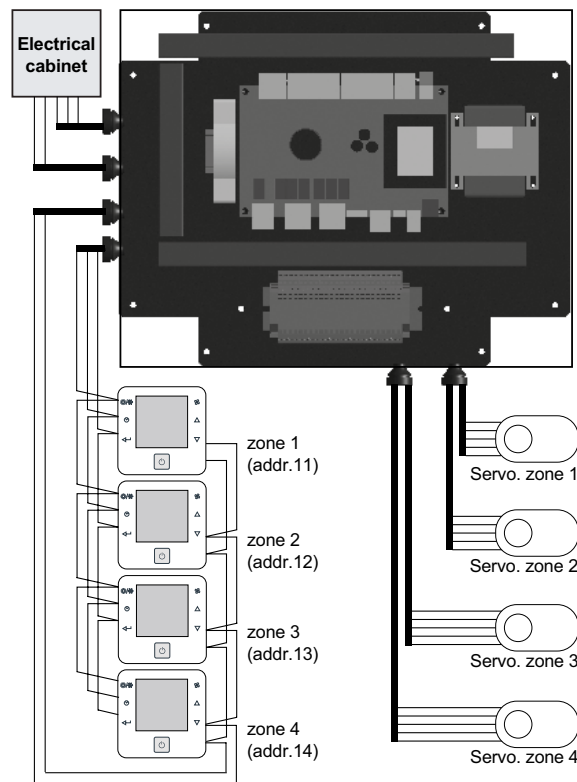
Regulation gives the control signal to the dampers installed in each zone (dampers and servomotors for those dampers not supplied). The unit modifies the air flow and capacity depending on information coming from sensors in each zone and considering active zones in each moment.

The option includes 4 zone terminals (one for each zone) and a control board supplied in an independent box. The 4 terminals, the PJ unit main board and also the servomotors that control dampers in each zone are connected on this board (dampers and servos not supplied).

The temperature information for each zone is coming from temperature sensor integrated inside each zone terminal. It is not needed to install any extra ambient sensor.

Note: In case the unit includes an economizer for enthalpic or thermoenthalpic free cooling (T+H control) an extra return T+H sensor in the offer is required. If the unit additionally includes CO<sub>2</sub> probe, it must be a return probe and not an ambient probe.

In following picture, electronic PCB and 4 zone terminals are detailed. Connections can be found in the "50FC" control manual.



Note: There is a new option with **constant supply pressure** that extends the possibilities for multi-zone management. Available upon request.

### Sensors

- **Ambient temperature sensor(s).** There are 3 options:

- One NTC sensor connected to the control board.
- Note: An ambient sensor with RS485 communication is required for installation at more than 30 meters.
- Up to four sensors with RS485 communication.
- Sensor(s) installed on the master unit of the local network (pLAN).

- One to four **ambient temperature + humidity** sensor(s) with RS485 communication or installed on the pLAN network. This sensor is compulsory in units with enthalpic or thermoenthalpic free-cooling (optional). In this case, the outdoor air humidity sensor is also added.

- CO<sub>2</sub> sensor for **air quality control**. There are 3 options:

- Ambient air quality sensor,
- Return air quality sensor (duct-mounted),
- Sensor installed on the master unit of the local network (pLAN).

- **Smoke detection** control unit in accordance with the NF S 61-961 standard, that uses a LED to indicate the installation status, and if the probe detects the presence of smoke in the installation, it stops the operation of the unit and gives the order to open or close the outdoor damper (configured by parameter).

To ensure compliance with the French regulations on Fire safety (ERP), it's possible to select the opening of the fresh air damper and the exhaust air damper to 100% (return air damper closed).

## FACTORY OPTIONS AND ACCESSORIES

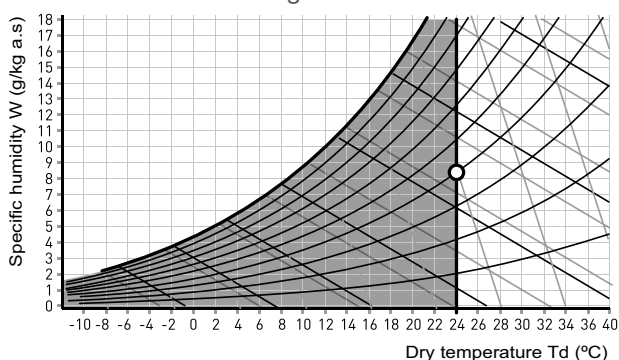
### Economizer management + outdoor humidity

■ Managing free-cooling with an **economizer** allows to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.

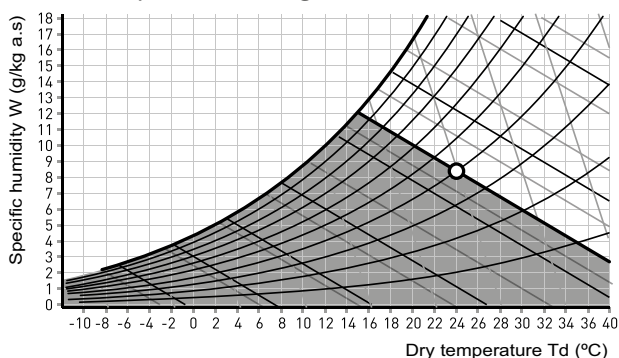
The economizer management can be:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.

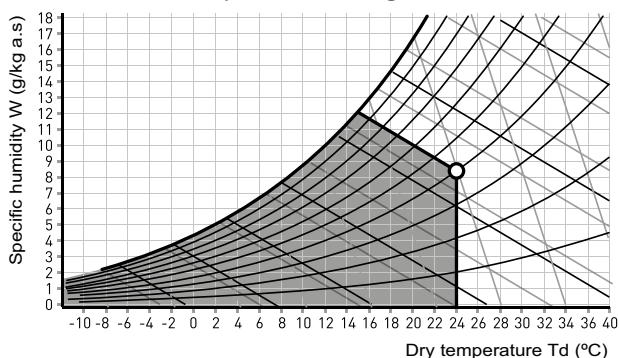
Thermal free-cooling



Enthalpic free-cooling



Thermoenthalpic free-cooling



One function that helps improve energy management is **nocturnal free-cooling**. This feature allows the compressors to be disabled in summer with programming, the unit works providing free-cooling at night, when the outdoor conditions are favourable. This allows the cooling demand to decrease significantly early in the day.

■ **Outdoor air humidity sensor** (compulsory in units with optional enthalpic or thermoenthalpic free-cooling).

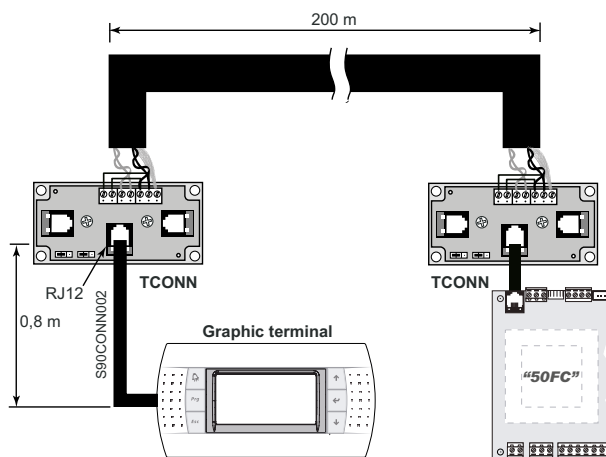
There are 2 options:

- Sensor supplied with the unit.
- Sensor installed on another unit of the local network (pLAN).

### Terminal + unit communication

■ By default, the electronic control is supplied with a graphic terminal installed in the electrical cabinet of the unit, but these other configurations also are available:

- Graphic terminal installed in the electrical cabinet and User terminal remote up to 100 meters.
- Graphic terminal installed in the electrical cabinet and Graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- User terminal installed in the electrical cabinet, instead of the graphic terminal.
- User terminal installed in the electrical cabinet and Graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).



- Touch panel installed in the electrical cabinet, instead of the graphic terminal.
- Touch panel installed in the electrical cabinet and Graphic terminal remote up to 200 meters (two TCONN bypass cards must be used from 50 to 200 meters).
- Touch panel installed in the electrical cabinet and User terminal remote up to 100 meters.



Graphic terminal



Touch panel



User terminal



## FACTORY OPTIONS AND ACCESSORIES

- Control without terminal (for units with shared terminal in a pLAN network).

- By default, the electronic control is configured for a stand-alone unit, but it is also possible to place it in a pLAN network (Local Area Network) as Master, Slave or Back-up. The maximum number of units that can be configured on a Master/Slave pLAN network is 15, and in case of Back-up units is 2.

Important: to use any of the following functionalities it is necessary to configure in the "Selection software" one unit as Master and the others as Slaves (including the back-up unit). The specific functionality will be configured on site (according to the "50FF/FC control manual").

The pLAN network allows to have the following functionalities depending on the parameterized configuration:

### - Master/Slave:

It allows to share the VetricGD terminal, as well as some of the probes installed in the master unit: ambient temperature or ambient temperature + humidity, outdoor temperature, outdoor humidity and CO<sub>2</sub> air quality.

### - Extended Master/Slave:

It includes "Master/Slave" functionalities and the master unit provides ambient temperature setpoints to the other units.

### - Master/Slave with the same operating mode:

It includes the "Extended Master/Slave" functionalities and the master unit also provides the status (Cooling-Heating - Ventilation) to the other units.

### - Back-up in case of alarm:

One unit is configured as a backup unit, in case of malfunction of the other pLAN network unit.

### - Extended Back-up:

It includes the "Back-up in case of alarm" functionalities and also, the control manages the automatic switching between the two units weekly, to compensate the operation times of both units.

Note: In the case of installations with Back-up units, it is not possible to share the probes, nor the terminal, since both units must be fully autonomous in their operation. If both units are connected to the same supply duct network, it is imperative that the installation consists of non-return dampers (installer responsibility).

- This control allows the connection to a centralised technical management system by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.



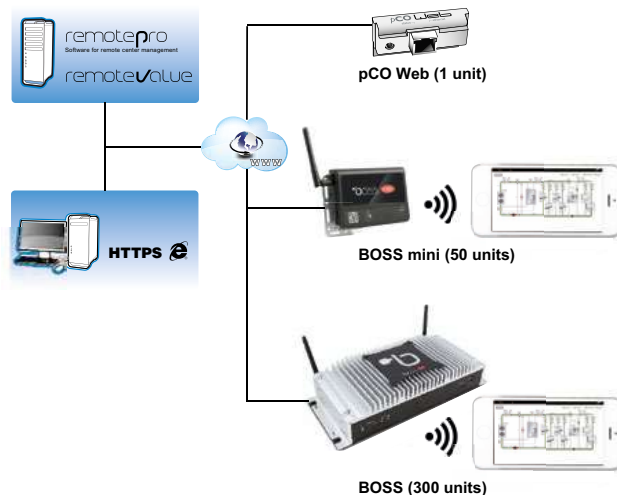
RS485 Carel/Modbus card



Ethernet pCO Web card

## Supervision solutions

Different solutions of supervision are available bases on the dimensions of the installation for unit fitted with Ethernet pCO Web and RS485 Carel / Modbus cards.



### - pCO Web:

It is the solution for the management and supervision of a single unit if this incorporates the Ethernet pCO Web card.

### - BOSS:

This is the solution for the management and supervision of air-conditioning installations with up to 300 units.

Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation. It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, keyboard and screen.

For this option, each unit needs one RS485 Carel / Modbus board.

### - BOSS mini (New)

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device, mouse and keyboard.
- CPU device, monitor, mouse and keyboard.

These systems are used to manage the installation remotely. All the information on the system can be accessed via a simple Internet connection. The online interface, the same one used by the local user, enables monitoring and complete configuration of the installation: from the office or anywhere else the user happens to be.

To control multiple sites remotely, there are special tools dedicated to centralized management, such as **RemotePRO** and **RemoteValue**.

## FACTORY OPTIONS AND ACCESSORIES

### Miscellaneous item 1

- Management of an humidifier with on-off or proportional control.
- Electrical energy meter for monitoring of the power consumption of the installation.
- Cooling capacity and electrical energy meter. In addition to the energy meter, the unit incorporates mixing and supply enthalpic sensors with RS485 communication that enable cooling and heating capacities to be calculated.

### Miscellaneous item 2

- Varnish protection for the components on the electrical cabinet: control board, cards and terminals.

### Return fan

- Centrifugal return fan, coupled by pulleys and belts. Electric motor with tensioner, class F, IP55 and internal thermal protection. Turbine with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required. Available in BB and BT assemblies.

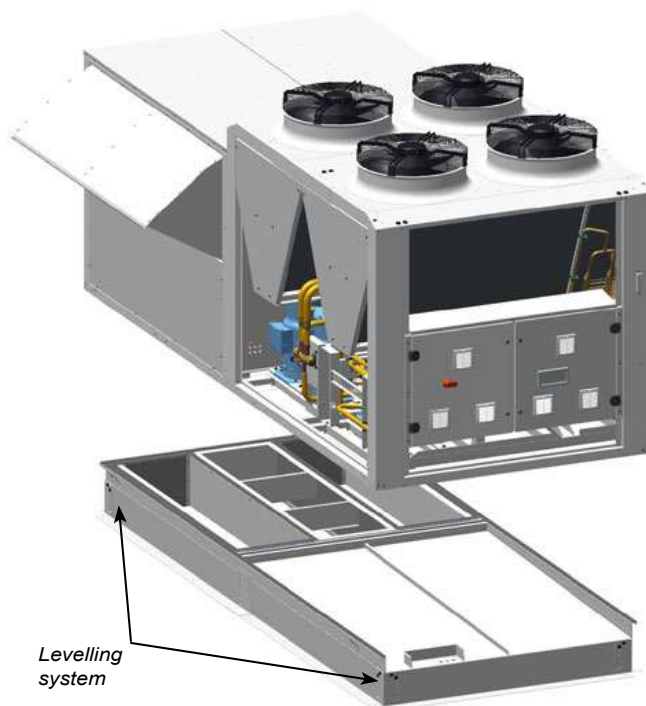
There are 3 fan options depending on the airflow: low, nominal and high.

- Return plug-fan. There are 3 fan options depending on the available pressure:
  - N: Nominal available pressure (Polypropylene).
  - M: Nominal available pressure (Aluminium).
  - S: High available pressure (Aluminium).

Important: the "Selection Software" will choose the fan with lower consumption for the available pressure required.

### Pre-assembly roofcurbs

- The units can rest on standardised pre-assembly roofcurbs with adjustable height, built in galvanised steel panelling with polyester paint and thermal insulation. The levelling system uses angle pieces that allow adjustments in the X and Y axes.



- Adaptation roofcurbs ready for direct replacement on site of units from different manufacturers (**upon request**).



## ADDITIONAL FACTORY OPTIONS UPON REQUEST

This chapter contains additional options available upon request, in addition to those already indicated on the previous chapter:

| Description  | Installation in factory                                   | Installation on site |
|--|---|----------------------|
| Options of electronic control                        | Activation of the remote COOLING / HEATING operating mode | ✓                    |
|  | General alarm signalling by relay                         | ✓                    |
|  | Mechanical disconnection of stages                        | ✓                    |
|  | Ventilation mode with 100% fresh air by digital input     | ✓                    |
|  | Control of supply and return dampers                      | ✓                    |
|  | Ventilation with differential air pressure sensor         | ✓                    |
| Constant supply pressure                             |   | ✓                    |
| Adjustable pre-assembly roofcurbs with higher height |   | ✓                    |

### General alarm signalling

"50FC" control allows the management of a relay for remote alarm signalling.

The output for general alarm signal is not compatible with the following options: hot water coil, heat recovery coil, rotary heat exchanger and on/off signal for external humidifier. In this case, upon request, it would be possible to have a general alarm output in an input/output expansion module.

### Mechanical disconnection of stages

This option allows the mechanical disconnection of stages of compressor and/or electrical heaters using digital inputs. This is especially useful in the following cases:

- To reduce electricity consumption in certain time slots.
- When electricity consumption is limited.

### Ventilation mode with 100% fresh air by digital input

"50FC" control allows to manage a ventilation mode with 100% fresh air through the graphic terminal or by BMS supervision, but on certain occasions it may be interesting to activate this mode through a digital input. This option is especially useful when rapid air renewal is needed, for example in cinema rooms.

### Control of supply and return dampers

This function allows the management of external drive and return dampers located in the ducts, so that the closure of the ducts can be controlled after the unit is stopped. This option can also be useful in installations with Back-up units.

### Ventilation with differential air pressure sensor

In installations with this differential pressure sensor, the percentage of air renewal is adjusted according to the pressure in the room. This option allows dynamic control of the damper opening by measuring the pressure differential between inside and outside.

### Constant supply pressure

The 50FF/FC range provides the greatest choice in terms of multi-zone management. This new option of "Constant supply pressure" is added to the option "Air flow zoning up to 4 zones".

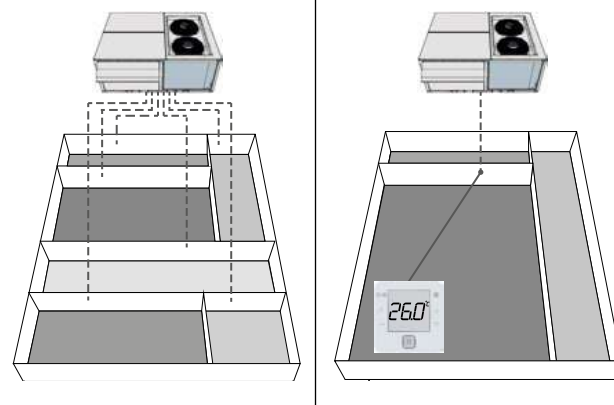
This function allows to control the air flow to maintain constant pressure in the supply duct, with the setpoint value set by parameter.

The following table provides the comparison of the two solutions to facilitate the correct selection according to the customer needs:

| Characteristics                     | Zoning up to 4 zones  | Constant supply pressure  |
|-------------------------------------|---|---|
| Number of zones                     | up to 4   | unlimited   |
| Type of fan                         | plug-fan  | plug-fan  |
| Components included                 | 4 zone terminals and a control box  | differential pressure sensor (range 0 - 1000 Pa)  |
| Dampers and servos per zone         | not supplied  | not supplied  |
| Control signal for dampers / servos | supplied  | not supplied (external control required)  |
| Control of the damper for each zone | yes, control carried out by the electronic control  | no (at customer level)  |
| Terminal in each zone               | yes   | No or just one for the main zone (see "Configurations")   |
| Minimum air flow                    | 35%   | 35% or 10% in ventilation mode (operating only the fans). There is an associated alarm in case of lower airflow. It is necessary to set the minimum damper opening per zone or provide remote stop control in case all dampers are closed |
| Capacity control                    | Based on the ambient temperature conditions of each zone terminal (by default) or the return temperature (optional) | <ul style="list-style-type: none"> <li>• Based on the return conditions (by default)</li> <li>• Based on the environment conditions (configurable), in case of a main zone (see "Configurations")</li> </ul>                              |

#### Configurations

|  |  |
|--|--|
| Capacity control based on the return conditions (by default) | Capacity control based on the environment conditions (configurable)        |
| Several zones  | Several zones (one main zone)  |
| Same comfort priority by zone                                | One main zone. Comfort of all zones depends on the demand of the main zone |



Note: For variable management of fresh air it is necessary to select the optional return air quality probe (CO<sub>2</sub>) (instead of the ambient probe).

There is only one case in which the ambient air quality probe can be used: with constant supply pressure and capacity based on the environmental conditions of the main zone.

## OPTIONS FOR THE OUTDOOR CIRCUIT

### Axial 2-speed outdoor fan

| 50FF/FC                            |      |           | 100             | 110    | 120    | 130             | 145    | 160    | 170             | 180    | 200    | 220             | 250     | 280     |
|------------------------------------|------|-----------|-----------------|--------|--------|-----------------|--------|--------|-----------------|--------|--------|-----------------|---------|---------|
| Cooling:<br>efficiency with R-454B | 50FF | SEER      | 4,32            | 4,31   | 4,25   | 4,37            | 4,33   | 4,09   | 4,10            | 4,48   | 4,35   | 4,39            | 4,24    | 4,10    |
|                                    |      | ηs        | 170%            | 169%   | 167%   | 172%            | 170%   | 161%   | 161%            | 176%   | 171%   | 172%            | 167%    | 161%    |
|                                    | 50FC | SEER      | 4,20            | 4,18   | 4,12   | 4,23            | 4,20   | 3,97   | 3,97            | 4,35   | 4,22   | 4,26            | 4,13    | 3,98    |
|                                    |      | ηs        | 165%            | 164%   | 162%   | 166%            | 165%   | 156%   | 156%            | 171%   | 166%   | 167%            | 162%    | 156%    |
| Heating:<br>efficiency with R-454B | 50FC | SCOP      | 3,36            | 3,35   | 3,35   | 3,37            | 3,37   | 3,30   | 3,30            | 3,37   | 3,29   | 3,32            | 3,31    | 3,29    |
|                                    |      | ηs        | 131%            | 131%   | 131%   | 132%            | 132%   | 129%   | 129%            | 132%   | 129%   | 130%            | 129%    | 129%    |
| Nominal air flow                   |      | (m³/h)    | 44.000          | 44.000 | 44.000 | 58.000          | 58.000 | 64.000 | 64.000          | 80.000 | 86.000 | 86.000          | 120.000 | 120.000 |
| Available static pressure          |      | (mm.w.c.) | 4               |        |        |                 |        |        |                 |        |        |                 |         |         |
| Number / Diameter                  |      | (mm)      | 2 / 800         |        |        | 2 / 910         |        |        | 4 / 800         |        |        | 4 / 910         |         |         |
| Maximum speed                      |      | (r.p.m.)  | 880 / 670       |        |        | 885 / 685       |        |        | 880 / 670       |        |        | 885 / 685       |         |         |
| Output                             |      | (kW)      | 2 x (1,9 / 1,2) |        |        | 2 x (2,5 / 1,6) |        |        | 4 x (1,9 / 1,2) |        |        | 4 x (2,5 / 1,6) |         |         |
| Max. absorbed current              |      | (A)       | 2 x 3,9         |        |        | 2 x 5,2         |        |        | 4 x 3,9         |        |        | 4 x 5,2         |         |         |

## OPTIONS FOR THE INDOOR CIRCUIT

### Supply plug-fan with different available pressure options

| 50FF/FC                                |                           |  | 100     | 110    | 120    | 130     | 145    | 160    | 170     | 180    | 200    | 220     | 250    | 280    |
|--|---------------------------|--|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Nominal air flow (m³/h)                |                           |  | 18.000  | 19.800 | 21.600 | 23.400  | 26.100 | 28.800 | 30.600  | 32.400 | 36.000 | 39.000  | 40.500 | 45.000 |
| Nominal pressure<br>(Aluminium)<br>(M) | Number / Diameter (mm)    |  | 3 / 500 |        |        | 3 / 500 |        |        | 4 / 500 |        |        | 5 / 500 |        |        |
|  | Speed (r.p.m.)            |  | 1.855   |        |        | 1.855   |        |        | 1.855   |        |        | 1.855   |        |        |
|  | Output (kW)               |  | 3 x 3,1 |        |        | 3 x 3,1 |        |        | 4 x 3,1 |        |        | 5 x 3,1 |        |        |
|  | Max. absorbed current (A) |  | 3 x 4,8 |        |        | 3 x 4,8 |        |        | 4 x 4,8 |        |        | 5 x 4,8 |        |        |
| Low pressure<br>(Aluminium)<br>(F)     | Number / Diameter (mm)    |  | 2 / 500 |        |        | 3 / 500 |        |        | 3 / 500 |        |        | 4 / 500 |        |        |
|  | Speed (r.p.m.)            |  | 1.855   |        |        | 1.855   |        |        | 1.855   |        |        | 1.855   |        |        |
|  | Output (kW)               |  | 2 x 3,1 |        |        | 3 x 3,1 |        |        | 3 x 3,1 |        |        | 4 x 3,1 |        |        |
|  | Max. absorbed current (A) |  | 2 x 4,8 |        |        | 3 x 4,8 |        |        | 3 x 4,8 |        |        | 4 x 4,8 |        |        |
| High pressure<br>(Aluminium)<br>(S)    | Number / Diameter (mm)    |  | 3 / 500 |        |        | 3 / 500 |        |        | 4 / 500 |        |        | 5 / 500 |        |        |
|  | Speed (r.p.m.)            |  | 2.100   |        |        | 2.100   |        |        | 2.100   |        |        | 2.100   |        |        |
|  | Output (kW)               |  | 3 x 4,8 |        |        | 3 x 4,8 |        |        | 4 x 4,8 |        |        | 5 x 4,8 |        |        |
|  | Max. absorbed current (A) |  | 3 x 7,3 |        |        | 3 x 7,3 |        |        | 4 x 7,3 |        |        | 5 x 7,3 |        |        |

Note: the value of power input according to the selected flow can be found at the "Selection Software".

### Return plug-fan (BP / BA / BT / BB / BW assemblies)

| 50FF/FC                                  |                           |  | 100     | 110    | 120    | 130     | 145    | 160    | 170     | 180    | 200    | 220     | 250    | 280    |
|--|---------------------------|--|---------|--------|--------|---------|--------|--------|---------|--------|--------|---------|--------|--------|
| Nominal air flow (m³/h)                  |                           |  | 18.000  | 19.800 | 21.600 | 23.400  | 26.100 | 28.800 | 30.600  | 32.400 | 36.000 | 39.000  | 40.500 | 45.000 |
| Nominal pressure<br>(Polypropyl.)<br>(N) | Number / Diameter (mm)    |  | 2 / 500 |        |        | 2 / 500 |        |        | 3 / 500 |        |        | 3 / 500 |        |        |
|  | Speed (r.p.m.)            |  | 1.800   |        |        | 1.800   |        |        | 1.800   |        |        | 1.855   |        |        |
|  | Output (kW)               |  | 2 x 3,1 |        |        | 2 x 4,8 |        |        | 3 x 3,1 |        |        | 3 x 3,1 |        |        |
|  | Max. absorbed current (A) |  | 2 x 4,7 |        |        | 2 x 7,3 |        |        | 3 x 4,7 |        |        | 3 x 4,8 |        |        |
| Nominal pressure<br>(Aluminium)<br>(M)   | Number / Diameter (mm)    |  | 2 / 500 |        |        | 2 / 500 |        |        | 3 / 500 |        |        | 3 / 500 |        |        |
|  | Speed (r.p.m.)            |  | 1.855   |        |        | 2.100   |        |        | 1.855   |        |        | 1.855   |        |        |
|  | Output (kW)               |  | 2 x 3,1 |        |        | 2 x 4,8 |        |        | 3 x 3,1 |        |        | 3 x 3,1 |        |        |
|  | Max. absorbed current (A) |  | 2 x 4,8 |        |        | 2 x 7,3 |        |        | 3 x 4,8 |        |        | 3 x 4,8 |        |        |
| High pressure<br>(Aluminium)<br>(S)      | Number / Diameter (mm)    |  | 2 / 500 |        |        | 2 / 500 |        |        | 3 / 500 |        |        | 3 / 500 |        |        |
|  | Speed (r.p.m.)            |  | 2.100   |        |        | 2.100   |        |        | 2.100   |        |        | 2.100   |        |        |
|  | Output (kW)               |  | 2 x 4,8 |        |        | 2 x 7,3 |        |        | 3 x 4,8 |        |        | 3 x 4,8 |        |        |
|  | Max. absorbed current (A) |  | 2 x 7,3 |        |        | 2 x 7,3 |        |        | 3 x 7,3 |        |        | 3 x 7,3 |        |        |

Note: the value of power input according to the selected flow can be found at the "Selection Software".

## OPTIONS FOR THE INDOOR CIRCUIT

### Heat recovery wheel module (BW assembly)

This heat recovery wheel is used to transfer the sensible and latent heat from the air-conditioned room's return air to the fresh air used for ventilation, before it's discharged outdoors.

The return air circulates in half of the heat recovery unit and the ventilation air circulates in the other half, in the opposite direction. As the rotor rotates, very fine channels of air which form the matrix come into contact with the fresh air and the return air in turn, thereby transferring heat and humidity from one to the other.

The efficiency of the recovery depends on the following factors:

#### ■ Wheel diameters:

- Models 100 to 120: 1500 mm and 1800 mm
- Models 130 to 170: 1800 mm and 2000 mm
- Models 180 to 280: 2000 mm and 2200 mm

#### ■ Matrix materials:

- Aluminium: sensible heat recovery.
- Hybrid wheel: enthalpic recovery.
- Silicagel coated aluminium: enthalpic recovery with high efficiency in the recovery of latent heat.
- Epoxy coated aluminium (**upon request**): sensible heat recovery in aggressive environments.

#### ■ Channel cross section:

The wheel is formed of two panels of aluminium, one smooth and one fluted. The fluted panel can be provided in two different configurations:

- 2.0 mm cross section: the commonly-used cross section due to its high efficiency and moderate pressure drops.
- 2.5 mm cross section: low pressure drop. Designed for high frontal speeds with low pressure drops.

The heat recovery wheel is fitted into a module placed on one side of the unit.

This module features gravimetric filters G4 with low pressure drop both on the fresh air intake and on the exhaust air outlet.

This assembly can be supplied, in option, with a speed drive for the wheel which avoids the risk of ice forming on the wheel during the defrost operation.

Note: It's recommended to use a CO<sub>2</sub> air quality sensor (optional) in units with rotary heat exchanger.



Recovery module

**Important:** the calculations for the selection of a rotary heat exchanger according to the parameters described above should be done using the "Selection Software".

### Centrifugal return fan (BT / BB assemblies)

| 50FF/FC                      |                              | 100           | 110           | 120           | 130           | 145           | 160           | 170           | 180           | 200           | 220           | 250           | 280           |
|------------------------------|------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Option A:<br>Low airflow     | Air flow (m <sup>3</sup> /h) | 14.400        | 15.840        | 17.280        | 18.720        | 20.880        | 23.040        | 24.480        | 25.920        | 28.800        | 31.200        | 32.400        | 36.000        |
|                              | Available pressure (mm.w.c.) | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            |
|                              | Motor output (kW)            | 2 x 1,5       | 2 x 1,1       | 2 x 1,5       | 3 x 1,5       | 3 x 1,5       | 3 x 1,5       | 3 x 1,1       | 3 x 1,5       | 3 x 2,2       | 3 x 2,2       | 4 x 1,1       | 4 x 1,5       |
|                              | Power input (kW)             | 2 x 0,78      | 2 x 0,98      | 2 x 1,25      | 3 x 0,56      | 3 x 0,72      | 3 x 0,92      | 3 x 1,07      | 3 x 1,25      | 3 x 1,65      | 3 x 2,12      | 4 x 1,05      | 4 x 1,39      |
|                              | Max. abs. current (A)        | 2 x 3,6       | 2 x 2,7       | 2 x 3,6       | 3 x 3,6       | 3 x 3,6       | 3 x 3,6       | 3 x 2,7       | 3 x 3,6       | 3 x 5,0       | 3 x 5,0       | 4 x 2,7       | 4 x 3,6       |
|                              | Speed (r.p.m.)               | 490           | 490           | 548           | 439           | 459           | 490           | 516           | 584           | 610           | 490           | 514           | 581           |
|                              | OPK code                     | 2x<br>OPK0719 | 2x<br>OPK0721 | 2x<br>OPK0722 | 3x<br>OPK0720 | 3x<br>OPK0724 | 3x<br>OPK0719 | 3x<br>OPK0725 | 3x<br>OPK0723 | 3x<br>OPK0726 | 3x<br>OPK0727 | 4x<br>OPK0725 | 4x<br>OPK0723 |
| Option C:<br>Nominal airflow | Air flow (m <sup>3</sup> /h) | 18.000        | 19.800        | 21.600        | 23.400        | 26.100        | 28.800        | 30.600        | 32.400        | 36.000        | 39.000        | 40.500        | 45.000        |
|                              | Available pressure (mm.w.c.) | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            |
|                              | Motor output (kW)            | 3 x 1,5       | 3 x 1,5       | 3 x 1,5       | 3 x 1,1       | 3 x 1,5       | 3 x 2,2       | 3 x 2,2       | 3 x 3,0       | 3 x 3,0       | 3 x 3,0       | 4 x 2,2       | 4 x 3,0       |
|                              | Power input (kW)             | 3 x 0,51      | 3 x 0,64      | 3 x 0,78      | 3 x 0,94      | 3 x 1,27      | 3 x 1,65      | 3 x 1,99      | 3 x 2,33      | 3 x 2,98      | 3 x 2,98      | 4 x 1,95      | 4 x 2,60      |
|                              | Max. abs. current (A)        | 3 x 3,6       | 3 x 3,6       | 3 x 3,6       | 3 x 2,7       | 3 x 3,6       | 3 x 5,0       | 3 x 5,0       | 3 x 6,9       | 3 x 6,9       | 3 x 6,9       | 4 x 5,0       | 4 x 6,9       |
|                              | Speed (r.p.m.)               | 439           | 439           | 490           | 490           | 581           | 623           | 659           | 718           | 757           | 769           | 659           | 718           |
|                              | OPK code                     | 3x<br>OPK0720 | 3x<br>OPK0720 | 3x<br>OPK0719 | 3x<br>OPK0721 | 3x<br>OPK0723 | 3x<br>OPK0726 | 3x<br>OPK0727 | 3x<br>OPK0729 | 3x<br>OPK0728 | 3x<br>OPK0730 | 4x<br>OPK0727 | 4x<br>OPK0729 |
| Option E:<br>High airflow    | Air flow (m <sup>3</sup> /h) | 21.600        | 23.760        | 25.920        | 28.080        | 30.015        | 31.680        | 35.190        | 35.640        | --            | --            | 48.600        | 49.500        |
|                              | Available pressure (mm.w.c.) | 15            | 15            | 15            | 15            | 15            | 15            | 15            | 15            | --            | --            | 15            | 15            |
|                              | Motor output (kW)            | 3 x 1,5       | 3 x 1,1       | 3 x 1,5       | 3 x 1,5       | 3 x 2,2       | 3 x 2,2       | 3 x 3,0       | 3 x 3,0       | --            | --            | 4 x 3,0       | 4 x 3,0       |
|                              | Power input (kW)             | 3 x 0,78      | 3 x 0,98      | 3 x 1,25      | 3 x 1,47      | 3 x 1,88      | 3 x 2,2       | 3 x 2,96      | 3 x 2,98      | --            | --            | 4 x 2,98      | 4 x 2,98      |
|                              | Max. abs. current (A)        | 3 x 3,6       | 3 x 2,7       | 3 x 3,6       | 3 x 3,6       | 3 x 5,0       | 3 x 5,0       | 3 x 6,9       | 3 x 6,9       | --            | --            | 4 x 6,9       | 4 x 6,9       |
|                              | Speed (r.p.m.)               | 490           | 490           | 548           | 581           | 659           | 659           | 757           | 757           | --            | --            | 376           | 769           |
|                              | OPK code                     | 3x<br>OPK0719 | 3x<br>OPK0721 | 3x<br>OPK0722 | 3x<br>OPK0723 | 3x<br>OPK0727 | 3x<br>OPK0727 | 3x<br>OPK0728 | 3x<br>OPK0728 | --            | --            | 4x<br>OPK0728 | 4x<br>OPK0730 |

## OPTIONS FOR THE INDOOR CIRCUIT

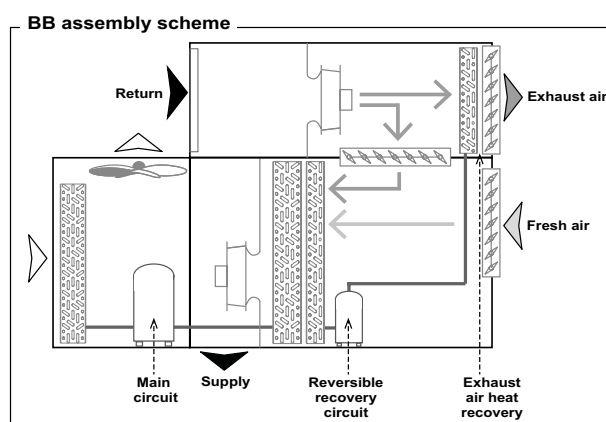
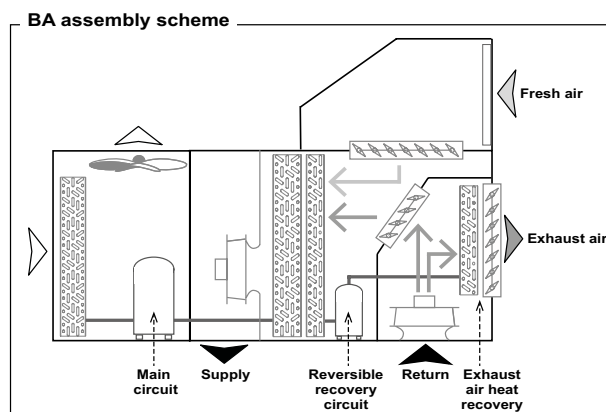
### Cooling recovery circuit (BA / BB assemblies)

Thermodynamic circuit dedicated to the recovery of the extracted air energy, with independent and proportional control, adapted to the air renewal requirements in order to raise the COP, EER and seasonal efficiency of the unit set.

■ The circuit is composed of:

- EC plug-fan in return section.
- Air circuit comprised of coils with copper pipes and aluminium fins.
- Electronic expansion valve.
- Hermetic scroll-type compressor with sound insulation, assembled over antivibration mounts.
- Crankcase heater.
- Four-way cycle reversing valve.
- Anti-acid dehydrator filter.
- High and low pressure transducers.
- Condensates drain pan.

| 50FF/FC                                  | 100 to 120   | 130 to 145 | 160 to 170 | 180 to 220 | 250 to 280 |
|--|--|------------|------------|------------|------------|
| Compressor type                          | Scroll   |            |            |            |            |
| No. of compressors / circuits            | 1 / 1  |            |            |            |            |
| Max. absorbed current (A)                | 13,7   | 18,7       | 21,7       | 24,0       | 27,5       |
| Oil type                                 | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC |            |            |            |            |
| Volume of oil (l)                        | 3,0  | 3,3        | 3,3        | 3,3        | 3,6        |
| Charge of R-454B (kg)                    | 4,8  | 5,8        | 5,8        | 6,8        | 10,7       |
| Environment impact (tCO <sub>2</sub> eq) | 2,2  | 2,7        | 2,7        | 3,2        | 5,0        |



### Heat recovery coil

The function of the heat recovery coil is to pre-heat the air that will pass through the main indoor coil. For this, it uses the temperature of an outdoor water installation. This function is managed by the unit's electronic control.

The coil is supplied with a 3-way valve for installation outside the unit but manages by the unit's electronic control.

This option is compatible with B1, B2, BT and BB assemblies.

| 50FF/FC  |                                 | 100  | 110  | 120  | 130  | 145  | 160  | 170  | 180  | 200  | 220  | 250  | 280  |
|--|---------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Air pressure drop (mm.w.c.)                      |                                 | 2,3  | 2,7  | 3,1  | 2,9  | 3,6  | 4,2  | 4,6  | 4,6  | 5,5  | 6,2  | 5,8  | 6,0  |
| Water 35/30°C<br>(30% MEG) and<br>inlet air 20°C | Heating capacity (kW)           | 39,4 | 41,9 | 44,3 | 49,9 | 53,4 | 56,9 | 59,0 | 58,5 | 62,6 | 64,8 | 81,6 | 82,8 |
|  | Water flow (m³/h)               | 7,3  | 7,8  | 8,2  | 9,3  | 9,9  | 10,5 | 10,9 | 10,9 | 11,6 | 12,1 | 15,2 | 15,4 |
|  | Water pressure drop (1) (m.w.c) | 3,1  | 3,2  | 3,3  | 5,1  | 5,3  | 5,6  | 5,7  | 4,4  | 4,5  | 4,5  | 7,0  | 7,0  |

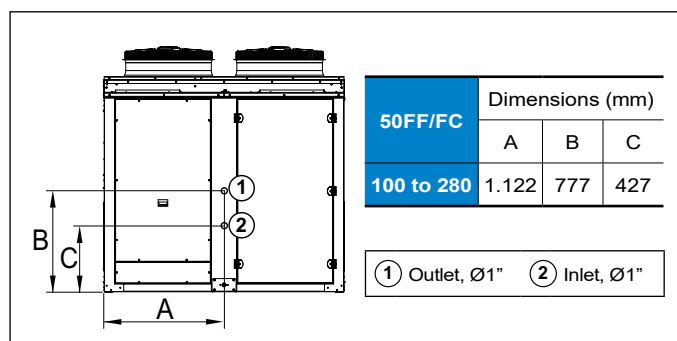
(1) Pressure drop in the coil and in the internal circuit of the unit.

Note: the heat recovery coil is not compatible with the hot water coil or the gas burner.

### Correction coefficients

|                         |         |         |         |
|-------------------------|---------|---------|---------|
| Water (inlet air 20°C)  | 30/35°C | * /40°C | * /45°C |
| Correction coefficients | 1,00    | 1,35    | 1,70    |
| % of MEG                | 10%     | 20%     | 30%     |
| Correction coefficients | 1,06    | 1,03    | 1,00    |

### Position of the hydraulic connections



## OPTIONS FOR THE INDOOR CIRCUIT

### Droplet eliminator after the indoor air coil

Air flow at which it is recommended to install a droplet eliminator after the indoor coil.

| 50FF/FC         | 100    | 110    | 120    | 130    | 145    | 160    | 170    | 180    | 200    | 220    | 250    | 280    |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Air flow (m³/h) | 25.920 | 25.920 | 25.920 | 34.700 | 34.700 | 34.700 | 34.700 | 39.658 | 39.658 | 39.658 | 46.675 | 46.675 |

Note: for operating conditions with high dehumidification in the indoor coil (e.g. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

Note: the droplet eliminator after the indoor coil is not compatible with the hot water coil.

### Auxiliary electrical heaters

Auxiliary electrical heaters, with two power stages and on/off control, for assembly and connection inside the unit.

■ Up to 3 values of total power available for each model:

| 50FF/FC    | RAF (Low) | RAM (Nominal) | RAS (High) |
|------------|-----------|---------------|------------|
| 100 to 120 | 27 kW     | 36 kW         | 54 kW      |
| 130 to 170 | 36 kW     | 54 kW         | 72 kW      |
| 180 to 220 | 45 kW     | 72 kW         | 90 kW      |
| 250 to 280 | 54 kW     | 72 kW         | 108 kW     |

■ Characteristics:

| Total power (kW)  | 27             | 36            | 45            | 54            | 72            | 90            | 108           |
|-------------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Stages power (kW) | 9<br>+<br>18   | 18<br>+<br>18 | 18<br>+<br>27 | 27<br>+<br>27 | 36<br>+<br>36 | 45<br>+<br>45 | 54<br>+<br>54 |
| Current (A)       | 39,0           | 52,0          | 65,0          | 78,0          | 104,0         | 130,0         | 156,0         |
| Power supply      | 400 V / III ph |               |               |               |               |               |               |

### Auxiliary hot water coil

Auxiliary hot water coil, with three-way valve and proportional control, for assembly and connection inside the unit. This option always incorporates a freeze protection thermostat.

| 50FF/FC                          | 100                          | 110   | 120   | 130   | 145   | 160   | 170   | 180   | 200   | 220   | 250   | 280   |
|----------------------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Air pressure drop (mm.w.c.)      | 2,2                          | 2,6   | 3,0   | 2,9   | 3,5   | 4,1   | 4,5   | 3,9   | 4,7   | 5,4   | 4,2   | 5,0   |
| Water 80/60°C and inlet air 20°C | Heating capacity (kW)        | 181,0 | 192,4 | 203,2 | 226,4 | 242,3 | 257,3 | 266,8 | 278,2 | 295,8 | 309,5 | 336,8 |
|                                  | Water flow (m³/h)            | 8,0   | 8,5   | 9,0   | 10,0  | 10,7  | 11,4  | 11,8  | 12,3  | 13,1  | 13,7  | 14,9  |
|                                  | Water pressure drop (m.w.c.) | 3,3   | 3,4   | 3,5   | 4,0   | 4,2   | 4,3   | 4,4   | 4,3   | 4,3   | 4,3   | 5,9   |
| Water 90/70°C and inlet air 20°C | Heating capacity (kW)        | 222,5 | 236,6 | 250,0 | 278,1 | 297,9 | 316,6 | 328,3 | 346,2 | 368,2 | 385,7 | 416,9 |
|                                  | Water flow (m³/h)            | 9,9   | 10,5  | 11,1  | 12,4  | 13,3  | 14,1  | 14,6  | 15,4  | 16,4  | 17,1  | 18,5  |
|                                  | Water pressure drop (m.w.c.) | 3,6   | 3,7   | 3,8   | 4,5   | 4,6   | 4,8   | 5,0   | 4,4   | 4,4   | 4,5   | 6,1   |

Note: Maximum water inlet temperature 95°C, maximum pressure 4 bar.

Note: The hot water coil is not compatible with the droplet eliminator after the indoor air coil or the heat recovery coil.

### Position of the hydraulic connections of the hot water coil

The inlet/outlet connections of the hot water coil are located inside the unit and the connection is made via the side panel.

It can also be made via the base of the unit using flexible piping (for installation with pre-assembly roofcurb).

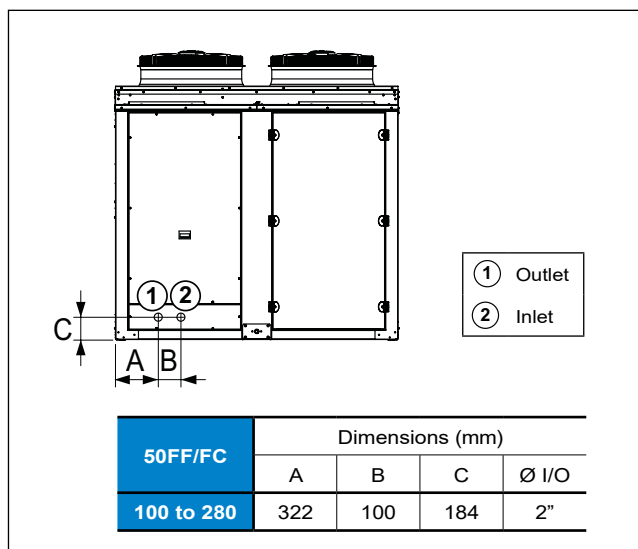
The position of the sheet metal precuts on the side panel are shown in the following diagrams.

### “Very low outdoor temperature” option (upon request)

■ This anti-freeze safety incorporates:

- Circulation pump.
- Water temperature sensors located in the inlet and the outlet of the coil.

Important: this option is mandatory for an outdoor temperature lower than -20°C WB. Consult for percentages of glycol water above 20%.



## OPTIONS FOR THE INDOOR CIRCUIT

### Warm air heater module with gas burner

Warm air heater module with gas burner with modulating actuator, in accordance with the Gas Directive 2009/142/EC, installed inside a pre-assembly roofcurb. The 50FF/FC unit with lower air supply will be placed on this roofcurb.

EC certification: 0476CQ0451.

■ Two values of power available for each model:

| 50FF/FC       | 100 to 120 | 130 to 170 | 170 to 280 |
|---------------|------------|------------|------------|
| BAM (Nominal) | PCH080     | PCH130     | PCH160     |
| BAS (High)    | PCH130     | PCH160     | PCH210     |

Note: the gas burner is not compatible with the heat recovery coil.

■ The key features of the boiler are:

- Natural or propane gas burner.
- Condensation boiler with premixing and modulation technology that allows outputs close to 109% (Hi performance).
- The premixed burner, in combination with the air/gas valve, ensures a "clean" combustion. Low NOx emissions < 70 mg/kWh HCV (class 5, according to standard EN 297).

Note: Burners must not exceed NOx:70mg/kWh HCV emission values from January 1<sup>st</sup>, 2021 (according to European Regulations 2016/2281).

- The combustion chamber and the burner are entirely made of stainless steel.
- Electronic controller with microprocessor and multifunction LCD display, located inside the burner, for burner's control, configuration and diagnostics.

- The electronic control of the unit will only manage the burner connection as heating support depending on the ambient conditions.



Note: It's recommended to use the clogged filter pressostat (optional) in units with gas burner.

| Model  |  | PCH080                                    |                              | PCH130<br>(2 x PCH065) |                       | PCH160<br>(2 x PCH080) |                       | PCH210<br>(2 x PCH105) |                       |        |
|--|--|---|------------------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|--------|
| Type of equipment                            |  | B23P - B53P - C13 - C43 - C53 - C63 - C83 |                              |                        |                       |                        |                       |                        |                       |        |
| EC certification                             |  | PIN.                                      | 0476CQ0451                   |                        |                       |                        |                       |                        |                       |        |
| NOx Class                                    |  | Val                                       | 5                            |                        |                       |                        |                       |                        |                       |        |
| Heater<br>performance                        | Range  |   | Min.                         | Max                    | Min.                  | Max                    | Min.                  | Max                    | Min.                  | Max    |
|  | Thermal output (Hi)                                      | kW  | 16,40                        | 82,00                  | 12,40                 | 130,00                 | 16,40                 | 164,00                 | 21,00                 | 200,00 |
|  | Useful thermal output                                    | kW  | 17,77                        | 80,03                  | 13,40                 | 125.86                 | 17,77                 | 160.06                 | 22,77                 | 194,30 |
|  | Hi performance (L.C.V.)                                  | %   | 108,35                       | 97,60                  | 108,06                | 96,82                  | 108,35                | 97,60                  | 108,40                | 97,15  |
|  | Hs performance (H.C.V.)                                  | %   | 97,62                        | 87,93                  | 97,36                 | 87,22                  | 97,62                 | 87,93                  | 97,68                 | 87,52  |
|  | Flue losses with burner on (Hi)                          | %   | 0,3                          | 2,4                    | 0,2                   | 3,2                    | 0,3                   | 2,4                    | 0,2                   | 2,8    |
|  | Flue losses with burner off (Hi)                         | %   | <0,1                         |                        |                       |                        |                       |                        |                       |        |
|  | Losses in enclosure (1)                                  |   | 0%                           |                        |                       |                        |                       |                        |                       |        |
| Max. condensation (2)                        |  | l/h                                       | 3,3                          |                        | 4,2                   |                        | 6,6                   |                        | 5,4                   |        |
| Exhaust<br>gases -<br>Polluting<br>emissions | Carbon monoxide - B1 - (0% of O2) (3)                    | ppm                                       | < 5                          |                        |                       |                        |                       |                        |                       |        |
|  | Nitrogen oxides - NOx - (0% of O <sub>2</sub> ) (Hi) (4) |   | 41 mg/kWh -<br>23 ppm        |                        | 39 mg/kWh -<br>22 ppm |                        | 41 mg/kWh -<br>23 ppm |                        | 39 mg/kWh -<br>22 ppm |        |
|  | Nitrogen oxides - NOx - (0% of O <sub>2</sub> ) (Hs) (5) |   | 37 mg/kWh -<br>21 ppm        |                        | 35 mg/kWh -<br>20 ppm |                        | 37 mg/kWh -<br>21 ppm |                        | 35 mg/kWh -<br>20 ppm |        |
|  | Available pressure at flue                               | Pa  | 120                          |                        |                       |                        |                       |                        |                       |        |
| Electrical<br>data                           | Power supply   |   | 230 Vac - 50 Hz single-phase |                        |                       |                        |                       |                        |                       |        |
|  | Power input  |   | 20                           | 123                    | 30                    | 194                    | 40                    | 246                    | 40                    | 260    |
|  | Power input in stand-by                                  |   | <5                           |                        |                       |                        |                       |                        |                       |        |
|  | Ingress protection rating                                |   | IP X5D                       |                        |                       |                        |                       |                        |                       |        |
|  | Operating temperatures                                   |   | from -15°C to +40°C          |                        |                       |                        |                       |                        |                       |        |
| Connections                                  | Ø gas connection   | GAS                                       | 3/4" M                       |                        | 1 1/2" M              |                        |                       |                        |                       |        |
|  | Ø intake/exhaust pipes                                   | mm  | 80/80                        |                        | 2 x 80/80             |                        |                       |                        |                       |        |

(1) Enclosure losses match those of the machine housing the PCH.

(2) Max. condensation produced acquired from testing 30%Qn.

(3) Value referenced to cat. H (G20)

(4) Weighted value to EN1020:2009 ref. to class H (G20), referred to Hi (L.C.V.).

(5) Weighted value to EN1020:2009 ref. to class H (G20), referred to Hs (H.C.V.).



## OPTIONS FOR THE INDOOR CIRCUIT

### ■ Gas settings:

| Gas type         | Gas settings                             |      | PCH080   |      | PCH130<br>(2 x PCH065) |          | PCH160<br>(2 x PCH080) |          | PCH210<br>(2 x PCH105) |           |
|------------------|--|------|--|------|------------------------|----------|------------------------|----------|------------------------|-----------|
|                  |  |      | min.   | max. | min.                   | max.     | min.                   | max.     | min.                   | max.      |
| G20<br>Cat. E-H  | Air supply pressure                      | mbar | 20 [min 17-max 25]   |      |                        |          |                        |          |                        |           |
|                  | Ø pilot nozzle                           | mm   | 0,7  |      |                        |          |                        |          |                        |           |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 1,74   | 8,68 | 2 x 1,31               | 2 x 6,88 | 2 x 1,74               | 2 x 8,68 | 2 x 2,22               | 2 x 10,58 |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 8,7  | 9,1  | 8,7                    | 9,1      | 8,7                    | 9,1      | 8,5                    | 9,1       |
|                  | Fumes temperature                        | °C   | 26,5   | 70   | 31                     | 86       | 26,5                   | 70       | 28                     | 80        |
|                  | Fume mass flow rate (max.)               | kg/h | 135  |      | 2 x 107                |          | 2 x 135                |          | 2 x 165                |           |
|                  | Gas butterfly valve                      | mm   | 12,2   |      | 11,0                   |          | 12,2                   |          | 15,8                   |           |
| G25<br>Cat. L-LL | Air supply pressure                      | mbar | 25 [min 17-max 30] (20 for Germany)                              |      |                        |          |                        |          |                        |           |
|                  | Ø pilot nozzle                           | mm   | 0,7 (0,75 for Germany)   |      |                        |          |                        |          |                        |           |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 2,02   | 10,1 | 2 x 1,53               | 2 x 8,00 | 2 x 2,02               | 2 x 10,1 | 2 x 2,21               | 2 x 12,30 |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 8,6  | 8,9  | 8,8                    | 9,2      | 8,6                    | 8,9      | 8,8                    | 9,0       |
|                  | Fumes temperature                        | °C   | 26   | 70   | 31                     | 86       | 26                     | 70       | 28                     | 80        |
|                  | Fume mass flow rate (max.)               | kg/h | --   |      |                        |          |                        |          |                        |           |
|                  | Gas butterfly valve                      | mm   | Not necessary  |      |                        |          |                        |          |                        |           |
| G30<br>Cat. 3B-P | Air supply pressure                      | mbar | 30 [min 25-max 35] - 50 [min 42,5-max 57,5]                      |      |                        |          |                        |          |                        |           |
|                  | Ø pilot nozzle                           | mm   | 0,51   |      |                        |          |                        |          |                        |           |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 1,49   | 6,80 | 2 x 1,03               | 2 x 5,39 | 2 x 1,49               | 2 x 6,80 | 2 x 1,70               | 2 x 8,30  |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 10,1   | 10,3 | 10,7                   | 11,3     | 10,1                   | 10,3     | 10,4                   | 10,6      |
|                  | Fumes temperature                        | °C   | 26,5   | 70   | 31                     | 86       | 26,5                   | 70       | 28                     | 80        |
|                  | Fume mass flow rate (max.)               | kg/h | --   |      |                        |          |                        |          |                        |           |
|                  | Gas butterfly valve                      | mm   | 7,0  |      | 6,5                    |          | 7,0                    |          | 9,3                    |           |
| G31<br>Cat. 3P   | Air supply pressure                      | mbar | 30 [min 25-max 35] - 37 [min 25-max 45] - 50 [min 42,5-max 57,5] |      |                        |          |                        |          |                        |           |
|                  | Ø pilot nozzle                           | mm   | 0,51   |      |                        |          |                        |          |                        |           |
|                  | Gas consumption (15°C-1013mbar)          | m3/h | 1,34   | 6,70 | 2 x 1,01               | 2 x 5,31 | 2 x 1,34               | 2 x 6,70 | 2 x 1,47               | 2 x 8,18  |
|                  | Carbon dioxide - CO <sub>2</sub> content | %    | 9,3  | 9,6  | 9,4                    | 9,6      | 9,3                    | 9,6      | 9,5                    | 9,8       |
|                  | Fumes temperature                        | °C   | 26,5   | 70   | 31                     | 86       | 26,5                   | 70       | 28                     | 80        |
|                  | Fume mass flow rate (max.)               | kg/h | 107  |      | 2 x 84                 |          | 2 x 107                |          | 2 x 130                |           |
|                  | Gas butterfly valve                      | mm   | 7,0  |      | 6,5                    |          | 7,0                    |          | 9,3                    |           |

### ■ Type of gas used depending on the destination country:

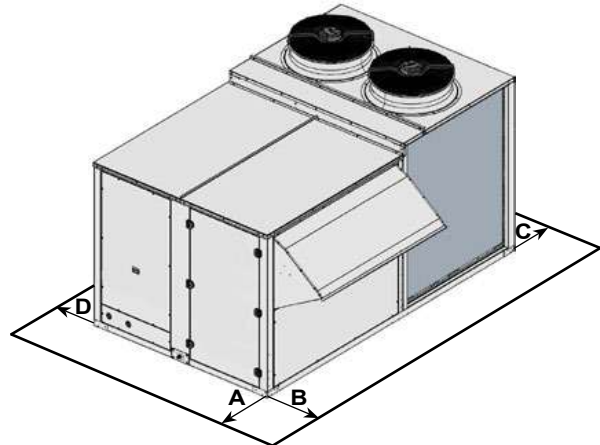
| Country   | Category      | Gas                | Pressure (mbar) | Gas     | Pressure (mbar) |
|---|---------------|--------------------|-----------------|---------|-----------------|
| Austria, Switzerland  | II2H3B/P      | G20                | 20              | G30/G31 | 50              |
| Belgium < 70kW  | I2E(S)B,I3P   | G20/G25            | 20/25           | G31     | 37              |
| Belgium > 70kW  | I2E(R)B,I3P   | G20/G25            | 20/25           | G31     | 37              |
| Germany   | II2ELL3B/P    | G20/G25            | 20              | G30/G31 | 50              |
| Denmark, Finland, Greece, Sweden, Norway, Italy, Czech Republic, Estonia, Lithuania, Slovenia, Albania, Macedonia, Bulgaria, Romania, Croatia, Turkey, Azerbaijan | II2H3B/P      | G20                | 20              | G30/G31 | 30              |
| Spain, United Kingdom, Ireland, Portugal, Slovakia  | II2H3P        | G20                | 20              | G31     | 37              |
| France  | II2Esi3P      | G20/G25            | 20/25           | G31     | 37              |
| Luxembourg  | II2E3P        | G20/G25            | 20              | G31     | 37/50           |
| Netherlands   | II2EK3B/P     | G20/G25.3          | 20/25           | G30/G31 | 30              |
| Hungary   | II2HS3B/P     | G20/G25.1          | 25              | G30/G31 | 30              |
| Cyprus, Malta   | I3B/P         | --                 | --              | G30/G31 | 30              |
| Latvia  | I2H           | G20                | 20              |         |                 |
| Iceland   | I3P           | --                 | --              | G31     | 37              |
| Poland  | II2ELwLs-3B/P | G20/G27/G2.350 (*) | 20/13           | G30/G31 | 37              |
| Russia  | II2H3B/P      | G20                | 20              | G30/G31 | 30              |

(\*) Consult the available burners with G2.350.

## RECOMMENDED SERVICE CLEARANCE

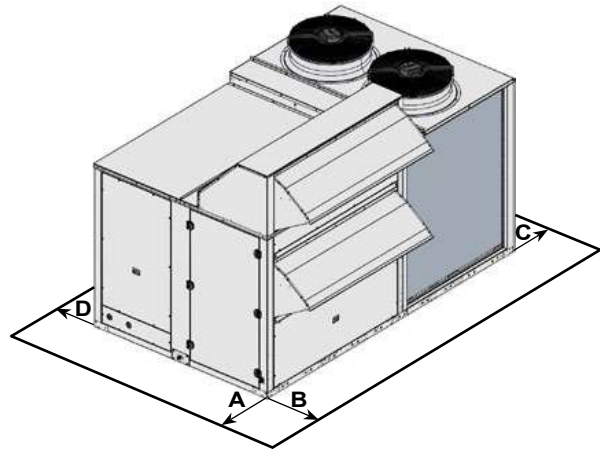
### 50FF/FC 100 to 170: B1 and B2 assemblies

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 100 to 120 | 3.820                  | 2.257 | 2.293  | 2.200                  | 1.000 | 1.200 | 1.000 |
| 130 to 170 | 4.224                  | 2.257 | 2.340  | 2.400                  | 1.000 | 1.200 | 1.000 |



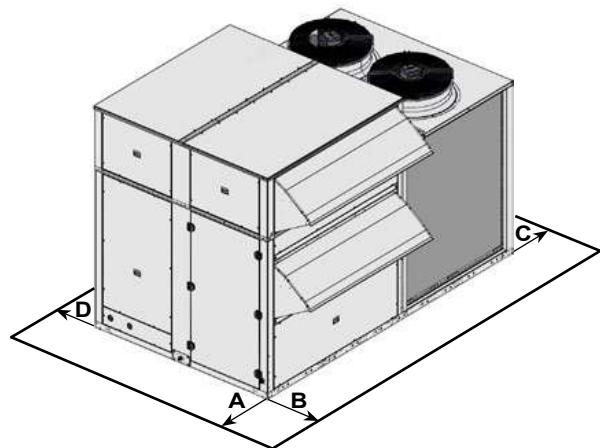
### 50FF/FC 100 to 170: BP and BA assemblies

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 100 to 120 | 3.820                  | 2.257 | 2.555  | 2.200                  | 1.000 | 1.200 | 1.000 |
| 130 to 170 | 4.224                  | 2.257 | 2.555  | 2.400                  | 1.000 | 1.200 | 1.000 |



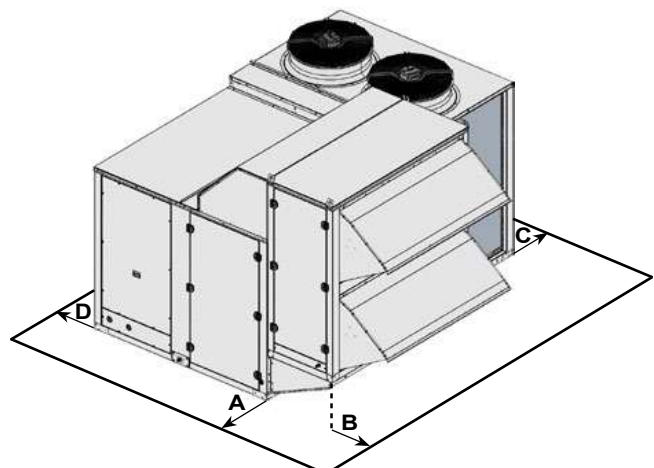
### 50FF/FC 100 to 170: BT and BB assemblies

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 100 to 120 | 3.825                  | 2.268 | 2.555  | 2.200                  | 1.000 | 1.200 | 1.000 |
| 130 to 170 | 4.229                  | 2.268 | 2.555  | 2.400                  | 1.000 | 1.200 | 1.000 |



### 50FF/FC 100 to 170: BW assembly

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 100 to 120 | 3.820                  | 3.112 | 2.255  | 2.200                  | 1.000 | 1.200 | 1.000 |
| 130 to 170 | 4.224                  | 3.112 | 2.555  | 2.400                  | 1.000 | 1.200 | 1.000 |



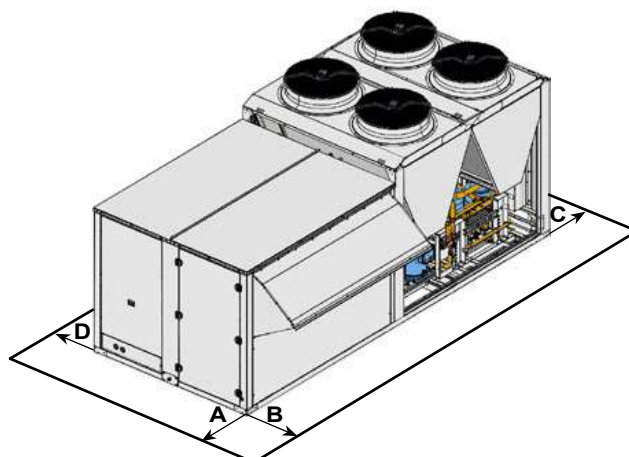
#### NOTE:

- Unit not designed to have overhead obstruction.

## RECOMMENDED SERVICE CLEARANCE

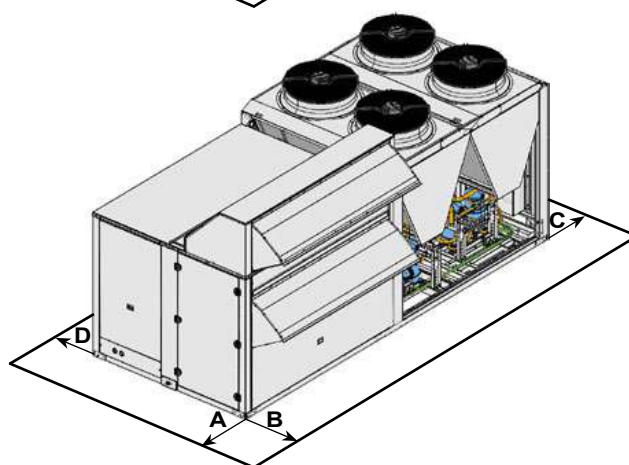
### 50FF/FC 180 to 280: B1 and B2 assemblies

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 180 to 220 | 5.300                  | 2.257 | 2.421  | 2.600                  | 2.500 | 1.200 | 1.000 |
| 250 to 280 | 6.350                  | 2.257 | 2.494  | 3.000                  | 2.500 | 1.200 | 1.000 |



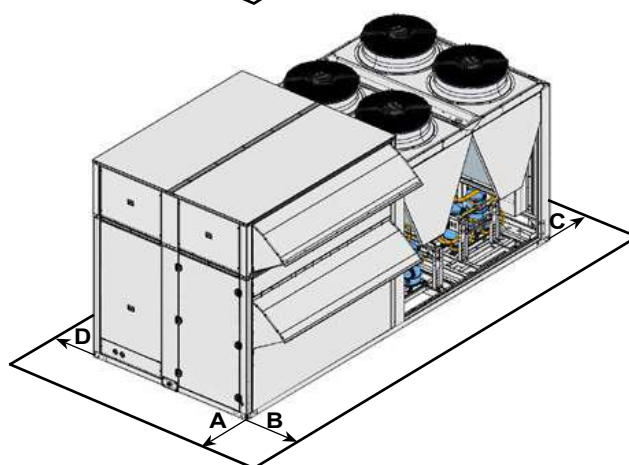
### 50FF/FC 180 to 280: BP and BA assemblies

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 180 to 220 | 5.300                  | 2.257 | 2.555  | 2.600                  | 2.500 | 1.200 | 1.000 |
| 250 to 280 | 6.350                  | 2.257 | 2.555  | 3.000                  | 2.500 | 1.200 | 1.000 |



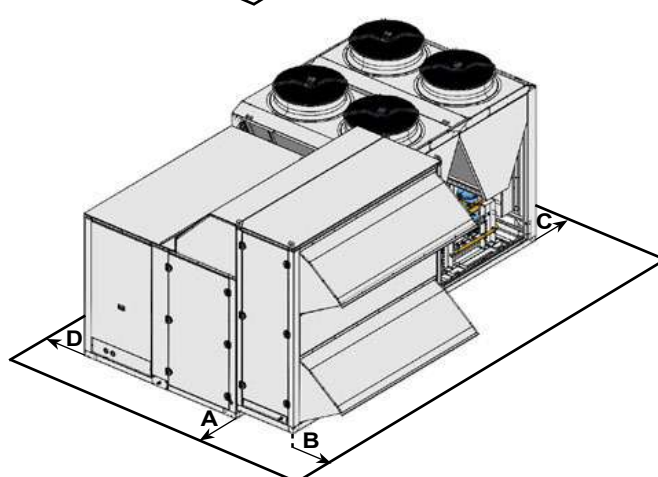
### 50FF/FC 180 to 280: BT and BB assemblies

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 180 to 220 | 5.306                  | 2.268 | 2.555  | 2.600                  | 2.500 | 1.200 | 1.000 |
| 250 to 280 | 6.356                  | 2.268 | 2.555  | 3.000                  | 2.500 | 1.200 | 1.000 |



### 50FF/FC 180 to 280: BW assembly

| 50FF/FC    | Overall dimension (mm) |       |        | Service clearance (mm) |       |       |       |
|------------|------------------------|-------|--------|------------------------|-------|-------|-------|
|            | Length                 | Width | Height | A                      | B     | C     | D     |
| 180 to 220 | 5.300                  | 3.112 | 2.555  | 2.600                  | 1.700 | 1.200 | 1.000 |
| 250 to 280 | 6.350                  | 3.112 | 2.555  | 3.000                  | 2.500 | 1.200 | 1.000 |



#### NOTE:

- Unit not designed to have overhead obstruction.

## AIR-COOLED CONDENSING UNITS WITH AXIAL FAN AND VERTICAL DISCHARGE



Split-system  
R-410A refrigerant  
Outdoor unit with axial fan  
Configuration flexibility

## 38ZS/ZF

Cooling capacity 21-138 kW  
Heating capacity 23-148 kW

The **38ZS/ZF** range are air-cooled condensing units designed for installation outdoors. They can be connected on-site with one direct expansion exchanger (or two in case of models 200 to 360).

Two options are available:

- **38ZS series: non reversible** units.
- **38ZF series: reversible** units.

They are equipped axial fan(s) with free vertical discharge, hermetic scroll-type compressor(s) and electric panel with electronic control with optimized components for the refrigerant R-410A

A vast number of options meet numerous operating demands.

All of the units are tested and checked in the factory

### Range

- 1 cooling circuit, 1 compressor:
  - Models: 90 / 100 / 120 / 160 / 180 / 182
- 2 cooling circuits, 2 compressors:
  - Models: 200 / 240 / 320 / 360 / 420 / 485 / 540 / 600

## OPERATING LIMITS

| Inlet air conditions |         | Cooling | Heating   |
|----------------------|---------|---------|-----------|
| Refrigerant ①        | Minimum | -6 °C   | 40 °C     |
|                      | Maximum | 10 °C   | 52 °C     |
| Inlet air            | Minimum | 12 °C ② | -10 °C WB |
|                      | Maximum | 48 °C   | 15 °C WB  |

① For connection with a direct expansion exchanger.

② With control of operation condensation pressure activated up to -10°C.

## UNIT COMPONENTS

- Casing made of galvanised steel metal with polyester paint, grey graphite colour RAL 7024 and white RAL 7035. Self-supporting frame.

### Air circuit

- Axial 2-speed fan(s) directly coupled to the motor (models 90 to 182 wired to high speed). Watertight motor class F, IP54 and internal thermal protection. Dynamically balanced propellers and outdoor protective grille.
- Coil(s) with copper pipes and aluminium fins. Two designs:
  - Models 90 to 320: Coil in U
  - Models 360 to 600: Coils in V
- Condensates drain pan (in models 360 to 600).

### Cooling circuit

- Hermetic scroll-type compressor(s) with sound insulation, assembled over shock absorbers. Control of phase equilibrium and the direction of rotation.
- Crankcase heater.
- Thermostatic expansion valve(s) with external equalisation (heat pump units).
- Four-way cycle reversing valve(s) (heat pump units).
- Particle separator(s), anti-acid dehydrating filter(s) and liquid receiver(s).
- Cooling connections for welding.
- Maximum equivalent length of the cooling line 50 metres (for longer distances, it is necessary to use an oil separator).

### Protections

- High and low pressure pressostats.
- Compressor discharge temperature control.
- Non-return valve built into the compressor.
- Main door switch.
- Magnetothermic protection switches for the compressor(s) and fan(s) motor power line.
- Automatic switch in the control circuit.

### Electric panel

- Complete and fully wired electrical panel. Insulated panel cover to prevent condensation. Protection IP55.
- Transformer for power supply without neutral included in the electrical panel.
- Main ground connection.
- Compressor(s) and fan(s) motor contacts.

## COMPLIANCE

- Machinery Directive 2006/42/CE (MD)
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Low Voltage Directive 2014/35/EU (LVD)
- Pressure Equipment Directive 2014/68/EU (Category 2) (PED)
- RoHS Directive 2011/65/EU (RoHS)
- Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

## Optional

### Outdoor environment

#### Temperature

- Electrical heater for protection of the components of the electric panel. This is compulsory if the outdoor temperature is lower than -8°C WB. With an outdoor temperature over than -16°C WB will be compulsory a reinforced resistance.
- Compressor with protection for low temperature (supplementary crankcase heater). This is compulsory if the outdoor temperature is lower than -8°C WB.

#### Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating.

#### Humidity

- Tropicalised electric panel.
- Tropicalised motors and fans (please consult).

### Installation

- Antivibration mounts made of rubber.
- Service valves and refrigerant load for cooling connections (up to 7,5 meters long).
- Oil separator for cooling connections with maximum equivalent length of the cooling line greater than 50 metres.
- Air coil protection grille (in models 90 to 320).
- Condensates drain pan (in models 90 to 320).

### Electric panel

- Electrical power supply with neutral.
- Energy meter for monitoring of the power consumption of the installation (with CIATrtc control).
  - Models 90 to 182: available if the unit does not incorporate electrical heaters.
  - Models 200 to 600: available with all optional.

### Energy saving

- Electronic EC axial fans that adjust their rotation speed to the installation requirements, thereby reducing electricity consumption, the sound level at partial charge and improving the average seasonal output of the unit.



## ELECTRONIC CONTROLS

### CARRIERrtc basic & medium (standard)

Available in two versions:

■ **CARRIERrtc basic:** models 90 to 182

■ **CARRIERrtc medium:** models 200 to 600

*Note: Optionally, the models 90 to 182 can incorporate the CARRIERrtc medium version.*

CARRIERrtc basic & medium control is an electronic module with microprocessor comprised of a control board and a TCO user terminal that ensures the following functions:

■ Selection of the operating mode:

- HEATING
- COOLING
- AUTO *Auto*
- DESHUMIDIFICATION
- FAN (no icon).



- Modification of the set-point.
- Permanent control of the operating parameters.
- View of the values measured by the sensors.
- View of the alarms produced by means of codes.
- Timing of the compressors.
- Control of the compressor discharge temperature by probe.
- Control of the ambient temperature thanks to the probe incorporated into TCO terminal. This probe can be replaced by an return or ambient probe that would be installed in the control board.
- Operation during all seasons via the condensation and evaporation pressure control.
- Control of the outlet temperature to improve thermal **comfort level** of the installation.
  - In cooling mode this control prevents excessively significant drops in the ambient temperature.
  - In heating mode, it prevents the stratification of the hot air masses.
- The following features improve the energy management of the installation:



**Defrosting management** (in heat pump units). Possibility of **intelligent defrosting** that reduces energy consumption of the heat pump, by adjusting the time between defrosting operations to the actual needs of the unit.



**Compensation of the set-point** based on the outdoor temperature. This function prevents thermal "shock" between the inside and outside of the premises whilst at the same time provides significant energy savings



**Time schedule** that reduces energy consumption, adjusting the needs of air conditioning of the building TCO terminal has a schedule programmer with an intuitive graphic interface that allows 6 time slots to be chosen for each day of the week. A change in the set-point temperature or the disconnection of the unit can be scheduled in these time slots (according to the building occupancy).



### Optional functions:

If the indoor unit connected to the 38ZS/ZF unit has these options:

- Control of the auxiliary electrical heaters.
- Proportional control of a hot water auxiliary coil.
- Humidity control.
- Anti-fire safety.
- Control of the opening of the outdoor air damper.
- Management of thermal free-cooling.
- Detection of clogged filters and air flow control.
- Connection to a centralised technical management system (BMS) for supervision (please see "Optional" chapter).

### pGD1 Terminal (optional):

Optionally, this control can have a terminal for pGD1 maintenance that facilitates the initial scheduling of the unit, the modification of the operating parameters and the description of the alarms produced.



### CARRIERrtc electronic control (optional)

Electronic module with microprocessor comprised of a control board and a pGD1 graphic terminal installed over the unit electric panel and accessed using a polycarbonate collapsible window.

Optionally this terminal can be replaced by a TCO user terminal for installation inside of the premises. In this case the TCO terminal are not allowed to access parameters control and time schedule

The management of the ambient temperature is controlled via a NTC ambient probe. This probe can be replaced by 1 or 2 RS485 probes.



In addition to the functions described in CARRIERrtc basic & medium control, depending on the indoor unit connected to the 38ZS/ZF unit, this control allows controlling optional elements such as:

- Electronic plug-fans.
- Enthalpic or thermoenthalpic free-cooling.
- Smoke detecting station.
- Air quality probe for measuring CO<sub>2</sub> and/or volatile compounds..
- Energy meter.
- Refrigerant leak detector.

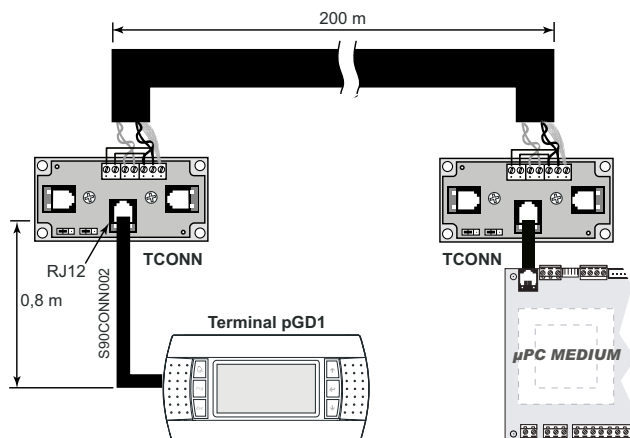
It also manages a local connection between units through a pLAN network (Local Area Network), thus allowing communication of data and information for a maximum of 15 units. This enables the reduction of the number of pGD1 terminals, since a single shared terminal can monitor all control boards. It also allows to share the reading of some probes.



## Optional for electronic controls

### CARRIERrtc basic & medium control (standard)

- pGD1 terminal for maintenance of the unit.
- Kit remote control to 200 meters with pGD1 (pGD1 terminal + 2 TCONN bypass cards).



- Return or ambient temperature probe connected to the board that replaces the ambient probe of the thermostat TCO. Return probe is required for anti-fire safety.
- Mixing temperature probe: compulsory to manage the free-cooling.

### CARRIERrtc control (optional)

- TCO user terminal, instead of pGD1 terminal.
- Control without pGD1 terminal (for units with shared terminal).
- Kit remote control to 200 meters with pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards).
- Ambient temperature probe with RS485 communication. By default the control incorporates a NTC probe.  
Note: An ambient probe with RS485 communication is required for installation to more than 30 m.
- Double ambient temperature probe with RS485 communication.
- Ambient T+RH probe with RS485 (compulsory in units with enthalpic or thermoenthalpic free-cooling as optional). In this case also added outdoor air humidity probe.
- Air quality probe for installation in the environment or in duct to enable measuring CO<sub>2</sub> and/or volatile compounds.

### Communication

CARRIERrtc basic & medium controls allow the connection to a centralised technical management system by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.

### Supervision solutions

Different solutions of supervision are available according to the dimensions of the installation.

#### ■ pCO Web

It is the solution for the management and supervision of a single unit if it incorporates the Ethernet pCO Web card.

#### ■ PlantWatchPRO3

It is a solution designed for the monitoring of installations of medium - small dimensions, with ability to manage up to 30 units. Suitable for technical environments, it has no parts in movement. It's available in two versions: panel and wall.

Includes: 7 " touch display, buzzer for notifications, 1 USB port and 1 SD card slot for downloading reports, charge devices models and applying service packs.

In this case, each unit needs one RS485 Carel / Modbus board.

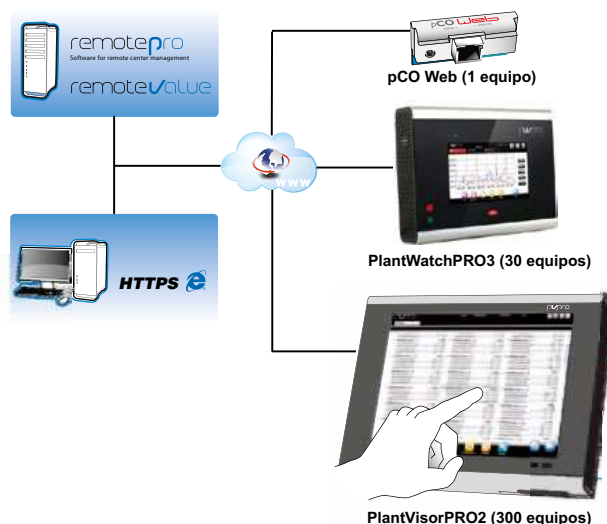
#### ■ PlantVisorPRO2

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. It performs advanced monitoring and maintenance functions and enables creating areas and groups which simplify the management of the installation. It also allows the integration of energy meters for monitoring the power consumption of the installation.

PlantVisorPRO2 is available in two versions:

- **Box:** comprised of the CPU unit and, optionally, by monitor and keyboard.
- **Touch:** this includes the CPU and the touchscreen in the one device.

In this case, each unit needs one RS485 Carel / Modbus board



These systems allow the installation in remote management. Through a single connection to the Internet is accessed the information system. The Web interface, which is available for the local user, allows the monitoring and the complete configuration of the installation: from the office or any other user's current location.

For remote control of multiple sites, there are dedicated tools for centralized management as **RemotePRO** and **RemoteValue**.

## TECHNICAL CHARACTERISTICS

| 38ZS/ZF                   |   | 90  | 100    | 120       | 160    | 180    | 182       | 200       |
|---------------------------|---|---|--------|-----------|--------|--------|-----------|-----------|
| Cooling capacities        | Cooling capacity ① (kW)                     | 20,8  | 24,4   | 28,5      | 36,2   | 39,2   | 42,5      | 50,4      |
|                           | Power input ③ (kW)                          | 6,3   | 7,7    | 8,3       | 11,8   | 14,2   | 11,8      | 14,7      |
|                           | EER performance                             | 3,31  | 3,15   | 3,44      | 3,06   | 2,76   | 3,62      | 3,42      |
| Heating capacities        | Heating capacity ② (kW)                     | 22,6  | 26,6   | 31,0      | 39,2   | 43,1   | 46,6      | 58,1      |
|                           | Power input ③ (kW)                          | 6,4   | 7,1    | 8,4       | 10,1   | 12,4   | 11,6      | 14,7      |
|                           | COP performance                             | 3,55  | 3,76   | 3,68      | 3,87   | 3,48   | 4,01      | 3,94      |
| Outdoor circuit axial fan | Nominal air flow (m³/h)                     | 10.000  |        | 14.200    |        |        | 20.000    |           |
|                           | Available static pressure (mm.w.c)          | --  |        |           |        |        |           |           |
|                           | Number                                      | 1   |        |           |        |        |           |           |
|                           | Diameter (mm)                               | 630   |        | 800       |        |        |           |           |
|                           | Output (kW)                                 | 0,7 / 0,4   |        | 0,8 / 0,5 |        |        | 2,0 / 1,3 |           |
|                           | Speed (r.p.m.)                              | 875 / 650   |        | 680 / 540 |        |        | 895 / 705 |           |
| Compressor                | Type  | Scroll  |        |           |        |        |           |           |
|                           | No. compressors / No. circuits / No. stages | 1 / 1 / 1   |        |           |        |        |           | 2 / 2 / 2 |
|                           | Oil type                                    | Copeland 3MAF 32 cST, Danfoss POE 160 SZ, ICI Emkarate RL32 CF, Mobil EAL Artic 22 CC |        |           |        |        |           |           |
|                           | Volume of oil (l)                           | 3,0   | 3,3    | 3,3       | 3,3    | 6,2    | 6,2       | 2 x 3,3   |
| Cooling connections       | Circuit 1: Liquid line                      | 1/2"  | 1/2"   | 5/8"      | 5/8"   | 5/8"   | 5/8"      | 1/2"      |
|                           | Circuit 1: Gas line                         | 7/8"  | 1 1/8" | 1 1/8"    | 1 1/8" | 1 1/8" | 1 1/8"    | 1 1/8"    |
|                           | Circuit 2: Liquid line                      | --  | --     | --        | --     | --     | --        | 1/2"      |
|                           | Circuit 2: Gas line                         | --  | --     | --        | --     | --     | --        | 1 1/8"    |
| Refrigerant               | Type  | R-410A  |        |           |        |        |           |           |
|                           | Global warming potential (GWP) ④            | 2.088   |        |           |        |        |           |           |
|                           | Load up to 7,5 m (kg)                       | 6,3   | 6,4    | 8,6       | 8,2    | 9,2    | 12,8      | 17,3      |
|                           | Environment impact (tCO2 e)                 | 13,2  | 13,4   | 18,0      | 17,1   | 19,2   | 26,7      | 36,1      |
| Electrical features       | Mains voltage                               | 400 V / III ph / 50 Hz (±10%)   |        |           |        |        |           |           |
|                           | Power supply                                | 3 Wires + Ground  |        |           |        |        |           |           |
| Maximum absorbed current  | Compressor(s) (A)                           | 15,3  | 18,5   | 20,1      | 25,1   | 29,1   | 29,1      | 37,0      |
|                           | Fan (A)                                     | 1,3   | 1,3    | 2,2       | 2,2    | 2,2    | 4,3       | 4,3       |
|                           | Control (A)                                 | 0,9   | 0,9    | 0,9       | 0,9    | 0,9    | 0,9       | 1,8       |
|                           | Total (A)                                   | 17,5  | 20,7   | 23,2      | 28,2   | 32,2   | 34,3      | 43,1      |
| Dimensions                | Length (mm)                                 | 1.511   |        | 1.511     |        |        |           | 1.811     |
|                           | Width (mm)                                  | 1.066   |        | 1.066     |        |        |           | 1.066     |
|                           | Height (mm)                                 | 1.088   |        | 1.413     |        |        |           | 1.763     |
| Weight                    | (kg)  | 275   | 281    | 317       | 326    | 368    | 388       | 490       |

① Rated conditions: evaporation temperature = 5°C, outdoor air temperature = 35°C, overheating = 5°C

② Rated conditions: condensing temperature = 49°C, outdoor air temperature = 7°C, overheating = 0°C

③ Total power input by compressors and motorised fans under those conditions.

④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

## TECHNICAL CHARACTERISTICS

| 38ZS/ZF                   |   | 240   | 320     | 360     | 420     | 485     | 540     | 600     |
|---------------------------|---|---|---------|---------|---------|---------|---------|---------|
| Cooling capacities        | Cooling capacity ① (kW)                     | 55,5  | 70,0    | 86,4    | 103,6   | 115,5   | 124,6   | 138,4   |
|                           | Power input ③ (kW)                          | 16,8  | 24,8    | 24,4    | 28,0    | 32,9    | 39,1    | 44,9    |
|                           | EER performance                             | 3,31  | 2,82    | 3,55    | 3,70    | 3,51    | 3,19    | 3,08    |
| Heating capacities        | Heating capacity ② (kW)                     | 64,9  | 81,8    | 94,2    | 108,9   | 123,5   | 134,3   | 148,2   |
|                           | Power input ③ (kW)                          | 15,6  | 20,9    | 23,0    | 28,8    | 30,9    | 36,8    | 38,8    |
|                           | COP performance                             | 4,15  | 3,91    | 4,10    | 3,79    | 4,00    | 3,65    | 3,82    |
| Outdoor circuit axial fan | Nominal air flow (m³/h)                     | 20.000  |         | 39.000  |         | 37.000  |         |         |
|                           | Available static pressure (mm.w.c)          | --  |         |         |         |         |         |         |
|                           | Number                                      | 1   |         | 2       |         |         |         |         |
|                           | Diameter (mm)                               | 800   |         |         |         |         |         |         |
|                           | Output (kW)                                 | 2,0 / 1,3   |         |         |         |         |         |         |
|                           | Speed (r.p.m.)                              | 895 / 705   |         |         |         |         |         |         |
| Compressor                | Type  | Scroll  |         |         |         |         |         |         |
|                           | No. compressors / No. circuits / No. stages | 2 / 2 / 2   |         |         |         |         |         |         |
|                           | Oil type                                    | Copeland 3MAF 32 cST, Danfoss POE 160 SZ, ICI Emkarate RL32 CF, Mobil EAL Artic 22 CC |         |         |         |         |         |         |
|                           | Volume of oil (l)                           | 2 x 3,3   | 2 x 3,3 | 2 x 6,2 | 2 x 6,2 | 2 x 6,2 | 2 x 6,2 | 2 x 6,2 |
| Cooling connections       | Circuit 1: Liquid line                      | 5/8"  | 5/8"    | 5/8"    | 5/8"    | 5/8"    | 7/8"    | 7/8"    |
|                           | Circuit 1: Gas line                         | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  |
|                           | Circuit 2: Liquid line                      | 5/8"  | 5/8"    | 5/8"    | 5/8"    | 5/8"    | 5/8"    | 7/8"    |
|                           | Circuit 2: Gas line                         | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"  |
| Refrigerant               | Type  | R-410A  |         |         |         |         |         |         |
|                           | Global warming potential (GWP) ④            | 1.720   |         |         |         |         |         |         |
|                           | Load up to 7,5 m (kg)                       | 17,4  | 22,2    | 22,7    | 31,4    | 31,4    | 33,4    | 33,6    |
|                           | Environment impact (tCO2 e)                 | 36,3  | 46,4    | 47,4    | 65,6    | 65,6    | 69,7    | 70,2    |
| Electrical features       | Mains voltage                               | 400 V / III ph / 50 Hz (±10%)   |         |         |         |         |         |         |
|                           | Power supply                                | 3 Wires + Ground  |         |         |         |         |         |         |
| Maximum absorbed current  | Compressor(s) (A)                           | 40,2  | 50,2    | 58,2    | 68,9    | 79,6    | 91,1    | 102,6   |
|                           | Fan (A)                                     | 4,3   | 4,3     | 8,6     | 8,6     | 8,6     | 8,6     | 8,6     |
|                           | Control (A)                                 | 1,8   | 1,8     | 1,8     | 1,8     | 1,8     | 1,8     | 1,8     |
|                           | Total (A)                                   | 46,3  | 56,3    | 68,6    | 79,3    | 90,0    | 101,5   | 113,0   |
| Dimensions                | Length (mm)                                 | 1.811   | 1.811   | 2.201   |         |         |         |         |
|                           | Width (mm)                                  | 1.066   | 1.066   | 2.069   |         |         |         |         |
|                           | Height (mm)                                 | 1.763   | 2.063   | 1.966   |         |         |         |         |
| Weight                    | (kg)  | 492   | 544     | 974     | 1.024   | 1.029   | 1.078   | 1.127   |

① Rated conditions: evaporation temperature = 5°C, outdoor air temperature = 35°C, overheating = 5°C

② Rated conditions: condensing temperature = 49°C, outdoor air temperature = 7°C, overheating = 0°C

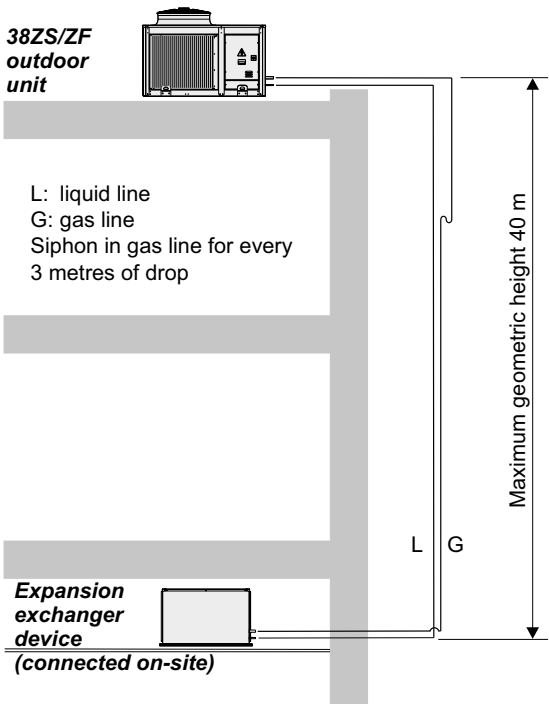
③ Total power input by compressors and motorised fans under those conditions.

④ Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

# RECOMMENDATIONS FOR THE COOLING CONNECTION

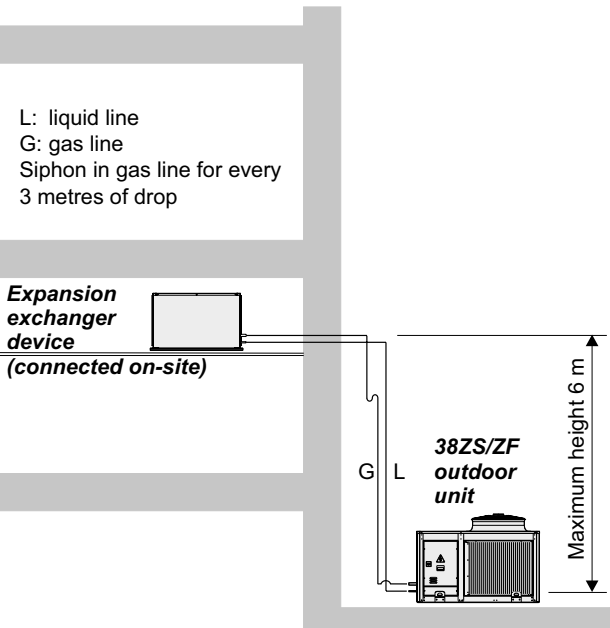
## Outdoor unit top

Maximum equivalent length of the cooling line: 50 metres  
For longer lengths an oil separator must be user



## Outdoor unit bottom

Maximum equivalent length of the cooling line: 7 metres



# ADDITIONAL LOAD OF R-410A REFRIGERANT

Additional load per linear metre of piping for equivalent maximum lengths exceeding 7 metres:

| Nominal diameter (inches) | 1/4"  | 3/8"  | 1/2"  | 5/8"  | 3/4"  | 7/8"  | 1"    | 1 1/8" |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| Interior section (cm²)    | 0,149 | 0,444 | 0,900 | 1,505 | 2,282 | 3,120 | 4,290 | 5,346  |
| Liquid line charge (g/m)  | 19,3  | 57,0  | 115,0 | 193,5 | 292,3 | 404,1 | 550,3 | 685,7  |
| Gas line charge (g/m)     | --    | 0,2   | 0,4   | 0,7   | 1,0   | 1,4   | 2,0   | 2,5    |



## INDOOR UNITS



Split-system  
R-410A Refrigerant  
Indoor unit with centrifugal fan  
Configuration flexibility

# 40ZS/ZF 90 - 600

Cooling capacity 21-138 kW  
Heating capacity 23-148 kW

The **40ZS/ZF** series are units with horizontal construction designed for installation indoors, connected to a network of ducts.

They are equipped with centrifugal fan (EC plug-fan also available in models 90 to 360), and expansion valve.

A vast number of options meet numerous operating demands.

All of the units are tested and checked in the factory.

### Range

- 1 circuit:
  - Models: 90 / 100 / 120 / 160 / 180 / 182
- 2 circuits:
  - Models: 200 / 240 / 320 / 360 / 420 / 485 / 540 / 600



## UNIT COMPONENTS

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

- Reusable air filters, assembled on a frame.
- Condensate drain pan.

### Air circuit

- Coil(s) with copper pipes and aluminium fins.
- Centrifugal fan(s) coupling by pulleys and belts. Electric motor(s) with tensioner, class F, IP55 and internal thermal protection. Double-intake turbines, with an impeller of front-curved blades. Greased spherical bearings, with no maintenance required.

### Cooling circuit

- Thermostatic expansion valve(s) with external equalisation (check valve in 40ZF series).

### Protections

- Main door switch.

## OPTIONS

### Outdoor environment

#### Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating (indoor unit and/or hot water coil).
- Condensates drain pan in stainless steel.

#### Humidity

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Stop-drop in the outdoor air intake.

### Comfort / heating options

- Hot water auxiliary coil, with three-way valve. Two options:
  - Nominal coil for heating in cooling-only units.
  - Auxiliary coil for heating in heat pump units.

If the unit includes hot water coil and free-cooling, and works with negative temperatures of outdoor air, an anti-freeze thermostat as safety system is mandatory.

- Auxiliary electrical heaters. With this option, the air flow controller is included.

### Comfort / indoor air quality options

- Filtration of the supply air:
  - Gravimetric filter G4.
  - Gravimetric filter G4 + creased opacimetric filters F6 to F9.
- Filtration of the return air (with return fan):
  - Gravimetric filter G4.
  - Gravimetric filter G4 + creased opacimetric filters F6.

### Safety

- Soft starter of the supply and/or return centrifugal fans which prolongs the set time mainly aimed at installations with cloth ducts. Compulsory for motors with an output of 15 kW and above.
- Differential pressostat for the detection of clogged filters.
- Differential pressostat for control of air flow.
- Smoke detecting station in accordance with the NF S 61-961 standard.
- Refrigerant leak detector (with CARRIERtc control). This allows prompt identification of gas leaks, guaranteeing the safety of any people in the vicinity. Installation of the device ensures compliance with European standards F-GAS and EN378 as well as ASHRAE 15.

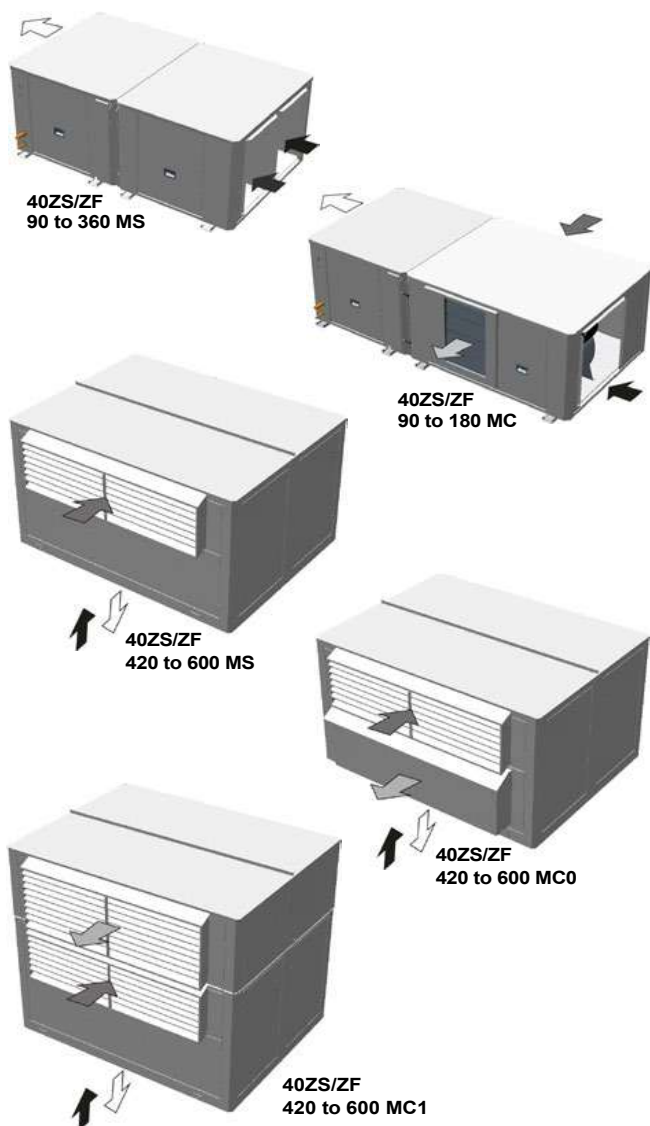


## OPTIONS (CONT.)

### Installation options

- Antivibration mounts made of rubber.
  - Position of supply and/or return of the indoor unit air.
  - Supply and/or return fan with high available pressure.
  - Electronic plug-fan in the air supply in models 90 to 360.
  - Assemblies with **mixing box** for air renewal and free-cooling:
    - 2 motorised dampers:
      - MS assembly: fresh air intake.
    - 3 motorised dampers:
      - MC assembly: fresh air intake, air extraction and return with centrifugal fan (models 90 to 180 and 420 to 600) or EC plug-fan (models 420 to 600 with MC0 assembly).
- Note: EC plug-fan in models 420 to 600 with MC0 assembly: upon request.

Note: CARRIERtc electronic control is mandatory with EC plug-fans.



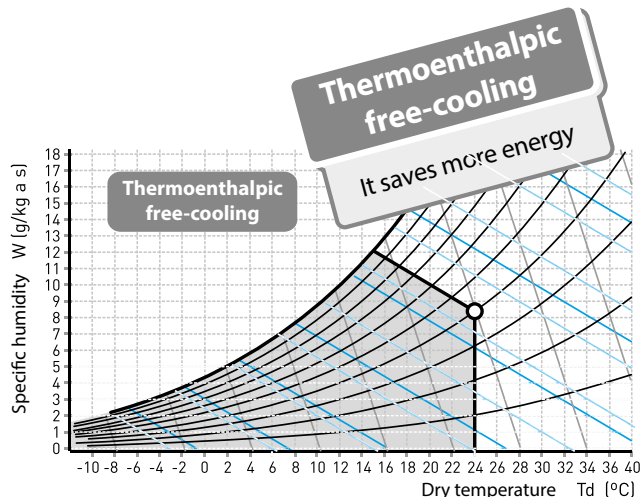
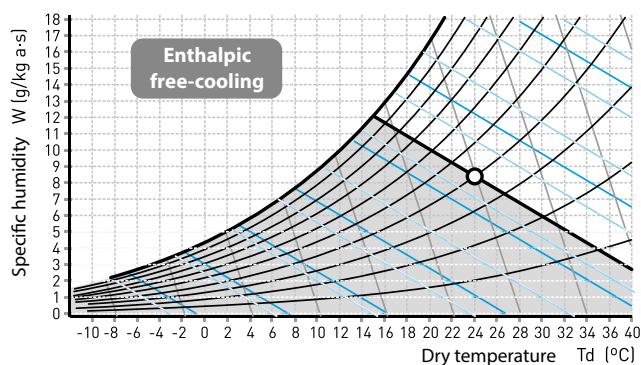
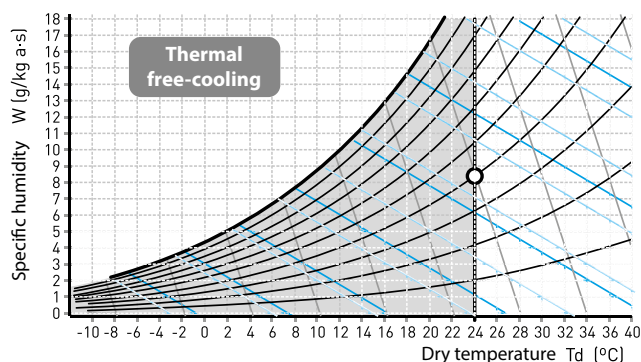
All the possible combinations of "Assemblies with mixing boxes" are represented on the following page.

### Free-cooling

On units with mixing box, the free-cooling can be managed by the electronic control. Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced.

The percentage of outdoor air can vary between 0% and 100%. There are three options for free-cooling management:

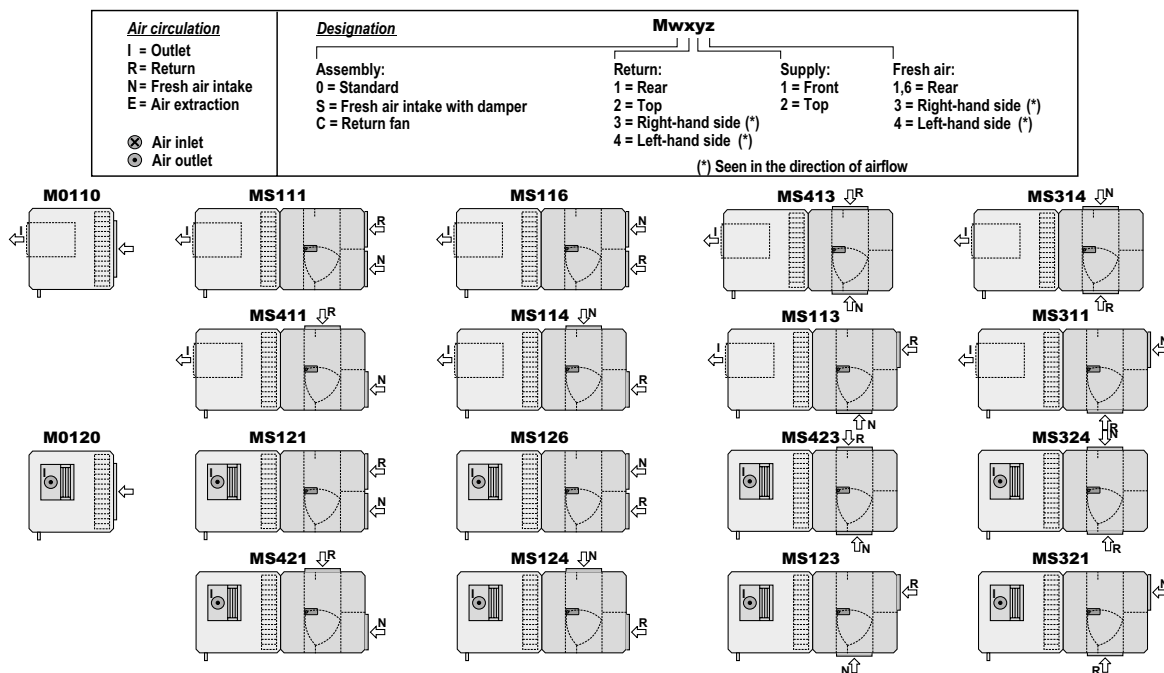
- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



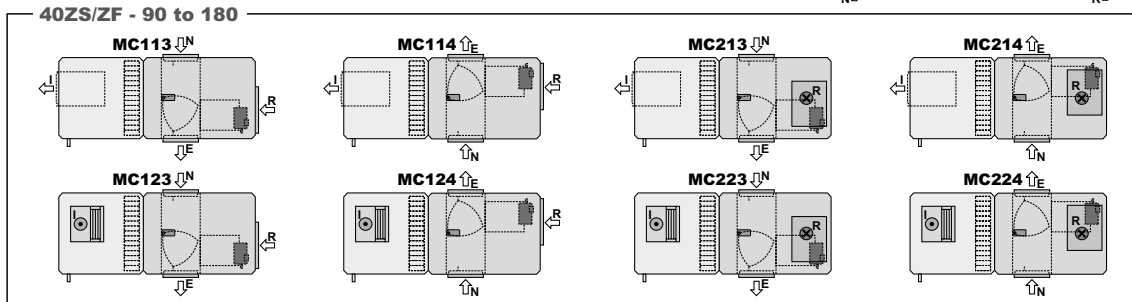
Note: CARRIERtc electronic control is mandatory with enthalpic or thermoenthalpic free-cooling.

## OPTIONS (CONT.)

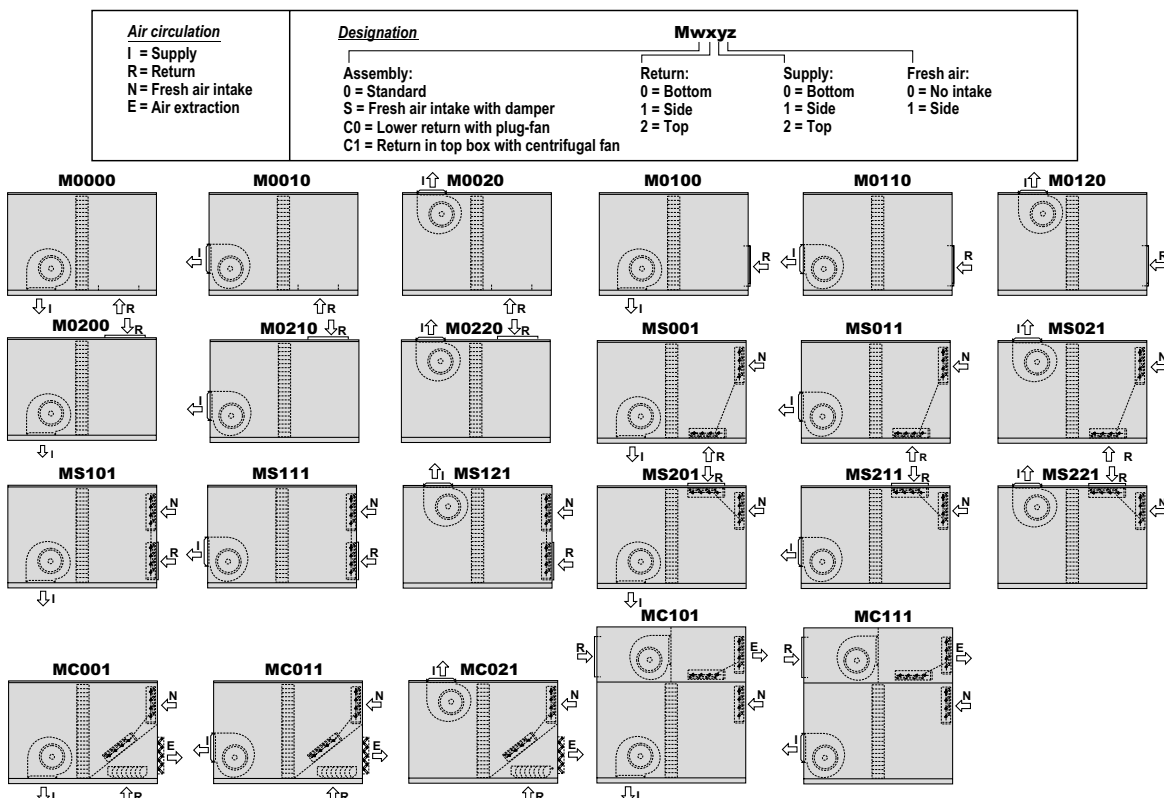
## 40ZS/ZF - 90 to 360: assemblies with mixing box (plan view)



## 40ZS/ZF - 90 to 180



## 40ZS/ZF - 420 to 600: assemblies with mixing box (raised view)



## TECHNICAL CHARACTERISTICS

| 40ZS/ZF               |                                    | 90    | 100   | 120   | 160   | 180   | 182      | 200      |
|-----------------------|------------------------------------|-------|-------|-------|-------|-------|----------|----------|
| Centrifugal fan       | Nominal air flow (m³/h)            | 4.000 | 4.600 | 5.200 | 7.000 | 7.000 | 8.000    | 9.200    |
|                       | Available static pressure (mm.w.c) | 15    | 15    | 15    | 15    | 15    | 15       | 20       |
|                       | Number / turbines                  | 1 / 1 |       |       |       |       | 2 / 2    |          |
|                       | Motor output (kW)                  | 1,1   | 1,1   | 1,1   | 1,5   | 1,5   | 2 x 0,75 | 2 x 1,1  |
|                       | Power input (kW)                   | 0,61  | 0,83  | 0,88  | 1,08  | 1,08  | 2 x 0,59 | 2 x 0,91 |
|                       | Speed (r.p.m.)                     | 985   | 1049  | 916   | 761   | 761   | 963      | 1126     |
| Max. absorbed current | Fan (A)                            | 2,7   | 2,7   | 2,7   | 3,6   | 3,6   | 4,2      | 5,4      |
| Dimensions            | Length (mm)                        | 1.190 |       |       | 1.520 |       | 2.144    |          |
|                       | Width (mm)                         | 950   |       |       | 1.028 |       | 950      |          |
|                       | Height (mm)                        | 731   |       |       | 731   |       | 731      |          |
| Weight                | (kg)                               | 147   | 147   | 190   | 199   | 199   | 262      | 262      |

| 40ZS/ZF               |                                    | 240      | 320      | 360      | 420    | 485    | 540    | 600    |
|-----------------------|------------------------------------|----------|----------|----------|--------|--------|--------|--------|
| Centrifugal fan       | Nominal air flow (m³/h)            | 10.300   | 14.000   | 15.500   | 18.000 | 18.200 | 20.400 | 24.000 |
|                       | Available static pressure (mm.w.c) | 20       | 20       | 20       | 20     | 20     | 20     | 20     |
|                       | Number / turbines                  | 2 / 2    |          |          | 1 / 3  |        |        |        |
|                       | Motor output (kW)                  | 2 x 1,5  | 2 x 1,5  | 2 x 2,2  | 4      | 4      | 4      | 5,5    |
|                       | Power input (kW)                   | 2 x 0,94 | 2 x 1,15 | 2 x 1,39 | 2,52   | 2,82   | 2,96   | 3,40   |
|                       | Speed (r.p.m.)                     | 974      | 789      | 816      | 677    | 677    | 643    | 681    |
| Max. absorbed current | Fan (A)                            | 7,2      | 7,2      | 10,0     | 9,0    | 9,0    | 9,0    | 11,6   |
| Dimensions            | Length (mm)                        | 2.144    | 2.804    |          | 2.853  |        |        |        |
|                       | Width (mm)                         | 950      | 1.028    |          | 2.160  |        |        |        |
|                       | Height (mm)                        | 731      | 800      |          | 1.524  |        |        |        |
| Weight                | (kg)                               | 262      | 365      | 365      | 920    | 920    | 963    | 964    |

## SOUND LEVELS dB(A)

### Sound power level on the indoor unit

Sound power level in the indoor fan supply to be taken into account for the silencer calculation:

| 40ZS/ZF     | 90 | 100 | 120 | 160 | 180 | 182 | 200 | 240 | 320 | 360 | 420 | 485 | 540 | 600 |
|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Total dB(A) | 79 | 82  | 80  | 80  | 80  | 82  | 85  | 82  | 83  | 85  | 86  | 87  | 89  | 92  |



## MODULAR COMPACT HEAT PUMPS



## 50NI 90 - 485

Nominal cooling capacity 19-115 kW

Nominal heating capacity 19-121 kW

Air to air compact units with vertical construction for indoor use only.

■ **50NI series:** Air-air reversible heat pump units. Ten different models available:

- 90, 120, 160 and 180: 1 circuit and 2 compressors.
- 200, 240, 280, 320, 360, 420 and 485: 2 circuits and 4 compressors.

These units are equipped with hermetic scroll compressors and tandem configuration, as well as plug-fan EC for indoor and outdoor circuits. This allows to get a high seasonal performance.

The units are supplied in 2 modules, **outdoor module** and **indoor module** for installation on site as compact version or split version, according to the choice.

A vast number of options meet numerous operating demands.

All of the units are tested and checked in the factory.

### Compliance

Machinery Directive 2006/42/EC (MD)

Electromagnetic Compatibility Directive 2014/30/EU (EMC)

Low Voltage Directive 2014/35/EU (LVD)

Pressure Equipment Directive 2014/68/EU (Category 2) (PED)

RoHS Directive 2011/65/EU (RoHS)

Eco-design Directive 2009/125/EC (ECO-DESIGN)

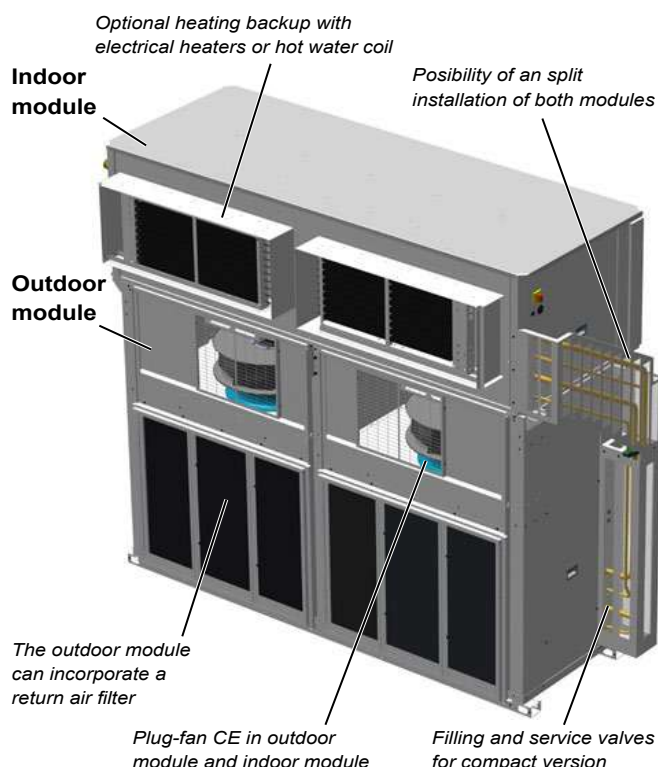
Energy Labelling Directive 2010/30/EU (ECO-LABELLING)

Harmonised Standard: EN 378-2:2012 (Refrigerating systems and heat pumps - Safety and environmental requirements).

R-410A refrigerant  
Scroll compressor in tandem  
Flexibility of configuration  
Outdoor plug-fan with EC  
HEE motor



## UNIT COMPONENTS



### Outdoor module

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

### Outdoor air circuit

- EC electronic supply plug-fans directly coupled with variable control speed and flow rate controller. In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption.
- Coil(s) with copper pipes and aluminium fins.
- Condensate drain pan.

### Cooling circuit

- Hermetic scroll-type compressors in tandem design that improves the management of stages and the part load efficiencies. Sound insulation, assembled over antivibration mounts. Control of phase equilibrium and the direction of rotation.
- Crankcase heater.
- Thermostatic expansion valve(s) with external equalisation.
- Four-way cycle reversing valve(s).
- Suction accumulator, anti-acid dehydrating filter(s), liquid receiver(s).
- Service valves for cooling connections and refrigerant charge, when the unit is supplied in Compact version.

Possibility of installation in split version, with optional service valves.

- Cooling connections for welding

### Electric panel

- Complete and fully wired electric panel. Insulated panel cover to prevent condensation. Protection IP55.
- Transformer for power supply without neutral included in the electrical panel.
- Main ground connection.
- Compressor(s) and fan(s) motor contacts.

### Protections

- High and low pressure pressostats.
- Compressor discharge temperature control.
- Non-return valve built into the compressor.
- Main door switch.
- Magnetothermic protection switches for the compressors power line and fans motor.
- Automatic switch in the control circuit.

### Indoor module

- Casing made of galvanised steel metal with polyester paint, white colour RAL 7035. Self-supporting frame.

### Indoor air circuit

- Coil(s) with copper pipes and aluminium fins.
- EC electronic supply plug-fans directly coupled with variable control speed and flow rate controller. In tertiary sector installation, a high percentage of the annual air conditioning energy consumption comes from the use of fans for transporting air. Using fans which are more efficient has a direct impact on reducing consumption. Plug-fans with direct drive and variable speed offer the following advantages:
  - Elimination of friction losses during transmission thanks to the direct drive.
  - Greater aerodynamic efficiency of the rotor (reactive blades with an optimized profile), running at very high operating pressures.
  - Greatly increased motor efficiency. Permanent magnets DC motors activated using electronic switching integrated into the motor itself.
  - Variable speed to ensure a constant supply air flow rate, independent of the filters clogging level.
  - Measuring the flow rate through a calibrated section at the fan intake and a differential pressure sensor allows the control to handle the flow rate reliably and precisely in both on CAV and VAV systems.
- Reusable air filters, assembled on a frame.
- Condensate drain pan.

### Cooling circuit

- Thermostatic expansion valve(s) with external equalisation

### Protections

- Main door switch.

## OPERATING LIMITS

| Inlet air conditions |         | Cooling  | Heating   |
|----------------------|---------|----------|-----------|
| Indoor coil          | Minimum | 14 °C WB | 10 °C     |
|                      | Maximum | 22 °C WB | 27 °C     |
| Outdoor coil         | Minimum | 12 °C ①  | -10 °C WB |
|                      | Maximum | 45 °C    | 15 °C WB  |

① With a condensation pressure control operating down to -10°C.

## ELECTRONIC CONTROL

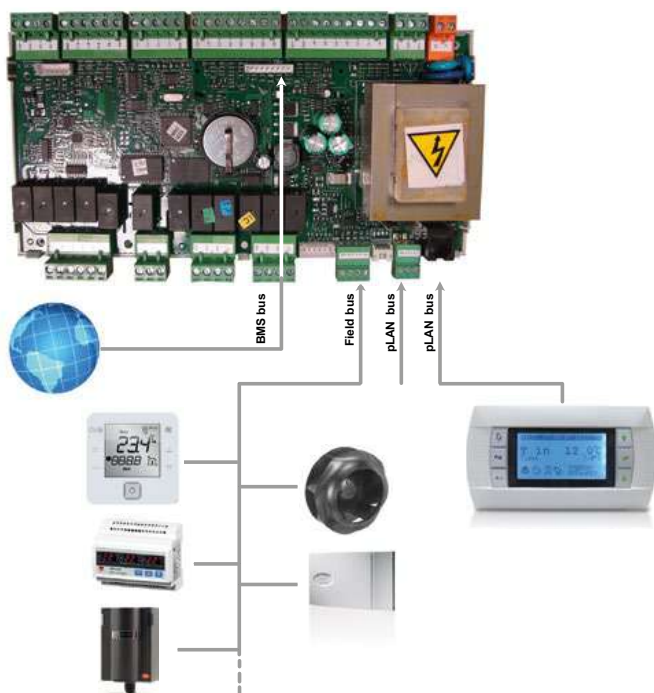
### CARRIERrtc control

The **CARRIERrtc** control consists of a  $\mu$ PC MEDIUM control board, sensors, a pGD1 graphic terminal and a TCO user terminal (optional).

This system uses a RS485 field-bus to manage additional components.

A BMS card (optional) allows the control board to be connected to a centralised technical management system.

It also manages a local connection between units through a pLAN network ( $\mu$ PC MEDIUM Local Area Network), allowing data and information to be exchanged between units, for a maximum of 15 units.



#### Main functions:

- Selection of setpoint and operating mode: HEATING / COOLING / AUTO / VENTILATION.
- Continuous control of the operating parameters.
- Display of the values measured by the sensors.
- Compressors time delays.
- Defrosting management (in heat pump units).
- Control of the supply air temperature.
- All-seasons operation via the condensation and evaporation pressure control.

The management of the unit in cooling mode is based on the principle of a high floating pressure. The condensation pressure setpoint is continually calculated depending on the outdoor temperature. This pressure is regulated by adjusting the air flow on the outdoor fans.

- Setpoint compensation based on the outdoor temperature.
- Hourly and weekly schedule.
- Fire protection.
- Diagnosis of faults and general alarm.

#### Optional function:

This control is used to manage additional components such as:

- External air damper for the renewal of fresh air, depending on the temperature of the mixed air or depending on the air quality sensor.
- Mixing box for thermal, enthalpic or thermoenthalpic free-cooling.
- Auxiliary electrical heaters: two-stage with on/off control or single-stage with proportional control.
- Hot water coil with 3-way valve, with proportional or on/off control.
- Humidifier with proportional or on/off control.
- Clogged filter pressostat.
- Refrigerant leak detector.
- Air quality sensor for measuring CO<sub>2</sub>.
- Energy meter and calculation of the cooling and heating capacities.

#### pGD1 terminal:

This terminal, fitted as standard on the electrical cabinet, is very easy to use. It provides detailed explanations of control in easy to understand English. No decoding is required.

Only 6, large, easy-to-use buttons are required to maneuver through the entire menus.

This terminal is used to:

- Carry out initial programming of the unit.
- Modify operating parameters.
- Switch the unit ON / OFF.
- Select the operating mode and adjust the setpoints.
- Display the variables controlled and sensor values measured.
- Display the current alarms and their historical record.



#### TCO user terminal (optional):

This terminal can be installed on the electrical cabinet, instead of pGD1 terminal. In this case, the remote connection of the pGD1 terminal is possible. Please consult "Control options".

TCO terminal is used to:

- Switch the unit ON / OFF.
- Select the operating mode.
- Adjust the setpoints.
- Display the installation's temperatures and humidity, outdoor temperature, supply air temperature, CO<sub>2</sub> sensor and opening of the outdoor damper.
- Display alarms codes.



## PHYSICAL DATA (EN-14511-2018)

| Outdoor module 50NI       |  | 90   | 120     | 160     | 180     | 200      | 240       | 280      | 320      | 360      | 420      | 485      |
|---------------------------|--|--|---------|---------|---------|----------|-----------|----------|----------|----------|----------|----------|
| Cooling capacities        | Cooling capacity (1) (kW)              | 19,10  | 25,33   | 33,94   | 39,74   | 47,23    | 52,07     | 60,59    | 69,66    | 81,52    | 104,61   | 114,90   |
|                           | Power input (3) (kW)                   | 7,72   | 9,97    | 14,26   | 16,03   | 20,10    | 18,75     | 22,00    | 25,97    | 32,28    | 37,70    | 41,20    |
|                           | EER performance                        | 2,47   | 2,54    | 2,38    | 2,48    | 2,35     | 2,78      | 2,75     | 2,68     | 2,53     | 2,77     | 2,78     |
|                           | SEER                                   | 3,64   | 3,55    | 3,53    | 3,54    | 3,53     | 3,93      | 3,89     | 3,85     | 3,78     | 4,01     | 3,98     |
|                           | ηs                                     | 143%   | 139%    | 138%    | 139%    | 138%     | 154%      | 153%     | 151%     | 148%     | 157%     | 155%     |
| Heating capacities        | Heating capacity (2) (kW)              | 19,27  | 27,63   | 37,16   | 44,64   | 51,99    | 57,49     | 64,65    | 74,07    | 84,77    | 108,00   | 121,40   |
|                           | Power input (3) (kW)                   | 6,43   | 9,74    | 13,05   | 15,68   | 18,42    | 17,77     | 20,07    | 23,75    | 29,41    | 36,20    | 41,10    |
|                           | COP performance                        | 3,00   | 2,84    | 2,84    | 2,85    | 2,82     | 3,23      | 3,22     | 3,12     | 2,88     | 2,98     | 2,95     |
|                           | SCOP                                   | 3,25   | 3,29    | 3,33    | 3,31    | 3,21     | 3,25      | 3,21     | 3,25     | 3,21     | 3,22     | 3,20     |
|                           | ηs                                     | 127%   | 129%    | 130%    | 129%    | 125%     | 127%      | 125%     | 127%     | 126%     | 126%     | 125%     |
| Outdoor fan               | Nominal air flow (m³/h)                | 7.000  | 10.000  | 13.000  | 13.000  | 19.000   | 23.000    | 23.000   | 24.400   | 24.400   | 30.000   | 35.000   |
|                           | Available static pressure (mm.w.c)     | 20   | 20      | 20      | 20      | 20       | 20        | 20       | 20       | 20       | 20       | 20       |
|                           | Type                                   | Electronic plug-fan  |         |         |         |          |           |          |          |          |          |          |
|                           | Number / Diameter (mm)                 | 1 / 500  | 1 / 500 | 1 / 560 | 1 / 560 | 2 / 500  | 2 / 560   | 2 / 560  | 2 / 560  | 2 / 560  | 2 / 500  | 4 / 500  |
|                           | Motor output (kW)                      | 2,6  | 2,6     | 3,0     | 3,0     | 2 x 2,6  | 2 x 3,0   | 2 x 3,0  | 2 x 3,0  | 2 x 3,0  | 2 x 4,6  | 4 x 2,6  |
|                           | Power input (kW)                       | 1,35   | 2,24    | 2,90    | 2,90    | 2 x 2,37 | 2 x 2,06  | 2 x 2,06 | 2 x 2,38 | 2 x 2,38 | 2 x 3,61 | 4 x 1,88 |
|                           | Speed (r.p.m.)                         | 1.700  | 1.700   | 1.495   | 1.495   | 1.700    | 1.495     | 1.495    | 1.495    | 1.495    | 2.100    | 1.700    |
| Compressor                | Type                                   | Scroll   |         |         |         |          |           |          |          |          |          |          |
|                           | No. compress. / circuits / stages      | 2 / 1 / 2  |         |         |         |          | 4 / 2 / 4 |          |          |          |          |          |
|                           | Oil type                               | Copeland 3MAF 32cST, Danfoss POE 160SZ, ICI Emkarate RL 32CF, Mobil EAL Artic 22CC |         |         |         |          |           |          |          |          |          |          |
|                           | Volume of oil (l)                      | 2,5  | 2,5     | 3,5     | 3,5     | 5,0      | 4,8       | 6,8      | 7,1      | 7,2      | 13,2     | 13,2     |
| Cooling connections       | Circuit 1: Liquid line                 | 1/2"   | 5/8"    | 5/8"    | 5/8"    | 1/2"     | 5/8"      | 5/8"     | 5/8"     | 5/8"     | 5/8"     | 5/8"     |
|                           | Circuit 1: Gas line                    | 1 1/8"   | 1 1/8"  | 1 1/8"  | 1 1/8"  | 1 1/8"   | 1 1/8"    | 1 1/8"   | 1 1/8"   | 1 1/8"   | 1 3/8"   | 1 3/8"   |
|                           | Circuit 2: Liquid line                 | -  | -       | -       | -       | 1/2"     | 5/8"      | 5/8"     | 5/8"     | 5/8"     | 5/8"     | 5/8"     |
|                           | Circuit 2: Gas line                    | -  | -       | -       | -       | 1 1/8"   | 1 1/8"    | 1 1/8"   | 1 1/8"   | 1 1/8"   | 1 3/8"   | 1 3/8"   |
| Refrigerant               | Type                                   | R-410A   |         |         |         |          |           |          |          |          |          |          |
|                           | Global warming potential (GWP) (4)     | 2.088  |         |         |         |          |           |          |          |          |          |          |
|                           | Load up to 7,5 m in split version (kg) | 9,0  | 11,1    | 13,0    | 14,2    | 17,3     | 19,1      | 24,9     | 25,9     | 26,4     | 38,7     | 39,3     |
|                           | Environment impact (tCO2 e)            | 18,8   | 23,2    | 27,1    | 29,6    | 36,1     | 39,9      | 52,0     | 54,1     | 55,1     | 80,8     | 82,1     |
|                           | Load in compact version (kg)           | 8,4  | 10,5    | 12,0    | 13,2    | 15,3     | 17,1      | 22,9     | 23,9     | 24,4     | 36,7     | 37,3     |
|                           | Environment impact (tCO2 e)            | 17,5   | 21,9    | 25,1    | 27,6    | 31,9     | 35,7      | 47,8     | 49,9     | 50,9     | 76,6     | 77,9     |
| Electrical features       | Mains voltage                          | 400 V / III ph / 50 Hz (±10%)  |         |         |         |          |           |          |          |          |          |          |
|                           | Power supply                           | 3 wires + gnd  |         |         |         |          |           |          |          |          |          |          |
|                           | Maximum absorbed current (A)           | 18,7   | 21,8    | 29,6    | 34,5    | 43,5     | 44,7      | 52,0     | 59,3     | 69,0     | 89,3     | 97,4     |
| Dimensions                | Length (mm)                            | 1.191  | 1.471   | 1.471   | 1.471   | 2.186    | 2.746     | 2.746    | 2.746    | 2.746    | 3.484    | 3.484    |
|                           | Width (mm)                             | 860  | 860     | 860     | 860     | 860      | 860       | 860      | 860      | 860      | 860      | 860      |
|                           | Height (mm)                            | 1.437  | 1.717   | 1.717   | 1.717   | 1.437    | 1.717     | 1.717    | 1.717    | 1.717    | 1.717    | 1.717    |
| Weight                    | (kg)                                   | 300  | 364     | 378     | 383     | 588      | 737       | 782      | 789      | 793      | 1.043    | 1.052    |
| Indoor module 50NI        |  | 90   | 120     | 160     | 180     | 200      | 240       | 280      | 320      | 360      | 420      | 485      |
| Indoor supply circuit fan | Nominal air flow (m³/h)                | 4.000  | 5.200   | 7.000   | 8.000   | 9.200    | 10.300    | 12.500   | 14.000   | 15.500   | 21.000   | 21.000   |
|                           | Available static pressure (mm.w.c)     | 15   | 15      | 15      | 15      | 15       | 20        | 20       | 20       | 20       | 20       | 20       |
|                           | Type                                   | Electronic plug-fan  |         |         |         |          |           |          |          |          |          |          |
|                           | Number / Diameter (mm)                 | 1 / 500  | 1 / 500 | 1 / 500 | 1 / 500 | 2 / 500  | 2 / 500   | 2 / 500  | 2 / 500  | 2 / 500  | 3 / 500  | 3 / 500  |
|                           | Motor output (kW)                      | 2,7  | 2,7     | 2,7     | 2,7     | 2 x 2,7  | 2 x 2,7   | 2 x 2,7  | 2 x 2,7  | 2 x 2,7  | 3 x 2,6  | 3 x 2,6  |
|                           | Power input (kW)                       | 0,63   | 0,86    | 1,32    | 1,38    | 2 x 0,71 | 2 x 0,95  | 2 x 1,10 | 2 x 1,32 | 2 x 1,58 | 3 x 1,40 | 3 x 1,40 |
|                           | Speed (r.p.m.)                         | 1.700  | 1.700   | 1.700   | 1.700   | 1.700    | 1.700     | 1.700    | 1.700    | 1.700    | 1.700    | 1.700    |
| Max. absorbed current     | Fan (A)                                | 4,2  | 4,2     | 4,2     | 4,2     | 8,2      | 8,2       | 8,2      | 8,2      | 8,2      | 12,0     | 12,0     |
| Dimensions                | Length (mm)                            | 1.190  | 1.190   | 1.520   | 1.520   | 2.183    | 2.144     | 2.804    | 2.804    | 2.804    | 2.974    | 2.974    |
|                           | Width (mm)                             | 950  | 950     | 1.028   | 1.028   | 950      | 950       | 1.028    | 1.028    | 1.028    | 1.209    | 1.209    |
|                           | Height (mm)                            | 731  | 731     | 731     | 731     | 731      | 731       | 800      | 800      | 800      | 1.091    | 1.091    |
| Weight                    | (kg)                                   | 175  | 175     | 204     | 204     | 303      | 303       | 389      | 389      | 389      | 536      | 536      |

- (1) Cooling capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 27°C, (19°C WB) and 35°C outdoor T.  
 (2) Heating capacity calculated in accordance with the EN-14511-2018 standard given for indoor temperature conditions 20°C and 6°C WB outdoor temperature.  
 (3) Total power input by compressors and motorised fans under nominal conditions, calculated in accordance with the EN-14511-2018 standard.  
 (4) Climatic warming potential of a kilogram of fluorinated greenhouse gas in relation to a kilogram of carbon dioxide over a period of 100 years.

## OPTIONS

### Options for the outdoor module

#### Outdoor environment

##### Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating.

##### Humidity

- Tropicalised electric panel.
- Tropicalised motors and fans (please consult).

#### Installation

- Antivibration mounts made of rubber.
- Service valves for cooling connections and refrigerant charge, when the unit is supplied for installation as split version.
- Oil separator for cooling connections with maximum equivalent length of the cooling line greater than 50 metres, optional only available when the units are supplied in 2 modules, **outdoor module** and **indoor module** for installation as split version.
- Position of air supply of the outdoor unit:
  - Lateral: by default
  - Upper: only available when the units are supplied for installation as split version.
- Gravimetric filters in the return air. The filters frame is removable, and upon request, it is possible to supply the frame separately with the unit SP, to be joined on site (width = 53 mm)

#### Acoustic

- Acoustic insulating cover for compressor.

#### Electric panel

- Electrical power supply with neutral.
- Energy meter for monitoring of the power consumption of the installation. Available if the unit does not incorporate electrical heaters (optional upon request).



### Options for the indoor module

#### Outdoor environment

##### Humidity

- Stop-drop in the indoor air coil. Recommended in cases where a high moisture content in the air is foreseen or when the air flow is high.
- Stop-drop in the outdoor air intake.

#### Corrosion

- Coil with copper pipes and copper fins.
- INERA® coil with copper pipes and fins of an aluminium alloy, of high performance and great resistance to the corrosion.
- Coil with copper pipes and aluminium fins with polyurethane and Blygold® coating (indoor unit and/or hot water coil).
- Condensates drain pan in stainless steel.

#### Comfort / heating options

- Hot water auxiliary coil, with three-way valve and proportional control.

If the unit includes hot water coil and free-cooling, and works with negative temperatures of outdoor air, an anti-freeze thermostat as safety system is mandatory.

- Electrical heaters with assembly in two stages and proportional control.

#### Comfort / indoor air quality options

- Filtration of the supply air:
  - Gravimetric filter G4.
  - Gravimetric filter G4 + creased opacimetric filters M6 to F9.

Classification of the filters according to the new **ISO 16890 Standard**:

- G4 → ISO Coarse 60%
- M6 → ISO ePM10 60%
- F7 → ISO ePM1 50%
- F8 → ISO ePM1 65%
- F9 → ISO ePM1 80%

- Air quality sensor to enable measuring CO<sub>2</sub> for installation in the environment or duct-mounted (attached picture).



#### Security

- Differential pressostat for the detection of clogged filters.
- Smoke detecting station in accordance with the NF S 61-961 standard.
- Refrigerant leak detector (in ppm). This allows prompt identification of gas leaks, guaranteeing the safety of any people in the vicinity. This detector allows the number of periodic revisions to the unit to be reduced.



#### Installation

- Antivibration mounts made of rubber
- Position of supply and/or return of the indoor unit air.

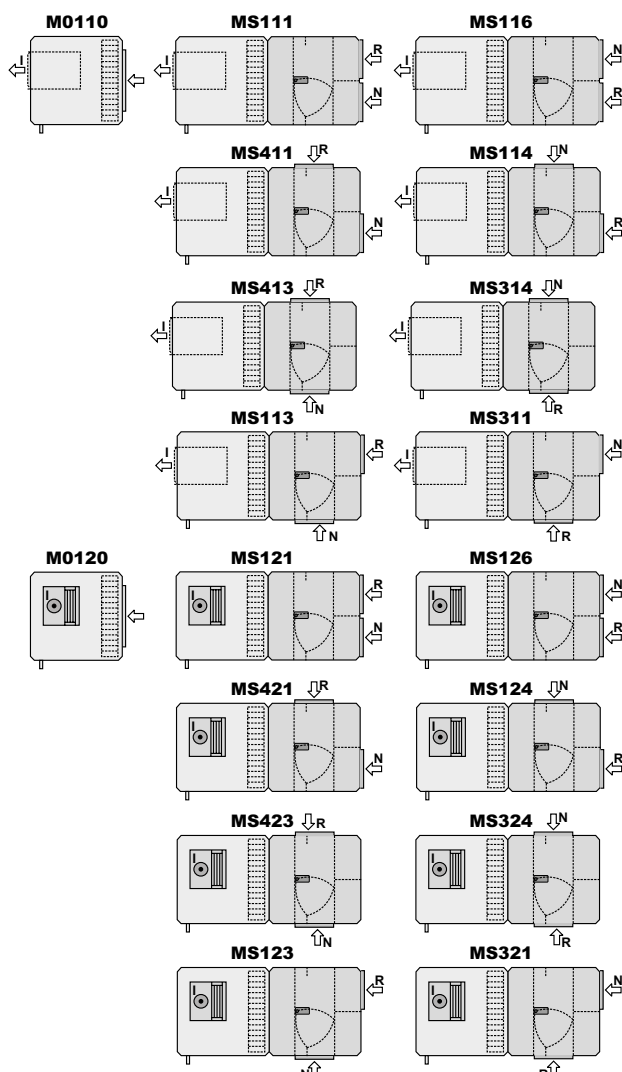


## OPTIONS (...CONTINUATION)

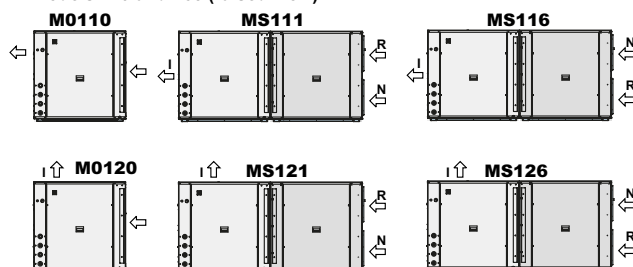
- Assemblies with mixing box with 2 motorised damper for air renewal and free-cooling:

### Assemblies with mixing box

Models 90 to 360 (plan view)



Models 420 and 485 (raised view)



#### Air circulation

I = Supply  
R = Return

N = Fresh air inlet  
E = Air extraction

⊗ Air inlet  
⊙ Air outlet

#### Designation

Mwxyz

Assembly:  
0 = Standard  
S = Outdoor air intake with damper

Return:  
1 = Rear  
2 = Top  
3 = Right-hand side (\*)  
4 = Left-hand side (\*)  
(\*) Seen in the direction of airflow

Supply:  
1 = Front  
2 = Top

Fresh air:  
1,6 = Rear  
3 = Right-hand side (\*)  
4 = Left-hand side (\*)

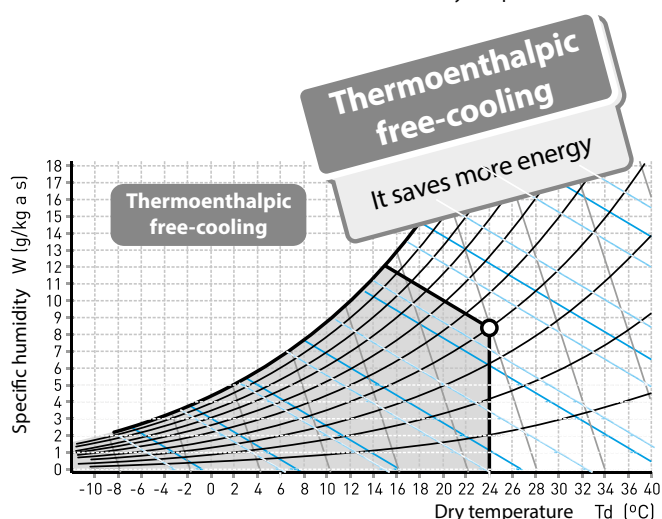
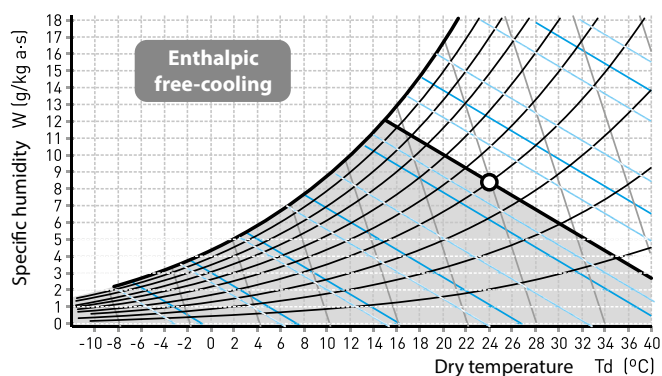
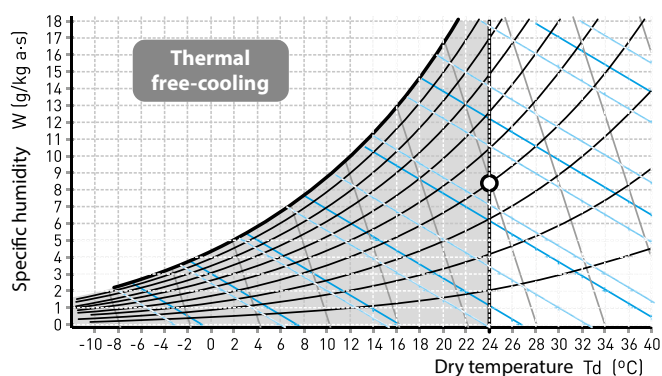
**Important:** In compact version, the connection of the mixing box with its structural support is under the responsibility of the installer.

### Free-cooling management:

Running the unit in free-cooling mode allows it to make best use of outdoor air conditions when these are more favourable than the return air conditions. This allows the cooling capacity to be reduced. The percentage of outdoor air can vary between 0% and 100%.

There are three options for free-cooling management:

- Thermal, by comparing the temperatures.
- Enthalpic, by comparing the enthalpies. Recommended in cases where a high moisture content in the air is foreseen.
- Thermoenthalpic, by comparing the enthalpies and correcting for temperature. This is the optimum solution as it takes the variability of the climate into account.



## OPTIONS (...CONTINUATION)

### Options for electronic control

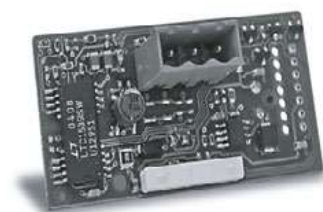
#### CARRIERrtc options

- TCO user terminal, for installation on the electric panel, instead of pGD1 terminal.
- Control without pGD1 terminal (for units with shared terminal).
- Kit remote control to 200 meters with pGD1 terminal (pGD1 terminal + 2 TCONN bypass cards). In this case it's possible to install the TCO terminal on the electric panel.
- Ambient temperature probe with RS485 communication. By default the control incorporates a NTC probe.  
Note: An ambient probe with RS485 communication is required for installation to more than 30 m.
- Two to four ambient temperature probe with RS485 communication.
- Ambient T+RH probe with RS485 (compulsory in units with enthalpic or thermoenthalpic free-cooling as optional). In this case also added outdoor air humidity probe.
- Air quality probe for installation in the environment or in duct to enable measuring CO<sub>2</sub>.

#### Communication options

**CARRIERrtc** control allows the connection to a centralised technical management system by using a specific BMS card for some of the following communication protocols:

- RS485 serial cards for network communication with protocols: Carel, Modbus, LonWorks®, BACnet™ MSTP, Konnex.
- Ethernet pCO Web card for network communication with protocols: Modbus TCP/IP, BACnet™ Ethernet, TCP/IP, SNMP V1-2-3, FTP and HTTP.



Carel y Modbus



Ethernet pCO Web

#### Supervision solutions

Different solutions of supervision are available according to the dimensions of the installation.

##### ■ pCO Web

It is the solution for the management and supervision of a single unit if it incorporates the Ethernet pCO Web card.

##### ■ PlantWatchPRO3

It is a solution designed for the monitoring of installations of medium - small dimensions, with ability to manage up to 30 units. Suitable for technical environments, it has no parts in movement. It's available in two versions: panel and wall.

Includes: 7 " touch display, buzzer for notifications, 1 USB port and 1 SD card slot for downloading reports, charge devices models and applying service packs.

In this case, each unit needs one RS485 Carel / Modbus board.

##### ■ BOSS

This is the solution for the management and supervision of air-conditioning installations with up to 300 units. Its main advantages are:

- Integrated WIFI Hotspot for direct access without any extra infrastructure.
- Smartphone compatibility.
- Secure supervisor control from remote through a simple browser.

It offers advanced monitoring and maintenance functions and allows zones and groups to be created to simplify the management of the installation. It also allows energy meters to be integrated to monitor the installation electricity consumption.

BOSS is available in two versions:

- CPU device.
- CPU device, monitor, keyboard and screen.

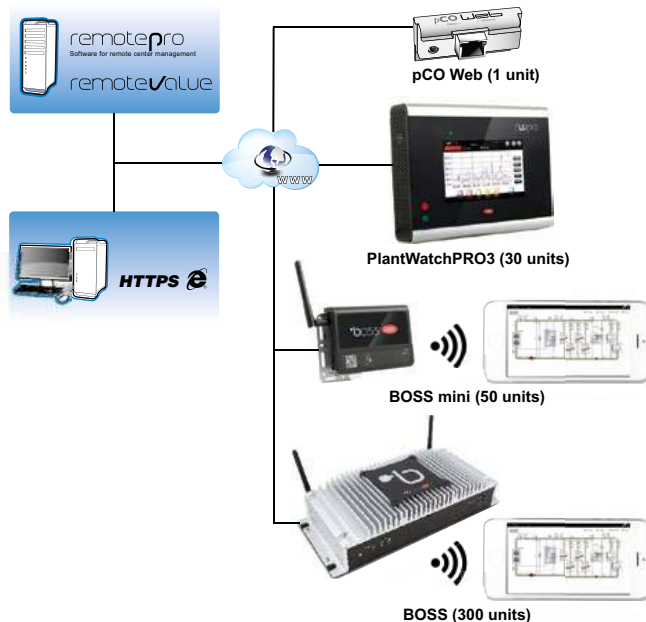
For this option, each unit needs one RS485 Carel / Modbus board.

##### ■ BOSS mini (New)

This is the solution for the management and supervision of air-conditioning installations with up to 10 units with 50 variables per unit or 50 units with 10 variables maximum per unit, but with the same features as BOSS.

BOSS mini is available in two versions:

- CPU device, mouse and keyboard.
- CPU device, monitor, mouse and keyboard.



These systems allow the installation in remote management. Through a single connection to the Internet is accessed the information system. The Web interface, which is available for the local user, allows the monitoring and the complete configuration of the installation: from the office or any other user's current location.

For remote control of multiple sites, there are dedicated tools for centralized management as **RemotePRO** and **RemoteValue**.



## SOUND LEVELS dB(A)

### Sound power level 50NI compact version

| 50NI compact | 90   | 120  | 160  | 180  | 200  | 240  | 280  | 320  | 360  | 420  | 485  |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| 63 Hz        | 45,7 | 59,8 | 57,0 | 60,4 | 63,5 | 62,1 | 62,1 | 58,8 | 68,5 | 68,2 | 68,5 |
| 125 Hz       | 60,4 | 66,5 | 66,3 | 74,7 | 66,5 | 71,6 | 71,6 | 73,5 | 72,2 | 74,5 | 74,6 |
| 250 Hz       | 73,8 | 72,9 | 73,7 | 73,7 | 73,3 | 78,5 | 78,1 | 75,8 | 77,4 | 82,4 | 85,2 |
| 500 Hz       | 76,3 | 80,6 | 81,2 | 81,2 | 81,0 | 82,8 | 83,7 | 82,3 | 82,4 | 84,5 | 87,4 |
| 1000 Hz      | 80,7 | 83,8 | 83,9 | 84,0 | 85,0 | 84,7 | 84,9 | 85,8 | 85,8 | 86,4 | 88,5 |
| 2000 Hz      | 79,4 | 83,3 | 83,9 | 83,9 | 84,9 | 82,3 | 82,5 | 83,8 | 83,7 | 84,2 | 85,8 |
| 4000 Hz      | 73,0 | 77,5 | 77,5 | 77,3 | 79,1 | 77,5 | 77,7 | 76,6 | 77,7 | 79,7 | 80,0 |
| 8000 Hz      | 64,0 | 69,0 | 68,2 | 72,2 | 72,9 | 71,5 | 71,8 | 69,0 | 73,1 | 72,2 | 73,0 |
| Total dB(A)  | 84,7 | 88,2 | 88,5 | 88,8 | 89,5 | 89,1 | 89,4 | 89,5 | 89,8 | 91,1 | 93,3 |

### Sound pressure level 50NI compact

Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| 50NI compact | 90   | 120  | 160  | 180  | 200  | 240  | 280  | 320  | 360  | 420  | 485  |
|--------------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A)  | 56,6 | 59,9 | 60,3 | 60,5 | 61,1 | 62,2 | 62,5 | 62,6 | 62,8 | 63,9 | 66,1 |

**Note:** The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

### Sound power level 50NI outdoor module

| Outdoor module | 90   | 120   | 160   | 180   | 200   | 240  | 280  | 320  | 360  | 420  | 485  |
|----------------|------|-------|-------|-------|-------|------|------|------|------|------|------|
| 63 Hz          | 42,7 | 56,84 | 53,96 | 57,39 | 60,47 | 59,1 | 59,1 | 55,8 | 65,5 | 65,2 | 65,5 |
| 125 Hz         | 57,4 | 63,55 | 63,34 | 71,75 | 63,55 | 68,6 | 68,6 | 70,5 | 69,2 | 71,5 | 71,6 |
| 250 Hz         | 70,8 | 69,86 | 70,71 | 70,71 | 70,31 | 75,5 | 75,1 | 72,8 | 74,4 | 79,4 | 82,2 |
| 500 Hz         | 73,3 | 77,58 | 78,24 | 78,20 | 78,00 | 79,8 | 80,7 | 79,3 | 79,4 | 81,5 | 84,4 |
| 1000 Hz        | 77,7 | 80,80 | 80,86 | 80,96 | 82,02 | 81,7 | 81,9 | 82,8 | 82,8 | 83,4 | 85,5 |
| 2000 Hz        | 76,4 | 80,32 | 80,95 | 80,93 | 81,88 | 79,3 | 79,5 | 80,8 | 80,7 | 81,2 | 82,8 |
| 4000 Hz        | 70,0 | 74,46 | 74,46 | 74,29 | 76,08 | 74,5 | 74,7 | 73,6 | 74,7 | 76,7 | 77,0 |
| 8000 Hz        | 61,0 | 65,99 | 65,23 | 69,21 | 69,88 | 68,5 | 68,8 | 66,0 | 70,1 | 69,2 | 70,0 |
| Total dB(A)    | 78,7 | 82,2  | 82,5  | 82,8  | 86,5  | 86,1 | 86,4 | 86,5 | 86,8 | 88,1 | 90,3 |

### Sound pressure level 50NI outdoor module

Measurement conditions: in a clear field, measured at a distance of 5 metres, directivity 2 and at 1,5 metres from the ground.

| Outdoor module | 90   | 120  | 160  | 180  | 200  | 240  | 280  | 320  | 360  | 420  | 485  |
|----------------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A)    | 53,6 | 56,9 | 57,3 | 57,5 | 58,1 | 59,5 | 59,8 | 60,0 | 60,2 | 61,4 | 63,5 |

**Note:** The sound pressure level depends on the installation conditions and, as such, it only indicated as a guide. Values obtained according to the ISO 3744 standard.

### Sound power level 50NI indoor module

Sound power level in the indoor fan supply to be taken into account for the silencer calculation:

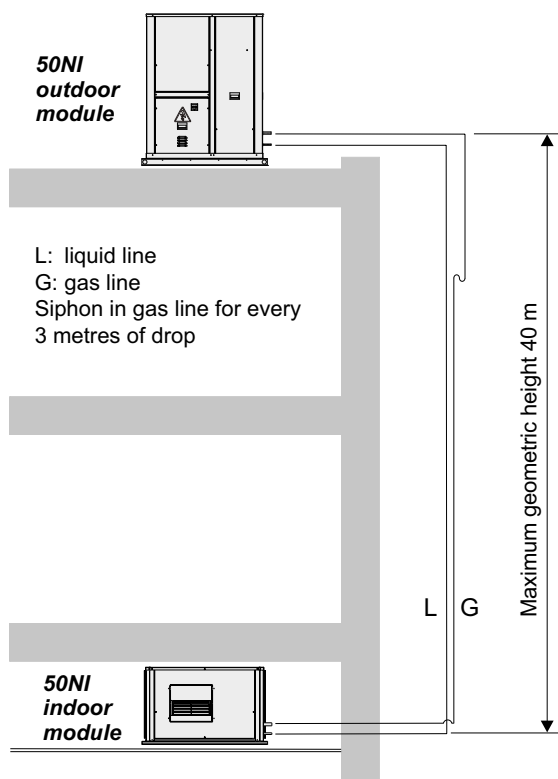
| Indoor module | 90   | 120  | 160  | 180  | 200  | 240  | 280  | 320  | 360  | 420  | 485  |
|---------------|------|------|------|------|------|------|------|------|------|------|------|
| Total dB(A)   | 68,2 | 72,4 | 78,8 | 82,1 | 71,6 | 78,7 | 79,2 | 81,7 | 84,2 | 81,8 | 81,8 |

## RECOMMENDATIONS FOR THE COOLING CONNECTION IN SPLIT VERSION

In split version, the outdoor module and indoor module must follow some recommendations

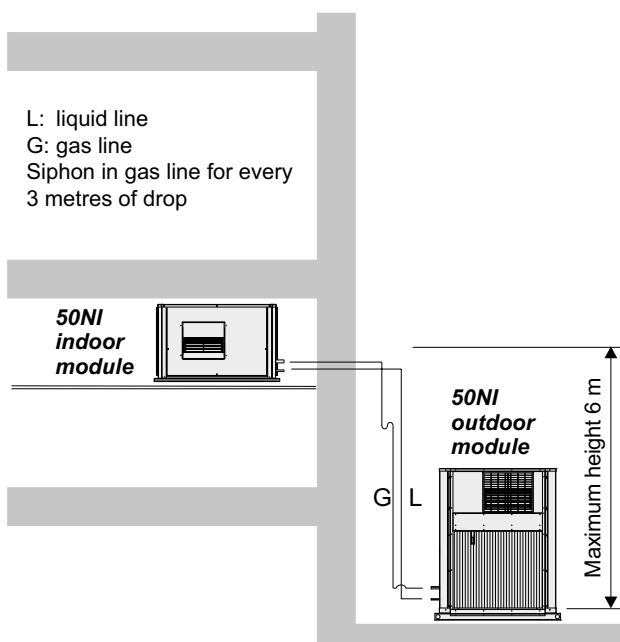
### Outdoor unit top

Maximum equivalent length of the cooling line: 50 metres  
For longer lengths an oil separator must be user



### Outdoor unit bottom

Maximum equivalent length of the cooling line: 30 metres



Note: when the unit is supplied for split version with the outdoor and indoor modules, can include optionally filling and service valves for the circuit connections and the charge of refrigerant until 7 m of distance.

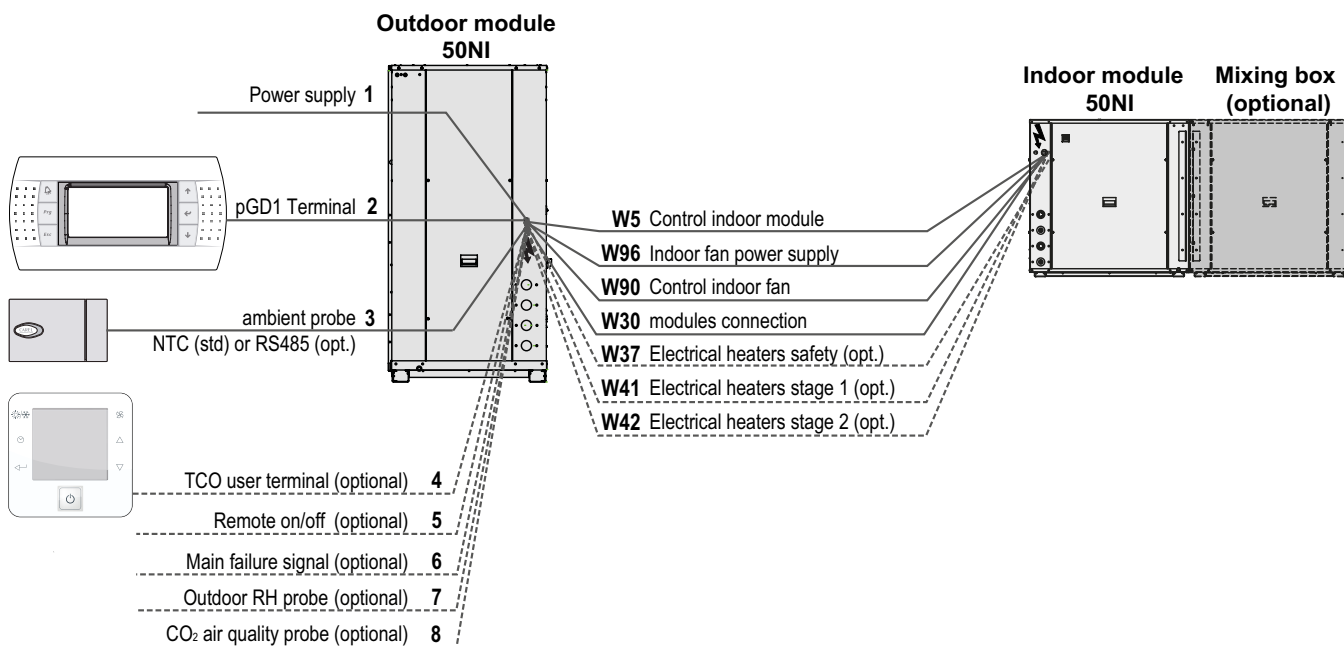
## ADDITIONAL LOAD OF R-410A REFRIGERANT

Additional load per linear metre of piping for equivalent maximum lengths exceeding 7 metres:

| Nominal diameter (inches)           | 1/4"  | 3/8"  | 1/2"  | 5/8"  | 3/4"  | 7/8"  | 1"    | 1 1/8" |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|
| Interior section (cm <sup>2</sup> ) | 0,149 | 0,444 | 0,900 | 1,505 | 2,282 | 3,120 | 4,290 | 5,346  |
| Liquid line charge (g/m)            | 19,3  | 57,0  | 115,0 | 193,5 | 292,3 | 404,1 | 550,3 | 685,7  |
| Gas line charge (g/m)               | --    | 0,2   | 0,4   | 0,7   | 1,0   | 1,4   | 2,0   | 2,5    |

## ELECTRICAL CONNECTIONS BETWEEN THE MODULES

### CARRIERrtc control



| No.     | 50NI  |                            | 90  | 120 | 160 | 180 | 200 | 240 | 280 | 320 | 360 | 420 | 485 |
|---------|---|----------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1       | Power supply  | 400 III ( $\pm 10\%$ )     | 3 + GND   |     |     |     |     |     |     |     |     |     |     |
| 2       | pGD1 terminal connection (standard in electrical panel) |                            | Telephone cable 6 wires standard (RJ12 connector) (until 50 m)  |     |     |     |     |     |     |     |     |     |     |
| 3       | Ambient probe (1)                                       | NTC                        | 2 wires   |     |     |     |     |     |     |     |     |     |     |
|         |   | RS485 (2)                  | 5 wires   |     |     |     |     |     |     |     |     |     |     |
| 4       | TCO user terminal connection (3)                        |                            | 2 wires for power supply 230V + 1 shielded cable for communication type AGW20 / 22 (1 braided pair + drainwire + shielding) |     |     |     |     |     |     |     |     |     |     |
| 5       | Remote on/off (optional)                                |                            | 2 wires   |     |     |     |     |     |     |     |     |     |     |
| 6       | Main failure signal (optional)                          |                            | 2 wires   |     |     |     |     |     |     |     |     |     |     |
| 7       | Outdoor RH probe (optional) (1)                         |                            | 3 wires   |     |     |     |     |     |     |     |     |     |     |
| 8       | CO <sub>2</sub> air quality probe (optional) (1)        |                            | 3 wires   |     |     |     |     |     |     |     |     |     |     |
| W5 (5)  | Control indoor module                                   |                            | 5 wires   |     |     |     |     |     |     |     |     |     |     |
| W96 (5) | Indoor fan power supply                                 |                            | 4 wires   |     |     |     |     |     |     |     |     |     |     |
| W90 (5) | Control indoor fan                                      |                            | 7 wires   |     |     |     |     |     |     |     |     |     |     |
| W30 (5) | Modules connection                                      | without free-cooling (std) | 2 wires   |     |     |     |     |     |     |     |     |     |     |
|         |   | free-cooling (opt.)        | 7 wires   |     |     |     |     |     |     |     |     |     |     |
| W37 (5) | Safety thermistors of electrical heaters (optional)     |                            | 2 wires   |     |     |     |     |     |     |     |     |     |     |
| W41 (5) | Electrical heaters. stage 1 (optional) (4)              |                            | 4 wires   |     |     |     |     |     |     |     |     |     |     |
| W42 (5) | Electrical heaters. stage 2 (optional) (4)              |                            | 4 wires   |     |     |     |     |     |     |     |     |     |     |

(1) Connection of probes by client

(2) It is possible connect from 1 to 4 ambient probes RS485 in series in the Field-bus of the control board

(3) If the unit is going to be installed in an industrial environment with a high level of electromagnetic interference, it is recommended to shield the cables of the thermostat control.

(4) The power supply for the electrical heater must be protected by an automatic switch and/or fuses to be foreseen by the installer.

(5) Connection hose to connect the modules supplied to work in compact version.

## OPTIONS FOR THE INDOOR MODULE

### High pressure plug-fan

| Indoor module 50NI                |           | 420     | 485    |
|-----------------------------------|-----------|---------|--------|
| Nominal air flow                  | (m³/h)    | 21.000  | 21.000 |
| Available static pressure         | (mm.w.c.) | 20      |        |
| Maximum available static pressure | (mm.w.c.) | 60      |        |
| Number / Diameter                 | (mm)      | 2 x 500 |        |
| Motor output                      | (kW)      | 2 x 4,6 |        |
| Power input                       | (kW)      | 2 x 3,6 |        |
| Speed                             | (r.p.m.)  | 2.100   |        |
| Maximum absorbed current          | (A)       | 2 x 7,2 |        |

### Stop-drop in the indoor air coil

Air flow as from which it is recommended to install a stop-drop in the indoor coil.

| Indoor module 50NI     |        | 90    | 120   | 160   | 180   | 200    | 240    | 280    | 320 | 360 | 420    | 485 |
|------------------------|--------|-------|-------|-------|-------|--------|--------|--------|-----|-----|--------|-----|
| Air flow for stop-drop | (m³/h) | 5.246 | 5.246 | 7.283 | 7.283 | 11.110 | 11.110 | 16.566 |     |     | 16.949 |     |

**Note:** for operating conditions with high dehumidification in the indoor coil (example. in installations close to the coast) it may be necessary to install a separator even if the flow is less than the previous one.

**Note:** with hot water coil it is not possible to assemble the stop-drop.

### Electrical heaters

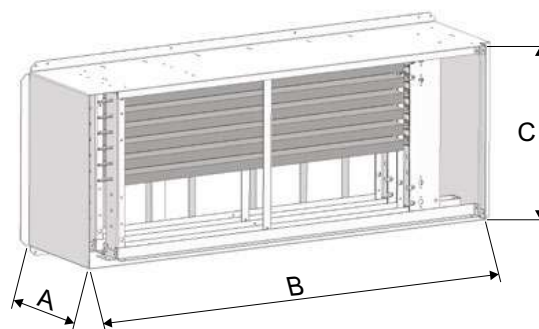
Standard assembly in two stages (optional assembly in one stage with no over price)

#### Available capacities

| Indoor module 50NI          | Total output (kW)                    | 6           | 9     | 12    | 15          | 18    | 24          | 30      | 36      | 45          | 54      |
|-----------------------------|--------------------------------------|-------------|-------|-------|-------------|-------|-------------|---------|---------|-------------|---------|
|                             | Stage power (kW)                     | 3 + 3       | 3 + 6 | 6 + 6 | 6 + 9       | 9 + 9 | 12 + 12     | 15 + 15 | 18 + 18 | 18 + 27     | 27 + 27 |
| 90 / 120                    | Current (A)<br>(400V / IIIph / 50Hz) | 8,7         | 13,0  | 17,3  | Unavailable |       |             |         |         |             |         |
| 160 / 180                   |                                      | Unavailable |       | 17,3  | 21,7        | 26,0  | Unavailable |         |         |             |         |
| 200 / 240 / 280 / 320 / 360 |                                      | Unavailable |       |       | 21,7        | 26,0  | 34,6        | 43,4    | 52,0    | Unavailable |         |
| 420 / 485                   |                                      | Unavailable |       |       |             |       |             |         | 52,0    | 65,0        | 78,0    |

#### Frame for assembly of the auxiliary heater in the indoor supply fan

| Indoor module 50NI         | Total output                      | Dimensions (mm) |       |     |
|----------------------------|-----------------------------------|-----------------|-------|-----|
|                            |                                   | A               | B     | C   |
| 90 / 120 (1 frame)         | 6 / 9 kW (1 row)                  | 150             | 482   | 443 |
|                            | 12 kW (2 rows)                    | 262             | 482   | 443 |
| 160 / 180 (1 frame)        | 12 kW / 15 / 18 kW (1 row)        | 189             | 1.142 | 443 |
| 200 / 240 (1 frame)        | 15 / 18 kW (1 row)                | 189             | 1.142 | 443 |
|                            | 24 / 30 / 36 kW (2 rows)          | 297             | 1.142 | 443 |
| 280 / 320 / 360 (2 frames) | 15 / 18 / 24 / 30 / 36 kW (1 row) | 189             | 1.142 | 443 |
| 420 / 485 (2 frames)       | 36 / 45 / 54 kW (1 row)           | 189             | 1.142 | 443 |



This frame is designed with side access for maintenance purposes. In models with two supply fan outlets (two frames), the electrical heaters are distributed as symmetrically as possible between both frames.

## OPTIONS FOR THE INDOOR MODULE

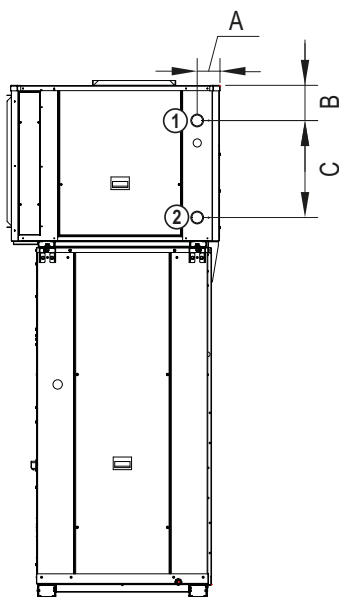
### Auxiliary hot water coil

Hot water coil assembled inside the unit with a three-way valve managed by the unit control for back-up during heating in heat pump units. In this case the air inlet temperature matches the air supply temperature of the indoor coil..

| Indoor module 50NI                |                     |           | 90   | 120  | 160  | 180  | 200  | 240  | 280  | 320  | 360  |
|-----------------------------------|---------------------|-----------|------|------|------|------|------|------|------|------|------|
| Air pressure drop                 |                     | (mm.w.c.) | 2,9  | 4,5  | 4,2  | 4,2  | 3,4  | 4,0  | 5,5  | 6,6  | 7,8  |
| Water<br>80/60°C                  | Heating capacity    | (kW)      | 12,9 | 14,9 | 23,0 | 23,0 | 31,6 | 33,6 | 38,6 | 40,9 | 43,7 |
|                                   | Water flow          | (m³/h)    | 0,6  | 0,7  | 1,0  | 1,0  | 1,4  | 1,5  | 1,7  | 1,8  | 1,9  |
|                                   | Water pressure drop | (m.c.a.)  | 0,1  | 0,2  | 0,5  | 0,5  | 0,5  | 0,5  | 0,7  | 0,8  | 0,9  |
| Water<br>90/70°C                  | Heating capacity    | (kW)      | 17,9 | 20,8 | 31,5 | 31,5 | 43,5 | 46,5 | 53,1 | 56,3 | 60,1 |
|                                   | Water flow          | (m³/h)    | 0,8  | 0,9  | 1,4  | 1,4  | 1,9  | 2,0  | 2,3  | 2,5  | 2,6  |
|                                   | Water pressure drop | (m.w.c.)  | 0,2  | 0,3  | 0,8  | 0,8  | 0,9  | 1,0  | 1,2  | 1,4  | 1,6  |
| Weight (empty)                    |                     | (kg)      | 7,8  | 7,8  | 11,0 | 11,0 | 16,3 | 16,3 | 16,3 | 16,3 | 16,3 |
| Diameter of hydraulic connections |                     |           | 3/4" |      |      | 1"   |      |      |      |      |      |

**Note:** with stop-drop in the indoor air coil it is not possible to assemble the hot water coil.

### Position of hydraulic connections for auxiliary hot water coil



① Inlet    ② Outlet

| Dimensions (mm) | A   | B   | C   |
|-----------------|-----|-----|-----|
| 90 and 120      | 108 | 172 | 413 |
| 160 to 200      | 108 | 172 | 380 |
| 240             | 112 | 140 | 413 |
| 280 to 360      | 112 | 173 | 476 |

**NEW**

## CARRIER® AND BARRISOL® ADVANCED HVAC CEILING SOLUTIONS



Architect KHR Arkitekter A/S. © Barrisol®

Indoor air quality  
High energy efficiency  
Comfort  
Environmental sustainability  
Aesthetics

## Barrisol Clim® and Barrisol Cloud Clim® featuring Carrier® products

The alliance between two global leaders to provide outstanding opportunities for comfort, well-being, and aesthetics.

### **Carrier®: the world leader in healthy, safe, sustainable and intelligent building solutions**

Carrier® is the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions.

For over a century, we have been developing innovative products and services that have changed the way people live and work. That drive for innovation continues today with a renewed focus on creating solutions that will change the world for the better. At Carrier®, we see possibilities everywhere.

Built on Willis Carrier's invention of modern air conditioning in 1902, Carrier® is a world leader in heating, air-conditioning and refrigeration solutions. We constantly build upon our history of proven innovation with new products and services that improve global comfort and efficiency.

### **Barrisol®: the world leader of stretch ceilings**

Barrisol® Normalu® S.A.S. is the world leader for stretch ceilings and has been for more than 50 years.

The company has received more than 50 awards for its capacity to constantly innovate and create aesthetical, ecoresponsible and qualitative products.

Thanks to its high quality constitution, its adaptability to realize unique shapes and its high quality, Barrisol® stretch ceilings became and is the best choice for designers and architects. Their ceilings are 100% recyclable and up to 60% post consumer recyclable content.

"To make the world of tomorrow more beautiful, we first have to preserve it today".

Jean-Marc SCHERRER - President - Barrisol®



© Carrier® - Airside center of excellence Culoz  
-France



© Barrisol® - Production site of Kembs - France



## INNOVATIVE HVAC CEILING SOLUTIONS FOR THE MOST DEMANDING BUILDINGS

Carrier® and Barrisol® advanced HVAC ceiling solutions combine high-level air diffusion and thermal performances for users' unrivalled comfort. They supply a unique combination of enhancing comfort and indoor air quality in a large scope of building configurations: offices, restaurants, hotels, sports centers, industry, healthcare facilities, and more.

### Clim® and Pure Clim® HVAC ceiling solutions

Barrisol Clim® featuring Carrier® products combines a stretch ceiling with an air conditioning system. This solution allows for the **highest levels of aesthetic design**, the technical components being hidden by the ceiling. The solution not only delivers **outstanding thermal comfort**, generating a constant and uniform temperature but also ensures the **high levels of acoustic comfort**. Barrisol Clim® featuring Carrier® products can be upgraded with UV-C lamps for the Pure Clim® version to enhance **air indoor quality** even further.



Architect Jean-François Brodbeck - AMRS Architectes. © Barrisol®



© Carrier®

### Cloud Clim® HVAC modular solution

Barrisol Cloud Clim® featuring Carrier® products combined installations consist of **modular ceiling units** providing **air conditioning, lighting and acoustic treatment** to the room.

The solution automatically adapts the air diffusion flow according to the temperature of the air blown. The fan coil can be integrated into the Cloud Clim module (42EP only) or installed remotely (all Carrier® ducted fan coil ranges).

**Carrier® and Barrisol® HVAC ceiling solutions are part of Carrier's Healthy Buildings Program, an expanded suite of advanced solutions to help deliver healthy, safe, efficient, and productive indoor environments.**



© Barrisol®



© Barrisol®



© Barrisol®

## INNOVATIVE HVAC CEILING SOLUTIONS FOR THE MOST DEMANDING BUILDINGS



### Indoor air quality

A+ class\* in air indoor quality

High-efficiency air renewal

Indoor air disinfection with integrated UV-C light solution

\* According to the French labeling of construction products



### High energy efficiency

High-performance design

Lifetime equipment approach

Compliance with Ecodesign requirements



### Comfort

High acoustic and thermal comfort

Class A for cooling and heating  
according to the standard ISO 7730

Uniform and constant temperature

No draught



### Environmental sustainability

100% recyclable membranes and profiles

Eco-responsible and sustainable  
manufacturing process



### Aesthetics

Technical components are hidden by the ceiling solution.

100% customizable with lights, print design, shapes, and textures



Architect Agence A+ Architecture. © Barrisol®

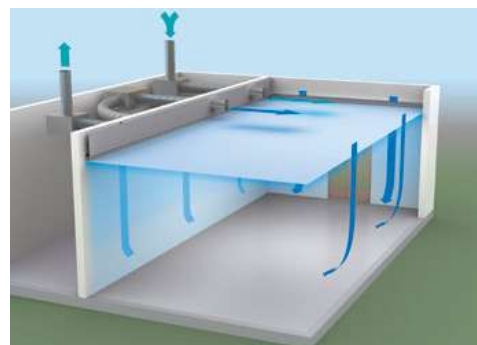
## BARRISOL CLIM® AND PURE CLIM® FEATURING CARRIER® PRODUCTS

The innovative combination of cutting-edge stretch ceiling solutions with a highly efficient HVAC system.

### The advanced hvac ceiling solution is based on two fundamental principles

Barrisol Clim® featuring Carrier® product technology uses radiation and convection. It uses a ceiling made from a bio-sourced membrane that is stretched and fixed in position, spanning a room. These ceiling acts like a high-level quality diffuser.

Combined with the responsiveness capacities of the Carrier® ducted fan coils, the solution is the perfect alliance for comfort and IAQ.



© Barrisol®



Arch. : KHR Arkitekter A/S. © Barrisol®

This solution consists of a ducted fan coil installed in the false ceiling or in an adjacent room that supplies cooled or heated air to the upper part of the stretch ceiling.

The high-efficiency Carrier® fan coils offers **high responsiveness and excellent capacities** to manage rapid load changes.

The warm or cool conditioned air will flow gently over the inner walls, eliminating any unpleasant hot or cold walls-effect.

A natural flow of air develops throughout the space, **at speeds so low that they are barely perceptible.**

At the same time, the canvas performs its radiant capacities becoming a huge diffuser: heat or cold radiates through its entire surface providing pleasant, gentle heating or cooling.



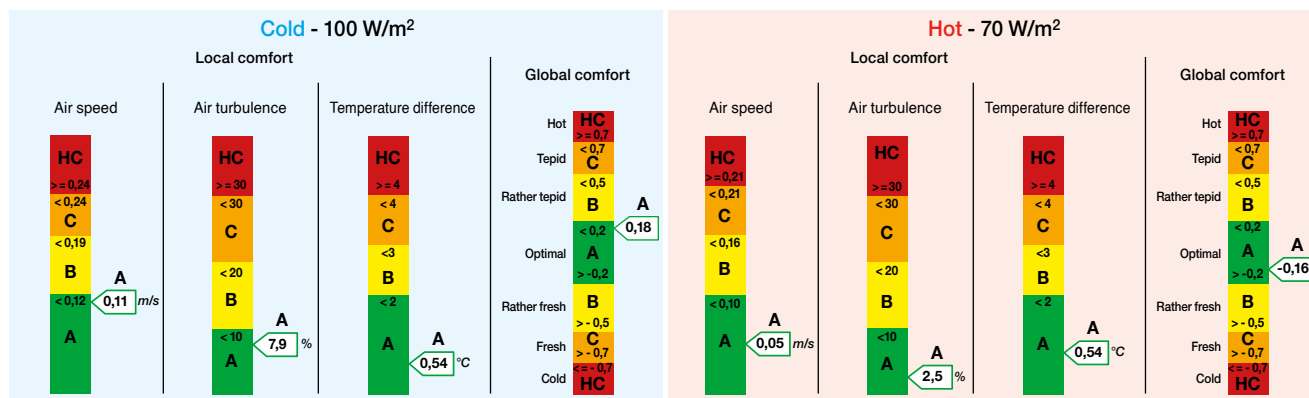
## BARRISOL CLIM® AND PURE CLIM® FEATURING CARRIER® PRODUCTS

### Comfort and well-being

#### Thermal comfort

The solution achieves a comfort rating of **Class A** for both cooling and heating, the highest possible under ISO 7730, the relevant international standard for measuring thermal comfort in buildings.

#### Thermal comfort scale according to ISO 7730\*



\* Tests carried out in the Jean Falconnier laboratory at the Carrier - Culoz site. Additional information available on request

The performances of the Carrier® fan coils ensure a **constant temperature**, whether in cooling or heating, regardless of the outdoor conditions. Combined with the thermal properties of the canvas it gives the system incredible responsiveness, in only a few minutes the sensation of heating or cooling is perceptible.

The HVAC ceiling system evens out the temperature of walls and ambient air, everywhere in the room for a **homogeneous temperature**, less than a 1.0°C temperature difference between the head and feet of the occupants (1.0°C in heating mode and 0.5°C in cooling mode).

It achieves almost **imperceptible air velocity** (0,12 m/s).

Barrisol Clim® featuring Carrier® fan coils technology thus offers an **unequaled level of comfort** since it is the only one able to create such a low airspeed while ensuring a homogeneous temperature throughout the room and a complete renewal air volume of the room (According to ISO7730. Tests carried out by Carrier® Culoz Laboratory).

#### Acoustic comfort

With their **very low noise** EC fan motor and **acoustic insulation**, the Carrier® fan coil units make silent operation a reality.

The special design of the microperforated membrane of the ceiling and its sound absorption capacity significantly **reduces the resonance effect and improve the acoustic performance of the environment**.

Within the Clinique Saint Jean project, Carrier® and Barrisol® were able to propose a solution to answer to very high acoustic treatment requirements, due to the large volume of the reception hall, the height under the ceiling, and a high frequentation (entrances, exits, reception).



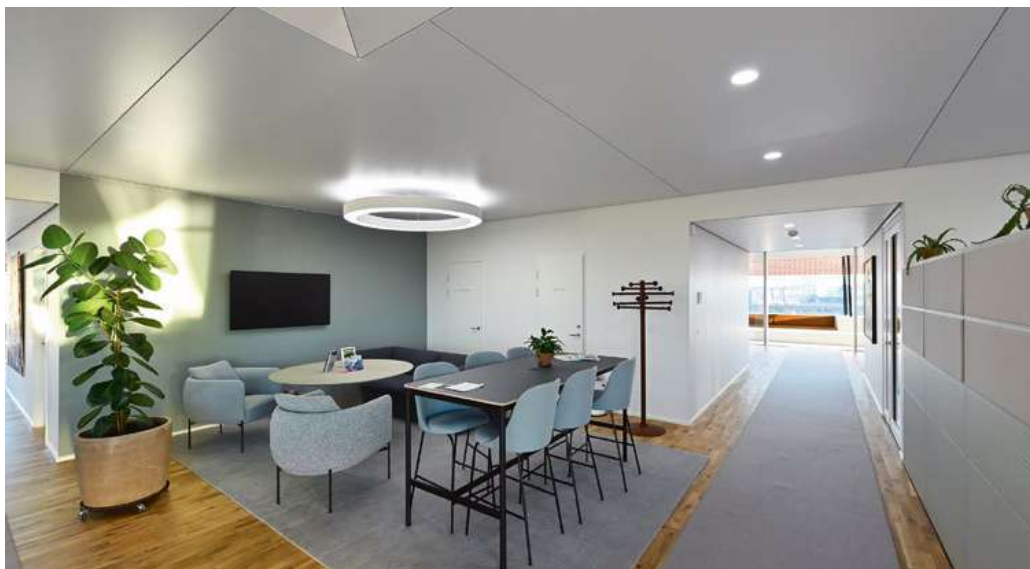
Architect Agence A+ Architecture. Clinique Saint Jean. © Barrisol®

## BARRISOL CLIM® AND PURE CLIM® FEATURING CARRIER® PRODUCTS

### Aesthetics

The system is **fully customizable: lights, print design, shapes, dimensions...** It integrates seamlessly within every building, **hiding all the technical components**, and giving architects and designers **freedom of expression**.

Flexible, the stretch ceiling can still be adapted once installed for space reshaping needs (in offices and open spaces for instance).



Architect KHR Arkitekter A/S. © Barrisol®

### High energy efficiency

The Carrier® fan coils are equipped with energy-efficient variable-speed LEC fan motors, known to achieve high performances while being particularly energy efficient.

Due to thermal radiation of the membrane, homogeneous and stable ambient temperature, the setpoint temperature can be lowered in heating mode or increased in cooling mode for an equal perceived temperature, resulting in lower energy consumption.

Thanks to the very low air velocity, the pressure losses are also very low (less than 5Pa\*), and the energy consumption is reduced even further (up to 15%\*\*).

### Environmental sustainability

Ceiling membranes are made from **100% recyclable material** that contains a plant-based plasticizer and are weak A+ class\* in terms of VOCs emissions (volatile organic compounds).

Support profiles are made from 80% recycled aluminum.

The primary environmental impact of HVAC equipment is due to the energy they use. Carrier® designs products that achieve **optimized energy performance** throughout the year and limit the indirect release of CO<sub>2</sub> associated with the consumption of electricity.

Carrier® products are **extensively tested** and maintained to a high level, thanks to an extended service offering to ensure the **best performance during the equipment's entire lifetime**.

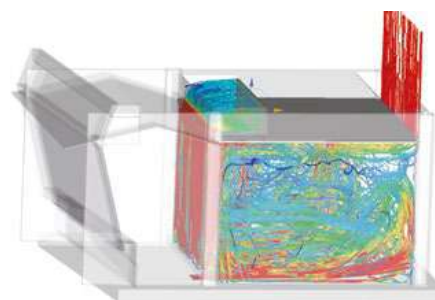
\* According to ISO7730. Tests carried out by Carrier® Culoz Laboratory

### Indoor Air Quality

#### Complete air renewal

Air renewal is one of the most important actions to ensure good IAQ.

The Carrier® and Barrisol® HVAC ceiling solution can provide a total air circulation and volume renewal inside the room (According to Computational fluid dynamics (CFD)).



© Barrisol®

\* For information purpose only, vary according to room geometry (up to 3 meter high)

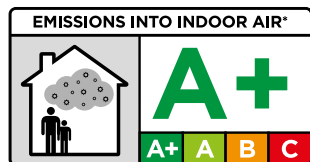
\*\* According to numerical simulations combine to laboratory testings. Depend on building type, localisation & conditions)

## BARRISOL CLIM® AND PURE CLIM® FEATURING CARRIER® PRODUCTS

### Rated A+

The solution has been rated A+ for indoor air quality, respecting the effective legislation\*. Barrisol® ceiling membranes are CE certified and fire-rated following the European and international norms (BS1-d0, BS2-d0, BS3-d0).

\* According to the French labeling of construction products. No emission of VCM (vinyl chloride monomer) detected during the warming of the sheet (50°C), the installation of the ceiling, or after installation.



Information on the level of emission of volatile substances into the indoor air, presenting a risk of toxicity by inhalation, on a class scale from A+ (very low emissions) to C (high emissions).



Arch. : Filiptackdesignoffice & Devolder Architecten. © Barrisol®

### Air handling unit connection

As part of the Carrier® HVAC equipment, the advanced HVAC ceiling solution can be connected to a Carrier® air handling unit, to upgrade the level of air filtration.

### Barrisol Pure Clim® featuring Carrier® products

For air purification needs, the system can be upgraded with UV-C lamps.

The treated air is exposed to UV-C radiation throughout its path inside the plenum between the slab's natural part and the canvas.

The longer the air is exposed to UV-C radiation, the more effective the disinfection. Thanks to this configuration, the treated air injected into the plenum is exposed to UV-C radiation throughout its journey inside the plenum. Due to its large volume, the exposure time is particularly long, and therefore the disinfection is very effective : the room is disinfected at 99.9% in less than 30 minutes\*.

Thanks to the use of two specifically designed fabrics, UV-C radiation cannot escape from the plenum.



© Barrisol®

\* According to laboratory testings and simulation results



**BARRISOL CLOUD CLIM® FEATURING CARRIER® PRODUCTS**

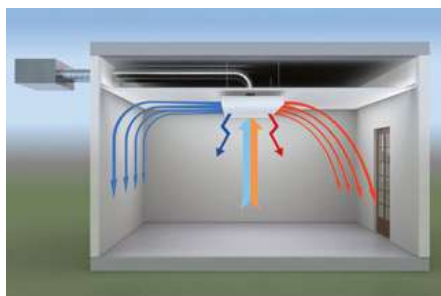
This hybrid panel uses diffusion and radiation principles to combine a high level of comfort, aesthetic, and versatility.



© Barrisol®



© Barrisol®

**Operation principle**

© Barrisol®

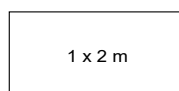
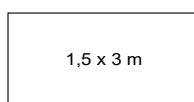
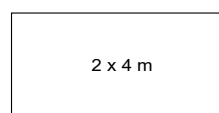
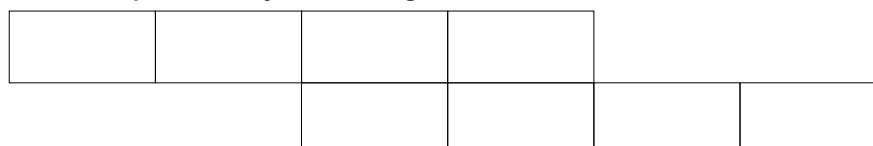
The system uses modules that are suspended from the ceiling, through which conditioned air is delivered into the room. Air can be fed into ceiling modules via a fan coil unit concealed nearby or located in a plenum.

The combination of convection and radiation makes it possible to achieve high heating/ cooling capacities whilst ensuring a homogeneous temperature.

Unlike conventional diffusers which blow the treated air at the same speed and angle, the system automatically adapts the diffusion flow according to the supplied air temperature. There is no draught thanks to the patented adaptive air flow principle.

**Flexibility & aesthetic**

Available in three different formats\*, the solution offers unlimited possibilities of assembly and configuration with total freedom of customization: frame colours, vent designs, printed membrane, light, acoustic...

**3 different formats****Mini Cloud Clim®****Cloud Clim®****Maxi Cloud Clim®****Unlimited freedom of assembly****Example of a linear arrangement of Maxi Cloud Clim® - 3 Modules****Example of an adjoined arrangement Mini Cloud Clim® - 8 Modules**

\* Customized format on request

## COMPATIBLE CARRIER® PRODUCTS\*

Carrier® products comply with the requirements of European Ecodesign regulations applicable to energy efficiency.

### Air handling units



**39CP**



**39HX**

### Ducted hydronic fan coils



**42NH**



**42EP**



**42BJ**

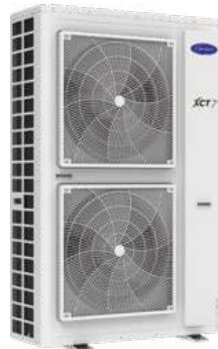


**42GR**

### VRF



**38VT**



**38VS**



**40VD\*L**



**40VD\*S**



**40VD\*H**

### Split systems



**42QSS**



**38QUS**

\* products availability may vary depending on the countries



# Controls

983

| Type | Range | Page |
|------|-------|------|
|------|-------|------|

## Control Solutions

NEW

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| Plant Sequencer               | 987  |
| Plant CTRL™                   | 993  |
| Fan coil controls overview    | 995  |
| Thermostats                   | 997  |
| 33TZ                          | 999  |
| NTC controllers               | 1003 |
| WTC controllers               | 1007 |
| Aquasmart Evolution           | 1011 |
| Thermal Energy Storage system | 1015 |





FOR CHILLERS & HEAT PUMPS



CONNECTED SERVICES  
PERFORMANCE  
MONITORING  
TRACKING ENERGY  
CONSUMPTION  
IMPROVED EQUIPMENT  
AVAILABILITY  
FULLY SECURED ACCESS

# Smart Energy Monitoring

Optimize equipment operation & energy

The smart energy monitoring solutions, control and monitor in real time from one to several Carrier chillers and heat pumps. Compatible with all existing and new equipment, you benefit from the analysis of Carrier experts.

These solutions can be combined with both electrical and thermal metering options to track, monitor and optimize equipment performance and energy consumption.

## OPTIONS

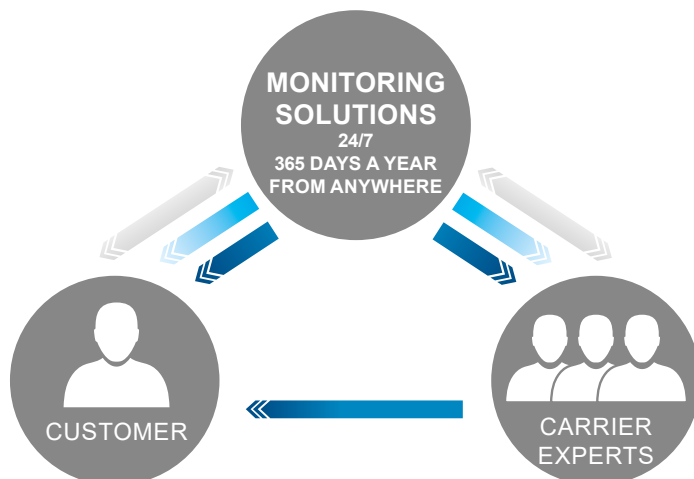


Electrical  
metering



Thermal  
metering

Information  
Alarms  
Preventive & corrective actions





## MAIN FEATURES

- Site remote access (one or several units)
- Service access to pre-diagnose a remote fault
- Operating data storage and events
- Alerts / Alarms by mail
- Curve displays (customizable)
- Raw data extractions (customizable)
- Weekly, monthly, quarterly and yearly statistic reports
- Electrical metering option
- Thermal metering option
- Other options are available. For more information, please ask your Carrier sales representative.



## ELECTRICAL METERING / THERMAL METERING

Retrieve electrical & thermal data of the equipment on the smart energy monitoring solution to monitor & optimize electrical and thermal consumption (voltage, current, power, energy, etc.).

The metering hardware will be integrated into the electrical cabinet of the chiller. If the integration is not possible, a separated box is available in several references depending on the current range of the measured equipment.

Both meters comply with MID (Measuring Instruments Directive). Both electrical and thermal meters are also available in stand alone version:

- Collect electrical data (voltages, current, power, energy, etc.) for three phase power supply of one or several equipment
- Collect Thermal data (temperatures, flow, capacity & energy)
- Connect to a local BMS (LON FT-10, BACnet MS/TP, Modbus RTU)

## CAPACITY

- For all new and / or legacy chillers & heat pumps (from one to several)
- Communication with chiller or heat pump in CCN or BACnet protocols
- Communication with BMS through BACnet IP or Modbus TCP in option
- Electrical metering for three phase power supply of one or several equipment
- Thermal metering for one or several equipment
- Up to 150 operating data points recorded
- All customer parameters available

## PHYSICAL CHARACTERISTICS

### Electrical Metering

- Electrical counter
- 3 phases circuit breaker
- 3 static current transformers (openable in option)

### Thermal Metering

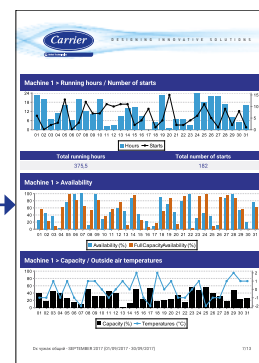
- Thermal counter
- 1 flowmeter
- 2 temperature sensors

### Monitoring solutions (box and integrated versions)

- 3G Modem + SIM card
- Metal box (only for box version)
- CCN gateway (only for box version)
- 230VAC -24VDC transformer (only for box version)
- Circuit breaker (only for box version)
- Antenna's power gain (5 m cable, only for box version)
- Terminal block (only for box version)

## SOLUTION ADVANTAGES

- Fully secured connection
- Minimizing maintenance and operating costs
- Understanding equipment operation
- Improving HVAC equipment availability
- Optimal control of equipment
- Managing energy expenses and consumptions
- Optimizing energy use & saving costs
- Meeting energy regulation criteria
- Benefit from our Carrier expertise through our service contracts



Reports, real-time data and alerts  
complemented by expert analysis

**NEW**

## TRUVU™ PLANT SEQUENCER



### HVAC SERVICE SOLUTION

Regulation, Control &  
Optimization of cooling and  
heating plants

# REGULATION, CONTROL & OPTIMIZATION OF COOLING AND HEATING PLANTS

**TruVu**

The TruVu Plant Sequencer controls and optimizes cooling and heating plant rooms, benefiting from Carrier's expertise in HVAC systems.

**A turnkey solution**, with an advanced program, easily commissioned by Carrier service technicians.

**Energy savings** of cooling / heating plant.

**Reduced** operating and maintenance costs.

**Credit gains** for Leed®, Breeam®, Hqe™ certifications.

**Compliance** with local and european energy regulations.

## STANDARD CONTROL SOLUTION TO MANAGE AND OPTIMIZE COOLING & HEATING PLANTS

### Main capabilities

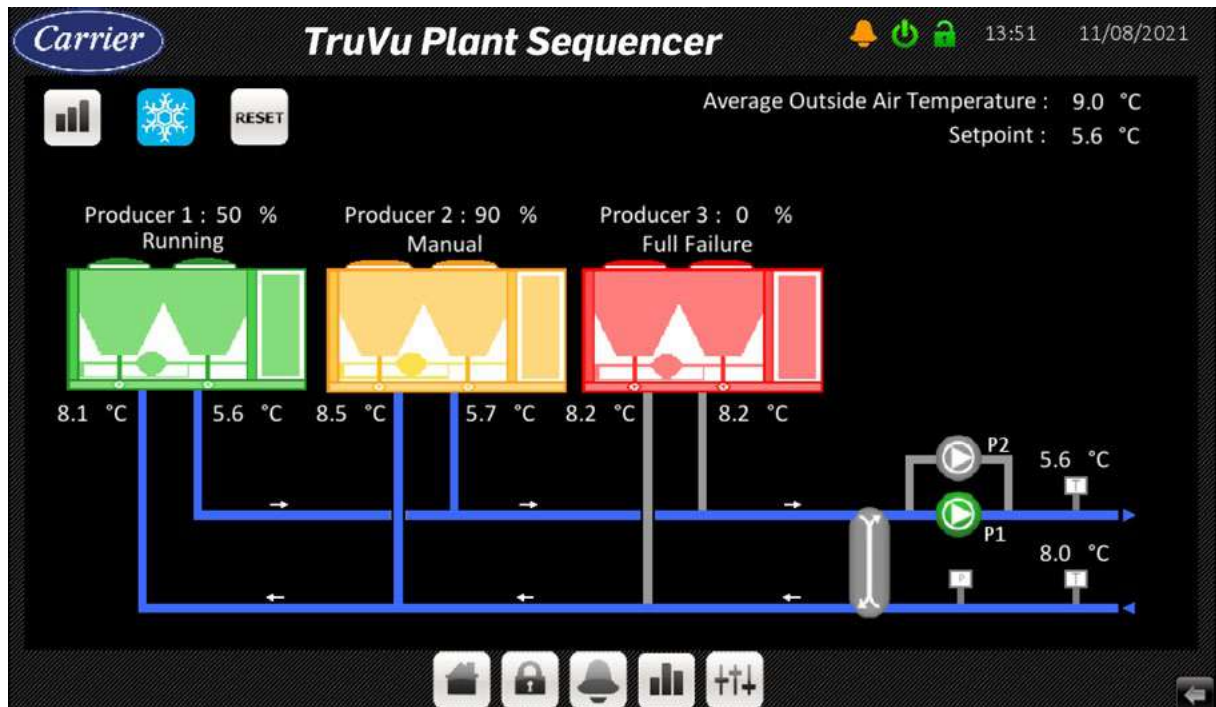
- Up to 4 Carrier chillers or heat pumps.
- Up to 2 secondary pumps.
- Up to 4 dry-coolers (version TruVu plant sequencer v2.0).
- 1 x 3-way valve (mutualized dry-coolers, version TruVu plant sequencer v3.0).

### Local monitoring

- 10" standard touchscreen with web server in the front of the electrical cabinet.

### Remote Communication

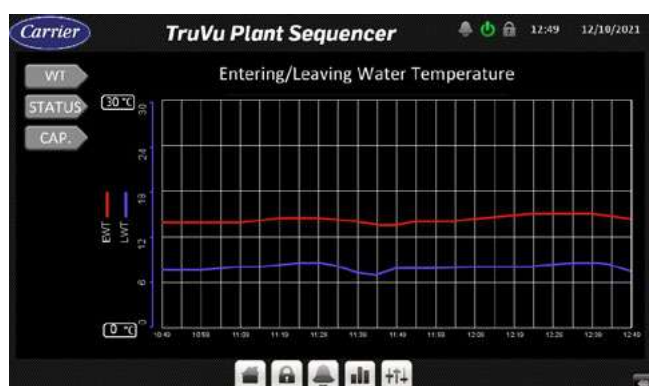
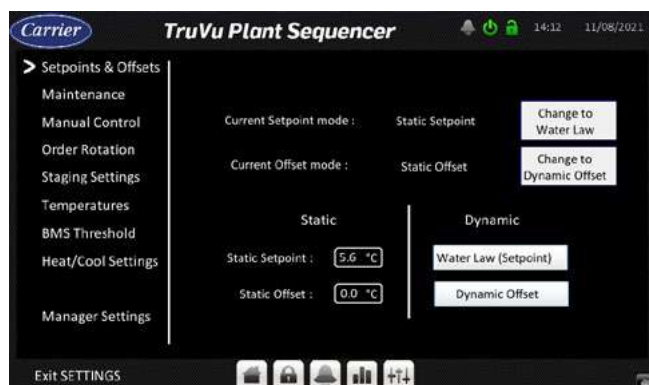
- BMS: BACnet/IP or Modbus TCP/IP.
- Optional Carrier i-Vu® remote monitoring solution.



### Requirements

- BACnet/IP communication is compulsory with chillers or heat pumps.
- Evaporator pumps directly managed by the chiller or heat pump.
- Condenser pumps and 3-way valves for water-cooled units directly managed by the chiller or heat pump (version: TruVu plant sequencer v2.0).
- Modbus RTU communication compulsory with dry-coolers - optional Modbus RTU to physical I/O card (version: TruVu plant sequencer v2.0.).
- No wired I/O except temperature and allowed components in the standard scope (see electrical diagram or technical data sheet).

## STANDARD CONTROL SOLUTION TO MANAGE AND OPTIMIZE COOLING & HEATING PLANTS



### Advanced cascade:

Automatic advanced cascade on temperature drift / temperature evolution / plant capacity / delta T°C.

Unit's cascade on full load or predefined partial load.

User setup (setpoints, setpoint offset units-network / mini-maxi running units, units priorities, etc.).



### Daily and seasonal programming:

Production start linked to BMS schedule.

Manual or automatic changeover for heating/cooling mode selection.



### Local Human to Machine Interface (HMI) and remote monitoring (option i-Vu):

HMI with Real-time synoptic / plant and components status / trends / events / secure access.

Webserver for remote visualization of the HMI.



### Control Carrier chillers and heat pumps with BACnet IP option:

Cascade with time balance and alternation.

Faults, alarms and back up management.

Maintenance mode and manual operation.



### Dry-coolers:

Carrier & non-Carrier.

Setpoint configuration.

Faults, alarms and back up management.

Maintenance mode and manual operation.



### Secondary pumps:

Normal/rescue operation with time balance and alternation.

Fixed or variable flow with PID regulation on delta pressure.

Faults, alarms and back up management.

Maintenance mode and manual operation.



### Energy savings:

Setpoint offset according to outside air temperature (user configurable).

Cascade staging up on predefined units partial load value (user configurable).



### Heat recovery and free-cooling:

(version: TruVu plant sequencer v2.0)

Priority given to units with the option enabled when conditions are met.

Setpoint management.

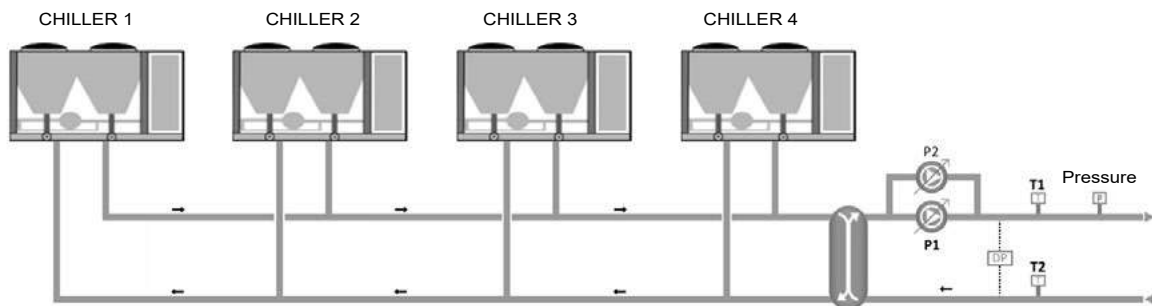


### BMS communication:

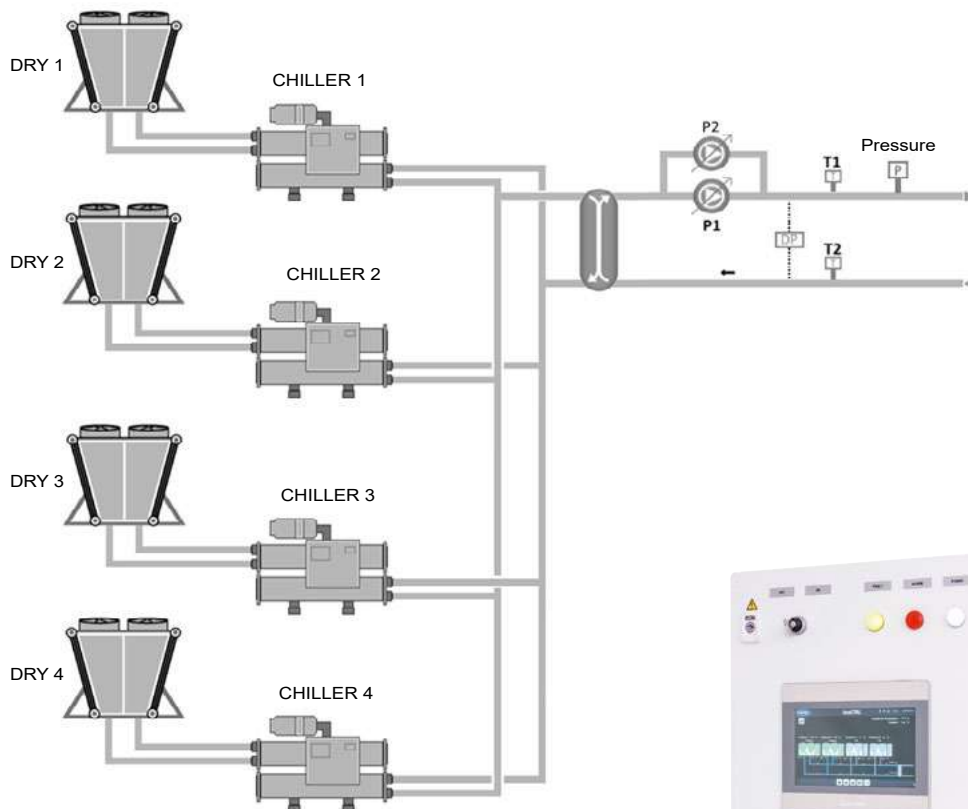
Communication table (read/write access) feedback of all the main operating parameters, faults, alarms.

## HYDRAULIC CONFIGURATION EXAMPLES

Air-cooled chillers/heat pumps with secondary pumps:



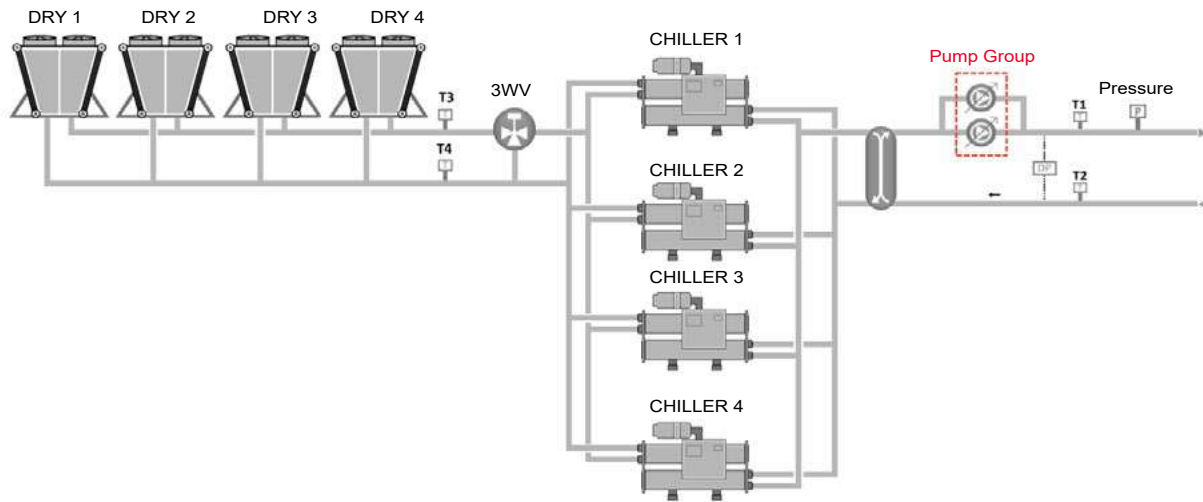
Water-cooled chillers/heat pumps with dedicated dry-coolers, and secondary pumps<sup>(1)</sup>:



(1) Available for TruVu plant sequencer v2 or above.

## HYDRAULIC CONFIGURATION EXAMPLES

Water-cooled chillers/heat pumps with mutualized dry-coolers, and secondary pumps<sup>(2)</sup>:



### ADDITIONNAL EQUIPMENT (not included)

- Pressure switch for lack of water detection.
- Delta P sensor for variable flow secondary pumps - 0/10 V.
- Modbus RTU for electrical meter - 1 on each chiller/heat pump or 1 common.
- Modbus RTU for flow meter or thermal meter - on leaving or return of network.

(2) Available for TruVu plant sequencer v3 or above.





FOR COOLING & HEATING PLANTS



ADVANCED PLANT CONTROL  
 OPERATION AND  
 ENERGY CONSUMPTION  
 OPTIMIZATION  
 HIGH ADDED VALUE  
 SOLUTION  
 SECURED HEATING &  
 COOLING PRODUCTION  
 QUICK RETURN ON  
 INVESTMENT  
 COMPLYING WITH ENERGY  
 REGULATIONS & BUILDING  
 CERTIFICATIONS

# PlantCTRL™

Management & monitoring system

The PlantCTRL™ regulates and controls all Carrier thermal production plants operation. This system is compatible with all existing and new Carrier equipment from two to several chillers and / or heat pumps.

Available for all applications, this system is able to manage all cooling & heating production components and all associated hydraulic devices:  
 Chillers, heat pumps, cooling towers, dry coolers, energy metering, valves and pumps.

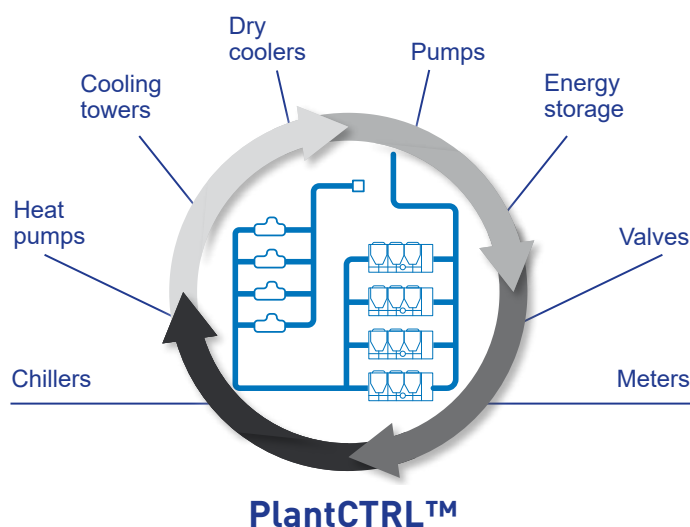
## OPTIONS



User interface



Remote monitoring



## MAIN FEATURES

### Command & control your HVAC plant

- Production and operation strategy management
- Controlling and monitoring of chillers and heat pumps, drycoolers and cooling towers depending on the operation needed
- Controlling and monitoring of all hydraulic components of the installation (valves, pumps, frequency converters,...)

### Manage the energy

- Daily and seasonal programming
- Optimization of the chillers, heat pumps and hydraulic components cascading management
- Set-points configuration and optimization
- Energy management of the system (free cooling, energy recovery and other sources)

### Secure the operation

- Faults / alarms detection and signaling, corrective management algorithms
- Equipment management alternation / rescue / priority network
- Preventive maintenance alerts scheduling
- View of the installation and equipment states

### Monitor the installation

- On site local monitoring and remote monitoring through the dedicated Website
- View in real time of the equipment and installation states, access to installation synoptics, operation curves
- Events notification by mail (faults / alarms)
- Long-term saving of recorded values, events & curves

## CAPACITY

- Management of the chillers, heat pumps, drycoolers, cooling towers, pumps and valves
- Energy metering, flowmeters, temperature sensors and pressures
- Energy recovery and free cooling
- Coupling with other energy sources (EnR, boilers, geothermal,...)
- Communication with all BMS
- Other communication by open protocols and non Carrier equipment (BACnet IP, MS/TP, Modbus TCP / IP, Modbus RTU and LonWorks,...)

## PHYSICAL CHARACTERISTICS

- Available in box version for both new and existing equipment (an integrated option for electrical cabinet is available)
- Dimensions and weights according to configuration and options
- IP54 steel enclosure
- Enclosure power supply: 100-230 VAC, 50 / 60Hz
- Operating temperature range: -10 °C to +50 °C
- Humidity: 0 to 90% RH, non-condensing
- Storage: -20 °C to +60 °C, 0 to 90% RH, non-condensing

## USER INTERFACE



## / REMOTE MONITORING



## OPTIONS

It is possible to monitor the installation locally from the user interface of the PlantCTRL™ box or from a PC.

You have also the possibility to monitor the installation remotely from a PC/tablet with internet access. The PlantCTRL also communicates with the BMS.

The three monitoring options provide access to all equipment operating parameters in real time:

- Installation synoptics
- Operating curves
- Schedule programming
- Event reports
- Components states
- Recorded data

## SOLUTION ADVANTAGES

### Expert in plant management:

- System and control expertise
- Commissioning and installation support
- One supplier to facilitate the installation
- Ergonomic and easy friendly user interface
- Optimized operation sequencer

### Flexible and scalable solution:

- Tailor-made solution for existing and new plants
- Suitable to process & comfort applications
- Compliance with all BMS
- Fully configurable according to building evolutions
- 24/7 plant monitoring

### Costs management and profitability:

- Real-time operating and maintenance costs management
- Quick Return On Investment
- Carrier service experts support

### Secured installation:

- Maximize equipment lifetime
- Improve equipment efficiency
- Secure the plant operation
- Facilitate better production availability

### Energy optimization:

- Manage energy consumption
- Energy optimization during the lifetime of the installation
- Preventive maintenance to ensure the durability of equipment

### Comply with energy regulations:

- LEED, BREEAM and HQE credits
- Value of sustainable energy solutions (free cooling, energy recovery,...)
- Contribute to develop energy efficiency of buildings (local and European regulations)

## FAN COIL CONTROLS OVERVIEW



|   | 33TZ<br>Thermostat           | Thermostat | NTC<br>controllers | WTC<br>controllers |
|---|------------------------------|------------|--------------------|--------------------|
| <b>Communication Protocols</b>  |                              |            |                    |                    |
| Carrier Communication Network (CCN) Aquasmart compatible                              |                              |            | x                  |                    |
| BACnet  |                              |            |                    | x                  |
| LON   |                              |            |                    | x                  |
| <b>Control algorithms</b>   |                              |            |                    |                    |
| On-off  | x                            | x          |                    |                    |
| Proportional-integral   |                              |            | x                  | x                  |
| Carrier Energy saving algorithm   |                              |            | x                  | x                  |
| <b>Fan control</b>  |                              |            |                    |                    |
| AC motors 3 speeds descreet   | x                            | Type A&B   | x                  | x                  |
| Automatic optimum fan speed selection   |                              | x          | x                  | x                  |
| EC motors 3 speeds descreet   | see 33TZ<br>section          | Type C&D   | x                  | x                  |
| EC motors Variable speed  |                              |            | x                  | x                  |
| <b>Water Valve management</b>   |                              |            |                    |                    |
| Air flow control only (no water valve)  | x                            | x          |                    |                    |
| On-off actuators  | x                            | x          | x                  | x                  |
| Modulating actuators (3pts or 0-10V)  |                              |            | x                  | x                  |
| <b>Main functions</b>   |                              |            |                    |                    |
| Set-point control   | x                            | x          | x                  | x                  |
| Occupied/unoccupied mode  | x                            | x          | x                  | x                  |
| Frost protection mode   | x                            | x          | x                  | x                  |
| Window / Door contact input   | x                            | x          | x                  | x                  |
| Measurement of water inlet temperature for automatic seasonal<br>changeover (2 pipes) | only 2p &<br>2p+elec heater  | Type A&C   | x                  | x                  |
| Automatic seasonal changeover (4 pipes and 2 pipes + electric heater)                 | only 2p & 2p<br>+elec heater | Type D&B   | x                  | x                  |
| Manual changeover   |                              | x          | x                  | x                  |
| Frost protection mode   | x                            | x          | x                  | x                  |
| Continuous ventilation within dead-band   | x                            | x          | x                  | x                  |
| Periodical ventilation within dead-band   | x                            | x          | x                  | x                  |
| On-site configuration   | x                            | x          | x                  | x                  |
| Unit grouping Master/Slave  |                              | x          | x                  | x                  |
| Cassette Louvers control  |                              |            | x                  | x                  |
| Supply air temperature monitoring limiting  |                              |            | x                  | x                  |
| Electrical heater loadshed  |                              |            | x                  | x                  |
| Dirty filter alarm  |                              |            | x                  | x                  |
| Alarm reporting   |                              |            | x                  | x                  |
| Indoor Air Quality control (CO <sub>2</sub> sensor)                                   |                              |            | o                  | o                  |
| Demand control ventilation (DCV) (0-10V fresh air valve)                              |                              |            | o                  | o                  |
| Free cooling mode   |                              |            |                    | o                  |
| Presence detection  |                              |            |                    | o                  |

**Legend**

- x feature available as standard
- o optional

## FAN COIL CONTROLS OVERVIEW



|  | 33TZ<br>Thermostat | Thermostat | NTC<br>controllers | WTC<br>controllers |
|--|--------------------|------------|--------------------|--------------------|
| <b>User interfaces</b>                         |                    |            |                    |                    |
| Automatic or manual fan speed control          | x                  | x          | x                  | x                  |
| Operating mode selection                       | x                  | x          | x                  | x                  |
| Occupancy (eco) button                         |                    | x          | x                  | x                  |
| Digital display                                |                    |            | o                  | o                  |
| Remote control (infra-red)                     |                    |            | o                  | o                  |
| CO <sub>2</sub> sensor                         |                    |            | o                  | o                  |
| Light sensor                                   |                    |            |                    | o                  |
| Presence sensor                                |                    |            |                    | o                  |
| Easy connection RJ45 jack (on wall mounted UI) |                    |            |                    | x                  |
| <b>Light &amp; Blinds management</b>           |                    |            |                    |                    |
| Light power modules                            |                    |            |                    | o                  |
| Blinds power modules                           |                    |            |                    | o                  |
| <b>Control kit</b>                             |                    |            |                    |                    |
| On site control kit solution                   |                    |            |                    | o                  |

**Legend**

- x feature available as standard  
o optional

## CONTROL SOLUTIONS



# Thermostats

Carrier electronic thermostat range is available for all Carrier hydraulic terminal ranges:

- Type A - Two-pipe application with AC motors
- Type B - Four-pipe or two-pipe applications with electric heaters with AC motors
- Type C - Two-pipe application with EC motors
- Type D - Four-pipe or two-pipe applications with electric heaters with EC motors

The thermostat for fan coil units with EC motor option controls three configurable discrete speeds via an 0-10 V signal.

The electronic thermostat set range is from 10°C to 30°C, with the possibility to limit the temperature in public buildings where low energy consumption is a key requirement. This is done via a dip-switch inside the control (cooling range 23°C/30°C, heating range 10°C/21°C).



## FEATURES AND ADVANTAGES

- Auto fan: the control automatically sets the fan speed. If the room temperature is far from the set-point, high fan speed is selected. As the room temperature approaches the desired value, the fan speed decreases to the minimum speed.
- Automatic changeover from cooling to heating mode, based on the water temperature, ensures that the ideal room temperature is maintained.
- Remote changeover - automatic changeover from cooling to heating mode, based on the remote signal from the monitoring system.
- Frost protection keeps the room temperature above a minimum level.
- Booster heating control optimisation (with electric heater option): with the water temperature below 30°C the system will be in heat demand mode and the electric heater is the only available heating source. If the water temperature is above 35°C the system will be in booster heating mode, energising water valve and electric heater together. This function is deactivated if the water temperature is above 45°C (the electric heater will be de-energised).
- Energy saving when the room is unoccupied, without the need to switch off the unit. If the energy-saving button is pressed, the actual set-point will be modified as follows, without changing the position of the set-point selection knob:  $\pm 4$  K.
- LED intensity (offices or light commercial applications) - 10 seconds after the last user interface use all LEDs are reduced in intensity. To avoid disturbing hotel guests, the thermostat can be configured from "Night Mode" to "Dark Mode": 10 seconds after the last user interface use, all LEDs are switched off.
- Air sampling: with no fan request and the air sampling jumper in ON position, the control performs the air sampling function. The air in the room is moved, thermal stratification is reduced for a more reliable ambient temperature reading.
- Continuous fan (no fan request and continuous fan jumper ON): the control selects the fan speed, regardless of thermal station conditions. With fan in auto fan mode and control not in the demand phase, the fan permanently runs at low speed.
- External contact: A high voltage input signal for external contact is present. If the contact is activated, device behaviour depends on its configuration on site:
  - Presence detection energy saving mode is activated, room temperature is raised by 4 K in cooling mode and reduced by 4 K in heating mode.
  - Window contact: in OFF mode (window open), all outputs are disconnected (fan, valves, etc.) and only the frost protection function is active, if enabled.

## ELECTRONIC ON/OFF AIR OR WATER CONTROL SYSTEM



Factory-recessed thermostat

Customised performance  
with a low cost solution

# 33TZ

The 33TZ control system is a specific Carrier control system with an innovative design, dedicated to fan coil units, and developed using our expertise.

The 33TZ control system is a Carrier electronic control system devised to control a non-independent air handling terminal unit (ductable, cassette-type fan coil units...) for applications using 2 tubes, 2 tubes/2 wires, 4 tubes with recirculated air.

There are two types of 33TZ controls:

- Air control types, which act on the ventilation. This application has its drawbacks when used with vertical devices: the coil continually supplies cold water or hot water, which creates an incorrect temperature reading at the intake.
- Water control types, which act on two-way valves or four-way valves with a 230 V electrothermic motor and ventilation (recommended to ensure comfort levels).

The 33TZ control is available in a built-in version factory-fitted in a fan coil unit to be mounted under a sill, or a wall-mounted version to be connected by the installer.

## DESCRIPTION

The 33TZ control is an on/off type control, which can be configured for the chosen application on site using 8 switches. It has a potentiometer for setting the required temperature, which can be adjusted across a range of +/- 6 °C.

The wall-mounted version is available with a potentiometer graduated in degrees.

Two temperature setpoints: heating (19 °C) and cooling (factory-set at 25 °C).

The cooling setpoint can be configured on-site (25 °C or 23 °C).

The 33TZ has a selector to actuate three manual ventilation speeds.

The operating statuses of the thermostat are displayed using 3 LEDs: comfort/heating/cooling on.

The changeover is managed automatically by the thermostat via a water temperature sensor or via a signal from an external dry contact.

When heating or cooling is requested, the fan is triggered automatically at the speed selected by the user.

The 33TZ controls the heating via the electric heater in time-proportional mode, according to the ventilation speed selected, to prevent the comfort unit overheating.



The thermostat manages the fan delays required for unit shut down.

If the selector is in the off position, the thermostat keeps the room in which it is installed frost-free at a setpoint of 8 °C.

A dry contact input, which can be configured on-site, enables the thermostat to be automatically switched to economy mode (automatic shift of +/- 5 °C in the heating and cooling setpoints) or frost protection mode (heating setpoint +8 °C).

See our instruction manual for more detailed information.

## 33TZ CONTROL ON AIR (WITHOUT VALVE)

|   |  | 42NC/NR<br>ND vertical<br>installation | 42NC/NR/ND/<br>NI/NU              | 42KY                                    | 42GW / 42NH/<br>NL                      |
|---|--|--|-----------------------------------|---|---|
| <b>CONTROL UNIT</b><br><b>On/Off electronic controller</b><br><b>Thermostat with potentiometer</b><br><b>Wall-mounted or built-in version (without isolating switch)</b><br><b>Without valve</b><br><b>Return air sensor (for built-in version)</b><br><b>Fittings not included</b> |                           | <b>Configuration in the POD</b>        | <b>Configuration in the POD</b>   | <b>For AC or EC motor</b>               | <b>For AC motor only</b>                |
| <b>AIR CONTROL (without valve, not recommended for vertical units*)</b>   |  |  |                                   |   |   |
| <b>2-pipe system</b>  |  |  |                                   |   |   |
| - Heating only<br>(or heating/cooling selection using external contact)   |  | digit 9 = "V"                          | digit 9 = "W"                     | wall version                            | wall version                            |
| - Cooling only<br>(or heating/cooling selection using external contact)   |  |  |                                   |   |   |
| - Automatic heating/cooling with changeover sensor<br>(supplied separately on wall-mounted units)   |  | digit 9 = "V" &<br>digit 14 = "B"      | digit 9 = "W" &<br>digit 14 = "B" | wall version +<br>change over<br>sensor | wall version +<br>change over<br>sensor |
| <b>2-pipe system + 2000 W max. electric heater</b>  |  |  |                                   |   |   |
| - Cooling + electric heater   |  | digit 9 = "V"                          | digit 9 = "W"                     | wall version                            | wall version                            |
| Heating/cooling + electric<br>*with temperature sensor supplied as a kit  |  | digit 9 = "V" &<br>digit 14 = "B"      | digit 9 = "W" &<br>digit 14 = "B" | wall version +<br>change over<br>sensor | wall version +<br>change over<br>sensor |
| Surcharge for power levels of over<br>2000 W and up to 4600 W   |  | Standard in the<br>unit                | Standard in the<br>unit           | On request                              | On request                              |
| <b>OPTIONS and ACCESSORIES</b>  |  |  |                                   |   |   |
|    | Return air<br>temperature<br>sensor for wall<br>thermostat,<br>supplied as a kit<br>or change over<br>sensor | <b>L = 2,5 m</b>                       |                                   |   |   |

\* **Note regarding 42NC/NR/ND vertical units fitted with 33TZ built-in** : the heat continuously radiated on the sensor by the heat exchange coil will prevent the control system from operating correctly. It is the customer's responsibility to place the sensor at the best location that will ensure that the units operate correctly.

## 33TZ CONTROL WITH VALVE

|  |  | 42NC/NR<br>ND vertical<br>installation                 | 42NC/NR/ND/<br>NI/NU                                   | 42KY                                    | 42GW / 42NH/<br>NL                      |
|--|--|--|--|---|---|
| <b>CONTROL UNIT</b><br>On/Off electronic controller<br>Thermostat with potentiometer<br>Wall-mounted or built-in version (without<br>isolating switch)<br>Without valve<br>Return air sensor (for built-in version)<br>Fittings not included |  | <b>Built version<br/>33TZ</b>                          | <b>Configuration<br/>in the POD</b>                    | <b>For AC or EC<br/>motor</b>           | <b>For AC motor<br/>only</b>            |
| <b>2-pipe system</b>   |  |  |  |   |   |
| <b>Heating only or cooling only</b>  |  |  |  |   |   |
| With 2 ways valve ON/OFF 230V  |  | digit 9 = "V" &<br>digit 10&12= GA                     | digit 9 = "W" &<br>digit 10&12= GA                     | wall version                            | wall version                            |
| With 4 ways valve ON/OFF 230V  |  | digit 9 = "V" &<br>digit 10&12= HA                     | digit 9 = "W" &<br>digit 10&12= HA                     |   |   |
| <b>Automatic heating/cooling with changeover<br/>sensor</b> (supplied separately on wall-mounted<br>units)   |  | digit 9 = "V" &<br>digit 10&12= HA<br>& digit 14 = "B" | digit 9 = "W" &<br>digit 10&12= HA<br>& digit 14 = "B" | wall version +<br>change over<br>sensor | wall version +<br>change over<br>sensor |
| With 4 ways valve ON/OFF 230V  |  |  |  |   |   |
| <b>2-pipe system + 2000 W max. electric heater</b>   |  |  |  |   |   |
| <b>Cooling only + electric heater</b>  |  |  |  |   |   |
| With 2 ways valve ON/OFF 230V  |  | digit 9 = "V" &<br>digit 10&12= GA                     | digit 9 = "W" &<br>digit 10&12= GA                     | wall version                            | wall version                            |
| With 4 ways valve ON/OFF 230V  |  | digit 9 = "V" &<br>digit 10&12= HA                     | digit 9 = "W" &<br>digit 10&12= HA                     |   |   |
| <b>Automatic heating/cooling +electrical heater<br/>with changeover sensor</b> (supplied separately on<br>wall-mounted units)  |  | digit 9 = "V" &<br>digit 10&12= HA<br>& digit 14 = "B" | digit 9 = "W" &<br>digit 10&12= HA<br>& digit 14 = "B" | wall version +<br>change over<br>sensor | wall version +<br>change over<br>sensor |
| With 4 ways valve ON/OFF 230V  |  |  |  |   |   |
| Surcharge for power levels of over 2000 W and up<br>to 4600 W  |  | included   | included   | On request                              | On request                              |
| <b>4-pipe system</b>   |  |  |  |   |   |
| With 2 ways valve ON/OFF 230V  |  | digit 9 = "V" &<br>digit 10&12= GA                     | digit 9 = "W" &<br>digit 10&12= GA                     | Wall version                            | Wall version                            |
| With 4 ways valve ON/OFF 230V  |  | digit 9 = "V" &<br>digit 10&12= HA                     | digit 9 = "W" &<br>digit 10&12= HA                     |   |   |
| <b>OPTIONS and ACCESSORIES</b>   |  |  |  |   |   |
|  | Return air<br>temperature<br>sensor for wall<br>thermostat,<br>supplied as a kit<br>or change over<br>sensor | <b>L = 2,5 m</b>                                       |  |   |   |



## CONTROL SOLUTIONS



## NTC controllers

Carrier offers one of the market's most sophisticated and complete communicating controllers for hydraulic fan coil ranges, the NTC controller, that is compatible with the full Carrier fan coil range.

For the customer and installer the same controller simplifies and eases installation and service operations whilst covering a wide range of hydraulic system types and applications.

The controller can be applied and function as either a standalone control, as part of a larger CCN system application, or at the heart of a Aquasmart system functioning with the Aquasmart Touch Pilot System Manager.



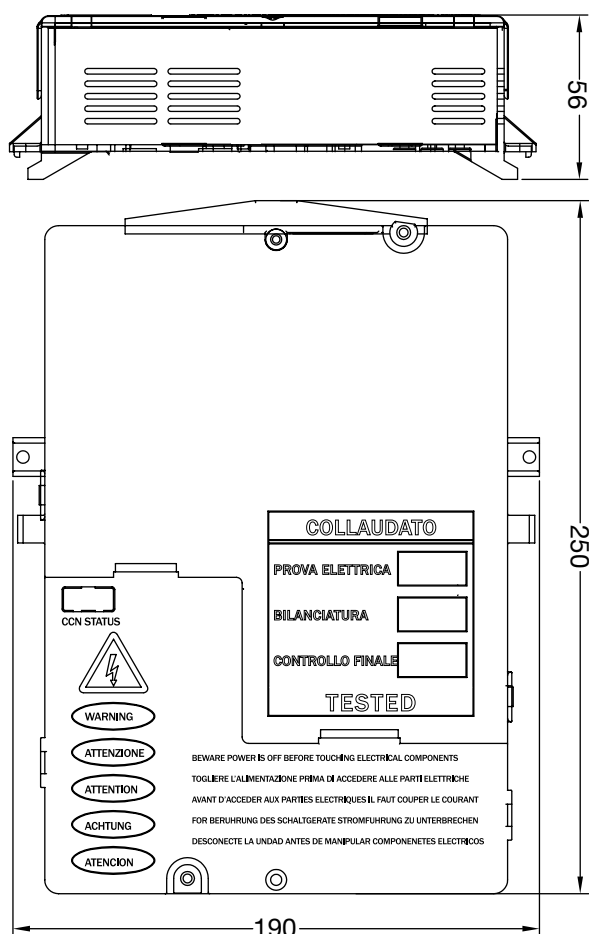


## NETWORK COMMUNICATION

- The NTC communicating controller can be connected on an RS 485 bus, using the Carrier Comfort Network (CCN) protocol.
- Units equipped with the NTC controller can be part of the Aquasmart Evolution system.

## ADVANCED FUNCTIONS

- Low Energy Consumption (LEC) variable speed control.
- The NTC controller can drive the fan speed continuously within a configurable range for optimal thermal and acoustic comfort.
- Hydraulic control - The NTC controls both floating and fixed-point value actuator types (230 V on-off and 230 V three point).
- Demand controller ventilation (DCV) - On fan coils equipped with CO<sub>2</sub> sensors and fresh air dampers, the NTC controller can adjust the amount of fresh air admitted to the room, as required by the occupants.
- IAQ management - The NTC controller can control all features related to Indoor Air Quality that are included in Carrier terminal fan coil units.



### Carrier Room Controller (CRC2)



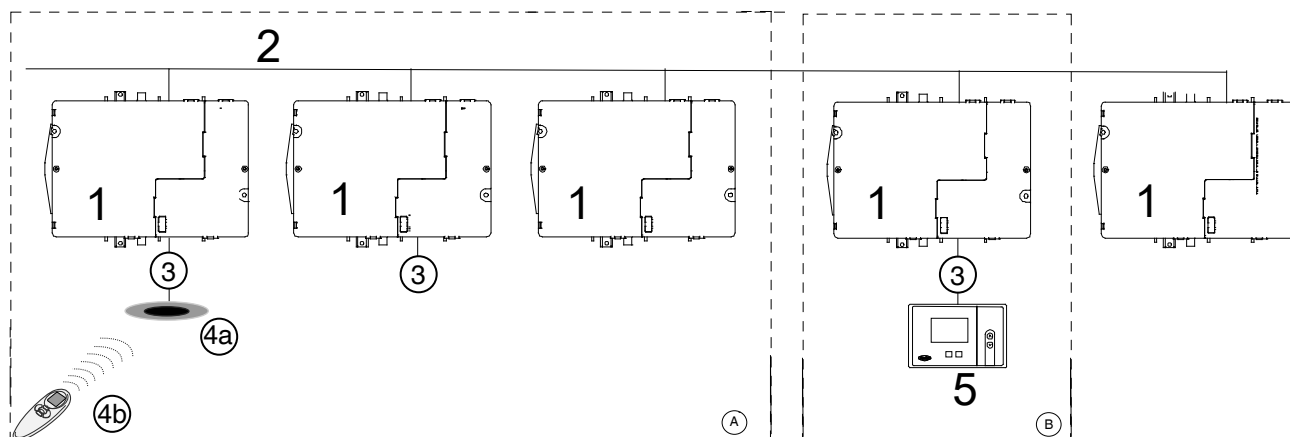
### Simplified User Interface (SUI)



### Infrared Remote Control (IR2) and receiver



## ADVANCED FUNCTIONS



### Legend

- 1 NTC controller
- 2 Secondary communication bus
- 3 User interface connection
- 4 IR2
- 5 CRC2
- A Room A
- B Room B

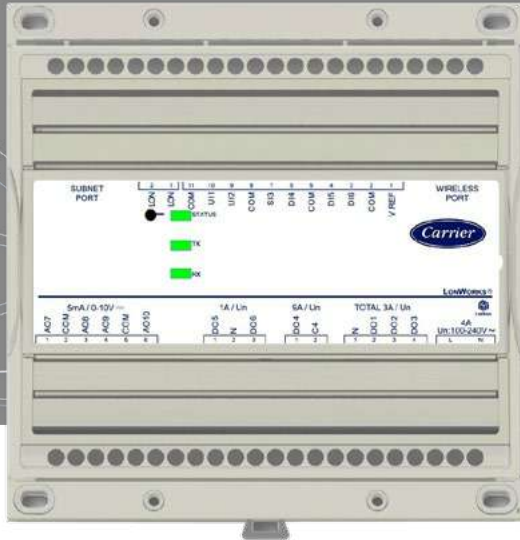
## FEATURES AND ADVANTAGES

- The NTC controller controls and optimises the operation of hydraulic terminal fan coil units. It is a microprocessor-based CCN (Carrier Comfort Network) compatible communicating controller with energy-saving algorithms.
- Energy-saving algorithms manage water valve operation and fan speed control simultaneously to ensure minimum energy consumption whilst maximising comfort conditions for the occupant.
- Factory-installed on terminal fan coils  
The NTC controller is factory-installed on the terminal fan coil; the assembly is also factory-tested. As a result, field installation is extremely simple.

- A wide range of user interfaces  
Depending on the application, two user interface types can be selected:
  - A simplified wired analogue user interface (SUI) that can be wall-mounted
  - A wired communicating user interface (CRC2) that can be wall-mounted.
  - An infrared user interface (IR2) for use together with a wall-mounted infrared receiver or a receiver incorporated on compatible terminal fan coils (42GW)



## CONTROL SOLUTIONS

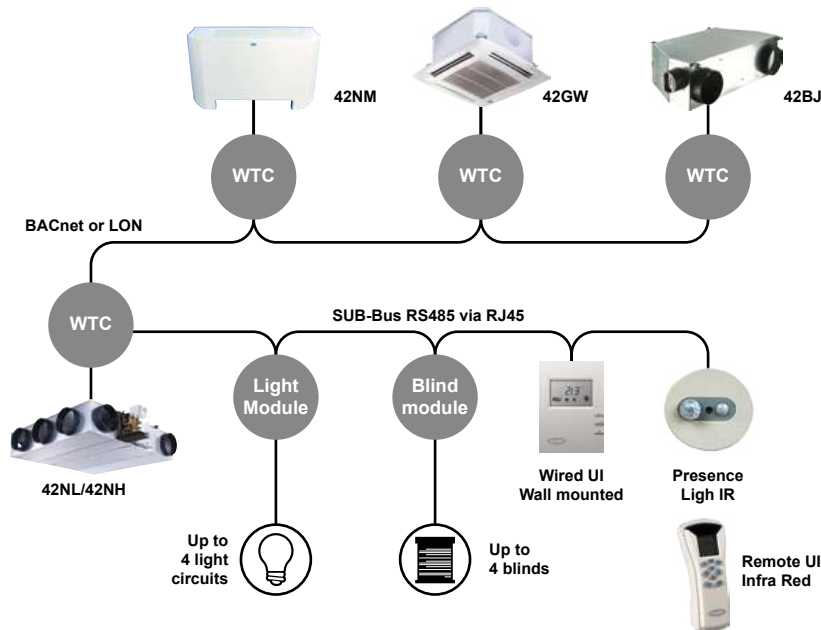


# WTC Controllers

With Carrier's specific control algorithms, the Water Terminal Controller (WTC) combines best-in-class comfort solutions together with high energy efficiency management. Designed for a variety of configurations and offered in a wide range of user interfaces, the WTC can fit every application and every need.

## CONTROL ARCHITECTURE

### A variety of configurations for every application



## FEATURES AND ADVANTAGES

- **High efficiency:** The WTC's energy saving algorithms control fan speed and manage water operation in parallel achieving optimal energy consumption whilst ensuring there is no resulting loss in comfort for occupants.
- **Easy installation:** The WTC is compatible with the full Carrier fan coil range. For customers and installers the same controller simplifies and eases installation and service operations whilst covering a wide range of hydraulic system types and applications. The WTC is factory installed on the terminal fan coil before factory testing of each individual terminal. As result, field installation is extremely simple.
- **Variety of configurations:** The controller can operate as either a standalone control, command and follow function for open spaces, or at the heart of a building management system.
- **User friendly user interface:** The user interface is available in a variety of configurations: no display, LCD display, temperature sensor, lights and blind control, etc.

## ADVANCED FUNCTIONS

- **Low Energy Consumption (LEC) variable speed control:** The WTC can drive the fan speed continuously within a configurable range for optimal thermal and acoustic comfort.
- **Modulating hydraulic control:** The WTC controls both floating and fixed-point value actuator types (230V on-off and 230V three point).
- **Demand controller ventilation (DCV) & IAQ management:** on fan coils equipped with CO<sub>2</sub> sensors and fresh air dampers, the WTC can adjust the amount of fresh air admitted to the room, as required by the occupants.
- **Lights and blind management modules:** The WTC supervises the interconnection of light modules & blinds modules, allowing the user to improve local comfort control with the same user interface as HVAC system.

## ROOM CONTROLLER - USER INTERFACE

### Large choice of Room Controllers



### Infrared Remote Control and receivers








HVAC



HVAC + lights/Blinds



### A range of user interfaces to meet all needs

|  | Room Control Interface  |   |  | Infrared Remote Interface   |   |
|--|---|---|--|---|---|
|  |  |  |  |  |  |
|  | WTC-RCI-S   | WTC-RCI-SF/SQF  | WTC-RCI-D/DC/DM/DCM  | WTC-IR  | TC-IR-LB  |
| Temperature sensor                           | ✓   | ✓   | ✓  |   |   |
| Set-point offset                             |   | ✓   | ✓  | ✓   | ✓   |
| Fan speed                                    | ✓   | ✓   | ✓  | ✓   | ✓   |
| With or without occupancy function           |   | ✓   | ✓  | ✓   | ✓   |
| Operating mode                               |   | ✓   | ✓  | ✓   | ✓   |
| Light & blind control                        |   |   | ✓  |   | ✓   |
| Power supply from WTC                        | ✓   | ✓   | ✓  |   |   |
| Quick connection                             | RJ45  | RJ45  | RJ45   |   |   |
| Local service tool                           |   |   | ✓  |   |   |
| With or without motion sensor                |   |   | ✓  |   |   |
| LCS display                                  |   |   | ✓  | ✓   | ✓   |
| Infrared receiver with status (LED & BUZZER) |   |   |  | ✓   |   |
| Infrared receiver                            |   |   |  |   | ✓   |





## CONTROL SOLUTIONS



# Aquasmart



Aquasmart Evolution is a complete hydraulic heating, ventilating and air conditioning (HVAC) system ideal for residential and light commercial applications from offices, commerce to hotels and hospitals. It offers perfect comfort for building occupants whilst optimising economical operation for applications up to 2500 m<sup>2</sup>. Larger installations with multiple systems can be managed and integrated within a single Building Management solution thanks to the new BACnet option capability.

An Aquasmart system consists of up to 128 terminal fan coil units, served by up to two chillers or heat pumps (master-slave), to supply cooling and/or heating to occupied spaces and fresh air handling units. The system manager can fully integrate and control up to eight Carrier fresh air handling units\*. Each fresh air plant can be associated with specific terminal fan coils and/or zones for optimum building use management with occupancy, controlling and minimising energy use.

Individual schedules can be set up and managed for each and all air treatment plants. The Aquasmart System Manager supplies building information enabling dynamic and precise control of the air handling units\* night-time free-cooling feature to further reduce building energy consumption.

\* If air treatment unit is not supplied by Carrier, integration is limited to control via a digital output for the main fresh-air unit.

## FEATURES AND ADVANTAGES

- The Aquasmart Evolution system ensures significant energy savings combined with optimised user comfort by managing building zoning, occupancy and room temperatures in accordance with needs.
- Terminal fan coil units can be organised in up to 32 zones to optimise building management by zone requirement and according to building design conditions.
- The Touch Pilot System Manager – the brain and building user interface was designed to facilitate use and allow rapid access to manage and configure system operation to maximise energy savings at comfort conditions.
- System components are fitted with communicating controls allowing the System Manager to communicate with and obtain feedback on user needs and operation. Based on the system requirements the System Manager coordinates the system heating and cooling modes for maximum comfort and optimal energy consumption, respecting the comfort parameters and occupancy schedules for the building zones.
- The Aquasmart system offers affordable building HVAC system management featuring capabilities usually only available in more expensive solutions and requiring additional building-by-building programming development.

TOUCH  
*Pilot*

### System design layout and configuration guide

- The System Manager is connected to the system components via a communication bus, and allows control of all system and individual terminal operating parameters.
- System configuration is simple through easily accessible menus. Unit grouping is managed by the network and requires no specific wiring to allow easy reconfiguration to suit later building layout modifications.
- The Aquasmart Evolution components are delivered complete, configured and factory-tested.

### Energy savings

- The Aquasmart system controls offer superior comfort levels. By optimising and controlling the system components building owners and occupants can save energy and reduce their energy bill, contributing to a reduction in building carbon emissions.
- System control saving possibilities are further enhanced with a range of significant energy-saving features available at equipment level, such as air handling unit with heat recovery technology, the use of reversible 30RQ air-to-water heat pumps for space heating, 61AF heat pumps for domestic hot water and a range of fan coil units with EC motor technology and variable fan speed control.
- Energy simulations conducted with a recognised software simulation program indicate that Aquasmart can achieve energy savings over a traditional non-communicating and non-optimised system. Case studies indicate that savings of 25% and beyond are possible. Each project merits its own assessment of the opportunities.



## FEATURES AND ADVANTAGES

### New System Manager

The Touch Pilot system manager is the user interface and allows building managers to control the Aquasmart system and associated components and features.

- Intuitive colour touch screen.
- A system set-up wizard leads installers through a number of easy intuitive steps to identify and configure the system and manage system set-up, operation and maintenance.
- Icon-driven menus easily and rapidly manage and maintain the HVAC system.
- Management of system parameters including cooling and heating set-points (terminals and cooling and/or heating plants) and occupied and non-occupied periods.
- Optimisation of energy consumption, monitoring of component operation and reporting of system faults.
- Management of occupied/unoccupied time schedules and smart start features to ensure that comfort requirements are met from the very beginning of the occupied period.

- The System Manager is compatible with a web browser, allowing user access to the system from a remote location such as a maintenance office within the building or from an off-site location where internet access is available. This facilitates ease-of-access and use and allows service and maintenance companies to offer remote service coverage without visiting the site, thus reducing carbon emissions due to transport.
- The availability of a new Carrier Apple application (HVAC smart browser) extends the accessibility to smart phones and tablets.



### System selection

- The Aquasmart system is easy to select and configure with all units supplied from the factory with pre-installed, pre-configured and pre-tested controls and valves. The installer only needs to adjust the system parameters to the local building or application needs - a task made even easier with the New System Manager.

- Carrier has created a Quick Selection Guide that is available to rapidly identify and select the system components, facilitating the design process and saving time for designers and installers alike.
- Please contact your local sales office for a copy of this guide.

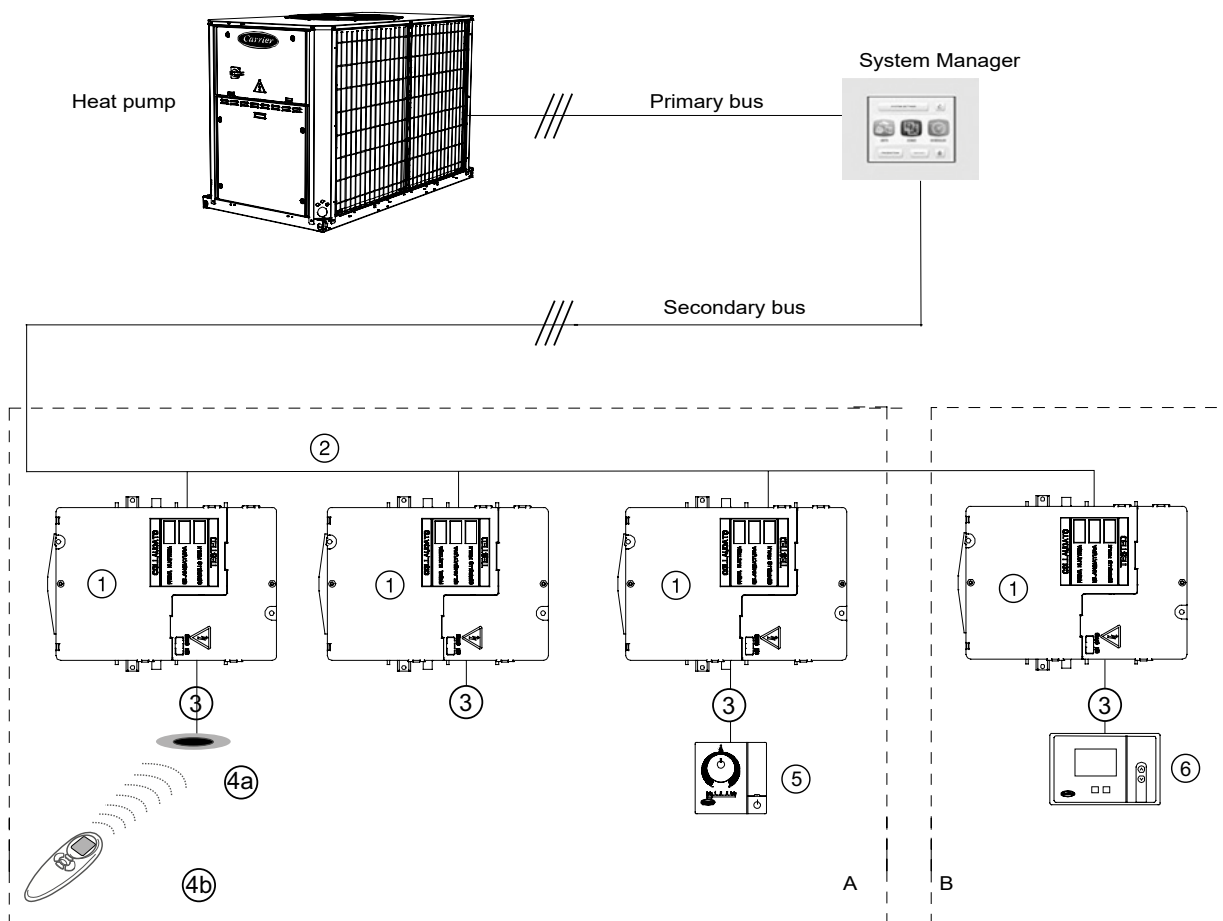


## FEATURES AND ADVANTAGES

### Building Management System Integration

■ The latest release of the Aquasmart Touch Pilot system manager enhances the capabilities to integrate Aquasmart systems with Carrier or third-party building management system front-end software. The new BACnet option allows

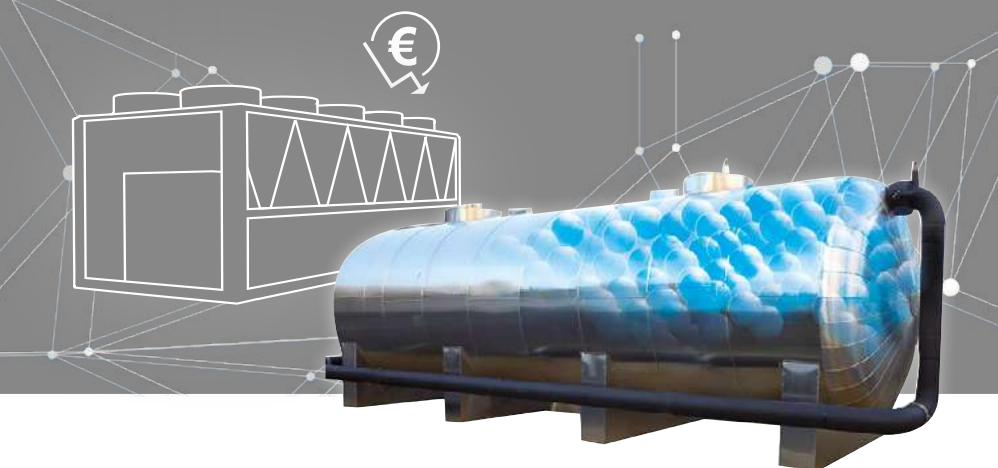
access to read and read/write system parameters from the building management system facilitating integration of Aquasmart within the overall building management.



#### Legend

- |                               |          |
|-------------------------------|----------|
| ① NTC controller              | ⑤ SUI    |
| ② Secondary communication bus | ⑥ CRC2   |
| ③ User interface connection   | A Room A |
| ④ Infrared controller IR2     | B Room B |

FOR HVAC SYSTEMS



TURNKEY SOLUTION  
PROVEN TECHNOLOGY  
UNIQUE EXPERTISE  
SUSTAINABLY DESIGNED  
REDUCED OPERATING COSTS  
100% SMART -GRID COMPATIBLE  
NON-STOP SUPPORT

# Thermal Energy Storage

For HVAC systems with peak cooling demand >500 kW

In a global context affected by a continuous increase of electricity prices and the challenge of reducing our environment impact, energy must be saved and controlled. For energy demand management and sustainable approach to intelligent buildings, Carrier proposes the Thermal Energy Storage technology (TES) by latent heat.

Shift your electricity consumption from peak to off peak hour

The TES technology consists of Phase Change Materials (PCM) used to store in nodules the cooling thermal energy produced by chillers.

By storing the thermal energy during the night and releasing it during the day, this solution allows using the electricity at the lowest prices and avoids the peaks. By spreading the thermal energy production over 24 hours, TES can reduce the capacity of the chillers by 30% to 70%\*.

\*Source: Measured differences between equivalent systems designed with and without TES.

**MULTI  
APPLICATION**





## WORLDWIDE PLAYER IN THERMAL ENERGY STORAGE SYSTEMS

**+ 3000**  
CUSTOMERS  
WORLDWIDE

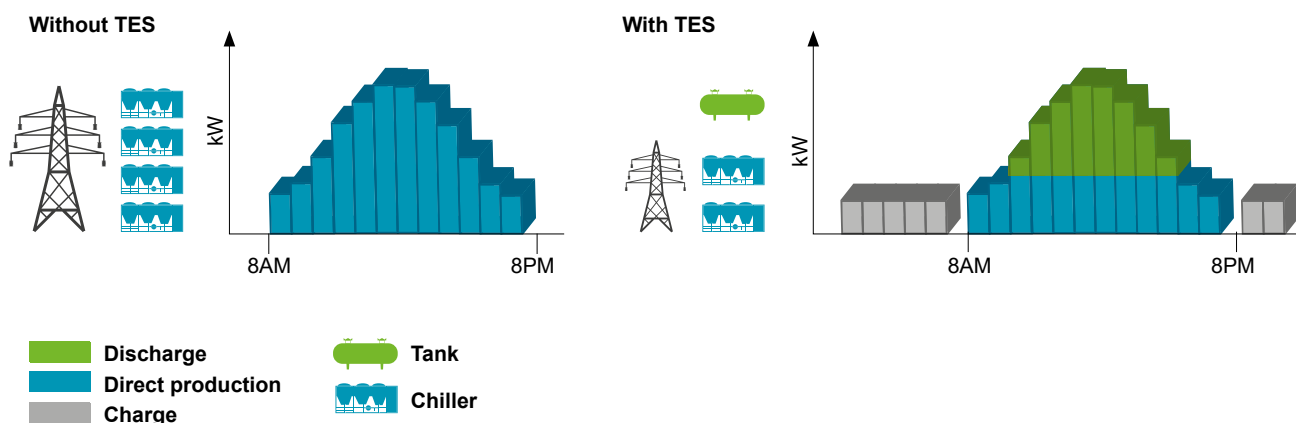
**+ 65**  
COUNTRIES

**+ 500 MW**  
ELECTRICITY  
SAVED

**+ 6 000 000**  
**KWH**  
DAILY  
TRANSFER

Source: Estimates based on existing TES solutions at customer sites.

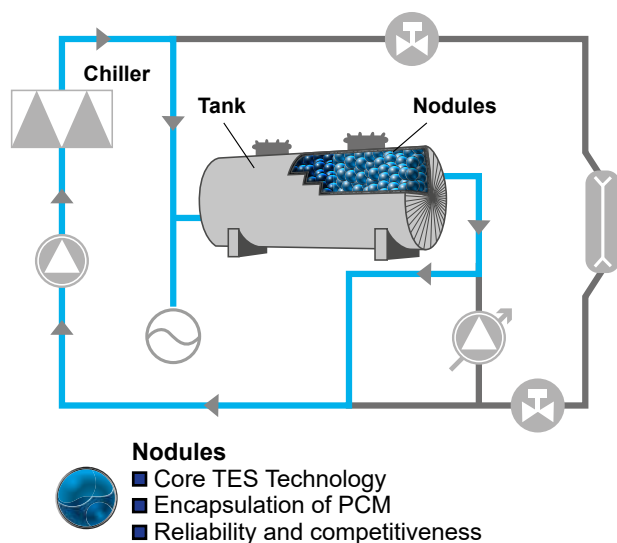
## Histogram of a building's daily cooling needs and its electricity consumption profile



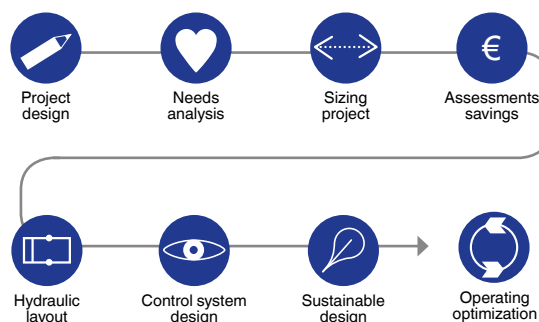
## A CUTTING-EDGE HVAC SOLUTION

## HVAC system designed with storage

The TES system along with your chillers is composed of one or several tanks filled with spherical elements called nodules that contain the Phase Change Materials (PCM). The use of PCM in nodules provides very high energy density and power exchange.



## A turnkey solution from project design to implementation



Carrier optimizes the design and the operation of your installation for each application as commercial or industrial buildings.

We assist the consulting engineers by adapting the hydraulic layout to each project: application, operating conditions and specific customer needs. Where necessary complementary technologies such as free cooling or energy recovery are integrated.





[www.carrier.com](http://www.carrier.com)

