

*Air cooled reversible full inverter  
heat pump for outdoor  
installation*

## SHEEN EVO 2.0

WiSAN-YSE1 10.1 ÷ 55.2 RANGE



TECHNICAL BULLETIN



| SIZE - EXCELLENCE   | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2 | 43.2 | 45.2  |      |      |
|---------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Cooling capacity kW | 24,1 | 26,6 | 30,3 | 43,8 | 49,7 | 56,8 | 70,1 | 80,2 | 94,6 | 107   |      |      |
| Heating capacity kW | 24,3 | 28,8 | 34,2 | 50,5 | 54,7 | 63,4 | 74,9 | 85,2 | 98,2 | 107   |      |      |
| SIZE - PREMIUM      | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2 | 40.2 | 45.2  | 50.2 | 55.2 |
| Cooling capacity kW | 25,2 | 27,6 | 32,2 | 45,7 | 52,1 | 60,7 | 74,3 | 86,2 | 94,2 | 111   | 121  | 129  |
| Heating capacity kW | 27,0 | 29,8 | 35,7 | 52,5 | 57,9 | 66,6 | 78,5 | 91,2 | 102  | 117,1 | 129  | 138  |

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Clivet participates in the ECP Programme for "Liquid Chillers and Hydronic Heat Pumps".  
Check ongoing validity of certificate on [www.eurovent-certification.com](http://www.eurovent-certification.com)

# Features and benefits

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SHEEN EVO 2.0 is the new air cooled and heat pump, equipped with Full DC Inverter technology and R-32 refrigerant with low environmental impact, designed for outdoor installation.

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## WiSAN-YSE1

Air cooled heat pump with Full DC Inverter technology and R-32 refrigerant

- Range 24 ÷ 128 kW
- Seasonal efficiency (SCOP) up to 4,65
- Seasonal efficiency (SEER) up to 4,95
- Operating with 48°C of outdoor air temperature in cooling
- Operating with -20°C of outdoor air temperature in heating
- Hot water production up to 60°C
- Copper/aluminum condensing coil
- Plate exchanger
- 1 refrigeration circuit



SHEEN EVO 2.0 series is available from 24 kW up to 128 kW in two different versions:

EXCELLENCE (EXC) with outstanding efficiency levels both in cooling and heating, able to provide high leaving water temperature and suitable for colder climate thanks to the wide operating range, keeping a quieter operation.

PREMIUM (PRM) most effective and valuable solution both in terms of capital investment and running cost thanks to competitive efficiency and enhanced delivered capacity by each size.

## Energy Efficiency

### EXCELLENCE

**SCOP** up to 4,65 (W35) / **SCOP** up to 3,42 (W55)

**SEER** up to 4,95 (W7)

### PREMIUM

**SCOP** up to 4,29 (W35)

**SEER** up to 4,67 (W7)

Capacity modulation from 30% to 100%.

## Wide operating range

### EXCELLENCE

| Outdoor temperature | Max  | Min   |
|---------------------|------|-------|
| heating             | 44°C | -20°C |
| Domestic hot water  | 44°C | -20°C |
| Cooling             | 48°C | -10°C |

| Water temperature production | Max  | Min  |
|------------------------------|------|------|
| heating                      | 60°C | 25°C |
| Domestic hot water           | 60°C | 25°C |
| Cooling                      | 20°C | 0°C  |

### PREMIUM

| Outdoor temperature | Max  | Min   |
|---------------------|------|-------|
| heating             | 44°C | -15°C |
| Domestic hot water  | 44°C | -15°C |
| Cooling             | 48°C | -10°C |

| Water temperature production | Max  | Min   |
|------------------------------|------|-------|
| heating                      | 55°C | 25 °C |
| Domestic hot water           | 55°C | 25 °C |
| Cooling                      | 20°C | 0°C   |

## Mode

- Management and production of domestic hot water up to 60°C
- Climatic compensation with external temperature
- Double set-point management
- Auxiliary generator management
- SG Ready
- EVU lock ready (remote on/off)
- Demand limit

## Acoustic configuration

Two sound configurations levels of silence:

- Standard acoustic configuration
- Super-silenced acoustic configuration (-3 dB(A) up to -6 dB(A) depending on selected size)

## Application Versatility

All the main system components are integrated in the unit, assuring the best reliability and an easy installation:

- Hydronic assembly with 1 inverter pump
- Hydronic assembly with 1 on/off pump
- Hydronic assembly with 2 inverter pumps (only for size 43.2-55.2 EXC/PRM)
- Hydronic assembly with 2 on/off pump (only for size 43.2-55.2 EXC/PRM)
- 3-way valve for the domestic hot water production
- System storage tank: 145 liters (size 10.1 ÷ 14.1), 160 liters (size 16.2 ÷ 22.2) or 275 liters (30.2 ÷ 40.2), 300 liters (size 45.2-55.2 PRM), 500 liters (size 43.2-45.2 EXC)
- Drain-tray with electric heater

## Cascade management

SHEEN EVO 2.0 was designed to connect up to 16 units in a local network, reaching a maximum capacity of 1470 kW. The combinations can also take place with units of different capacity.

# Standard unit technical features

## Compressor

### Size from 10.1 to 22.2

Inverter controlled rotary-type hermetic compressor equipped with a motor protection device for overheating, overcurrents and excessive temperatures of the supply gas. It is installed on anti-vibration mounts and it is equipped with oil charge. The compressor is wrapped in a sound-absorbing hood, that reduces its sound emissions.

its sound emissions. A crankcase heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops

### Size from 30.2 to 55.2

Inverter controlled scroll-type hermetic compressor equipped with a motor protection device for overheating, overcurrents and excessive temperatures of the supply gas. It is installed on anti-vibration mounts and it is equipped with oil charge. The compressor is wrapped in a sound-absorbing hood, that reduces its sound emissions and it thermally insulates it. A crankcase heater, which starts automatically, keeps the oil from being diluted by the refrigerant when the compressor stops

## Structure

Structure and base made entirely of sturdy sheet steel, thickness of 12/10, hot dip galvanized and painted, for the parts in view, with polyester powder RAL 9001 that guarantees excellent mechanical characteristics and high corrosion strength over time.

## Panelling

External paneling made of sheet steel, thickness 12/10, hot dip galvanized and painted with polyester powder RAL 9001 that guarantees excellent mechanical characteristics and high corrosion strength over time. The panels can be easily removed to fully access internal components.

## Internal exchanger

Direct expansion heat exchanger, braze-welded AISI 316 stainless steel plates, in pack without seals using copper as the brazing material, with low refrigerant charge and large exchange surface, complete with:

- external thermal insulation no-condensation, thickness 17 mm, in expanded polypropylene (EPP);
- antifreeze heater to protect the water side exchanger, preventing the formation of frost if the water temperature falls below a set value.

The water connections of the exchanger are quick-release with splined joint (Viciaulic).

## External exchanger

Direct expansion finned coil exchanger made with copper pipes placed on staggered rows mechanically expanded to better adhere to the fin collar. The fins are made from aluminium with hydrophilic treatment. They are appropriately distanced to ensure the maximum heat exchange efficiency. A particular refrigerant circuit prevents the formation of frost on the base of the exchanger during winter operation.

## Fan

Helical fans with 4 profiled blades made of reinforced plastic, directly coupled to the DC brushless motor with electronic control, IP 54 execution up to the sizes 40.2, IP44 for the sizes 45.2-55.2. The brushless technology and the special supply increase both the life expectancy and the efficiency. As a result the electric consumption is reduced up to 50%. Fans are housed in aerodynamically shaped structures to increase efficiency and reduce noise level. The assembly is protected by accident prevention guards. Both fans and prevention guards are designed with CFD technology. Supplied with variable speed control.

## Refrigeration circuit

The refrigeration circuit is complete with:

- electronic expansion valve;
- 4-way reverse cycle valve;
- High pressure safety pressure switch
- Low pressure safety switch
- liquid receiver;
- liquid separator;
- oil separator;
- High pressure transducer
- safety thermostat against compressor drain overheating;
- Temperature sensors
- Low pressure safety valve
- Economizer exchanger (only for size 30.2 ÷ 40.2).

## Electrical panel

The Power Section includes:

- general protection fuses;
- main disconnecting switch;
- Auxiliary components protection fuse
- AC filter on power supply
- Power supply phase sequence protection
- Protection for compressor overload
- Sensor malfunction protection
- EMC residential compliancy
- phase monitor (size 16.2 ÷ 40.2).

The control section includes:

- compressor timing and protection;
- Relay for remote cumulative fault signal
- Defrosting cycle optimization
- Condenser control
- Potential-free contact for remote on-off control
- dry contact for remote HEAT/COOL mode control.
- dry contact for auxiliary generator management;

The control keypad includes:

- wired controller with dot-matrix display;
- Multifunction keys for ON/OFF control
- Cold, hot and auto operation mode
- Display and alarm reset
- Daily or weekly schedule
- separated power adaptor for remote use;
- Serial port with Modbus (RS485) output for remote communication

## Water circuit

- safety valve 6 bar (on units with pumps kit);
- flow switch;
- antifreeze heaters to protect the water side exchanger to prevent ice from forming if the water temperature drops below the pre-set value;
- drain valve;
- temperature sensors;
- low pressure safety switch;
- relief valve (on units with pumps kit).

## Test

Unit subjected to factory-tested in specific steps and test pressure of the piping of the refrigerant circuit (with nitrogen and hydrogen), before shipping them.

## Unit equipment with low outdoor temperatures

| MINIMUM OUTDOOR AIR TEMPERATURE |   | OPERATING UNIT |                                 | UNIT IN STAND-BY <sup>(5)</sup><br>(fed unit)                                                   | UNIT IN STORAGE<br>(unit not fed) |
|---------------------------------|---|----------------|---------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------|
|                                 |   | COOLING*       | HEATING*                        |                                                                                                 |                                   |
| +11°C                           | 1 | ✓STANDARD UNIT | ✓STANDARD UNIT<br>(PRM VERSION) | ✓STANDARD UNIT                                                                                  | ✓STANDARD UNIT <sup>(6)</sup>     |
| +2°C                            | 2 |                |                                 |                                                                                                 |                                   |
| -5°C                            | 4 |                |                                 |                                                                                                 |                                   |
| -7°C                            | 3 |                |                                 |                                                                                                 |                                   |
| -10°C                           | 4 | NOT POSSIBLE   | ✓STANDARD UNIT<br>(EXC VERSION) | ✓WATER EMPTY UNIT<br>OR WITH AN<br>APPROPRIATE GLYCOL<br>PERCENTAGE                             | NOT POSSIBLE                      |
| From -10°C to -15°C             |   |                |                                 |                                                                                                 |                                   |
| From -15°C to -20°C             |   |                |                                 |                                                                                                 |                                   |
| Between -20°C and -30°C         |   | NOT POSSIBLE   | NOT POSSIBLE                    | ✓ WATER EMPTY UNIT<br>OR WITH AN<br>APPROPRIATE GLYCOL<br>PERCENTAGE                            | NOT POSSIBLE                      |
|                                 |   |                |                                 | ✓ PUMPS WITH<br>REGULATION<br>ON BOARD INVERTER<br><br>✗ NOT SUITABLE: ON/OFF<br>PUMPS ON BOARD |                                   |

Data referred to the following conditions:

\*production of chilled water:

internal exchanger water = 12/7°C

\*\*Production of hot water:

internal exchanger water = 30/35 °C

1. Part load unit and air speed equal to 1 m/s.
2. Part load unit and air speed equal to 0.5 m/s.
3. Part load unit and outdoor air temperature at rest.
4. Unit at full load and outdoor air temperature at rest.

<sup>(5)</sup> The water pumping unit must be fed and connected to the unit according to the manual.

<sup>(6)</sup> Unit without water or containing water with an appropriate quantity of glycol.

At the unit start-up the water temperature or water with glycol must be inside the operating range indicated in the "Operating range" graph.

To know the water freezing temperature on varying the glycol percentage refer to the specific 'Correction factors for glycol use' table.

⚠ Air conditions which are at rest are defined as the absence of air flowing towards the unit. Weak winds can induce air to flow through the exchanger and air-levels which can cause a reduction in the operating range.

In the presence of predominant winds it is necessary to use suitable windbreak barriers.

⚠ The unit, with an average external air temperature below -10 °C, can be stored for a maximum of 1 month.

# Unit configuration

|                   |           |               |            |           |             |              |          |          |          |
|-------------------|-----------|---------------|------------|-----------|-------------|--------------|----------|----------|----------|
| <b>WiSAN-YSE1</b> | <b>10</b> | <b>.1/ .2</b> | <b>PRM</b> | <b>SC</b> | <b>CCHY</b> | <b>VENDC</b> | <b>=</b> | <b>=</b> | <b>=</b> |
| (1)               | (2)       | (3)           | (4)        | (5)       | (6)         | (7)          | (8)      | (9)      | (10)     |

## (1) Range

WiSAN = Air cooled reversible full inverter heat pump

## (2) Size

10 = Nominal compressor capacity (HP)

## (3) Compressors

.1/.2 = Compressor quantity

## (4) Energy version

PRM = PREMIUM Version (Standard)

EXC = EXCELLENCE Version

## (5) Acoustic configuration

SC = Acoustic configuration with compressor soundproofing (Standard)

EN = Super Silenced acoustic configuration

## (6) Condensing coil

CCHY = Copper / aluminium condenser coil with hydrophilic treatment (Standard)

CCCA = Copper / aluminium condenser coil with acrylic lining

CCCA1 = Copper / aluminium condensing coils with Aluminium Energy Guard DCC treatment

## (7) Fans

VENDC = DC high efficiency fan (Standard)

## (8) Pumping unit

(-) Not required (standard)

HYGU1 - Hydronic assembly with 1 ON/OFF pump

HYGU1VI - User side hydronic group with 1 inverter pumps (only for size 10.1 ÷ 40.2)

HYGU1V - User side hydronic assembly with 1 inverter pump (only for sizes 43.2 ÷ 55.2 EXC/PRM)

HYGU2 - Hydronic group with 2 ON/OFF pumps (only for sizes 43.2 ÷ 55.2 EXC/PRM)

HYGU2V - Hydronic group with 2 inverter pumps (only for sizes 43.2 ÷ 55.2 EXC/PRM)

## (9) Storage tank

(-) not required (Standard)

ACC = Storage tank

## (10) Domestic hot water valve

(-) Not required (Standard)

VACS = DHW switching valve

## ACC

### Storage tank

Steel storage tank complete with double layer covering with closed-cell insulation, stainless steel anti-freeze immersion resistance, bleed valve, draw off cock, cast-iron shut-off butterfly valve with quick connections and activation lever with a mechanical calibration lock at the evaporator output, quick connections with insulated casing.

The storage tank capacity is 145 liters for size 10.1, 12.1 and 14.1.

The storage tank capacity is 160 liters for size 16.2, 18.2 and 22.2.

The storage tank capacity is 275 liters for size 30.2, 35.2 and 40.2.

The storage tank capacity is 300 liters for size 45.2, 50.2 and 55.2 PRM.

The storage tank capacity is 500 liters for size 43.2 and 45.2 EXC.

## VACS

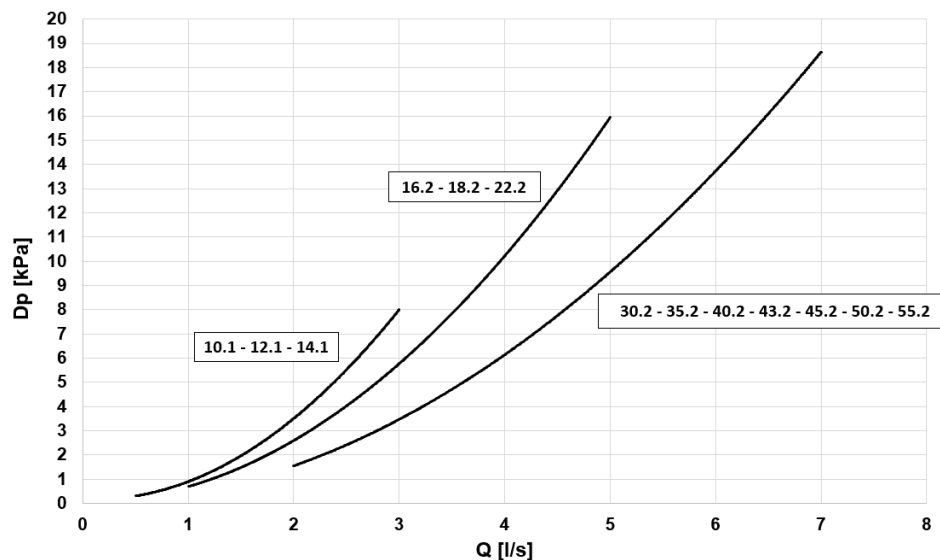
### DHW switching valve

The switching valve that diverts the water flow to a heating water tank for domestic water is installed on the unit. If the DHW temperature falls below the set-point, SHEEN EVO 2.0 switches to DHW production mode (priority over other operating modes can be set).

The unit controller closes a digital output driving the flow deviation valve from the storage system until it reaches the DHW set-point set on the user interface.

The water connections are 2" Victaulic.

### DHW switching valve pressure drop



Q = Water flow rate [l/s]

DP = Water side pressure drops [kPa]

⚠ The maximum nominal pressure of the unit with the 3-way valve option is 6bar

## CCCA

### Copper/aluminium condenser coil with acrylic lining

Coils with copper pipes and aluminium fins with acrylic coating. They can be used in environments containing airborne concentrations of salt and other moderately aggressive agents.

The treatment entails:

Capacity variation -2.7%.

Compressor power input variation +4.2%.

Operating range reduction -2.1°C.

## CCCA1

### Condenser coil with Energy Guard DCC Aluminum

This treatment provides excellent and guaranteed thermal exchange over time and protects finned coil exchangers from corrosion. They can be used in environments containing airborne concentrations of salt and other very aggressive chemicals while maintaining coil performance over time.

## PGFC

### Finned coil protection grilles

The grilles protect the external coil from accidental contact with objects or persons. Ideal for installation in places where persons can pass from, such as car parks, terraces, etc.

# Built-in options

## TCDC

### Drain tray with electric heater

The drain tray made of steel AISI 316 allows the collection and discharge of the condensate

The two trays, located under the coils, are equipped with Mylar antifreeze electric heaters applied to the bottom and a drain located on the rear part, on the water connection side.

The electric heaters are thermostatically controlled and are activated according to the external air temperature ( $T_a < +5^{\circ}\text{C}$ ).

## REMAU

### Additional board for advanced functions management

Multifunction board installed in the electrical panel of the unit for the advanced functions management.

The available digital contacts allow the following remote functions:

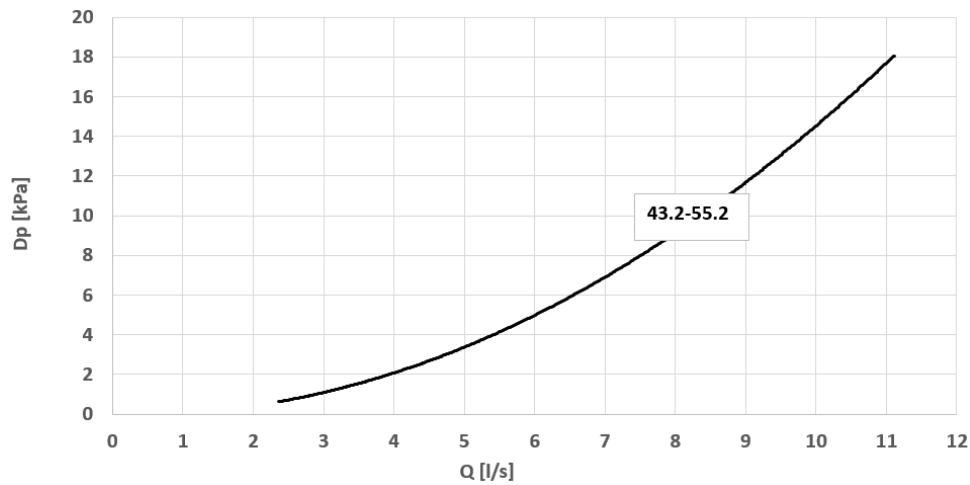
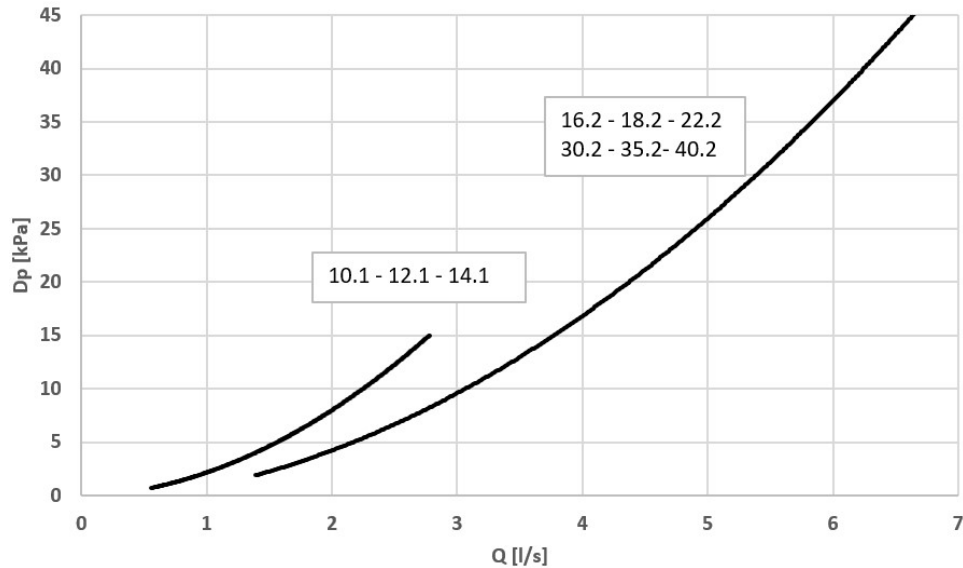
- remote on/off
- heat/cool (summer/winter switch)
- DHW production
- Double set-point management
- Sgready function
- EVUlock function
- Demand limit
- Activation of super-silenced acoustic version (selectable on the user interface)

| Function                     | System configuration         |               |         |
|------------------------------|------------------------------|---------------|---------|
|                              | Single unit<br>(Only MASTER) | Multiple unit |         |
|                              |                              | MASTER        | SLAVE/s |
| ON/OFF                       | YES                          | YES           | YES     |
| Cooling / Heating            | YES                          | YES           | YES     |
| Domestic Hot Water           | YES                          | NO            | NO      |
| D-P-S                        | YES                          | YES           | YES     |
| Silent                       | YES                          | YES           | YES     |
| Smart Grid EVU               | YES                          | NO            | NO      |
| Smart Grid SG                | YES                          | NO            | NO      |
| Domestic Hot Water Set point | YES                          | NO            | NO      |
| Heat Set point               | YES                          | YES           | YES     |
| Cool Set point               | YES                          | YES           | YES     |
| Demand limit                 | YES                          | NO            | NO      |
| BMS Modbus (write)           | YES                          | YES           | NO      |
| BMS Modbus (read)            | YES                          | YES           |         |

**IFWX****Steel mesh strainer on the water side**

The device stops the exchanger from being clogged by any impurities which are in the hydraulic circuit. The mechanical steel mesh strainer must be placed on the water input line. It can be easily dismantled for periodical maintenance and cleaning.

Filter fittings are Victaulic type by 1"1/2 for sizes 10.1-14.1 and 2" for sizes 16.2-40.2.

**Steel mesh strainer pressure drops**

Q = Water flow rate [l/s]

DP = Water side pressure drops [kPa]

# Options separately supplied

## AVIBX

### Anti-vibration mount support

The rubber antivibration mounts are attached in special housing on the support frame and serve to smooth the vibrations produced by the unit thus reducing the noise transmitted to the support structure.

## AMMSX

### Anti-seismic spring antivibration mounts

The anti-seismic spring antivibration mounts must be fastened in special housings on the supporting metal struts. The containment structure is designed to ensure high resistance multidirectional forces acting on the surface of the unit in the presence of wind and / or telluric movements.

The antivibration mounts have been tested according to ANSI/ASHRAE 171-2008 standard (Method of Testing Seismic Restraint devices for HVAC&R Equipment). The performance levels and the test methodology have been validated and certified by Lloyd's Register.

⚠ Installation provided by the Customer.

## CMSC13X

### Serial communication module ModBus TCP/IP, BACnet/IP, BACnet MS/TP

This enables the serial connection of the supervision system, using ModBus TCP/IP, BACnet/IP, BACnet MS/TP as the communication protocol. It enables access to the complete list of operational variables, commands and alarms. Using this accessory every unit can dialogue with the main supervision systems.

The additional communication module does not allow at the same time to use the add-on board for advanced function management (REMAU).

- ⚠ The configuration and management activities for the BACnet networks are the responsibility of the client
- ⚠ The total length of each individual serial line must not exceed 1000 m and the line must be connected in bus type (input/output).

## VACSX

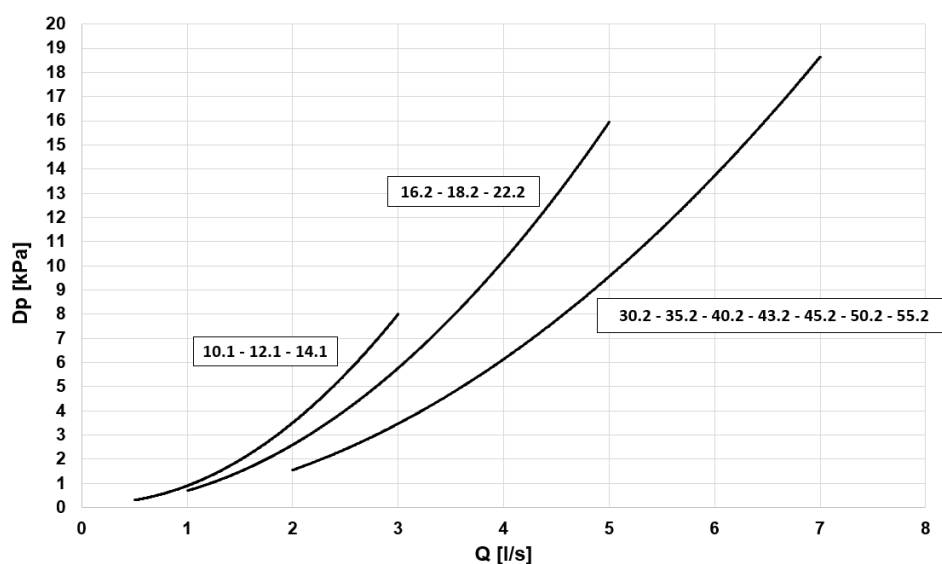
### DHW switching valve

The switching valve that diverts the water flow to a heating water tank for domestic water is separately supplied. If the DHW temperature falls below the set-point, SHEEN EVO 2.0 switches to DHW production mode (priority over other operating modes can be set).

The unit controller closes a digital output driving the flow deviation valve from the storage system until it reaches the DHW set-point set on the user interface.

The water connections are 2" Victaulic.

### DHW switching valve pressure drop



Q = Water flow rate [l/s]

DP = Water side pressure drops [kPa]

⚠ The maximum nominal pressure of the unit with the 3-way valve option is 6bar

### IOTX

#### IoT industrial module for cloud based interoperability & services

This device allows the monitoring and the remote control the unit via Clivet Eye, the supervision cloud system for Clivet units.

With IoT module (i-LINK) it will be possible to monitor and manage the unit through the mobile app Clivet Eye and the dedicated web page.

Among the main functions, for all monitored units they allow to:

- display the main working parameters;
- display the alarms;
- switch on/off the unit;
- change the setpoint;
- change the operating mode;
- set the daily/weekly start-up or power-off programming of the unit;
- create charts of main system parameters trend (via web interface);
- display in a map the units monitored by Clivet Eye (via web interface).

Web interface at [www.cliveteye.com](http://www.cliveteye.com).

Clivet Eye app available in Google Play and Apple Store



- ⚠ IoT module to be provided for each unit to be remotely monitored.
- ⚠ Internet ethernet connection in charge of customer.
- ⚠ Clivet Eye management is alternative to an external BMS supervision system.
- ⚠ Installation provided by the Customer.

# General technical data

## Performance - Excellence

### Acoustic configuration with compressor soundproofing (SC)

| Size                                                   |    |     | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2  | 43.2 | 45.2  |
|--------------------------------------------------------|----|-----|------|------|------|------|------|------|------|-------|------|-------|
| <b>Radiant panels</b>                                  |    |     |      |      |      |      |      |      |      |       |      |       |
| <b>Heating</b>                                         |    |     |      |      |      |      |      |      |      |       |      |       |
| Heating capacity (EN 14511:2022)                       | 1  | kW  | 26,1 | 30,5 | 37,0 | 51,5 | 55,5 | 64,1 | 78,6 | 87,5  | 101  | 111   |
| COP (EN 14511:2022)                                    | 2  | -   | 4,48 | 4,33 | 4,22 | 4,54 | 4,33 | 4,15 | 4,31 | 3,95  | 4,15 | 4,10  |
| ErP Space Heating Energy Class - AVERAGE Climate - W35 | 7  | -   | A+++ | A+++ | A+++ | A+++ | A+++ | A++  | A++  | A++   | -    | -     |
| SCOP - MEDIUM Climate - W35                            | 8  | -   | 4,54 | 4,49 | 4,44 | 4,46 | 4,46 | 4,41 | 4,33 | 4,29  | 4,65 | 4,60  |
| $\eta_{s,h}$ - MEDIUM climate - W35                    | 9  | %   | 179  | 177  | 175  | 175  | 175  | 173  | 170  | 169   | 183  | 181   |
| <b>Cooling</b>                                         |    |     |      |      |      |      |      |      |      |       |      |       |
| Cooling capacity (EN 14511:2022)                       | 4  | kW  | 29,9 | 34,6 | 38,9 | 59,1 | 65,8 | 77,7 | 95,0 | 103,0 | 126  | 138   |
| EER (EN 14511:2022)                                    | 5  | -   | 4,31 | 3,97 | 3,63 | 4,11 | 3,68 | 3,35 | 4,03 | 3,61  | 3,80 | 3,65  |
| Water flow-rate                                        | 4  | l/s | 1,43 | 1,66 | 1,87 | 2,83 | 3,15 | 3,73 | 4,55 | 4,94  | 6,03 | 6,58  |
| User side exchanger pressure drops                     | 4  | kPa | 44,6 | 56,8 | 69,3 | 43,3 | 51,6 | 67,9 | 55,6 | 64,4  | 42,4 | 50    |
| <b>Terminal units</b>                                  |    |     |      |      |      |      |      |      |      |       |      |       |
| <b>Heating</b>                                         |    |     |      |      |      |      |      |      |      |       |      |       |
| Heating capacity (EN 14511:2022)                       | 3  | kW  | 24,3 | 28,8 | 34,2 | 50,5 | 54,7 | 63,4 | 74,9 | 85,2  | 98,2 | 107   |
| COP (EN 14511:2022)                                    | 2  | -   | 3,33 | 3,27 | 3,20 | 3,55 | 3,51 | 3,32 | 3,48 | 3,23  | 3,37 | 3,34  |
| <b>Cooling</b>                                         |    |     |      |      |      |      |      |      |      |       |      |       |
| Cooling capacity (EN 14511:2022)                       | 6  | kW  | 24,1 | 26,6 | 30,3 | 43,8 | 49,7 | 56,8 | 70,1 | 80,2  | 94,6 | 107   |
| EER (EN 14511:2022)                                    | 5  | -   | 3,21 | 2,93 | 2,87 | 3,10 | 3,03 | 2,85 | 3,06 | 2,86  | 3,12 | 3,06  |
| SEER                                                   | 8  | -   | 4,81 | 4,65 | 4,53 | 4,32 | 4,32 | 4,25 | 4,24 | 4,23  | 4,95 | 4,93  |
| $\eta_{s,c}$                                           | 10 | %   | 189  | 183  | 178  | 170  | 170  | 167  | 167  | 166   | 195  | 194,2 |
| Water flow-rate                                        | 6  | l/s | 1,14 | 1,27 | 1,44 | 2,09 | 2,36 | 2,70 | 3,34 | 3,82  | 4,52 | 5,08  |
| User side exchanger pressure drops                     | 6  | kPa | 30,7 | 36,4 | 45,2 | 26,2 | 32,1 | 40,1 | 31,9 | 40,6  | 21,0 | 26,8  |
| <b>Radiators</b>                                       |    |     |      |      |      |      |      |      |      |       |      |       |
| <b>Heating</b>                                         |    |     |      |      |      |      |      |      |      |       |      |       |
| Heating capacity (EN 14511:2022)                       | 11 | kW  | 23,0 | 27,7 | 32,6 | 46,5 | 51,9 | 56,7 | 75,7 | 86,1  | 96,2 | 105,0 |
| COP (EN 14511:2022)                                    | 2  | -   | 2,54 | 2,40 | 2,33 | 2,71 | 2,68 | 2,70 | 2,54 | 2,44  | 2,78 | 2,70  |
| ErP Space Heating Energy Class - AVERAGE Climate - W55 | 7  | -   | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A+    | -    | -     |
| SCOP - MEDIUM Climate - W55                            | 8  | -   | 3,24 | 3,23 | 3,19 | 3,24 | 3,21 | 3,19 | 3,20 | 3,19  | 3,42 | 3,38  |
| $\eta_{s,h}$ - MEDIUM Climate - W55                    | 9  | %   | 127  | 126  | 125  | 127  | 125  | 125  | 125  | 123   | 134  | 132   |

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 811/2013 (rated heat output  $\leq 70$  kW at specified reference conditions) and the Commission delegated Regulation (EU) No 813/2013 (rated heat output  $\leq 400$  kW at specified reference conditions)  
Contains fluorinated greenhouse gases (GWP 675)

1. Entering/leaving water temperature user side 30/35 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
2. COP (EN 14511:2022) Heating performance coefficient. Ratio between delivered heating capacity and power input in compliance with EN 14511:2022. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
3. Entering/leaving water temperature user side 40/45 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
4. Entering/leaving water temperature user side 23/18 °C, Entering external exchanger air temperature 35 °C
5. EER (EN 14511:2022) cooling performance coefficient. Ratio between delivered cooling capacity and power input in compliance with EN 14511:2022. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
6. Entering/leaving water temperature user side 12/7 °C, Entering external exchanger air temperature 35 °C
7. Seasonal Space Heating Energy Efficiency Class according to Commission delegated Regulation (EU) No 811/2013. W = Water outlet temperature (°C)
8. Data calculated in compliance with EN 14825:2018.
9. Seasonal energy efficiency in heating EN 14825:2018.
10. Seasonal energy efficiency in cooling EN 14825:2018.
11. Entering/leaving water temperature user side 50/55 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)

## Performances - Premium

## Acoustic configuration with compressor soundproofing (SC)

| Size                                                    |    |     | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2 | 40.2 | 45.2  | 50.2  | 55.2  |
|---------------------------------------------------------|----|-----|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| <b>Radiant panels</b>                                   |    |     |      |      |      |      |      |      |      |      |      |       |       |       |
| <b>Heating</b>                                          |    |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Heating capacity (EN 14511:2022)                        | 1  | kW  | 27,9 | 32,3 | 38,0 | 54,4 | 58,7 | 67,1 | 84,8 | 94,2 | 101  | 119   | 131   | 139,0 |
| COP (EN 14511:2022)                                     | 2  | -   | 4,36 | 4,01 | 3,70 | 4,30 | 4,06 | 3,98 | 4,01 | 3,67 | 3,64 | 3,78  | 3,70  | 3,63  |
| ErP Space Heating Energy Class - AVE-RAGE Climate - W35 | 7  | -   | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | -     | -     | -     |
| SCOP - MEDIUM Climate - W35                             | 8  | -   | 4,29 | 4,23 | 4,11 | 4,22 | 4,19 | 4,17 | 4,12 | 4,08 | 4,13 | 4,11  | 4,07  | 4,04  |
| $\eta_{s,h}$ - MEDIUM climate - W35                     | 9  | %   | 169  | 166  | 161  | 166  | 165  | 164  | 162  | 160  | 162  | 161   | 160   | 159   |
| <b>Cooling</b>                                          |    |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Cooling capacity (EN 14511:2022)                        | 4  | kW  | 33,2 | 37,2 | 41,9 | 63,7 | 70,0 | 79,8 | 98,4 | 111  | 117  | 125,0 | 131,0 | 137,0 |
| EER (EN 14511:2022)                                     | 5  | -   | 3,89 | 3,68 | 3,39 | 3,93 | 3,66 | 3,38 | 3,78 | 3,47 | 3,35 | 3,50  | 3,40  | 3,34  |
| Water flow-rate                                         | 4  | l/s | 1,59 | 1,78 | 2,01 | 3,05 | 3,35 | 3,83 | 4,72 | 5,31 | 5,59 | 6,0   | 6,3   | 6,5   |
| User side exchanger pressure drops                      | 4  | kPa | 53,1 | 64,1 | 78,3 | 48,9 | 57,1 | 70,9 | 59,2 | 73,0 | 80,2 | 41,7  | 45,2  | 49,2  |
| <b>Terminal units</b>                                   |    |     |      |      |      |      |      |      |      |      |      |       |       |       |
| <b>Heating</b>                                          |    |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Heating capacity (EN 14511:2022)                        | 3  | kW  | 27,0 | 29,8 | 35,7 | 52,5 | 57,9 | 66,6 | 78,5 | 91,2 | 102  | 117   | 129   | 138   |
| COP (EN 14511:2022)                                     | 2  | -   | 3,21 | 3,20 | 3,15 | 3,33 | 3,29 | 3,14 | 3,34 | 3,05 | 2,88 | 3,21  | 3,18  | 3,15  |
| <b>Cooling</b>                                          |    |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Cooling capacity (EN 14511:2022)                        | 6  | kW  | 25,2 | 27,6 | 32,2 | 45,7 | 52,1 | 60,7 | 74,3 | 86,2 | 94,2 | 111   | 121   | 128   |
| EER (EN 14511:2022)                                     | 5  | -   | 3,03 | 2,75 | 2,74 | 2,96 | 2,88 | 2,75 | 2,91 | 2,73 | 2,63 | 2,71  | 2,61  | 2,51  |
| SEER                                                    | 8  | -   | 4,50 | 4,40 | 4,24 | 4,04 | 4,09 | 4,07 | 3,96 | 3,91 | 3,87 | 4,67  | 4,54  | 4,42  |
| $\eta_{s,c}$                                            | 10 | %   | 177  | 173  | 167  | 159  | 161  | 160  | 155  | 153  | 152  | -     | -     | -     |
| Water flow-rate                                         | 6  | l/s | 1,20 | 1,32 | 1,53 | 2,17 | 2,48 | 2,89 | 3,54 | 4,10 | 4,49 | 5,28  | 5,78  | 6,13  |
| User side exchanger pressure drops                      | 6  | kPa | 33,3 | 38,7 | 50,0 | 28,0 | 34,8 | 44,7 | 35,4 | 46,2 | 54,2 | 32,8  | 38,7  | 43,2  |

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 811/2013 (rated heat output  $\leq 70$  kW at specified reference conditions) and the Commission delegated Regulation (EU) No 813/2013 (rated heat output  $\leq 400$  kW at specified reference conditions)

Contains fluorinated greenhouse gases (GWP 675)

1. Entering/leaving water temperature user side 30/35 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
2. COP (EN 14511:2022) Heating performance coefficient. Ratio between delivered heating capacity and power input in compliance with EN 14511:2022. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
3. Entering/leaving water temperature user side 40/45 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
4. Entering/leaving water temperature user side 23/18 °C, Entering external exchanger air temperature 35 °C
5. EER (EN 14511:2022) cooling performance coefficient. Ratio between delivered cooling capacity and power input in compliance with EN 14511:2022. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
6. Entering/leaving water temperature user side 12/7 °C, Entering external exchanger air temperature 35 °C
7. Seasonal Space Heating Energy Efficiency Class according to Commission delegated Regulation (EU) No 811/2013. W = Water outlet temperature (°C)
8. Data referred to unit operation with inverter frequency optimized for this application.
9. Data calculated in compliance with EN 14825:2018.
10. Seasonal energy efficiency in heating EN 14825:2018.
11. Seasonal energy efficiency in cooling EN 14825:2018.

# General technical data

## Performance - Excellence

### Super Silenced acoustic configuration (EN)

| Size                                                    |     |     | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2 | 43.2 | 45.2 |
|---------------------------------------------------------|-----|-----|------|------|------|------|------|------|------|------|------|------|
| <b>Radiant panels</b>                                   |     |     |      |      |      |      |      |      |      |      |      |      |
| <b>Heating</b>                                          |     |     |      |      |      |      |      |      |      |      |      |      |
| Heating capacity (EN 14511:2022)                        | 1,8 | kW  | 21,5 | 24,3 | 26,9 | 44,8 | 48,7 | 53,4 | 65,4 | 72,7 | 92,9 | 98,4 |
| COP (EN 14511:2022)                                     | 2   | -   | 4,52 | 4,40 | 4,35 | 4,51 | 4,35 | 4,32 | 4,22 | 4,07 | 4,21 | 4,16 |
| ErP Space Heating Energy Class - AVERA-GE Climate - W35 | 7   | -   | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | -    | -    |
| SCOP - MEDIUM Climate - W35                             | 9   | -   | 4,41 | 4,38 | 4,35 | 4,34 | 4,33 | 4,30 | 4,24 | 4,20 | 4,66 | 4,59 |
| $\eta_{s,h}$ - MEDIUM climate - W35                     | 10  | %   | 173  | 172  | 171  | 171  | 170  | 169  | 167  | 165  | 183  | 181  |
| <b>Cooling</b>                                          |     |     |      |      |      |      |      |      |      |      |      |      |
| Cooling capacity (EN 14511:2022)                        | 4,8 | kW  | 24,7 | 28,5 | 31,3 | 51,5 | 56,8 | 64,7 | 78,6 | 84,0 | 121  | 126  |
| EER (EN 14511:2022)                                     | 5   | -   | 4,25 | 4,34 | 3,98 | 4,12 | 3,63 | 3,56 | 4,12 | 3,79 | 3,83 | 3,71 |
| Water flow-rate                                         | 4   | l/s | 1,18 | 1,37 | 1,50 | 2,46 | 2,72 | 3,10 | 3,77 | 4,02 | 5,8  | 6,0  |
| User side exchanger pressure drops                      | 4   | kPa | 32,5 | 41,2 | 48,1 | 34,4 | 40,4 | 50,2 | 39,7 | 44,6 | 39   | 42   |
| <b>Terminal units</b>                                   |     |     |      |      |      |      |      |      |      |      |      |      |
| <b>Heating</b>                                          |     |     |      |      |      |      |      |      |      |      |      |      |
| Heating capacity (EN 14511:2018)                        | 3   | kW  | 19,1 | 21,6 | 24,9 | 41,9 | 46,2 | 50,3 | 61,3 | 69,1 | 90,2 | 95,2 |
| COP (EN 14511:2018)                                     | 2   | -   | 3,33 | 3,25 | 3,25 | 3,51 | 3,55 | 3,59 | 3,79 | 3,68 | 3,44 | 3,41 |
| <b>Cooling</b>                                          |     |     |      |      |      |      |      |      |      |      |      |      |
| Cooling capacity (EN 14511:2018)                        | 6   | kW  | 19,9 | 21,9 | 24,4 | 38,3 | 42,8 | 47,3 | 58,0 | 65,3 | 90,0 | 96,5 |
| EER (EN 14511:2018)                                     | 5   | -   | 3,18 | 3,21 | 3,15 | 3,14 | 3,00 | 3,02 | 3,12 | 3,00 | 3,06 | 3,05 |
| SEER                                                    | 9   | -   | 4,70 | 4,55 | 4,50 | 4,21 | 4,21 | 4,15 | 4,18 | 4,13 | 4,84 | 4,82 |
| $\eta_{s,c}$                                            | 11  | %   | 185  | 179  | 177  | 165  | 165  | 163  | 164  | 162  | 191  | 190  |
| Water flow-rate                                         | 6   | l/s | 0,95 | 1,04 | 1,16 | 1,82 | 2,04 | 2,25 | 2,76 | 3,11 | 4,3  | 4,6  |
| User side exchanger pressure drops                      | 6   | kPa | 22,3 | 26,2 | 31,3 | 20,9 | 25,2 | 29,7 | 22,8 | 28,1 | 22,5 | 25,6 |
| <b>Radiators</b>                                        |     |     |      |      |      |      |      |      |      |      |      |      |
| <b>Heating</b>                                          |     |     |      |      |      |      |      |      |      |      |      |      |
| Heating capacity (EN 14511:2018)                        | 12  | kW  | 17,6 | 19,7 | 21,8 | 37,0 | 41,5 | 45,9 | 60,0 | 68,7 | 88,9 | 94,0 |
| EER (EN 14511:2018)                                     | 2   | -   | 2,62 | 2,56 | 2,64 | 2,79 | 2,72 | 2,75 | 2,71 | 2,65 | 2,80 | 2,73 |
| ErP Space Heating Energy Class - AVERA-GE Climate - W35 | 7   | -   | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | -    | -    |
| SCOP - MEDIUM Climate - W55                             | 9   | -   | 3,24 | 3,23 | 3,22 | 3,24 | 3,24 | 3,25 | 3,22 | 3,20 | 3,40 | 3,37 |
| $\eta_{s,h}$ - MEDIUM Climate - W55                     | 10  | %   | 127  | 126  | 126  | 127  | 127  | 127  | 126  | 125  | 133  | 132  |

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 811/2013 (rated heat output  $\leq 70$  kW at specified reference conditions) and the Commission delegated Regulation (EU) No 813/2013 (rated heat output  $\leq 400$  kW at specified reference conditions)

Contains fluorinated greenhouse gases (GWP 675)

1. Entering/leaving water temperature user side 30/35 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
2. COP (EN 14511:2018) Heating performance coefficient. Ratio between delivered heating capacity and power input in compliance with EN 14511:2018. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
3. Entering/leaving water temperature user side 40/45 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
4. Entering/leaving water temperature user side 23/18 °C, Entering external exchanger air temperature 35 °C
5. EER (EN 14511:2018) cooling performance coefficient. Ratio between delivered cooling capacity and power input in compliance with EN 14511:2018. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
6. Entering/leaving water temperature user side 12/7 °C, Entering external exchanger air temperature 35 °C
7. Seasonal Space Heating Energy Efficiency Class according to Commission delegated Regulation (EU) No 811/2013. W = Water outlet temperature (°C)
8. Data referred to unit operation with inverter frequency optimized for this application.
9. Data calculated in compliance with EN 14825:2018.
10. Seasonal energy efficiency in heating EN 14825:2018.
11. Seasonal energy efficiency in cooling EN 14825:2018.
12. Entering/leaving water temperature user side 50/55 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)

## Performances - Premium

### Super Silenced acoustic configuration (EN)

| Size                                                   |     |     | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2 | 40.2 | 45.2  | 50.2  | 55.2  |
|--------------------------------------------------------|-----|-----|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| <b>Radiant panels</b>                                  |     |     |      |      |      |      |      |      |      |      |      |       |       |       |
| <b>Heating</b>                                         |     |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Heating capacity (EN 14511:2018)                       | 1,8 | kW  | 21,1 | 24,6 | 27,5 | 46,3 | 51,2 | 55,3 | 68,6 | 76,1 | 81,9 | 99,5  | 106   | 114,0 |
| COP (EN 14511:2018)                                    | 2   | -   | 4,35 | 4,24 | 4,22 | 4,41 | 4,31 | 4,25 | 4,16 | 4,01 | 4,04 | 3,82  | 3,77  | 3,74  |
| ErP Space Heating Energy Class - AVERAGE Climate - W35 | 7   | -   | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | A++  | -     | -     | -     |
| SCOP - MEDIUM Climate - W35                            | 9   | -   | 4,18 | 4,12 | 4,05 | 4,15 | 4,11 | 4,10 | 4,10 | 4,06 | 4,05 | 4,07  | 4,02  | 4,01  |
| ηs,h - MEDIUM climate - W35                            | 10  | %   | 164  | 162  | 159  | 163  | 161  | 161  | 161  | 159  | 159  | 160   | 158   | 157   |
| <b>Cooling</b>                                         |     |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Cooling capacity (EN 14511:2018)                       | 4,8 | kW  | 29,1 | 32,6 | 34,4 | 54,3 | 60,5 | 64,6 | 79,0 | 89,5 | 93,8 | 106   | 109   | 112   |
| EER (EN 14511:2018)                                    | 5   | -   | 4,00 | 4,12 | 3,74 | 4,04 | 3,78 | 3,66 | 3,95 | 3,73 | 3,62 | 3,50  | 3,40  | 3,43  |
| Water flow-rate                                        | 4   | l/s | 1,39 | 1,56 | 1,65 | 2,60 | 2,90 | 3,10 | 3,78 | 4,29 | 4,49 | 5,1   | 5,2   | 5,4   |
| User side exchanger pressure drops                     | 4   | kPa | 44,0 | 52,8 | 57,8 | 36,9 | 44,2 | 49,4 | 40,6 | 50,6 | 54,9 | 30,8  | 32,2  | 34,1  |
| <b>Terminal units</b>                                  |     |     |      |      |      |      |      |      |      |      |      |       |       |       |
| <b>Heating</b>                                         |     |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Heating capacity (EN 14511:2018)                       | 3   | kW  | 21,4 | 23,8 | 26,9 | 46,4 | 51,6 | 54,4 | 66,5 | 75,1 | 80,6 | 98,4  | 105   | 113   |
| COP (EN 14511:2018)                                    | 2   | -   | 3,22 | 3,15 | 3,11 | 3,42 | 3,35 | 3,35 | 3,54 | 3,46 | 3,47 | 3,24  | 3,21  | 3,18  |
| <b>Cooling</b>                                         |     |     |      |      |      |      |      |      |      |      |      |       |       |       |
| Cooling capacity (EN 14511:2018)                       | 6   | kW  | 22,1 | 24,2 | 26,5 | 39,1 | 45,0 | 49,1 | 59,6 | 69,7 | 75,7 | 93,0  | 99,1  | 104,0 |
| EER (EN 14511:2018)                                    | 5   | -   | 3,11 | 3,09 | 3,04 | 3,06 | 2,97 | 2,97 | 3,03 | 2,94 | 2,85 | 2,71  | 2,63  | 2,55  |
| SEER                                                   | 9   | -   | 4,60 | 4,52 | 4,36 | 4,20 | 4,20 | 4,15 | 4,10 | 4,00 | 3,95 | 4,49  | 4,47  | 4,44  |
| ηs,c                                                   | 11  | %   | 181  | 178  | 171  | 165  | 165  | 163  | 161  | 157  | 155  | 176,6 | 175,8 | 175   |
| Water flow-rate                                        | 6   | l/s | 1,05 | 1,15 | 1,26 | 1,86 | 2,14 | 2,34 | 2,84 | 3,32 | 3,61 | 4,4   | 4,7   | 5,0   |
| User side exchanger pressure drops                     | 6   | kPa | 27,9 | 32,3 | 37,6 | 21,2 | 26,7 | 30,9 | 24,5 | 32,3 | 37,3 | 23,9  | 26,8  | 29,3  |

The Product is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 811/2013 (rated heat output ≤ 70 kW at specified reference conditions) and the Commission delegated Regulation (EU) No 813/2013 (rated heat output ≤ 400 kW at specified reference conditions)  
Contains fluorinated greenhouse gases (GWP 675)

1. Entering/leaving water temperature user side 30/35 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
2. COP (EN 14511:2018) Heating performance coefficient. Ratio between delivered heating capacity and power input in compliance with EN 14511:2018. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
3. Entering/leaving water temperature user side 40/45 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%)
4. Entering/leaving water temperature user side 23/18 °C, Entering external exchanger air temperature 35 °C
5. EER (EN 14511:2018) cooling performance coefficient. Ratio between delivered cooling capacity and power input in compliance with EN 14511:2018. The overall power absorbed is calculated by adding the power absorbed by the compressor + the power absorbed by the fan - the percentage value of the fan to overcome external pressure drop + the power absorbed by the pump - the percentage value of the pump to overcome pressure drop outside + the power absorbed by the auxiliary electrical circuit.
6. Entering/leaving water temperature user side 12/7 °C, Entering external exchanger air temperature 35 °C
7. Seasonal Space Heating Energy Efficiency Class according to Commission delegated Regulation (EU) No 811/2013. W = Water outlet temperature (°C)
8. Data referred to unit operation with inverter frequency optimized for this application.
9. Data calculated in compliance with EN 14825:2018.
10. Seasonal energy efficiency in heating EN 14825:2018.
11. Seasonal energy efficiency in cooling EN 14825:2018.

# General technical data

## Construction - Excellence

| SIZE                                    |   |      | 10.1            | 12.1   | 14.1   | 16.2  | 18.2  | 22.2  | 30.2            | 35.2  | 43.2   | 45.2   |
|-----------------------------------------|---|------|-----------------|--------|--------|-------|-------|-------|-----------------|-------|--------|--------|
| Compressor                              |   |      |                 |        |        |       |       |       |                 |       |        |        |
| Type of compressors                     |   |      | Rotary Inverter |        |        |       |       |       | Scroll Inverter |       |        |        |
| Refrigerant                             |   |      | R32             |        |        |       |       |       |                 |       |        |        |
| No. of compressors                      |   | Nr   | 1               |        |        |       | 2     |       |                 |       | 6,6    |        |
| Oil charge                              |   | l    | 2,3             |        |        |       | 4,6   |       |                 |       | 6,6    |        |
| Refrigerant Charge                      |   | kg   | 7,9             |        |        |       | 14    |       |                 |       | 26,5   |        |
| No. of circuits                         |   | Nr   | 1               |        |        |       |       |       |                 |       |        |        |
| User side exchanger                     |   |      |                 |        |        |       |       |       |                 |       |        |        |
| Type of internal exchanger              | 1 |      | PHE             |        |        |       |       |       |                 |       |        |        |
| N. of internal exchanger                |   | No.  |                 |        |        |       |       |       |                 |       |        |        |
| Water content                           |   | l    | 2,44            |        |        |       | 5,17  |       |                 |       | 7,80   |        |
| External exchanger                      |   |      |                 |        |        |       |       |       |                 |       |        |        |
| Type of internal exchanger              | 2 |      | CCHY            |        |        |       |       |       |                 |       |        |        |
| Number of coils                         |   | No.  | 2               |        |        |       |       |       |                 |       |        |        |
| External Section Fans                   |   |      |                 |        |        |       |       |       |                 |       |        |        |
| Type of fans                            | 3 |      | AX              |        |        |       |       |       |                 |       |        |        |
| No. of fans                             |   | No.  | 1               |        |        |       | 2     |       |                 |       | 3      |        |
| Type of motor                           |   |      | Brushless DC    |        |        |       |       |       |                 |       |        |        |
| Standard airflow EXC-SC                 |   | m³/h | 12250           | 13500  | 13500  | 24500 | 27000 | 27000 | 36750           | 40500 | 65700  | 65700  |
| Standard airflow EXC-EN                 |   | m³/h | 8500            | 10250  | 10250  | 17000 | 20500 | 20500 | 30750           | 30750 | 44600  | 44600  |
| Installed unit power                    |   | kW   | 0,9             | 0,9    | 0,9    | 0,9   | 0,9   | 0,9   | 0,9             | 0,9   | 1,5    | 1,5    |
| Water circuit                           |   |      |                 |        |        |       |       |       |                 |       |        |        |
| Water fittings                          |   |      | 1" 1/2          | 1" 1/2 | 1" 1/2 | 2"    | 2"    | 2"    | 2"              | 2"    | 2 1/2" | 2 1/2" |
| Maximum water side pressure             |   | kPa  | 1000            | 1000   | 1000   | 1000  | 1000  | 1000  | 1000            | 1000  | 1000   | 1000   |
| Minimum system water content in heating |   | l    | 200             | 200    | 200    | 400   | 400   | 400   | 650             | 650   | 850    | 850    |
| Minimum system water content in cooling |   | l    | 80              | 80     | 80     | 150   | 150   | 150   | 200             | 200   | 300    | 300    |
| Total internal water volume             |   | l    | 5,44            | 5,44   | 5,44   | 10,3  | 10,3  | 10,3  | 15,6            | 15,6  | 28.8   | 28.8   |
| Power supply                            |   |      |                 |        |        |       |       |       |                 |       |        |        |
| Standard power supply                   |   |      | 400/3/50+N      |        |        |       |       |       |                 |       |        |        |
| Electrical data                         |   |      |                 |        |        |       |       |       |                 |       |        |        |
| F.L.A. - Total                          |   | A    | 18,5            | 19,0   | 20,0   | 37,5  | 38,5  | 40,5  | 57,0            | 59,0  | 62,0   | 71,0   |
| F.L.I. - Total                          |   | kW   | 12,0            | 12,4   | 13,0   | 24,4  | 25,1  | 26,4  | 37,1            | 38,4  | 39,0   | 46,0   |
| M.I.C. - Value                          | 4 | A    | 10,0            | 10,0   | 10,0   | 20,3  | 20,3  | 20,3  | 31,0            | 31,0  | 43,8   | 43,8   |

1. PHE = Plate exchanger
2. CCHY = Copper / aluminium condenser coil with hydrophilic treatment
3. AX = Axial fan
4. M.I.C.=Maximum unit starting current. The M.I.C. value is obtained adding the max. compressor starting current of the highest size to the power input at max. admissible conditions (F.L.A.) of the remaining electric components.

Voltage unbalance between phases: max 2 %

Voltage variation: max +/- 10%

Electrical data refer to standard units; according to the installed accessories, the data can suffer some variations.

## Construction - Premium

| SIZE                                    |   |      | 10.1            | 12.1   | 14.1   | 16.2  | 18.2  | 22.2  | 30.2            | 35.2  | 40.2   | 45.2   | 50.2   | 55.2   |
|-----------------------------------------|---|------|-----------------|--------|--------|-------|-------|-------|-----------------|-------|--------|--------|--------|--------|
| Compressor                              |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| Type of compressors                     |   |      | Rotary Inverter |        |        |       |       |       | Scroll Inverter |       |        |        |        |        |
| Refrigerant                             |   |      |                 |        |        |       |       |       | R32             |       |        |        |        |        |
| No. of compressors                      |   | No.  | 1               |        |        |       |       |       | 2               |       |        |        |        |        |
| Oil charge                              |   | l    | 2,3             |        |        | 4,6   |       |       | 6               |       |        | 4,6    |        |        |
| Refrigerant Charge                      |   | kg   | 7,9             |        |        | 14    |       |       | 17,5            |       |        | 17,5   |        |        |
| No. of circuits                         |   | No.  |                 |        |        |       |       |       | 1               |       |        |        |        |        |
| User side exchanger                     |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| Type of internal exchanger              | 1 |      |                 |        |        |       |       |       | PHE             |       |        |        |        |        |
| N. of internal exchanger                |   | No.  |                 |        |        |       |       |       | 1               |       |        |        |        |        |
| Water content                           |   | l    | 2,44            |        |        | 5,17  |       |       | 7,80            |       |        | 1,1    |        |        |
| External exchanger                      |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| Type of internal exchanger              | 2 |      |                 |        |        |       |       |       | CCHY            |       |        |        |        |        |
| Number of coils                         |   | No.  |                 |        |        |       |       |       | 2               |       |        |        |        |        |
| External Section Fans                   |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| Type of fans                            | 3 |      |                 |        |        |       |       |       | AX              |       |        |        |        |        |
| No. of fans                             |   | No.  | 1               |        |        | 2     |       |       | 3               |       |        | 2      |        |        |
| Type of motor                           |   |      |                 |        |        |       |       |       | Brushless DC    |       |        |        |        |        |
| Standard airflow PRM-SC                 |   | m³/h | 13500           | 13500  | 14000  | 27000 | 27000 | 28000 | 40500           | 40500 | 42000  | 50000  | 50000  | 50000  |
| Standard airflow PRM-EN                 |   | m³/h | 10250           | 10250  | 12250  | 20500 | 20500 | 24500 | 30750           | 30750 | 36750  | 35100  | 35100  | 35100  |
| Installed unit power                    |   | kW   | 0,9             | 0,9    | 0,9    | 0,9   | 0,9   | 0,9   | 0,9             | 0,9   | 0,9    | 1,5    | 1,5    | 1,5    |
| Water circuit                           |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| Water fittings                          |   |      | 1" 1/2          | 1" 1/2 | 1" 1/2 | 2"    | 2"    | 2"    | 2"              | 2"    | 2 1/2" | 2 1/2" | 2 1/2" | 2 1/2" |
| Maximum water side pressure             |   | kPa  | 1000            | 1000   | 1000   | 1000  | 1000  | 1000  | 1000            | 1000  | 1000   | 1000   | 1000   | 1000   |
| Minimum system water content in heating |   | l    | 200             | 200    | 200    | 400   | 400   | 400   | 650             | 650   | 650    | 850    | 850    | 850    |
| Minimum system water content in cooling |   | l    | 80              | 80     | 80     | 150   | 150   | 150   | 200             | 200   | 200    | 300    | 300    | 300    |
| Total internal water volume             |   | l    | 5,44            | 5,44   | 5,44   | 10,3  | 10,3  | 10,3  | 15,6            | 15,6  | 15,6   | 22     | 22     | 22     |
| Power supply                            |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| Standard power supply                   |   |      | 400/3/50+N      |        |        |       |       |       |                 |       |        |        |        |        |
| Electrical data                         |   |      |                 |        |        |       |       |       |                 |       |        |        |        |        |
| F.L.A. - Total                          |   | A    | 18,5            | 19,0   | 20,0   | 37,5  | 38,5  | 40,5  | 57,0            | 59,0  | 62,0   | 80,0   | 90,5   | 100    |
| F.L.I. - Total                          |   | kW   | 12,0            | 12,4   | 13,0   | 24,4  | 25,1  | 26,4  | 37,1            | 38,4  | 40,4   | 51,0   | 58,0   | 64,0   |
| M.I.C. - Value                          | 4 | A    | 10,0            | 10,0   | 10,0   | 20,3  | 20,3  | 20,3  | 31,0            | 31,0  | 31,0   | 50,0   | 50,0   | 50,0   |

1. PHE = Plate exchanger
2. CCHY = Copper / aluminium condenser coil with hydrophilic treatment
3. AX = Axial fan
4. M.I.C.=Maximum unit starting current. The M.I.C. value is obtained adding the max. compressor starting current of the highest size to the power input at max. admissible conditions (F.L.A.) of the remaining electric components.

Voltage unbalance between phases: max 2 %

Voltage variation: max +/- 10%

Electrical data refer to standard units; according to the installed accessories, the data can suffer some variations.

# General technical data

## Sound level - Excellence

### Acoustic configuration with compressor soundproofing (SC)

| SIZE        | Sound power level - Octave band (Hz) |     |     |     |      |      |      |      | Sound pressure level | Sound power level |
|-------------|--------------------------------------|-----|-----|-----|------|------|------|------|----------------------|-------------------|
|             | 63                                   | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dB(A)                | dB(A)             |
| <b>10.1</b> | 61                                   | 62  | 62  | 69  | 70   | 65   | 60   | 50   | 57                   | 73                |
| <b>12.1</b> | 58                                   | 61  | 65  | 68  | 72   | 66   | 59   | 50   | 58                   | 74                |
| <b>14.1</b> | 54                                   | 61  | 66  | 69  | 73   | 67   | 60   | 49   | 59                   | 75                |
| <b>16.2</b> | 76                                   | 75  | 70  | 71  | 73   | 65   | 60   | 50   | 58                   | 75                |
| <b>18.2</b> | 52                                   | 63  | 65  | 72  | 73   | 66   | 59   | 50   | 58                   | 76                |
| <b>22.2</b> | 76                                   | 75  | 68  | 72  | 76   | 69   | 62   | 52   | 61                   | 78                |
| <b>30.2</b> | 59                                   | 71  | 71  | 74  | 74   | 70   | 69   | 61   | 60                   | 78                |
| <b>35.2</b> | 59                                   | 67  | 70  | 75  | 79   | 73   | 68   | 60   | 63                   | 81                |
| <b>43.2</b> | 81                                   | 86  | 83  | 77  | 76   | 74   | 74   | 69   | 64                   | 82                |
| <b>45.2</b> | 82                                   | 87  | 84  | 78  | 77   | 75   | 75   | 70   | 65                   | 83                |

### Acoustic configuration: super-silenced (EN)

| SIZE        | Sound power level - Octave band (Hz) |     |     |     |      |      |      |      | Sound pressure level | Sound power level |
|-------------|--------------------------------------|-----|-----|-----|------|------|------|------|----------------------|-------------------|
|             | 63                                   | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dB(A)                | dB(A)             |
| <b>10.1</b> | 46                                   | 60  | 60  | 65  | 66   | 61   | 56   | 48   | 53                   | 69                |
| <b>12.1</b> | 59                                   | 60  | 60  | 67  | 68   | 63   | 58   | 48   | 55                   | 71                |
| <b>14.1</b> | 56                                   | 59  | 63  | 66  | 70   | 64   | 57   | 48   | 56                   | 72                |
| <b>16.2</b> | 50                                   | 62  | 67  | 67  | 69   | 62   | 57   | 48   | 54                   | 71                |
| <b>18.2</b> | 50                                   | 62  | 67  | 67  | 69   | 62   | 57   | 48   | 54                   | 71                |
| <b>22.2</b> | 73                                   | 72  | 67  | 68  | 70   | 62   | 57   | 47   | 55                   | 72                |
| <b>30.2</b> | 54                                   | 67  | 67  | 70  | 67   | 65   | 65   | 57   | 55                   | 73                |
| <b>35.2</b> | 56                                   | 69  | 69  | 72  | 69   | 67   | 67   | 59   | 57                   | 75                |
| <b>43.2</b> | 65                                   | 70  | 69  | 75  | 72   | 71   | 67   | 61   | 59                   | 77                |
| <b>45.2</b> | 66                                   | 71  | 69  | 76  | 73   | 67   | 72   | 62   | 60                   | 78                |

Sound levels refer to units with nominal conditions.

The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field.

Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2).

Data referred to the following conditions in Heating:

- internal exchanger water = 30/35° C

- ambient temperature 7/6° C

Data referred to the following conditions in cooling:

- internal exchanger water = 12/7° C

- ambient temperature 35° C

## Sound levels - Premium

### Acoustic configuration with compressor soundproofing (SC)

| SIZE        | Sound power level - Octave band (Hz) |     |     |     |      |      |      |      | Sound pressure level | Sound power level |
|-------------|--------------------------------------|-----|-----|-----|------|------|------|------|----------------------|-------------------|
|             | 63                                   | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dB(A)                | dB(A)             |
| <b>10.1</b> | 63                                   | 64  | 64  | 71  | 72   | 67   | 62   | 52   | 59                   | 75                |
| <b>12.1</b> | 60                                   | 63  | 67  | 70  | 74   | 68   | 61   | 52   | 60                   | 76                |
| <b>14.1</b> | 56                                   | 63  | 68  | 71  | 75   | 69   | 62   | 51   | 61                   | 77                |
| <b>16.2</b> | 78                                   | 77  | 72  | 73  | 75   | 67   | 62   | 52   | 60                   | 77                |
| <b>18.2</b> | 79                                   | 78  | 73  | 74  | 76   | 68   | 63   | 53   | 61                   | 78                |
| <b>22.2</b> | 78                                   | 77  | 70  | 74  | 78   | 71   | 64   | 54   | 63                   | 80                |
| <b>30.2</b> | 61                                   | 73  | 73  | 76  | 76   | 72   | 71   | 63   | 62                   | 80                |
| <b>35.2</b> | 61                                   | 69  | 72  | 77  | 81   | 75   | 70   | 62   | 65                   | 83                |
| <b>40.2</b> | 61                                   | 69  | 72  | 77  | 81   | 75   | 70   | 62   | 65                   | 83                |
| <b>45.2</b> | 71                                   | 72  | 73  | 77  | 80   | 79   | 71   | 66   | 66                   | 84                |
| <b>50.2</b> | 71                                   | 72  | 74  | 78  | 81   | 80   | 71   | 66   | 67                   | 85                |
| <b>55.2</b> | 71                                   | 72  | 74  | 78  | 81   | 80   | 72   | 66   | 67                   | 85                |

### Acoustic configuration: super-silenced (EN)

| SIZE        | Sound power level - Octave band (Hz) |     |     |     |      |      |      |      | Sound pressure level | Sound power level |
|-------------|--------------------------------------|-----|-----|-----|------|------|------|------|----------------------|-------------------|
|             | 63                                   | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dB(A)                | dB(A)             |
| <b>10.1</b> | 49                                   | 63  | 63  | 68  | 69   | 64   | 59   | 51   | 56                   | 72                |
| <b>12.1</b> | 61                                   | 62  | 62  | 69  | 70   | 65   | 60   | 50   | 57                   | 73                |
| <b>14.1</b> | 61                                   | 62  | 62  | 69  | 70   | 65   | 60   | 50   | 57                   | 73                |
| <b>16.2</b> | 52                                   | 64  | 69  | 69  | 71   | 64   | 59   | 50   | 57                   | 73                |
| <b>18.2</b> | 52                                   | 64  | 69  | 69  | 71   | 64   | 59   | 50   | 57                   | 73                |
| <b>22.2</b> | 75                                   | 74  | 69  | 70  | 72   | 64   | 59   | 49   | 57                   | 74                |
| <b>30.2</b> | 57                                   | 70  | 70  | 73  | 70   | 68   | 68   | 60   | 58                   | 76                |
| <b>35.2</b> | 58                                   | 70  | 70  | 73  | 73   | 69   | 68   | 60   | 59                   | 77                |
| <b>40.2</b> | 59                                   | 71  | 71  | 74  | 74   | 70   | 69   | 61   | 60                   | 78                |
| <b>45.2</b> | 57                                   | 67  | 69  | 75  | 73   | 72   | 67   | 61   | 62                   | 79                |
| <b>50.2</b> | 58                                   | 67  | 69  | 76  | 74   | 73   | 67   | 61   | 62                   | 80                |
| <b>55.2</b> | 58                                   | 67  | 70  | 76  | 74   | 73   | 67   | 61   | 62                   | 80                |

Sound levels refer to units with nominal conditions.

The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field.

Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2).

Data referred to the following conditions in Heating:

- internal exchanger water = 30/35° C

- ambient temperature 7/6° C

Data referred to the following conditions in cooling:

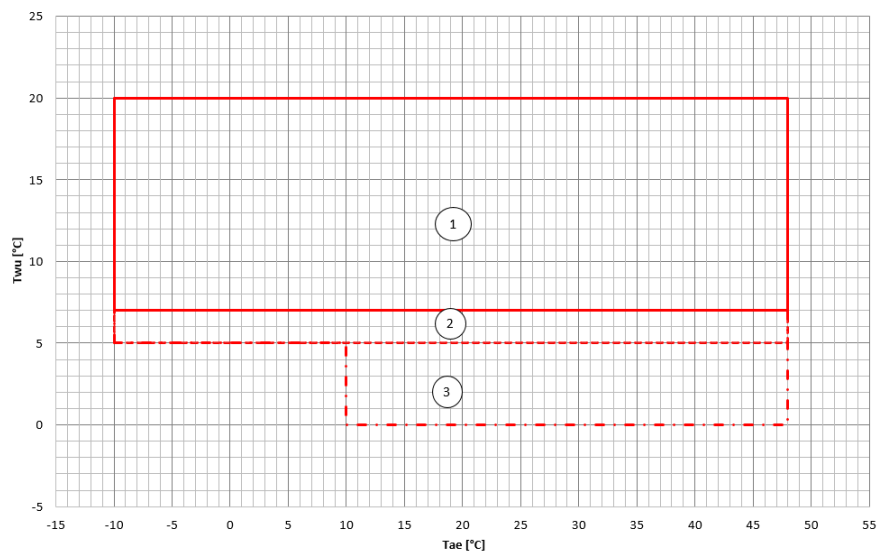
- internal exchanger water = 12/7° C

- ambient temperature 35° C

# General technical data

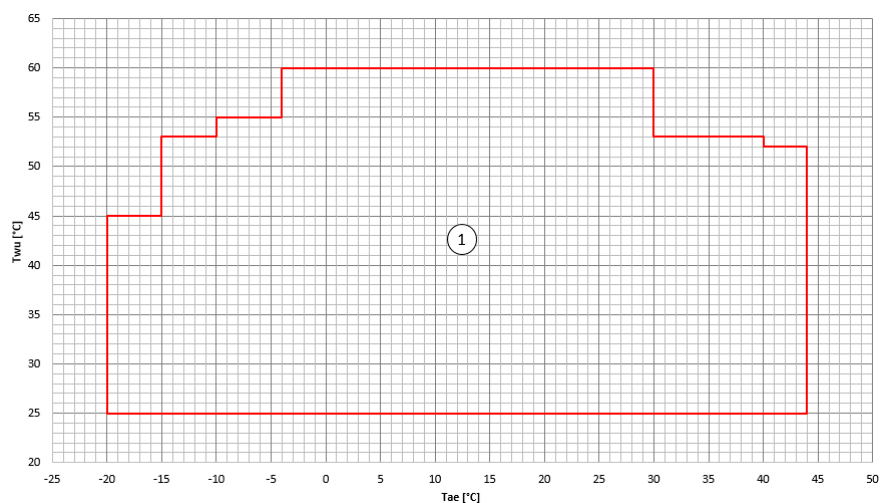
## Operating range - Excellence

### Cooling



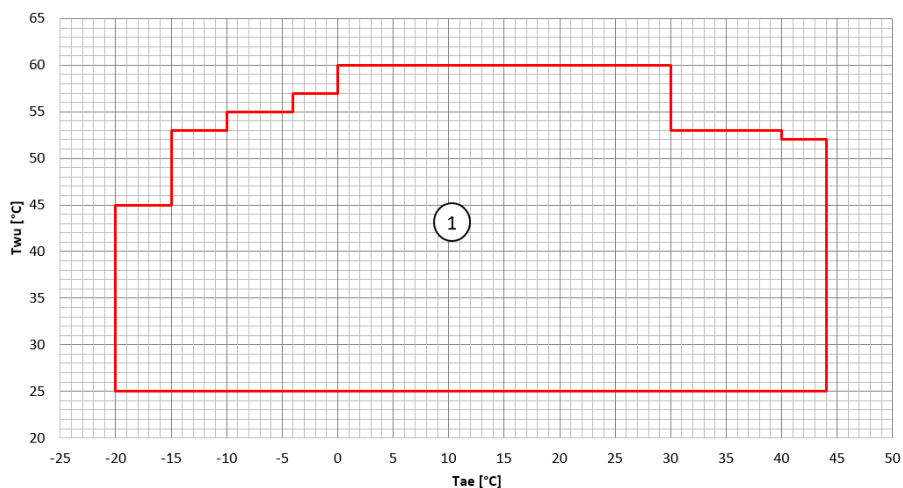
Twu [°C] = Leaving exchanger water temperature  
Tae [°C] = External exchanger inlet air temperature  
1. Normal operating range  
2. Low water temperature operating range in which the use of only water as the operating fluid is allowed.  
3. Low water temperature operating range where the use of ethylene or propylene glycol is mandatory, depending on the temperature of the leaving fluid from the user side exchanger to prevent ice formation.

### Heating / DHW production size 10.1 ÷ 35.2 EXC



Twu [°C] = Leaving exchanger water temperature  
Tae [°C] = External exchanger inlet air temperature  
1. Normal operating range.

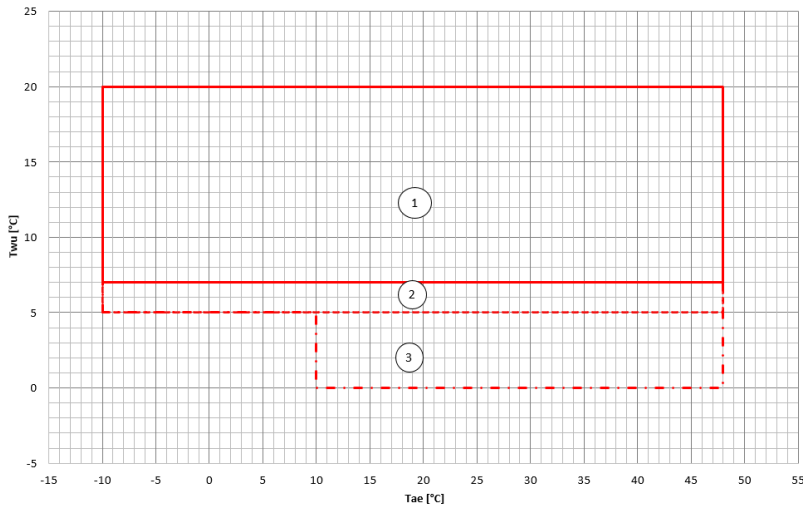
### Heating / DHW production size 43.2 ÷ 45.2 EXC



Twu [°C] = Leaving exchanger water temperature  
Tae [°C] = External exchanger inlet air temperature  
1. Normal operating range

## Operating range - Premium

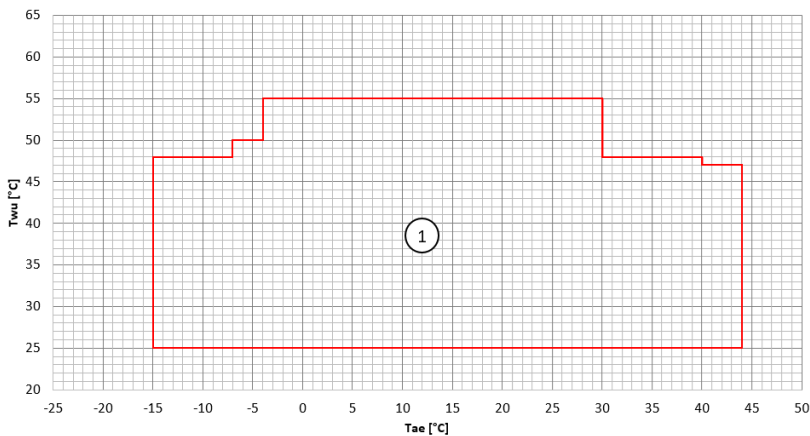
### Cooling size 10.2 ÷ 55.2



Twu [°C] = Leaving exchanger water temperature  
Tae [°C] = External exchanger inlet air temperature

1. Normal operating range
2. Low water temperature operating range in which the use of only water as the operating fluid is allowed.
3. Low water temperature operating range where the use of ethylene or propylene glycol is mandatory, depending on the temperature of the leaving fluid from the user side exchanger to prevent ice formation.

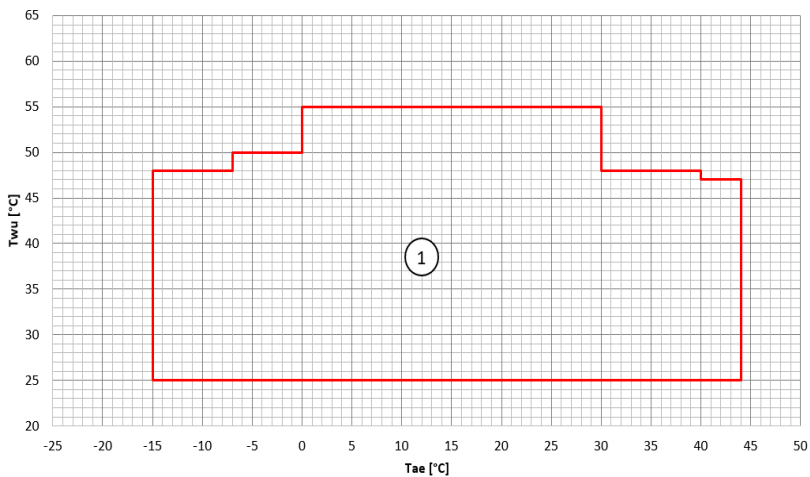
### Heating / DHW production size 10.1-40.2 PRM



Twu [°C] = Leaving exchanger water temperature  
Tae [°C] = External exchanger inlet air temperature

1. Normal operating range

### Heating / DHW production size 45.2-55.2 PRM



Twu [°C] = Leaving exchanger water temperature  
Tae [°C] = External exchanger inlet air temperature

1. Normal operating range.

# General technical data

## Correction factors for ethylene glycol use - Heating

| % ethylene glycol by weight                 |    | 0% | 10%   | 20%   | 30%   | 40%   | 50%   |
|---------------------------------------------|----|----|-------|-------|-------|-------|-------|
| Freezing point                              | °C | 0  | -4    | -9    | -16   | -23   | -37   |
| Correction factor for unit heating capacity | °C | 1  | 0,997 | 0,993 | 0,990 | 0,986 | 0,983 |
| Correction factor for flow rate             | Nr | 1  | 1,032 | 1,068 | 1,107 | 1,151 | 1,199 |
| Correction factor for system pressure drop  | Nr | 1  | 1,032 | 1,072 | 1,122 | 1,180 | 1,248 |

The correction factors shown refer to water and glycol ethylene mixes used to prevent the formation of frost on the exchangers in the water circuit during inactivity in winter.

## Correction factors for propylene glycol use - Heating

| % propylene glycol by weight                |    | 0% | 10%   | 20%   | 30%   | 40%   | 50%   |
|---------------------------------------------|----|----|-------|-------|-------|-------|-------|
| Freezing point                              | °C | 0  | -3    | -7    | -12   | -20   | -33   |
| Correction factor for unit heating capacity | °C | 1  | 0,992 | 0,982 | 0,971 | 0,959 | 0,945 |
| Correction factor for flow rate             | Nr | 1  | 1,035 | 1,068 | 1,107 | 1,151 | 1,207 |
| Correction factor for system pressure drop  | Nr | 1  | 1,098 | 1,213 | 1,347 | 1,499 | 1,669 |

I fattori di correzione riportati si riferiscono a miscele di acqua e glicole etilenico utilizzate per prevenire la formazione di ghiaccio negli scambiatori collegati al circuito idraulico durante la fermata invernale.

## Correction factors for ethylene glycol use - Cooling

| % ethylene glycol by weight                 |    | 0% | 10%   | 20%   | 30%   | 40%   | 50%   |
|---------------------------------------------|----|----|-------|-------|-------|-------|-------|
| Freezing point                              | °C | 0  | -4    | -9    | -16   | -23   | -37   |
| Correction factor for unit cooling capacity | °C | 1  | 0,994 | 0,986 | 0,976 | 0,964 | 0,950 |
| Correction factor for flow rate             | Nr | 1  | 1,036 | 1,076 | 1,120 | 1,170 | 1,225 |
| Correction factor for system pressure drop  | Nr | 1  | 1,035 | 1,080 | 1,135 | 1,200 | 1,275 |

The correction factors shown refer to water and glycol ethylene mixes used to prevent the formation of frost on the exchangers in the water circuit during cold water production.

## Correction factors for propylene glycol use - Cooling

| % propylene glycol by weight                |    | 0% | 10%   | 20%   | 30%   | 40%   | 50%   |
|---------------------------------------------|----|----|-------|-------|-------|-------|-------|
| Freezing point                              | °C | 0  | -3    | -7    | -12   | -20   | -33   |
| Correction factor for unit cooling capacity | °C | 1  | 0,990 | 0,976 | 0,960 | 0,939 | 0,916 |
| Correction factor for flow rate             | Nr | 1  | 1,038 | 1,076 | 1,120 | 1,170 | 1,231 |
| Correction factor for system pressure drop  | Nr | 1  | 1,058 | 1,133 | 1,224 | 1,332 | 1,457 |

The correction factors shown refer to water and glycol ethylene mixes used to prevent the formation of frost on the exchangers in the water circuit during cold water production.

## Fouling Correction Factors

### INTERNAL EXCHANGER (EVAPORATOR)

| M2C/W        | F1   | FK1  |
|--------------|------|------|
| 0,44x10 (-4) | 1    | 1    |
| 0,88x10 (-4) | 0,96 | 0,99 |
| 1,76x10 (-4) | 0,93 | 0,98 |

The cooling performance values provided in the tables are based on the external exchanger having clean plates (fouling factor 1). For different fouling factor values, multiply the performance by the coefficients shown in the table.

F1 = Cooling capacity correction factors

FK1 = Compressor power input correction factor

## Exchanger operating range

### INTERNAL EXCHANGER

|                 |          | DPR  | DPW  |
|-----------------|----------|------|------|
|                 |          |      |      |
| Plate exchanger | PED (CE) | 4500 | 1000 |

DPr = Maximum operating pressure on refrigerant side in kPa

DPw = Maximum operating pressure on water side in kPa

## Overload and control device calibrations

|                                                            |     | OPEN | CLOSE | VALUE<br>(10.1 - 22.2) | VALUE<br>(30.2 - 40.2) | VALUE<br>(43.2 - 55.2) |
|------------------------------------------------------------|-----|------|-------|------------------------|------------------------|------------------------|
| <b>Refrigerant side</b>                                    |     |      |       |                        |                        |                        |
| High pressure safety pressure switch (1)                   | bar | 42   | 33    | -                      | -                      | -                      |
| Low pressure safety pressure switch (1)                    | kPa | 140  | 300   | -                      | -                      | -                      |
| Gas-liquid separator safety valve                          | bar | -    | -     | 34                     | 30                     | 34                     |
| Safety thermostat against compressor drain overheating (1) | °C  | 75   | 115   | -                      | -                      | -                      |
| <b>Water side</b>                                          |     |      |       |                        |                        |                        |
| Antifreeze protection (1)                                  | °C  | 7    | 4     | -                      | -                      | -                      |
| High pressure safety valve                                 | bar | -    | -     | 6                      | 6                      | 6                      |

(1): valid for the entire series

# General technical data

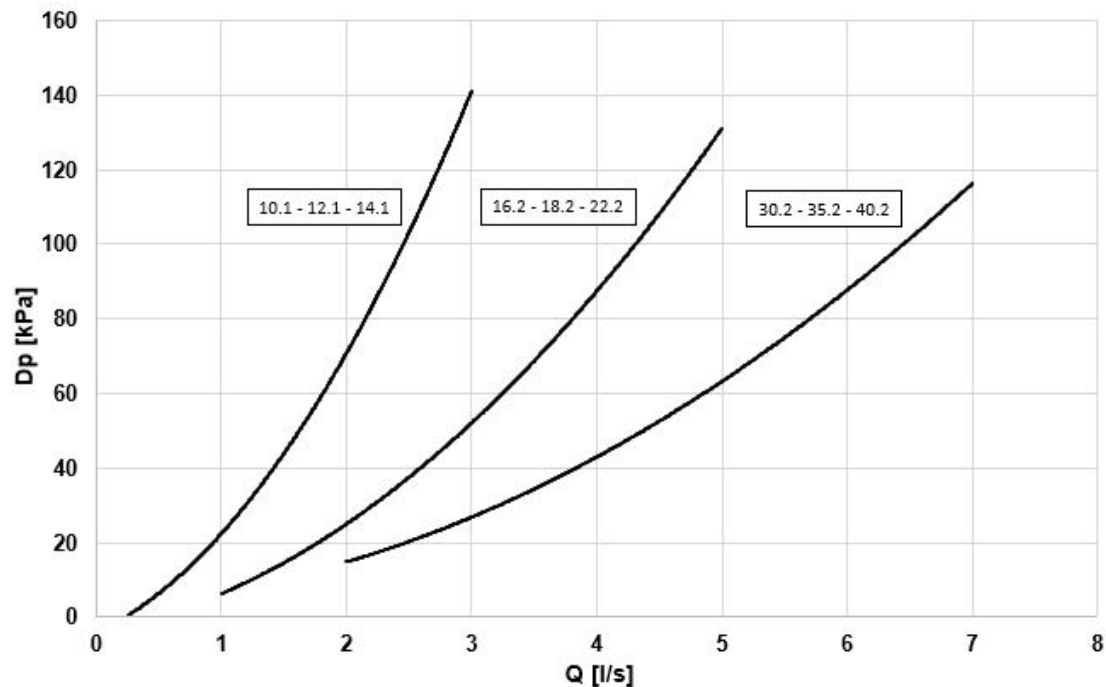
## Plate exchanger pressure drops

For the sizes 10.1, 12.1 and 14.1 the water connections are Victaulic type by 1 1/2".

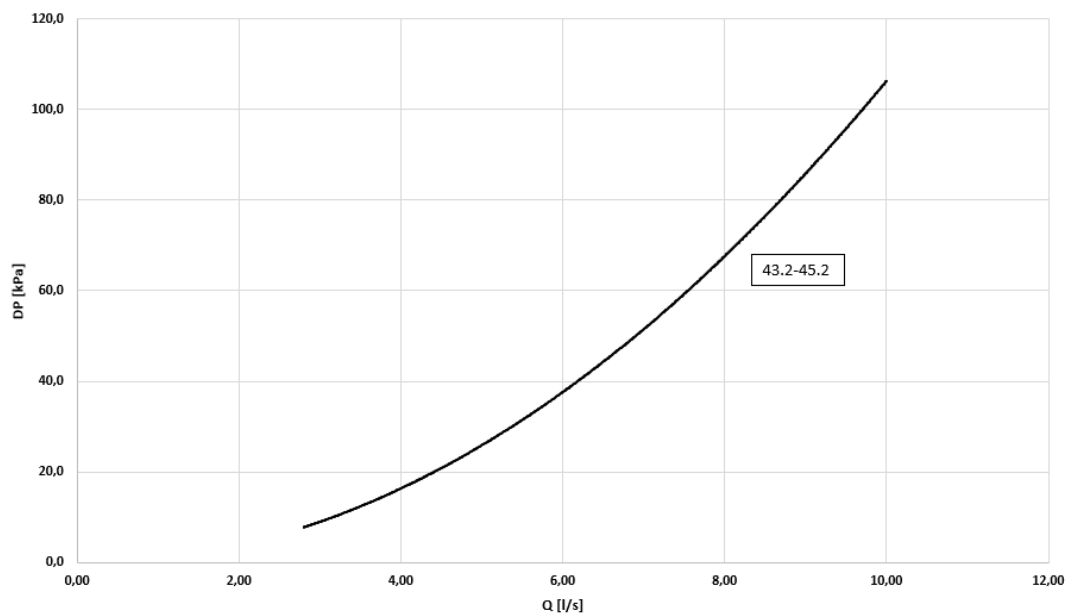
For the sizes 16.2, 18.2, 22.2, 30.2, 35.2 and 40.2 the water connections are 2" Victaulic.

For the sizes EXC 43.2-45.2 and PRM 45.2-55.2 the water connections are 2 1/2" Victaulic.

### Internal exchanger pressure drop curves - Size 10.1 ÷ 40.2



### Internal exchanger pressure drop curves - Size 43.2 ÷ 45.2 EXC



The pressure drops on the water side are calculated by considering an average water temperature at 7°C.

Q = Water flow rate [l/s]

DP = Pressure drops [kPa]

The water flow rate must be calculated with the following formula:

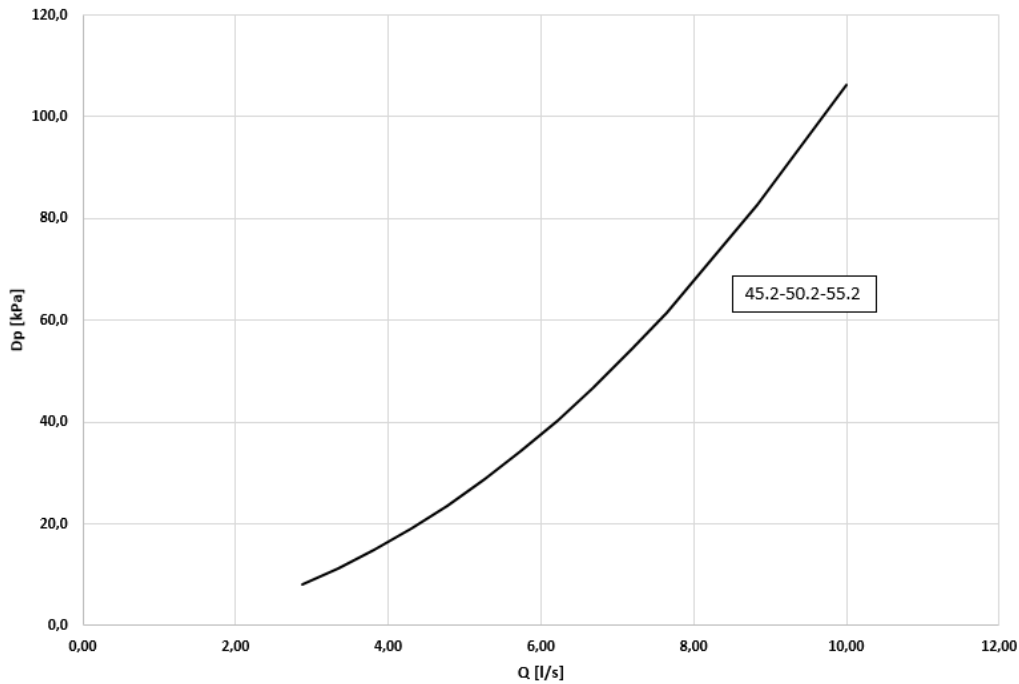
$Q [l/s] = kWf / (4,186 \times DT)$

kWf = Cooling capacity in kW

DT = Temperature difference between entering / leaving water

⚠ To the internal exchanger pressure drops must be added the pressure drops of the steel mesh mechanical filter that must be placed on the water input line. It is a device compulsory for the correct unit operation, and it is provided by Clivet

## Internal exchanger pressure drop curves - Size 45.2 ÷ 55.2 PRM



The pressure drops on the water side are calculated by considering an average water temperature at 7°C.

Q = Water flow rate [l/s]

DP = Pressure drops [kPa]

The water flow rate must be calculated with the following formula:

$Q [l/s] = kWf / (4,186 \times DT)$

kWf = Cooling capacity in kW

DT = Temperature difference between entering / leaving water

⚠ To the internal exchanger pressure drops must be added the pressure drops of the steel mesh mechanical filter that must be placed on the water input line. It is a device compulsory for the correct unit operation, and it is provided by Clivet

## Admissible water flow rates

Min. (Qmin) and max. (Qmax) water flow-rates admissibles for the correct unit operation.

| SIZE |     | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 | 30.2 | 35.2 | 40.2 | 43.2 | 45.2 | 50.2 | 55.2 |
|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Qmin | l/s | 0,9  | 0,9  | 0,9  | 1,8  | 1,8  | 1,8  | 2,9  | 2,9  | 2,9  | 2,4  | 2,4  | 2,4  | 2,4  |
| Qmax | l/s | 2,6  | 2,6  | 2,6  | 5,0  | 5,0  | 5,0  | 6,4  | 6,4  | 6,4  | 10,0 | 10,0 | 10,0 | 10,0 |

# Configurations

## D - Partial energy recovery (only for size 43.2-45.2 EXC / 45.2-55.2 PRM)

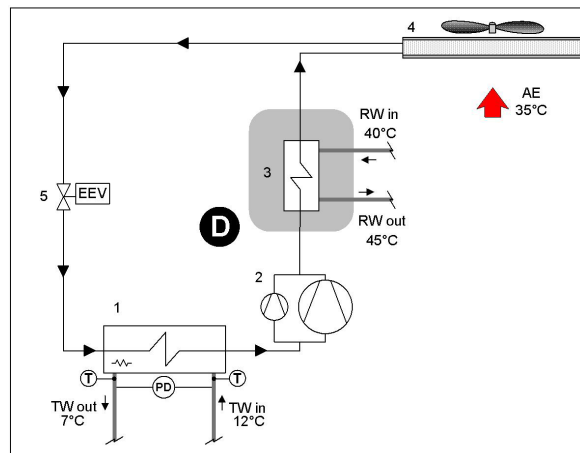
A configuration which enables the production of hot water free-of-charge while operating in the cooling mode, thanks to the partial recovery of condensation heat that would otherwise be disposed of into the external heat source.

This option is also known as “desuperheater”. It is made up of a Inox 316 stainless steel brazed plate heat exchangers, suitable for recovering a part of the capacity dispersed by the unit (the dispersed heating capacity is equal to the sum of the cooling capacity and the electrical input capacity of the compressors).

The partial recovery device is considered to be operating when it is powered by the water flow which is to be heated. This condition improves the unit performance, since it reduces the condensation temperature.

When the temperature of water to be heated is particularly low, it is necessary to control the flow-rate to maintain the outlet temperature at recovery above 35°C and prevent condensation of the refrigerant in the partial energy recovery device.

The water connections of the partial energy recovery device are 1” 1/2 for all sizes.

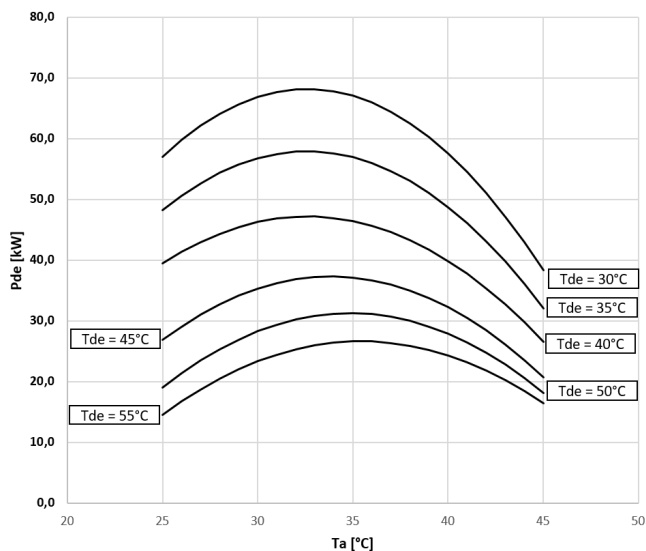


### D - Partial recovery device

- 1 - Internal exchanger
- 2 - Compressors
- 3 - Recovery exchanger
- 4 - External exchanger
- 5 - Electronic expansion valve

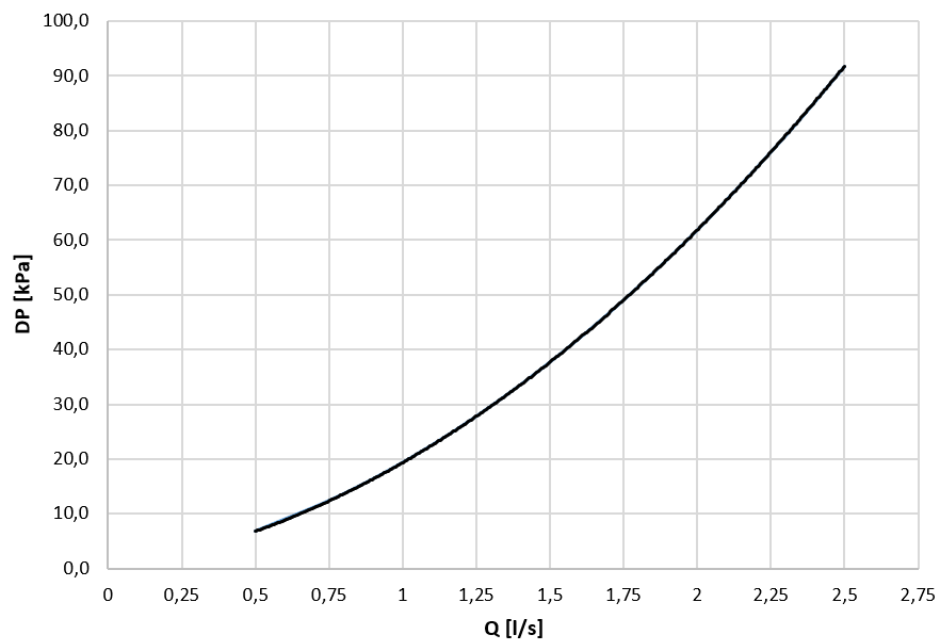
TW in chilled water inlet  
 TW out chilled water outlet  
 RW in - Ingresso acqua recupero  
 RW out - Uscita acqua recupero  
 T - Temperature probe  
 PD - Differential pressure switch  
 AE Aria esterna

## Partial recovery heating capacity ( $\Delta T_w = 10K$ )



Pde = Heat recovered / Condenser heating capacity [kW]  
 Tde = Desuperheater water outlet temperature [°C]

Partial energy recovery exchanger pressure drops



Q = Water flow-rate[l/s]  
DP = Water side pressure drops [kPa]

Admissible water flow-rates

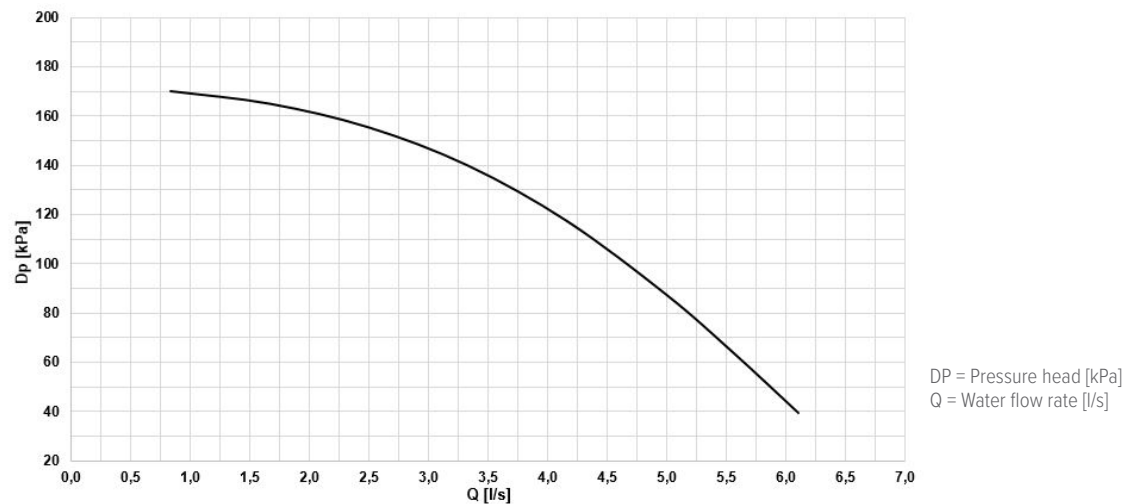
Minimum (Qmin) and maximum (Qmax) admissible water flow rates for correct operation of the unit.

| SIZE |       | 45.2 | 50.2 | 55.2 |
|------|-------|------|------|------|
| Qmin | [l/s] | 0,5  | 0,5  | 0,5  |
| Qmax | [l/s] | 2,5  | 2,5  | 2,5  |

## Unit with 1 ON/OFF pump (HYGU1)

Configuration with 1 centrifugal electric pump, with cast iron body and PA6-GF30 composite impeller. The electric pump is equipped with three-phase electric motor with IP55-protection and complete with thermoformed insulated casing (only for size 16.2-40.2).  
For the sizes 10.1, 12.1 and 14.1 the water connections are Victaulic type by 1 1/2".  
For the sizes 16.2, 18.2, 22.2, 30.2, 35.2 e 40.2 water fittings are Victaulic type by 2".  
For the sizes EXC 43.2-45.2 and PRM 45.2-55.2 water fittings are Victaulic type by 2 1/2"

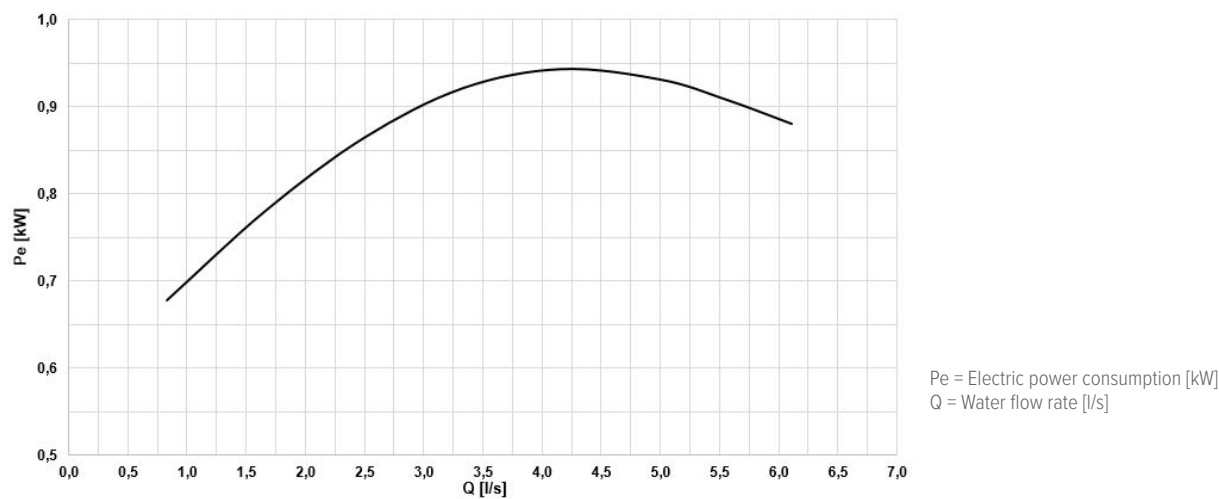
### Head - Size 10.2 - 22.2



⚠ Caution: to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory –Steel mesh filter on the water side (where applicable)

### Power input - Size 10.2 - 22.2

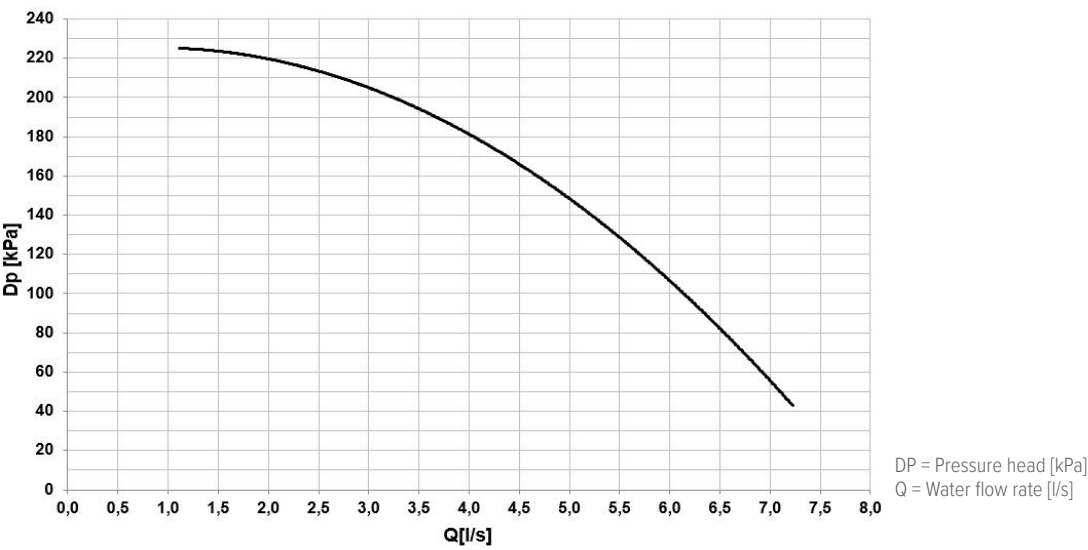


### Electrical data

| SIZE   |    | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 |
|--------|----|------|------|------|------|------|------|
| F.L.A. | A  | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 | 1,90 |
| F.L.I. | kW | 0,75 | 0,75 | 0,75 | 0,75 | 0,75 | 0,75 |

Unit with 1 ON/OFF pump (HYGU1)

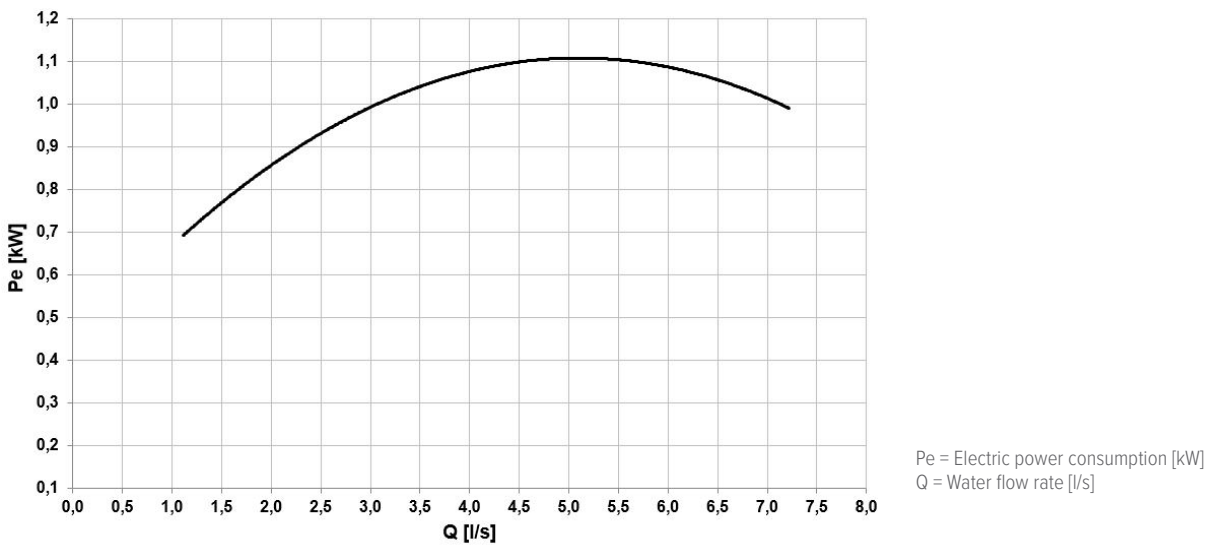
Head - Size 30.2 - 35.2 - 40.2



⚠ Caution: to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory –Steel mesh filter on the water side (where applicable)

Power input - Size 30.2 - 35.2 - 40.2

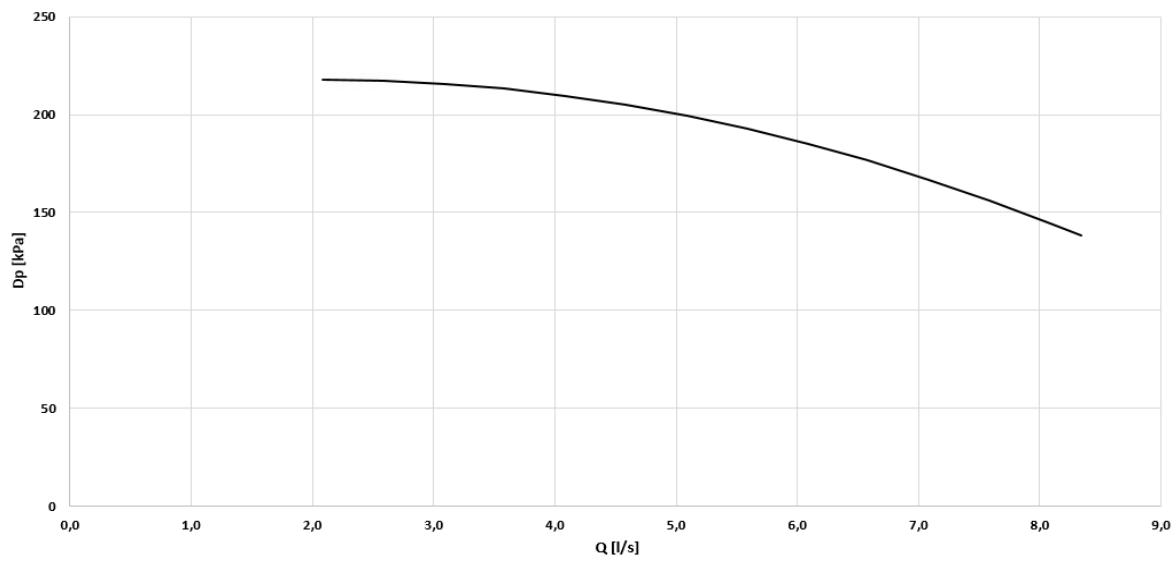


Electrical data

| SIZE   |    | 30.2 | 35.2 | 40.2 |
|--------|----|------|------|------|
| F.L.A. | A  | 2,5  | 2,5  | 2,5  |
| F.L.I. | kW | 1,1  | 1,1  | 1,1  |

## Unit with 1 ON/OFF pump (HYGU1)

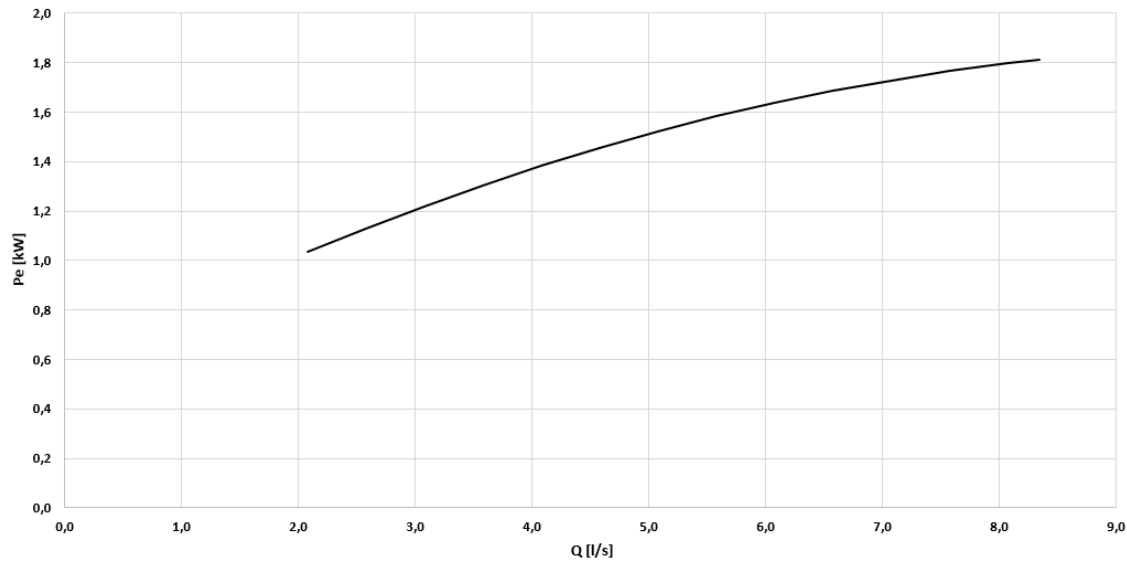
Head - Size EXC 43.2-45.2 / PRM 45.2-55.2



**⚠ Caution:** to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory –Steel mesh filter on the water side (where applicable)

Power input - Size EXC 43.2-45.2 / PRM 45.2-55.2



### Electrical data

| SIZE   |    | 43.2 | 45.2 | 55.2 |
|--------|----|------|------|------|
| F.L.A. | A  | 4,27 | 4,27 | 4,27 |
| F.L.I. | kW | 1,85 | 1,85 | 1,85 |

## Unit with 1 inverter pump (HYGU1VI) (Only for size 10.1 ÷ 40.2)

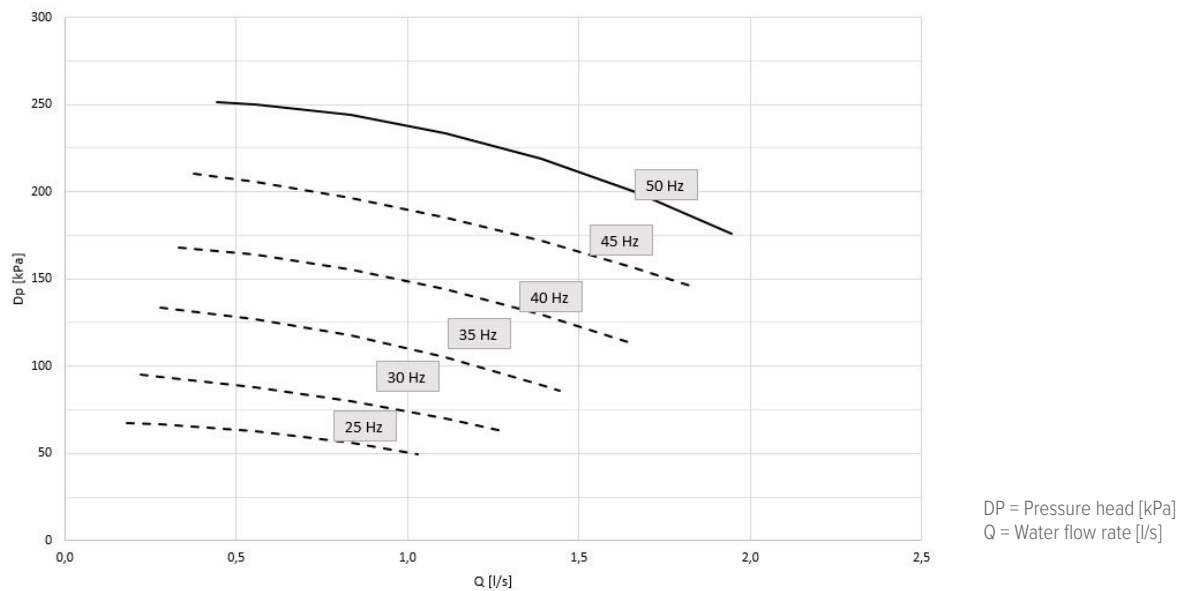
This configuration provides for one inverter-controlled electric centrifugal pump with body and impeller in AISI 304 steel and components listed in the key of the included water diagram. The electric pump is equipped with three-phase electric motor with IP55-protection and complete with thermoformed insulated casing.

During the installation phase it is possible to choose the most suitable head curve for system requirements by setting the inverter frequency. The pump will always work at fixed flow.

In case of maximum frequency derating the pump will work at fixed flowrate. Otherwise if not limited, the pump will modulate the flow according to the unit logic basing on thermal head.

Water connections are 1 1/2" Victaulic on size 10.1 ÷ 14.1 and 2" Victaulic on size 16.2-40.2.

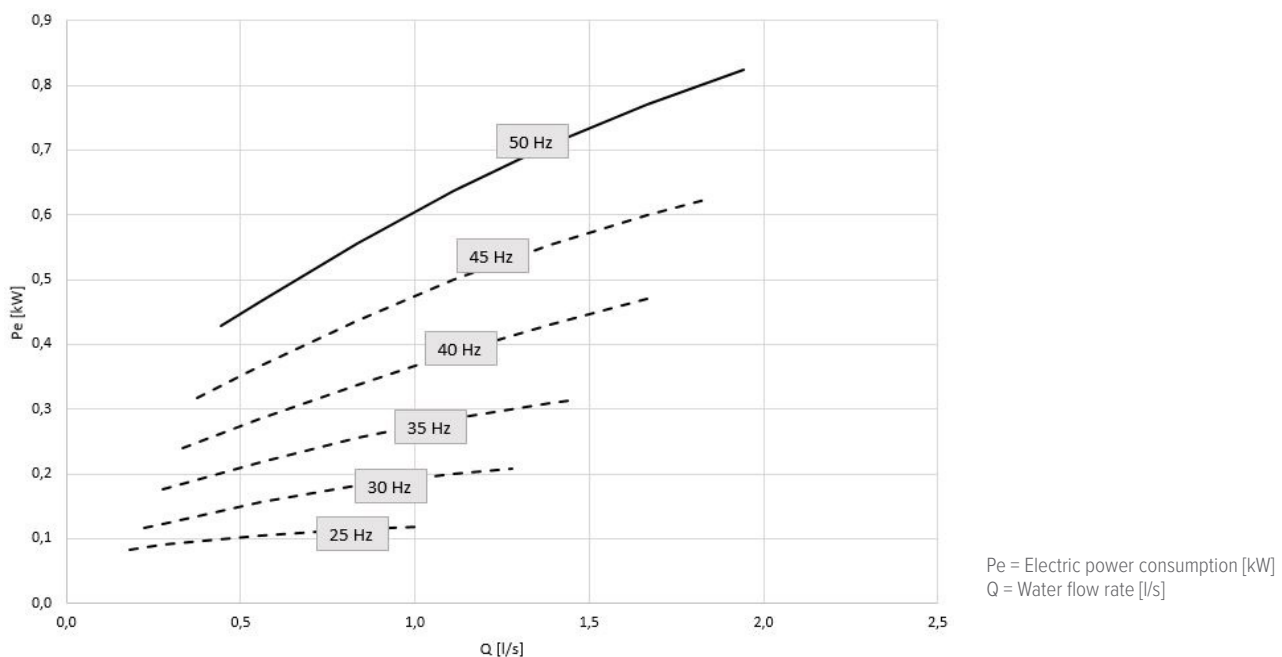
### Head - Size 10.1 - 12.1 - 14.1



⚠ Caution: to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory – Steel mesh filter on the water side (where applicable)

### Power input - Size 10.1 - 12.1 - 14.1

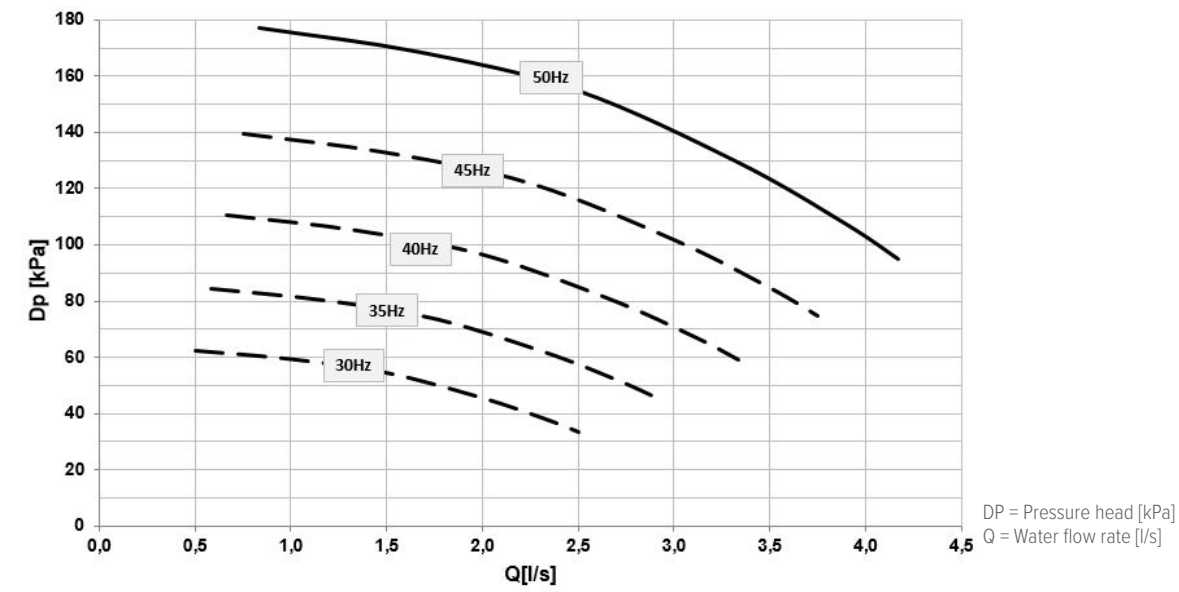


### Electrical data

| SIZE   |    | 10.1 | 12.1 | 14.1 |
|--------|----|------|------|------|
| F.L.A. | A  | 2,2  | 2,2  | 2,2  |
| F.L.I. | kW | 1,1  | 1,1  | 1,1  |

Unit with 1 inverter pump (HYGU1VI) (Only for size 10.1 ÷ 40.2)

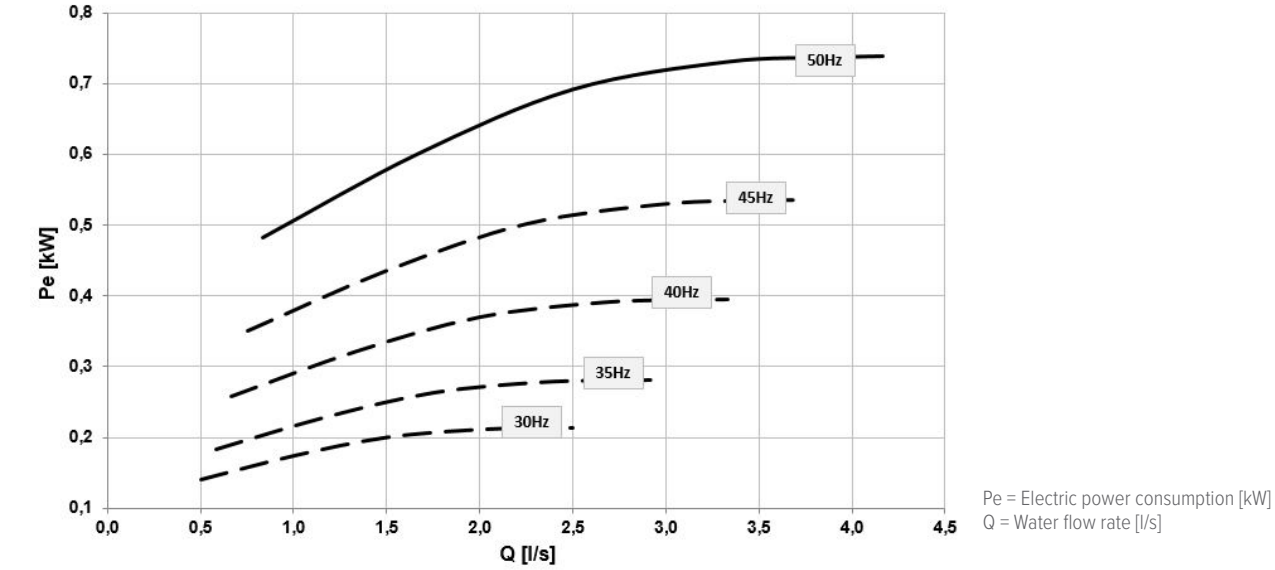
Head - Size 16.2 - 18.2 - 22.2



⚠ Caution: to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory –Steel mesh filter on the water side (where applicable)

Power input - Size 16.2 - 18.2 - 22.2

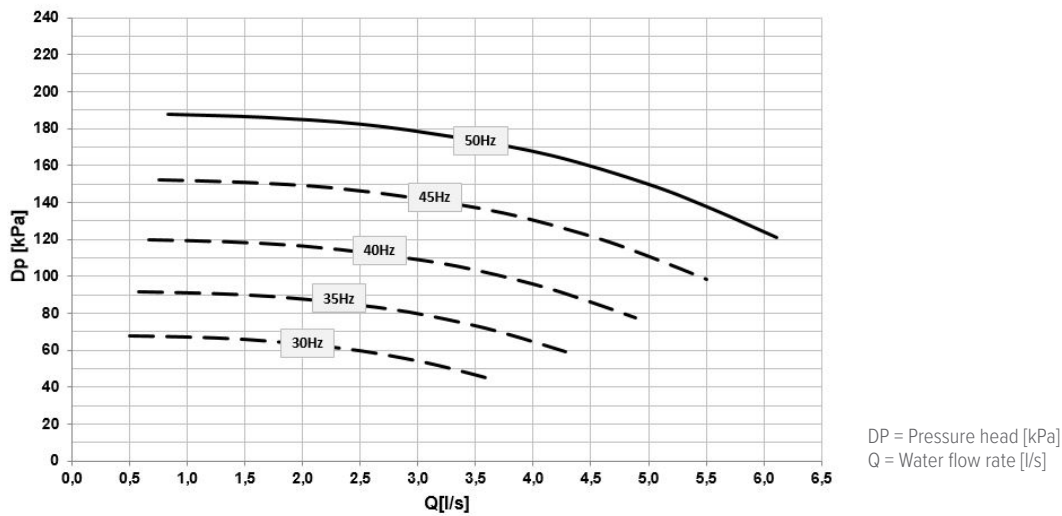


Electrical data

| SIZE   |    | 16.2 | 18.2 | 22.2 |
|--------|----|------|------|------|
| F.L.A. | A  | 4,6  | 4,6  | 4,6  |
| F.L.I. | kW | 2,2  | 2,2  | 2,2  |

## Unit with 1 inverter pump (HYGU1VI) (Only for size 10.1 ÷ 40.2)

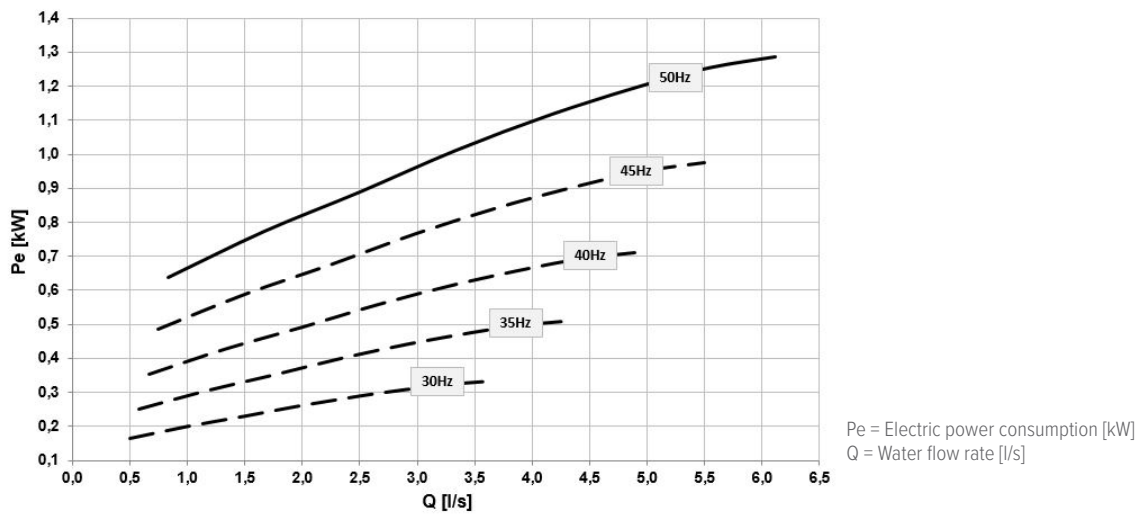
Head - Size 30.2 - 35.2 - 40.2



⚠ Caution: to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory –Steel mesh filter on the water side (where applicable)

Power input - Size 30.2 - 35.2 - 40.2



## Electrical data

| SIZE   |    | 30.2 | 35.2 | 40.2 |
|--------|----|------|------|------|
| F.L.A. | A  | 4,6  | 4,6  | 4,6  |
| F.L.I. | kW | 2,2  | 2,2  | 2,2  |

# Hydronic group

## Unit with 1 inverter pump (HYGU1V) (Only for size 43.2 ÷ 55.2)

This configuration provides for one inverter-controlled electric centrifugal pump with cast iron body and PA6-GF30 composite impeller and components listed in the key of the included water diagram. The electric pump is equipped with three-phase electric motor with IP55-protection.

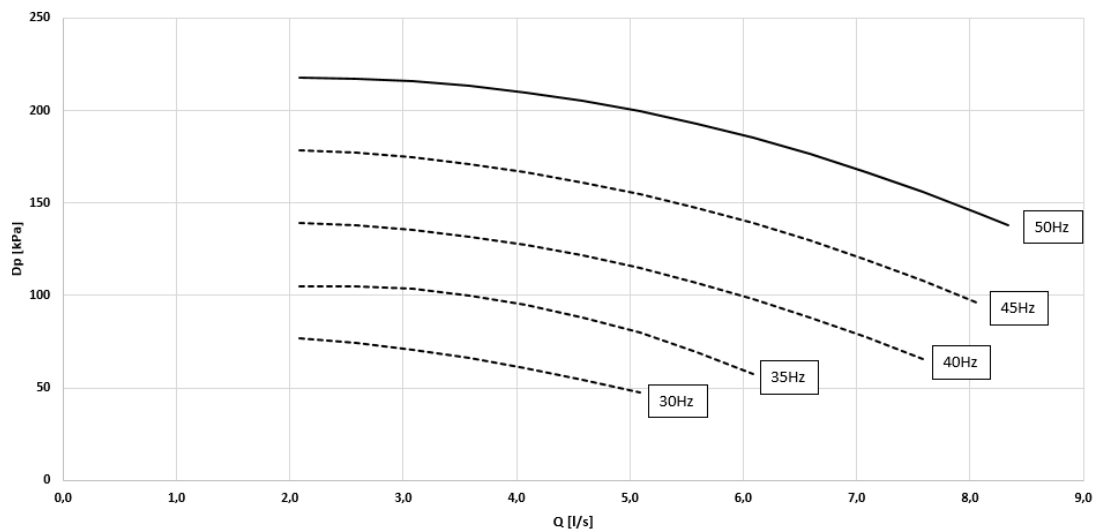
During the installation phase it is possible to choose the most suitable head curve for system requirements by setting the inverter frequency.

The pump will always work at fixed flow.

In case of maximum frequency derating the pump will work at fixed flowrate. Otherwise if not limited, the pump will modulate the flow according to the unit logic basing on thermal head.

Water fittings are Victaulic type by 2 1/2".

### Head - Size EXC 43.2-45.2 / PRM 45.2-55.2

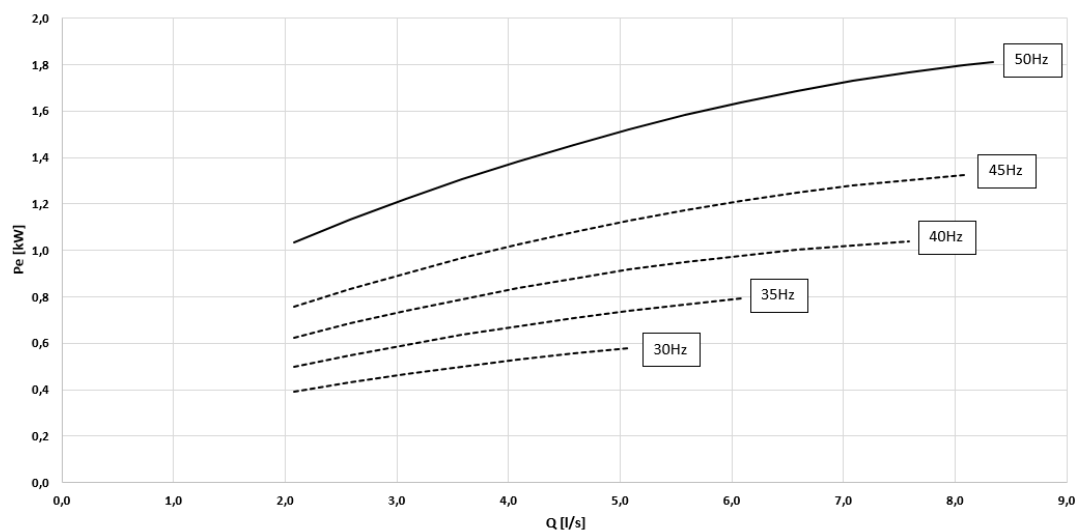


DP = Pressure head [kPa]  
Q = Water flow rate [l/s]

⚠ Caution: to obtain the available pressure values, you need to subtract the following from the head values represented in these diagrams:

- User side exchanger pressure drops
- IFVX accessory –Steel mesh filter on the water side (where applicable)

### Power input - Size EXC 43.2-45.2 / PRM 45.2-55.2



Pe = Electric power consumption [kW]  
Q = Water flow rate [l/s]

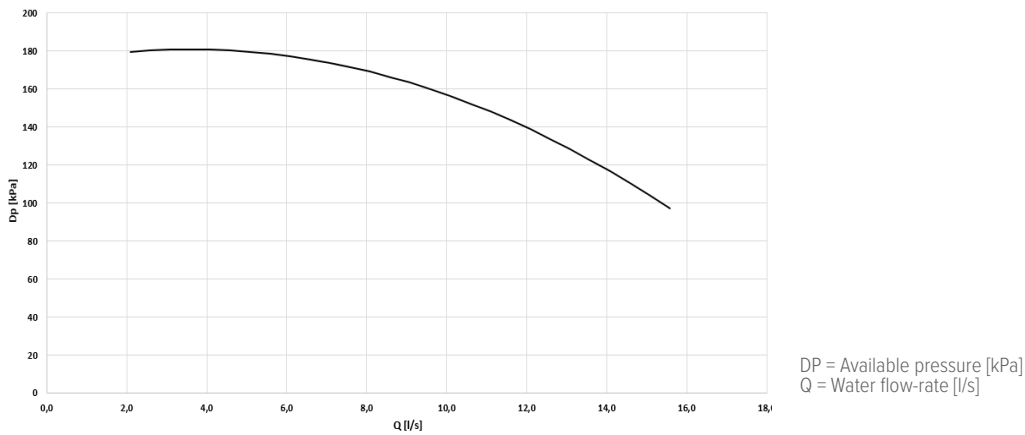
## Electrical data

| SIZE   |    | EXC 43.2 | EXC 45.2 | PRM 45.2 | PRM 50.2 | PRM 55.2 |
|--------|----|----------|----------|----------|----------|----------|
| F.L.A. | A  | 4,27     | 4,27     | 4,27     | 4,27     | 4,27     |
| F.L.I. | kW | 1,85     | 1,85     | 1,85     | 1,85     | 1,85     |

## Hydronic assembly - Unit with 2 ON/OFF pumps (HYGU2) (Only for size 45.2 ÷ 55.2)

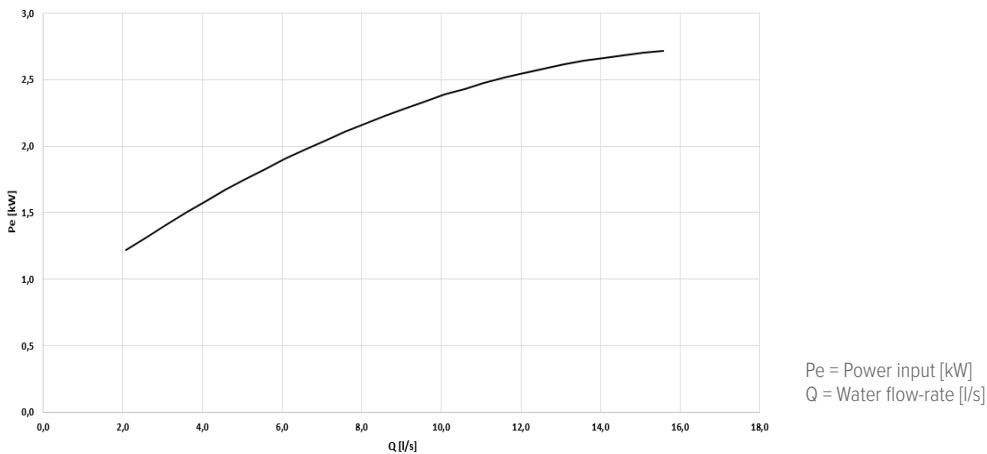
Hydronic unit made of 2 centrifugal electric pumps with cast iron body and PA6-GF30 composite impeller.  
The electric pump is equipped with a three-phase electric motor with IP55 protection.  
The water connection are 2 1/2" Victaulic.

### Head - Size EXC 43.2-45.2 / PRM 45.2-55.2



- ⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:
- User side exchanger pressure drops
  - IFWX - Steel mesh strainer on the water side" accessory (where present).

### Power input - Size EXC 43.2-45.2 / PRM 45.2-55.2



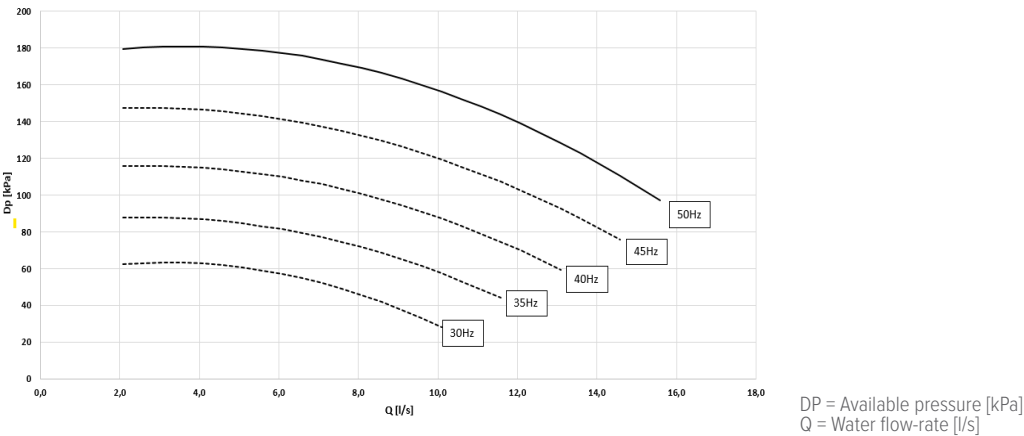
## Electrical data

| SIZE   |    | EXC 43.2 | EXC 45.2 | PRM 45.2 | PRM 50.2 | PRM 55.2 |
|--------|----|----------|----------|----------|----------|----------|
| F.L.A. | A  | 4,27     | 4,27     | 4,27     | 4,27     | 4,27     |
| F.L.I. | kW | 1,85     | 1,85     | 1,85     | 1,85     | 1,85     |

Hydronic assembly - Unit with 2 inverter pumps (HYGU2V) (Only for size 43.2 ÷ 55-2)

Hydronic unit made of 2 centrifugal electric pump, adjusted by way of inverter,with cast iron body and PA6-GF30 composite impeller. The electric pump is equipped with three-phase electric motor with IP55 protection. In case of maximum frequency derating the pump will work at fixed flowrate. Otherwise if not limited, the pump will modulate the flow according to the unit logic basing on thermal head. The option is only available for installations up to maximum temperatures of 40 °C. The water connection are 2 1/2" Victaulic.

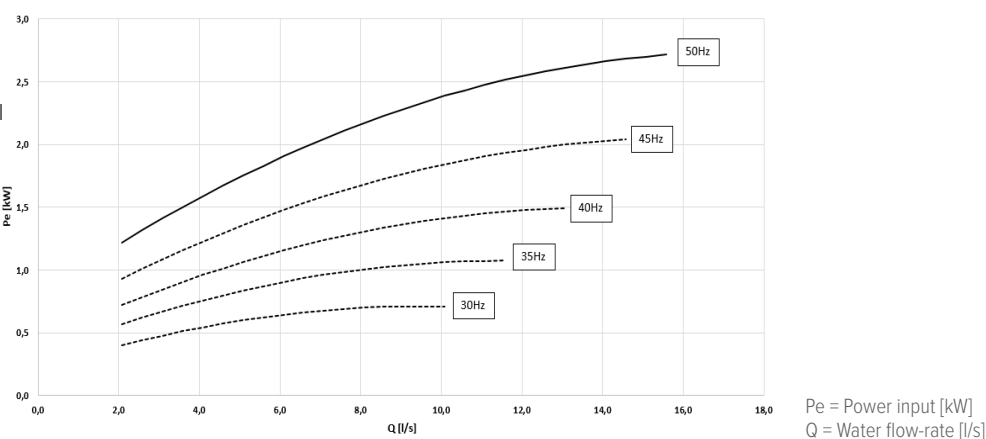
Head - Size EXC 43.2-45.2 / PRM 45.2-55.2



⚠ Caution: in order to obtain useful head values, the head represented in these diagrams must be lowered by:

- User side exchanger pressure drops
- IFWX - Steel mesh strainer on the water side" accessory (where present).

Power input - Size EXC 43.2-45.2 / PRM 45.2-55.2



Electrical data

| SIZE   |    | EXC 43.2 | EXC 45.2 | PRM 45.2 | PRM 50.2 | PRM 55.2 |
|--------|----|----------|----------|----------|----------|----------|
| F.L.A. | A  | 7        | 7        | 7        | 7        | 7        |
| F.L.I. | kW | 3        | 3        | 3        | 3        | 3        |

## Cooling - Size 10.1 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 7  | 15  | 29,1                        | 27,2 | 25,0 | 23,2 | 21,3 | 19,1 | 17,2    | 6,02                        | 6,13 | 6,32 | 6,49 | 6,64 | 6,92 | 7,32    |
|    | 20  | 27,9                        | 26,1 | 24,0 | 22,2 | 20,4 | 18,3 | 16,4    | 5,16                        | 5,26 | 5,41 | 5,56 | 5,70 | 5,89 | 6,24    |
|    | 25  | 26,6                        | 24,9 | 22,9 | 21,2 | 19,5 | 17,4 | 15,6    | 4,43                        | 4,53 | 4,65 | 4,77 | 4,89 | 5,03 | 5,32    |
|    | 30  | 25,4                        | 23,7 | 21,8 | 20,2 | 18,5 | 16,5 | 14,9    | 3,84                        | 3,92 | 4,02 | 4,13 | 4,22 | 4,31 | 4,57    |
|    | 35  | 24,1                        | 22,5 | 20,7 | 19,1 | 17,5 | 15,6 | 14,0    | 3,24                        | 3,39 | 3,46 | 3,54 | 3,62 | 3,66 | 3,87    |
|    | 40  | 22,5                        | 21,1 | 19,3 | 17,8 | 16,3 | 14,7 | 13,2    | 2,83                        | 2,90 | 2,95 | 3,02 | 3,08 | 3,20 | 3,34    |
|    | 44  | -                           | -    | -    | -    | 15,3 | 13,8 | 12,3    | -                           | -    | -    | -    | 2,73 | 2,83 | 2,97    |
| 10 | 15  | 31,9                        | 29,8 | 27,4 | 25,3 | 23,3 | 20,8 | 18,7    | 6,58                        | 6,71 | 6,91 | 7,09 | 7,30 | 7,51 | 7,99    |
|    | 20  | 30,6                        | 28,6 | 26,2 | 24,3 | 22,3 | 19,9 | 17,9    | 5,61                        | 5,74 | 5,88 | 6,05 | 6,23 | 6,38 | 6,80    |
|    | 25  | 29,2                        | 27,3 | 25,1 | 23,2 | 21,3 | 19,0 | 17,1    | 4,80                        | 4,92 | 5,04 | 5,19 | 5,33 | 5,42 | 5,77    |
|    | 30  | 27,9                        | 26,1 | 23,9 | 22,1 | 20,3 | 18,0 | 16,2    | 4,15                        | 4,25 | 4,35 | 4,47 | 4,58 | 4,63 | 4,92    |
|    | 35  | 26,4                        | 24,7 | 22,7 | 20,9 | 19,2 | 17,0 | 15,3    | 3,58                        | 3,67 | 3,74 | 3,84 | 3,92 | 3,93 | 4,16    |
|    | 40  | 24,7                        | 23,1 | 21,2 | 19,5 | 17,9 | 16,1 | 14,4    | 3,06                        | 3,13 | 3,18 | 3,26 | 3,32 | 3,45 | 3,60    |
|    | 44  | -                           | -    | -    | -    | 16,7 | 15,0 | 13,4    | -                           | -    | -    | -    | 2,94 | 3,05 | 3,19    |
| 12 | 15  | 33,7                        | 31,5 | 28,9 | 26,8 | 24,6 | 22,0 | 19,7    | 6,96                        | 7,11 | 7,30 | 7,52 | 7,74 | 7,95 | 8,46    |
|    | 20  | 32,3                        | 30,2 | 27,7 | 25,7 | 23,6 | 21,0 | 18,9    | 5,92                        | 6,06 | 6,20 | 6,40 | 6,59 | 6,73 | 7,18    |
|    | 25  | 30,9                        | 28,9 | 26,5 | 24,5 | 22,5 | 20,0 | 17,7    | 5,06                        | 5,19 | 5,30 | 5,46 | 5,62 | 5,70 | 5,99    |
|    | 30  | 29,5                        | 27,6 | 25,3 | 23,4 | 21,5 | 19,0 | 17,1    | 4,36                        | 4,48 | 4,56 | 4,69 | 4,82 | 4,86 | 5,17    |
|    | 35  | 27,0                        | 26,2 | 24,0 | 22,1 | 20,3 | 17,9 | 16,4    | 3,62                        | 3,85 | 3,92 | 4,03 | 4,12 | 4,12 | 4,46    |
|    | 40  | 26,2                        | 24,5 | 22,4 | 20,7 | 18,9 | 17,0 | 15,2    | 3,21                        | 3,29 | 3,34 | 3,42 | 3,48 | 3,62 | 3,78    |
|    | 44  | -                           | -    | -    | -    | 17,7 | 15,9 | 14,1    | -                           | -    | -    | -    | 3,08 | 3,19 | 3,34    |
| 15 | 15  | 37,6                        | 35,1 | 32,6 | 29,2 | 27,4 | 24,4 | 21,8    | 7,11                        | 7,31 | 7,48 | 7,78 | 7,98 | 8,09 | 8,71    |
|    | 20  | 35,9                        | 33,5 | 31,2 | 27,9 | 26,1 | 23,2 | 20,7    | 5,99                        | 6,16 | 6,32 | 6,54 | 6,71 | 6,76 | 7,28    |
|    | 25  | 34,2                        | 31,9 | 29,7 | 26,5 | 24,8 | 22,0 | 19,6    | 5,11                        | 5,23 | 5,36 | 5,53 | 5,67 | 5,68 | 6,09    |
|    | 30  | 32,4                        | 30,3 | 28,2 | 25,1 | 23,5 | 20,8 | 18,6    | 4,34                        | 4,47 | 4,59 | 4,71 | 4,81 | 4,80 | 5,15    |
|    | 35  | 28,1                        | 26,9 | 25,6 | 23,7 | 22,2 | 19,5 | 18,4    | 3,40                        | 3,59 | 3,76 | 4,00 | 4,08 | 4,05 | 4,57    |
|    | 40  | 27,2                        | 25,9 | 25,0 | 22,2 | 20,8 | 19,2 | 17,6    | 3,00                        | 3,14 | 3,34 | 3,41 | 3,46 | 3,77 | 4,07    |
|    | 44  | -                           | -    | -    | -    | 19,6 | 17,9 | 16,2    | -                           | -    | -    | -    | 3,03 | 3,24 | 3,44    |
| 18 | 15  | 40,8                        | 38,1 | 35,5 | 31,6 | 29,7 | 26,3 | 23,5    | 7,76                        | 8,00 | 8,23 | 8,53 | 8,78 | 8,84 | 9,59    |
|    | 20  | 39,0                        | 36,5 | 33,9 | 30,2 | 28,3 | 25,1 | 22,4    | 6,51                        | 6,71 | 6,90 | 7,14 | 7,33 | 7,35 | 7,97    |
|    | 25  | 37,6                        | 34,8 | 32,3 | 28,7 | 26,9 | 23,8 | 21,1    | 5,72                        | 5,70 | 5,83 | 6,01 | 6,16 | 6,14 | 6,46    |
|    | 30  | 35,3                        | 33,0 | 30,6 | 27,3 | 25,5 | 22,5 | 20,0    | 4,69                        | 4,84 | 4,97 | 5,10 | 5,22 | 5,18 | 5,58    |
|    | 35  | 30,0                        | 29,2 | 28,3 | 26,7 | 23,0 | 21,1 | 19,9    | 4,41                        | 4,49 | 4,56 | 4,65 | 4,60 | 4,54 | 4,98    |
|    | 40  | 29,3                        | 28,3 | 27,2 | 25,1 | 22,5 | 21,4 | 19,8    | 3,20                        | 3,40 | 3,61 | 3,82 | 3,73 | 4,19 | 4,57    |
|    | 44  | -                           | -    | -    | -    | 21,3 | 20,8 | 19,3    | -                           | -    | -    | -    | 3,26 | 3,75 | 4,11    |
| 20 | 15  | 43,1                        | 40,2 | 37,4 | 33,3 | 31,2 | 27,7 | 24,7    | 8,22                        | 8,49 | 8,75 | 9,05 | 9,35 | 9,38 | 10,2    |
|    | 20  | 41,1                        | 38,4 | 35,7 | 31,8 | 29,8 | 26,4 | 23,5    | 6,88                        | 7,09 | 7,32 | 7,56 | 7,78 | 7,77 | 8,46    |
|    | 25  | 39,2                        | 36,7 | 34,0 | 30,3 | 28,3 | 25,2 | 22,4    | 5,83                        | 6,02 | 6,17 | 6,34 | 6,51 | 6,62 | 7,10    |
|    | 30  | 37,2                        | 34,8 | 32,3 | 28,7 | 26,9 | 23,6 | 21,0    | 4,93                        | 5,09 | 5,24 | 5,37 | 5,50 | 5,44 | 5,87    |
|    | 35  | 35,1                        | 32,9 | 30,5 | 27,0 | 25,3 | 22,2 | 19,7    | 4,20                        | 4,33 | 4,45 | 4,54 | 4,65 | 4,57 | 4,91    |
|    | 40  | 33,0                        | 30,9 | 28,7 | 25,4 | 23,7 | 21,0 | 18,6    | 3,60                        | 3,70 | 3,80 | 3,85 | 3,93 | 4,11 | 4,32    |
|    | 44  | -                           | -    | -    | -    | 22,4 | 19,8 | 17,5    | -                           | -    | -    | -    | 3,43 | 3,58 | 3,74    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 10.1 - EXC - SC

| To<br>°C | Tae<br>°C | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----------|-----------|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|          |           | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|          |           | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35       | -20       | 7,51                        | 6,85 | 6,09 | 5,31 | 4,57 | 3,75 | -       | 1,49                        | 1,46 | 1,42 | 1,38 | 1,32 | 1,26 | -       |
|          | -15       | 9,16                        | 8,47 | 7,66 | 6,90 | 6,15 | 5,35 | -       | 1,56                        | 1,52 | 1,47 | 1,43 | 1,38 | 1,35 | -       |
|          | -10       | 15,9                        | 14,8 | 13,5 | 12,3 | 10,7 | 9,41 | 7,31    | 2,88                        | 2,83 | 2,79 | 2,73 | 2,68 | 2,64 | 2,53    |
|          | -7        | 17,5                        | 16,4 | 15,0 | 13,8 | 11,9 | 10,6 | 9,43    | 3,19                        | 3,22 | 3,26 | 3,31 | 3,36 | 3,48 | 3,73    |
|          | 2         | 23,3                        | 21,9 | 20,3 | 18,6 | 16,3 | 14,4 | 12,7    | 4,06                        | 4,10 | 4,15 | 4,21 | 4,42 | 4,56 | 4,70    |
|          | 7         | 26,0                        | 24,7 | 22,8 | 21,0 | 18,3 | 16,2 | 14,5    | 4,55                        | 4,61 | 4,68 | 4,77 | 5,03 | 5,20 | 5,34    |
|          | 10        | 28,0                        | 26,8 | 24,8 | 22,8 | 19,9 | 17,7 | 15,7    | 4,85                        | 4,97 | 5,05 | 5,14 | 5,44 | 5,60 | 5,76    |
|          | 18        | 33,8                        | 31,9 | 29,5 | 27,0 | 23,6 | 20,8 | 18,4    | 5,89                        | 5,99 | 6,10 | 6,20 | 6,55 | 6,74 | 6,91    |
|          | -20       | 7,29                        | 6,67 | 5,96 | 5,23 | 4,50 | 3,68 | -       | 1,35                        | 1,31 | 1,28 | 1,24 | 1,19 | 1,16 | -       |
| 40       | -15       | 8,97                        | 8,31 | 7,54 | 6,80 | 6,07 | 5,23 | -       | 1,43                        | 1,37 | 1,32 | 1,29 | 1,25 | 1,21 | -       |
|          | -10       | 15,6                        | 14,6 | 13,4 | 12,2 | 10,6 | 9,32 | 7,16    | 2,60                        | 2,53 | 2,47 | 2,43 | 2,39 | 2,34 | 2,22    |
|          | -7        | 17,2                        | 16,2 | 14,9 | 13,6 | 11,8 | 10,5 | 9,17    | 2,83                        | 2,85 | 2,89 | 2,94 | 3,05 | 3,13 | 3,55    |
|          | 2         | 23,0                        | 21,6 | 20,0 | 18,3 | 16,0 | 14,2 | 12,6    | 3,62                        | 3,67 | 3,71 | 3,77 | 3,95 | 4,05 | 4,14    |
|          | 7         | 24,6                        | 23,2 | 21,5 | 19,7 | 17,2 | 15,2 | 13,5    | 3,92                        | 3,96 | 4,00 | 4,04 | 4,09 | 4,24 | 4,33    |
|          | 10        | 26,9                        | 25,3 | 23,4 | 21,5 | 18,7 | 16,5 | 14,7    | 4,22                        | 4,27 | 4,33 | 4,39 | 4,45 | 4,55 | 4,64    |
|          | 18        | 33,2                        | 31,3 | 28,9 | 26,5 | 23,1 | 20,2 | 17,8    | 5,16                        | 5,25 | 5,36 | 5,45 | 5,71 | 5,83 | 5,93    |
|          | -20       | 7,13                        | 6,55 | 5,88 | 5,04 | 4,37 | 3,58 | -       | 1,28                        | 1,25 | 1,23 | 1,20 | 1,17 | 1,13 | -       |
|          | -15       | 8,82                        | 8,20 | 7,46 | 6,76 | 5,99 | 5,07 | -       | 1,36                        | 1,33 | 1,29 | 1,24 | 1,21 | 1,16 | -       |
| 45       | -10       | 15,4                        | 14,4 | 13,2 | 12,1 | 10,5 | 9,23 | 7,02    | 2,41                        | 2,39 | 2,35 | 2,29 | 2,27 | 2,22 | 2,15    |
|          | -7        | 17,1                        | 16,0 | 14,7 | 13,4 | 11,7 | 10,4 | 8,93    | 2,61                        | 2,66 | 2,71 | 2,76 | 2,78 | 2,82 | 2,87    |
|          | 2         | 22,7                        | 21,2 | 19,6 | 18,0 | 15,7 | 13,8 | 12,2    | 3,24                        | 3,28 | 3,32 | 3,37 | 3,50 | 3,56 | 3,60    |
|          | 7         | 24,2                        | 22,9 | 21,2 | 19,4 | 17,0 | 14,9 | 13,2    | 3,36                        | 3,43 | 3,48 | 3,59 | 3,67 | 3,74 | 3,77    |
|          | 10        | 26,1                        | 24,9 | 23,0 | 21,1 | 18,4 | 16,2 | 14,3    | 3,72                        | 3,78 | 3,82 | 3,87 | 3,93 | 3,99 | 4,03    |
|          | 18        | 32,6                        | 30,7 | 28,3 | 25,9 | 22,5 | 19,7 | 17,3    | 4,54                        | 4,64 | 4,72 | 4,77 | 4,97 | 5,03 | 5,07    |
|          | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | 8,10 | 7,30 | 6,67 | 5,89 | 4,86 | -       | -                           | 1,26 | 1,22 | 1,18 | 1,14 | 1,11 | -       |
|          | -10       | -                           | 14,3 | 13,1 | 12,0 | 10,4 | 9,08 | 6,82    | -                           | 2,12 | 2,06 | 2,00 | 1,97 | 1,93 | 1,89    |
| 50       | -7        | -                           | 15,8 | 14,6 | 13,3 | 11,5 | 10,2 | 8,73    | -                           | 2,37 | 2,39 | 2,43 | 2,47 | 2,54 | 2,58    |
|          | 2         | 22,1                        | 20,8 | 19,2 | 17,6 | 15,3 | 13,5 | 11,9    | 2,91                        | 2,94 | 2,98 | 3,02 | 3,11 | 3,14 | 3,19    |
|          | 7         | 22,7                        | 21,3 | 19,6 | 18,0 | 15,8 | 13,9 | 12,3    | 3,01                        | 3,04 | 3,09 | 3,14 | 3,23 | 3,27 | 3,29    |
|          | 10        | 25,4                        | 24,1 | 22,2 | 20,4 | 17,8 | 15,6 | 13,7    | 3,26                        | 3,40 | 3,44 | 3,48 | 3,59 | 3,63 | 3,67    |
|          | 18        | 31,8                        | 29,9 | 27,5 | 25,1 | 21,8 | 19,0 | 16,6    | 3,96                        | 4,07 | 4,13 | 4,17 | 4,32 | 4,34 | 4,38    |
|          | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | 11,9 | 10,3 | 8,94 | 6,63    | -                           | -    | -    | 1,96 | 1,91 | 1,85 | 1,81    |
|          | -7        | -                           | -    | 14,4 | 13,1 | 11,3 | 10,0 | 8,55    | -                           | -    | 2,24 | 2,29 | 2,33 | 2,36 | 2,38    |
| 55       | 2         | 21,7                        | 20,4 | 18,8 | 17,2 | 15,0 | 13,2 | 11,6    | 2,62                        | 2,65 | 2,68 | 2,71 | 2,77 | 2,78 | 2,83    |
|          | 7         | 23,0                        | 21,0 | 19,3 | 17,7 | 15,5 | 13,6 | 12,1    | 2,56                        | 2,72 | 2,75 | 2,78 | 2,88 | 2,90 | 2,96    |
|          | 10        | 24,8                        | 23,6 | 21,7 | 19,9 | 17,3 | 15,1 | 13,3    | 2,88                        | 3,03 | 3,06 | 3,09 | 3,18 | 3,23 | 3,29    |
|          | 18        | 30,9                        | 29,0 | 26,7 | 24,3 | 21,1 | 18,3 | 15,9    | 3,45                        | 3,56 | 3,61 | 3,64 | 3,74 | 3,81 | 3,86    |
|          | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -7        | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | 2         | -                           | -    | -    | -    | 14,7 | 12,9 | 11,4    | -                           | -    | -    | -    | 2,47 | 2,52 | 2,55    |
| 60       | 7         | -                           | -    | -    | -    | 15,1 | 13,2 | 11,9    | -                           | -    | -    | -    | 2,48 | 2,53 | 2,57    |
|          | 10        | -                           | -    | -    | -    | 16,9 | 14,7 | 12,8    | -                           | -    | -    | -    | 2,80 | 2,83 | 2,86    |
|          | 18        | -                           | -    | -    | -    | 20,3 | 17,6 | 15,2    | -                           | -    | -    | -    | 3,25 | 3,30 | 3,34    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 12.1 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 32,6                        | 30,2 | 27,9 | 24,8 | 22,9 | 21,1 | 18,9    | 5,57                        | 5,71 | 5,85 | 6,08 | 6,24 | 6,41 | 6,66    |
|    | 20  | 31,2                        | 28,9 | 26,7 | 23,7 | 22,0 | 20,2 | 18,1    | 4,74                        | 4,88 | 5,01 | 5,21 | 5,34 | 5,49 | 5,66    |
|    | 25  | 29,7                        | 27,6 | 25,5 | 22,6 | 21,0 | 19,3 | 17,2    | 4,06                        | 4,19 | 4,31 | 4,48 | 4,58 | 4,71 | 4,83    |
|    | 30  | 28,3                        | 26,3 | 24,3 | 21,6 | 20,0 | 18,3 | 16,3    | 3,51                        | 3,62 | 3,73 | 3,87 | 3,97 | 4,07 | 4,15    |
|    | 35  | 26,7                        | 25,0 | 23,1 | 20,4 | 18,9 | 17,3 | 15,4    | 2,97                        | 3,13 | 3,22 | 3,33 | 3,41 | 3,48 | 3,53    |
|    | 40  | 25,1                        | 23,3 | 21,6 | 19,1 | 17,6 | 16,2 | 14,6    | 2,59                        | 2,68 | 2,76 | 2,84 | 2,90 | 2,96 | 3,14    |
|    | 44  | -                           | -    | -    | -    | 16,6 | 15,1 | 13,7    | -                           | -    | -    | -    | 2,55 | 2,67 | 2,81    |
| 10 | 15  | 35,6                        | 33,1 | 30,5 | 27,1 | 25,1 | 23,1 | 20,6    | 6,05                        | 6,23 | 6,41 | 6,63 | 6,83 | 7,03 | 7,23    |
|    | 20  | 34,1                        | 31,7 | 29,2 | 26,0 | 24,0 | 22,1 | 19,7    | 5,14                        | 5,30 | 5,47 | 5,67 | 5,83 | 6,00 | 6,14    |
|    | 25  | 32,7                        | 30,3 | 28,0 | 24,8 | 22,9 | 21,1 | 18,8    | 4,42                        | 4,54 | 4,69 | 4,85 | 4,99 | 5,13 | 5,21    |
|    | 30  | 31,1                        | 28,9 | 26,7 | 23,6 | 21,9 | 20,1 | 17,8    | 3,79                        | 3,92 | 4,04 | 4,18 | 4,30 | 4,41 | 4,44    |
|    | 35  | 29,4                        | 27,4 | 25,3 | 22,4 | 20,7 | 19,0 | 16,8    | 3,26                        | 3,38 | 3,49 | 3,59 | 3,69 | 3,77 | 3,78    |
|    | 40  | 27,5                        | 25,6 | 23,7 | 20,9 | 19,3 | 17,7 | 15,9    | 2,79                        | 2,89 | 2,98 | 3,06 | 3,13 | 3,20 | 3,40    |
|    | 44  | -                           | -    | -    | -    | 18,2 | 16,6 | 15,0    | -                           | -    | -    | -    | 2,75 | 2,89 | 3,03    |
| 12 | 15  | 37,7                        | 35,0 | 32,3 | 28,6 | 26,5 | 24,4 | 21,7    | 6,37                        | 6,58 | 6,78 | 7,03 | 7,23 | 7,45 | 7,65    |
|    | 20  | 36,1                        | 33,5 | 31,0 | 27,4 | 25,4 | 23,3 | 20,8    | 5,40                        | 5,59 | 5,76 | 5,98 | 6,16 | 6,34 | 6,45    |
|    | 25  | 34,6                        | 32,1 | 29,6 | 26,2 | 24,3 | 22,3 | 19,8    | 4,64                        | 4,77 | 4,93 | 5,10 | 5,25 | 5,41 | 5,47    |
|    | 30  | 32,9                        | 30,6 | 28,3 | 25,0 | 23,1 | 21,2 | 18,8    | 3,97                        | 4,12 | 4,26 | 4,39 | 4,52 | 4,64 | 4,67    |
|    | 35  | 30,2                        | 29,0 | 26,8 | 23,7 | 21,9 | 20,1 | 17,7    | 3,30                        | 3,54 | 3,66 | 3,77 | 3,87 | 3,96 | 3,96    |
|    | 40  | 29,2                        | 27,2 | 25,1 | 22,2 | 20,5 | 18,7 | 16,9    | 2,92                        | 3,03 | 3,13 | 3,21 | 3,29 | 3,36 | 3,58    |
|    | 44  | -                           | -    | -    | -    | 19,3 | 17,5 | 15,8    | -                           | -    | -    | -    | 2,88 | 3,03 | 3,19    |
| 15 | 15  | 42,2                        | 39,2 | 36,1 | 32,0 | 29,6 | 27,2 | 24,2    | 6,81                        | 7,05 | 7,30 | 7,53 | 7,79 | 8,05 | 8,19    |
|    | 20  | 40,3                        | 37,4 | 34,5 | 30,6 | 28,3 | 26,0 | 23,1    | 5,71                        | 5,93 | 6,14 | 6,36 | 6,56 | 6,78 | 6,85    |
|    | 25  | 38,4                        | 35,7 | 32,9 | 29,1 | 26,9 | 24,7 | 21,9    | 4,86                        | 5,06 | 5,22 | 5,38 | 5,56 | 5,73 | 5,76    |
|    | 30  | 36,5                        | 34,0 | 31,4 | 27,7 | 25,6 | 23,5 | 20,8    | 4,16                        | 4,32 | 4,48 | 4,62 | 4,76 | 4,90 | 4,89    |
|    | 35  | 32,6                        | 31,4 | 29,8 | 26,3 | 24,3 | 22,3 | 19,6    | 3,37                        | 3,62 | 3,85 | 3,95 | 4,06 | 4,17 | 4,14    |
|    | 40  | 31,4                        | 30,2 | 27,9 | 24,6 | 22,7 | 20,7 | 18,9    | 2,95                        | 3,17 | 3,28 | 3,36 | 3,45 | 3,52 | 3,82    |
|    | 44  | -                           | -    | -    | -    | 21,4 | 19,5 | 17,5    | -                           | -    | -    | -    | 3,01 | 3,07 | 3,27    |
| 18 | 15  | 45,9                        | 42,6 | 39,3 | 34,7 | 32,1 | 29,5 | 26,2    | 7,37                        | 7,68 | 7,97 | 8,23 | 8,55 | 8,86 | 8,97    |
|    | 20  | 43,8                        | 40,7 | 37,5 | 33,2 | 30,7 | 28,2 | 25,0    | 6,18                        | 6,44 | 6,69 | 6,90 | 7,15 | 7,41 | 7,45    |
|    | 25  | 41,7                        | 38,8 | 35,8 | 31,6 | 29,2 | 26,8 | 23,7    | 5,23                        | 5,46 | 5,70 | 5,87 | 6,03 | 6,24 | 6,23    |
|    | 30  | 39,5                        | 36,8 | 34,0 | 30,0 | 27,7 | 25,4 | 22,4    | 4,45                        | 4,64 | 4,82 | 4,96 | 5,13 | 5,29 | 5,25    |
|    | 35  | 34,7                        | 32,7 | 31,1 | 28,3 | 26,1 | 23,9 | 21,0    | 4,08                        | 3,97 | 4,09 | 4,21 | 4,34 | 4,47 | 4,41    |
|    | 40  | 33,1                        | 31,7 | 30,2 | 26,5 | 24,5 | 22,4 | 20,8    | 3,07                        | 3,29 | 3,52 | 3,59 | 3,69 | 3,78 | 4,19    |
|    | 44  | -                           | -    | -    | -    | 23,2 | 21,1 | 19,3    | -                           | -    | -    | -    | 3,24 | 3,31 | 3,58    |
| 20 | 15  | 48,4                        | 44,9 | 41,4 | 36,6 | 33,8 | 31,1 | 27,5    | 7,77                        | 8,11 | 8,45 | 8,71 | 9,07 | 9,44 | 9,49    |
|    | 20  | 46,2                        | 42,9 | 39,6 | 35,0 | 32,3 | 29,6 | 26,2    | 6,49                        | 6,78 | 7,07 | 7,28 | 7,58 | 7,86 | 7,87    |
|    | 25  | 44,0                        | 40,9 | 37,8 | 33,3 | 30,8 | 28,2 | 25,0    | 5,50                        | 5,75 | 5,99 | 6,17 | 6,42 | 6,60 | 6,71    |
|    | 30  | 41,7                        | 38,8 | 35,8 | 31,6 | 29,2 | 26,7 | 23,5    | 4,66                        | 4,87 | 5,08 | 5,22 | 5,40 | 5,58 | 5,51    |
|    | 35  | 39,4                        | 36,6 | 33,8 | 29,8 | 27,5 | 25,2 | 22,0    | 3,98                        | 4,16 | 4,33 | 4,42 | 4,57 | 4,70 | 4,63    |
|    | 40  | 37,0                        | 34,5 | 31,8 | 28,0 | 25,8 | 23,6 | 21,1    | 3,41                        | 3,56 | 3,69 | 3,77 | 3,88 | 3,97 | 4,25    |
|    | 44  | -                           | -    | -    | -    | 24,4 | 22,2 | 19,9    | -                           | -    | -    | -    | 3,40 | 3,47 | 4,01    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 12.1 - EXC - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -20 | 9,81                        | 8,70 | 7,19 | 5,75 | 4,71 | 3,75 | -       | 1,44                        | 1,41 | 1,37 | 1,31 | 1,27 | 1,25 | -       |
|    | -15 | 11,4                        | 10,3 | 8,80 | 7,53 | 6,33 | 5,40 | -       | 1,50                        | 1,46 | 1,43 | 1,38 | 1,33 | 1,30 | -       |
|    | -10 | 19,2                        | 17,5 | 15,3 | 13,3 | 11,4 | 9,44 | 7,31    | 2,82                        | 2,79 | 2,74 | 2,69 | 2,63 | 2,56 | 2,53    |
|    | -7  | 20,9                        | 19,1 | 16,9 | 14,8 | 12,8 | 10,6 | 9,43    | 3,12                        | 3,17 | 3,20 | 3,23 | 3,26 | 3,43 | 3,73    |
|    | 2   | 26,4                        | 25,1 | 22,5 | 19,9 | 17,4 | 15,1 | 12,7    | 3,77                        | 3,91 | 3,98 | 4,05 | 4,18 | 4,45 | 4,70    |
|    | 7   | 30,4                        | 28,4 | 25,4 | 22,5 | 19,5 | 16,6 | 14,5    | 4,42                        | 4,46 | 4,58 | 4,71 | 4,82 | 4,91 | 5,34    |
|    | 10  | 32,5                        | 30,9 | 27,7 | 24,5 | 21,3 | 17,7 | 15,7    | 4,40                        | 4,48 | 4,61 | 4,98 | 5,12 | 5,48 | 5,76    |
|    | 18  | 41,4                        | 39,0 | 34,9 | 30,8 | 26,7 | 22,1 | 18,4    | 5,60                        | 5,78 | 5,87 | 5,98 | 6,24 | 6,49 | 6,91    |
| 40 | -20 | -                           | 8,30 | 6,98 | 5,66 | 4,60 | 3,70 | -       | -                           | 1,28 | 1,25 | 1,20 | 1,17 | 1,15 | -       |
|    | -15 | 11,1                        | 10,0 | 8,63 | 7,40 | 6,23 | 5,34 | -       | 1,38                        | 1,35 | 1,30 | 1,25 | 1,22 | 1,18 | -       |
|    | -10 | 17,7                        | 16,1 | 14,1 | 12,6 | 11,1 | 9,35 | 7,16    | 2,54                        | 2,50 | 2,44 | 2,39 | 2,36 | 2,32 | 2,22    |
|    | -7  | 19,7                        | 18,0 | 15,9 | 14,0 | 12,1 | 10,5 | 9,17    | 2,68                        | 2,73 | 2,78 | 2,83 | 2,86 | 2,98 | 3,55    |
|    | 2   | 26,2                        | 24,7 | 22,1 | 19,5 | 17,0 | 14,5 | 12,6    | 3,35                        | 3,46 | 3,54 | 3,63 | 3,72 | 4,00 | 4,15    |
|    | 7   | 29,1                        | 27,0 | 24,2 | 21,3 | 18,5 | 15,6 | 13,5    | 3,72                        | 3,78 | 3,84 | 3,90 | 3,95 | 4,02 | 4,33    |
|    | 10  | 31,4                        | 29,4 | 26,4 | 23,3 | 20,2 | 17,0 | 14,7    | 3,92                        | 3,96 | 4,03 | 4,09 | 4,22 | 4,34 | 4,64    |
|    | 18  | 40,3                        | 37,0 | 33,1 | 29,1 | 25,2 | 20,8 | 17,8    | 4,85                        | 4,90 | 5,01 | 5,12 | 5,25 | 5,64 | 5,93    |
| 45 | -20 | -                           | 7,87 | 6,65 | 5,39 | 4,40 | 3,63 | -       | -                           | 1,23 | 1,19 | 1,16 | 1,14 | 1,11 | -       |
|    | -15 | 10,9                        | 9,81 | 8,51 | 7,21 | 6,14 | 5,22 | -       | 1,32                        | 1,29 | 1,25 | 1,21 | 1,18 | 1,13 | -       |
|    | -10 | 17,2                        | 15,7 | 13,8 | 12,3 | 10,8 | 9,25 | 7,02    | 2,28                        | 2,22 | 2,17 | 2,13 | 2,07 | 2,03 | 2,00    |
|    | -7  | 18,4                        | 16,9 | 15,0 | 13,6 | 11,9 | 10,4 | 8,93    | 2,34                        | 2,37 | 2,42 | 2,46 | 2,52 | 2,61 | 2,87    |
|    | 2   | 25,9                        | 24,3 | 21,7 | 19,2 | 16,7 | 14,1 | 12,2    | 3,03                        | 3,11 | 3,18 | 3,26 | 3,33 | 3,50 | 3,60    |
|    | 7   | 28,7                        | 26,7 | 23,8 | 21,0 | 18,2 | 15,1 | 13,2    | 3,31                        | 3,37 | 3,42 | 3,47 | 3,59 | 3,67 | 3,77    |
|    | 10  | 30,2                        | 29,0 | 26,0 | 22,9 | 19,8 | 16,5 | 14,3    | 3,38                        | 3,44 | 3,56 | 3,61 | 3,78 | 3,88 | 4,03    |
|    | 18  | 39,4                        | 36,3 | 32,4 | 28,5 | 24,5 | 20,2 | 17,3    | 4,31                        | 4,37 | 4,45 | 4,58 | 4,68 | 4,90 | 5,07    |
| 50 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | 8,28 | 7,01 | 5,91 | 4,84 | -       | -                           | -    | 1,17 | 1,15 | 1,11 | 1,09 | -       |
|    | -10 | -                           | 15,4 | 13,6 | 12,1 | 10,6 | 9,13 | 6,82    | -                           | 1,99 | 1,96 | 1,93 | 1,90 | 1,88 | 1,85    |
|    | -7  | -                           | 16,7 | 14,8 | 13,5 | 11,8 | 10,3 | 8,73    | -                           | 2,14 | 2,16 | 2,21 | 2,27 | 2,51 | 2,58    |
|    | 2   | 25,5                        | 23,9 | 21,4 | 18,8 | 16,4 | 13,8 | 11,9    | 2,74                        | 2,79 | 2,86 | 2,93 | 2,98 | 3,12 | 3,19    |
|    | 7   | 27,2                        | 25,2 | 22,5 | 19,8 | 17,1 | 14,2 | 12,3    | 2,93                        | 2,98 | 3,02 | 3,09 | 3,14 | 3,18 | 3,29    |
|    | 10  | 28,8                        | 26,3 | 23,4 | 20,6 | 17,9 | 15,7 | 13,7    | 2,99                        | 3,04 | 3,11 | 3,18 | 3,49 | 3,53 | 3,70    |
|    | 18  | 37,9                        | 32,8 | 29,2 | 25,6 | 22,4 | 19,4 | 16,6    | 3,69                        | 3,74 | 3,78 | 3,91 | 3,99 | 4,16 | 4,38    |
| 55 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | 12,0 | 10,4 | 8,97 | 6,63    | -                           | -    | -    | 1,89 | 1,87 | 1,84 | 1,81    |
|    | -7  | -                           | -    | 14,7 | 13,2 | 11,6 | 10,1 | 8,55    | -                           | -    | 2,01 | 2,06 | 2,16 | 2,35 | 2,38    |
|    | 2   | 25,1                        | 23,4 | 20,9 | 18,5 | 16,0 | 13,5 | 11,6    | 2,46                        | 2,51 | 2,57 | 2,63 | 2,67 | 2,76 | 2,83    |
|    | 7   | 27,6                        | 23,8 | 21,2 | 18,8 | 16,1 | 13,7 | 12,1    | 2,42                        | 2,61 | 2,66 | 2,70 | 2,74 | 2,80 | 2,96    |
|    | 10  | 27,8                        | 25,7 | 23,0 | 20,2 | 17,4 | 15,2 | 13,3    | 2,71                        | 2,77 | 2,82 | 2,87 | 2,94 | 3,17 | 3,29    |
|    | 18  | 36,7                        | 31,9 | 28,4 | 24,8 | 21,5 | 18,7 | 15,9    | 3,19                        | 3,24 | 3,31 | 3,37 | 3,41 | 3,69 | 3,86    |
| 60 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -    | 15,6 | 13,1 | 11,4    | -                           | -    | -    | -    | 2,40 | 2,44 | 2,55    |
|    | 7   | -                           | -    | -    | -    | 15,7 | 13,4 | 11,9    | -                           | -    | -    | -    | 2,43 | 2,48 | 2,57    |
|    | 10  | -                           | -    | -    | -    | 17,1 | 14,7 | 12,8    | -                           | -    | -    | -    | 2,60 | 2,80 | 2,86    |
|    | 18  | -                           | -    | -    | -    | 20,5 | 17,7 | 15,2    | -                           | -    | -    | -    | 3,03 | 3,26 | 3,34    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 14.1 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 37,2                        | 34,0 | 31,2 | 27,9 | 24,8 | 22,9 | 18,9    | 5,43                        | 5,65 | 5,83 | 6,03 | 6,28 | 6,44 | 6,88    |
|    | 20  | 35,6                        | 32,5 | 29,8 | 26,7 | 23,7 | 22,0 | 18,1    | 4,60                        | 4,81 | 4,98 | 5,18 | 5,38 | 5,52 | 5,87    |
|    | 25  | 33,9                        | 31,0 | 28,5 | 25,5 | 22,6 | 21,0 | 17,2    | 3,96                        | 4,12 | 4,28 | 4,45 | 4,62 | 4,74 | 5,00    |
|    | 30  | 32,2                        | 29,5 | 27,1 | 24,3 | 21,6 | 20,0 | 16,3    | 3,39                        | 3,56 | 3,70 | 3,85 | 4,00 | 4,10 | 4,29    |
|    | 35  | 30,4                        | 27,9 | 25,7 | 23,1 | 20,4 | 18,9 | 15,4    | 2,92                        | 3,07 | 3,19 | 3,33 | 3,44 | 3,53 | 3,65    |
|    | 40  | 28,3                        | 26,1 | 24,0 | 21,6 | 19,1 | 17,6 | 14,8    | 2,49                        | 2,62 | 2,73 | 2,85 | 2,94 | 3,00 | 3,47    |
| 10 | 44  | -                           | -    | -    | -    | 18,0 | 16,6 | 13,9    | -                           | -    | -    | -    | 2,58 | 2,64 | 3,05    |
|    | 15  | 40,7                        | 37,1 | 34,1 | 30,5 | 27,1 | 25,1 | 20,6    | 5,85                        | 6,13 | 6,36 | 6,60 | 6,85 | 7,06 | 7,49    |
|    | 20  | 38,9                        | 35,6 | 32,7 | 29,2 | 26,0 | 24,0 | 19,7    | 4,95                        | 5,20 | 5,41 | 5,64 | 5,86 | 6,02 | 6,35    |
|    | 25  | 37,1                        | 34,0 | 31,2 | 28,0 | 24,8 | 22,9 | 18,8    | 4,24                        | 4,48 | 4,63 | 4,84 | 5,01 | 5,16 | 5,39    |
|    | 30  | 35,3                        | 32,3 | 29,8 | 26,7 | 23,6 | 21,9 | 17,8    | 3,63                        | 3,83 | 4,00 | 4,18 | 4,32 | 4,44 | 4,60    |
|    | 35  | 33,4                        | 30,6 | 28,2 | 25,3 | 22,4 | 20,7 | 16,8    | 3,13                        | 3,30 | 3,44 | 3,60 | 3,72 | 3,81 | 3,92    |
| 12 | 40  | 31,1                        | 28,6 | 26,4 | 23,7 | 20,9 | 19,3 | 16,2    | 2,67                        | 2,82 | 2,95 | 3,08 | 3,17 | 3,24 | 3,78    |
|    | 44  | -                           | -    | -    | -    | 19,7 | 18,2 | 15,3    | -                           | -    | -    | -    | 2,78 | 2,84 | 3,31    |
|    | 15  | 43,0                        | 39,3 | 36,1 | 32,3 | 28,6 | 26,5 | 21,7    | 6,13                        | 6,45 | 6,71 | 7,00 | 7,26 | 7,48 | 7,90    |
|    | 20  | 41,1                        | 37,6 | 34,6 | 31,0 | 27,4 | 25,4 | 20,8    | 5,18                        | 5,46 | 5,70 | 5,95 | 6,17 | 6,37 | 6,68    |
|    | 25  | 39,3                        | 36,0 | 33,1 | 29,6 | 26,2 | 24,3 | 19,8    | 4,43                        | 4,69 | 4,91 | 5,10 | 5,28 | 5,43 | 5,68    |
|    | 30  | 37,3                        | 34,2 | 31,5 | 28,3 | 25,0 | 23,1 | 18,8    | 3,79                        | 4,01 | 4,19 | 4,39 | 4,54 | 4,67 | 4,83    |
| 15 | 35  | 35,3                        | 32,5 | 29,9 | 26,8 | 23,7 | 21,9 | 17,7    | 3,26                        | 3,45 | 3,61 | 3,78 | 3,90 | 4,00 | 4,10    |
|    | 40  | 32,9                        | 30,3 | 28,0 | 25,1 | 22,2 | 20,5 | 17,1    | 2,78                        | 2,95 | 3,09 | 3,23 | 3,32 | 3,40 | 3,99    |
|    | 44  | -                           | -    | -    | -    | 20,9 | 19,3 | 16,2    | -                           | -    | -    | -    | 2,91 | 2,98 | 3,48    |
|    | 15  | 47,9                        | 43,8 | 40,2 | 36,0 | 31,9 | 29,5 | 24,1    | 6,14                        | 6,50 | 6,80 | 7,13 | 7,37 | 7,63 | 8,01    |
|    | 20  | 45,6                        | 41,7 | 38,4 | 34,4 | 30,4 | 28,1 | 23,0    | 5,14                        | 5,46 | 5,72 | 6,02 | 6,21 | 6,42 | 6,69    |
|    | 25  | 43,4                        | 39,8 | 36,6 | 32,7 | 28,9 | 26,8 | 21,8    | 4,37                        | 4,64 | 4,87 | 5,10 | 5,26 | 5,43 | 5,62    |
| 18 | 30  | 40,5                        | 37,8 | 34,8 | 31,2 | 27,6 | 25,5 | 20,7    | 3,67                        | 3,97 | 4,16 | 4,38 | 4,51 | 4,65 | 4,77    |
|    | 35  | 37,5                        | 35,9 | 33,1 | 29,6 | 26,2 | 24,2 | 19,5    | 3,08                        | 3,41 | 3,58 | 3,77 | 3,86 | 3,98 | 4,05    |
|    | 40  | 35,4                        | 33,5 | 30,9 | 27,7 | 24,5 | 22,6 | 19,3    | 2,66                        | 2,91 | 3,05 | 3,21 | 3,28 | 3,37 | 4,07    |
|    | 44  | -                           | -    | -    | -    | 23,0 | 21,2 | 17,8    | -                           | -    | -    | -    | 2,88 | 2,95 | 3,48    |
|    | 15  | 52,0                        | 47,6 | 43,7 | 39,1 | 34,6 | 32,0 | 26,1    | 6,59                        | 7,03 | 7,39 | 7,80 | 8,06 | 8,37 | 8,74    |
|    | 20  | 49,7                        | 45,4 | 41,7 | 37,3 | 33,0 | 30,5 | 24,8    | 5,56                        | 5,88 | 6,19 | 6,54 | 6,75 | 7,00 | 7,28    |
| 20 | 25  | 47,1                        | 43,2 | 39,8 | 35,7 | 31,5 | 29,0 | 23,5    | 4,67                        | 4,98 | 5,25 | 5,58 | 5,73 | 5,90 | 6,08    |
|    | 30  | 44,6                        | 41,0 | 37,7 | 33,8 | 29,8 | 27,5 | 22,2    | 3,97                        | 4,24 | 4,46 | 4,72 | 4,85 | 5,01 | 5,12    |
|    | 35  | 39,1                        | 38,3 | 35,6 | 31,9 | 28,1 | 26,0 | 20,9    | 3,74                        | 3,83 | 3,98 | 4,02 | 4,12 | 4,25 | 4,30    |
|    | 40  | 38,4                        | 36,3 | 33,5 | 30,0 | 26,4 | 24,4 | 20,4    | 2,84                        | 3,10 | 3,26 | 3,44 | 3,51 | 3,61 | 4,31    |
|    | 44  | -                           | -    | -    | -    | 25,0 | 23,0 | 19,3    | -                           | -    | -    | -    | 3,09 | 3,17 | 3,77    |
|    | 15  | 54,8                        | 50,2 | 46,1 | 41,2 | 36,4 | 33,7 | 27,4    | 6,90                        | 7,39 | 7,80 | 8,28 | 8,52 | 8,88 | 9,28    |
| 22 | 20  | 52,3                        | 47,9 | 44,0 | 39,4 | 34,8 | 32,1 | 26,1    | 5,80                        | 6,17 | 6,52 | 6,91 | 7,13 | 7,41 | 7,69    |
|    | 25  | 49,7                        | 45,6 | 41,9 | 37,6 | 33,1 | 30,7 | 24,9    | 4,88                        | 5,23 | 5,52 | 5,86 | 6,03 | 6,28 | 6,55    |
|    | 30  | 47,0                        | 43,2 | 39,8 | 35,6 | 31,4 | 29,0 | 23,4    | 4,15                        | 4,44 | 4,68 | 4,96 | 5,10 | 5,27 | 5,38    |
|    | 35  | 43,2                        | 40,8 | 37,6 | 33,7 | 29,6 | 27,3 | 21,9    | 3,46                        | 3,79 | 3,99 | 4,23 | 4,32 | 4,47 | 4,52    |
|    | 40  | 41,6                        | 38,3 | 35,3 | 31,6 | 27,8 | 25,6 | 21,4    | 3,04                        | 3,24 | 3,42 | 3,61 | 3,68 | 3,79 | 4,56    |
|    | 44  | -                           | -    | -    | -    | 26,3 | 24,3 | 20,3    | -                           | -    | -    | -    | 3,24 | 3,32 | 3,96    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 14.1 - EXC - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -20 | 12,9                        | 11,2 | 9,66 | 8,02 | 6,55 | 4,75 | -       | 1,44                        | 1,35 | 1,29 | 1,25 | 1,19 | 1,15 | -       |
|    | -15 | 14,1                        | 11,9 | 9,88 | 8,38 | 8,14 | 6,56 | -       | 1,49                        | 1,40 | 1,36 | 1,31 | 1,28 | 1,23 | -       |
|    | -10 | 23,4                        | 19,9 | 16,9 | 15,6 | 14,2 | 11,9 | 9,35    | 2,79                        | 2,70 | 2,66 | 2,62 | 2,60 | 2,54 | 2,50    |
|    | -7  | 25,0                        | 21,6 | 18,6 | 17,2 | 15,8 | 13,3 | 10,6    | 3,00                        | 3,09 | 3,13 | 3,19 | 3,22 | 3,30 | 3,39    |
|    | 2   | 33,7                        | 28,8 | 25,2 | 23,4 | 21,7 | 18,4 | 14,8    | 3,54                        | 3,66 | 3,75 | 3,81 | 3,86 | 3,98 | 4,31    |
|    | 7   | 36,8                        | 32,1 | 28,3 | 25,7 | 23,2 | 20,0 | 16,6    | 4,33                        | 4,38 | 4,52 | 4,61 | 4,71 | 4,94 | 5,09    |
|    | 10  | 39,0                        | 34,8 | 30,8 | 27,9 | 25,2 | 21,4 | 18,0    | 4,49                        | 4,68 | 4,78 | 4,92 | 5,05 | 5,21 | 5,46    |
|    | 18  | 49,0                        | 44,0 | 39,2 | 35,2 | 31,5 | 27,2 | 22,5    | 5,44                        | 5,75 | 5,89 | 5,98 | 6,15 | 6,34 | 6,60    |
| 40 | -20 | -                           | -    | 9,40 | 7,53 | 6,02 | 4,45 | -       | -                           | -    | 1,22 | 1,18 | 1,15 | 1,11 | -       |
|    | -15 | -                           | 11,5 | 9,65 | 8,21 | 8,00 | 6,43 | -       | -                           | 1,31 | 1,25 | 1,22 | 1,19 | 1,15 | -       |
|    | -10 | -                           | 19,3 | 16,7 | 15,3 | 14,1 | 11,7 | 9,25    | -                           | 2,47 | 2,41 | 2,36 | 2,28 | 2,24 | 2,17    |
|    | -7  | 24,8                        | 21,2 | 18,4 | 16,9 | 15,6 | 13,1 | 10,4    | 2,65                        | 2,73 | 2,78 | 2,82 | 2,88 | 2,92 | 3,15    |
|    | 2   | 33,3                        | 28,4 | 24,9 | 23,2 | 21,5 | 18,1 | 14,5    | 3,19                        | 3,31 | 3,39 | 3,44 | 3,48 | 3,60 | 3,84    |
|    | 7   | 35,0                        | 30,3 | 27,2 | 24,3 | 21,7 | 18,7 | 15,5    | 3,71                        | 3,80 | 3,84 | 3,88 | 3,97 | 4,19 | 4,26    |
|    | 10  | 37,9                        | 33,3 | 29,5 | 26,8 | 24,1 | 20,5 | 16,8    | 3,81                        | 3,98 | 4,04 | 4,10 | 4,23 | 4,37 | 4,46    |
|    | 18  | 47,3                        | 42,2 | 37,7 | 33,8 | 29,2 | 24,9 | 20,9    | 4,69                        | 4,86 | 4,94 | 5,06 | 5,17 | 5,34 | 5,70    |
| 45 | -20 | -                           | -    | 9,13 | 7,19 | 5,72 | 4,30 | -       | -                           | -    | 1,17 | 1,13 | 1,10 | 1,08 | -       |
|    | -15 | -                           | 11,2 | 9,48 | 8,06 | 7,86 | 6,34 | -       | -                           | 1,24 | 1,22 | 1,18 | 1,15 | 1,10 | -       |
|    | -10 | -                           | 18,7 | 16,4 | 15,2 | 13,9 | 11,5 | 9,13    | -                           | 2,18 | 2,14 | 2,09 | 2,04 | 2,00 | 1,95    |
|    | -7  | 24,3                        | 20,9 | 18,2 | 16,8 | 15,5 | 13,0 | 10,3    | 2,25                        | 2,35 | 2,38 | 2,42 | 2,47 | 2,54 | 2,76    |
|    | 2   | 32,8                        | 28,0 | 24,6 | 22,9 | 21,2 | 17,9 | 14,3    | 2,86                        | 2,98 | 3,06 | 3,10 | 3,14 | 3,22 | 3,40    |
|    | 7   | 34,0                        | 29,7 | 26,7 | 23,8 | 21,3 | 18,4 | 15,2    | 3,25                        | 3,33 | 3,38 | 3,42 | 3,53 | 3,59 | 3,67    |
|    | 10  | 36,8                        | 32,6 | 29,0 | 26,0 | 23,4 | 19,7 | 16,2    | 3,28                        | 3,51 | 3,59 | 3,65 | 3,76 | 3,84 | 3,94    |
|    | 18  | 45,9                        | 41,3 | 36,8 | 33,0 | 28,4 | 24,0 | 20,1    | 4,07                        | 4,23 | 4,37 | 4,46 | 4,54 | 4,68 | 4,98    |
| 50 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | 9,14 | 7,86 | 7,69 | 6,22 | -       | -                           | -    | 1,15 | 1,13 | 1,10 | 1,08 | -       |
|    | -10 | -                           | -    | 16,1 | 15,0 | 13,7 | 11,3 | 8,96    | -                           | -    | 1,94 | 1,90 | 1,87 | 1,85 | 1,82    |
|    | -7  | -                           | -    | 17,7 | 16,6 | 15,2 | 12,8 | 10,1    | -                           | -    | 2,10 | 2,15 | 2,22 | 2,38 | 2,48    |
|    | 2   | 32,3                        | 27,6 | 24,2 | 22,4 | 20,9 | 17,6 | 14,1    | 2,56                        | 2,68 | 2,74 | 2,78 | 2,83 | 2,90 | 2,99    |
|    | 7   | 33,5                        | 29,4 | 26,3 | 23,1 | 20,2 | 16,8 | 13,4    | 2,80                        | 2,91 | 2,95 | 2,98 | 3,03 | 3,08 | 3,14    |
|    | 10  | 35,8                        | 31,8 | 28,1 | 24,6 | 21,7 | 18,5 | 14,7    | 2,85                        | 2,97 | 3,01 | 3,08 | 3,13 | 3,21 | 3,30    |
|    | 18  | 44,5                        | 40,2 | 35,7 | 31,2 | 26,8 | 22,5 | 17,9    | 3,49                        | 3,61 | 3,65 | 3,70 | 3,77 | 3,81 | 3,86    |
| 55 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | 13,5 | 11,0 | 8,80    | -                           | -    | -    | -    | 1,84 | 1,82 | 1,76    |
|    | -7  | -                           | -    | -    | 16,3 | 15,0 | 12,6 | 9,90    | -                           | -    | -    | 2,02 | 2,11 | 2,16 | 2,20    |
|    | 2   | 31,7                        | 27,2 | 23,9 | 22,1 | 20,6 | 17,3 | 13,8    | 2,30                        | 2,41 | 2,49 | 2,52 | 2,56 | 2,62 | 2,69    |
|    | 7   | 32,5                        | 29,0 | 25,8 | 22,7 | 19,7 | 16,4 | 13,0    | 2,35                        | 2,53 | 2,58 | 2,64 | 2,71 | 2,74 | 2,83    |
|    | 10  | 35,3                        | 31,0 | 27,2 | 24,0 | 21,1 | 17,7 | 14,0    | 2,52                        | 2,58 | 2,63 | 2,70 | 2,82 | 2,91 | 3,00    |
|    | 18  | 43,1                        | 39,1 | 34,8 | 30,2 | 25,9 | 21,5 | 16,9    | 2,99                        | 3,09 | 3,15 | 3,19 | 3,26 | 3,35 | 3,44    |
| 60 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -    | -    | 16,9 | 13,2    | -                           | -    | -    | -    | -    | 2,33 | 2,40    |
|    | 7   | -                           | -    | -    | -    | -    | 15,9 | 12,6    | -                           | -    | -    | -    | -    | 2,41 | 2,48    |
|    | 10  | -                           | -    | -    | -    | -    | 17,2 | 13,5    | -                           | -    | -    | -    | -    | 2,54 | 2,62    |
|    | 18  | -                           | -    | -    | -    | -    | 20,6 | 16,2    | -                           | -    | -    | -    | -    | 3,59 | 3,06    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 16.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 52,7                        | 49,2 | 45,8 | 40,9 | 37,4 | 33,8 | 30,2    | 5,68                        | 5,73 | 5,77 | 6,31 | 6,57 | 6,83 | 7,15    |
|    | 20  | 50,6                        | 47,3 | 43,9 | 39,2 | 35,8 | 32,3 | 28,8    | 4,91                        | 4,96 | 5,01 | 5,43 | 5,63 | 5,84 | 6,08    |
|    | 25  | 48,5                        | 45,3 | 42,0 | 37,5 | 34,2 | 30,8 | 27,3    | 4,24                        | 4,30 | 4,35 | 4,66 | 4,83 | 4,98 | 5,15    |
|    | 30  | 46,2                        | 43,2 | 40,1 | 35,7 | 32,5 | 29,2 | 25,8    | 3,68                        | 3,73 | 3,77 | 4,01 | 4,13 | 4,24 | 4,36    |
|    | 35  | 43,9                        | 41,1 | 38,1 | 33,8 | 30,8 | 27,5 | 24,3    | 3,14                        | 3,24 | 3,28 | 3,46 | 3,54 | 3,52 | 3,68    |
|    | 40  | 41,2                        | 38,5 | 35,7 | 31,6 | 28,7 | 25,6 | 22,5    | 2,74                        | 2,78 | 2,81 | 2,94 | 2,99 | 3,04 | 3,07    |
|    | 44  | -                           | -    | -    | -    | -    | 24,0 | 21,0    | -                           | -    | -    | -    | -    | 2,63 | 2,63    |
| 10 | 15  | 57,8                        | 54,0 | 50,2 | 44,8 | 40,9 | 36,9 | 32,9    | 6,27                        | 6,33 | 6,38 | 6,95 | 7,24 | 7,53 | 7,88    |
|    | 20  | 55,6                        | 51,9 | 48,2 | 42,9 | 39,2 | 35,3 | 31,4    | 5,39                        | 5,45 | 5,51 | 7,29 | 6,17 | 6,39 | 6,66    |
|    | 25  | 53,3                        | 49,7 | 46,2 | 41,1 | 37,4 | 33,6 | 29,8    | 4,64                        | 4,71 | 4,77 | 5,09 | 5,26 | 5,43 | 5,63    |
|    | 30  | 50,9                        | 47,5 | 44,1 | 39,1 | 35,5 | 31,9 | 28,2    | 4,01                        | 4,07 | 4,12 | 4,37 | 4,47 | 4,62 | 4,74    |
|    | 35  | 48,4                        | 45,2 | 41,9 | 37,1 | 33,7 | 30,2 | 26,5    | 3,48                        | 3,53 | 3,57 | 3,75 | 3,81 | 3,92 | 4,00    |
|    | 40  | 45,4                        | 42,4 | 39,3 | 34,7 | 31,4 | 28,0 | 24,5    | 2,98                        | 3,03 | 3,06 | 3,18 | 3,21 | 3,29 | 3,32    |
|    | 44  | -                           | -    | -    | -    | -    | 26,2 | 22,9    | -                           | -    | -    | -    | -    | 2,84 | 2,84    |
| 12 | 15  | 61,2                        | 57,2 | 53,1 | 47,3 | 43,2 | 38,9 | 34,7    | 6,67                        | 6,74 | 6,81 | 7,39 | 7,68 | 8,01 | 8,39    |
|    | 20  | 58,9                        | 55,0 | 51,1 | 45,4 | 41,4 | 37,3 | 33,1    | 5,72                        | 5,79 | 5,86 | 6,30 | 6,53 | 6,83 | 7,07    |
|    | 25  | 56,5                        | 52,7 | 48,9 | 43,5 | 39,6 | 35,5 | 31,5    | 4,91                        | 4,99 | 5,06 | 5,38 | 5,56 | 5,75 | 5,95    |
|    | 30  | 54,0                        | 50,4 | 46,7 | 41,5 | 37,6 | 33,7 | 29,8    | 4,26                        | 4,30 | 4,36 | 4,63 | 4,74 | 4,87 | 5,00    |
|    | 35  | 51,4                        | 48,0 | 44,5 | 39,3 | 35,7 | 31,9 | 28,0    | 3,67                        | 3,73 | 3,78 | 3,95 | 4,04 | 4,13 | 4,21    |
|    | 40  | 48,2                        | 45,0 | 41,7 | 36,7 | 33,2 | 29,6 | 25,9    | 3,14                        | 3,19 | 3,23 | 3,35 | 3,40 | 3,45 | 3,48    |
|    | 44  | -                           | -    | -    | -    | -    | 27,7 | 24,1    | -                           | -    | -    | -    | -    | 2,98 | 2,98    |
| 15 | 15  | 68,2                        | 62,9 | 58,7 | 52,4 | 47,0 | 42,0 | 36,5    | 6,77                        | 6,86 | 6,91 | 7,31 | 7,57 | 7,88 | 8,28    |
|    | 20  | 65,2                        | 60,2 | 56,1 | 49,9 | 44,8 | 39,9 | 34,6    | 5,71                        | 5,80 | 5,86 | 6,14 | 6,34 | 6,56 | 6,84    |
|    | 25  | 62,1                        | 57,3 | 53,4 | 47,4 | 42,4 | 37,7 | 32,5    | 4,85                        | 4,93 | 4,98 | 5,18 | 5,32 | 5,48 | 5,65    |
|    | 30  | 60,0                        | 55,4 | 51,6 | 45,9 | 41,1 | 36,5 | 31,3    | 4,22                        | 4,30 | 4,33 | 4,48 | 4,60 | 4,70 | 4,80    |
|    | 35  | 57,7                        | 53,3 | 49,8 | 44,2 | 39,5 | 35,2 | 30,3    | 3,66                        | 3,73 | 3,78 | 3,88 | 3,96 | 4,05 | 4,12    |
|    | 40  | 54,4                        | 50,2 | 46,8 | 41,4 | 37,0 | 32,8 | 28,0    | 3,14                        | 3,19 | 3,23 | 3,29 | 3,34 | 3,38 | 3,40    |
|    | 44  | -                           | -    | -    | -    | -    | 30,8 | 26,2    | -                           | -    | -    | -    | -    | 2,92 | 2,91    |
| 18 | 15  | 72,5                        | 68,8 | 64,2 | 57,1 | 51,2 | 45,7 | 39,7    | 7,28                        | 7,61 | 7,69 | 8,10 | 8,41 | 8,79 | 9,30    |
|    | 20  | 69,3                        | 65,8 | 61,3 | 54,5 | 48,8 | 43,5 | 37,6    | 6,12                        | 6,40 | 6,48 | 6,77 | 7,00 | 7,27 | 7,61    |
|    | 25  | 67,0                        | 63,7 | 59,4 | 52,8 | 47,3 | 42,1 | 36,4    | 5,24                        | 5,51 | 5,58 | 5,79 | 5,97 | 6,18 | 6,43    |
|    | 30  | 64,6                        | 61,5 | 57,5 | 51,0 | 45,7 | 40,7 | 35,2    | 4,53                        | 4,77 | 4,85 | 4,99 | 5,12 | 5,29 | 5,44    |
|    | 35  | 59,3                        | 56,3 | 53,3 | 49,1 | 44,0 | 39,2 | 33,8    | 4,20                        | 3,98 | 4,04 | 4,30 | 4,41 | 4,52 | 4,63    |
|    | 40  | 56,4                        | 54,8 | 51,1 | 45,1 | 40,2 | 35,5 | 30,4    | 3,23                        | 3,47 | 3,51 | 3,56 | 3,61 | 3,67 | 3,69    |
|    | 44  | -                           | -    | -    | -    | -    | 33,4 | 28,3    | -                           | -    | -    | -    | -    | 3,16 | 3,15    |
| 20 | 15  | 77,8                        | 73,7 | 68,8 | 61,3 | 55,1 | 49,3 | 42,8    | 7,90                        | 8,25 | 8,37 | 8,81 | 9,18 | 9,66 | 10,3    |
|    | 20  | 74,4                        | 70,6 | 65,9 | 58,6 | 52,5 | 46,9 | 40,7    | 6,60                        | 6,93 | 7,04 | 7,33 | 7,61 | 7,96 | 8,40    |
|    | 25  | 71,9                        | 68,3 | 63,8 | 56,7 | 50,9 | 45,4 | 39,4    | 5,65                        | 5,94 | 6,03 | 6,25 | 6,46 | 6,73 | 7,04    |
|    | 30  | 69,3                        | 66,0 | 61,7 | 54,8 | 49,1 | 43,9 | 38,0    | 4,87                        | 5,13 | 5,22 | 5,37 | 5,53 | 5,75 | 5,95    |
|    | 35  | 65,6                        | 62,5 | 58,3 | 51,7 | 46,3 | 41,2 | 36,5    | 4,14                        | 4,37 | 4,44 | 4,53 | 4,64 | 4,77 | 5,03    |
|    | 40  | 61,7                        | 58,9 | 54,9 | 48,5 | 43,3 | 38,4 | 32,9    | 3,53                        | 3,72 | 3,78 | 3,83 | 3,89 | 3,97 | 4,02    |
|    | 44  | -                           | -    | -    | -    | -    | 36,1 | 30,8    | -                           | -    | -    | -    | -    | 3,42 | 3,43    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 16.2 - EXC - SC

| To<br>°C | Tae<br>°C | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----------|-----------|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|          |           | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|          |           | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35       | -20       | 19,8                        | 17,5 | 14,6 | 11,6 | 8,71 | 5,79 | -       | 2,14                        | 2,06 | 1,91 | 1,75 | 1,57 | 1,23 | -       |
|          | -15       | 24,4                        | 22,7 | 20,6 | 18,6 | 16,1 | 13,8 | 11,5    | 2,51                        | 2,49 | 2,47 | 2,46 | 2,41 | 2,37 | 2,31    |
|          | -10       | 29,5                        | 27,7 | 25,4 | 23,1 | 20,2 | 17,5 | 15,0    | 2,90                        | 2,91 | 2,91 | 2,93 | 2,85 | 2,81 | 2,84    |
|          | -7        | 32,8                        | 30,9 | 28,4 | 26,0 | 22,9 | 20,2 | 17,6    | 3,11                        | 3,12 | 3,14 | 3,17 | 3,33 | 3,43 | 3,46    |
|          | 2         | 43,4                        | 41,0 | 37,9 | 34,8 | 30,8 | 27,2 | 24,3    | 3,82                        | 3,85 | 3,90 | 3,95 | 4,15 | 4,27 | 4,38    |
|          | 7         | 54,3                        | 48,6 | 44,9 | 41,3 | 36,6 | 32,2 | 28,8    | 4,37                        | 4,62 | 4,68 | 4,74 | 4,97 | 5,10 | 5,21    |
|          | 10        | 54,5                        | 51,6 | 47,8 | 43,9 | 38,9 | 34,3 | 30,5    | 4,82                        | 4,87 | 4,94 | 5,01 | 5,26 | 5,40 | 5,52    |
|          | 18        | 63,9                        | 60,6 | 56,1 | 51,5 | 45,6 | 40,1 | 35,6    | 5,60                        | 5,68 | 5,78 | 5,87 | 6,16 | 6,33 | 6,46    |
| 40       | -20       | 19,0                        | 16,7 | 13,8 | 10,9 | 7,96 | -    | -       | 1,97                        | 1,89 | 1,74 | 1,57 | 1,35 | -    | -       |
|          | -15       | 23,9                        | 22,3 | 20,2 | 17,8 | 15,5 | 13,2 | 10,9    | 2,29                        | 2,27 | 2,26 | 2,22 | 2,18 | 2,13 | 2,06    |
|          | -10       | 29,0                        | 27,2 | 24,7 | 22,6 | 19,5 | 17,1 | 14,4    | 2,64                        | 2,65 | 2,62 | 2,64 | 2,58 | 2,57 | 2,52    |
|          | -7        | 32,3                        | 30,5 | 28,0 | 25,7 | 22,6 | 20,0 | 17,4    | 2,82                        | 2,84 | 2,85 | 2,88 | 3,00 | 3,08 | 3,15    |
|          | 2         | 42,7                        | 40,4 | 37,3 | 34,2 | 30,3 | 26,7 | 23,8    | 3,44                        | 3,46 | 3,50 | 3,54 | 3,70 | 3,78 | 3,85    |
|          | 7         | 50,8                        | 47,8 | 44,1 | 40,5 | 35,9 | 31,6 | 28,1    | 4,10                        | 4,12 | 4,17 | 4,22 | 4,40 | 4,49 | 4,56    |
|          | 10        | 53,6                        | 50,7 | 46,9 | 43,0 | 38,1 | 33,5 | 29,7    | 4,29                        | 4,34 | 4,40 | 4,45 | 4,64 | 4,74 | 4,80    |
|          | 18        | 62,7                        | 59,4 | 54,9 | 50,3 | 44,6 | 39,0 | 34,5    | 4,94                        | 5,01 | 5,09 | 5,16 | 5,38 | 5,49 | 5,55    |
| 45       | -20       | 18,3                        | 15,9 | 12,9 | 9,87 | 6,86 | -    | -       | 1,74                        | 1,65 | 1,50 | 1,32 | 1,07 | -    | -       |
|          | -15       | 23,5                        | 22,0 | 20,0 | 17,4 | 15,1 | 12,6 | -       | 2,09                        | 2,08 | 2,07 | 2,01 | 1,97 | 1,88 | -       |
|          | -10       | 28,6                        | 26,7 | 24,1 | 22,1 | 19,1 | 16,5 | 14,0    | 2,41                        | 2,40 | 2,37 | 2,38 | 2,32 | 2,28 | 2,23    |
|          | -7        | 31,9                        | 30,1 | 27,7 | 25,4 | 22,4 | 19,8 | 17,4    | 2,57                        | 2,58 | 2,60 | 2,61 | 2,72 | 2,77 | 2,83    |
|          | 2         | 42,1                        | 39,7 | 36,7 | 33,6 | 29,8 | 26,2 | 23,3    | 3,09                        | 3,11 | 3,14 | 3,17 | 3,29 | 3,34 | 3,38    |
|          | 7         | 52,4                        | 46,9 | 43,3 | 39,7 | 35,2 | 30,9 | 27,4    | 3,36                        | 3,67 | 3,71 | 3,75 | 3,89 | 3,94 | 3,97    |
|          | 10        | 52,6                        | 49,8 | 45,9 | 42,1 | 37,3 | 32,7 | 28,9    | 3,81                        | 3,85 | 3,90 | 3,94 | 4,09 | 4,14 | 4,16    |
|          | 18        | 61,4                        | 58,1 | 53,7 | 49,1 | 43,5 | 37,9 | 33,4    | 4,35                        | 4,41 | 4,47 | 4,52 | 4,70 | 4,75 | 4,77    |
| 50       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | 21,1                        | 19,8 | 18,1 | 16,5 | 14,6 | 12,2 | -       | 1,70                        | 1,70 | 1,69 | 1,69 | 1,76 | 1,65 | -       |
|          | -10       | 25,7                        | 24,3 | 22,3 | 20,4 | 18,1 | 15,8 | 13,3    | 1,96                        | 1,96 | 2,01 | 2,04 | 2,05 | 2,02 | 1,97    |
|          | -7        | 29,0                        | 27,4 | 25,3 | 23,1 | 20,9 | 18,7 | 16,4    | 2,14                        | 2,15 | 2,16 | 2,16 | 2,29 | 2,35 | 2,40    |
|          | 2         | 38,1                        | 36,0 | 33,1 | 30,4 | 27,0 | 23,7 | 21,0    | 2,59                        | 2,61 | 2,63 | 2,65 | 2,74 | 2,76 | 2,76    |
|          | 7         | 44,2                        | 41,8 | 38,5 | 35,3 | 31,3 | 27,3 | 24,2    | 3,10                        | 3,12 | 3,15 | 3,17 | 3,27 | 3,29 | 3,28    |
|          | 10        | 46,8                        | 44,3 | 40,8 | 37,3 | 33,1 | 28,9 | 25,5    | 3,23                        | 3,26 | 3,30 | 3,32 | 3,43 | 3,45 | 3,44    |
|          | 18        | 54,4                        | 51,5 | 47,5 | 43,3 | 38,4 | 33,4 | 29,4    | 3,65                        | 3,69 | 3,74 | 3,77 | 3,90 | 3,91 | 3,91    |
| 55       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | 21,7 | 19,8 | 17,4 | 15,1 | 12,5    | -                           | -    | 1,77 | 1,76 | 1,74 | 1,71 | 1,62    |
|          | -7        | 28,4                        | 26,8 | 24,7 | 22,7 | 20,4 | 18,2 | 16,1    | 1,93                        | 1,94 | 1,95 | 1,96 | 1,98 | 2,00 | 2,03    |
|          | 2         | 37,4                        | 35,3 | 32,5 | 29,8 | 26,5 | 23,2 | 20,5    | 2,33                        | 2,34 | 2,36 | 2,37 | 2,44 | 2,45 | 2,44    |
|          | 7         | 46,4                        | 40,8 | 37,6 | 34,4 | 30,5 | 26,6 | 23,4    | 2,73                        | 2,78 | 2,81 | 2,82 | 2,89 | 2,89 | 2,86    |
|          | 10        | 45,7                        | 43,2 | 39,7 | 36,3 | 32,2 | 28,0 | 24,6    | 2,87                        | 2,90 | 2,92 | 2,94 | 3,02 | 3,02 | 2,98    |
|          | 18        | 52,8                        | 49,9 | 45,9 | 42,0 | 37,1 | 32,1 | 28,3    | 3,20                        | 3,24 | 3,28 | 3,31 | 3,39 | 3,38 | 3,36    |
| 60       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -7        | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | 2         | -                           | -    | -    | -    | 25,7 | 22,5 | 19,9    | -                           | -    | -    | -    | 2,16 | 2,16 | 2,13    |
|          | 7         | -                           | -    | -    | -    | 29,3 | 25,5 | 22,3    | -                           | -    | -    | -    | 2,52 | 2,50 | 2,46    |
|          | 10        | -                           | -    | -    | -    | 31,0 | 26,9 | 23,5    | -                           | -    | -    | -    | 2,64 | 2,62 | 2,56    |
|          | 18        | -                           | -    | -    | -    | 35,6 | 30,8 | 27,0    | -                           | -    | -    | -    | 2,94 | 2,92 | 2,88    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 18.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 55,6                        | 52,6 | 47,2 | 43,0 | 38,5 | 35,0 | 31,3    | 5,22                        | 5,27 | 5,54 | 5,71 | 5,95 | 6,17 | 6,49    |
|    | 20  | 53,4                        | 50,5 | 45,3 | 41,2 | 36,9 | 33,5 | 29,9    | 4,48                        | 4,54 | 4,75 | 4,90 | 5,11 | 5,28 | 5,52    |
|    | 25  | 51,1                        | 48,4 | 43,4 | 39,4 | 35,3 | 32,0 | 28,4    | 3,87                        | 3,92 | 4,08 | 4,22 | 4,38 | 4,52 | 4,69    |
|    | 30  | 50,5                        | 47,7 | 42,7 | 38,9 | 34,7 | 31,5 | 27,8    | 3,47                        | 3,51 | 3,64 | 3,76 | 3,89 | 4,00 | 4,11    |
|    | 35  | 49,8                        | 46,4 | 41,6 | 37,8 | 33,7 | 30,6 | 27,1    | 3,06                        | 3,11 | 3,22 | 3,32 | 3,42 | 3,51 | 3,59    |
|    | 40  | 46,7                        | 44,2 | 39,5 | 35,9 | 32,0 | 28,8 | 25,3    | 2,68                        | 2,72 | 2,79 | 2,88 | 2,95 | 3,00 | 3,03    |
|    | 44  | -                           | -    | -    | -    | -    | 27,1 | 23,7    | -                           | -    | -    | -    | -    | 2,62 | 2,62    |
| 10 | 15  | 60,9                        | 57,7 | 51,7 | 47,1 | 42,1 | 38,3 | 34,1    | 5,74                        | 5,80 | 6,06 | 6,27 | 6,54 | 6,79 | 7,12    |
|    | 20  | 58,6                        | 55,5 | 49,7 | 45,2 | 40,4 | 36,7 | 32,6    | 4,91                        | 4,98 | 5,18 | 5,36 | 5,59 | 5,78 | 6,03    |
|    | 25  | 56,1                        | 53,1 | 47,6 | 43,3 | 38,7 | 35,0 | 31,1    | 4,22                        | 4,29 | 4,43 | 4,60 | 4,77 | 4,93 | 5,10    |
|    | 30  | 54,6                        | 51,7 | 46,2 | 41,9 | 37,4 | 33,8 | 29,7    | 3,72                        | 3,79 | 3,89 | 4,02 | 4,16 | 4,26 | 4,35    |
|    | 35  | 53,9                        | 51,2 | 45,7 | 41,5 | 37,1 | 33,5 | 29,6    | 3,33                        | 3,39 | 3,48 | 3,60 | 3,72 | 3,81 | 3,89    |
|    | 40  | 51,5                        | 48,7 | 43,5 | 39,4 | 35,1 | 31,6 | 27,7    | 2,91                        | 2,95 | 3,02 | 3,11 | 3,19 | 3,25 | 3,27    |
|    | 44  | -                           | -    | -    | -    | -    | 29,7 | 25,9    | -                           | -    | -    | -    | -    | 2,83 | 2,83    |
| 12 | 15  | 64,6                        | 61,1 | 54,7 | 49,8 | 44,5 | 39,8 | 36,0    | 6,10                        | 6,18 | 6,41 | 6,65 | 6,95 | 7,11 | 7,56    |
|    | 20  | 62,1                        | 58,8 | 52,6 | 47,8 | 42,8 | 38,8 | 34,4    | 5,20                        | 5,28 | 5,46 | 5,67 | 5,90 | 6,13 | 6,37    |
|    | 25  | 59,5                        | 56,3 | 50,4 | 45,8 | 40,9 | 37,0 | 32,8    | 4,46                        | 4,53 | 4,67 | 4,85 | 5,04 | 5,21 | 5,37    |
|    | 30  | 57,9                        | 54,9 | 48,9 | 44,4 | 39,5 | 35,7 | 31,4    | 3,92                        | 3,99 | 4,09 | 4,23 | 4,37 | 4,49 | 4,58    |
|    | 35  | 57,2                        | 54,2 | 48,3 | 43,9 | 39,2 | 35,4 | 31,2    | 3,51                        | 3,57 | 3,65 | 3,78 | 3,90 | 4,00 | 4,08    |
|    | 40  | 54,6                        | 51,7 | 46,1 | 41,8 | 37,1 | 33,4 | 29,2    | 3,06                        | 3,11 | 3,17 | 3,27 | 3,35 | 3,42 | 3,44    |
|    | 44  | -                           | -    | -    | -    | -    | 31,4 | 27,3    | -                           | -    | -    | -    | -    | 2,97 | 2,96    |
| 15 | 15  | 72,5                        | 68,7 | 62,4 | 55,8 | 49,8 | 44,7 | 40,1    | 6,15                        | 6,24 | 6,46 | 6,68 | 6,97 | 7,17 | 7,59    |
|    | 20  | 69,4                        | 65,8 | 59,7 | 53,3 | 47,6 | 42,6 | 38,2    | 5,18                        | 5,28 | 5,46 | 5,63 | 5,86 | 6,00 | 6,32    |
|    | 25  | 66,3                        | 62,8 | 57,0 | 50,8 | 45,3 | 40,5 | 36,2    | 4,41                        | 4,49 | 4,63 | 4,76 | 4,95 | 5,03 | 5,27    |
|    | 30  | 64,7                        | 61,2 | 55,5 | 49,3 | 43,9 | 38,9 | 34,7    | 3,84                        | 3,91 | 4,03 | 4,12 | 4,25 | 4,30 | 4,46    |
|    | 35  | 61,4                        | 60,4 | 54,8 | 48,8 | 43,5 | 38,7 | 34,6    | 3,28                        | 3,47 | 3,57 | 3,65 | 3,76 | 3,42 | 3,93    |
|    | 40  | 59,5                        | 57,7 | 52,3 | 46,4 | 41,1 | 36,4 | 32,3    | 2,90                        | 3,03 | 3,11 | 3,16 | 3,23 | 3,23 | 3,31    |
|    | 44  | -                           | -    | -    | -    | -    | 34,2 | 30,2    | -                           | -    | -    | -    | -    | 2,82 | 2,86    |
| 18 | 15  | 79,0                        | 74,8 | 67,9 | 60,6 | 54,1 | 48,4 | 43,4    | 6,76                        | 6,88 | 7,12 | 7,34 | 7,67 | 7,88 | 8,40    |
|    | 20  | 75,7                        | 71,6 | 65,0 | 57,9 | 51,7 | 46,1 | 41,3    | 5,67                        | 5,78 | 5,98 | 6,15 | 6,41 | 6,55 | 6,94    |
|    | 25  | 72,3                        | 68,5 | 62,1 | 55,3 | 49,2 | 43,8 | 39,2    | 4,80                        | 4,90 | 5,06 | 5,18 | 5,38 | 5,47 | 5,76    |
|    | 30  | 70,2                        | 66,0 | 60,1 | 53,4 | 47,4 | 42,0 | 37,3    | 4,17                        | 4,23 | 4,38 | 4,47 | 4,61 | 4,65 | 4,84    |
|    | 35  | 66,0                        | 64,2 | 59,1 | 52,5 | 46,7 | 41,5 | 37,0    | 3,77                        | 3,84 | 3,87 | 3,95 | 4,07 | 4,10 | 4,26    |
|    | 40  | 66,2                        | 62,7 | 56,7 | 50,2 | 44,4 | 39,2 | 34,7    | 3,22                        | 3,28 | 3,37 | 3,41 | 3,49 | 3,48 | 3,57    |
|    | 44  | -                           | -    | -    | -    | -    | 37,0 | 32,6    | -                           | -    | -    | -    | -    | 3,03 | 3,07    |
| 20 | 15  | 83,4                        | 78,9 | 71,6 | 63,8 | 56,9 | 50,9 | 45,6    | 7,19                        | 7,32 | 7,58 | 7,80 | 8,18 | 8,39 | 8,98    |
|    | 20  | 79,9                        | 75,6 | 68,6 | 61,1 | 54,4 | 48,5 | 43,4    | 6,01                        | 6,13 | 6,35 | 6,52 | 6,80 | 6,95 | 7,39    |
|    | 25  | 76,3                        | 72,2 | 65,5 | 58,2 | 51,8 | 46,1 | 41,2    | 5,07                        | 5,18 | 5,36 | 5,48 | 5,70 | 5,79 | 6,09    |
|    | 30  | 74,1                        | 70,2 | 63,5 | 56,2 | 49,9 | 44,1 | 39,2    | 4,40                        | 4,50 | 4,63 | 4,71 | 4,87 | 4,90 | 5,10    |
|    | 35  | 72,7                        | 68,8 | 62,3 | 55,3 | 49,2 | 43,6 | 38,9    | 3,88                        | 3,97 | 4,09 | 4,15 | 4,29 | 4,32 | 4,48    |
|    | 40  | 69,9                        | 66,2 | 59,8 | 52,9 | 46,8 | 41,2 | 36,5    | 3,39                        | 3,46 | 3,55 | 3,58 | 3,67 | 3,66 | 3,75    |
|    | 44  | -                           | -    | -    | -    | -    | 38,8 | 34,3    | -                           | -    | -    | -    | -    | 3,17 | 3,23    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 18.2 - EXC - SC

| To | Tae | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 35 | -20 | 22,5                        | 20,2 | 15,7 | 12,4 | 8,72 | 5,51 | -       | 2,16                        | 2,10 | 1,96 | 1,82 | 1,49 | 1,08 | -       |
|    | -15 | 27,2                        | 24,8 | 21,4 | 18,6 | 15,2 | 12,7 | 10,2    | 2,48                        | 2,45 | 2,41 | 2,36 | 2,30 | 2,23 | 2,13    |
|    | -10 | 32,3                        | 29,8 | 26,1 | 23,2 | 19,2 | 16,4 | 13,6    | 2,83                        | 2,83 | 2,81 | 2,82 | 2,74 | 2,67 | 2,58    |
|    | -7  | 35,8                        | 33,1 | 29,4 | 26,4 | 22,9 | 20,2 | 17,4    | 3,06                        | 3,07 | 3,10 | 3,13 | 3,33 | 3,43 | 3,45    |
|    | 2   | 48,4                        | 45,1 | 40,3 | 36,3 | 30,8 | 27,2 | 24,3    | 3,79                        | 3,84 | 3,91 | 3,96 | 4,15 | 4,27 | 4,38    |
|    | 7   | 58,5                        | 51,7 | 46,3 | 41,8 | 36,6 | 32,2 | 28,8    | 4,13                        | 4,42 | 4,52 | 4,59 | 4,97 | 5,10 | 5,21    |
|    | 10  | 58,7                        | 54,9 | 49,2 | 44,4 | 38,9 | 34,3 | 30,5    | 4,60                        | 4,67 | 4,78 | 4,86 | 5,26 | 5,40 | 5,52    |
|    | 18  | 68,6                        | 64,3 | 57,8 | 52,2 | 45,6 | 40,1 | 35,6    | 5,31                        | 5,42 | 5,58 | 5,69 | 6,16 | 6,33 | 6,46    |
|    | -20 | 21,8                        | 19,6 | 14,9 | 11,5 | 7,90 | -    | -       | 1,98                        | 1,95 | 1,76 | 1,59 | 1,27 | -    | -       |
| 40 | -15 | 26,6                        | 24,3 | 21,1 | 18,0 | 14,6 | 12,1 | 9,61    | 2,27                        | 2,24 | 2,21 | 2,16 | 2,08 | 2,00 | 1,89    |
|    | -10 | 31,9                        | 29,5 | 25,7 | 22,8 | 18,7 | 15,9 | 13,0    | 2,59                        | 2,59 | 2,56 | 2,56 | 2,50 | 2,46 | 2,37    |
|    | -7  | 35,3                        | 32,8 | 29,1 | 26,1 | 22,7 | 20,1 | 17,3    | 2,80                        | 2,81 | 2,83 | 2,86 | 3,02 | 3,09 | 3,16    |
|    | 2   | 47,5                        | 44,7 | 39,9 | 35,9 | 30,5 | 26,8 | 23,9    | 3,40                        | 3,47 | 3,53 | 3,57 | 3,71 | 3,80 | 3,86    |
|    | 7   | 55,5                        | 51,1 | 45,7 | 41,2 | 36,0 | 31,7 | 28,2    | 3,97                        | 3,97 | 4,05 | 4,11 | 4,42 | 4,51 | 4,58    |
|    | 10  | 58,1                        | 54,3 | 48,5 | 43,7 | 38,3 | 33,6 | 29,9    | 4,11                        | 4,18 | 4,27 | 4,33 | 4,66 | 4,76 | 4,82    |
|    | 18  | 67,8                        | 63,4 | 56,9 | 51,2 | 44,8 | 39,2 | 34,7    | 4,71                        | 4,80 | 4,94 | 5,03 | 5,41 | 5,52 | 5,58    |
|    | -20 | 21,1                        | 18,8 | 14,1 | 10,5 | 7,03 | -    | -       | 1,80                        | 1,73 | 1,54 | 1,35 | 1,08 | -    | -       |
|    | -15 | 26,0                        | 23,8 | 20,7 | 17,4 | 14,0 | 11,7 | -       | 2,06                        | 2,04 | 2,01 | 1,93 | 1,84 | 1,78 | -       |
| 45 | -10 | 31,5                        | 29,2 | 25,3 | 22,2 | 18,1 | 15,3 | 12,5    | 2,37                        | 2,37 | 2,33 | 2,29 | 2,22 | 2,17 | 2,08    |
|    | -7  | 35,0                        | 32,5 | 28,9 | 26,0 | 22,7 | 20,0 | 17,3    | 2,56                        | 2,57 | 2,59 | 2,61 | 2,75 | 2,80 | 2,87    |
|    | 2   | 46,7                        | 44,2 | 39,4 | 35,5 | 30,1 | 26,5 | 23,6    | 3,04                        | 3,12 | 3,17 | 3,20 | 3,31 | 3,36 | 3,40    |
|    | 7   | 57,8                        | 50,5 | 45,1 | 40,6 | 35,5 | 31,2 | 27,6    | 3,33                        | 3,52 | 3,59 | 3,64 | 3,89 | 3,94 | 3,97    |
|    | 10  | 57,4                        | 53,6 | 47,8 | 43,0 | 37,7 | 33,0 | 29,2    | 3,66                        | 3,71 | 3,79 | 3,84 | 4,11 | 4,16 | 4,18    |
|    | 18  | 66,8                        | 62,5 | 55,9 | 50,2 | 43,9 | 38,3 | 33,8    | 4,17                        | 4,25 | 4,36 | 4,43 | 4,74 | 4,80 | 4,82    |
|    | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | 24,0                        | 22,0 | 19,3 | 16,5 | 13,3 | 11,1 | -       | 1,74                        | 1,73 | 1,72 | 1,64 | 1,60 | 1,52 | -       |
|    | -10 | 28,9                        | 26,8 | 23,7 | 21,3 | 17,3 | 14,5 | 11,8    | 1,98                        | 1,98 | 1,99 | 2,00 | 1,95 | 1,85 | 1,75    |
| 50 | -7  | 32,1                        | 29,9 | 26,6 | 23,9 | 21,1 | 18,8 | 16,4    | 2,13                        | 2,14 | 2,16 | 2,17 | 2,31 | 2,37 | 2,43    |
|    | 2   | 42,0                        | 39,1 | 34,9 | 31,4 | 27,2 | 23,9 | 21,2    | 2,58                        | 2,61 | 2,65 | 2,67 | 2,76 | 2,79 | 2,79    |
|    | 7   | 50,3                        | 46,9 | 41,9 | 37,6 | 31,6 | 27,6 | 24,4    | 3,17                        | 3,21 | 3,27 | 3,30 | 3,31 | 3,32 | 3,32    |
|    | 10  | 53,3                        | 49,7 | 44,4 | 39,8 | 33,4 | 29,2 | 25,8    | 3,31                        | 3,36 | 3,42 | 3,45 | 3,47 | 3,49 | 3,48    |
|    | 18  | 61,8                        | 57,8 | 51,6 | 46,3 | 38,8 | 33,7 | 29,7    | 3,71                        | 3,78 | 3,88 | 3,92 | 3,94 | 3,95 | 3,94    |
|    | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | 23,1 | 20,5 | 16,5 | 13,8 | 11,2    | -                           | -    | 1,79 | 1,77 | 1,69 | 1,63 | 1,54    |
|    | -7  | 31,1                        | 28,8 | 25,6 | 22,9 | 19,5 | 17,1 | 14,8    | 1,90                        | 1,91 | 1,91 | 1,92 | 1,90 | 1,89 | 1,89    |
| 55 | 2   | 41,2                        | 38,4 | 34,2 | 30,8 | 26,7 | 23,4 | 20,7    | 2,32                        | 2,34 | 2,38 | 2,40 | 2,47 | 2,47 | 2,46    |
|    | 7   | 51,8                        | 45,9 | 40,9 | 36,7 | 30,8 | 26,9 | 23,7    | 2,70                        | 2,87 | 2,91 | 2,94 | 2,92 | 2,92 | 2,89    |
|    | 10  | 52,0                        | 48,5 | 43,2 | 38,8 | 32,5 | 28,3 | 24,9    | 2,94                        | 2,98 | 3,04 | 3,06 | 3,05 | 3,05 | 3,01    |
|    | 18  | 60,2                        | 56,1 | 50,0 | 44,8 | 37,5 | 32,5 | 28,6    | 3,28                        | 3,33 | 3,40 | 3,44 | 3,43 | 3,42 | 3,39    |
|    | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -    | 26,0 | 22,7 | 20,1    | -                           | -    | -    | -    | 2,18 | 2,18 | 2,15    |
| 60 | 7   | -                           | -    | -    | -    | 29,3 | 25,5 | 22,3    | -                           | -    | -    | -    | 2,52 | 2,50 | 2,46    |
|    | 10  | -                           | -    | -    | -    | 31,0 | 26,9 | 23,5    | -                           | -    | -    | -    | 2,64 | 2,62 | 2,56    |
|    | 18  | -                           | -    | -    | -    | 35,6 | 30,8 | 27,0    | -                           | -    | -    | -    | 2,94 | 2,92 | 2,88    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 22.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 66,2                        | 59,4 | 57,4 | 52,4 | 48,7 | 42,2 | 34,5    | 5,14                        | 5,07 | 5,39 | 5,46 | 5,69 | 6,11 | 6,91    |
|    | 20  | 64,4                        | 57,0 | 55,0 | 50,5 | 46,3 | 40,4 | 33,3    | 4,45                        | 4,35 | 4,61 | 4,71 | 4,84 | 5,25 | 5,94    |
|    | 25  | 62,3                        | 56,1 | 53,9 | 49,0 | 45,5 | 38,2 | 31,7    | 3,87                        | 3,85 | 4,06 | 4,12 | 4,28 | 4,47 | 5,04    |
|    | 30  | 57,5                        | 53,7 | 51,8 | 46,1 | 43,0 | 36,1 | 29,3    | 3,23                        | 3,34 | 3,55 | 3,51 | 3,66 | 3,82 | 4,17    |
|    | 35  | 56,9                        | 53,1 | 49,5 | 45,5 | 41,8 | 35,1 | 27,7    | 2,89                        | 3,01 | 3,08 | 3,16 | 3,23 | 3,37 | 3,55    |
|    | 40  | 53,5                        | 49,8 | 46,4 | 42,7 | 39,1 | 32,8 | 25,7    | 2,51                        | 2,58 | 2,64 | 2,71 | 2,76 | 2,87 | 2,97    |
|    | 44  | -                           | -    | -    | -    | -    | 30,9 | 24,0    | -                           | -    | -    | -    | -    | 2,52 | 2,57    |
| 10 | 15  | 70,0                        | 65,1 | 60,5 | 55,7 | 51,1 | 43,2 | 34,6    | 5,43                        | 5,57 | 5,70 | 5,82 | 5,99 | 6,29 | 6,97    |
|    | 20  | 67,3                        | 62,5 | 58,0 | 53,5 | 49,1 | 41,4 | 33,0    | 4,63                        | 4,75 | 4,86 | 4,99 | 5,12 | 5,39 | 5,89    |
|    | 25  | 64,4                        | 59,9 | 55,7 | 51,3 | 47,0 | 39,6 | 31,5    | 3,96                        | 4,23 | 4,17 | 4,28 | 4,40 | 4,62 | 4,99    |
|    | 30  | 61,5                        | 57,2 | 53,3 | 49,0 | 44,9 | 37,7 | 29,8    | 3,42                        | 3,51 | 3,60 | 3,70 | 3,79 | 3,97 | 4,21    |
|    | 35  | 62,9                        | 58,5 | 54,4 | 50,1 | 45,9 | 38,5 | 30,3    | 3,17                        | 3,26 | 3,34 | 3,43 | 3,51 | 3,67 | 3,83    |
|    | 40  | 58,9                        | 54,9 | 51,1 | 47,0 | 43,0 | 36,0 | 28,1    | 2,71                        | 2,79 | 2,86 | 2,94 | 2,99 | 3,11 | 3,20    |
|    | 44  | -                           | -    | -    | -    | -    | 33,9 | 26,3    | -                           | -    | -    | -    | -    | 2,70 | 2,76    |
| 12 | 15  | 74,1                        | 68,8 | 64,1 | 58,9 | 54,1 | 45,6 | 36,4    | 5,76                        | 5,90 | 6,04 | 6,19 | 6,36 | 6,70 | 7,39    |
|    | 20  | 71,2                        | 66,2 | 61,6 | 56,7 | 52,0 | 43,8 | 34,9    | 4,88                        | 5,02 | 5,14 | 5,28 | 5,42 | 5,72 | 6,24    |
|    | 25  | 68,3                        | 63,5 | 59,1 | 54,3 | 49,8 | 41,9 | 33,2    | 4,18                        | 4,30 | 4,40 | 4,53 | 4,64 | 5,05 | 5,26    |
|    | 30  | 65,3                        | 60,7 | 56,5 | 51,9 | 47,6 | 39,9 | 31,5    | 3,59                        | 3,70 | 3,79 | 3,90 | 4,00 | 4,19 | 4,44    |
|    | 35  | 66,7                        | 62,1 | 57,8 | 53,1 | 48,6 | 40,8 | 31,9    | 3,33                        | 3,43 | 3,51 | 3,62 | 3,69 | 3,87 | 4,03    |
|    | 40  | 62,6                        | 58,2 | 54,2 | 49,8 | 45,6 | 38,1 | 29,6    | 2,85                        | 2,94 | 3,00 | 3,09 | 3,14 | 3,28 | 3,35    |
|    | 44  | -                           | -    | -    | -    | -    | 35,9 | 27,7    | -                           | -    | -    | -    | -    | 2,86 | 2,89    |
| 15 | 15  | 82,5                        | 76,0 | 71,2 | 65,6 | 60,1 | 49,4 | 40,3    | 5,95                        | 6,41 | 6,59 | 6,79 | 6,95 | 7,21 | 8,05    |
|    | 20  | 78,6                        | 72,7 | 68,3 | 62,8 | 57,5 | 47,2 | 38,4    | 4,96                        | 5,38 | 5,55 | 5,73 | 5,85 | 6,06 | 6,71    |
|    | 25  | 75,3                        | 69,4 | 65,1 | 59,9 | 54,9 | 44,9 | 36,4    | 4,22                        | 4,56 | 4,70 | 4,86 | 4,96 | 5,11 | 5,59    |
|    | 30  | 72,0                        | 66,4 | 62,3 | 57,3 | 52,4 | 42,7 | 34,6    | 3,62                        | 3,91 | 4,03 | 4,17 | 4,25 | 4,35 | 4,72    |
|    | 35  | 73,7                        | 67,9 | 63,8 | 58,6 | 53,6 | 43,5 | 35,0    | 3,34                        | 3,61 | 3,72 | 3,85 | 3,91 | 3,98 | 4,25    |
|    | 40  | 69,2                        | 63,7 | 59,8 | 55,0 | 50,2 | 40,6 | 32,4    | 2,85                        | 3,08 | 3,18 | 3,28 | 3,32 | 3,35 | 3,52    |
|    | 44  | -                           | -    | -    | -    | -    | 38,2 | 30,3    | -                           | -    | -    | -    | -    | 2,92 | 2,98    |
| 18 | 15  | 89,9                        | 82,8 | 77,6 | 71,3 | 65,4 | 53,5 | 43,6    | 6,50                        | 6,63 | 6,83 | 7,07 | 7,22 | 7,47 | 8,45    |
|    | 20  | 86,1                        | 79,2 | 74,3 | 68,4 | 62,6 | 51,1 | 41,5    | 5,43                        | 5,55 | 5,72 | 5,94 | 6,05 | 6,24 | 6,97    |
|    | 25  | 82,1                        | 75,6 | 70,9 | 65,2 | 59,7 | 48,6 | 39,4    | 4,58                        | 4,68 | 4,83 | 5,01 | 5,11 | 5,25 | 5,78    |
|    | 30  | 79,8                        | 71,9 | 67,5 | 62,1 | 56,8 | 46,1 | 37,2    | 3,98                        | 3,98 | 4,12 | 4,27 | 4,34 | 4,43 | 4,82    |
|    | 35  | 78,0                        | 73,3 | 68,8 | 63,2 | 57,8 | 46,7 | 37,5    | 3,45                        | 3,66 | 3,78 | 3,91 | 3,97 | 4,02 | 4,31    |
|    | 40  | 75,0                        | 69,1 | 64,9 | 59,6 | 54,4 | 43,8 | 34,9    | 3,06                        | 3,13 | 3,23 | 3,34 | 3,38 | 3,40 | 3,58    |
|    | 44  | -                           | -    | -    | -    | -    | 41,4 | 32,8    | -                           | -    | -    | -    | -    | 2,97 | 3,09    |
| 20 | 15  | 95,0                        | 87,4 | 81,9 | 75,2 | 68,9 | 56,3 | 45,8    | 6,88                        | 7,02 | 7,26 | 7,53 | 7,69 | 7,94 | 9,03    |
|    | 20  | 90,9                        | 83,7 | 78,4 | 72,1 | 66,0 | 53,8 | 43,6    | 5,73                        | 5,86 | 6,06 | 6,29 | 6,42 | 6,60 | 7,42    |
|    | 25  | 86,9                        | 79,9 | 74,9 | 68,9 | 63,0 | 51,2 | 41,4    | 4,85                        | 4,96 | 5,10 | 5,30 | 5,40 | 5,53 | 6,14    |
|    | 30  | 82,6                        | 75,9 | 71,2 | 65,6 | 59,9 | 48,5 | 39,1    | 4,10                        | 4,19 | 4,33 | 4,50 | 4,58 | 4,66 | 5,09    |
|    | 35  | 84,1                        | 77,3 | 72,6 | 66,8 | 60,9 | 49,2 | 39,4    | 3,75                        | 3,84 | 3,97 | 4,12 | 4,18 | 4,22 | 4,54    |
|    | 40  | 79,3                        | 73,0 | 68,5 | 62,9 | 57,3 | 46,0 | 36,7    | 3,21                        | 3,30 | 3,39 | 3,52 | 3,56 | 3,56 | 3,77    |
|    | 44  | -                           | -    | -    | -    | -    | 43,5 | 34,4    | -                           | -    | -    | -    | -    | 3,11 | 3,24    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 22.2 - EXC - SC

| To<br>°C | Tae<br>°C | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----------|-----------|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|          |           | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|          |           | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35       | -20       | 28,5                        | 25,7 | 22,5 | 18,3 | 12,8 | 8,72 | -       | 2,34                        | 2,26 | 2,16 | 1,99 | 1,60 | 1,28 | -       |
|          | -15       | 33,1                        | 30,4 | 27,2 | 23,6 | 19,9 | 15,9 | 12,7    | 2,57                        | 2,52 | 2,48 | 2,43 | 2,40 | 2,26 | 2,19    |
|          | -10       | 38,9                        | 35,6 | 32,3 | 28,6 | 24,4 | 21,1 | 16,4    | 2,83                        | 2,84 | 2,83 | 2,82 | 2,82 | 2,84 | 2,79    |
|          | -7        | 43,4                        | 39,2 | 35,8 | 31,9 | 27,6 | 24,0 | 20,2    | 3,00                        | 3,05 | 3,06 | 3,08 | 3,12 | 3,16 | 3,43    |
|          | 2         | 57,0                        | 52,5 | 48,4 | 43,5 | 37,9 | 33,2 | 27,2    | 3,61                        | 3,74 | 3,79 | 3,86 | 3,94 | 4,01 | 4,27    |
|          | 7         | 66,9                        | 60,5 | 55,9 | 50,4 | 44,0 | 38,6 | 32,2    | 4,06                        | 4,28 | 4,37 | 4,46 | 4,57 | 4,66 | 5,10    |
|          | 10        | 67,8                        | 64,0 | 59,3 | 53,5 | 46,8 | 41,0 | 34,3    | 4,42                        | 4,50 | 4,60 | 4,71 | 4,83 | 4,93 | 5,40    |
|          | 18        | 78,9                        | 74,7 | 69,3 | 62,8 | 55,0 | 48,0 | 40,1    | 5,05                        | 5,17 | 5,31 | 5,48 | 5,66 | 5,77 | 6,33    |
| 40       | -20       | 27,3                        | 24,7 | 21,7 | 17,1 | 11,8 | -    | -       | 2,11                        | 2,04 | 1,97 | 1,74 | 1,40 | -    | -       |
|          | -15       | 32,1                        | 29,5 | 26,5 | 23,1 | 19,2 | 15,0 | 12,1    | 2,33                        | 2,29 | 2,26 | 2,22 | 2,15 | 1,97 | 1,92    |
|          | -10       | 37,5                        | 34,9 | 31,7 | 28,1 | 23,9 | 20,4 | 15,9    | 2,59                        | 2,58 | 2,57 | 2,57 | 2,56 | 2,53 | 2,41    |
|          | -7        | 42,2                        | 38,5 | 35,2 | 31,4 | 27,2 | 23,7 | 20,0    | 2,84                        | 2,77 | 2,78 | 2,80 | 2,83 | 2,87 | 3,08    |
|          | 2         | 55,3                        | 51,7 | 47,7 | 42,8 | 37,3 | 32,6 | 26,7    | 3,34                        | 3,36 | 3,41 | 3,47 | 3,54 | 3,59 | 3,78    |
|          | 7         | 63,5                        | 59,6 | 55,0 | 49,6 | 43,2 | 37,8 | 31,6    | 3,78                        | 3,82 | 3,90 | 3,99 | 4,07 | 4,14 | 4,49    |
|          | 10        | 66,8                        | 63,1 | 58,4 | 52,6 | 45,9 | 40,1 | 33,5    | 3,93                        | 4,01 | 4,10 | 4,19 | 4,29 | 4,37 | 4,74    |
|          | 18        | 77,7                        | 73,5 | 68,1 | 61,6 | 53,8 | 46,9 | 39,0    | 4,46                        | 4,56 | 4,69 | 4,83 | 4,98 | 5,06 | 5,49    |
| 45       | -20       | 26,2                        | 23,8 | 21,1 | 15,5 | 10,7 | -    | -       | 1,91                        | 1,85 | 1,79 | 1,47 | 1,20 | -    | -       |
|          | -15       | 31,2                        | 28,8 | 26,0 | 22,3 | 18,4 | 14,1 | 11,3    | 2,11                        | 2,09 | 2,06 | 2,00 | 1,91 | 1,72 | 1,65    |
|          | -10       | 36,8                        | 34,3 | 31,2 | 27,8 | 23,2 | 19,7 | 15,2    | 2,35                        | 2,35 | 2,35 | 2,35 | 2,29 | 2,25 | 2,12    |
|          | -7        | 40,9                        | 37,9 | 34,7 | 31,0 | 26,9 | 23,4 | 19,5    | 2,54                        | 2,52 | 2,53 | 2,55 | 2,58 | 2,60 | 2,73    |
|          | 2         | 54,2                        | 51,0 | 46,9 | 42,2 | 36,7 | 32,0 | 26,2    | 2,98                        | 3,02 | 3,07 | 3,12 | 3,17 | 3,21 | 3,34    |
|          | 7         | 66,4                        | 58,6 | 54,1 | 48,7 | 42,4 | 37,0 | 30,9    | 3,19                        | 3,41 | 3,48 | 3,55 | 3,63 | 3,67 | 3,94    |
|          | 10        | 65,8                        | 62,1 | 57,4 | 51,7 | 45,0 | 39,2 | 32,7    | 3,46                        | 3,57 | 3,64 | 3,73 | 3,81 | 3,86 | 4,14    |
|          | 18        | 76,3                        | 72,1 | 66,8 | 60,3 | 52,5 | 45,7 | 37,9    | 3,93                        | 4,02 | 4,13 | 4,25 | 4,37 | 4,43 | 4,75    |
| 50       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | 28,3                        | 26,2 | 23,7 | 20,9 | 16,9 | 12,9 | 10,1    | 1,76                        | 1,74 | 1,72 | 1,71 | 1,61 | 1,45 | 1,36    |
|          | -10       | 33,6                        | 31,4 | 28,6 | 25,5 | 22,1 | 18,8 | 14,4    | 1,95                        | 1,95 | 1,96 | 1,96 | 1,97 | 1,95 | 1,84    |
|          | -7        | 37,1                        | 34,7 | 31,8 | 28,5 | 24,7 | 21,6 | 18,7    | 2,08                        | 2,09 | 2,11 | 2,13 | 2,15 | 2,16 | 2,35    |
|          | 2         | 48,0                        | 45,1 | 41,6 | 37,4 | 32,5 | 28,3 | 23,7    | 2,48                        | 2,51 | 2,55 | 2,59 | 2,63 | 2,66 | 2,76    |
|          | 7         | 58,6                        | 55,2 | 50,9 | 45,8 | 39,8 | 34,6 | 27,3    | 3,09                        | 3,14 | 3,20 | 3,27 | 3,33 | 3,35 | 3,29    |
|          | 10        | 61,8                        | 58,3 | 53,9 | 48,5 | 42,1 | 36,6 | 28,9    | 3,21                        | 3,27 | 3,34 | 3,42 | 3,48 | 3,51 | 3,45    |
|          | 18        | 71,7                        | 67,6 | 62,5 | 56,3 | 49,0 | 42,5 | 33,4    | 3,60                        | 3,65 | 3,75 | 3,86 | 3,95 | 4,00 | 3,91    |
| 55       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | 24,6 | 21,0 | 17,9 | -       | -                           | -    | -    | 1,75 | 1,74 | 1,70 | -       |
|          | -7        | 36,1                        | 33,8 | 30,9 | 27,6 | 24,0 | 20,6 | 17,7    | 1,87                        | 1,88 | 1,89 | 1,90 | 1,92 | 1,90 | 2,01    |
|          | 2         | 47,1                        | 44,3 | 40,8 | 36,7 | 31,8 | 27,7 | 23,2    | 2,23                        | 2,26 | 2,29 | 2,33 | 2,36 | 2,38 | 2,45    |
|          | 7         | 56,6                        | 54,0 | 49,8 | 44,7 | 38,8 | 33,7 | 26,6    | 2,73                        | 2,80 | 2,86 | 2,92 | 2,96 | 2,97 | 2,89    |
|          | 10        | 60,5                        | 57,0 | 52,6 | 47,3 | 41,0 | 35,6 | 28,0    | 2,86                        | 2,91 | 2,97 | 3,04 | 3,09 | 3,10 | 3,02    |
|          | 18        | 70,1                        | 66,0 | 60,8 | 54,7 | 47,4 | 41,2 | 32,1    | 3,23                        | 3,27 | 3,32 | 3,39 | 3,46 | 3,50 | 3,38    |
| 60       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -7        | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | 2         | -                           | -    | -    | -    | -    | 26,9 | 22,5    | -                           | -    | -    | -    | -    | 2,11 | 2,16    |
|          | 7         | -                           | -    | -    | -    | -    | 32,3 | 25,5    | -                           | -    | -    | -    | -    | 2,60 | 2,50    |
|          | 10        | -                           | -    | -    | -    | -    | 34,1 | 26,9    | -                           | -    | -    | -    | -    | 2,71 | 2,62    |
|          | 18        | -                           | -    | -    | -    | -    | 39,7 | 30,8    | -                           | -    | -    | -    | -    | 3,05 | 2,92    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 /-8 | -5 /-6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|--------|--------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93   | 0,93   | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 30.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 80,4                        | 76,1 | 71,8 | 65,8 | 60,1 | 52,7 | 48,2    | 5,19                        | 5,34 | 5,49 | 5,64 | 5,80 | 5,94 | 6,32    |
|    | 20  | 77,5                        | 73,3 | 69,1 | 63,3 | 57,7 | 50,5 | 46,1    | 4,58                        | 4,73 | 4,88 | 5,05 | 5,22 | 5,39 | 5,67    |
|    | 25  | 75,3                        | 70,9 | 66,4 | 60,8 | 55,3 | 48,2 | 43,9    | 4,05                        | 4,17 | 4,29 | 4,44 | 4,61 | 4,77 | 4,94    |
|    | 30  | 72,7                        | 68,4 | 64,1 | 58,4 | 52,9 | 46,0 | 41,8    | 3,54                        | 3,65 | 3,75 | 3,88 | 4,00 | 4,13 | 4,22    |
|    | 35  | 70,2                        | 65,9 | 61,7 | 56,1 | 50,6 | 43,8 | 39,7    | 3,10                        | 3,17 | 3,26 | 3,35 | 3,44 | 3,53 | 3,55    |
|    | 40  | 66,7                        | 62,7 | 58,7 | 53,3 | 48,2 | 41,6 | 37,5    | 2,65                        | 2,72 | 2,79 | 2,85 | 2,93 | 2,98 | 2,96    |
|    | 44  | -                           | -    | -    | -    | 46,3 | 39,8 | 35,8    | -                           | -    | -    | -    | 2,57 | 2,59 | 2,54    |
| 10 | 15  | 87,5                        | 82,8 | 78,0 | 71,5 | 65,2 | 57,2 | 52,2    | 5,56                        | 5,73 | 5,91 | 6,09 | 6,28 | 6,44 | 6,83    |
|    | 20  | 84,3                        | 79,8 | 75,2 | 68,9 | 62,7 | 54,8 | 49,9    | 4,91                        | 5,08 | 5,25 | 5,44 | 5,64 | 5,84 | 6,12    |
|    | 25  | 81,2                        | 76,8 | 72,3 | 66,2 | 60,2 | 52,4 | 47,6    | 4,30                        | 4,46 | 4,62 | 4,79 | 4,98 | 5,16 | 5,33    |
|    | 30  | 78,1                        | 73,9 | 69,5 | 63,6 | 57,7 | 50,1 | 45,4    | 3,75                        | 3,89 | 4,03 | 4,18 | 4,33 | 4,48 | 4,56    |
|    | 35  | 75,0                        | 70,9 | 66,7 | 60,9 | 55,2 | 47,8 | 43,2    | 3,26                        | 3,37 | 3,49 | 3,61 | 3,73 | 3,83 | 3,84    |
|    | 40  | 71,9                        | 68,0 | 63,9 | 58,3 | 52,7 | 45,5 | 41,0    | 2,82                        | 2,92 | 3,01 | 3,10 | 3,19 | 3,24 | 3,21    |
|    | 44  | -                           | -    | -    | -    | 50,8 | 43,6 | 39,2    | -                           | -    | -    | -    | 2,80 | 2,83 | 2,76    |
| 12 | 15  | 92,4                        | 87,5 | 82,4 | 75,5 | 68,9 | 60,3 | 54,9    | 5,81                        | 6,01 | 6,20 | 6,41 | 6,63 | 6,82 | 7,22    |
|    | 20  | 89,2                        | 84,4 | 79,5 | 72,8 | 66,2 | 57,8 | 52,6    | 5,14                        | 5,33 | 5,52 | 5,73 | 5,95 | 6,17 | 6,45    |
|    | 25  | 85,9                        | 81,3 | 76,5 | 70,0 | 63,6 | 55,3 | 50,2    | 4,51                        | 4,69 | 4,86 | 5,05 | 5,26 | 5,45 | 5,62    |
|    | 30  | 82,7                        | 78,3 | 73,6 | 67,3 | 61,1 | 52,9 | 48,0    | 3,94                        | 4,09 | 4,24 | 4,41 | 4,58 | 4,73 | 4,82    |
|    | 35  | 79,5                        | 75,2 | 70,7 | 64,6 | 58,5 | 50,6 | 45,7    | 3,43                        | 3,56 | 3,68 | 3,81 | 3,95 | 4,06 | 4,06    |
|    | 40  | 76,3                        | 72,2 | 67,8 | 61,9 | 56,0 | 48,2 | 43,4    | 2,98                        | 3,08 | 3,18 | 3,28 | 3,37 | 3,44 | 3,39    |
|    | 44  | -                           | -    | -    | -    | 54,0 | 46,4 | 41,7    | -                           | -    | -    | -    | 2,97 | 3,00 | 2,93    |
| 15 | 15  | 100                         | 94,8 | 89,4 | 81,9 | 74,2 | 65,2 | 59,3    | 6,22                        | 6,45 | 6,69 | 6,94 | 7,13 | 7,44 | 7,88    |
|    | 20  | 96,7                        | 91,6 | 86,3 | 79,0 | 71,8 | 62,6 | 56,9    | 5,51                        | 5,73 | 5,96 | 6,21 | 6,47 | 6,73 | 7,03    |
|    | 25  | 93,5                        | 88,4 | 83,2 | 76,1 | 69,1 | 60,1 | 54,4    | 4,86                        | 5,05 | 5,25 | 5,47 | 5,72 | 5,95 | 6,12    |
|    | 30  | 90,1                        | 85,2 | 80,2 | 73,3 | 66,4 | 57,6 | 52,1    | 4,26                        | 4,43 | 4,60 | 4,79 | 4,99 | 5,18 | 5,25    |
|    | 35  | 86,7                        | 82,1 | 77,2 | 70,4 | 63,8 | 55,1 | 49,7    | 3,71                        | 3,86 | 4,00 | 4,15 | 4,31 | 4,44 | 4,43    |
|    | 40  | 83,4                        | 78,9 | 74,2 | 67,7 | 61,2 | 52,7 | 47,4    | 3,24                        | 3,35 | 3,46 | 3,58 | 3,69 | 3,77 | 3,71    |
|    | 44  | -                           | -    | -    | -    | 50,8 | 45,6 | 41,7    | -                           | -    | -    | -    | -    | 3,30 | 3,21    |
| 18 | 15  | 109                         | 103  | 96,9 | 88,8 | 80,5 | 70,6 | 64,0    | 6,67                        | 6,95 | 7,22 | 7,54 | 7,72 | 8,17 | 8,60    |
|    | 20  | 105                         | 99,4 | 93,7 | 85,7 | 77,9 | 67,9 | 61,5    | 5,94                        | 6,19 | 6,46 | 6,76 | 7,08 | 7,39 | 7,72    |
|    | 25  | 102                         | 96,1 | 90,5 | 82,7 | 75,1 | 65,2 | 59,0    | 5,25                        | 5,48 | 5,71 | 5,97 | 6,26 | 6,55 | 6,73    |
|    | 30  | 98,0                        | 92,8 | 87,3 | 79,8 | 72,3 | 62,6 | 56,6    | 4,61                        | 4,81 | 5,01 | 5,23 | 5,47 | 5,71 | 5,77    |
|    | 35  | 95,3                        | 89,5 | 84,2 | 76,9 | 69,6 | 60,1 | 54,2    | 4,14                        | 4,21 | 4,37 | 4,55 | 4,74 | 4,90 | 4,88    |
|    | 40  | 91,2                        | 86,3 | 81,1 | 74,0 | 66,9 | 57,6 | 51,8    | 3,54                        | 3,67 | 3,80 | 3,94 | 4,07 | 4,17 | 4,09    |
|    | 44  | -                           | -    | -    | -    | 55,7 | 50,0 | 45,7    | -                           | -    | -    | -    | -    | 3,66 | 3,55    |
| 20 | 15  | 115                         | 109  | 101  | 93,7 | 85,5 | 74,4 | 67,4    | 7,01                        | 7,29 | 7,51 | 8,00 | 8,18 | 8,76 | 9,12    |
|    | 20  | 111                         | 105  | 98,8 | 90,5 | 80,4 | 71,6 | 64,3    | 6,25                        | 6,54 | 6,83 | 7,17 | 7,36 | 7,92 | 8,14    |
|    | 25  | 107                         | 102  | 95,6 | 87,4 | 79,3 | 68,9 | 62,3    | 5,54                        | 5,80 | 6,06 | 6,35 | 6,68 | 7,01 | 7,21    |
|    | 30  | 104                         | 98,1 | 92,4 | 84,4 | 76,5 | 66,2 | 59,8    | 4,89                        | 5,10 | 5,33 | 5,58 | 5,85 | 6,12 | 6,18    |
|    | 35  | 100                         | 94,8 | 89,2 | 81,4 | 73,7 | 63,6 | 57,4    | 4,29                        | 4,47 | 4,66 | 4,86 | 5,07 | 5,25 | 5,22    |
|    | 40  | 96,6                        | 91,5 | 86,1 | 78,5 | 71,0 | 61,1 | 55,0    | 3,76                        | 3,92 | 4,06 | 4,21 | 4,37 | 4,48 | 4,39    |
|    | 44  | -                           | -    | -    | -    | 59,2 | 53,2 | 48,2    | -                           | -    | -    | -    | -    | 3,93 | 3,81    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 30.2 - EXC - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -20 | 34,8                        | 33,1 | 31,4 | 29,3 | 27,1 | 24,5 | 22,8    | 1,73                        | 1,76 | 1,78 | 1,83 | 1,87 | 1,94 | 2,05    |
|    | -15 | 43,2                        | 41,0 | 38,8 | 36,0 | 33,1 | 29,7 | 27,3    | 2,19                        | 2,23 | 2,27 | 2,33 | 2,39 | 2,47 | 2,60    |
|    | -10 | 50,8                        | 48,5 | 45,8 | 42,4 | 39,0 | 34,7 | 31,8    | 2,68                        | 2,68 | 2,74 | 2,82 | 2,90 | 2,99 | 3,15    |
|    | -7  | 57,0                        | 53,1 | 50,1 | 46,3 | 42,4 | 37,7 | 34,4    | 2,95                        | 3,02 | 3,08 | 3,17 | 3,26 | 3,36 | 3,54    |
|    | 2   | 68,8                        | 65,3 | 61,5 | 56,6 | 51,6 | 45,3 | 41,0    | 3,57                        | 3,64 | 3,72 | 3,82 | 3,91 | 4,01 | 4,24    |
|    | 7   | 78,4                        | 73,3 | 69,3 | 63,8 | 58,1 | 51,0 | 46,4    | 4,38                        | 4,39 | 4,46 | 4,58 | 4,70 | 4,81 | 5,14    |
|    | 10  | 82,3                        | 77,9 | 73,3 | 67,4 | 61,3 | 53,8 | 48,9    | 4,48                        | 4,59 | 4,70 | 4,83 | 4,95 | 5,08 | 5,42    |
|    | 18  | 95,2                        | 90,0 | 84,7 | 77,8 | 70,7 | 61,9 | 56,2    | 5,11                        | 5,24 | 5,38 | 5,55 | 5,70 | 5,86 | 6,26    |
| 40 | -20 | 33,7                        | 31,9 | 30,4 | 28,0 | 26,1 | 23,7 | -       | 1,49                        | 1,51 | 1,54 | 1,57 | 1,61 | 1,68 | -       |
|    | -15 | 42,2                        | 39,8 | 37,7 | 35,0 | 31,7 | 28,7 | 26,3    | 1,91                        | 1,94 | 1,98 | 2,04 | 2,06 | 2,14 | 2,23    |
|    | -10 | 50,0                        | 47,0 | 44,6 | 41,2 | 38,0 | 33,5 | 30,5    | 2,30                        | 2,34 | 2,40 | 2,46 | 2,54 | 2,59 | 2,70    |
|    | -7  | 55,1                        | 52,2 | 49,2 | 45,3 | 41,3 | 36,4 | 33,1    | 2,55                        | 2,61 | 2,67 | 2,73 | 2,79 | 2,85 | 2,97    |
|    | 2   | 67,7                        | 64,0 | 60,1 | 55,1 | 50,0 | 43,8 | 39,7    | 3,14                        | 3,21 | 3,27 | 3,35 | 3,41 | 3,48 | 3,64    |
|    | 7   | 76,1                        | 72,1 | 68,1 | 62,1 | 57,0 | 50,1 | 45,2    | 3,80                        | 3,88 | 3,95 | 4,02 | 4,15 | 4,24 | 4,44    |
|    | 10  | 80,7                        | 76,2 | 72,2 | 66,6 | 60,3 | 52,8 | 48,0    | 3,95                        | 4,04 | 4,17 | 4,30 | 4,38 | 4,47 | 4,72    |
|    | 18  | 94,3                        | 89,1 | 83,7 | 76,8 | 69,6 | 60,8 | 55,1    | 4,55                        | 4,68 | 4,79 | 4,93 | 5,05 | 5,17 | 5,45    |
| 45 | -20 | -                           | 30,8 | 29,5 | 27,1 | 25,3 | 22,2 | -       | -                           | 1,30 | 1,33 | 1,35 | 1,39 | 1,40 | -       |
|    | -15 | 41,3                        | 39,1 | 36,8 | 34,0 | 30,7 | 27,8 | 25,4    | 1,66                        | 1,70 | 1,72 | 1,76 | 1,77 | 1,84 | 1,90    |
|    | -10 | 48,9                        | 46,1 | 43,8 | 40,0 | 37,1 | 32,4 | 29,7    | 2,01                        | 2,04 | 2,10 | 2,13 | 2,20 | 2,22 | 2,31    |
|    | -7  | 54,1                        | 50,8 | 48,6 | 44,5 | 40,3 | 35,2 | 31,9    | 2,24                        | 2,27 | 2,35 | 2,39 | 2,42 | 2,44 | 2,51    |
|    | 2   | 66,7                        | 62,9 | 58,9 | 53,8 | 48,9 | 42,7 | 38,2    | 2,76                        | 2,81 | 2,86 | 2,91 | 2,96 | 3,00 | 3,06    |
|    | 7   | 74,7                        | 70,7 | 67,3 | 60,9 | 56,1 | 48,6 | 43,9    | 3,52                        | 3,54 | 3,51 | 3,51 | 3,63 | 3,65 | 3,78    |
|    | 10  | 79,3                        | 74,9 | 71,0 | 65,0 | 58,9 | 51,1 | 46,8    | 3,47                        | 3,55 | 3,66 | 3,74 | 3,80 | 3,83 | 4,03    |
|    | 18  | 93,0                        | 88,3 | 82,9 | 75,9 | 68,8 | 59,1 | 53,9    | 4,01                        | 4,14 | 4,23 | 4,34 | 4,43 | 4,45 | 4,66    |
| 50 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | 38,4 | 36,1 | 33,2 | 29,7 | 26,9 | 24,2    | -                           | 1,48 | 1,50 | 1,53 | 1,52 | 1,58 | 1,58    |
|    | -10 | -                           | 45,0 | 42,9 | 39,1 | 36,2 | 31,6 | 28,9    | -                           | 1,78 | 1,83 | 1,85 | 1,91 | 1,91 | 1,96    |
|    | -7  | 53,0                        | 49,7 | 47,7 | 43,6 | 39,4 | 34,4 | 30,9    | 1,95                        | 1,98 | 2,05 | 2,08 | 2,09 | 2,10 | 2,12    |
|    | 2   | 65,9                        | 61,9 | 57,9 | 52,7 | 48,0 | 41,6 | 37,3    | 2,43                        | 2,47 | 2,50 | 2,53 | 2,57 | 2,57 | 2,60    |
|    | 7   | 73,0                        | 69,6 | 65,9 | 60,0 | 55,2 | 47,0 | 42,6    | 2,80                        | 2,87 | 2,95 | 2,99 | 3,07 | 3,02 | 3,10    |
|    | 10  | 78,4                        | 73,9 | 70,2 | 64,3 | 57,7 | 49,8 | 45,9    | 2,97                        | 3,03 | 3,13 | 3,19 | 3,21 | 3,20 | 3,34    |
|    | 18  | 91,1                        | 86,9 | 80,6 | 73,8 | 66,8 | 57,4 | 52,5    | 3,40                        | 3,53 | 3,56 | 3,64 | 3,71 | 3,70 | 3,85    |
| 55 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | 38,3 | 35,3 | 30,4 | 27,9    | -                           | -    | -    | 1,61 | 1,65 | 1,61 | 1,65    |
|    | -7  | 51,8                        | 48,9 | 47,0 | 42,6 | 38,1 | 33,5 | 29,9    | 1,70                        | 1,73 | 1,80 | 1,80 | 1,79 | 1,80 | 1,78    |
|    | 2   | 65,1                        | 61,2 | 57,0 | 51,7 | 46,7 | 40,7 | 36,4    | 2,14                        | 2,17 | 2,19 | 2,20 | 2,20 | 2,20 | 2,20    |
|    | 7   | 75,5                        | 68,1 | 64,4 | 58,9 | 54,1 | 45,8 | 41,4    | 2,56                        | 2,49 | 2,56 | 2,59 | 2,65 | 2,58 | 2,62    |
|    | 10  | 77,5                        | 72,8 | 69,1 | 63,1 | 57,0 | 48,3 | 44,7    | 2,61                        | 2,65 | 2,73 | 2,77 | 2,79 | 2,72 | 2,82    |
|    | 18  | 89,8                        | 85,6 | 79,3 | 72,5 | 65,5 | 56,2 | 51,3    | 2,98                        | 3,08 | 3,10 | 3,16 | 3,20 | 3,17 | 3,25    |
| 60 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -    | -    | -    | 34,7    | -                           | -    | -    | -    | -    | -    | 1,82    |
|    | 7   | -                           | -    | -    | -    | -    | -    | 40,6    | -                           | -    | -    | -    | -    | -    | 2,22    |
|    | 10  | -                           | -    | -    | -    | -    | -    | 43,9    | -                           | -    | -    | -    | -    | -    | 2,40    |
|    | 18  | -                           | -    | -    | -    | -    | -    | 50,4    | -                           | -    | -    | -    | -    | -    | 2,77    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 35.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 92,1                        | 87,7 | 83,4 | 75,6 | 68,6 | 61,1 | 53,7    | 4,85                        | 4,97 | 5,10 | 5,36 | 5,57 | 5,74 | 5,91    |
|    | 20  | 88,8                        | 84,6 | 80,4 | 72,8 | 66,0 | 58,7 | 51,4    | 4,28                        | 4,40 | 4,50 | 4,76 | 4,98 | 5,17 | 5,37    |
|    | 25  | 85,9                        | 81,4 | 77,3 | 70,0 | 63,4 | 56,2 | 49,1    | 3,77                        | 3,87 | 3,93 | 4,18 | 4,38 | 4,56 | 4,74    |
|    | 30  | 82,9                        | 78,7 | 74,3 | 67,2 | 60,8 | 53,8 | 46,8    | 3,31                        | 3,40 | 3,43 | 3,64 | 3,82 | 3,96 | 4,11    |
|    | 35  | 80,4                        | 75,8 | 71,6 | 64,4 | 58,2 | 51,4 | 44,5    | 2,91                        | 2,97 | 2,98 | 3,14 | 3,29 | 3,40 | 3,50    |
|    | 40  | 76,1                        | 72,2 | 68,2 | 61,6 | 55,5 | 48,9 | 42,2    | 2,49                        | 2,56 | 2,56 | 2,70 | 2,81 | 2,89 | 2,95    |
|    | 44  | -                           | -    | -    | -    | -    | 47,0 | 40,4    | -                           | -    | -    | -    | -    | 2,53 | 2,53    |
| 10 | 15  | 100                         | 95,5 | 90,7 | 82,2 | 74,5 | 66,3 | 58,2    | 5,18                        | 5,33 | 5,46 | 5,76 | 6,02 | 6,22 | 6,41    |
|    | 20  | 96,7                        | 92,1 | 87,5 | 79,2 | 71,8 | 63,7 | 55,7    | 4,58                        | 4,73 | 4,82 | 5,12 | 5,37 | 5,59 | 5,81    |
|    | 25  | 93,1                        | 88,7 | 84,2 | 76,2 | 69,0 | 61,1 | 53,3    | 4,03                        | 4,16 | 4,22 | 4,50 | 4,73 | 4,93 | 5,14    |
|    | 30  | 89,6                        | 85,4 | 81,0 | 73,3 | 66,2 | 58,6 | 50,9    | 3,52                        | 3,64 | 3,68 | 3,92 | 4,12 | 4,29 | 4,45    |
|    | 35  | 86,1                        | 82,0 | 77,8 | 70,3 | 63,5 | 56,0 | 48,5    | 3,07                        | 3,17 | 3,20 | 3,40 | 3,56 | 3,69 | 3,80    |
|    | 40  | 82,5                        | 78,6 | 74,6 | 67,4 | 60,8 | 53,5 | 46,1    | 2,67                        | 2,76 | 2,77 | 2,93 | 3,05 | 3,15 | 3,21    |
|    | 44  | -                           | -    | -    | -    | -    | 51,5 | 44,6    | -                           | -    | -    | -    | -    | 2,76 | 2,78    |
| 12 | 15  | 106                         | 101  | 95,9 | 86,8 | 78,7 | 70,0 | 61,4    | 5,42                        | 5,58 | 5,71 | 6,05 | 6,33 | 6,56 | 6,78    |
|    | 20  | 102                         | 97,4 | 92,5 | 83,7 | 75,8 | 67,3 | 58,8    | 4,80                        | 4,96 | 5,05 | 5,38 | 5,66 | 5,90 | 6,15    |
|    | 25  | 98,5                        | 93,9 | 89,1 | 80,6 | 72,9 | 64,6 | 56,3    | 4,22                        | 4,37 | 4,43 | 4,73 | 4,98 | 5,21 | 5,43    |
|    | 30  | 94,9                        | 90,5 | 85,8 | 77,6 | 70,1 | 62,0 | 53,8    | 3,70                        | 3,83 | 3,87 | 4,13 | 4,35 | 4,54 | 4,71    |
|    | 35  | 91,2                        | 87,0 | 82,5 | 74,6 | 67,3 | 59,4 | 51,4    | 3,23                        | 3,34 | 3,36 | 3,58 | 3,76 | 3,90 | 4,03    |
|    | 40  | 87,6                        | 83,5 | 79,2 | 71,5 | 64,5 | 56,8 | 49,0    | 2,82                        | 2,91 | 2,92 | 3,09 | 3,23 | 3,33 | 3,41    |
|    | 44  | -                           | -    | -    | -    | -    | 54,7 | 46,0    | -                           | -    | -    | -    | -    | 2,93 | 2,86    |
| 15 | 15  | 110                         | 105  | 99,6 | 90,3 | 81,9 | 73,0 | 64,2    | 5,69                        | 5,87 | 6,00 | 6,40 | 6,73 | 6,76 | 7,02    |
|    | 20  | 106                         | 101  | 96,2 | 87,2 | 78,9 | 70,3 | 61,1    | 5,05                        | 5,23 | 5,32 | 5,70 | 6,02 | 6,33 | 6,59    |
|    | 25  | 103                         | 97,9 | 93,0 | 84,1 | 76,0 | 67,6 | 58,6    | 4,46                        | 4,62 | 4,69 | 5,02 | 5,31 | 5,59 | 5,83    |
|    | 30  | 99,0                        | 94,4 | 89,6 | 81,0 | 73,2 | 65,0 | 56,1    | 3,92                        | 4,06 | 4,11 | 4,40 | 4,64 | 4,88 | 5,06    |
|    | 35  | 95,3                        | 91,0 | 86,3 | 78,0 | 70,4 | 62,4 | 53,7    | 3,44                        | 3,56 | 3,58 | 3,82 | 4,02 | 4,21 | 4,33    |
|    | 40  | 91,8                        | 87,5 | 83,0 | 75,0 | 67,6 | 59,8 | 51,3    | 3,01                        | 3,12 | 3,12 | 3,32 | 3,47 | 3,60 | 3,68    |
|    | 44  | -                           | -    | -    | -    | -    | 56,1 | 48,2    | -                           | -    | -    | -    | -    | 3,07 | 3,05    |
| 18 | 15  | 120                         | 114  | 108  | 98,9 | 89,7 | 80,5 | 71,2    | 6,08                        | 6,30 | 6,44 | 6,86 | 7,41 | 7,55 | 7,76    |
|    | 20  | 116                         | 110  | 104  | 94,6 | 85,7 | 76,3 | 66,0    | 5,42                        | 5,63 | 5,73 | 6,17 | 6,55 | 6,93 | 7,26    |
|    | 25  | 112                         | 107  | 101  | 91,4 | 82,6 | 73,5 | 63,6    | 4,81                        | 5,01 | 5,07 | 5,45 | 5,80 | 6,13 | 6,42    |
|    | 30  | 108                         | 103  | 97,5 | 88,2 | 79,7 | 70,7 | 61,0    | 4,25                        | 4,41 | 4,45 | 4,79 | 5,08 | 5,36 | 5,59    |
|    | 35  | 104                         | 99,2 | 94,1 | 85,1 | 76,8 | 68,0 | 58,5    | 3,71                        | 3,88 | 3,90 | 4,18 | 4,41 | 4,63 | 4,79    |
|    | 40  | 100                         | 95,5 | 90,7 | 82,0 | 73,9 | 64,5 | 56,1    | 3,29                        | 3,40 | 3,41 | 3,64 | 3,82 | 3,94 | 4,07    |
|    | 44  | -                           | -    | -    | -    | -    | 62,2 | 54,1    | -                           | -    | -    | -    | -    | 3,46 | 3,56    |
| 20 | 15  | 126                         | 120  | 114  | 103  | 93,6 | 83,3 | 73,1    | 6,43                        | 6,66 | 6,81 | 7,17 | 7,74 | 7,82 | 7,97    |
|    | 20  | 122                         | 116  | 110  | 99,8 | 90,4 | 80,5 | 70,6    | 5,70                        | 5,93 | 6,03 | 6,52 | 6,97 | 7,41 | 7,92    |
|    | 25  | 118                         | 113  | 107  | 96,5 | 87,4 | 77,6 | 67,1    | 5,07                        | 5,28 | 5,35 | 5,78 | 6,17 | 6,55 | 6,89    |
|    | 30  | 114                         | 109  | 103  | 93,4 | 84,3 | 74,4 | 64,5    | 4,49                        | 4,67 | 4,71 | 5,09 | 5,41 | 5,70 | 6,00    |
|    | 35  | 110                         | 105  | 99,6 | 90,2 | 81,4 | 72,1 | 62,0    | 3,97                        | 4,12 | 4,14 | 4,45 | 4,71 | 4,97 | 5,14    |
|    | 40  | 106                         | 101  | 96,1 | 87,0 | 78,2 | 68,8 | 59,1    | 3,50                        | 3,63 | 3,63 | 3,88 | 4,08 | 4,25 | 4,35    |
|    | 44  | -                           | -    | -    | -    | -    | 64,5 | 56,7    | -                           | -    | -    | -    | -    | 3,61 | 3,76    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 35.2 - EXC - SC

| To | Tae | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 35 | -20 | 37,7                        | 35,9 | 34,2 | 31,2 | 28,7 | 26,2 | 23,6    | 1,63                        | 1,65 | 1,69 | 1,74 | 1,79 | 1,85 | 1,92    |
|    | -15 | 46,9                        | 44,7 | 42,3 | 38,6 | 35,3 | 31,9 | 28,5    | 2,05                        | 2,08 | 2,15 | 2,22 | 2,28 | 2,36 | 2,44    |
|    | -10 | 55,8                        | 53,1 | 50,1 | 45,6 | 41,6 | 37,5 | 33,3    | 2,56                        | 2,50 | 2,58 | 2,67 | 2,76 | 2,86 | 2,95    |
|    | -7  | 63,3                        | 59,3 | 56,1 | 50,9 | 46,3 | 41,7 | 36,9    | 2,93                        | 2,92 | 3,02 | 3,13 | 3,23 | 3,34 | 3,45    |
|    | 2   | 75,9                        | 72,0 | 68,2 | 61,8 | 56,0 | 50,0 | 43,8    | 3,36                        | 3,46 | 3,60 | 3,75 | 3,88 | 3,99 | 4,09    |
|    | 7   | 87,2                        | 83,0 | 78,7 | 71,2 | 64,5 | 57,5 | 50,3    | 4,02                        | 4,04 | 4,22 | 4,40 | 4,55 | 4,69 | 4,79    |
|    | 10  | 92,3                        | 87,9 | 83,2 | 75,2 | 68,1 | 60,7 | 53,0    | 4,16                        | 4,25 | 4,44 | 4,64 | 4,80 | 4,94 | 5,06    |
|    | 18  | 107                         | 102  | 96,2 | 87,0 | 78,7 | 70,0 | 61,0    | 4,73                        | 4,84 | 5,07 | 5,31 | 5,51 | 5,69 | 5,84    |
| 40 | -20 | 36,5                        | 35,0 | 33,3 | 30,3 | 27,4 | 25,0 | -       | 1,40                        | 1,43 | 1,47 | 1,51 | 1,53 | 1,58 | -       |
|    | -15 | 45,2                        | 42,8 | 41,3 | 37,2 | 34,0 | 30,7 | 26,5    | 1,77                        | 1,78 | 1,87 | 1,92 | 1,98 | 2,04 | 2,03    |
|    | -10 | 54,6                        | 51,8 | 48,8 | 44,0 | 40,8 | 36,5 | 32,1    | 2,16                        | 2,19 | 2,25 | 2,32 | 2,43 | 2,49 | 2,55    |
|    | -7  | 59,7                        | 56,6 | 53,4 | 48,0 | 43,4 | 38,7 | 33,8    | 2,37                        | 2,40 | 2,48 | 2,55 | 2,62 | 2,67 | 2,72    |
|    | 2   | 74,6                        | 70,8 | 67,0 | 60,4 | 54,5 | 48,4 | 43,1    | 3,01                        | 3,07 | 3,19 | 3,31 | 3,40 | 3,47 | 3,60    |
|    | 7   | 86,0                        | 82,5 | 78,2 | 70,5 | 63,7 | 56,7 | 49,4    | 3,55                        | 3,67 | 3,78 | 3,93 | 4,05 | 4,16 | 4,22    |
|    | 10  | 91,8                        | 87,2 | 82,6 | 74,5 | 67,3 | 59,8 | 52,0    | 3,73                        | 3,82 | 3,97 | 4,14 | 4,27 | 4,38 | 4,45    |
|    | 18  | 106                         | 101  | 95,3 | 86,0 | 77,6 | 68,9 | 60,0    | 4,22                        | 4,33 | 4,52 | 4,73 | 4,89 | 5,03 | 5,16    |
| 45 | -20 | -                           | -    | 31,1 | 28,4 | 25,3 | 23,2 | -       | -                           | -    | 1,22 | 1,26 | 1,26 | 1,31 | -       |
|    | -15 | 43,7                        | 42,0 | 40,2 | 36,2 | 32,2 | 29,4 | 25,6    | 1,52                        | 1,57 | 1,62 | 1,66 | 1,67 | 1,74 | 1,74    |
|    | -10 | 53,7                        | 50,7 | 47,6 | 42,9 | 39,0 | 35,6 | 31,0    | 1,89                        | 1,92 | 1,96 | 2,02 | 2,08 | 2,16 | 2,18    |
|    | -7  | 58,5                        | 54,2 | 52,0 | 46,4 | 41,5 | 36,6 | 31,6    | 2,07                        | 2,06 | 2,15 | 2,20 | 2,23 | 2,25 | 2,25    |
|    | 2   | 72,7                        | 69,8 | 66,0 | 59,2 | 53,2 | 47,0 | 41,6    | 2,63                        | 2,71 | 2,80 | 2,89 | 2,95 | 2,99 | 3,07    |
|    | 7   | 85,0                        | 82,2 | 77,9 | 70,1 | 63,2 | 56,1 | 48,7    | 3,28                        | 3,27 | 3,36 | 3,49 | 3,58 | 3,65 | 3,68    |
|    | 10  | 91,4                        | 86,8 | 82,2 | 74,0 | 66,7 | 59,1 | 51,3    | 3,33                        | 3,40 | 3,53 | 3,66 | 3,77 | 3,84 | 3,88    |
|    | 18  | 105                         | 99,7 | 94,5 | 85,2 | 76,7 | 68,0 | 59,3    | 3,75                        | 3,85 | 4,00 | 4,18 | 4,31 | 4,41 | 4,51    |
| 50 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | 38,7 | 34,0 | 30,9 | 27,8 | 24,5    | -                           | -    | 1,39 | 1,39 | 1,42 | 1,46 | 1,47    |
|    | -10 | 46,6                        | 46,6 | 46,6 | 42,1 | 37,5 | 34,2 | 30,0    | 1,47                        | 1,58 | 1,71 | 1,76 | 1,77 | 1,84 | 1,86    |
|    | -7  | 56,4                        | 52,5 | 50,7 | 44,9 | 39,9 | 35,8 | 30,6    | 1,79                        | 1,79 | 1,87 | 1,89 | 1,90 | 1,95 | 1,92    |
|    | 2   | 71,0                        | 69,0 | 65,2 | 58,3 | 52,1 | 45,8 | 40,3    | 2,30                        | 2,40 | 2,47 | 2,53 | 2,56 | 2,58 | 2,61    |
|    | 7   | 86,2                        | 81,3 | 77,0 | 69,2 | 62,3 | 55,2 | 47,7    | 2,75                        | 2,79 | 2,88 | 2,98 | 3,05 | 3,09 | 3,09    |
|    | 10  | 90,2                        | 85,6 | 81,1 | 72,9 | 65,6 | 58,1 | 50,3    | 2,86                        | 2,92 | 3,02 | 3,13 | 3,20 | 3,25 | 3,25    |
|    | 18  | 103                         | 98,1 | 93,0 | 83,7 | 75,4 | 66,7 | 58,2    | 3,21                        | 3,29 | 3,41 | 3,55 | 3,65 | 3,72 | 3,79    |
| 55 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | 40,9 | 36,0 | 32,0 | 28,9    | -                           | -    | -    | 1,52 | 1,51 | 1,52 | 1,57    |
|    | -7  | 54,6                        | 51,0 | 48,6 | 43,5 | 38,3 | 34,1 | 29,7    | 1,55                        | 1,55 | 1,60 | 1,63 | 1,62 | 1,63 | 1,63    |
|    | 2   | 69,4                        | 67,3 | 63,5 | 56,4 | 50,2 | 43,8 | 38,9    | 2,01                        | 2,09 | 2,14 | 2,18 | 2,19 | 2,17 | 2,21    |
|    | 7   | 85,8                        | 80,3 | 76,1 | 68,2 | 61,2 | 54,0 | 46,5    | 2,47                        | 2,46 | 2,53 | 2,60 | 2,65 | 2,66 | 2,64    |
|    | 10  | 89,2                        | 84,6 | 80,2 | 71,8 | 64,5 | 56,9 | 49,0    | 2,52                        | 2,57 | 2,65 | 2,73 | 2,78 | 2,80 | 2,78    |
|    | 18  | 102                         | 96,7 | 91,8 | 82,4 | 74,0 | 65,5 | 57,0    | 2,83                        | 2,90 | 2,99 | 3,10 | 3,17 | 3,22 | 3,24    |
| 60 | -20 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -    | -    | -    | 38,0    | -                           | -    | -    | -    | -    | -    | 1,70    |
|    | 7   | -                           | -    | -    | -    | -    | -    | 45,5    | -                           | -    | -    | -    | -    | -    | 2,14    |
|    | 10  | -                           | -    | -    | -    | -    | -    | 48,1    | -                           | -    | -    | -    | -    | -    | 2,27    |
|    | 18  | -                           | -    | -    | -    | -    | -    | 55,8    | -                           | -    | -    | -    | -    | -    | 2,64    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 /-8 | -5 /-6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|--------|--------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93   | 0,93   | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 43.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 103                         | 93,1 | 86,1 | 79,2 | 72,2 | 65,1 | 57,1    | 4,59                        | 4,73 | 4,83 | 4,95 | 5,07 | 5,20 | 5,45    |
|    | 20  | 102                         | 92,2 | 85,4 | 78,7 | 71,7 | 64,8 | 56,5    | 4,15                        | 4,25 | 4,32 | 4,41 | 4,49 | 4,57 | 5,00    |
|    | 25  | 102                         | 91,4 | 84,7 | 78,1 | 71,3 | 64,4 | 56,0    | 4,09                        | 4,24 | 4,36 | 4,47 | 4,59 | 4,72 | 4,84    |
|    | 30  | 98,5                        | 89,7 | 83,3 | 76,9 | 70,4 | 63,7 | 55,4    | 3,61                        | 3,74 | 3,84 | 3,93 | 4,02 | 4,11 | 4,19    |
|    | 35  | 94,8                        | 86,4 | 80,3 | 74,1 | 67,7 | 61,2 | 54,8    | 3,15                        | 3,28 | 3,36 | 3,43 | 3,49 | 3,54 | 3,58    |
|    | 40  | 91,2                        | 83,1 | 77,2 | 71,1 | 64,9 | 58,6 | 54,3    | 2,78                        | 2,86 | 2,92 | 2,96 | 3,00 | 3,02 | 3,03    |
| 10 | 44  | 88,2                        | 80,4 | 74,7 | 68,7 | 62,7 | 56,5 | 53,0    | 2,50                        | 2,56 | 2,60 | 2,63 | 2,65 | 2,66 | 2,67    |
|    | 15  | 113                         | 102  | 94,2 | 86,5 | 78,8 | 71,0 | 58,2    | 5,09                        | 5,24 | 5,37 | 5,50 | 5,66 | 5,83 | 5,90    |
|    | 20  | 112                         | 101  | 93,4 | 85,8 | 78,3 | 70,6 | 57,7    | 4,56                        | 4,68 | 4,76 | 4,85 | 4,95 | 5,05 | 5,40    |
|    | 25  | 111                         | 99,9 | 92,5 | 85,1 | 77,7 | 70,2 | 57,1    | 4,24                        | 4,38 | 4,47 | 4,57 | 4,68 | 4,78 | 5,01    |
|    | 30  | 108                         | 97,9 | 90,9 | 83,7 | 76,6 | 69,3 | 56,5    | 3,93                        | 4,08 | 4,18 | 4,29 | 4,41 | 4,52 | 4,63    |
|    | 35  | 104                         | 94,4 | 87,6 | 80,8 | 73,7 | 66,6 | 55,9    | 3,45                        | 3,57 | 3,65 | 3,74 | 3,81 | 3,88 | 3,94    |
| 12 | 40  | 99,7                        | 90,8 | 84,2 | 77,6 | 70,8 | 63,8 | 55,4    | 3,01                        | 3,11 | 3,17 | 3,22 | 3,27 | 3,30 | 3,31    |
|    | 44  | 96,5                        | 87,8 | 81,5 | 75,1 | 68,4 | 61,6 | 54,1    | 2,70                        | 2,78 | 2,82 | 2,86 | 2,89 | 2,91 | 2,93    |
|    | 15  | 120                         | 108  | 99,9 | 91,6 | 83,3 | 75,1 | 59,4    | 5,22                        | 5,38 | 5,51 | 5,65 | 5,81 | 6,01 | 6,45    |
|    | 20  | 119                         | 107  | 98,9 | 90,8 | 82,7 | 74,6 | 58,8    | 4,62                        | 4,73 | 4,81 | 4,90 | 5,00 | 5,09 | 5,70    |
|    | 25  | 118                         | 106  | 98,0 | 90,1 | 82,1 | 74,1 | 58,2    | 4,30                        | 4,43 | 4,53 | 4,63 | 4,75 | 4,85 | 5,22    |
|    | 30  | 114                         | 104  | 96,1 | 88,5 | 80,9 | 73,1 | 57,6    | 3,98                        | 4,13 | 4,24 | 4,36 | 4,49 | 4,61 | 4,74    |
| 15 | 35  | 110                         | 99,9 | 92,6 | 85,3 | 77,9 | 70,4 | 57,1    | 3,48                        | 3,61 | 3,70 | 3,78 | 3,87 | 3,95 | 4,02    |
|    | 40  | 106                         | 96,1 | 89,1 | 82,1 | 74,8 | 67,5 | 56,5    | 3,04                        | 3,13 | 3,20 | 3,26 | 3,31 | 3,35 | 3,37    |
|    | 44  | 102                         | 93,0 | 86,2 | 79,4 | 72,3 | 65,1 | 55,1    | 2,72                        | 2,80 | 2,85 | 2,89 | 2,92 | 2,93 | 2,95    |
|    | 15  | 128                         | 115  | 106  | 97,5 | 88,6 | 79,7 | 60,6    | 5,51                        | 5,69 | 5,84 | 6,01 | 6,20 | 6,45 | 6,71    |
|    | 20  | 127                         | 114  | 105  | 96,7 | 87,9 | 79,2 | 60,0    | 4,86                        | 4,99 | 5,09 | 5,19 | 5,30 | 5,43 | 6,04    |
|    | 25  | 126                         | 113  | 104  | 95,8 | 87,2 | 78,6 | 59,4    | 4,48                        | 4,64 | 4,75 | 4,87 | 4,99 | 5,14 | 5,53    |
| 18 | 30  | 121                         | 110  | 102  | 94,0 | 85,7 | 77,5 | 58,8    | 4,10                        | 4,28 | 4,41 | 4,54 | 4,69 | 4,85 | 5,02    |
|    | 35  | 117                         | 106  | 98,5 | 90,6 | 82,6 | 74,6 | 58,2    | 3,58                        | 3,72 | 3,82 | 3,92 | 4,02 | 4,12 | 4,21    |
|    | 40  | 113                         | 102  | 94,8 | 87,2 | 79,5 | 71,6 | 57,6    | 3,11                        | 3,22 | 3,29 | 3,36 | 3,43 | 3,47 | 3,51    |
|    | 44  | 104                         | 99,1 | 91,8 | 84,4 | 76,9 | 69,1 | 56,2    | 2,79                        | 2,88 | 2,93 | 2,97 | 3,01 | 3,03 | 3,05    |
|    | 15  | 139                         | 125  | 115  | 106  | 95,7 | 85,9 | 61,8    | 6,05                        | 6,26 | 6,44 | 6,64 | 6,88 | 7,16 | 7,10    |
|    | 20  | 137                         | 124  | 114  | 104  | 94,9 | 85,3 | 61,2    | 5,16                        | 5,27 | 5,36 | 5,45 | 5,54 | 5,64 | 6,41    |
| 20 | 25  | 136                         | 122  | 113  | 103  | 94,0 | 84,6 | 60,6    | 4,78                        | 4,95 | 5,07 | 5,20 | 5,33 | 5,48 | 5,98    |
|    | 30  | 131                         | 119  | 110  | 101  | 92,4 | 83,3 | 60,0    | 4,41                        | 4,62 | 4,77 | 4,94 | 5,13 | 5,32 | 5,55    |
|    | 35  | 127                         | 115  | 106  | 97,8 | 89,1 | 80,3 | 59,4    | 3,88                        | 4,00 | 4,12 | 4,24 | 4,36 | 4,48 | 4,61    |
|    | 40  | 122                         | 111  | 102  | 94,1 | 85,7 | 77,2 | 58,8    | 3,33                        | 3,46 | 3,54 | 3,62 | 3,69 | 3,76 | 3,81    |
|    | 44  | 107                         | 94,5 | 86,2 | 78,0 | 69,5 | 61,0 | -       | 3,07                        | 3,16 | 3,21 | 3,24 | 3,27 | 3,29 | -       |
|    | 15  | 147                         | 132  | 121  | 111  | 101  | 90,2 | 63,0    | 6,30                        | 6,50 | 6,65 | 6,81 | 7,00 | 7,30 | 7,40    |
| 20 | 20  | 145                         | 130  | 120  | 110  | 99,6 | 89,5 | 62,4    | 5,50                        | 5,63 | 5,73 | 5,84 | 5,95 | 6,07 | 6,90    |
|    | 25  | 143                         | 129  | 119  | 109  | 98,7 | 88,7 | 61,8    | 5,06                        | 5,24 | 5,39 | 5,53 | 5,69 | 5,87 | 6,30    |
|    | 30  | 138                         | 125  | 116  | 106  | 96,9 | 87,3 | 61,2    | 4,62                        | 4,86 | 5,04 | 5,22 | 5,43 | 5,66 | 5,94    |
|    | 35  | 133                         | 121  | 112  | 103  | 93,4 | 84,1 | 60,6    | 4,01                        | 4,19 | 4,32 | 4,46 | 4,59 | 4,74 | 4,89    |
|    | 40  | 128                         | 116  | 108  | 98,9 | 89,9 | 80,9 | 59,9    | 3,48                        | 3,61 | 3,70 | 3,79 | 3,88 | 3,95 | 4,02    |
|    | 44  | 109                         | 99,2 | 90,6 | 81,8 | 72,9 | 63,6 | -       | 3,26                        | 3,31 | 3,35 | 3,40 | 3,42 | 3,45 | -       |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 43.2 - EXC - SC

| To<br>°C | Tae<br>°C | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----------|-----------|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|          |           | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|          |           | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35       | -20       | 43,7                        | 40,3 | 36,7 | 33,1 | 29,5 | 25,9 | 15,0    | 1,91                        | 1,89 | 1,87 | 1,85 | 1,82 | 1,79 | 1,60    |
|          | -15       | 54,5                        | 50,1 | 46,2 | 42,4 | 38,5 | 34,7 | 23,1    | 2,18                        | 2,19 | 2,18 | 2,18 | 2,17 | 2,17 | 2,13    |
|          | -10       | 63,2                        | 57,7 | 53,5 | 49,3 | 45,1 | 40,9 | 28,4    | 2,54                        | 2,56 | 2,58 | 2,58 | 2,58 | 2,57 | 2,53    |
|          | -7        | 69,8                        | 62,8 | 58,4 | 53,9 | 49,3 | 44,7 | 31,0    | 2,94                        | 2,97 | 3,01 | 3,02 | 3,03 | 3,03 | 2,94    |
|          | 2         | 89,9                        | 79,5 | 73,9 | 68,2 | 62,4 | 56,1 | 38,7    | 3,51                        | 3,57 | 3,62 | 3,64 | 3,66 | 3,69 | 3,77    |
|          | 7         | 101                         | 90,6 | 84,2 | 77,8 | 71,2 | 63,0 | 42,9    | 4,19                        | 4,33 | 4,39 | 4,46 | 4,56 | 4,66 | 4,86    |
|          | 10        | 110                         | 97,5 | 90,6 | 83,6 | 76,5 | 67,0 | 45,7    | 4,51                        | 4,66 | 4,74 | 4,82 | 4,93 | 5,05 | 5,28    |
|          | 18        | 134                         | 119  | 110  | 101  | 92,5 | 80,5 | 54,2    | 5,04                        | 5,23 | 5,34 | 5,44 | 5,59 | 5,76 | 6,06    |
| 40       | -20       | 42,4                        | 41,8 | 38,0 | 34,2 | 30,4 | 26,6 | 15,2    | 1,89                        | 1,98 | 1,94 | 1,92 | 1,88 | 1,85 | 1,60    |
|          | -15       | 52,9                        | 51,2 | 47,3 | 43,3 | 39,3 | 35,3 | 23,4    | 2,15                        | 2,27 | 2,26 | 2,25 | 2,23 | 2,22 | 2,12    |
|          | -10       | 61,4                        | 58,5 | 54,2 | 49,9 | 45,6 | 41,3 | 28,5    | 2,30                        | 2,66 | 2,66 | 2,66 | 2,65 | 2,63 | 2,54    |
|          | -7        | 67,8                        | 63,5 | 58,9 | 54,3 | 49,7 | 45,0 | 31,0    | 2,47                        | 2,88 | 2,88 | 2,88 | 2,88 | 2,89 | 2,83    |
|          | 2         | 89,3                        | 79,6 | 73,9 | 68,2 | 62,4 | 56,0 | 38,2    | 3,42                        | 3,72 | 3,74 | 3,75 | 3,74 | 3,81 | 3,87    |
|          | 7         | 99,3                        | 88,2 | 82,0 | 75,6 | 69,2 | 61,3 | 43,0    | 3,80                        | 3,92 | 3,97 | 4,02 | 4,07 | 4,15 | 4,31    |
|          | 10        | 107                         | 93,8 | 87,2 | 80,5 | 73,6 | 65,1 | 44,2    | 4,08                        | 4,32 | 4,40 | 4,49 | 4,59 | 4,75 | 5,07    |
|          | 18        | 130                         | 114  | 106  | 97,5 | 89,0 | 78,2 | 52,4    | 4,31                        | 4,59 | 4,70 | 4,81 | 4,94 | 5,16 | 5,51    |
| 45       | -20       | 42,0                        | 43,2 | 39,2 | 35,3 | 31,4 | 27,4 | 15,6    | 1,87                        | 1,84 | 1,81 | 1,77 | 1,73 | 1,69 | 1,41    |
|          | -15       | 52,4                        | 52,3 | 48,2 | 44,2 | 40,2 | 36,2 | 24,1    | 2,11                        | 2,10 | 2,08 | 2,06 | 2,04 | 2,01 | 1,86    |
|          | -10       | 59,7                        | 52,7 | 48,8 | 44,9 | 41,0 | 36,8 | 25,3    | 2,06                        | 2,07 | 2,06 | 2,06 | 2,05 | 2,03 | 1,88    |
|          | -7        | 64,3                        | 57,0 | 52,9 | 48,7 | 44,5 | 40,3 | 27,8    | 2,21                        | 2,23 | 2,23 | 2,22 | 2,22 | 2,20 | 2,17    |
|          | 2         | 88,8                        | 79,3 | 73,7 | 67,9 | 62,1 | 55,7 | 37,9    | 3,34                        | 3,38 | 3,39 | 3,38 | 3,38 | 3,48 | 3,54    |
|          | 7         | 98,1                        | 87,7 | 81,4 | 75,1 | 68,7 | 60,9 | 41,1    | 3,40                        | 3,52 | 3,56 | 3,59 | 3,63 | 3,69 | 3,82    |
|          | 10        | 106                         | 93,1 | 86,5 | 79,8 | 73,0 | 64,7 | 43,8    | 3,67                        | 3,86 | 3,92 | 3,97 | 4,06 | 4,18 | 4,43    |
|          | 18        | 129                         | 113  | 105  | 96,5 | 88,0 | 77,4 | 51,7    | 3,85                        | 4,09 | 4,17 | 4,24 | 4,35 | 4,53 | 4,76    |
| 50       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | 51,4                        | 50,4 | 46,5 | 42,7 | 38,8 | 35,0 | 23,5    | 1,77                        | 1,76 | 1,74 | 1,72 | 1,70 | 1,66 | 1,44    |
|          | -10       | 58,0                        | 50,3 | 46,6 | 42,9 | 39,1 | 35,1 | 24,3    | 1,71                        | 1,72 | 1,71 | 1,70 | 1,69 | 1,67 | 1,47    |
|          | -7        | 62,1                        | 54,1 | 50,2 | 46,3 | 42,3 | 38,4 | 25,3    | 1,83                        | 1,84 | 1,84 | 1,84 | 1,83 | 1,80 | 1,69    |
|          | 2         | 88,6                        | 74,5 | 69,2 | 63,8 | 58,3 | 52,4 | 35,6    | 2,72                        | 2,75 | 2,77 | 2,77 | 2,76 | 2,75 | 2,79    |
|          | 7         | 97,1                        | 82,3 | 76,4 | 70,5 | 64,4 | 58,3 | 38,6    | 3,02                        | 3,07 | 3,13 | 3,15 | 3,20 | 3,25 | 3,33    |
|          | 10        | 105                         | 87,3 | 81,1 | 74,8 | 68,4 | 61,9 | 40,9    | 3,21                        | 3,36 | 3,42 | 3,46 | 3,58 | 3,67 | 3,86    |
|          | 18        | 126                         | 111  | 103  | 94,8 | 86,5 | 77,1 | 51,2    | 3,50                        | 3,67 | 3,74 | 3,80 | 3,95 | 4,08 | 4,34    |
| 55       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | 50,5                        | 54,2 | 50,0 | 45,9 | 41,8 | 37,6 | 23,0    | 1,65                        | 1,65 | 1,63 | 1,60 | 1,57 | 1,60 | 1,34    |
|          | -10       | 56,3                        | 53,5 | 49,5 | 45,6 | 41,6 | 37,4 | 23,7    | 1,59                        | 1,61 | 1,60 | 1,58 | 1,56 | 1,55 | 1,33    |
|          | -7        | 59,9                        | 57,2 | 53,1 | 48,9 | 44,7 | 40,7 | 24,8    | 1,68                        | 1,73 | 1,72 | 1,70 | 1,68 | 1,65 | 1,43    |
|          | 2         | 87,7                        | 77,8 | 72,2 | 66,6 | 60,9 | 54,8 | 35,1    | 2,56                        | 2,57 | 2,57 | 2,55 | 2,52 | 2,61 | 2,54    |
|          | 7         | 96,1                        | 85,6 | 79,5 | 73,3 | 67,1 | 60,7 | 38,1    | 2,80                        | 2,88 | 2,89 | 2,89 | 2,90 | 2,91 | 2,95    |
|          | 10        | 103                         | 90,7 | 84,3 | 77,7 | 71,1 | 64,3 | 40,4    | 3,01                        | 3,12 | 3,15 | 3,17 | 3,19 | 3,24 | 3,38    |
|          | 18        | 124                         | 109  | 101  | 93,2 | 85,1 | 76,7 | 50,7    | 3,25                        | 3,41 | 3,44 | 3,47 | 3,51 | 3,59 | 3,77    |
| 60       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -7        | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | 2         | -                           | -    | -    | -    | 55,2 | 49,4 | 37,6    | -                           | -    | -    | -    | 2,33 | 2,36 | 2,37    |
|          | 7         | -                           | -    | -    | -    | 60,8 | 54,3 | 40,5    | -                           | -    | -    | -    | 2,63 | 2,45 | 2,66    |
|          | 10        | -                           | -    | -    | -    | 64,4 | 57,5 | 42,8    | -                           | -    | -    | -    | 2,86 | 2,87 | 2,91    |
|          | 18        | -                           | -    | -    | -    | 76,4 | 68,0 | 50,0    | -                           | -    | -    | -    | 3,12 | 3,04 | 3,17    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 45.2 - EXC - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 117                         | 106  | 96,4 | 89,2 | 82,1 | 74,8 | 58,2    | 4,52                        | 4,64 | 4,77 | 4,87 | 4,99 | 5,12 | 5,40    |
|    | 20  | 116                         | 105  | 95,5 | 88,5 | 81,5 | 74,3 | 57,7    | 4,08                        | 4,18 | 4,29 | 4,36 | 4,45 | 4,53 | 4,72    |
|    | 25  | 115                         | 104  | 94,7 | 87,7 | 80,9 | 73,8 | 57,1    | 3,81                        | 3,92 | 4,03 | 4,12 | 4,21 | 4,29 | 4,47    |
|    | 30  | 111                         | 102  | 92,9 | 86,3 | 79,7 | 72,9 | 56,5    | 3,53                        | 3,65 | 3,78 | 3,87 | 3,97 | 4,06 | 4,23    |
|    | 35  | 107                         | 98,3 | 89,5 | 83,2 | 76,7 | 70,1 | 55,9    | 3,10                        | 3,21 | 3,31 | 3,39 | 3,46 | 3,52 | 3,62    |
|    | 40  | 103                         | 94,5 | 86,0 | 80,0 | 73,7 | 67,2 | 55,4    | 2,72                        | 2,81 | 2,89 | 2,94 | 2,99 | 3,02 | 3,05    |
| 10 | 44  | 92,6                        | 84,6 | 78,2 | 72,1 | 65,9 | 59,6 | 54,1    | 2,45                        | 2,52 | 2,59 | 2,63 | 2,66 | 2,67 | 2,70    |
|    | 15  | 128                         | 117  | 106  | 97,6 | 89,6 | 81,6 | 59,4    | 5,00                        | 5,14 | 5,29 | 5,42 | 5,55 | 5,71 | 6,16    |
|    | 20  | 127                         | 115  | 105  | 96,7 | 88,9 | 81,1 | 58,8    | 4,50                        | 4,61 | 4,72 | 4,81 | 4,90 | 5,00 | 5,29    |
|    | 25  | 126                         | 114  | 103  | 95,8 | 88,1 | 80,5 | 58,2    | 4,16                        | 4,28 | 4,42 | 4,52 | 4,62 | 4,73 | 4,98    |
|    | 30  | 121                         | 111  | 101  | 94,1 | 86,7 | 79,3 | 57,6    | 3,82                        | 3,96 | 4,11 | 4,22 | 4,33 | 4,45 | 4,67    |
|    | 35  | 117                         | 107  | 97,7 | 90,7 | 83,7 | 76,4 | 57,1    | 3,35                        | 3,48 | 3,60 | 3,69 | 3,77 | 3,85 | 3,98    |
| 12 | 40  | 112                         | 103  | 94,0 | 87,2 | 80,4 | 73,3 | 56,5    | 2,94                        | 3,04 | 3,13 | 3,20 | 3,25 | 3,30 | 3,34    |
|    | 44  | 101                         | 92,4 | 85,4 | 78,8 | 71,9 | 65,0 | 55,1    | 2,65                        | 2,73 | 2,80 | 2,85 | 2,89 | 2,91 | 2,94    |
|    | 15  | 131                         | 120  | 108  | 99,9 | 91,6 | 83,3 | 60,6    | 5,08                        | 5,26 | 5,42 | 5,55 | 5,70 | 5,86 | 6,31    |
|    | 20  | 130                         | 118  | 107  | 99,0 | 90,9 | 82,7 | 60,0    | 4,55                        | 4,66 | 4,77 | 4,85 | 4,94 | 5,04 | 5,32    |
|    | 25  | 129                         | 117  | 106  | 98,0 | 90,1 | 82,1 | 59,4    | 4,20                        | 4,33 | 4,47 | 4,57 | 4,67 | 4,78 | 5,05    |
|    | 30  | 124                         | 114  | 104  | 96,1 | 88,5 | 80,9 | 58,8    | 3,85                        | 4,01 | 4,16 | 4,28 | 4,40 | 4,53 | 4,78    |
| 15 | 35  | 120                         | 110  | 99,9 | 92,7 | 85,3 | 77,9 | 58,2    | 3,38                        | 3,51 | 3,64 | 3,73 | 3,81 | 3,90 | 4,05    |
|    | 40  | 115                         | 106  | 96,1 | 89,1 | 82,1 | 74,9 | 57,6    | 2,96                        | 3,06 | 3,16 | 3,22 | 3,29 | 3,34 | 3,40    |
|    | 44  | 107                         | 97,2 | 89,7 | 82,7 | 75,5 | 68,2 | 56,2    | 2,73                        | 2,80 | 2,86 | 2,90 | 2,93 | 2,96 | 2,98    |
|    | 15  | 141                         | 128  | 115  | 107  | 97,6 | 88,6 | 61,8    | 5,35                        | 5,55 | 5,73 | 5,89 | 6,06 | 6,25 | 6,84    |
|    | 20  | 139                         | 126  | 114  | 105  | 96,7 | 87,9 | 61,2    | 4,78                        | 4,90 | 5,03 | 5,13 | 5,23 | 5,34 | 5,68    |
|    | 25  | 137                         | 125  | 113  | 104  | 95,8 | 87,2 | 60,6    | 4,37                        | 4,52 | 4,67 | 4,78 | 4,91 | 5,03 | 5,37    |
| 18 | 30  | 132                         | 121  | 110  | 102  | 94,0 | 85,7 | 60,0    | 3,95                        | 4,13 | 4,32 | 4,44 | 4,58 | 4,73 | 5,06    |
|    | 35  | 127                         | 117  | 106  | 98,5 | 90,7 | 82,6 | 59,4    | 3,46                        | 3,60 | 3,75 | 3,85 | 3,95 | 4,05 | 4,25    |
|    | 40  | 123                         | 113  | 102  | 94,8 | 87,2 | 79,5 | 58,8    | 3,03                        | 3,14 | 3,25 | 3,32 | 3,39 | 3,45 | 3,54    |
|    | 44  | 109                         | 104  | 95,5 | 87,9 | 80,2 | 72,4 | 57,4    | 2,79                        | 2,88 | 2,94 | 2,98 | 3,02 | 3,04 | 3,07    |
|    | 15  | 153                         | 139  | 125  | 115  | 106  | 95,7 | 63,0    | 5,91                        | 6,10 | 6,31 | 6,49 | 6,69 | 6,93 | 7,73    |
|    | 20  | 151                         | 137  | 124  | 114  | 105  | 94,9 | 62,4    | 5,09                        | 5,20 | 5,32 | 5,40 | 5,49 | 5,59 | 5,91    |
| 20 | 25  | 148                         | 135  | 122  | 113  | 103  | 94,1 | 61,8    | 4,66                        | 4,82 | 4,99 | 5,11 | 5,24 | 5,38 | 5,75    |
|    | 30  | 143                         | 131  | 119  | 110  | 101  | 92,4 | 61,2    | 4,24                        | 4,44 | 4,66 | 4,81 | 4,98 | 5,17 | 5,59    |
|    | 35  | 139                         | 127  | 115  | 106  | 97,8 | 89,1 | 60,6    | 3,73                        | 3,87 | 4,03 | 4,15 | 4,27 | 4,39 | 4,65    |
|    | 40  | 133                         | 122  | 111  | 102  | 94,2 | 85,7 | 59,9    | 3,23                        | 3,36 | 3,48 | 3,57 | 3,65 | 3,72 | 3,84    |
|    | 44  | 112                         | 98,9 | 89,9 | 81,4 | 72,7 | -    | -       | 3,05                        | 3,12 | 3,19 | 3,23 | 3,27 | -    | -       |
|    | 15  | 162                         | 147  | 132  | 121  | 111  | 101  | 64,3    | 6,20                        | 6,53 | 6,78 | 6,98 | 7,22 | 7,50 | 8,50    |
| 22 | 20  | 159                         | 145  | 130  | 120  | 110  | 99,6 | 63,7    | 5,42                        | 5,54 | 5,68 | 5,78 | 5,88 | 6,00 | 6,40    |
|    | 25  | 156                         | 142  | 129  | 119  | 109  | 98,7 | 63,0    | 4,92                        | 5,10 | 5,29 | 5,43 | 5,57 | 5,74 | 6,19    |
|    | 30  | 151                         | 138  | 125  | 116  | 106  | 96,9 | 62,4    | 4,43                        | 4,66 | 4,90 | 5,08 | 5,26 | 5,47 | 5,98    |
|    | 35  | 145                         | 133  | 121  | 112  | 103  | 93,5 | 61,8    | 3,87                        | 4,04 | 4,22 | 4,36 | 4,49 | 4,63 | 4,93    |
|    | 40  | 140                         | 128  | 116  | 108  | 98,9 | 89,9 | 61,1    | 3,37                        | 3,51 | 3,64 | 3,73 | 3,82 | 3,91 | 4,05    |
|    | 44  | 114                         | 104  | 94,4 | 85,4 | 76,3 | -    | -       | 3,23                        | 3,30 | 3,36 | 3,41 | 3,45 | -    | -       |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 45.2 - EXC - SC

| To<br>°C | Tae<br>°C | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----------|-----------|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|          |           | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|          |           | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35       | -20       | 50,7                        | 47,7 | 41,1 | 37,4 | 33,7 | 30,0 | 15,5    | 1,88                        | 1,84 | 1,82 | 1,80 | 1,77 | 1,73 | 1,55    |
|          | -15       | 61,3                        | 58,1 | 51,0 | 47,1 | 43,1 | 39,2 | 23,7    | 2,15                        | 2,16 | 2,15 | 2,15 | 2,14 | 2,13 | 2,09    |
|          | -10       | 69,5                        | 66,4 | 58,7 | 54,5 | 50,1 | 45,9 | 28,9    | 2,49                        | 2,54 | 2,55 | 2,55 | 2,54 | 2,53 | 2,50    |
|          | -7        | 75,3                        | 72,0 | 64,0 | 59,4 | 54,9 | 50,2 | 31,5    | 2,90                        | 2,75 | 2,76 | 2,77 | 2,77 | 2,75 | 2,69    |
|          | 2         | 96,0                        | 91,1 | 81,0 | 75,2 | 69,4 | 63,5 | 39,2    | 3,41                        | 3,55 | 3,59 | 3,61 | 3,62 | 3,66 | 3,73    |
|          | 7         | 111                         | 104  | 92,2 | 85,7 | 79,1 | 72,4 | 43,4    | 4,15                        | 4,25 | 4,38 | 4,45 | 4,52 | 4,59 | 4,72    |
|          | 10        | 114                         | 112  | 99,3 | 92,2 | 85,1 | 77,8 | 46,2    | 4,04                        | 4,57 | 4,72 | 4,80 | 4,90 | 4,97 | 5,13    |
|          | 18        | 139                         | 136  | 121  | 112  | 103  | 94,1 | 54,7    | 4,29                        | 5,10 | 5,30 | 5,41 | 5,56 | 5,64 | 5,84    |
| 40       | -20       | 49,2                        | 49,1 | 42,2 | 38,4 | 34,6 | 30,7 | 15,8    | 1,86                        | 1,94 | 1,92 | 1,89 | 1,85 | 1,80 | 1,57    |
|          | -15       | 59,5                        | 59,1 | 51,8 | 47,8 | 43,7 | 39,7 | 23,9    | 2,13                        | 2,26 | 2,25 | 2,24 | 2,22 | 2,20 | 2,10    |
|          | -10       | 67,5                        | 66,9 | 59,1 | 54,8 | 50,4 | 46,1 | 29,0    | 2,29                        | 2,65 | 2,66 | 2,65 | 2,64 | 2,62 | 2,52    |
|          | -7        | 73,1                        | 72,3 | 64,1 | 59,6 | 54,9 | 50,2 | 31,5    | 2,45                        | 2,85 | 2,87 | 2,88 | 2,87 | 2,87 | 2,81    |
|          | 2         | 95,4                        | 90,6 | 80,5 | 74,7 | 68,9 | 63,0 | 38,7    | 3,40                        | 3,66 | 3,72 | 3,73 | 3,74 | 3,74 | 3,87    |
|          | 7         | 110                         | 100  | 89,2 | 82,8 | 76,4 | 69,9 | 43,5    | 3,72                        | 3,80 | 3,91 | 3,97 | 4,06 | 4,13 | 4,23    |
|          | 10        | 113                         | 108  | 94,8 | 88,1 | 81,3 | 74,4 | 44,7    | 3,98                        | 4,08 | 4,31 | 4,40 | 4,57 | 4,65 | 4,82    |
|          | 18        | 138                         | 131  | 115  | 107  | 98,5 | 89,9 | 52,9    | 4,19                        | 4,31 | 4,59 | 4,70 | 4,93 | 5,01 | 5,21    |
| 45       | -20       | 48,7                        | 50,8 | 43,6 | 39,7 | 35,7 | 31,7 | 16,1    | 1,85                        | 1,80 | 1,77 | 1,73 | 1,69 | 1,64 | 1,38    |
|          | -15       | 58,9                        | 60,4 | 52,9 | 48,7 | 44,7 | 40,6 | 24,6    | 2,10                        | 2,08 | 2,07 | 2,04 | 2,02 | 1,99 | 1,84    |
|          | -10       | 65,1                        | 60,4 | 53,3 | 49,3 | 45,4 | 41,4 | 25,9    | 2,05                        | 2,06 | 2,06 | 2,05 | 2,03 | 1,98 | 1,86    |
|          | -7        | 69,9                        | 65,0 | 57,6 | 53,4 | 49,2 | 45,0 | 28,3    | 2,19                        | 2,21 | 2,22 | 2,22 | 2,20 | 2,19 | 2,15    |
|          | 2         | 94,2                        | 90,3 | 80,2 | 74,4 | 68,6 | 62,7 | 38,5    | 3,30                        | 3,33 | 3,37 | 3,38 | 3,37 | 3,36 | 3,53    |
|          | 7         | 107                         | 99,7 | 88,6 | 82,3 | 75,9 | 69,4 | 41,6    | 3,37                        | 3,43 | 3,52 | 3,55 | 3,62 | 3,66 | 3,73    |
|          | 10        | 113                         | 107  | 94,1 | 87,4 | 80,7 | 73,8 | 44,3    | 3,59                        | 3,67 | 3,85 | 3,92 | 4,03 | 4,09 | 4,21    |
|          | 18        | 138                         | 130  | 114  | 106  | 97,5 | 88,9 | 52,2    | 3,77                        | 3,86 | 4,08 | 4,16 | 4,33 | 4,35 | 4,48    |
| 50       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | 57,9                        | 61,0 | 53,4 | 49,2 | 45,1 | 41,1 | 24,1    | 1,73                        | 1,71 | 1,69 | 1,66 | 1,63 | 1,60 | 1,42    |
|          | -10       | 64,0                        | 60,4 | 53,3 | 49,3 | 45,4 | 41,4 | 24,8    | 1,69                        | 1,68 | 1,67 | 1,66 | 1,63 | 1,59 | 1,44    |
|          | -7        | 69,6                        | 64,7 | 57,3 | 53,1 | 49,0 | 44,8 | 25,8    | 1,80                        | 1,81 | 1,80 | 1,79 | 1,77 | 1,75 | 1,66    |
|          | 2         | 93,1                        | 88,9 | 78,9 | 73,2 | 67,5 | 61,7 | 36,1    | 2,69                        | 2,72 | 2,72 | 2,71 | 2,69 | 2,74 | 2,72    |
|          | 7         | 105                         | 98,0 | 87,1 | 80,9 | 74,6 | 68,2 | 39,1    | 3,01                        | 3,07 | 3,09 | 3,11 | 3,12 | 3,14 | 3,18    |
|          | 10        | 113                         | 105  | 92,4 | 85,9 | 79,2 | 72,4 | 41,4    | 3,21                        | 3,27 | 3,40 | 3,43 | 3,46 | 3,50 | 3,57    |
|          | 18        | 137                         | 127  | 112  | 104  | 95,3 | 87,0 | 51,7    | 3,49                        | 3,56 | 3,73 | 3,77 | 3,83 | 3,84 | 3,92    |
| 55       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | 56,8                        | 62,9 | 55,0 | 50,8 | 46,6 | 42,5 | 23,5    | 1,50                        | 1,64 | 1,61 | 1,59 | 1,57 | 1,53 | 1,32    |
|          | -10       | 62,8                        | 61,6 | 54,3 | 50,3 | 46,3 | 42,3 | 24,3    | 1,51                        | 1,59 | 1,58 | 1,57 | 1,55 | 1,52 | 1,31    |
|          | -7        | 68,4                        | 65,6 | 58,1 | 53,9 | 49,7 | 45,5 | 25,3    | 1,60                        | 1,69 | 1,69 | 1,68 | 1,67 | 1,64 | 1,41    |
|          | 2         | 92,0                        | 89,1 | 79,1 | 73,4 | 67,7 | 61,9 | 35,6    | 2,48                        | 2,50 | 2,51 | 2,51 | 2,50 | 2,47 | 2,48    |
|          | 7         | 105                         | 97,9 | 87,0 | 80,8 | 74,5 | 68,1 | 38,6    | 2,72                        | 2,77 | 2,81 | 2,83 | 2,86 | 2,89 | 2,92    |
|          | 10        | 112                         | 105  | 92,1 | 85,6 | 79,0 | 72,2 | 40,9    | 2,90                        | 2,94 | 3,06 | 3,08 | 3,17 | 3,21 | 3,25    |
|          | 18        | 136                         | 126  | 111  | 103  | 94,7 | 86,4 | 51,2    | 3,14                        | 3,19 | 3,33 | 3,37 | 3,49 | 3,49 | 3,58    |
| 60       | -20       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -15       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -10       | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | -7        | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|          | 2         | -                           | -    | -    | -    | 62,3 | 50,2 | 38,2    | -                           | -    | -    | -    | 2,23 | 2,31 | 2,32    |
|          | 7         | -                           | -    | -    | -    | 68,3 | 55,2 | 41,1    | -                           | -    | -    | -    | 2,51 | 2,40 | 2,60    |
|          | 10        | -                           | -    | -    | -    | 72,2 | 58,4 | 43,5    | -                           | -    | -    | -    | 2,74 | 2,80 | 2,84    |
|          | 18        | -                           | -    | -    | -    | 86,0 | 69,0 | 50,8    | -                           | -    | -    | -    | 3,00 | 2,97 | 3,10    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 10.1 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 30,0                        | 28,0 | 25,8 | 23,9 | 22,0 | 19,7 | 17,7    | 5,76                        | 5,87 | 6,05 | 6,22 | 6,36 | 6,63 | 7,01    |
|    | 20  | 28,9                        | 27,0 | 24,8 | 23,0 | 21,1 | 18,9 | 17,0    | 4,94                        | 5,04 | 5,18 | 5,33 | 5,46 | 5,64 | 5,98    |
|    | 25  | 27,7                        | 25,9 | 23,8 | 22,0 | 20,2 | 18,1 | 16,3    | 4,25                        | 4,34 | 4,46 | 4,57 | 4,69 | 4,82 | 5,10    |
|    | 30  | 26,5                        | 24,8 | 22,8 | 21,1 | 19,4 | 17,3 | 15,5    | 3,68                        | 3,76 | 3,85 | 3,95 | 4,05 | 4,13 | 4,38    |
|    | 35  | 25,3                        | 23,6 | 21,7 | 20,0 | 18,4 | 16,3 | 14,7    | 3,06                        | 3,25 | 3,32 | 3,40 | 3,47 | 3,51 | 3,71    |
|    | 40  | 23,5                        | 22,0 | 20,2 | 18,6 | 17,1 | 15,4 | 13,8    | 2,72                        | 2,78 | 2,83 | 2,89 | 2,95 | 3,06 | 3,20    |
| 10 | 44  | -                           | -    | -    | -    | 15,9 | 14,3 | 12,8    | -                           | -    | -    | -    | 2,62 | 2,72 | 2,84    |
|    | 15  | 32,8                        | 30,7 | 28,2 | 26,1 | 24,0 | 21,4 | 19,3    | 6,31                        | 6,43 | 6,62 | 6,80 | 7,00 | 7,20 | 7,65    |
|    | 20  | 31,6                        | 29,6 | 27,1 | 25,1 | 23,1 | 20,6 | 18,5    | 5,37                        | 5,50 | 5,64 | 5,80 | 5,98 | 6,11 | 6,51    |
|    | 25  | 30,4                        | 28,4 | 26,1 | 24,1 | 22,2 | 19,7 | 17,7    | 4,61                        | 4,72 | 4,84 | 4,97 | 5,11 | 5,20 | 5,53    |
|    | 30  | 29,1                        | 27,2 | 25,0 | 23,1 | 21,2 | 18,8 | 16,9    | 3,98                        | 4,08 | 4,17 | 4,28 | 4,39 | 4,44 | 4,72    |
|    | 35  | 27,7                        | 25,9 | 23,8 | 22,0 | 20,1 | 17,8 | 16,0    | 3,43                        | 3,52 | 3,58 | 3,68 | 3,76 | 3,77 | 3,99    |
| 12 | 40  | 25,8                        | 24,2 | 22,1 | 20,4 | 18,7 | 16,8 | 15,0    | 2,93                        | 3,00 | 3,05 | 3,12 | 3,18 | 3,31 | 3,45    |
|    | 44  | -                           | -    | -    | -    | 17,4 | 15,7 | 13,9    | -                           | -    | -    | -    | 2,82 | 2,92 | 3,05    |
|    | 15  | 34,7                        | 32,4 | 29,8 | 27,6 | 25,3 | 22,6 | 20,3    | 6,67                        | 6,81 | 6,99 | 7,20 | 7,41 | 7,62 | 8,11    |
|    | 20  | 33,5                        | 31,3 | 28,7 | 26,6 | 24,4 | 21,7 | 19,6    | 5,67                        | 5,81 | 5,94 | 6,13 | 6,31 | 6,45 | 6,88    |
|    | 25  | 32,2                        | 30,1 | 27,6 | 25,5 | 23,4 | 20,8 | 18,5    | 4,85                        | 4,98 | 5,08 | 5,24 | 5,38 | 5,46 | 5,74    |
|    | 30  | 30,8                        | 28,8 | 26,4 | 24,4 | 22,4 | 19,9 | 17,9    | 4,18                        | 4,30 | 4,37 | 4,50 | 4,62 | 4,66 | 4,96    |
| 15 | 35  | 28,3                        | 27,5 | 25,1 | 23,2 | 21,3 | 18,8 | 17,3    | 3,47                        | 3,69 | 3,76 | 3,86 | 3,95 | 3,95 | 4,28    |
|    | 40  | 27,4                        | 25,6 | 23,4 | 21,6 | 19,8 | 17,8 | 15,9    | 3,08                        | 3,15 | 3,20 | 3,28 | 3,34 | 3,47 | 3,62    |
|    | 44  | -                           | -    | -    | -    | 18,4 | 16,5 | 14,7    | -                           | -    | -    | -    | 2,96 | 3,06 | 3,20    |
|    | 15  | 38,7                        | 36,2 | 33,6 | 30,0 | 28,2 | 25,1 | 22,4    | 6,82                        | 7,01 | 7,17 | 7,45 | 7,64 | 7,75 | 8,34    |
|    | 20  | 37,1                        | 34,7 | 32,3 | 28,8 | 27,0 | 24,0 | 21,4    | 5,74                        | 5,91 | 6,06 | 6,27 | 6,43 | 6,48 | 6,98    |
|    | 25  | 35,6                        | 33,2 | 30,9 | 27,5 | 25,8 | 22,9 | 20,4    | 4,89                        | 5,01 | 5,14 | 5,30 | 5,43 | 5,45 | 5,84    |
| 18 | 30  | 33,9                        | 31,7 | 29,5 | 26,3 | 24,6 | 21,7 | 19,4    | 4,16                        | 4,28 | 4,40 | 4,52 | 4,61 | 4,60 | 4,93    |
|    | 35  | 29,4                        | 28,3 | 26,9 | 24,8 | 23,2 | 20,5 | 19,3    | 3,26                        | 3,44 | 3,61 | 3,84 | 3,91 | 3,88 | 4,39    |
|    | 40  | 28,4                        | 27,1 | 26,1 | 23,2 | 21,7 | 20,1 | 18,4    | 2,88                        | 3,01 | 3,21 | 3,27 | 3,32 | 3,61 | 3,90    |
|    | 44  | -                           | -    | -    | -    | 21,4 | 18,6 | 16,8    | -                           | -    | -    | -    | 3,05 | 3,10 | 3,30    |
|    | 15  | 42,0                        | 39,3 | 36,5 | 32,6 | 30,5 | 27,1 | 24,2    | 7,44                        | 7,66 | 7,88 | 8,17 | 8,41 | 8,47 | 9,19    |
|    | 20  | 40,4                        | 37,7 | 35,1 | 31,3 | 29,3 | 26,0 | 23,2    | 6,24                        | 6,43 | 6,61 | 6,84 | 7,03 | 7,05 | 7,64    |
| 20 | 25  | 39,1                        | 36,2 | 33,6 | 29,9 | 28,0 | 24,7 | 21,9    | 5,48                        | 5,46 | 5,59 | 5,76 | 5,90 | 5,89 | 6,19    |
|    | 30  | 36,9                        | 34,5 | 32,0 | 28,5 | 26,7 | 23,5 | 20,9    | 4,50                        | 4,64 | 4,77 | 4,89 | 5,00 | 4,96 | 5,35    |
|    | 35  | 33,3                        | 30,6 | 29,7 | 28,0 | 24,1 | 22,1 | 20,9    | 3,99                        | 4,06 | 4,38 | 4,44 | 4,27 | 4,34 | 4,64    |
|    | 40  | 30,6                        | 29,6 | 28,4 | 26,2 | 23,5 | 22,4 | 20,6    | 3,07                        | 3,26 | 3,46 | 3,67 | 3,58 | 4,02 | 4,39    |
|    | 44  | -                           | -    | -    | -    | 22,1 | 21,6 | 20,1    | -                           | -    | -    | -    | 3,13 | 3,59 | 3,94    |
|    | 15  | 44,3                        | 41,4 | 38,5 | 34,3 | 32,2 | 28,5 | 25,4    | 7,87                        | 8,13 | 8,39 | 8,67 | 8,96 | 8,99 | 9,80    |
| 22 | 20  | 42,6                        | 39,8 | 37,0 | 32,9 | 30,8 | 27,3 | 24,3    | 6,59                        | 6,79 | 7,01 | 7,24 | 7,46 | 7,45 | 8,10    |
|    | 25  | 40,8                        | 38,2 | 35,4 | 31,5 | 29,5 | 26,2 | 23,2    | 5,59                        | 5,77 | 5,92 | 6,08 | 6,24 | 6,34 | 6,81    |
|    | 30  | 38,9                        | 36,3 | 33,8 | 30,0 | 28,1 | 24,7 | 22,0    | 4,73                        | 4,88 | 5,03 | 5,15 | 5,27 | 5,22 | 5,63    |
|    | 35  | 36,9                        | 34,5 | 32,0 | 28,4 | 26,5 | 23,2 | 20,7    | 4,03                        | 4,16 | 4,27 | 4,36 | 4,46 | 4,38 | 4,70    |
|    | 40  | 34,5                        | 32,3 | 29,9 | 26,5 | 24,7 | 22,0 | 19,4    | 3,45                        | 3,55 | 3,64 | 3,69 | 3,76 | 3,94 | 4,15    |
|    | 44  | -                           | -    | -    | -    | 23,2 | 20,6 | 18,2    | -                           | -    | -    | -    | 3,29 | 3,43 | 3,58    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 10.1 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 9,16                        | 8,47 | 7,66 | 6,90 | 6,15 | 5,35 | -       | 1,56                        | 1,52 | 1,47 | 1,43 | 1,38 | 1,35 | -       |
|    | -10 | 16,1                        | 15,0 | 13,7 | 12,5 | 10,8 | 9,42 | 7,42    | 2,76                        | 2,71 | 2,67 | 2,61 | 2,57 | 2,51 | 2,42    |
|    | -7  | 17,8                        | 16,7 | 15,3 | 14,0 | 12,2 | 10,8 | 9,62    | 3,07                        | 3,10 | 3,14 | 3,18 | 3,24 | 3,34 | 3,59    |
|    | 2   | 24,0                        | 22,6 | 20,9 | 19,2 | 16,8 | 14,6 | 13,1    | 3,94                        | 3,99 | 4,03 | 4,09 | 4,30 | 4,37 | 4,57    |
|    | 7   | 27,8                        | 26,1 | 24,2 | 22,0 | 19,2 | 16,2 | 15,1    | 4,43                        | 4,49 | 4,56 | 4,64 | 4,88 | 5,16 | 5,08    |
|    | 10  | 29,5                        | 28,3 | 26,2 | 24,1 | 21,0 | 17,7 | 16,5    | 4,72                        | 4,84 | 4,92 | 5,01 | 5,29 | 5,50 | 5,58    |
| 40 | 18  | 34,8                        | 32,8 | 30,4 | 27,8 | 24,3 | 21,2 | 18,9    | 5,83                        | 5,93 | 6,04 | 6,14 | 6,49 | 6,67 | 6,81    |
|    | -15 | 8,97                        | 8,31 | 7,54 | 6,80 | 6,07 | 5,23 | -       | 1,43                        | 1,37 | 1,32 | 1,29 | 1,25 | 1,21 | -       |
|    | -10 | 15,8                        | 14,7 | 13,5 | 12,3 | 10,7 | 9,34 | 7,23    | 2,48                        | 2,42 | 2,36 | 2,33 | 2,29 | 2,26 | 2,12    |
|    | -7  | 17,5                        | 16,4 | 15,1 | 13,8 | 12,0 | 10,6 | 9,31    | 2,71                        | 2,73 | 2,77 | 2,81 | 2,92 | 2,98 | 3,40    |
|    | 2   | 23,5                        | 22,2 | 20,5 | 18,8 | 16,4 | 14,4 | 12,9    | 3,52                        | 3,56 | 3,61 | 3,66 | 3,84 | 3,91 | 4,02    |
|    | 7   | 27,2                        | 25,3 | 23,1 | 20,8 | 18,1 | 15,3 | 14,0    | 3,80                        | 3,83 | 3,89 | 3,94 | 4,03 | 4,14 | 4,22    |
| 45 | 10  | 28,1                        | 26,4 | 24,4 | 22,4 | 19,6 | 16,9 | 15,3    | 4,09                        | 4,14 | 4,19 | 4,25 | 4,39 | 4,51 | 4,59    |
|    | 18  | 34,1                        | 32,1 | 29,6 | 27,1 | 23,6 | 20,6 | 18,3    | 5,09                        | 5,17 | 5,29 | 5,37 | 5,63 | 5,78 | 5,81    |
|    | -15 | 8,82                        | 8,20 | 7,46 | 6,76 | 5,99 | 5,07 | -       | 1,36                        | 1,33 | 1,29 | 1,24 | 1,21 | 1,16 | -       |
|    | -10 | 15,6                        | 14,6 | 13,4 | 12,2 | 10,7 | 9,25 | 7,09    | 2,34                        | 2,28 | 2,26 | 2,21 | 2,17 | 2,14 | 2,08    |
|    | -7  | 17,3                        | 16,2 | 15,0 | 13,6 | 11,9 | 10,4 | 9,07    | 2,51                        | 2,56 | 2,60 | 2,66 | 2,68 | 2,71 | 2,76    |
|    | 2   | 23,2                        | 21,6 | 20,0 | 18,3 | 16,0 | 14,0 | 12,5    | 3,14                        | 3,18 | 3,23 | 3,27 | 3,40 | 3,52 | 3,56    |
| 50 | 7   | 26,9                        | 25,0 | 22,8 | 20,5 | 17,8 | 15,0 | 13,6    | 3,24                        | 3,35 | 3,39 | 3,46 | 3,56 | 3,62 | 3,68    |
|    | 10  | 27,2                        | 25,9 | 23,9 | 21,9 | 19,1 | 16,3 | 14,9    | 3,63                        | 3,69 | 3,73 | 3,78 | 3,89 | 3,92 | 3,97    |
|    | 18  | 33,4                        | 31,5 | 29,0 | 26,5 | 23,1 | 20,1 | 17,7    | 4,47                        | 4,57 | 4,65 | 4,71 | 4,90 | 4,96 | 5,06    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | 14,7 | 13,4 | 11,6 | 10,2 | 8,82    | -                           | -    | 2,30 | 2,34 | 2,38 | 2,46 | 2,51    |
| 55 | 2   | 22,5                        | 21,3 | 19,6 | 18,0 | 15,7 | 13,6 | 12,2    | 2,83                        | 2,86 | 2,90 | 2,95 | 3,04 | 3,10 | 3,12    |
|    | 7   | 24,2                        | 22,6 | 20,9 | 19,0 | 16,5 | 13,9 | 12,7    | 2,92                        | 2,95 | 2,99 | 3,05 | 3,12 | 3,22 | 3,26    |
|    | 10  | 26,3                        | 24,9 | 23,0 | 20,5 | 17,8 | 15,6 | 14,2    | 3,17                        | 3,30 | 3,35 | 3,44 | 3,55 | 3,60 | 3,62    |
|    | 18  | 32,6                        | 30,6 | 28,2 | 25,7 | 22,1 | 19,1 | 17,0    | 3,90                        | 4,01 | 4,07 | 4,11 | 4,19 | 4,24 | 4,28    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 55 | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 22,0                        | 20,7 | 19,1 | 17,5 | 15,3 | 13,3 | 11,8    | 2,54                        | 2,57 | 2,60 | 2,63 | 2,70 | 2,75 | 2,81    |
|    | 7   | 23,7                        | 22,1 | 20,4 | 18,2 | 16,0 | 13,7 | 12,4    | 2,59                        | 2,62 | 2,65 | 2,72 | 2,81 | 2,85 | 2,92    |
|    | 10  | 25,6                        | 24,3 | 22,4 | 20,0 | 17,4 | 15,2 | 13,7    | 2,82                        | 2,91 | 2,99 | 3,02 | 3,06 | 3,19 | 3,21    |
|    | 18  | 31,7                        | 29,7 | 27,3 | 24,6 | 21,2 | 18,4 | 16,3    | 3,39                        | 3,50 | 3,55 | 3,57 | 3,62 | 3,76 | 3,80    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 12.1 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 33,5                        | 31,1 | 28,7 | 25,5 | 23,6 | 21,7 | 19,5    | 5,33                        | 5,47 | 5,61 | 5,83 | 5,98 | 6,14 | 6,38    |
|    | 20  | 32,3                        | 30,0 | 27,6 | 24,5 | 22,7 | 20,9 | 18,7    | 4,55                        | 4,68 | 4,80 | 4,99 | 5,12 | 5,26 | 5,43    |
|    | 25  | 30,9                        | 28,7 | 26,5 | 23,5 | 21,8 | 20,0 | 17,9    | 3,89                        | 4,02 | 4,13 | 4,29 | 4,39 | 4,51 | 4,63    |
|    | 30  | 29,6                        | 27,5 | 25,4 | 22,5 | 20,9 | 19,2 | 17,1    | 3,36                        | 3,47 | 3,58 | 3,71 | 3,80 | 3,90 | 3,98    |
|    | 35  | 27,7                        | 26,2 | 24,2 | 21,4 | 19,8 | 18,2 | 16,2    | 2,78                        | 3,00 | 3,09 | 3,19 | 3,27 | 3,34 | 3,38    |
|    | 40  | 26,2                        | 24,4 | 22,5 | 19,9 | 18,4 | 16,9 | 15,2    | 2,48                        | 2,57 | 2,64 | 2,72 | 2,78 | 2,83 | 3,01    |
| 10 | 44  | -                           | -    | -    | -    | 17,3 | 15,7 | 14,2    | -                           | -    | -    | -    | 2,44 | 2,56 | 2,69    |
|    | 15  | 36,7                        | 34,1 | 31,4 | 27,9 | 25,8 | 23,7 | 21,2    | 5,79                        | 5,97 | 6,14 | 6,36 | 6,54 | 6,73 | 6,93    |
|    | 20  | 35,3                        | 32,8 | 30,3 | 26,9 | 24,9 | 22,9 | 20,4    | 4,93                        | 5,08 | 5,24 | 5,43 | 5,59 | 5,75 | 5,88    |
|    | 25  | 34,0                        | 31,5 | 29,1 | 25,8 | 23,9 | 21,9 | 19,5    | 4,24                        | 4,35 | 4,49 | 4,65 | 4,78 | 4,92 | 5,00    |
|    | 30  | 32,5                        | 30,2 | 27,9 | 24,7 | 22,9 | 21,0 | 18,6    | 3,63                        | 3,76 | 3,88 | 4,00 | 4,12 | 4,23 | 4,26    |
|    | 35  | 30,9                        | 28,8 | 26,6 | 23,5 | 21,7 | 19,9 | 17,6    | 3,13                        | 3,24 | 3,34 | 3,44 | 3,53 | 3,61 | 3,62    |
| 12 | 40  | 28,8                        | 26,8 | 24,7 | 21,9 | 20,2 | 18,5 | 16,7    | 2,67                        | 2,77 | 2,85 | 2,94 | 3,00 | 3,06 | 3,26    |
|    | 44  | -                           | -    | -    | -    | 18,9 | 17,3 | 15,6    | -                           | -    | -    | -    | 2,63 | 2,77 | 2,91    |
|    | 15  | 38,8                        | 36,0 | 33,2 | 29,5 | 27,3 | 25,1 | 22,4    | 6,11                        | 6,31 | 6,49 | 6,74 | 6,93 | 7,13 | 7,33    |
|    | 20  | 37,4                        | 34,7 | 32,0 | 28,4 | 26,3 | 24,2 | 21,5    | 5,18                        | 5,36 | 5,52 | 5,73 | 5,91 | 6,08 | 6,19    |
|    | 25  | 36,0                        | 33,4 | 30,8 | 27,3 | 25,2 | 23,2 | 20,6    | 4,45                        | 4,57 | 4,73 | 4,89 | 5,04 | 5,19 | 5,24    |
|    | 30  | 34,4                        | 32,0 | 29,5 | 26,1 | 24,2 | 22,2 | 19,7    | 3,80                        | 3,95 | 4,08 | 4,21 | 4,33 | 4,45 | 4,47    |
| 15 | 35  | 31,7                        | 30,5 | 28,1 | 24,9 | 23,0 | 21,1 | 18,6    | 3,17                        | 3,40 | 3,51 | 3,62 | 3,71 | 3,80 | 3,80    |
|    | 40  | 30,5                        | 28,4 | 26,2 | 23,2 | 21,4 | 19,6 | 17,6    | 2,80                        | 2,90 | 3,00 | 3,07 | 3,15 | 3,22 | 3,43    |
|    | 44  | -                           | -    | -    | -    | 20,0 | 18,2 | 16,4    | -                           | -    | -    | -    | 2,76 | 2,90 | 3,06    |
|    | 15  | 43,5                        | 40,4 | 37,2 | 33,0 | 30,5 | 28,0 | 25,0    | 6,52                        | 6,75 | 7,00 | 7,22 | 7,47 | 7,72 | 7,84    |
|    | 20  | 41,7                        | 38,7 | 35,7 | 31,6 | 29,3 | 26,9 | 23,9    | 5,47                        | 5,68 | 5,89 | 6,09 | 6,29 | 6,50 | 6,56    |
|    | 25  | 39,9                        | 37,1 | 34,2 | 30,3 | 28,0 | 25,7 | 22,8    | 4,66                        | 4,85 | 5,00 | 5,15 | 5,33 | 5,49 | 5,52    |
| 18 | 30  | 38,2                        | 35,5 | 32,8 | 29,0 | 26,8 | 24,6 | 21,7    | 3,98                        | 4,15 | 4,30 | 4,42 | 4,56 | 4,70 | 4,69    |
|    | 35  | 34,2                        | 33,0 | 31,3 | 27,6 | 25,5 | 23,4 | 20,6    | 3,23                        | 3,47 | 3,69 | 3,79 | 3,90 | 4,00 | 3,97    |
|    | 40  | 32,8                        | 31,5 | 29,1 | 25,7 | 23,7 | 21,7 | 19,8    | 2,83                        | 3,04 | 3,14 | 3,22 | 3,30 | 3,38 | 3,66    |
|    | 44  | -                           | -    | -    | -    | 22,2 | 20,3 | 18,2    | -                           | -    | -    | -    | 2,89 | 2,94 | 3,13    |
|    | 15  | 47,2                        | 43,9 | 40,5 | 35,8 | 33,1 | 30,4 | 27,0    | 7,07                        | 7,35 | 7,63 | 7,89 | 8,19 | 8,49 | 8,60    |
|    | 20  | 45,3                        | 42,1 | 38,8 | 34,3 | 31,8 | 29,1 | 25,8    | 5,92                        | 6,17 | 6,41 | 6,61 | 6,85 | 7,10 | 7,14    |
| 20 | 25  | 43,4                        | 40,3 | 37,3 | 32,9 | 30,4 | 27,8 | 24,6    | 5,02                        | 5,24 | 5,46 | 5,63 | 5,78 | 5,98 | 5,97    |
|    | 30  | 41,3                        | 38,4 | 35,5 | 31,3 | 28,9 | 26,5 | 23,4    | 4,27                        | 4,45 | 4,62 | 4,76 | 4,92 | 5,07 | 5,03    |
|    | 35  | 37,3                        | 34,3 | 32,6 | 29,7 | 27,4 | 25,1 | 22,0    | 3,79                        | 3,81 | 3,92 | 4,04 | 4,16 | 4,28 | 4,23    |
|    | 40  | 34,6                        | 33,1 | 31,5 | 27,7 | 25,6 | 23,4 | 21,7    | 2,94                        | 3,15 | 3,37 | 3,44 | 3,54 | 3,62 | 4,01    |
|    | 44  | -                           | -    | -    | -    | 24,1 | 22,0 | 20,0    | -                           | -    | -    | -    | 3,11 | 3,17 | 3,43    |
|    | 15  | 49,8                        | 46,3 | 42,7 | 37,7 | 34,8 | 32,0 | 28,4    | 7,44                        | 7,77 | 8,10 | 8,35 | 8,69 | 9,05 | 9,10    |
| 22 | 20  | 47,8                        | 44,4 | 41,0 | 36,2 | 33,4 | 30,7 | 27,1    | 6,22                        | 6,50 | 6,77 | 6,98 | 7,27 | 7,53 | 7,54    |
|    | 25  | 45,7                        | 42,5 | 39,3 | 34,6 | 32,0 | 29,3 | 26,0    | 5,27                        | 5,51 | 5,75 | 5,91 | 6,15 | 6,33 | 6,43    |
|    | 30  | 43,6                        | 40,5 | 37,4 | 33,0 | 30,5 | 27,9 | 24,5    | 4,47                        | 4,67 | 4,87 | 5,00 | 5,18 | 5,35 | 5,29    |
|    | 35  | 41,3                        | 38,4 | 35,5 | 31,2 | 28,8 | 26,4 | 23,1    | 3,82                        | 3,99 | 4,15 | 4,24 | 4,38 | 4,51 | 4,44    |
|    | 40  | 38,7                        | 36,0 | 33,2 | 29,2 | 26,9 | 24,6 | 22,1    | 3,27                        | 3,41 | 3,54 | 3,61 | 3,72 | 3,81 | 4,08    |
|    | 44  | -                           | -    | -    | -    | 25,4 | 23,1 | 20,7    | -                           | -    | -    | -    | 3,26 | 3,33 | 3,84    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 12.1 - PRM - SC

| To | Tae | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 11,4                        | 10,3 | 8,80 | 7,53 | 6,33 | 5,40 | -       | 1,50                        | 1,46 | 1,43 | 1,38 | 1,33 | 1,30 | -       |
|    | -10 | 19,5                        | 17,8 | 15,6 | 13,5 | 11,6 | 9,58 | 7,42    | 2,70                        | 2,67 | 2,62 | 2,58 | 2,52 | 2,45 | 2,42    |
|    | -7  | 21,3                        | 19,5 | 17,2 | 15,1 | 13,0 | 10,8 | 9,62    | 2,99                        | 3,03 | 3,06 | 3,09 | 3,13 | 3,28 | 3,57    |
|    | 2   | 27,2                        | 25,8 | 23,2 | 20,5 | 17,9 | 15,6 | 13,1    | 3,65                        | 3,78 | 3,85 | 3,91 | 4,04 | 4,30 | 4,55    |
|    | 7   | 32,2                        | 29,7 | 26,6 | 23,5 | 20,4 | 17,4 | 15,1    | 4,09                        | 4,21 | 4,32 | 4,44 | 4,55 | 4,63 | 5,04    |
|    | 10  | 33,5                        | 31,8 | 28,5 | 25,2 | 21,9 | 18,2 | 16,2    | 4,26                        | 4,33 | 4,46 | 4,81 | 4,95 | 5,30 | 5,57    |
|    | 18  | 42,7                        | 40,1 | 35,9 | 31,7 | 27,5 | 22,7 | 18,9    | 5,42                        | 5,59 | 5,68 | 5,78 | 6,03 | 6,28 | 6,68    |
|    | -15 | -                           | 10,0 | 8,63 | 7,40 | 6,23 | 5,34 | -       | -                           | 1,35 | 1,30 | 1,25 | 1,22 | 1,18 | -       |
| 40 | -10 | 17,9                        | 16,3 | 14,3 | 12,7 | 11,2 | 9,44 | 7,23    | 2,43                        | 2,39 | 2,34 | 2,29 | 2,26 | 2,23 | 2,12    |
|    | -7  | 20,0                        | 18,3 | 16,2 | 14,2 | 12,2 | 10,7 | 9,31    | 2,57                        | 2,61 | 2,66 | 2,71 | 2,74 | 2,85 | 3,40    |
|    | 2   | 26,8                        | 25,3 | 22,7 | 20,0 | 17,5 | 14,9 | 12,9    | 3,24                        | 3,34 | 3,42 | 3,51 | 3,60 | 3,87 | 4,01    |
|    | 7   | 30,2                        | 28,0 | 25,1 | 22,1 | 19,2 | 16,1 | 14,1    | 3,57                        | 3,63 | 3,68 | 3,74 | 3,78 | 3,85 | 4,15    |
|    | 10  | 32,1                        | 30,2 | 27,0 | 23,8 | 20,7 | 17,4 | 15,0    | 3,79                        | 3,83 | 3,90 | 3,96 | 4,08 | 4,20 | 4,49    |
|    | 18  | 41,3                        | 37,9 | 33,9 | 29,9 | 25,8 | 21,3 | 18,3    | 4,69                        | 4,74 | 4,85 | 4,95 | 5,08 | 5,45 | 5,73    |
|    | -15 | -                           | 9,81 | 8,51 | 7,21 | 6,14 | 5,22 | -       | -                           | 1,29 | 1,25 | 1,21 | 1,18 | 1,12 | -       |
|    | -10 | 17,3                        | 15,8 | 13,9 | 12,4 | 10,9 | 9,35 | 7,09    | 2,27                        | 2,25 | 2,20 | 2,16 | 2,14 | 2,11 | 2,06    |
| 45 | -7  | 18,7                        | 17,2 | 15,2 | 13,8 | 12,1 | 10,6 | 9,07    | 2,25                        | 2,28 | 2,33 | 2,36 | 2,43 | 2,51 | 2,76    |
|    | 2   | 26,5                        | 24,8 | 22,2 | 19,6 | 17,0 | 14,4 | 12,5    | 2,93                        | 3,00 | 3,08 | 3,15 | 3,22 | 3,38 | 3,48    |
|    | 7   | 29,7                        | 27,5 | 24,5 | 21,6 | 18,7 | 15,6 | 13,6    | 3,24                        | 3,29 | 3,34 | 3,39 | 3,51 | 3,58 | 3,68    |
|    | 10  | 30,8                        | 29,6 | 26,5 | 23,3 | 20,2 | 16,8 | 14,6    | 3,27                        | 3,33 | 3,44 | 3,49 | 3,65 | 3,75 | 3,89    |
|    | 18  | 40,2                        | 37,0 | 33,1 | 29,1 | 25,0 | 20,6 | 17,6    | 4,17                        | 4,22 | 4,30 | 4,43 | 4,53 | 4,74 | 4,90    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | 15,0 | 13,6 | 11,9 | 10,4 | 8,82    | -                           | -    | 2,08 | 2,12 | 2,18 | 2,41 | 2,49    |
| 50 | 2   | 25,9                        | 24,3 | 21,7 | 19,1 | 16,6 | 14,0 | 12,1    | 2,65                        | 2,70 | 2,76 | 2,83 | 2,88 | 3,02 | 3,08    |
|    | 7   | 27,9                        | 25,9 | 23,1 | 20,3 | 17,6 | 14,6 | 12,6    | 2,86                        | 2,91 | 2,95 | 3,01 | 3,06 | 3,10 | 3,21    |
|    | 10  | 29,2                        | 26,6 | 23,8 | 20,9 | 18,1 | 15,9 | 13,9    | 2,89                        | 2,94 | 3,01 | 3,07 | 3,37 | 3,41 | 3,57    |
|    | 18  | 38,5                        | 33,3 | 29,6 | 26,0 | 22,7 | 19,7 | 16,9    | 3,57                        | 3,61 | 3,65 | 3,78 | 3,86 | 4,02 | 4,24    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 55 | 2   | 25,4                        | 23,8 | 21,3 | 18,7 | 16,2 | 13,7 | 11,8    | 2,38                        | 2,43 | 2,49 | 2,54 | 2,58 | 2,67 | 2,73    |
|    | 7   | 26,8                        | 24,3 | 21,7 | 19,1 | 16,4 | 14,0 | 12,3    | 2,51                        | 2,55 | 2,59 | 2,64 | 2,67 | 2,73 | 2,89    |
|    | 10  | 28,2                        | 26,1 | 23,3 | 20,5 | 17,7 | 15,4 | 13,5    | 2,62                        | 2,68 | 2,72 | 2,78 | 2,84 | 3,06 | 3,18    |
|    | 18  | 37,2                        | 32,3 | 28,8 | 25,2 | 21,8 | 19,0 | 16,1    | 3,09                        | 3,13 | 3,20 | 3,26 | 3,30 | 3,57 | 3,73    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 /-8 | -5 /-6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|--------|--------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93   | 0,93   | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 14.1 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 14,1                        | 11,9 | 9,88 | 8,38 | 8,14 | 6,56 | -       | 1,49                        | 1,40 | 1,36 | 1,31 | 1,28 | 1,23 | -       |
|    | 20  | 23,4                        | 19,9 | 16,9 | 15,6 | 14,2 | 11,9 | 9,35    | 2,79                        | 2,70 | 2,66 | 2,62 | 2,60 | 2,54 | 2,50    |
|    | 25  | 25,0                        | 21,6 | 18,6 | 17,2 | 15,8 | 13,3 | 10,6    | 3,00                        | 3,09 | 3,13 | 3,19 | 3,22 | 3,30 | 3,39    |
|    | 30  | 34,7                        | 29,6 | 25,9 | 24,2 | 22,4 | 18,9 | 15,2    | 3,42                        | 3,54 | 3,63 | 3,68 | 3,73 | 3,85 | 4,16    |
|    | 35  | 37,9                        | 33,0 | 29,1 | 26,5 | 23,9 | 20,6 | 17,1    | 3,78                        | 4,04 | 4,18 | 4,26 | 4,35 | 4,57 | 4,70    |
|    | 40  | 40,1                        | 35,8 | 31,7 | 28,7 | 26,0 | 22,1 | 18,5    | 4,34                        | 4,53 | 4,62 | 4,76 | 4,89 | 5,04 | 5,28    |
| 10 | 44  | 50,4                        | 45,3 | 40,4 | 36,2 | 32,4 | 28,0 | 23,1    | 5,22                        | 5,53 | 5,65 | 5,74 | 5,91 | 6,10 | 6,34    |
|    | 15  | -                           | 11,5 | 9,65 | 8,21 | 8,00 | 6,43 | -       | -                           | 1,31 | 1,25 | 1,22 | 1,19 | 1,15 | -       |
|    | 20  | -                           | 19,3 | 16,7 | 15,3 | 14,1 | 11,7 | 9,25    | -                           | 2,47 | 2,41 | 2,36 | 2,28 | 2,24 | 2,17    |
|    | 25  | 24,8                        | 21,2 | 18,4 | 16,9 | 15,6 | 13,1 | 10,4    | 2,65                        | 2,73 | 2,78 | 2,83 | 2,88 | 2,92 | 3,15    |
|    | 30  | 34,1                        | 29,1 | 25,5 | 23,7 | 22,0 | 18,6 | 14,9    | 3,08                        | 3,20 | 3,28 | 3,32 | 3,37 | 3,48 | 3,71    |
|    | 35  | 36,4                        | 31,4 | 28,2 | 25,2 | 22,6 | 19,5 | 16,0    | 3,54                        | 3,63 | 3,67 | 3,71 | 3,79 | 4,01 | 4,08    |
| 12 | 40  | 38,9                        | 34,1 | 30,3 | 27,4 | 24,7 | 21,0 | 17,2    | 3,69                        | 3,85 | 3,91 | 3,96 | 4,09 | 4,22 | 4,31    |
|    | 44  | 48,5                        | 43,3 | 38,7 | 34,7 | 29,9 | 25,6 | 21,4    | 4,45                        | 4,61 | 4,69 | 4,80 | 4,91 | 5,07 | 5,41    |
|    | 15  | -                           | 11,2 | 9,48 | 8,06 | 7,86 | 6,34 | -       | -                           | 1,24 | 1,22 | 1,18 | 1,15 | 1,10 | -       |
|    | 20  | -                           | 18,7 | 16,4 | 15,2 | 13,9 | 11,5 | 9,13    | -                           | 2,31 | 2,28 | 2,26 | 2,20 | 2,17 | 2,12    |
|    | 25  | 24,3                        | 20,9 | 18,2 | 16,8 | 15,5 | 13,0 | 10,3    | 2,25                        | 2,35 | 2,38 | 2,42 | 2,47 | 2,54 | 2,76    |
|    | 30  | 33,5                        | 28,6 | 25,1 | 23,3 | 21,6 | 18,2 | 14,6    | 2,76                        | 2,88 | 2,96 | 3,00 | 3,04 | 3,12 | 3,29    |
| 15 | 35  | 35,6                        | 31,0 | 27,9 | 24,9 | 22,3 | 19,3 | 15,9    | 3,21                        | 3,29 | 3,34 | 3,38 | 3,50 | 3,56 | 3,63    |
|    | 40  | 37,5                        | 33,2 | 29,6 | 26,5 | 23,8 | 20,1 | 16,5    | 3,17                        | 3,39 | 3,47 | 3,53 | 3,64 | 3,72 | 3,81    |
|    | 44  | 46,8                        | 42,1 | 37,6 | 33,6 | 29,0 | 24,5 | 20,5    | 3,93                        | 4,09 | 4,22 | 4,31 | 4,39 | 4,53 | 4,81    |
|    | 15  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 20  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 25  | -                           | -    | 17,7 | 16,6 | 15,2 | 12,8 | 10,1    | -                           | -    | 2,10 | 2,15 | 2,22 | 2,38 | 2,48    |
| 18 | 30  | 32,6                        | 27,9 | 24,4 | 22,7 | 21,1 | 17,7 | 14,2    | 2,48                        | 2,59 | 2,64 | 2,69 | 2,74 | 2,81 | 2,89    |
|    | 35  | 34,2                        | 30,0 | 26,8 | 23,5 | 20,6 | 17,2 | 13,7    | 2,71                        | 2,81 | 2,85 | 2,88 | 2,93 | 2,97 | 3,03    |
|    | 40  | 36,2                        | 32,1 | 28,3 | 24,8 | 21,9 | 18,7 | 14,9    | 2,75                        | 2,87 | 2,91 | 2,98 | 3,03 | 3,11 | 3,19    |
|    | 44  | 44,9                        | 40,6 | 36,1 | 31,5 | 27,0 | 22,7 | 18,0    | 3,37                        | 3,49 | 3,53 | 3,58 | 3,64 | 3,68 | 3,73    |
|    | 15  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 20  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 20 | 25  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 30  | 31,7                        | 27,2 | 23,9 | 22,1 | 20,6 | 17,3 | 13,8    | 2,20                        | 2,30 | 2,41 | 2,46 | 2,50 | 2,56 | 2,64    |
|    | 35  | 33,1                        | 29,0 | 25,8 | 22,7 | 19,7 | 16,4 | 13,0    | 2,29                        | 2,40 | 2,46 | 2,50 | 2,55 | 2,60 | 2,68    |
|    | 40  | 35,3                        | 31,0 | 27,2 | 24,0 | 21,1 | 17,7 | 14,0    | 2,52                        | 2,61 | 2,69 | 2,76 | 2,82 | 2,91 | 3,00    |
|    | 44  | 44,9                        | 40,6 | 36,2 | 31,4 | 26,9 | 22,4 | 17,6    | 2,88                        | 3,01 | 3,06 | 3,10 | 3,16 | 3,24 | 3,32    |
|    | 15  | 57,0                        | 52,2 | 47,9 | 42,9 | 37,9 | 35,0 | 28,5    | 6,61                        | 7,08 | 7,47 | 7,93 | 8,17 | 8,51 | 8,90    |
| 22 | 20  | 54,7                        | 50,0 | 46,0 | 41,1 | 36,3 | 33,6 | 27,3    | 5,56                        | 5,91 | 6,25 | 6,62 | 6,83 | 7,10 | 7,38    |
|    | 25  | 52,2                        | 47,9 | 44,0 | 39,4 | 34,8 | 32,2 | 26,1    | 4,68                        | 5,01 | 5,29 | 5,62 | 5,78 | 6,02 | 6,28    |
|    | 30  | 49,6                        | 45,6 | 41,9 | 37,6 | 33,1 | 30,6 | 24,6    | 3,98                        | 4,26 | 4,49 | 4,76 | 4,89 | 5,06 | 5,16    |
|    | 35  | 45,9                        | 43,3 | 39,9 | 35,8 | 31,5 | 29,1 | 23,3    | 3,32                        | 3,64 | 3,84 | 4,06 | 4,15 | 4,29 | 4,34    |
|    | 40  | 43,8                        | 40,4 | 37,2 | 33,4 | 29,3 | 27,1 | 22,6    | 2,91                        | 3,11 | 3,28 | 3,46 | 3,53 | 3,63 | 4,38    |
|    | 44  | -                           | -    | -    | -    | 27,6 | 25,5 | 21,3    | -                           | -    | -    | -    | 3,10 | 3,19 | 3,80    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 14.1 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 13,2                        | 11,1 | 9,23 | 7,83 | 7,61 | 6,13 | -       | 1,39                        | 1,31 | 1,27 | 1,22 | 1,19 | 1,15 | -       |
|    | -10 | 21,9                        | 18,6 | 15,8 | 14,6 | 13,3 | 11,1 | 8,74    | 2,61                        | 2,53 | 2,49 | 2,45 | 2,43 | 2,38 | 2,33    |
|    | -7  | 23,4                        | 20,2 | 17,4 | 16,1 | 14,8 | 12,4 | 9,89    | 2,81                        | 2,89 | 2,93 | 2,98 | 3,01 | 3,08 | 3,17    |
|    | 2   | 32,4                        | 27,7 | 24,3 | 22,6 | 20,9 | 17,7 | 14,2    | 3,20                        | 3,31 | 3,39 | 3,44 | 3,49 | 3,60 | 3,89    |
|    | 7   | 37,9                        | 33,0 | 29,1 | 26,5 | 23,9 | 20,6 | 17,1    | 3,78                        | 4,04 | 4,18 | 4,26 | 4,35 | 4,57 | 4,70    |
|    | 10  | 40,1                        | 35,8 | 31,7 | 28,7 | 26,0 | 22,1 | 18,5    | 4,34                        | 4,53 | 4,62 | 4,76 | 4,89 | 5,04 | 5,28    |
|    | 18  | 50,4                        | 45,3 | 40,4 | 36,2 | 32,4 | 28,0 | 23,1    | 5,22                        | 5,53 | 5,65 | 5,74 | 5,91 | 6,10 | 6,34    |
| 40 | -15 | -                           | 10,8 | 9,02 | 7,67 | 7,48 | 6,01 | -       | -                           | 1,22 | 1,17 | 1,14 | 1,11 | 1,07 | -       |
|    | -10 | 19,9                        | 18,0 | 15,6 | 14,3 | 13,1 | 10,9 | 8,65    | 2,34                        | 2,30 | 2,25 | 2,20 | 2,13 | 2,09 | 2,03    |
|    | -7  | 23,2                        | 19,8 | 17,2 | 15,8 | 14,6 | 12,3 | 9,76    | 2,48                        | 2,55 | 2,60 | 2,64 | 2,69 | 2,73 | 2,95    |
|    | 2   | 31,9                        | 27,2 | 23,8 | 22,2 | 20,5 | 17,3 | 13,9    | 2,88                        | 2,99 | 3,07 | 3,10 | 3,15 | 3,25 | 3,47    |
|    | 7   | 36,4                        | 31,4 | 28,2 | 25,2 | 22,6 | 19,5 | 16,0    | 3,54                        | 3,63 | 3,67 | 3,71 | 3,79 | 4,01 | 4,08    |
|    | 10  | 38,9                        | 34,1 | 30,3 | 27,4 | 24,7 | 21,0 | 17,2    | 3,69                        | 3,85 | 3,91 | 3,96 | 4,09 | 4,22 | 4,31    |
|    | 18  | 48,5                        | 43,3 | 38,7 | 34,7 | 29,9 | 25,6 | 21,4    | 4,45                        | 4,61 | 4,69 | 4,80 | 4,91 | 5,07 | 5,41    |
| 45 | -15 | -                           | 10,5 | 8,86 | 7,53 | 7,35 | 5,93 | -       | -                           | 1,16 | 1,14 | 1,10 | 1,07 | 1,03 | -       |
|    | -10 | -                           | 17,5 | 15,4 | 14,2 | 13,0 | 10,8 | 8,54    | -                           | 2,16 | 2,13 | 2,11 | 2,06 | 2,03 | 1,98    |
|    | -7  | 22,8                        | 19,6 | 17,0 | 15,7 | 14,5 | 12,1 | 9,64    | 2,10                        | 2,19 | 2,22 | 2,26 | 2,31 | 2,38 | 2,58    |
|    | 2   | 31,3                        | 26,7 | 23,4 | 21,8 | 20,2 | 17,0 | 13,7    | 2,58                        | 2,69 | 2,77 | 2,80 | 2,84 | 2,91 | 3,08    |
|    | 7   | 35,6                        | 31,0 | 27,9 | 24,9 | 22,3 | 19,3 | 15,9    | 3,21                        | 3,29 | 3,34 | 3,38 | 3,50 | 3,56 | 3,63    |
|    | 10  | 37,5                        | 33,2 | 29,6 | 26,5 | 23,8 | 20,1 | 16,5    | 3,17                        | 3,39 | 3,47 | 3,53 | 3,64 | 3,72 | 3,81    |
|    | 18  | 46,8                        | 42,1 | 37,6 | 33,6 | 29,0 | 24,5 | 20,5    | 3,93                        | 4,09 | 4,22 | 4,31 | 4,39 | 4,53 | 4,81    |
| 50 | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | 16,6 | 15,5 | 14,2 | 12,0 | 9,43    | -                           | -    | 1,96 | 2,01 | 2,07 | 2,22 | 2,31    |
|    | 2   | 30,4                        | 26,1 | 22,9 | 21,2 | 19,7 | 16,6 | 13,3    | 2,31                        | 2,42 | 2,47 | 2,51 | 2,56 | 2,62 | 2,70    |
|    | 7   | 34,2                        | 30,0 | 26,8 | 23,5 | 20,6 | 17,2 | 13,7    | 2,71                        | 2,81 | 2,85 | 2,88 | 2,93 | 2,97 | 3,03    |
|    | 10  | 36,2                        | 32,1 | 28,3 | 24,8 | 21,9 | 18,7 | 14,9    | 2,75                        | 2,87 | 2,91 | 2,98 | 3,03 | 3,11 | 3,19    |
|    | 18  | 44,9                        | 40,6 | 36,1 | 31,5 | 27,0 | 22,7 | 18,0    | 3,37                        | 3,49 | 3,53 | 3,58 | 3,64 | 3,68 | 3,73    |
| 55 | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 29,6                        | 25,4 | 22,3 | 20,7 | 19,2 | 16,2 | 12,9    | 2,15                        | 2,26 | 2,32 | 2,35 | 2,39 | 2,45 | 2,52    |
|    | 7   | 33,1                        | 29,0 | 25,8 | 22,7 | 19,7 | 16,4 | 13,0    | 2,29                        | 2,40 | 2,46 | 2,50 | 2,55 | 2,60 | 2,68    |
|    | 10  | 35,3                        | 31,0 | 27,2 | 24,0 | 21,1 | 17,7 | 14,0    | 2,52                        | 2,61 | 2,69 | 2,76 | 2,82 | 2,91 | 3,00    |
|    | 18  | 44,9                        | 40,6 | 36,2 | 31,4 | 26,9 | 22,4 | 17,6    | 2,88                        | 3,01 | 3,06 | 3,10 | 3,16 | 3,24 | 3,32    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 16.2 - PRM - SC

|    |     | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 7  | 15  | 54,0                        | 50,5 | 46,9 | 41,9 | 38,3 | 34,6 | 30,9    | 5,43                        | 5,48 | 5,52 | 6,03 | 6,28 | 6,54 | 6,83    |
|    | 20  | 52,1                        | 48,7 | 45,2 | 40,4 | 36,9 | 33,2 | 29,6    | 4,69                        | 4,74 | 4,79 | 5,19 | 5,38 | 5,58 | 5,82    |
|    | 25  | 50,2                        | 46,8 | 43,5 | 38,8 | 35,4 | 31,8 | 28,3    | 4,06                        | 4,11 | 4,16 | 4,46 | 4,62 | 4,77 | 4,93    |
|    | 30  | 48,1                        | 44,9 | 41,7 | 37,1 | 33,8 | 30,3 | 26,9    | 3,52                        | 3,57 | 3,61 | 3,84 | 3,95 | 4,06 | 4,17    |
|    | 35  | 45,8                        | 42,8 | 39,7 | 35,3 | 32,1 | 28,7 | 25,3    | 3,00                        | 3,09 | 3,13 | 3,30 | 3,38 | 3,36 | 3,52    |
|    | 40  | 42,9                        | 40,0 | 37,1 | 32,9 | 29,8 | 26,6 | 23,4    | 2,63                        | 2,66 | 2,69 | 2,81 | 2,86 | 2,91 | 2,93    |
| 10 | 44  | -                           | -    | -    | -    | -    | 24,8 | 21,7    | -                           | -    | -    | -    | -    | 2,52 | 2,52    |
|    | 15  | 59,3                        | 55,3 | 51,4 | 45,9 | 41,9 | 37,8 | 33,7    | 6,00                        | 6,05 | 6,10 | 6,64 | 6,92 | 7,20 | 7,54    |
|    | 20  | 57,2                        | 53,5 | 49,7 | 44,2 | 40,4 | 36,3 | 32,3    | 5,15                        | 5,21 | 5,27 | 6,97 | 5,90 | 6,11 | 6,37    |
|    | 25  | 55,1                        | 51,5 | 47,8 | 42,5 | 38,7 | 34,8 | 30,9    | 4,44                        | 4,51 | 4,56 | 4,87 | 5,04 | 5,20 | 5,38    |
|    | 30  | 52,9                        | 49,4 | 45,8 | 40,7 | 36,9 | 33,2 | 29,3    | 3,84                        | 3,90 | 3,95 | 4,18 | 4,28 | 4,42 | 4,54    |
|    | 35  | 50,5                        | 47,1 | 43,7 | 38,7 | 35,1 | 31,5 | 27,7    | 3,32                        | 3,37 | 3,41 | 3,58 | 3,64 | 3,75 | 3,82    |
| 12 | 40  | 47,3                        | 44,1 | 40,9 | 36,1 | 32,6 | 29,1 | 25,5    | 2,85                        | 2,89 | 2,93 | 3,05 | 3,07 | 3,15 | 3,17    |
|    | 44  | -                           | -    | -    | -    | -    | 27,2 | 23,7    | -                           | -    | -    | -    | -    | 2,72 | 2,72    |
|    | 15  | 62,8                        | 58,6 | 54,4 | 48,5 | 44,3 | 39,9 | 35,5    | 6,38                        | 6,45 | 6,51 | 7,07 | 7,35 | 7,66 | 8,02    |
|    | 20  | 60,7                        | 56,6 | 52,6 | 46,8 | 42,7 | 38,4 | 34,1    | 5,47                        | 5,54 | 5,61 | 6,03 | 6,25 | 5,28 | 6,76    |
|    | 25  | 58,4                        | 54,6 | 50,7 | 45,0 | 41,0 | 36,8 | 32,6    | 4,70                        | 4,77 | 4,84 | 5,15 | 5,32 | 5,50 | 5,69    |
|    | 30  | 56,2                        | 52,4 | 48,6 | 43,2 | 39,2 | 35,1 | 31,0    | 4,08                        | 4,12 | 4,17 | 4,43 | 4,53 | 4,66 | 4,79    |
| 15 | 35  | 53,6                        | 50,0 | 46,4 | 41,0 | 37,2 | 33,2 | 29,2    | 3,51                        | 3,56 | 3,61 | 3,77 | 3,86 | 3,94 | 4,02    |
|    | 40  | 50,1                        | 46,8 | 43,3 | 38,2 | 34,6 | 30,8 | 26,9    | 3,01                        | 3,05 | 3,09 | 3,20 | 3,25 | 3,30 | 3,33    |
|    | 44  | -                           | -    | -    | -    | -    | 28,7 | 25,0    | -                           | -    | -    | -    | -    | 2,85 | 2,85    |
|    | 15  | 69,9                        | 64,5 | 60,2 | 53,7 | 48,2 | 43,1 | 37,4    | 6,47                        | 6,56 | 6,61 | 6,99 | 7,24 | 7,54 | 7,91    |
|    | 20  | 67,2                        | 62,0 | 57,8 | 51,4 | 46,1 | 41,1 | 35,6    | 5,46                        | 5,55 | 5,61 | 5,87 | 6,06 | 6,28 | 6,54    |
|    | 25  | 64,3                        | 59,3 | 55,2 | 49,1 | 43,9 | 39,1 | 33,7    | 4,64                        | 4,71 | 4,76 | 4,95 | 5,09 | 5,24 | 5,40    |
| 18 | 30  | 62,4                        | 57,6 | 53,7 | 47,7 | 42,7 | 37,9 | 32,6    | 4,03                        | 4,12 | 4,14 | 4,29 | 4,40 | 4,50 | 4,59    |
|    | 35  | 60,2                        | 55,6 | 51,9 | 46,1 | 41,2 | 36,7 | 31,6    | 3,50                        | 3,56 | 3,61 | 3,71 | 3,78 | 3,86 | 3,94    |
|    | 40  | 56,5                        | 52,2 | 48,7 | 43,1 | 38,4 | 34,1 | 29,2    | 3,00                        | 3,05 | 3,09 | 3,15 | 3,19 | 3,24 | 3,25    |
|    | 44  | -                           | -    | -    | -    | -    | 31,8 | 27,1    | -                           | -    | -    | -    | -    | 2,80 | 2,78    |
|    | 15  | 74,3                        | 70,5 | 65,8 | 58,5 | 52,5 | 46,9 | 40,7    | 6,96                        | 7,27 | 7,35 | 7,75 | 8,04 | 8,41 | 8,89    |
|    | 20  | 71,4                        | 67,7 | 63,1 | 56,1 | 50,3 | 44,8 | 38,7    | 5,85                        | 6,12 | 6,20 | 6,47 | 6,69 | 6,95 | 7,28    |
| 20 | 25  | 69,3                        | 65,9 | 61,5 | 54,6 | 48,9 | 43,6 | 37,7    | 5,02                        | 5,27 | 5,34 | 5,53 | 5,71 | 5,91 | 6,15    |
|    | 30  | 67,1                        | 64,0 | 59,8 | 53,0 | 47,5 | 42,4 | 36,6    | 4,33                        | 4,57 | 4,64 | 4,77 | 4,90 | 5,06 | 5,21    |
|    | 35  | 63,9                        | 58,7 | 55,6 | 51,2 | 45,9 | 40,9 | 35,3    | 4,02                        | 3,80 | 3,86 | 4,10 | 4,22 | 4,32 | 4,42    |
|    | 40  | 58,6                        | 57,0 | 53,1 | 46,9 | 41,8 | 37,0 | 31,6    | 3,09                        | 3,32 | 3,36 | 3,41 | 3,45 | 3,51 | 3,53    |
|    | 44  | -                           | -    | -    | -    | -    | 34,5 | 29,3    | -                           | -    | -    | -    | -    | 3,03 | 3,01    |
|    | 15  | 79,7                        | 75,5 | 70,6 | 62,9 | 56,4 | 50,5 | 43,9    | 7,55                        | 7,89 | 8,01 | 8,43 | 8,78 | 9,23 | 9,84    |
| 20 | 20  | 76,6                        | 72,7 | 67,8 | 60,3 | 54,1 | 48,3 | 41,9    | 6,32                        | 6,63 | 6,73 | 7,01 | 7,28 | 7,61 | 8,03    |
|    | 25  | 74,4                        | 70,7 | 66,0 | 58,7 | 52,6 | 47,0 | 40,7    | 5,40                        | 5,68 | 5,77 | 5,98 | 6,18 | 6,44 | 6,74    |
|    | 30  | 72,1                        | 68,6 | 64,1 | 57,0 | 51,1 | 45,7 | 39,5    | 4,66                        | 4,91 | 4,99 | 5,14 | 5,29 | 5,50 | 5,69    |
|    | 35  | 68,4                        | 65,2 | 60,8 | 53,9 | 48,2 | 43,0 | 38,1    | 4,10                        | 4,17 | 4,24 | 4,33 | 4,43 | 4,55 | 4,81    |
|    | 40  | 64,2                        | 61,2 | 57,1 | 50,5 | 45,0 | 40,0 | 34,3    | 3,38                        | 3,56 | 3,61 | 3,66 | 3,73 | 3,80 | 3,85    |
|    | 44  | -                           | -    | -    | -    | -    | 37,4 | 31,9    | -                           | -    | -    | -    | -    | 3,27 | 3,28    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 16.2 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 25,3                        | 23,5 | 21,3 | 19,2 | 16,6 | 14,3 | 11,9    | 2,44                        | 2,42 | 2,41 | 2,40 | 2,35 | 2,30 | 2,24    |
|    | -10 | 30,7                        | 28,8 | 26,4 | 24,0 | 21,0 | 18,2 | 15,6    | 2,82                        | 2,83 | 2,83 | 2,85 | 2,78 | 2,74 | 2,77    |
|    | -7  | 34,3                        | 32,3 | 29,7 | 27,2 | 23,9 | 21,1 | 18,4    | 3,02                        | 3,04 | 3,06 | 3,09 | 3,24 | 3,34 | 3,37    |
|    | 2   | 45,6                        | 43,1 | 39,8 | 36,5 | 32,4 | 28,6 | 25,5    | 3,72                        | 3,75 | 3,80 | 3,85 | 4,04 | 4,16 | 4,27    |
|    | 7   | 54,3                        | 51,2 | 47,4 | 43,5 | 38,5 | 34,0 | 30,3    | 4,37                        | 4,50 | 4,56 | 4,61 | 4,84 | 4,97 | 5,07    |
|    | 10  | 57,2                        | 54,2 | 50,1 | 46,1 | 40,8 | 36,0 | 32,1    | 4,69                        | 4,75 | 4,82 | 4,88 | 5,12 | 5,26 | 5,38    |
| 40 | 18  | 66,7                        | 63,3 | 58,7 | 53,8 | 47,7 | 41,9 | 37,2    | 5,45                        | 5,53 | 5,63 | 5,71 | 6,00 | 6,17 | 6,29    |
|    | -15 | 24,5                        | 22,9 | 20,8 | 18,2 | 15,9 | 13,5 | 11,1    | 2,20                        | 2,18 | 2,17 | 2,13 | 2,09 | 2,04 | 1,98    |
|    | -10 | 29,9                        | 28,1 | 25,5 | 23,3 | 20,1 | 17,7 | 14,9    | 2,54                        | 2,54 | 2,52 | 2,54 | 2,47 | 2,47 | 2,42    |
|    | -7  | 33,5                        | 31,6 | 29,1 | 26,6 | 23,5 | 20,7 | 18,1    | 2,71                        | 2,72 | 2,74 | 2,76 | 2,88 | 2,96 | 3,02    |
|    | 2   | 44,5                        | 42,1 | 38,8 | 35,6 | 31,6 | 27,8 | 24,8    | 3,30                        | 3,33 | 3,36 | 3,40 | 3,55 | 3,63 | 3,69    |
|    | 7   | 53,2                        | 50,0 | 46,2 | 42,4 | 37,6 | 33,0 | 29,4    | 3,94                        | 3,95 | 4,01 | 4,05 | 4,23 | 4,31 | 4,38    |
| 45 | 10  | 55,8                        | 52,8 | 48,8 | 44,8 | 39,7 | 34,9 | 31,0    | 4,12                        | 4,17 | 4,22 | 4,27 | 4,46 | 4,55 | 4,61    |
|    | 18  | 65,0                        | 61,6 | 57,0 | 52,2 | 46,2 | 40,5 | 35,8    | 4,74                        | 4,81 | 4,89 | 4,95 | 5,17 | 5,27 | 5,33    |
|    | -15 | 24,1                        | 22,5 | 20,5 | 17,8 | 15,5 | 12,9 | -       | 1,99                        | 1,98 | 1,97 | 1,91 | 1,87 | 1,78 | -       |
|    | -10 | 29,5                        | 27,5 | 24,9 | 22,8 | 19,6 | 17,0 | 14,4    | 2,29                        | 2,28 | 2,25 | 2,26 | 2,20 | 2,16 | 2,12    |
|    | -7  | 33,0                        | 31,1 | 28,7 | 26,3 | 23,2 | 20,5 | 18,0    | 2,44                        | 2,45 | 2,47 | 2,48 | 2,58 | 2,63 | 2,69    |
|    | 2   | 43,7                        | 41,3 | 38,1 | 34,9 | 31,0 | 27,3 | 24,3    | 2,93                        | 2,95 | 2,98 | 3,01 | 3,13 | 3,18 | 3,21    |
| 50 | 7   | 52,4                        | 48,7 | 45,0 | 41,2 | 36,6 | 32,1 | 28,4    | 3,36                        | 3,47 | 3,51 | 3,54 | 3,68 | 3,73 | 3,75    |
|    | 10  | 54,7                        | 51,8 | 47,8 | 43,8 | 38,8 | 34,0 | 30,1    | 3,62                        | 3,66 | 3,71 | 3,74 | 3,88 | 3,93 | 3,95    |
|    | 18  | 63,5                        | 60,2 | 55,6 | 50,8 | 45,0 | 39,3 | 34,6    | 4,13                        | 4,18 | 4,25 | 4,29 | 4,46 | 4,51 | 4,53    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 30,1                        | 28,4 | 26,2 | 23,9 | 21,7 | 19,3 | 17,0    | 2,05                        | 2,06 | 2,08 | 2,08 | 2,20 | 2,26 | 2,30    |
| 55 | 2   | 39,7                        | 37,5 | 34,5 | 31,6 | 28,1 | 24,7 | 21,9    | 2,48                        | 2,50 | 2,52 | 2,54 | 2,63 | 2,65 | 2,65    |
|    | 7   | 46,3                        | 43,8 | 40,4 | 36,9 | 32,7 | 28,6 | 25,3    | 2,98                        | 3,00 | 3,03 | 3,04 | 3,15 | 3,16 | 3,15    |
|    | 10  | 48,8                        | 46,1 | 42,5 | 38,9 | 34,5 | 30,1 | 26,6    | 3,10                        | 3,13 | 3,17 | 3,19 | 3,30 | 3,32 | 3,30    |
|    | 18  | 56,4                        | 53,4 | 49,2 | 44,9 | 39,8 | 34,6 | 30,5    | 3,50                        | 3,54 | 3,59 | 3,62 | 3,74 | 3,76 | 3,75    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 55 | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 38,9                        | 36,8 | 33,9 | 31,0 | 27,6 | 24,2 | 21,4    | 2,23                        | 2,25 | 2,27 | 2,28 | 2,35 | 2,35 | 2,34    |
|    | 7   | 48,6                        | 42,7 | 39,4 | 36,0 | 31,9 | 27,8 | 24,5    | 2,62                        | 2,67 | 2,69 | 2,70 | 2,78 | 2,78 | 2,75    |
|    | 10  | 47,6                        | 45,0 | 41,4 | 37,8 | 33,6 | 29,2 | 25,7    | 2,75                        | 2,78 | 2,81 | 2,82 | 2,90 | 2,90 | 2,86    |
|    | 18  | 54,8                        | 51,8 | 47,6 | 43,5 | 38,5 | 33,3 | 29,3    | 3,08                        | 3,11 | 3,15 | 3,17 | 3,26 | 3,25 | 3,23    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 18.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 57,0                        | 53,9 | 48,4 | 44,0 | 39,5 | 35,9 | 32,0    | 4,98                        | 5,03 | 5,28 | 5,45 | 5,68 | 5,88 | 6,18    |
|    | 20  | 55,0                        | 52,0 | 46,7 | 42,5 | 38,0 | 34,5 | 30,8    | 4,28                        | 4,33 | 4,53 | 4,67 | 4,87 | 5,04 | 5,27    |
|    | 25  | 52,9                        | 50,1 | 44,9 | 40,8 | 36,5 | 33,1 | 29,4    | 3,69                        | 3,74 | 3,89 | 4,02 | 4,18 | 4,31 | 4,47    |
|    | 30  | 52,5                        | 49,6 | 44,4 | 40,5 | 36,1 | 32,8 | 28,9    | 3,31                        | 3,35 | 3,47 | 3,59 | 3,71 | 3,82 | 3,92    |
|    | 35  | 52,2                        | 48,5 | 43,5 | 39,5 | 35,3 | 32,0 | 28,3    | 2,92                        | 2,97 | 3,07 | 3,17 | 3,27 | 3,35 | 3,43    |
|    | 40  | 48,6                        | 46,0 | 41,1 | 37,3 | 33,2 | 30,0 | 26,4    | 2,56                        | 2,59 | 2,67 | 2,74 | 2,81 | 2,87 | 2,90    |
|    | 44  | -                           | -    | -    | -    | -    | 28,0 | 24,6    | -                           | -    | -    | -    | -    | 2,50 | 2,50    |
| 10 | 15  | 62,5                        | 59,1 | 53,0 | 48,2 | 43,2 | 39,3 | 35,0    | 5,48                        | 5,53 | 5,78 | 5,98 | 6,24 | 6,48 | 6,79    |
|    | 20  | 60,3                        | 57,1 | 51,2 | 46,5 | 41,6 | 37,8 | 33,6    | 4,69                        | 4,75 | 4,94 | 5,11 | 5,33 | 5,51 | 5,75    |
|    | 25  | 58,1                        | 55,0 | 49,2 | 44,8 | 40,0 | 36,3 | 32,1    | 4,03                        | 4,09 | 4,23 | 4,38 | 4,55 | 4,70 | 4,86    |
|    | 30  | 56,8                        | 53,8 | 48,0 | 43,6 | 38,9 | 35,1 | 30,9    | 3,55                        | 3,62 | 3,71 | 3,84 | 3,97 | 4,06 | 4,15    |
|    | 35  | 56,4                        | 53,5 | 47,8 | 43,4 | 38,8 | 35,0 | 30,9    | 3,18                        | 3,24 | 3,32 | 3,43 | 3,55 | 3,63 | 3,71    |
|    | 40  | 53,5                        | 50,7 | 45,2 | 41,0 | 36,5 | 32,9 | 28,8    | 2,77                        | 2,82 | 2,88 | 2,97 | 3,04 | 3,10 | 3,12    |
|    | 44  | -                           | -    | -    | -    | -    | 30,7 | 26,8    | -                           | -    | -    | -    | -    | 2,70 | 2,70    |
| 12 | 15  | 66,2                        | 62,6 | 56,1 | 51,0 | 45,7 | 40,8 | 36,9    | 5,82                        | 5,89 | 6,12 | 6,34 | 6,62 | 6,78 | 7,20    |
|    | 20  | 63,9                        | 60,5 | 54,2 | 49,2 | 44,0 | 39,9 | 35,4    | 4,96                        | 5,04 | 5,21 | 5,41 | 5,63 | 5,84 | 6,08    |
|    | 25  | 61,6                        | 58,3 | 52,1 | 47,4 | 42,3 | 38,3 | 33,9    | 4,26                        | 4,32 | 4,46 | 4,63 | 4,80 | 4,97 | 5,13    |
|    | 30  | 60,3                        | 57,1 | 50,9 | 46,2 | 41,1 | 37,1 | 32,6    | 3,74                        | 3,81 | 3,90 | 4,04 | 4,17 | 4,28 | 4,37    |
|    | 35  | 59,8                        | 56,7 | 50,6 | 46,0 | 41,0 | 37,0 | 32,7    | 3,35                        | 3,41 | 3,49 | 3,61 | 3,72 | 3,82 | 3,90    |
|    | 40  | 56,8                        | 53,8 | 47,9 | 43,4 | 38,6 | 34,7 | 30,4    | 2,92                        | 2,97 | 3,02 | 3,12 | 3,19 | 3,26 | 3,28    |
|    | 44  | -                           | -    | -    | -    | -    | 32,5 | 28,3    | -                           | -    | -    | -    | -    | 2,83 | 2,82    |
| 15 | 15  | 74,3                        | 70,4 | 63,9 | 57,2 | 51,1 | 45,8 | 41,1    | 5,86                        | 5,95 | 6,16 | 6,37 | 6,65 | 6,83 | 7,23    |
|    | 20  | 71,5                        | 67,8 | 61,5 | 54,9 | 49,1 | 43,9 | 39,4    | 4,94                        | 5,04 | 5,21 | 5,37 | 5,59 | 5,72 | 6,03    |
|    | 25  | 68,7                        | 65,0 | 59,0 | 52,6 | 46,9 | 41,9 | 37,5    | 4,20                        | 4,28 | 4,42 | 4,54 | 4,72 | 4,80 | 5,03    |
|    | 30  | 67,2                        | 63,7 | 57,7 | 51,3 | 45,6 | 40,5 | 36,1    | 3,66                        | 3,73 | 3,85 | 3,93 | 4,06 | 4,10 | 4,25    |
|    | 35  | 64,2                        | 63,2 | 57,3 | 51,0 | 45,5 | 40,5 | 36,2    | 3,13                        | 3,31 | 3,41 | 3,48 | 3,59 | 3,26 | 3,76    |
|    | 40  | 61,9                        | 60,1 | 54,4 | 48,2 | 42,8 | 37,9 | 33,6    | 2,77                        | 2,89 | 2,97 | 3,01 | 3,09 | 3,09 | 3,15    |
|    | 44  | -                           | -    | -    | -    | -    | 35,4 | 31,2    | -                           | -    | -    | -    | -    | 2,69 | 2,72    |
| 18 | 15  | 81,0                        | 76,6 | 69,6 | 62,1 | 55,4 | 49,6 | 44,5    | 6,44                        | 6,56 | 6,79 | 7,00 | 7,31 | 7,51 | 8,00    |
|    | 20  | 77,9                        | 73,8 | 67,0 | 59,7 | 53,2 | 47,5 | 42,6    | 5,41                        | 5,51 | 5,71 | 5,86 | 6,12 | 6,25 | 6,61    |
|    | 25  | 74,8                        | 70,9 | 64,2 | 57,2 | 50,9 | 45,4 | 40,6    | 4,58                        | 4,67 | 4,83 | 4,94 | 5,14 | 5,22 | 5,49    |
|    | 30  | 73,0                        | 68,6 | 62,5 | 55,5 | 49,3 | 43,6 | 38,8    | 3,98                        | 4,04 | 4,18 | 4,26 | 4,40 | 4,44 | 4,62    |
|    | 35  | 70,2                        | 67,2 | 61,8 | 54,9 | 48,8 | 43,4 | 38,7    | 3,75                        | 3,67 | 3,70 | 3,77 | 3,89 | 3,92 | 4,06    |
|    | 40  | 68,8                        | 65,2 | 58,9 | 52,2 | 46,2 | 40,8 | 36,1    | 3,07                        | 3,13 | 3,21 | 3,25 | 3,33 | 3,32 | 3,40    |
|    | 44  | -                           | -    | -    | -    | -    | 38,3 | 33,8    | -                           | -    | -    | -    | -    | 2,89 | 2,93    |
| 20 | 15  | 85,5                        | 80,9 | 73,4 | 65,4 | 58,4 | 52,1 | 46,7    | 6,86                        | 6,98 | 7,23 | 7,44 | 7,80 | 8,00 | 8,56    |
|    | 20  | 82,3                        | 77,9 | 70,7 | 62,9 | 56,1 | 50,0 | 44,8    | 5,73                        | 5,85 | 6,06 | 6,22 | 6,49 | 6,63 | 7,05    |
|    | 25  | 79,0                        | 74,8 | 67,8 | 60,3 | 53,6 | 47,7 | 42,6    | 4,84                        | 4,94 | 5,11 | 5,23 | 5,43 | 5,52 | 5,81    |
|    | 30  | 77,1                        | 73,0 | 66,0 | 58,5 | 51,9 | 45,9 | 40,8    | 4,20                        | 4,29 | 4,42 | 4,49 | 4,64 | 4,68 | 4,87    |
|    | 35  | 74,0                        | 72,0 | 65,2 | 57,9 | 51,4 | 45,6 | 40,7    | 3,61                        | 3,79 | 3,90 | 3,96 | 4,09 | 4,12 | 4,28    |
|    | 40  | 72,7                        | 68,8 | 62,2 | 55,0 | 48,6 | 42,9 | 37,9    | 3,23                        | 3,30 | 3,38 | 3,42 | 3,50 | 3,49 | 3,58    |
|    | 44  | -                           | -    | -    | -    | -    | 40,2 | 35,5    | -                           | -    | -    | -    | -    | 3,02 | 3,08    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 18.2 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 28,4                        | 25,9 | 22,4 | 19,4 | 15,8 | 13,3 | 10,7    | 2,41                        | 2,38 | 2,34 | 2,29 | 2,24 | 2,17 | 2,07    |
|    | -10 | 34,0                        | 31,3 | 27,4 | 24,4 | 20,2 | 17,2 | 14,2    | 2,75                        | 2,75 | 2,73 | 2,74 | 2,66 | 2,60 | 2,51    |
|    | -7  | 37,7                        | 35,0 | 31,0 | 27,8 | 24,1 | 21,3 | 18,4    | 2,98                        | 2,99 | 3,01 | 3,05 | 3,23 | 3,34 | 3,35    |
|    | 2   | 51,3                        | 47,9 | 42,7 | 38,5 | 32,7 | 28,8 | 25,8    | 3,69                        | 3,73 | 3,80 | 3,85 | 4,03 | 4,15 | 4,26    |
|    | 7   | 58,5                        | 55,1 | 49,3 | 44,5 | 38,9 | 34,3 | 30,6    | 4,13                        | 4,30 | 4,39 | 4,46 | 4,83 | 4,96 | 5,07    |
|    | 10  | 62,3                        | 58,2 | 52,1 | 47,1 | 41,2 | 36,3 | 32,4    | 4,47                        | 4,54 | 4,64 | 4,72 | 5,11 | 5,26 | 5,37    |
| 40 | 18  | 72,4                        | 67,9 | 61,0 | 55,0 | 48,1 | 42,3 | 37,6    | 5,16                        | 5,27 | 5,42 | 5,53 | 5,99 | 6,16 | 6,28    |
|    | -15 | 27,5                        | 25,2 | 21,9 | 18,6 | 15,1 | 12,5 | 9,9     | 2,18                        | 2,16 | 2,13 | 2,07 | 2,00 | 1,92 | 1,82    |
|    | -10 | 33,2                        | 30,6 | 26,7 | 23,7 | 19,4 | 16,6 | 13,5    | 2,49                        | 2,49 | 2,46 | 2,46 | 2,40 | 2,37 | 2,28    |
|    | -7  | 36,9                        | 34,3 | 30,4 | 27,3 | 23,7 | 21,0 | 18,1    | 2,69                        | 2,70 | 2,73 | 2,75 | 2,91 | 2,98 | 3,05    |
|    | 2   | 49,9                        | 46,9 | 41,8 | 37,7 | 32,0 | 28,2 | 25,1    | 3,28                        | 3,34 | 3,40 | 3,44 | 3,58 | 3,66 | 3,72    |
|    | 7   | 58,6                        | 54,0 | 48,3 | 43,5 | 38,1 | 33,5 | 29,8    | 3,82                        | 3,83 | 3,90 | 3,96 | 4,26 | 4,35 | 4,41    |
| 45 | 10  | 61,0                        | 57,0 | 51,0 | 45,9 | 40,2 | 35,3 | 31,4    | 3,96                        | 4,02 | 4,11 | 4,18 | 4,49 | 4,58 | 4,64    |
|    | 18  | 70,8                        | 66,3 | 59,5 | 53,5 | 46,8 | 41,0 | 36,3    | 4,53                        | 4,63 | 4,76 | 4,84 | 5,21 | 5,32 | 5,38    |
|    | -15 | 26,7                        | 24,4 | 21,2 | 17,8 | 14,3 | 12,0 | -       | 1,96                        | 1,94 | 1,91 | 1,83 | 1,75 | 1,69 | -       |
|    | -10 | 32,5                        | 30,1 | 26,1 | 22,9 | 18,6 | 15,8 | 12,8    | 2,25                        | 2,25 | 2,21 | 2,18 | 2,11 | 2,06 | 1,97    |
|    | -7  | 36,3                        | 33,7 | 29,9 | 26,9 | 23,4 | 20,7 | 18,0    | 2,43                        | 2,44 | 2,46 | 2,48 | 2,61 | 2,66 | 2,72    |
|    | 2   | 48,6                        | 46,0 | 41,0 | 36,9 | 31,3 | 27,5 | 24,5    | 2,88                        | 2,96 | 3,01 | 3,04 | 3,14 | 3,19 | 3,22    |
| 50 | 7   | 57,8                        | 52,8 | 47,2 | 42,5 | 37,2 | 32,6 | 28,9    | 3,33                        | 3,35 | 3,41 | 3,46 | 3,69 | 3,74 | 3,76    |
|    | 10  | 59,7                        | 55,7 | 49,8 | 44,8 | 39,2 | 34,3 | 30,4    | 3,47                        | 3,52 | 3,60 | 3,65 | 3,90 | 3,95 | 3,97    |
|    | 18  | 69,1                        | 64,6 | 57,9 | 52,0 | 45,4 | 39,7 | 35,0    | 3,96                        | 4,03 | 4,14 | 4,21 | 4,50 | 4,56 | 4,57    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 33,3                        | 30,9 | 27,5 | 24,7 | 21,9 | 19,5 | 17,0    | 2,03                        | 2,04 | 2,06 | 2,07 | 2,21 | 2,26 | 2,32    |
| 55 | 2   | 43,7                        | 40,7 | 36,3 | 32,6 | 28,3 | 24,9 | 22,1    | 2,46                        | 2,49 | 2,52 | 2,55 | 2,64 | 2,66 | 2,66    |
|    | 7   | 52,6                        | 49,1 | 43,8 | 39,4 | 33,0 | 28,9 | 25,5    | 3,02                        | 3,06 | 3,12 | 3,15 | 3,16 | 3,17 | 3,16    |
|    | 10  | 55,4                        | 51,7 | 46,1 | 41,4 | 34,8 | 30,4 | 26,8    | 3,15                        | 3,20 | 3,26 | 3,30 | 3,31 | 3,33 | 3,32    |
|    | 18  | 64,0                        | 59,8 | 53,4 | 47,9 | 40,1 | 34,9 | 30,7    | 3,54                        | 3,61 | 3,70 | 3,74 | 3,76 | 3,77 | 3,76    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 55 | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 42,9                        | 39,9 | 35,6 | 32,0 | 27,8 | 24,3 | 21,6    | 2,21                        | 2,24 | 2,27 | 2,29 | 2,35 | 2,36 | 2,35    |
|    | 7   | 54,2                        | 48,0 | 42,8 | 38,4 | 32,2 | 28,1 | 24,7    | 2,58                        | 2,73 | 2,78 | 2,80 | 2,79 | 2,79 | 2,76    |
|    | 10  | 54,1                        | 50,5 | 45,0 | 40,3 | 33,8 | 29,4 | 25,9    | 2,80                        | 2,85 | 2,90 | 2,92 | 2,91 | 2,91 | 2,87    |
|    | 18  | 62,3                        | 58,1 | 51,8 | 46,4 | 38,8 | 33,6 | 29,6    | 3,13                        | 3,17 | 3,25 | 3,28 | 3,27 | 3,26 | 3,24    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 22.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 69,2                        | 62,0 | 60,0 | 54,8 | 50,9 | 44,1 | 36,1    | 5,00                        | 4,93 | 5,24 | 5,31 | 5,53 | 5,94 | 6,72    |
|    | 20  | 67,6                        | 59,8 | 57,8 | 53,0 | 48,6 | 42,4 | 35,0    | 4,33                        | 4,22 | 4,49 | 4,58 | 4,71 | 5,11 | 5,77    |
|    | 25  | 65,7                        | 59,2 | 56,9 | 51,7 | 48,0 | 40,3 | 33,4    | 3,76                        | 3,74 | 3,95 | 4,01 | 4,17 | 4,35 | 4,90    |
|    | 30  | 61,0                        | 56,9 | 54,9 | 48,9 | 45,6 | 38,3 | 31,1    | 3,14                        | 3,25 | 3,45 | 3,41 | 3,56 | 3,72 | 4,06    |
|    | 35  | 60,8                        | 56,7 | 52,8 | 48,6 | 44,6 | 37,4 | 29,5    | 2,80                        | 2,93 | 3,00 | 3,08 | 3,15 | 3,29 | 3,46    |
|    | 40  | 56,7                        | 52,8 | 49,2 | 45,2 | 41,4 | 34,7 | 27,2    | 2,44                        | 2,51 | 2,57 | 2,63 | 2,69 | 2,79 | 2,89    |
| 10 | 44  | -                           | -    | -    | -    | -    | 32,6 | 25,4    | -                           | -    | -    | -    | -    | 2,45 | 2,49    |
|    | 15  | 73,1                        | 68,0 | 63,3 | 58,2 | 53,4 | 45,1 | 36,1    | 5,28                        | 5,41 | 5,54 | 5,66 | 5,82 | 6,11 | 6,77    |
|    | 20  | 70,7                        | 65,6 | 60,9 | 56,2 | 51,6 | 43,5 | 34,7    | 4,50                        | 4,62 | 4,72 | 4,85 | 4,98 | 5,24 | 5,73    |
|    | 25  | 68,0                        | 63,2 | 58,8 | 54,1 | 49,6 | 41,8 | 33,2    | 3,85                        | 4,11 | 4,05 | 4,16 | 4,27 | 4,49 | 4,85    |
|    | 30  | 65,2                        | 60,7 | 56,4 | 51,9 | 47,6 | 40,0 | 31,6    | 3,32                        | 3,42 | 3,50 | 3,60 | 3,69 | 3,86 | 4,10    |
|    | 35  | 67,1                        | 62,4 | 58,1 | 53,4 | 49,0 | 41,1 | 32,3    | 3,08                        | 3,18 | 3,25 | 3,35 | 3,42 | 3,57 | 3,74    |
| 12 | 40  | 62,5                        | 58,2 | 54,1 | 49,8 | 45,6 | 38,1 | 29,8    | 2,63                        | 2,72 | 2,78 | 2,85 | 2,91 | 3,03 | 3,11    |
|    | 44  | -                           | -    | -    | -    | -    | 35,8 | 27,7    | -                           | -    | -    | -    | -    | 2,63 | 2,68    |
|    | 15  | 77,5                        | 71,9 | 67,0 | 61,6 | 56,5 | 47,7 | 38,1    | 5,60                        | 5,74 | 5,87 | 6,02 | 6,18 | 6,51 | 7,19    |
|    | 20  | 74,8                        | 69,6 | 64,7 | 59,5 | 54,6 | 46,0 | 36,6    | 4,75                        | 4,88 | 5,00 | 5,13 | 5,27 | 5,56 | 6,06    |
|    | 25  | 72,1                        | 67,0 | 62,3 | 57,3 | 52,6 | 44,2 | 35,0    | 4,06                        | 4,18 | 4,28 | 4,40 | 4,51 | 4,91 | 5,11    |
|    | 30  | 69,2                        | 64,3 | 59,8 | 55,1 | 50,4 | 42,3 | 33,4    | 3,49                        | 3,60 | 3,68 | 3,80 | 3,89 | 4,07 | 4,31    |
| 15 | 35  | 71,2                        | 66,2 | 61,6 | 56,7 | 51,9 | 43,5 | 34,1    | 3,24                        | 3,34 | 3,42 | 3,52 | 3,60 | 3,77 | 3,92    |
|    | 40  | 66,3                        | 61,7 | 57,4 | 52,8 | 48,3 | 40,4 | 31,4    | 2,77                        | 2,86 | 2,92 | 3,00 | 3,06 | 3,19 | 3,26    |
|    | 44  | -                           | -    | -    | -    | -    | 37,9 | 29,2    | -                           | -    | -    | -    | -    | 2,78 | 2,81    |
|    | 15  | 85,8                        | 79,0 | 74,1 | 68,2 | 62,5 | 51,4 | 41,9    | 5,76                        | 5,88 | 6,04 | 6,22 | 6,37 | 6,61 | 7,38    |
|    | 20  | 81,7                        | 75,6 | 71,0 | 65,3 | 59,8 | 49,0 | 39,9    | 4,78                        | 4,91 | 5,06 | 5,22 | 5,34 | 5,53 | 6,12    |
|    | 25  | 78,7                        | 72,5 | 68,1 | 62,6 | 57,3 | 46,9 | 38,0    | 4,06                        | 4,16 | 4,29 | 4,43 | 4,52 | 4,66 | 5,10    |
| 18 | 30  | 75,6                        | 69,7 | 65,4 | 60,2 | 55,1 | 44,9 | 36,3    | 3,48                        | 3,57 | 3,68 | 3,80 | 3,88 | 3,97 | 4,31    |
|    | 35  | 77,9                        | 71,8 | 67,4 | 62,0 | 56,7 | 46,0 | 37,0    | 3,23                        | 3,31 | 3,41 | 3,52 | 3,58 | 3,64 | 3,88    |
|    | 40  | 72,6                        | 66,9 | 62,8 | 57,7 | 52,7 | 42,6 | 34,1    | 2,75                        | 2,81 | 2,90 | 2,99 | 3,03 | 3,06 | 3,22    |
|    | 44  | -                           | -    | -    | -    | -    | 39,9 | 31,7    | -                           | -    | -    | -    | -    | 2,66 | 2,72    |
|    | 15  | 93,5                        | 86,1 | 80,7 | 74,1 | 68,0 | 55,7 | 45,3    | 6,29                        | 6,42 | 6,61 | 6,84 | 6,99 | 7,23 | 8,18    |
|    | 20  | 89,5                        | 82,4 | 77,3 | 71,1 | 65,1 | 53,2 | 43,2    | 5,22                        | 5,34 | 5,51 | 5,72 | 5,83 | 6,01 | 6,71    |
| 20 | 25  | 85,4                        | 78,6 | 73,7 | 67,9 | 62,1 | 50,6 | 41,0    | 4,39                        | 4,49 | 4,63 | 4,81 | 4,90 | 5,03 | 5,54    |
|    | 30  | 83,0                        | 74,8 | 70,2 | 64,6 | 59,0 | 47,9 | 38,7    | 3,79                        | 3,80 | 3,93 | 4,07 | 4,14 | 4,22 | 4,60    |
|    | 35  | 80,1                        | 76,8 | 72,0 | 66,2 | 60,5 | 48,9 | 39,2    | 3,48                        | 3,50 | 3,61 | 3,74 | 3,80 | 3,84 | 4,12    |
|    | 40  | 78,0                        | 71,9 | 67,5 | 62,0 | 56,5 | 45,5 | 36,3    | 2,92                        | 2,99 | 3,08 | 3,19 | 3,23 | 3,24 | 3,42    |
|    | 44  | -                           | -    | -    | -    | -    | 43,0 | 34,1    | -                           | -    | -    | -    | -    | 2,84 | 2,96    |
|    | 15  | 98,8                        | 90,9 | 85,2 | 78,2 | 71,7 | 58,6 | 47,6    | 6,66                        | 6,79 | 7,02 | 7,28 | 7,44 | 7,68 | 8,74    |
| 22 | 20  | 94,6                        | 87,0 | 81,6 | 74,9 | 68,6 | 56,0 | 45,4    | 5,52                        | 5,64 | 5,83 | 6,06 | 6,18 | 6,36 | 7,15    |
|    | 25  | 90,4                        | 83,1 | 77,8 | 71,6 | 65,5 | 53,2 | 43,0    | 4,65                        | 4,75 | 4,89 | 5,08 | 5,18 | 5,30 | 5,88    |
|    | 30  | 85,9                        | 79,0 | 74,1 | 68,2 | 62,3 | 50,4 | 40,6    | 3,91                        | 4,00 | 4,14 | 4,30 | 4,37 | 4,45 | 4,86    |
|    | 35  | 88,0                        | 81,0 | 76,1 | 69,9 | 63,8 | 51,5 | 41,2    | 3,59                        | 3,67 | 3,80 | 3,94 | 4,00 | 4,03 | 4,34    |
|    | 40  | 82,4                        | 75,9 | 71,2 | 65,4 | 59,6 | 47,9 | 38,1    | 3,06                        | 3,15 | 3,24 | 3,35 | 3,39 | 3,40 | 3,60    |
|    | 44  | -                           | -    | -    | -    | -    | 45,2 | 35,8    | -                           | -    | -    | -    | -    | 2,98 | 3,11    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 22.2 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 34,6                        | 31,7 | 28,4 | 24,7 | 20,8 | 16,6 | 13,3    | 2,53                        | 2,48 | 2,44 | 2,39 | 2,36 | 2,22 | 2,15    |
|    | -10 | 40,9                        | 37,4 | 34,0 | 30,0 | 25,6 | 22,2 | 17,2    | 2,78                        | 2,79 | 2,78 | 2,78 | 2,77 | 2,80 | 2,75    |
|    | -7  | 45,7                        | 41,3 | 37,7 | 33,6 | 29,1 | 25,4 | 21,3    | 2,95                        | 3,01 | 3,01 | 3,03 | 3,07 | 3,11 | 3,38    |
|    | 2   | 60,4                        | 55,7 | 51,3 | 46,1 | 40,2 | 35,2 | 28,8    | 3,55                        | 3,68 | 3,73 | 3,80 | 3,88 | 3,95 | 4,20    |
|    | 7   | 66,9                        | 64,3 | 59,5 | 53,6 | 46,8 | 41,0 | 34,3    | 4,06                        | 4,21 | 4,29 | 4,39 | 4,50 | 4,58 | 5,02    |
|    | 10  | 71,8                        | 67,9 | 62,9 | 56,8 | 49,6 | 43,4 | 36,3    | 4,35                        | 4,43 | 4,53 | 4,64 | 4,76 | 4,85 | 5,32    |
| 40 | 18  | 83,3                        | 78,8 | 73,1 | 66,2 | 58,0 | 50,7 | 42,3    | 4,97                        | 5,09 | 5,23 | 5,39 | 5,57 | 5,68 | 6,23    |
|    | -15 | 33,2                        | 30,5 | 27,4 | 23,9 | 19,9 | 15,6 | 12,6    | 2,25                        | 2,22 | 2,18 | 2,15 | 2,08 | 1,91 | 1,86    |
|    | -10 | 39,0                        | 36,3 | 33,0 | 29,3 | 24,9 | 21,2 | 16,5    | 2,50                        | 2,50 | 2,49 | 2,49 | 2,47 | 2,45 | 2,33    |
|    | -7  | 44,1                        | 40,2 | 36,8 | 32,8 | 28,4 | 24,8 | 20,9    | 2,74                        | 2,68 | 2,69 | 2,71 | 2,74 | 2,77 | 2,98    |
|    | 2   | 58,1                        | 54,3 | 50,0 | 45,0 | 39,1 | 34,2 | 28,0    | 3,23                        | 3,25 | 3,30 | 3,36 | 3,42 | 3,47 | 3,66    |
|    | 7   | 67,1                        | 62,9 | 58,1 | 52,4 | 45,6 | 39,9 | 33,3    | 3,67                        | 3,71 | 3,78 | 3,86 | 3,95 | 4,01 | 4,35    |
| 45 | 10  | 70,1                        | 66,2 | 61,3 | 55,3 | 48,2 | 42,1 | 35,2    | 3,81                        | 3,88 | 3,96 | 4,06 | 4,15 | 4,23 | 4,58    |
|    | 18  | 81,2                        | 76,8 | 71,2 | 64,4 | 56,2 | 49,0 | 40,8    | 4,32                        | 4,41 | 4,53 | 4,68 | 4,82 | 4,90 | 5,31    |
|    | -15 | 32,0                        | 29,5 | 26,6 | 22,9 | 18,8 | 14,5 | 11,6    | 2,01                        | 1,99 | 1,96 | 1,90 | 1,82 | 1,63 | 1,57    |
|    | -10 | 37,9                        | 35,3 | 32,2 | 28,6 | 23,9 | 20,3 | 15,6    | 2,24                        | 2,23 | 2,23 | 2,23 | 2,18 | 2,14 | 2,02    |
|    | -7  | 42,4                        | 39,2 | 35,9 | 32,1 | 27,8 | 24,3 | 20,2    | 2,41                        | 2,40 | 2,41 | 2,43 | 2,45 | 2,48 | 2,60    |
|    | 2   | 56,4                        | 53,0 | 48,8 | 43,9 | 38,1 | 33,3 | 27,3    | 2,84                        | 2,87 | 2,92 | 2,97 | 3,02 | 3,05 | 3,18    |
| 50 | 7   | 66,4                        | 61,4 | 56,7 | 51,0 | 44,4 | 38,7 | 32,3    | 3,19                        | 3,25 | 3,32 | 3,39 | 3,46 | 3,50 | 3,76    |
|    | 10  | 68,4                        | 64,6 | 59,7 | 53,7 | 46,8 | 40,8 | 34,0    | 3,29                        | 3,39 | 3,47 | 3,55 | 3,63 | 3,67 | 3,94    |
|    | 18  | 79,0                        | 74,6 | 69,1 | 62,4 | 54,4 | 47,3 | 39,3    | 3,74                        | 3,82 | 3,93 | 4,05 | 4,16 | 4,22 | 4,52    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 38,7                        | 36,3 | 33,3 | 29,8 | 25,8 | 22,6 | 19,5    | 2,01                        | 2,02 | 2,03 | 2,05 | 2,07 | 2,09 | 2,27    |
| 55 | 2   | 50,4                        | 47,4 | 43,7 | 39,2 | 34,1 | 29,7 | 24,9    | 2,39                        | 2,42 | 2,46 | 2,50 | 2,54 | 2,56 | 2,66    |
|    | 7   | 61,8                        | 58,2 | 53,7 | 48,3 | 42,0 | 36,5 | 28,9    | 2,98                        | 3,03 | 3,09 | 3,16 | 3,22 | 3,24 | 3,18    |
|    | 10  | 64,9                        | 61,3 | 56,6 | 50,9 | 44,2 | 38,4 | 30,4    | 3,10                        | 3,16 | 3,23 | 3,30 | 3,36 | 3,39 | 3,33    |
|    | 18  | 74,9                        | 70,6 | 65,3 | 58,9 | 51,2 | 44,5 | 34,9    | 3,48                        | 3,53 | 3,62 | 3,72 | 3,81 | 3,86 | 3,78    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 55 | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 49,2                        | 46,3 | 42,7 | 38,3 | 33,3 | 29,0 | 24,2    | 2,15                        | 2,18 | 2,21 | 2,25 | 2,28 | 2,29 | 2,36    |
|    | 7   | 59,4                        | 56,7 | 52,3 | 47,0 | 40,8 | 35,4 | 27,9    | 2,63                        | 2,70 | 2,76 | 2,81 | 2,86 | 2,87 | 2,79    |
|    | 10  | 63,2                        | 59,6 | 55,0 | 49,4 | 42,8 | 37,2 | 29,3    | 2,76                        | 2,80 | 2,87 | 2,93 | 2,98 | 2,99 | 2,91    |
|    | 18  | 72,9                        | 68,6 | 63,3 | 56,9 | 49,3 | 42,9 | 33,4    | 3,11                        | 3,15 | 3,20 | 3,27 | 3,34 | 3,38 | 3,26    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 30.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 81,6                        | 77,3 | 72,8 | 66,8 | 61,0 | 53,5 | 48,9    | 5,11                        | 5,26 | 5,41 | 5,56 | 5,72 | 5,86 | 6,23    |
|    | 20  | 79,8                        | 75,5 | 71,2 | 65,2 | 59,4 | 52,0 | 47,4    | 4,37                        | 4,51 | 4,66 | 4,81 | 4,98 | 5,14 | 5,40    |
|    | 25  | 78,3                        | 73,7 | 69,1 | 63,2 | 57,5 | 50,2 | 45,7    | 3,86                        | 3,98 | 4,09 | 4,24 | 4,39 | 4,55 | 4,72    |
|    | 30  | 76,3                        | 71,9 | 67,3 | 61,3 | 55,6 | 48,3 | 43,9    | 3,38                        | 3,48 | 3,58 | 3,70 | 3,82 | 3,94 | 4,03    |
|    | 35  | 74,4                        | 69,9 | 65,4 | 59,4 | 53,6 | 46,4 | 42,0    | 2,95                        | 3,03 | 3,11 | 3,20 | 3,29 | 3,37 | 3,39    |
|    | 40  | 70,0                        | 65,9 | 61,6 | 55,9 | 50,6 | 43,7 | 39,4    | 2,53                        | 2,60 | 2,66 | 2,72 | 2,80 | 2,85 | 2,82    |
| 10 | 44  | -                           | -    | -    | -    | 47,0 | 40,4 | 36,3    | -                           | -    | -    | -    | 2,53 | 2,55 | 2,50    |
|    | 15  | 88,8                        | 84,0 | 79,2 | 72,6 | 66,2 | 58,0 | 52,9    | 5,47                        | 5,65 | 5,82 | 6,00 | 6,19 | 6,35 | 6,74    |
|    | 20  | 86,8                        | 82,2 | 77,4 | 70,9 | 64,6 | 56,4 | 51,4    | 4,68                        | 4,85 | 5,01 | 5,19 | 5,38 | 5,57 | 5,83    |
|    | 25  | 84,4                        | 79,9 | 75,2 | 68,8 | 62,6 | 54,5 | 49,5    | 4,11                        | 4,26 | 4,41 | 4,57 | 4,75 | 4,93 | 5,09    |
|    | 30  | 81,6                        | 77,2 | 72,7 | 66,4 | 60,3 | 52,3 | 47,4    | 3,58                        | 3,71 | 3,84 | 3,99 | 4,13 | 4,27 | 4,35    |
|    | 35  | 78,8                        | 74,5 | 70,1 | 64,0 | 57,9 | 50,1 | 45,3    | 3,11                        | 3,22 | 3,33 | 3,44 | 3,56 | 3,66 | 3,67    |
| 12 | 40  | 75,1                        | 71,0 | 66,8 | 60,9 | 55,1 | 47,5 | 42,8    | 2,69                        | 2,78 | 2,87 | 2,96 | 3,04 | 3,10 | 3,06    |
|    | 44  | -                           | -    | -    | -    | 51,5 | 44,3 | 39,8    | -                           | -    | -    | -    | 2,76 | 2,78 | 2,72    |
|    | 15  | 93,8                        | 88,8 | 83,6 | 76,7 | 69,9 | 61,2 | 55,7    | 5,73                        | 5,92 | 6,11 | 6,31 | 6,53 | 6,72 | 7,11    |
|    | 20  | 91,8                        | 86,9 | 81,8 | 74,9 | 68,2 | 59,5 | 54,1    | 4,90                        | 5,08 | 5,27 | 5,46 | 5,68 | 5,88 | 6,15    |
|    | 25  | 88,9                        | 84,1 | 79,2 | 72,5 | 65,8 | 57,3 | 52,0    | 4,30                        | 4,47 | 4,63 | 4,82 | 5,01 | 5,20 | 5,36    |
|    | 30  | 86,0                        | 81,4 | 76,6 | 70,0 | 63,5 | 55,0 | 49,9    | 3,76                        | 3,90 | 4,05 | 4,20 | 4,37 | 4,52 | 4,60    |
| 15 | 35  | 83,1                        | 78,6 | 73,9 | 67,5 | 61,1 | 52,8 | 47,7    | 3,27                        | 3,39 | 3,51 | 3,64 | 3,77 | 3,87 | 3,87    |
|    | 40  | 79,3                        | 75,1 | 70,6 | 64,4 | 58,2 | 50,1 | 45,2    | 2,84                        | 2,94 | 3,03 | 3,13 | 3,22 | 3,28 | 3,24    |
|    | 44  | -                           | -    | -    | -    | 54,8 | 47,1 | 42,3    | -                           | -    | -    | -    | 2,93 | 2,96 | 2,89    |
|    | 15  | 102                         | 96,3 | 90,7 | 83,1 | 75,3 | 66,2 | 60,2    | 6,13                        | 6,36 | 6,59 | 6,84 | 7,02 | 7,33 | 7,77    |
|    | 20  | 99,1                        | 93,9 | 88,4 | 81,0 | 73,6 | 64,2 | 58,3    | 5,23                        | 5,44 | 5,66 | 5,89 | 6,14 | 6,38 | 6,67    |
|    | 25  | 96,3                        | 91,1 | 85,7 | 78,4 | 71,2 | 61,9 | 56,1    | 4,60                        | 4,77 | 4,96 | 5,17 | 5,40 | 5,62 | 5,79    |
| 18 | 30  | 93,2                        | 88,2 | 83,0 | 75,8 | 68,8 | 59,6 | 53,9    | 4,02                        | 4,18 | 4,35 | 4,53 | 4,72 | 4,89 | 4,96    |
|    | 35  | 90,2                        | 85,3 | 80,2 | 73,3 | 66,3 | 57,3 | 51,7    | 3,51                        | 3,65 | 3,78 | 3,92 | 4,07 | 4,20 | 4,19    |
|    | 40  | 86,3                        | 81,7 | 76,8 | 70,0 | 63,3 | 54,5 | 49,1    | 3,06                        | 3,17 | 3,27 | 3,38 | 3,49 | 3,57 | 3,51    |
|    | 44  | -                           | -    | -    | -    | 51,6 | 46,3 | 41,3    | -                           | -    | -    | -    | 3,21 | 3,25 | 3,16    |
|    | 15  | 110                         | 104  | 98,3 | 90,1 | 81,7 | 71,7 | 65,0    | 6,57                        | 6,85 | 7,11 | 7,43 | 7,61 | 8,05 | 8,47    |
|    | 20  | 107                         | 101  | 95,5 | 87,4 | 79,5 | 69,2 | 62,8    | 5,63                        | 5,87 | 6,13 | 6,41 | 6,72 | 7,02 | 7,33    |
| 20 | 25  | 104                         | 98,5 | 92,7 | 84,8 | 77,0 | 66,8 | 60,5    | 4,96                        | 5,18 | 5,39 | 5,64 | 5,91 | 6,18 | 6,36    |
|    | 30  | 101                         | 95,6 | 89,9 | 82,2 | 74,5 | 64,5 | 58,3    | 4,34                        | 4,53 | 4,71 | 4,92 | 5,15 | 5,37 | 5,42    |
|    | 35  | 98,7                        | 92,7 | 87,2 | 79,6 | 72,1 | 62,2 | 56,1    | 3,88                        | 3,95 | 4,10 | 4,26 | 4,44 | 4,59 | 4,57    |
|    | 40  | 93,9                        | 88,8 | 83,5 | 76,2 | 68,9 | 59,3 | 53,4    | 3,33                        | 3,45 | 3,57 | 3,70 | 3,83 | 3,93 | 3,85    |
|    | 44  | -                           | -    | -    | -    | 56,5 | 50,8 | 45,1    | -                           | -    | -    | -    | -    | 3,60 | 3,50    |
|    | 15  | 116                         | 110  | 103  | 95,1 | 86,8 | 75,5 | 68,4    | 6,91                        | 7,19 | 7,40 | 7,88 | 8,06 | 8,63 | 8,99    |
| 20 | 20  | 113                         | 107  | 101  | 92,3 | 82,0 | 73,1 | 65,6    | 5,93                        | 6,20 | 6,48 | 6,81 | 6,98 | 7,52 | 7,72    |
|    | 25  | 110                         | 104  | 98,0 | 89,6 | 81,3 | 70,6 | 63,9    | 5,23                        | 5,48 | 5,73 | 6,00 | 6,31 | 6,63 | 6,81    |
|    | 30  | 107                         | 101  | 95,2 | 86,9 | 78,8 | 68,2 | 61,6    | 4,60                        | 4,80 | 5,01 | 5,24 | 5,50 | 5,75 | 5,81    |
|    | 35  | 104                         | 98,2 | 92,4 | 84,4 | 76,4 | 65,9 | 59,4    | 4,02                        | 4,20 | 4,37 | 4,55 | 4,75 | 4,93 | 4,90    |
|    | 40  | 99,5                        | 94,3 | 88,6 | 80,9 | 73,1 | 62,9 | 56,7    | 3,54                        | 3,68 | 3,82 | 3,96 | 4,11 | 4,22 | 4,13    |
|    | 44  | -                           | -    | -    | -    | 60,0 | 54,0 | 48,0    | -                           | -    | -    | -    | -    | 3,88 | 3,76    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 30.2 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 44,5                        | 42,2 | 39,9 | 37,1 | 34,1 | 30,6 | 28,1    | 2,05                        | 2,09 | 2,13 | 2,18 | 2,24 | 2,32 | 2,44    |
|    | -10 | 53,4                        | 50,9 | 48,1 | 44,6 | 40,9 | 36,4 | 33,3    | 2,49                        | 2,49 | 2,55 | 2,62 | 2,69 | 2,78 | 2,93    |
|    | -7  | 60,5                        | 56,3 | 53,1 | 49,1 | 45,0 | 39,9 | 36,5    | 2,82                        | 2,88 | 2,95 | 3,02 | 3,11 | 3,21 | 3,38    |
|    | 2   | 73,6                        | 69,8 | 65,8 | 60,5 | 55,2 | 48,5 | 43,9    | 3,32                        | 3,38 | 3,46 | 3,55 | 3,64 | 3,74 | 3,94    |
|    | 7   | 84,6                        | 79,1 | 74,8 | 68,8 | 62,7 | 55,0 | 50,1    | 4,07                        | 4,08 | 4,15 | 4,26 | 4,37 | 4,48 | 4,78    |
|    | 10  | 88,1                        | 83,3 | 78,4 | 72,1 | 65,6 | 57,5 | 52,3    | 4,17                        | 4,27 | 4,37 | 4,49 | 4,61 | 4,72 | 5,04    |
|    | 18  | 101                         | 95,4 | 89,8 | 82,5 | 75,0 | 65,6 | 59,6    | 4,75                        | 4,88 | 5,01 | 5,16 | 5,30 | 5,45 | 5,82    |
| 40 | -15 | 43,5                        | 41,0 | 38,9 | 36,1 | 32,7 | 29,5 | 27,1    | 1,79                        | 1,82 | 1,86 | 1,91 | 1,93 | 2,01 | 2,09    |
|    | -10 | 52,2                        | 49,1 | 46,6 | 43,1 | 39,7 | 35,0 | 31,9    | 2,18                        | 2,21 | 2,27 | 2,33 | 2,40 | 2,45 | 2,55    |
|    | -7  | 57,8                        | 54,8 | 51,7 | 47,6 | 43,4 | 38,2 | 34,7    | 2,41                        | 2,47 | 2,52 | 2,58 | 2,64 | 2,70 | 2,81    |
|    | 2   | 71,5                        | 67,5 | 63,4 | 58,1 | 52,7 | 46,2 | 41,9    | 2,97                        | 3,04 | 3,10 | 3,17 | 3,23 | 3,29 | 3,44    |
|    | 7   | 80,7                        | 76,4 | 72,2 | 65,8 | 60,5 | 53,1 | 47,9    | 3,60                        | 3,67 | 3,73 | 3,80 | 3,93 | 4,02 | 4,20    |
|    | 10  | 85,2                        | 80,4 | 76,1 | 70,3 | 63,6 | 55,7 | 50,6    | 3,74                        | 3,83 | 3,94 | 4,07 | 4,14 | 4,23 | 4,47    |
|    | 18  | 99,0                        | 93,5 | 87,9 | 80,6 | 73,1 | 63,8 | 57,8    | 4,31                        | 4,42 | 4,53 | 4,66 | 4,78 | 4,89 | 5,15    |
| 45 | -15 | 42,5                        | 40,3 | 37,9 | 35,0 | 31,6 | 28,6 | 26,1    | 1,59                        | 1,62 | 1,65 | 1,68 | 1,69 | 1,76 | 1,81    |
|    | -10 | 50,6                        | 47,7 | 45,3 | 41,4 | 38,4 | 33,6 | 30,8    | 1,92                        | 1,96 | 2,01 | 2,04 | 2,11 | 2,13 | 2,21    |
|    | -7  | 56,3                        | 52,8 | 50,5 | 46,2 | 41,9 | 36,6 | 33,2    | 2,15                        | 2,17 | 2,25 | 2,29 | 2,32 | 2,34 | 2,40    |
|    | 2   | 69,7                        | 65,7 | 61,5 | 56,2 | 51,1 | 44,6 | 39,9    | 2,65                        | 2,70 | 2,74 | 2,79 | 2,84 | 2,87 | 2,93    |
|    | 7   | 78,3                        | 74,1 | 70,5 | 63,8 | 58,8 | 51,0 | 46,0    | 3,38                        | 3,39 | 3,37 | 3,37 | 3,48 | 3,50 | 3,62    |
|    | 10  | 82,9                        | 78,2 | 74,2 | 67,9 | 61,6 | 53,4 | 48,9    | 3,32                        | 3,40 | 3,51 | 3,58 | 3,65 | 3,67 | 3,86    |
|    | 18  | 96,8                        | 91,8 | 86,2 | 79,0 | 71,5 | 61,4 | 56,0    | 3,85                        | 3,97 | 4,06 | 4,16 | 4,25 | 4,26 | 4,47    |
| 50 | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 55,1                        | 51,7 | 49,6 | 45,3 | 40,9 | 35,7 | 32,2    | 1,87                        | 1,90 | 1,97 | 1,99 | 2,01 | 2,01 | 2,03    |
|    | 2   | 68,8                        | 64,7 | 60,5 | 55,0 | 50,1 | 43,5 | 39,0    | 2,33                        | 2,37 | 2,40 | 2,42 | 2,47 | 2,46 | 2,50    |
|    | 7   | 76,5                        | 72,9 | 69,1 | 62,9 | 57,9 | 49,2 | 44,6    | 2,69                        | 2,75 | 2,83 | 2,86 | 2,95 | 2,90 | 2,97    |
|    | 10  | 81,9                        | 77,2 | 73,4 | 67,2 | 60,3 | 52,1 | 47,9    | 2,85                        | 2,91 | 3,00 | 3,06 | 3,08 | 3,07 | 3,20    |
|    | 18  | 94,7                        | 90,4 | 83,9 | 76,7 | 69,5 | 59,7 | 54,6    | 3,26                        | 3,38 | 3,41 | 3,49 | 3,55 | 3,55 | 3,69    |
| 55 | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 68,0                        | 63,9 | 59,6 | 54,1 | 48,7 | 42,6 | 38,0    | 2,05                        | 2,08 | 2,10 | 2,11 | 2,11 | 2,11 | 2,11    |
|    | 7   | 79,1                        | 71,4 | 67,5 | 61,7 | 56,7 | 48,0 | 43,4    | 2,45                        | 2,39 | 2,45 | 2,49 | 2,54 | 2,47 | 2,51    |
|    | 10  | 80,9                        | 76,1 | 72,2 | 66,0 | 59,5 | 50,5 | 46,7    | 2,50                        | 2,54 | 2,62 | 2,66 | 2,67 | 2,60 | 2,70    |
|    | 18  | 93,4                        | 89,1 | 82,5 | 75,4 | 68,1 | 58,5 | 53,3    | 2,85                        | 2,95 | 2,97 | 3,03 | 3,06 | 3,04 | 3,12    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 35.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 94,4                        | 89,9 | 85,5 | 77,5 | 70,3 | 62,6 | 55,1    | 4,73                        | 4,85 | 4,97 | 5,23 | 5,44 | 5,61 | 5,77    |
|    | 20  | 92,8                        | 88,4 | 84,0 | 76,1 | 69,0 | 61,3 | 53,7    | 4,08                        | 4,20 | 4,29 | 4,54 | 4,75 | 4,93 | 5,12    |
|    | 25  | 90,6                        | 85,9 | 81,6 | 73,8 | 66,9 | 59,3 | 51,8    | 3,60                        | 3,69 | 3,76 | 3,99 | 4,18 | 4,35 | 4,53    |
|    | 30  | 88,3                        | 83,8 | 79,1 | 71,6 | 64,8 | 57,3 | 49,8    | 3,16                        | 3,24 | 3,27 | 3,48 | 3,65 | 3,78 | 3,92    |
|    | 35  | 86,4                        | 81,5 | 77,0 | 69,2 | 62,5 | 55,2 | 47,8    | 2,78                        | 2,83 | 2,85 | 3,00 | 3,14 | 3,25 | 3,35    |
|    | 40  | 81,1                        | 76,9 | 72,6 | 65,6 | 59,1 | 52,1 | 45,0    | 2,38                        | 2,44 | 2,44 | 2,58 | 2,69 | 2,76 | 2,82    |
|    | 44  | -                           | -    | -    | -    | -    | 47,7 | 41,0    | -                           | -    | -    | -    | -    | 2,49 | 2,49    |
| 10 | 15  | 103                         | 97,9 | 93,0 | 84,2 | 76,4 | 68,0 | 59,7    | 5,06                        | 5,21 | 5,33 | 5,63 | 5,87 | 6,07 | 6,26    |
|    | 20  | 101                         | 96,3 | 91,4 | 82,8 | 75,0 | 66,6 | 58,2    | 4,38                        | 4,51 | 4,60 | 4,89 | 5,13 | 5,34 | 5,55    |
|    | 25  | 98,3                        | 93,6 | 88,9 | 80,4 | 72,8 | 64,5 | 56,2    | 3,84                        | 3,97 | 4,03 | 4,29 | 4,52 | 4,71 | 4,91    |
|    | 30  | 95,4                        | 90,9 | 86,3 | 78,0 | 70,5 | 62,4 | 54,2    | 3,36                        | 3,48 | 3,52 | 3,75 | 3,94 | 4,10 | 4,25    |
|    | 35  | 92,5                        | 88,2 | 83,6 | 75,6 | 68,3 | 60,2 | 52,1    | 2,93                        | 3,03 | 3,05 | 3,24 | 3,40 | 3,53 | 3,64    |
|    | 40  | 87,8                        | 83,8 | 79,4 | 71,8 | 64,7 | 57,0 | 49,1    | 2,55                        | 2,63 | 2,64 | 2,80 | 2,92 | 3,00 | 3,07    |
|    | 44  | -                           | -    | -    | -    | -    | 52,3 | 45,2    | -                           | -    | -    | -    | -    | 2,72 | 2,74    |
| 12 | 15  | 108                         | 103  | 98,3 | 89,0 | 80,7 | 71,8 | 62,9    | 5,29                        | 5,45 | 5,57 | 5,91 | 6,18 | 6,41 | 6,62    |
|    | 20  | 107                         | 102  | 96,7 | 87,5 | 79,2 | 70,3 | 61,5    | 4,58                        | 4,73 | 4,82 | 5,13 | 5,40 | 5,63 | 5,86    |
|    | 25  | 104                         | 99,1 | 94,0 | 85,1 | 77,0 | 68,2 | 59,4    | 4,03                        | 4,17 | 4,23 | 4,52 | 4,76 | 4,97 | 5,19    |
|    | 30  | 101                         | 96,3 | 91,4 | 82,6 | 74,7 | 66,1 | 57,3    | 3,53                        | 3,66 | 3,70 | 3,94 | 4,15 | 4,34 | 4,50    |
|    | 35  | 98,1                        | 93,5 | 88,7 | 80,1 | 72,3 | 63,8 | 55,2    | 3,09                        | 3,19 | 3,22 | 3,42 | 3,59 | 3,73 | 3,85    |
|    | 40  | 93,2                        | 88,9 | 84,3 | 76,2 | 68,7 | 60,5 | 52,1    | 2,69                        | 2,78 | 2,79 | 2,96 | 3,09 | 3,18 | 3,26    |
|    | 44  | -                           | -    | -    | -    | -    | 55,6 | 46,7    | -                           | -    | -    | -    | -    | 2,88 | 2,82    |
| 15 | 15  | 113                         | 108  | 102  | 92,6 | 83,9 | 74,8 | 65,8    | 5,55                        | 5,73 | 5,86 | 6,25 | 6,57 | 6,60 | 6,85    |
|    | 20  | 111                         | 106  | 101  | 91,1 | 82,5 | 73,5 | 63,8    | 4,86                        | 5,03 | 5,12 | 5,49 | 5,80 | 6,10 | 6,35    |
|    | 25  | 108                         | 103  | 98,1 | 88,7 | 80,2 | 71,3 | 61,8    | 4,29                        | 4,45 | 4,52 | 4,84 | 5,12 | 5,39 | 5,61    |
|    | 30  | 105                         | 101  | 95,4 | 86,3 | 78,0 | 69,2 | 59,7    | 3,78                        | 3,92 | 3,96 | 4,24 | 4,47 | 4,71 | 4,88    |
|    | 35  | 102                         | 97,8 | 92,7 | 83,8 | 75,7 | 67,0 | 57,7    | 3,31                        | 3,44 | 3,46 | 3,69 | 3,88 | 4,06 | 4,18    |
|    | 40  | 97,7                        | 93,2 | 88,3 | 79,9 | 72,0 | 63,7 | 54,6    | 2,90                        | 3,00 | 3,01 | 3,20 | 3,35 | 3,47 | 3,54    |
|    | 44  | -                           | -    | -    | -    | -    | 57,0 | 48,9    | -                           | -    | -    | -    | -    | 3,02 | 3,01    |
| 18 | 15  | 123                         | 117  | 111  | 101  | 91,9 | 82,5 | 73,0    | 5,94                        | 6,15 | 6,29 | 6,70 | 7,23 | 7,37 | 7,58    |
|    | 20  | 121                         | 115  | 109  | 98,8 | 89,5 | 79,7 | 69,0    | 5,22                        | 5,42 | 5,52 | 5,94 | 6,31 | 6,68 | 6,99    |
|    | 25  | 118                         | 112  | 107  | 96,4 | 87,2 | 77,5 | 67,1    | 4,63                        | 4,82 | 4,88 | 5,25 | 5,58 | 5,91 | 6,19    |
|    | 30  | 115                         | 109  | 104  | 94,0 | 84,9 | 75,3 | 65,0    | 4,09                        | 4,25 | 4,29 | 4,61 | 4,89 | 5,16 | 5,38    |
|    | 35  | 111                         | 106  | 101  | 91,3 | 82,4 | 73,0 | 62,8    | 3,57                        | 3,73 | 3,75 | 4,02 | 4,24 | 4,45 | 4,60    |
|    | 40  | 107                         | 102  | 96,6 | 87,3 | 78,7 | 68,7 | 59,7    | 3,17                        | 3,28 | 3,29 | 3,51 | 3,68 | 3,80 | 3,92    |
|    | 44  | -                           | -    | -    | -    | -    | 63,1 | 55,0    | -                           | -    | -    | -    | -    | 3,41 | 3,51    |
| 20 | 15  | 130                         | 123  | 117  | 106  | 95,9 | 85,4 | 74,9    | 6,28                        | 6,50 | 6,65 | 7,00 | 7,55 | 7,64 | 7,78    |
|    | 20  | 128                         | 122  | 115  | 104  | 94,5 | 84,1 | 73,8    | 5,49                        | 5,71 | 5,81 | 6,28 | 6,71 | 7,13 | 7,63    |
|    | 25  | 125                         | 119  | 113  | 102  | 92,2 | 81,9 | 70,8    | 4,88                        | 5,09 | 5,15 | 5,57 | 5,94 | 6,32 | 6,63    |
|    | 30  | 122                         | 116  | 110  | 99,4 | 89,8 | 79,2 | 68,7    | 4,33                        | 4,50 | 4,54 | 4,90 | 5,22 | 5,50 | 5,78    |
|    | 35  | 118                         | 113  | 107  | 96,7 | 87,3 | 77,4 | 66,5    | 3,81                        | 3,96 | 3,98 | 4,28 | 4,53 | 4,77 | 4,94    |
|    | 40  | 113                         | 108  | 102  | 92,6 | 83,3 | 73,3 | 63,0    | 3,37                        | 3,50 | 3,50 | 3,74 | 3,93 | 4,09 | 4,19    |
|    | 44  | -                           | -    | -    | -    | -    | 65,4 | 57,5    | -                           | -    | -    | -    | -    | 3,56 | 3,71    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 35.2 - PRM - SC

| To | Tae | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 48,3                        | 46,0 | 43,6 | 39,7 | 36,3 | 32,9 | 29,4    | 1,92                        | 1,95 | 2,01 | 2,08 | 2,14 | 2,21 | 2,28    |
|    | -10 | 58,6                        | 55,7 | 52,7 | 47,9 | 43,7 | 39,4 | 35,0    | 2,38                        | 2,32 | 2,39 | 2,48 | 2,57 | 2,65 | 2,74    |
|    | -7  | 67,1                        | 62,9 | 59,5 | 53,9 | 49,1 | 44,2 | 39,1    | 2,77                        | 2,76 | 2,86 | 2,96 | 3,06 | 3,16 | 3,26    |
|    | 2   | 81,3                        | 77,1 | 73,0 | 66,1 | 59,9 | 53,5 | 46,9    | 3,13                        | 3,22 | 3,35 | 3,49 | 3,61 | 3,71 | 3,80    |
|    | 7   | 93,9                        | 89,4 | 84,7 | 76,6 | 69,4 | 62,0 | 54,1    | 3,74                        | 3,76 | 3,93 | 4,10 | 4,24 | 4,37 | 4,46    |
|    | 10  | 98,8                        | 94,0 | 89,0 | 80,5 | 72,9 | 65,0 | 56,7    | 3,87                        | 3,96 | 4,13 | 4,32 | 4,46 | 4,60 | 4,71    |
|    | 18  | 113                         | 108  | 102  | 92,2 | 83,4 | 74,2 | 64,6    | 4,40                        | 4,50 | 4,71 | 4,94 | 5,12 | 5,29 | 5,43    |
|    | -15 | 46,6                        | 44,1 | 42,6 | 38,4 | 35,0 | 31,7 | 27,3    | 1,65                        | 1,67 | 1,75 | 1,80 | 1,85 | 1,91 | 1,90    |
| 40 | -10 | 57,3                        | 54,4 | 51,3 | 46,2 | 42,8 | 38,3 | 33,7    | 2,03                        | 2,06 | 2,12 | 2,18 | 2,29 | 2,35 | 2,40    |
|    | -7  | 63,3                        | 59,9 | 56,6 | 50,9 | 46,0 | 41,0 | 35,9    | 2,23                        | 2,26 | 2,33 | 2,40 | 2,46 | 2,52 | 2,56    |
|    | 2   | 79,5                        | 75,4 | 71,4 | 64,4 | 58,1 | 51,6 | 45,9    | 2,83                        | 2,88 | 2,99 | 3,10 | 3,19 | 3,26 | 3,38    |
|    | 7   | 92,3                        | 88,6 | 83,9 | 75,7 | 68,4 | 60,9 | 53,0    | 3,33                        | 3,44 | 3,54 | 3,68 | 3,80 | 3,89 | 3,96    |
|    | 10  | 97,7                        | 92,9 | 87,9 | 79,3 | 71,7 | 63,7 | 55,4    | 3,50                        | 3,58 | 3,73 | 3,88 | 4,00 | 4,11 | 4,18    |
|    | 18  | 112                         | 107  | 101  | 91,1 | 82,2 | 73,0 | 63,6    | 3,98                        | 4,08 | 4,26 | 4,45 | 4,61 | 4,74 | 4,86    |
|    | -15 | 45,0                        | 43,3 | 41,4 | 37,3 | 33,2 | 30,3 | 26,4    | 1,42                        | 1,47 | 1,52 | 1,56 | 1,56 | 1,62 | 1,63    |
|    | -10 | 56,3                        | 53,2 | 50,0 | 45,0 | 41,0 | 37,3 | 32,5    | 1,79                        | 1,81 | 1,85 | 1,91 | 1,97 | 2,05 | 2,06    |
| 45 | -7  | 62,0                        | 57,5 | 55,1 | 49,1 | 44,0 | 38,8 | 33,5    | 1,97                        | 1,96 | 2,04 | 2,09 | 2,12 | 2,14 | 2,14    |
|    | 2   | 77,4                        | 74,4 | 70,3 | 63,1 | 56,7 | 50,1 | 44,3    | 2,49                        | 2,57 | 2,65 | 2,74 | 2,80 | 2,83 | 2,91    |
|    | 7   | 90,9                        | 88,0 | 83,3 | 75,0 | 67,6 | 60,1 | 52,1    | 3,09                        | 3,09 | 3,17 | 3,29 | 3,38 | 3,45 | 3,48    |
|    | 10  | 97,3                        | 92,4 | 87,5 | 78,8 | 71,0 | 63,0 | 54,6    | 3,15                        | 3,22 | 3,34 | 3,47 | 3,57 | 3,64 | 3,67    |
|    | 18  | 111                         | 106  | 100  | 90,3 | 81,3 | 72,1 | 62,8    | 3,57                        | 3,66 | 3,80 | 3,97 | 4,10 | 4,20 | 4,28    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 58,7                        | 54,6 | 52,7 | 46,7 | 41,4 | 37,2 | 31,8    | 1,69                        | 1,69 | 1,77 | 1,79 | 1,80 | 1,84 | 1,81    |
| 50 | 2   | 74,2                        | 72,1 | 68,1 | 60,9 | 54,4 | 47,8 | 42,1    | 2,16                        | 2,26 | 2,32 | 2,38 | 2,41 | 2,43 | 2,46    |
|    | 7   | 90,1                        | 84,9 | 80,4 | 72,3 | 65,1 | 57,7 | 49,9    | 2,59                        | 2,63 | 2,71 | 2,80 | 2,87 | 2,91 | 2,91    |
|    | 10  | 94,3                        | 89,5 | 84,8 | 76,2 | 68,6 | 60,7 | 52,5    | 2,69                        | 2,75 | 2,84 | 2,94 | 3,01 | 3,06 | 3,06    |
|    | 18  | 107                         | 102  | 96,8 | 87,1 | 78,4 | 69,3 | 60,5    | 3,04                        | 3,12 | 3,23 | 3,36 | 3,46 | 3,52 | 3,58    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 71,8                        | 69,7 | 65,7 | 58,4 | 51,9 | 45,3 | 40,2    | 1,89                        | 1,97 | 2,01 | 2,05 | 2,06 | 2,04 | 2,08    |
| 55 | 7   | 88,8                        | 83,1 | 78,7 | 70,6 | 63,3 | 55,9 | 48,2    | 2,32                        | 2,31 | 2,38 | 2,45 | 2,49 | 2,51 | 2,48    |
|    | 10  | 92,4                        | 87,6 | 83,0 | 74,3 | 66,8 | 58,9 | 50,7    | 2,37                        | 2,42 | 2,49 | 2,57 | 2,62 | 2,63 | 2,61    |
|    | 18  | 105                         | 99,6 | 94,5 | 84,9 | 76,3 | 67,5 | 58,7    | 2,65                        | 2,71 | 2,80 | 2,90 | 2,97 | 3,02 | 3,04    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 40.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 100                         | 95,3 | 90,6 | 82,1 | 74,5 | 66,4 | 58,4    | 4,54                        | 4,66 | 4,77 | 5,02 | 5,22 | 5,38 | 5,53    |
|    | 20  | 98,8                        | 94,1 | 89,5 | 81,0 | 73,4 | 65,3 | 57,2    | 3,93                        | 4,05 | 4,13 | 4,38 | 4,58 | 4,75 | 4,93    |
|    | 25  | 97,4                        | 92,3 | 87,7 | 79,4 | 71,9 | 63,8 | 55,7    | 3,47                        | 3,56 | 3,62 | 3,85 | 4,03 | 4,20 | 4,37    |
|    | 30  | 95,8                        | 90,9 | 85,9 | 77,7 | 70,3 | 62,1 | 54,1    | 3,05                        | 3,13 | 3,16 | 3,35 | 3,52 | 3,65 | 3,78    |
|    | 35  | 94,5                        | 89,1 | 84,1 | 75,6 | 68,3 | 60,3 | 52,3    | 2,68                        | 2,74 | 2,75 | 2,90 | 3,03 | 3,14 | 3,23    |
|    | 40  | 88,0                        | 83,4 | 78,7 | 71,1 | 64,2 | 56,5 | 48,8    | 2,30                        | 2,36 | 2,36 | 2,49 | 2,59 | 2,66 | 2,72    |
|    | 44  | -                           | -    | -    | -    | -    | 48,4 | 41,7    | -                           | -    | -    | -    | -    | 2,46 | 2,45    |
| 10 | 15  | 108                         | 103  | 97,6 | 88,4 | 80,2 | 71,4 | 62,6    | 4,85                        | 4,99 | 5,11 | 5,39 | 5,63 | 5,82 | 6,00    |
|    | 20  | 107                         | 102  | 96,4 | 87,3 | 79,1 | 70,3 | 61,5    | 4,22                        | 4,35 | 4,43 | 4,71 | 4,94 | 5,14 | 5,34    |
|    | 25  | 105                         | 99,7 | 94,6 | 85,6 | 77,5 | 68,7 | 59,9    | 3,70                        | 3,83 | 3,89 | 4,14 | 4,35 | 4,54 | 4,73    |
|    | 30  | 103                         | 97,8 | 92,8 | 83,9 | 75,8 | 67,1 | 58,3    | 3,24                        | 3,35 | 3,39 | 3,61 | 3,80 | 3,95 | 4,10    |
|    | 35  | 100                         | 95,7 | 90,7 | 82,0 | 74,1 | 65,4 | 56,6    | 2,83                        | 2,92 | 2,95 | 3,13 | 3,28 | 3,40 | 3,51    |
|    | 40  | 94,4                        | 90,0 | 85,4 | 77,1 | 69,6 | 61,3 | 52,8    | 2,46                        | 2,54 | 2,55 | 2,70 | 2,81 | 2,90 | 2,96    |
|    | 44  | -                           | -    | -    | -    | -    | 53,0 | 45,9    | -                           | -    | -    | -    | -    | 2,68 | 2,70    |
| 12 | 15  | 113                         | 108  | 103  | 93,0 | 84,3 | 75,0 | 65,7    | 5,10                        | 5,24 | 5,36 | 5,69 | 5,95 | 6,17 | 6,38    |
|    | 20  | 112                         | 106  | 101  | 91,4 | 82,8 | 73,5 | 64,2    | 4,41                        | 4,55 | 4,64 | 4,94 | 5,20 | 5,42 | 5,65    |
|    | 25  | 110                         | 105  | 99,2 | 89,7 | 81,2 | 71,9 | 62,7    | 3,88                        | 4,02 | 4,07 | 4,35 | 4,58 | 4,79 | 5,00    |
|    | 30  | 108                         | 103  | 97,3 | 88,0 | 79,5 | 70,4 | 61,0    | 3,41                        | 3,53 | 3,56 | 3,80 | 4,00 | 4,18 | 4,34    |
|    | 35  | 105                         | 100  | 95,3 | 86,2 | 77,8 | 68,6 | 59,4    | 2,98                        | 3,08 | 3,10 | 3,30 | 3,46 | 3,59 | 3,71    |
|    | 40  | 99,3                        | 94,7 | 89,8 | 81,1 | 73,2 | 64,4 | 55,5    | 2,59                        | 2,68 | 2,69 | 2,85 | 2,97 | 3,07 | 3,14    |
|    | 44  | -                           | -    | -    | -    | -    | 56,4 | 47,4    | -                           | -    | -    | -    | -    | 2,84 | 2,78    |
| 15 | 15  | 116                         | 111  | 105  | 95,3 | 86,4 | 77,0 | 67,8    | 5,35                        | 5,52 | 5,64 | 6,01 | 6,33 | 6,36 | 6,60    |
|    | 20  | 115                         | 110  | 104  | 94,3 | 85,4 | 76,0 | 66,1    | 4,70                        | 4,87 | 4,95 | 5,31 | 5,61 | 5,90 | 6,14    |
|    | 25  | 113                         | 108  | 103  | 92,7 | 83,8 | 74,5 | 64,6    | 4,15                        | 4,30 | 4,38 | 4,68 | 4,95 | 5,21 | 5,43    |
|    | 30  | 111                         | 106  | 101  | 91,0 | 82,2 | 73,0 | 63,0    | 3,66                        | 3,79 | 3,83 | 4,10 | 4,33 | 4,55 | 4,72    |
|    | 35  | 109                         | 104  | 98,8 | 89,3 | 80,6 | 71,4 | 61,4    | 3,21                        | 3,33 | 3,35 | 3,57 | 3,76 | 3,93 | 4,05    |
|    | 40  | 103                         | 98,3 | 93,2 | 84,2 | 76,0 | 67,2 | 57,6    | 2,81                        | 2,91 | 2,91 | 3,09 | 3,24 | 3,36 | 3,43    |
|    | 44  | -                           | -    | -    | -    | -    | 57,8 | 49,7    | -                           | -    | -    | -    | -    | 2,98 | 2,96    |
| 18 | 15  | 126                         | 120  | 113  | 104  | 94,2 | 84,5 | 74,8    | 5,71                        | 5,92 | 6,05 | 6,44 | 6,96 | 7,10 | 7,29    |
|    | 20  | 124                         | 119  | 112  | 102  | 92,2 | 82,1 | 71,0    | 5,05                        | 5,24 | 5,33 | 5,75 | 6,10 | 6,46 | 6,76    |
|    | 25  | 122                         | 116  | 110  | 99,8 | 90,2 | 80,2 | 69,4    | 4,48                        | 4,67 | 4,72 | 5,08 | 5,40 | 5,71 | 5,98    |
|    | 30  | 120                         | 114  | 108  | 98,2 | 88,7 | 78,7 | 67,9    | 3,96                        | 4,11 | 4,15 | 4,46 | 4,73 | 5,00 | 5,21    |
|    | 35  | 117                         | 112  | 106  | 96,2 | 86,8 | 76,9 | 66,1    | 3,45                        | 3,61 | 3,63 | 3,89 | 4,10 | 4,31 | 4,45    |
|    | 40  | 111                         | 106  | 101  | 91,2 | 82,3 | 71,8 | 62,4    | 3,06                        | 3,18 | 3,18 | 3,39 | 3,56 | 3,67 | 3,80    |
|    | 44  | -                           | -    | -    | -    | -    | 64,1 | 55,8    | -                           | -    | -    | -    | -    | 3,36 | 3,46    |
| 20 | 15  | 133                         | 127  | 120  | 109  | 98,3 | 87,5 | 76,8    | 6,04                        | 6,26 | 6,40 | 6,73 | 7,27 | 7,35 | 7,48    |
|    | 20  | 131                         | 125  | 119  | 107  | 97,3 | 86,6 | 76,0    | 5,31                        | 5,52 | 5,62 | 6,08 | 6,49 | 6,90 | 7,38    |
|    | 25  | 129                         | 123  | 117  | 105  | 95,4 | 84,7 | 73,3    | 4,72                        | 4,92 | 4,98 | 5,39 | 5,75 | 6,11 | 6,42    |
|    | 30  | 127                         | 121  | 115  | 104  | 93,9 | 82,8 | 71,8    | 4,19                        | 4,36 | 4,40 | 4,74 | 5,05 | 5,32 | 5,59    |
|    | 35  | 125                         | 119  | 113  | 102  | 92,0 | 81,5 | 70,1    | 3,69                        | 3,84 | 3,85 | 4,14 | 4,38 | 4,62 | 4,78    |
|    | 40  | 118                         | 113  | 107  | 96,8 | 87,0 | 76,6 | 65,8    | 3,26                        | 3,38 | 3,39 | 3,62 | 3,80 | 3,96 | 4,05    |
|    | 44  | -                           | -    | -    | -    | -    | 66,4 | 58,4    | -                           | -    | -    | -    | -    | 3,51 | 3,66    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 40.2 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 49,0                        | 46,7 | 44,2 | 40,3 | 36,9 | 33,4 | 29,8    | 1,89                        | 1,92 | 1,98 | 2,05 | 2,11 | 2,18 | 2,25    |
|    | -10 | 60,9                        | 58,0 | 54,8 | 49,8 | 45,4 | 41,0 | 36,4    | 2,33                        | 2,27 | 2,34 | 2,43 | 2,51 | 2,59 | 2,68    |
|    | -7  | 70,1                        | 65,7 | 62,1 | 56,4 | 51,3 | 46,1 | 40,8    | 2,71                        | 2,70 | 2,79 | 2,89 | 2,99 | 3,09 | 3,19    |
|    | 2   | 85,7                        | 81,3 | 77,0 | 69,7 | 63,2 | 56,5 | 49,4    | 3,06                        | 3,14 | 3,27 | 3,41 | 3,52 | 3,62 | 3,71    |
|    | 7   | 100                         | 95,4 | 90,4 | 81,8 | 74,1 | 66,1 | 57,7    | 3,71                        | 3,69 | 3,85 | 4,02 | 4,15 | 4,28 | 4,37    |
|    | 10  | 104                         | 99,2 | 93,9 | 84,9 | 76,9 | 68,5 | 59,8    | 3,78                        | 3,87 | 4,04 | 4,22 | 4,36 | 4,49 | 4,60    |
| 40 | 18  | 118                         | 112  | 107  | 96,3 | 87,1 | 77,5 | 67,5    | 4,29                        | 4,39 | 4,60 | 4,82 | 5,00 | 5,17 | 5,30    |
|    | -15 | 47,3                        | 44,7 | 43,2 | 38,9 | 35,5 | 32,1 | 27,7    | 1,63                        | 1,65 | 1,73 | 1,77 | 1,82 | 1,88 | 1,88    |
|    | -10 | 60,2                        | 57,1 | 53,8 | 48,5 | 44,9 | 40,2 | 35,4    | 1,94                        | 1,97 | 2,02 | 2,08 | 2,19 | 2,24 | 2,29    |
|    | -7  | 67,1                        | 63,5 | 60,0 | 53,9 | 48,7 | 43,4 | 38,0    | 2,13                        | 2,16 | 2,23 | 2,29 | 2,35 | 2,41 | 2,45    |
|    | 2   | 84,2                        | 80,0 | 75,7 | 68,2 | 61,5 | 54,7 | 48,7    | 2,70                        | 2,75 | 2,85 | 2,96 | 3,04 | 3,11 | 3,23    |
|    | 7   | 102                         | 97,4 | 92,3 | 83,3 | 75,2 | 67,0 | 58,3    | 3,19                        | 3,29 | 3,39 | 3,52 | 3,63 | 3,73 | 3,78    |
| 45 | 10  | 104                         | 98,5 | 93,2 | 84,1 | 76,0 | 67,5 | 58,7    | 3,28                        | 3,36 | 3,49 | 3,64 | 3,75 | 3,85 | 3,92    |
|    | 18  | 117                         | 111  | 106  | 95,2 | 85,9 | 76,3 | 66,5    | 3,75                        | 3,84 | 4,01 | 4,19 | 4,34 | 4,47 | 4,58    |
|    | -15 | 45,7                        | 44,0 | 42,0 | 37,9 | 33,7 | 30,8 | 26,8    | 1,40                        | 1,44 | 1,50 | 1,53 | 1,54 | 1,60 | 1,61    |
|    | -10 | 59,2                        | 55,9 | 52,5 | 47,3 | 43,1 | 39,2 | 34,2    | 1,67                        | 1,68 | 1,72 | 1,77 | 1,83 | 1,90 | 1,91    |
|    | -7  | 65,7                        | 60,9 | 58,4 | 52,1 | 46,7 | 41,2 | 35,5    | 1,83                        | 1,82 | 1,90 | 1,94 | 1,97 | 1,99 | 1,99    |
|    | 2   | 82,1                        | 78,8 | 74,5 | 66,9 | 60,1 | 53,1 | 47,0    | 2,27                        | 2,35 | 2,42 | 2,50 | 2,55 | 2,59 | 2,66    |
| 50 | 7   | 102                         | 98,7 | 93,5 | 84,2 | 75,9 | 67,4 | 58,4    | 2,93                        | 2,93 | 3,01 | 3,12 | 3,20 | 3,27 | 3,29    |
|    | 10  | 103                         | 97,9 | 92,8 | 83,5 | 75,3 | 66,8 | 57,9    | 2,88                        | 2,94 | 3,05 | 3,17 | 3,26 | 3,32 | 3,36    |
|    | 18  | 116                         | 110  | 105  | 94,3 | 85,0 | 75,3 | 65,6    | 3,33                        | 3,41 | 3,55 | 3,71 | 3,82 | 3,92 | 4,00    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 59,6                        | 55,5 | 53,5 | 47,4 | 42,1 | 37,8 | 32,3    | 1,69                        | 1,68 | 1,76 | 1,78 | 1,79 | 1,83 | 1,80    |
| 55 | 2   | 75,3                        | 73,2 | 69,1 | 61,8 | 55,3 | 48,6 | 42,7    | 2,15                        | 2,25 | 2,31 | 2,37 | 2,40 | 2,41 | 2,45    |
|    | 7   | 91,4                        | 86,2 | 81,7 | 73,4 | 66,1 | 58,5 | 50,6    | 2,58                        | 2,61 | 2,70 | 2,79 | 2,85 | 2,90 | 2,90    |
|    | 10  | 95,7                        | 90,8 | 86,0 | 77,3 | 69,6 | 61,6 | 53,3    | 2,68                        | 2,74 | 2,83 | 2,93 | 3,00 | 3,04 | 3,05    |
|    | 18  | 109                         | 104  | 98,2 | 88,4 | 79,6 | 70,4 | 61,4    | 3,02                        | 3,10 | 3,21 | 3,34 | 3,44 | 3,50 | 3,56    |
|    | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
| 55 | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | 72,9                        | 70,7 | 66,7 | 59,3 | 52,7 | 46,0 | 40,8    | 1,88                        | 1,96 | 2,00 | 2,04 | 2,05 | 2,03 | 2,07    |
|    | 7   | 90,2                        | 84,4 | 79,9 | 71,6 | 64,3 | 56,8 | 48,9    | 2,31                        | 2,30 | 2,37 | 2,44 | 2,48 | 2,49 | 2,47    |
|    | 10  | 93,7                        | 88,9 | 84,2 | 75,5 | 67,8 | 59,8 | 51,5    | 2,36                        | 2,41 | 2,48 | 2,56 | 2,60 | 2,62 | 2,60    |
|    | 18  | 107                         | 101  | 95,9 | 86,2 | 77,4 | 68,5 | 59,6    | 2,64                        | 2,70 | 2,78 | 2,88 | 2,95 | 3,00 | 3,02    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 45.2 - PRM - SC

|    |     | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 7  | 15  | 126                         | 116  | 102  | 88,0 | 73,8 | 66,6 | 55,5    | 4,34                        | 4,48 | 4,78 | 5,11 | 5,50 | 5,48 | 5,59    |
|    | 20  | 122                         | 112  | 98,7 | 85,1 | 71,2 | 64,1 | 54,9    | 3,70                        | 3,82 | 4,03 | 4,14 | 4,38 | 4,60 | 4,99    |
|    | 25  | 120                         | 110  | 97,3 | 84,5 | 71,1 | 63,1 | 54,4    | 3,54                        | 3,71 | 3,95 | 3,92 | 4,35 | 4,50 | 4,74    |
|    | 30  | 115                         | 108  | 95,9 | 83,8 | 71,0 | 62,0 | 53,9    | 3,12                        | 3,27 | 3,48 | 3,70 | 3,91 | 3,99 | 4,08    |
|    | 35  | 111                         | 103  | 92,3 | 80,6 | 68,2 | 60,0 | 53,3    | 2,74                        | 2,87 | 3,05 | 3,22 | 3,37 | 3,43 | 3,48    |
|    | 40  | 106                         | 99   | 88,6 | 77,4 | 65,3 | 59,1 | 52,8    | 2,42                        | 2,52 | 2,67 | 2,80 | 2,90 | 2,92 | 2,99    |
|    | 44  | 89                          | 85   | 75,3 | 64,4 | 54,7 | -    | -       | 2,3                         | 2,44 | 2,52 | 2,55 | 2,60 | -    | -       |
| 10 | 15  | 137                         | 126  | 111  | 95,4 | 79,8 | 71,9 | 55,0    | 4,50                        | 4,70 | 4,85 | 5,41 | 5,86 | 5,88 | 5,90    |
|    | 20  | 132                         | 122  | 107  | 92,2 | 77,0 | 69,2 | 54,5    | 3,94                        | 4,01 | 4,09 | 4,39 | 4,67 | 4,93 | 5,20    |
|    | 25  | 131                         | 120  | 106  | 91,7 | 76,2 | 68,1 | 53,9    | 3,78                        | 3,98 | 4,07 | 4,19 | 4,46 | 4,65 | 4,84    |
|    | 30  | 126                         | 117  | 105  | 91,2 | 75,0 | 67,0 | 53,4    | 3,34                        | 3,50 | 3,75 | 3,99 | 4,25 | 4,36 | 4,47    |
|    | 35  | 121                         | 113  | 101  | 87,7 | 74,2 | 65,5 | 52,8    | 2,94                        | 3,08 | 3,28 | 3,47 | 3,66 | 3,73 | 3,80    |
|    | 40  | 116                         | 108  | 96,7 | 84,4 | 71,2 | 64,3 | 52,3    | 2,59                        | 2,70 | 2,87 | 3,02 | 3,13 | 3,18 | 3,23    |
|    | 44  | 92,2                        | 88,5 | 78,2 | 66,1 | 55,7 | -    | -       | 2,4                         | 2,63 | 2,72 | 2,76 | 2,80 | -    | -       |
| 12 | 15  | 146                         | 135  | 118  | 101  | 84,6 | 76,1 | 54,3    | 4,60                        | 5,37 | 5,72 | 6,20 | 6,79 | 6,80 | 6,76    |
|    | 20  | 141                         | 130  | 114  | 98,0 | 81,7 | 73,4 | 53,8    | 4,34                        | 4,58 | 4,82 | 5,03 | 5,41 | 5,70 | 6,04    |
|    | 25  | 140                         | 128  | 113  | 97,6 | 80,8 | 72,4 | 53,2    | 4,09                        | 4,31 | 4,67 | 4,97 | 5,35 | 5,55 | 5,76    |
|    | 30  | 134                         | 125  | 112  | 97,2 | 80,0 | 71,5 | 52,7    | 3,60                        | 3,79 | 4,06 | 4,35 | 4,64 | 4,81 | 4,91    |
|    | 35  | 129                         | 121  | 107  | 93,5 | 79,1 | 70,0 | 52,2    | 3,17                        | 3,33 | 3,56 | 3,78 | 3,99 | 4,08 | 4,16    |
|    | 40  | 124                         | 116  | 103  | 89,9 | 76,3 | 68,5 | 51,6    | 2,79                        | 2,92 | 3,10 | 3,27 | 3,37 | 3,42 | 3,47    |
|    | 44  | 94,8                        | 91,1 | 80,4 | 67,4 | -    | -    | -       | 2,6                         | 2,89 | 2,97 | 3,01 | -    | -    | -       |
| 15 | 15  | 150                         | 138  | 121  | 104  | 86,1 | 77,5 | 53,8    | 4,70                        | 5,54 | 6,11 | 6,59 | 7,12 | 7,13 | 7,09    |
|    | 20  | 145                         | 134  | 117  | 100  | 83,2 | 74,7 | 53,3    | 4,44                        | 4,72 | 5,15 | 5,35 | 5,67 | 5,98 | 6,34    |
|    | 25  | 144                         | 131  | 116  | 100  | 82,5 | 73,9 | 52,7    | 4,17                        | 4,53 | 4,93 | 5,21 | 5,55 | 5,76 | 5,97    |
|    | 30  | 139                         | 129  | 115  | 99,0 | 81,9 | 73,2 | 52,2    | 3,69                        | 4,09 | 4,41 | 4,65 | 4,91 | 5,10 | 5,20    |
|    | 35  | 133                         | 124  | 111  | 96,3 | 81,3 | 71,3 | 51,7    | 3,23                        | 3,56 | 3,80 | 3,98 | 4,14 | 4,24 | 4,32    |
|    | 40  | 128                         | 119  | 106  | 92,5 | 78,0 | 70,5 | 51,2    | 2,97                        | 3,18 | 3,31 | 3,42 | 3,52 | 3,58 | 3,60    |
|    | 44  | 98,9                        | 94,9 | 83,9 | 68,3 | -    | -    | -       | 2,9                         | 2,98 | 3,04 | 3,08 | -    | -    | -       |
| 18 | 15  | 141                         | 130  | 113  | 96,8 | 80,1 | -    | -       | 4,88                        | 5,70 | 6,51 | 6,99 | 7,45 | -    | -       |
|    | 20  | 136                         | 125  | 110  | 93,6 | 77,4 | -    | -       | 4,62                        | 4,86 | 5,49 | 5,67 | 5,93 | -    | -       |
|    | 25  | 136                         | 124  | 109  | 91,5 | 76,9 | -    | -       | 4,35                        | 4,75 | 5,19 | 5,45 | 5,75 | -    | -       |
|    | 30  | 131                         | 122  | 108  | 91,3 | 76,6 | -    | -       | 4,07                        | 4,40 | 4,76 | 4,96 | 5,19 | -    | -       |
|    | 35  | 126                         | 117  | 104  | 89,1 | 76,3 | -    | -       | 3,56                        | 3,79 | 4,05 | 4,18 | 4,30 | -    | -       |
|    | 40  | 121                         | 112  | 100  | 87,1 | -    | -    | -       | 3,27                        | 3,44 | 3,51 | 3,57 | -    | -    | -       |
|    | 44  | 92,3                        | 88,5 | 78,2 | -    | -    | -    | -       | 3,02                        | 3,08 | 3,12 | -    | -    | -    | -       |
| 20 | 15  | 145                         | 133  | 116  | 99,0 | 81,6 | -    | -       | 5,03                        | 6,30 | 7,19 | 7,23 | 7,60 | -    | -       |
|    | 20  | 140                         | 129  | 112  | 95,7 | 78,8 | -    | -       | 4,94                        | 5,38 | 6,07 | 5,86 | 6,06 | -    | -       |
|    | 25  | 140                         | 127  | 112  | 93,9 | 78,6 | -    | -       | 4,85                        | 5,33 | 5,41 | 5,70 | 5,85 | -    | -       |
|    | 30  | 135                         | 126  | 111  | 91,9 | 78,4 | -    | -       | 4,22                        | 4,59 | 4,94 | 5,22 | 5,33 | -    | -       |
|    | 35  | 130                         | 121  | 107  | 90,8 | 76,8 | -    | -       | 3,67                        | 3,95 | 4,10 | 4,37 | 4,43 | -    | -       |
|    | 40  | 125                         | 115  | 103  | 89,7 | -    | -    | -       | 3,40                        | 3,50 | 3,67 | 3,74 | -    | -    | -       |
|    | 44  | 93,7                        | 89,8 | 79,4 | -    | -    | -    | -       | 3,08                        | 3,15 | 3,22 | -    | -    | -    | -       |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 45.2 - PRM - SC

|    |     | Heating capacity            |      |       |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|-------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |       |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80    | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 62,6                        | 54,9 | 48,5  | 42,1 | 35,9 | 31,0 | 23,3    | 2,34                        | 2,42 | 2,46 | 2,51 | 2,55 | 3,00 | 3,27    |
|    | -10 | 72,8                        | 64,3 | 57,3  | 50,2 | 43,2 | 36,8 | 28,4    | 2,66                        | 2,77 | 2,85 | 2,92 | 3,02 | 3,46 | 3,81    |
|    | -7  | 79,4                        | 70,4 | 63,0  | 55,4 | 47,3 | 40,4 | 31,3    | 2,86                        | 3,00 | 3,11 | 3,20 | 3,27 | 3,75 | 4,16    |
|    | 2   | 103                         | 91,6 | 81,7  | 71,6 | 61,2 | 52,8 | 40,8    | 3,62                        | 3,81 | 3,94 | 4,08 | 4,21 | 4,83 | 5,43    |
|    | 7   | 119                         | 105  | 93,5  | 81,9 | 69,9 | 59,9 | 46,3    | 3,83                        | 4,01 | 4,18 | 4,34 | 4,50 | 5,24 | 6,06    |
|    | 10  | 127                         | 113  | 101   | 88,0 | 75,0 | 64,5 | 49,7    | 4,05                        | 4,30 | 4,49 | 4,68 | 4,87 | 5,68 | 6,64    |
|    | 18  | 133                         | 118  | 106   | 92,4 | 78,8 | 67,7 | 52,2    | 4,26                        | 4,53 | 4,72 | 4,93 | 5,12 | 5,97 | 7,05    |
| 40 | -15 | 62,4                        | 54,6 | 48,3  | 42,0 | 35,7 | 30,6 | 23,3    | 2,11                        | 2,16 | 2,19 | 2,22 | 2,24 | 2,56 | 2,70    |
|    | -10 | 72,6                        | 64,1 | 57,1  | 50,0 | 42,9 | 37,0 | 28,4    | 2,40                        | 2,50 | 2,56 | 2,61 | 2,66 | 3,03 | 3,22    |
|    | -7  | 79,2                        | 70,2 | 62,7  | 55,2 | 47,4 | 40,4 | 31,3    | 2,61                        | 2,72 | 2,80 | 2,88 | 2,93 | 3,28 | 3,54    |
|    | 2   | 103                         | 91,4 | 81,4  | 71,2 | 60,8 | 52,3 | 40,8    | 3,30                        | 3,46 | 3,57 | 3,67 | 3,76 | 4,24 | 4,69    |
|    | 7   | 117                         | 104  | 92,9  | 81,2 | 69,2 | 59,2 | 46,3    | 3,45                        | 3,64 | 3,77 | 3,90 | 4,00 | 4,58 | 5,19    |
|    | 10  | 126                         | 112  | 99,8  | 87,2 | 74,3 | 63,7 | 49,7    | 3,67                        | 3,89 | 4,04 | 4,19 | 4,32 | 4,95 | 5,66    |
|    | 18  | 132                         | 118  | 105   | 91,6 | 78,0 | 66,8 | 52,2    | 3,87                        | 4,09 | 4,26 | 4,41 | 4,55 | 5,15 | 6,05    |
| 45 | -15 | 61,9                        | 54,2 | 48,0  | 41,7 | 35,6 | 30,5 | 23,3    | 1,88                        | 1,92 | 1,95 | 1,96 | 1,96 | 2,19 | 2,24    |
|    | -10 | 72,2                        | 63,9 | 56,9  | 49,8 | 42,7 | 37,4 | 28,4    | 2,17                        | 2,24 | 2,29 | 2,32 | 2,34 | 2,66 | 2,71    |
|    | -7  | 78,9                        | 70,0 | 62,5  | 54,8 | 47,1 | 40,7 | 31,3    | 2,35                        | 2,44 | 2,50 | 2,55 | 2,58 | 2,89 | 3,01    |
|    | 2   | 102                         | 90,9 | 81,0  | 71,1 | 60,6 | 52,0 | 40,8    | 2,98                        | 3,12 | 3,20 | 3,30 | 3,33 | 3,71 | 4,00    |
|    | 7   | 117                         | 104  | 92,5  | 80,8 | 68,8 | 58,8 | 46,3    | 3,24                        | 3,28 | 3,38 | 3,48 | 3,54 | 3,99 | 4,41    |
|    | 10  | 125                         | 111  | 99,2  | 86,7 | 73,7 | 63,1 | 49,7    | 3,31                        | 3,49 | 3,62 | 3,73 | 3,80 | 4,29 | 4,77    |
|    | 18  | 131                         | 117  | 104,2 | 91,0 | 77,4 | 66,3 | 52,2    | 3,49                        | 3,68 | 3,81 | 3,92 | 4,00 | 4,47 | 5,11    |
| 50 | -15 | -                           | -    | -     | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -     | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 78,6                        | 69,7 | 62,2  | 54,6 | 47,0 | 41,2 | 31,3    | 2,13                        | 2,19 | 2,24 | 2,26 | 2,28 | 2,55 | 2,54    |
|    | 2   | 101                         | 90,3 | 80,3  | 70,2 | 60,7 | 52,1 | 40,8    | 2,69                        | 2,79 | 2,86 | 2,91 | 2,96 | 3,24 | 3,40    |
|    | 7   | 116                         | 104  | 92,3  | 80,6 | 68,6 | 58,6 | 46,3    | 2,82                        | 2,95 | 3,04 | 3,10 | 3,13 | 3,46 | 3,72    |
|    | 10  | 124                         | 111  | 98,8  | 86,3 | 73,4 | 62,8 | 49,7    | 2,99                        | 3,14 | 3,23 | 3,31 | 3,35 | 3,71 | 4,02    |
|    | 18  | 113                         | 101  | 89,0  | 77,1 | 65,0 | 55,3 | 52,2    | 2,87                        | 2,97 | 3,03 | 3,12 | 3,16 | 3,59 | 4,80    |
| 55 | -15 | -                           | -    | -     | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -     | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -     | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -     | 65,6 | 61,0 | 52,3 | 40,8    | -                           | -    | -    | 2,64 | 2,63 | 2,85 | 2,89    |
|    | 7   | -                           | -    | -     | 73,9 | 68,7 | 58,6 | 46,3    | -                           | -    | -    | 2,77 | 2,76 | 3,01 | 3,13    |
|    | 10  | -                           | -    | -     | 78,9 | 73,3 | 62,7 | 49,7    | -                           | -    | -    | 2,95 | 2,95 | 3,21 | 3,37    |
|    | 18  | -                           | -    | -     | 69,6 | 64,5 | 54,9 | 52,2    | -                           | -    | -    | 2,73 | 2,73 | 3,04 | 3,93    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 50.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |      |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |      |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 140                         | 127  | 118  | 103  | 89,0 | 74,7 | 56,1    | 4,23                        | 4,32 | 4,54 | 4,68 | 4,82 | 5,02 | 5,42    |
|    | 20  | 135                         | 123  | 114  | 99,8 | 86,1 | 72,0 | 55,5    | 3,61                        | 3,73 | 4,01 | 4,12 | 4,30 | 4,52 | 4,90    |
|    | 25  | 131                         | 120  | 111  | 98,4 | 85,4 | 71,5 | 54,9    | 3,40                        | 3,62 | 3,80 | 3,84 | 4,04 | 4,45 | 4,68    |
|    | 30  | 126                         | 117  | 109  | 97,0 | 84,7 | 71,0 | 54,4    | 3,00                        | 3,19 | 3,35 | 3,56 | 3,79 | 3,86 | 3,95    |
|    | 35  | 121                         | 112  | 105  | 93,3 | 81,5 | 68,9 | 53,8    | 2,64                        | 2,82 | 2,94 | 3,12 | 3,30 | 3,36 | 3,41    |
|    | 40  | 108                         | 101  | 90,4 | 78,9 | 66,6 | 60,3 | 53,3    | 2,3                         | 2,47 | 2,57 | 2,71 | 2,84 | 2,86 | 2,93    |
|    | 44  | 89,6                        | 86,7 | 76,0 | 65,0 | 55,6 | -    | -       | 2,2                         | 2,39 | 2,43 | 2,47 | 2,55 | -    | -       |
| 10 | 15  | 152                         | 139  | 128  | 112  | 96,4 | 80,7 | 55,6    | 4,44                        | 4,61 | 4,77 | 4,98 | 5,07 | 5,55 | 5,62    |
|    | 20  | 147                         | 134  | 124  | 108  | 93,2 | 77,8 | 55,0    | 3,88                        | 3,97 | 4,02 | 4,20 | 4,46 | 4,91 | 5,17    |
|    | 25  | 143                         | 131  | 121  | 107  | 91,8 | 77,0 | 54,4    | 3,63                        | 3,87 | 3,80 | 4,02 | 4,28 | 4,63 | 4,82    |
|    | 30  | 138                         | 127  | 119  | 106  | 90,5 | 76,2 | 53,9    | 3,20                        | 3,42 | 3,59 | 3,84 | 4,09 | 4,35 | 4,46    |
|    | 35  | 132                         | 122  | 114  | 102  | 88,7 | 75,0 | 53,4    | 2,83                        | 3,01 | 3,15 | 3,36 | 3,56 | 3,73 | 3,79    |
|    | 40  | 118                         | 111  | 98,6 | 86,1 | 72,6 | 65,6 | 52,8    | 2,5                         | 2,64 | 2,75 | 2,92 | 3,05 | 3,09 | 3,14    |
|    | 44  | 92,8                        | 89,8 | 78,7 | 67,0 | 57,1 | -    | -       | 2,3                         | 2,57 | 2,61 | 2,67 | 2,73 | -    | -       |
| 12 | 15  | 161                         | 146  | 135  | 118  | 101  | 84,6 | 54,8    | 4,49                        | 4,78 | 4,86 | 5,07 | 5,08 | 5,82 | 6,28    |
|    | 20  | 155                         | 141  | 130  | 114  | 98,0 | 81,7 | 54,3    | 4,24                        | 4,43 | 4,58 | 4,82 | 5,03 | 5,66 | 6,00    |
|    | 25  | 151                         | 138  | 128  | 113  | 97,0 | 81,0 | 53,8    | 3,82                        | 4,09 | 4,31 | 4,67 | 4,97 | 5,35 | 5,55    |
|    | 30  | 146                         | 134  | 125  | 112  | 96,0 | 80,3 | 53,2    | 3,37                        | 3,60 | 3,79 | 4,06 | 4,35 | 4,64 | 4,74    |
|    | 35  | 140                         | 129  | 121  | 107  | 93,5 | 79,1 | 52,7    | 2,98                        | 3,17 | 3,33 | 3,56 | 3,78 | 3,99 | 4,06    |
|    | 40  | 126                         | 118  | 105  | 91,7 | 80,7 | 72,5 | 52,2    | 2,6                         | 2,78 | 2,91 | 3,08 | 3,19 | 3,24 | 3,29    |
|    | 44  | 96,7                        | 93,6 | 82,0 | 68,3 | -    | -    | -       | 2,4                         | 2,75 | 2,78 | 2,84 | -    | -    | -       |
| 15 | 15  | 166                         | 150  | 138  | 121  | 104  | 86,1 | 54,3    | 4,58                        | 4,79 | 5,03 | 5,19 | 5,29 | 6,05 | 6,54    |
|    | 20  | 160                         | 145  | 134  | 117  | 100  | 83,2 | 53,8    | 4,32                        | 4,61 | 4,76 | 4,97 | 5,20 | 5,86 | 6,21    |
|    | 25  | 156                         | 142  | 132  | 116  | 99,9 | 82,6 | 53,3    | 3,88                        | 4,39 | 4,59 | 4,81 | 5,11 | 5,50 | 5,71    |
|    | 30  | 150                         | 139  | 129  | 115  | 98,0 | 82,0 | 52,7    | 3,44                        | 3,92 | 4,19 | 4,42 | 4,68 | 4,99 | 5,10    |
|    | 35  | 144                         | 133  | 124  | 111  | 96,3 | 81,3 | 52,2    | 3,03                        | 3,43 | 3,65 | 3,82 | 3,99 | 4,21 | 4,30    |
|    | 40  | 130                         | 127  | 109  | 94,4 | 82,8 | 73,3 | 51,7    | 2,8                         | 3,07 | 3,17 | 3,31 | 3,43 | 3,49 | 3,51    |
|    | 44  | 101                         | 98,6 | 85,6 | 69,3 | -    | -    | -       | 2,8                         | 2,88 | 2,91 | 2,97 | -    | -    | -       |
| 18 | 15  | 152                         | 138  | 127  | 111  | 95,0 | -    | -       | 4,71                        | 4,81 | 5,20 | 5,30 | 5,50 | -    | -       |
|    | 20  | 147                         | 133  | 122  | 107  | 92,9 | -    | -       | 4,45                        | 4,79 | 4,93 | 5,12 | 5,37 | -    | -       |
|    | 25  | 144                         | 131  | 121  | 107  | 91,9 | -    | -       | 4,20                        | 4,70 | 4,88 | 4,95 | 5,25 | -    | -       |
|    | 30  | 137                         | 126  | 118  | 105  | 89,3 | -    | -       | 3,92                        | 4,24 | 4,59 | 4,78 | 5,01 | -    | -       |
|    | 35  | 132                         | 121  | 114  | 101  | 87,7 | -    | -       | 3,47                        | 3,70 | 3,96 | 4,09 | 4,21 | -    | -       |
|    | 40  | 123                         | 119  | 102  | 88,5 | -    | -    | -       | 3,18                        | 3,35 | 3,44 | 3,55 | -    | -    | -       |
|    | 44  | 93,9                        | 91,7 | 79,6 | -    | -    | -    | -       | 2,94                        | 3,00 | 3,05 | -    | -    | -    | -       |
| 20 | 15  | 153                         | 139  | 128  | 112  | 97,1 | -    | -       | 4,81                        | 5,25 | 5,38 | 5,89 | 6,07 | -    | -       |
|    | 20  | 149                         | 137  | 126  | 110  | 94,3 | -    | -       | 4,73                        | 4,90 | 5,29 | 5,50 | 5,77 | -    | -       |
|    | 25  | 145                         | 132  | 122  | 108  | 92,8 | -    | -       | 4,54                        | 4,77 | 5,15 | 5,32 | 5,46 | -    | -       |
|    | 30  | 138                         | 127  | 119  | 105  | 89,9 | -    | -       | 4,06                        | 4,41 | 4,61 | 5,11 | 5,22 | -    | -       |
|    | 35  | 132                         | 124  | 115  | 101  | 88,3 | -    | -       | 3,60                        | 3,87 | 4,02 | 4,29 | 4,34 | -    | -       |
|    | 40  | 125                         | 121  | 105  | 90,3 | -    | -    | -       | 3,33                        | 3,43 | 3,59 | 3,67 | -    | -    | -       |
|    | 44  | 95,0                        | 92,8 | 81,0 | -    | -    | -    | -       | 3,02                        | 3,09 | 3,16 | -    | -    | -    | -       |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 50.2 - PRM - SC

|    |     | Heating capacity            |      |      |      |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |      |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 68,5                        | 62,6 | 54,0 | 45,7 | 38,5 | 31,0 | 23,3    | 2,31                        | 2,34 | 2,42 | 2,48 | 2,53 | 3,00 | 3,27    |
|    | -10 | 78,9                        | 72,8 | 63,3 | 54,2 | 46,4 | 36,8 | 28,4    | 2,61                        | 2,66 | 2,78 | 2,88 | 3,00 | 3,46 | 3,81    |
|    | -7  | 86,0                        | 79,4 | 69,3 | 60,0 | 50,8 | 40,4 | 31,3    | 2,80                        | 2,86 | 3,01 | 3,16 | 3,24 | 3,75 | 4,16    |
|    | 2   | 111                         | 103  | 90,2 | 77,4 | 65,7 | 52,8 | 40,8    | 3,52                        | 3,62 | 3,83 | 4,00 | 4,15 | 4,83 | 5,43    |
|    | 7   | 131                         | 118  | 103  | 88,6 | 75,1 | 59,9 | 46,3    | 3,76                        | 3,79 | 4,04 | 4,25 | 4,43 | 5,24 | 6,06    |
|    | 10  | 137                         | 127  | 111  | 95,3 | 80,7 | 64,5 | 49,7    | 3,91                        | 4,05 | 4,33 | 4,57 | 4,79 | 5,68 | 6,64    |
|    | 18  | 144                         | 133  | 117  | 100  | 84,7 | 67,7 | 52,2    | 4,04                        | 4,21 | 4,52 | 4,84 | 5,16 | 6,36 | 7,05    |
| 40 | -15 | 68,2                        | 62,4 | 53,7 | 45,6 | 38,4 | 30,6 | 23,3    | 2,09                        | 2,11 | 2,17 | 2,21 | 2,23 | 2,56 | 2,70    |
|    | -10 | 78,7                        | 72,6 | 63,2 | 54,1 | 46,0 | 37,0 | 28,4    | 2,36                        | 2,40 | 2,51 | 2,58 | 2,65 | 3,03 | 3,22    |
|    | -7  | 85,8                        | 79,2 | 69,2 | 59,4 | 50,5 | 40,4 | 31,3    | 2,55                        | 2,61 | 2,73 | 2,83 | 2,89 | 3,28 | 3,54    |
|    | 2   | 111                         | 103  | 90,0 | 77,1 | 65,3 | 52,3 | 40,8    | 3,21                        | 3,30 | 3,48 | 3,62 | 3,72 | 4,24 | 4,69    |
|    | 7   | 130                         | 117  | 103  | 87,9 | 74,4 | 59,2 | 46,3    | 3,43                        | 3,45 | 3,66 | 3,83 | 3,96 | 4,58 | 5,19    |
|    | 10  | 136                         | 126  | 110  | 94,5 | 79,9 | 63,7 | 49,7    | 3,56                        | 3,67 | 3,91 | 4,11 | 4,27 | 4,95 | 5,66    |
|    | 18  | 143                         | 132  | 116  | 99,2 | 83,9 | 66,8 | 52,2    | 3,80                        | 3,93 | 4,18 | 4,39 | 4,57 | 5,29 | 6,05    |
| 45 | -15 | 67,6                        | 61,9 | 53,3 | 45,3 | 38,2 | 30,5 | 23,3    | 1,86                        | 1,88 | 1,93 | 1,95 | 1,96 | 2,19 | 2,24    |
|    | -10 | 78,3                        | 72,2 | 62,9 | 53,9 | 45,8 | 37,4 | 28,4    | 2,13                        | 2,17 | 2,24 | 2,31 | 2,33 | 2,66 | 2,71    |
|    | -7  | 85,5                        | 78,9 | 68,9 | 59,2 | 50,4 | 40,7 | 31,3    | 2,31                        | 2,35 | 2,45 | 2,53 | 2,57 | 2,89 | 3,01    |
|    | 2   | 111                         | 102  | 89,5 | 76,6 | 64,8 | 52,0 | 40,8    | 2,91                        | 2,98 | 3,13 | 3,24 | 3,30 | 3,71 | 4,00    |
|    | 7   | 129                         | 117  | 102  | 87,5 | 74,0 | 58,8 | 46,3    | 3,22                        | 3,12 | 3,29 | 3,43 | 3,52 | 3,99 | 4,41    |
|    | 10  | 135                         | 125  | 110  | 93,9 | 79,3 | 63,1 | 49,7    | 3,21                        | 3,31 | 3,51 | 3,67 | 3,77 | 4,29 | 4,77    |
|    | 18  | 142                         | 131  | 115  | 98,6 | 83,3 | 66,3 | 52,2    | 3,44                        | 3,55 | 3,76 | 3,92 | 4,04 | 4,60 | 5,11    |
| 50 | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 85,1                        | 78,6 | 68,6 | 59,0 | 50,3 | 41,2 | 31,3    | 2,08                        | 2,13 | 2,19 | 2,26 | 2,28 | 2,55 | 2,54    |
|    | 2   | 110                         | 102  | 89,3 | 76,4 | 64,6 | 52,1 | 40,8    | 2,64                        | 2,70 | 2,82 | 2,90 | 2,93 | 3,24 | 3,40    |
|    | 7   | 126                         | 116  | 102  | 87,3 | 73,8 | 58,6 | 46,3    | 2,75                        | 2,82 | 2,97 | 3,07 | 3,12 | 3,46 | 3,72    |
|    | 10  | 135                         | 124  | 109  | 93,5 | 79,0 | 62,8 | 49,7    | 2,92                        | 2,99 | 3,15 | 3,27 | 3,34 | 3,71 | 4,02    |
|    | 18  | 123                         | 113  | 99,1 | 84,0 | 70,2 | 55,3 | 52,2    | 2,82                        | 2,87 | 2,98 | 3,07 | 3,15 | 3,59 | 4,80    |
| 55 | -15 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -    | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -    | 67,6 | 53,9 | 40,8    | -                           | -    | -    | -    | 2,59 | 2,79 | 2,75    |
|    | 7   | -                           | -    | -    | -    | 76,1 | 60,4 | 46,3    | -                           | -    | -    | -    | 2,72 | 2,95 | 2,98    |
|    | 10  | -                           | -    | -    | -    | 80,4 | 63,9 | 49,7    | -                           | -    | -    | -    | 2,92 | 3,18 | 3,27    |
|    | 18  | -                           | -    | -    | -    | 71,0 | 56,0 | 52,2    | -                           | -    | -    | -    | 2,70 | 3,01 | 3,81    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

## Cooling - Size 55.2 - PRM - SC

| To | Tae | Cooling capacity            |      |      |      |       |      |         | EER                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|------|-------|------|---------|-----------------------------|------|------|------|------|------|---------|
|    |     | Compressor power percentage |      |      |      |       |      |         | Compressor power percentage |      |      |      |      |      |         |
|    |     | 100                         | 90   | 80   | 70   | 60    | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| °C | °C  |                             |      |      |      |       |      |         |                             |      |      |      |      |      |         |
| 7  | 15  | 151                         | 140  | 127  | 118  | 103,4 | 89,0 | 56,6    | 4,15                        | 4,30 | 4,52 | 4,61 | 4,76 | 4,90 | 5,32    |
|    | 20  | 145                         | 135  | 123  | 113  | 99,8  | 86,1 | 56,0    | 3,54                        | 3,71 | 3,98 | 4,06 | 4,24 | 4,41 | 4,81    |
|    | 25  | 140                         | 131  | 120  | 111  | 98,4  | 85,4 | 55,5    | 3,27                        | 3,46 | 3,68 | 3,73 | 3,93 | 4,37 | 4,60    |
|    | 30  | 134                         | 126  | 117  | 109  | 97,0  | 84,7 | 54,9    | 2,89                        | 3,05 | 3,25 | 3,40 | 3,62 | 3,85 | 3,93    |
|    | 35  | 129                         | 121  | 112  | 105  | 93,3  | 81,5 | 54,4    | 2,55                        | 2,69 | 2,86 | 2,99 | 3,17 | 3,35 | 3,40    |
|    | 40  | 111                         | 103  | 92,2 | 80,5 | 68,0  | 61,5 | 53,8    | 2,25                        | 2,36 | 2,50 | 2,60 | 2,73 | 2,75 | 2,81    |
|    | 44  | 90,9                        | 88,0 | 77,2 | 67,3 | 56,9  | -    | -       | 2,09                        | 2,29 | 2,36 | 2,36 | 2,45 | -    | -       |
| 10 | 15  | 165                         | 152  | 139  | 128  | 112   | 96,4 | 56,1    | 4,24                        | 4,51 | 4,69 | 4,85 | 5,06 | 5,21 | 5,55    |
|    | 20  | 159                         | 147  | 134  | 124  | 108   | 93,2 | 55,5    | 3,86                        | 3,88 | 3,99 | 4,09 | 4,46 | 4,66 | 4,91    |
|    | 25  | 153                         | 143  | 131  | 121  | 107   | 92,7 | 55,0    | 3,47                        | 3,69 | 3,71 | 3,87 | 4,18 | 4,41 | 4,66    |
|    | 30  | 147                         | 138  | 127  | 119  | 106   | 92,2 | 54,4    | 3,07                        | 3,26 | 3,47 | 3,65 | 3,90 | 4,16 | 4,27    |
|    | 35  | 141                         | 132  | 122  | 114  | 102   | 88,7 | 53,9    | 2,71                        | 2,87 | 3,06 | 3,21 | 3,41 | 3,61 | 3,68    |
|    | 40  | 121                         | 113  | 101  | 87,8 | 74,0  | 66,9 | 53,4    | 2,39                        | 2,52 | 2,67 | 2,78 | 2,93 | 2,97 | 3,02    |
|    | 44  | 93,4                        | 90,4 | 79,3 | 69,1 | 58,4  | -    | -       | 2,22                        | 2,45 | 2,53 | 2,55 | 2,62 | -    | -       |
| 12 | 15  | 174                         | 161  | 146  | 135  | 118   | 102  | 55,4    | 4,33                        | 4,60 | 4,79 | 4,95 | 5,02 | 5,32 | 5,87    |
|    | 20  | 168                         | 156  | 142  | 130  | 114   | 98,2 | 54,8    | 4,09                        | 4,25 | 4,44 | 4,59 | 4,83 | 5,04 | 5,34    |
|    | 25  | 162                         | 152  | 138  | 128  | 113   | 97,8 | 54,3    | 3,60                        | 3,83 | 4,10 | 4,31 | 4,68 | 4,98 | 5,17    |
|    | 30  | 155                         | 146  | 135  | 126  | 112   | 97,4 | 53,7    | 3,18                        | 3,38 | 3,61 | 3,80 | 4,07 | 4,35 | 4,45    |
|    | 35  | 149                         | 140  | 129  | 121  | 108   | 93,7 | 53,2    | 2,81                        | 2,98 | 3,18 | 3,34 | 3,56 | 3,78 | 3,86    |
|    | 40  | 129                         | 120  | 107  | 93,5 | 82,3  | 73,9 | 52,7    | 2,47                        | 2,62 | 2,78 | 2,89 | 3,01 | 3,06 | 3,10    |
|    | 44  | 98,7                        | 95,5 | 83,7 | 72,9 | -     | -    | -       | 2,30                        | 2,59 | 2,65 | 2,66 | -    | -    | -       |
| 15 | 15  | 180                         | 166  | 151  | 139  | 121   | 104  | 54,9    | 4,41                        | 4,69 | 4,87 | 5,04 | 5,26 | 5,45 | 6,20    |
|    | 20  | 173                         | 160  | 146  | 134  | 117   | 100  | 54,3    | 4,16                        | 4,32 | 4,52 | 4,67 | 4,91 | 5,12 | 5,43    |
|    | 25  | 167                         | 157  | 142  | 132  | 116   | 100  | 53,8    | 3,65                        | 3,88 | 4,16 | 4,38 | 4,75 | 5,06 | 5,25    |
|    | 30  | 160                         | 151  | 139  | 129  | 115   | 100  | 53,3    | 3,24                        | 3,44 | 3,68 | 3,87 | 4,15 | 4,44 | 4,53    |
|    | 35  | 154                         | 145  | 134  | 125  | 111   | 96,5 | 52,7    | 2,87                        | 3,04 | 3,25 | 3,41 | 3,64 | 3,86 | 3,94    |
|    | 40  | 133                         | 129  | 111  | 96,3 | 84,7  | 76,1 | 52,2    | 2,63                        | 2,78 | 2,96 | 3,08 | 3,20 | 3,26 | 3,28    |
|    | 44  | 103                         | 101  | 87,3 | 76,1 | -     | -    | -       | 2,45                        | 2,75 | 2,82 | 2,84 | -    | -    | -       |
| 18 | 15  | 161                         | 148  | 134  | 123  | 108   | -    | -       | 4,63                        | 4,73 | 5,11 | 5,21 | 5,41 | -    | -       |
|    | 20  | 155                         | 143  | 130  | 119  | 104   | -    | -       | 4,38                        | 4,71 | 4,85 | 5,03 | 5,25 | -    | -       |
|    | 25  | 149                         | 140  | 127  | 118  | 104   | -    | -       | 4,13                        | 4,62 | 4,80 | 4,85 | 5,09 | -    | -       |
|    | 30  | 144                         | 135  | 124  | 116  | 103   | -    | -       | 3,86                        | 4,17 | 4,51 | 4,70 | 4,92 | -    | -       |
|    | 35  | 138                         | 129  | 120  | 111  | 99,2  | -    | -       | 3,41                        | 3,63 | 3,90 | 4,02 | 4,14 | -    | -       |
|    | 40  | 125                         | 126  | 104  | 90,0 | -     | -    | -       | 3,13                        | 3,30 | 3,38 | 3,49 | -    | -    | -       |
|    | 44  | 95,4                        | 95,0 | 80,9 | -    | -     | -    | -       | 2,83                        | 2,95 | 3,00 | -    | -    | -    | -       |
| 20 | 15  | 166                         | 153  | 138  | 127  | 110   | -    | -       | 4,71                        | 5,16 | 5,27 | 5,77 | 5,89 | -    | -       |
|    | 20  | 160                         | 148  | 134  | 123  | 107   | -    | -       | 4,63                        | 4,80 | 5,18 | 5,43 | 5,58 | -    | -       |
|    | 25  | 154                         | 145  | 131  | 121  | 106   | -    | -       | 4,45                        | 4,67 | 5,05 | 5,22 | 5,35 | -    | -       |
|    | 30  | 148                         | 139  | 128  | 119  | 106   | -    | -       | 3,99                        | 4,34 | 4,51 | 5,01 | 5,12 | -    | -       |
|    | 35  | 142                         | 134  | 123  | 115  | 102   | -    | -       | 3,53                        | 3,79 | 3,94 | 4,20 | 4,25 | -    | -       |
|    | 40  | 126                         | 127  | 106  | 90,9 | -     | -    | -       | 3,26                        | 3,36 | 3,52 | 3,59 | -    | -    | -       |
|    | 44  | 96,3                        | 96,0 | 82,6 | -    | -     | -    | -       | 2,94                        | 3,02 | 3,09 | -    | -    | -    | -       |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

# Performance

## Heating - Size 55.2 - PRM - SC

|    |     | Heating capacity            |      |      |        |      |      |         | COP                         |      |      |      |      |      |         |
|----|-----|-----------------------------|------|------|--------|------|------|---------|-----------------------------|------|------|------|------|------|---------|
| To | Tae | Compressor power percentage |      |      |        |      |      |         | Compressor power percentage |      |      |      |      |      |         |
| °C | °C  | 100                         | 90   | 80   | 70     | 60   | 50   | Minimum | 100                         | 90   | 80   | 70   | 60   | 50   | Minimum |
| 35 | -15 | 71,5                        | 68,5 | 62,6 | 51,5   | 44,2 | 33,7 | 23,3    | 2,28                        | 2,31 | 2,34 | 2,46 | 2,51 | 2,95 | 3,27    |
|    | -10 | 82,4                        | 78,9 | 72,8 | 60,1   | 52,2 | 39,9 | 28,4    | 2,55                        | 2,61 | 2,66 | 2,80 | 2,90 | 3,39 | 3,81    |
|    | -7  | 90,1                        | 86,0 | 79,4 | 66,4   | 57,6 | 43,8 | 31,3    | 2,75                        | 2,80 | 2,86 | 3,07 | 3,17 | 3,67 | 4,16    |
|    | 2   | 116                         | 111  | 103  | 85,9   | 74,5 | 57,2 | 40,8    | 3,45                        | 3,52 | 3,62 | 3,88 | 4,03 | 4,79 | 5,43    |
|    | 7   | 139                         | 128  | 118  | 98,3   | 85,2 | 64,9 | 46,3    | 3,69                        | 3,68 | 3,81 | 4,10 | 4,29 | 5,13 | 6,06    |
|    | 10  | 143                         | 137  | 127  | 106    | 91,7 | 69,5 | 49,7    | 3,87                        | 3,91 | 4,05 | 4,41 | 4,62 | 5,50 | 6,64    |
|    | 18  | 150                         | 144  | 133  | 111    | 96,2 | 73,0 | 52,2    | 4,01                        | 4,04 | 4,21 | 4,59 | 4,89 | 6,12 | 7,05    |
| 40 | -15 | 71,2                        | 68,2 | 62,4 | 51,4   | 44,1 | 33,4 | 23,3    | 2,07                        | 2,09 | 2,11 | 2,20 | 2,23 | 2,54 | 2,70    |
|    | -10 | 82,1                        | 78,7 | 72,6 | 59,6   | 51,7 | 39,7 | 28,4    | 2,32                        | 2,36 | 2,40 | 2,51 | 2,58 | 2,97 | 3,22    |
|    | -7  | 89,8                        | 85,8 | 79,2 | 66,4   | 57,8 | 43,6 | 31,3    | 2,51                        | 2,55 | 2,61 | 2,78 | 2,86 | 3,24 | 3,54    |
|    | 2   | 116                         | 111  | 103  | 85,7   | 74,1 | 56,7 | 40,8    | 3,16                        | 3,21 | 3,30 | 3,52 | 3,64 | 4,17 | 4,69    |
|    | 7   | 138                         | 127  | 117  | 97,7   | 84,5 | 64,2 | 46,3    | 3,45                        | 3,35 | 3,45 | 3,71 | 3,86 | 4,48 | 5,19    |
|    | 10  | 142                         | 136  | 126  | 105    | 90,9 | 68,9 | 49,7    | 3,53                        | 3,56 | 3,67 | 3,98 | 4,15 | 4,91 | 5,66    |
|    | 18  | 149                         | 143  | 132  | 110    | 95,4 | 72,3 | 52,2    | 3,73                        | 3,80 | 3,93 | 4,26 | 4,43 | 5,23 | 6,05    |
| 45 | -15 | 70,5                        | 67,6 | 61,9 | 51,1   | 43,9 | 33,2 | 23,3    | 1,85                        | 1,86 | 1,88 | 1,96 | 1,97 | 2,19 | 2,24    |
|    | -10 | 81,6                        | 78,3 | 72,2 | 59,1   | 50,8 | 39,4 | 28,4    | 2,09                        | 2,13 | 2,17 | 2,24 | 2,27 | 2,57 | 2,71    |
|    | -7  | 89,4                        | 85,5 | 78,9 | 66,2   | 57,5 | 43,3 | 31,3    | 2,27                        | 2,31 | 2,35 | 2,50 | 2,56 | 2,82 | 3,01    |
|    | 2   | 116                         | 111  | 102  | 85,2   | 73,6 | 56,2 | 40,8    | 2,87                        | 2,91 | 2,98 | 3,16 | 3,26 | 3,66 | 4,00    |
|    | 7   | 138                         | 127  | 117  | 97,3   | 84,1 | 63,8 | 46,3    | 3,20                        | 3,04 | 3,13 | 3,34 | 3,45 | 3,94 | 4,41    |
|    | 10  | 141                         | 135  | 125  | 104    | 90,3 | 68,4 | 49,7    | 3,18                        | 3,21 | 3,31 | 3,57 | 3,70 | 4,25 | 4,77    |
|    | 18  | 148                         | 142  | 131  | 110    | 94,8 | 71,8 | 52,2    | 3,37                        | 3,44 | 3,55 | 3,83 | 3,96 | 4,54 | 5,11    |
| 50 | -15 | -                           | -    | -    | -      | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -      | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | 88,2                        | 85,1 | 78,6 | 65,4   | 56,8 | 42,9 | 31,3    | 2,01                        | 2,08 | 2,13 | 2,22 | 2,26 | 2,44 | 2,54    |
|    | 2   | 116                         | 110  | 101  | 84,6   | 73,1 | 55,7 | 40,8    | 2,59                        | 2,64 | 2,69 | 2,84 | 2,90 | 3,20 | 3,40    |
|    | 7   | 131                         | 126  | 116  | 97,1   | 84,0 | 63,6 | 46,3    | 2,69                        | 2,75 | 2,82 | 3,00 | 3,08 | 3,44 | 3,72    |
|    | 10  | 141                         | 135  | 124  | 104,06 | 89,9 | 68,2 | 49,7    | 2,86                        | 2,92 | 2,99 | 3,19 | 3,29 | 3,67 | 4,02    |
|    | 18  | 130                         | 123  | 113  | 93,1   | 78,9 | 57,2 | 52,2    | 2,77                        | 2,82 | 2,87 | 2,89 | 3,09 | 3,38 | 4,80    |
| 55 | -15 | -                           | -    | -    | -      | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -10 | -                           | -    | -    | -      | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | -7  | -                           | -    | -    | -      | -    | -    | -       | -                           | -    | -    | -    | -    | -    | -       |
|    | 2   | -                           | -    | -    | -      | 69,5 | 60,3 | 40,8    | -                           | -    | -    | -    | 2,62 | 2,83 | 2,70    |
|    | 7   | -                           | -    | -    | -      | 78,3 | 67,5 | 46,3    | -                           | -    | -    | -    | 2,74 | 2,98 | 2,92    |
|    | 10  | -                           | -    | -    | -      | 81,2 | 70,3 | 49,7    | -                           | -    | -    | -    | 2,92 | 2,99 | 3,24    |
|    | 18  | -                           | -    | -    | -      | 71,7 | 58,9 | 52,2    | -                           | -    | -    | -    | 2,70 | 2,68 | 3,78    |

To = Internal exchanger outlet water temperature (°C)

Tae [°C] = External exchanger inlet air temperature

Performances calculated with inlet/outlet water temperature differential = 5°C\*

\*Always check the actual temperature differential in the configurator as this is related to the minimum or maximum flow rate limits of the exchanger

### Integrated heating capacities

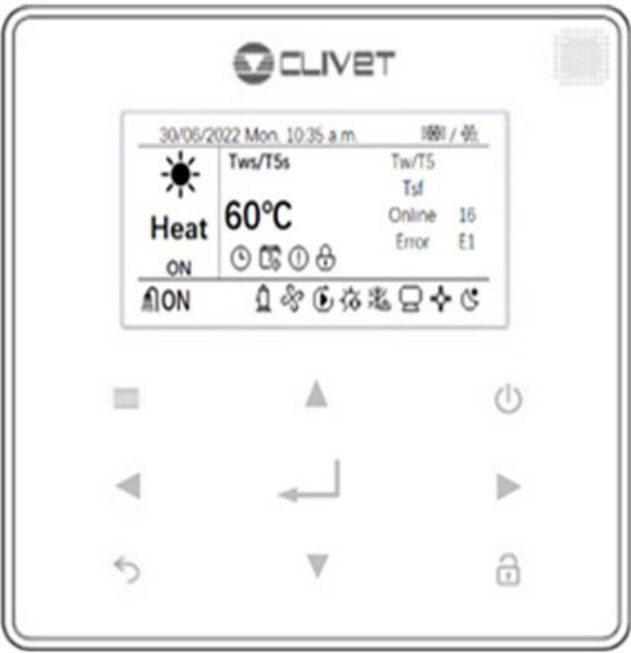
| External exchanger inlet air temperature °C (D.B. / W.B.) | -7 / -8 | -5 / -6 | 0 / -1 | 2 / 1 | Other |
|-----------------------------------------------------------|---------|---------|--------|-------|-------|
| Heating capacity multiplication coefficient               | 0,93    | 0,93    | 0,93   | 0,93  | 0,93  |

The integrated heating capacity is the actual heating capacity, including the impact of any defrosting cycles.

To obtain the integrated heating capacity multiply the heating performance value in kWt (shown in the heating performance tables) by the coefficients indicated in the table.

In case of below zero outdoor air temperature with a long period of heat pump operating mode it is necessary to help the evacuation of the water produced during the defrost cycle this to avoid the formation of ice in the unit basement. Pay attention that the evacuation will not create inconveniences to things or persons.

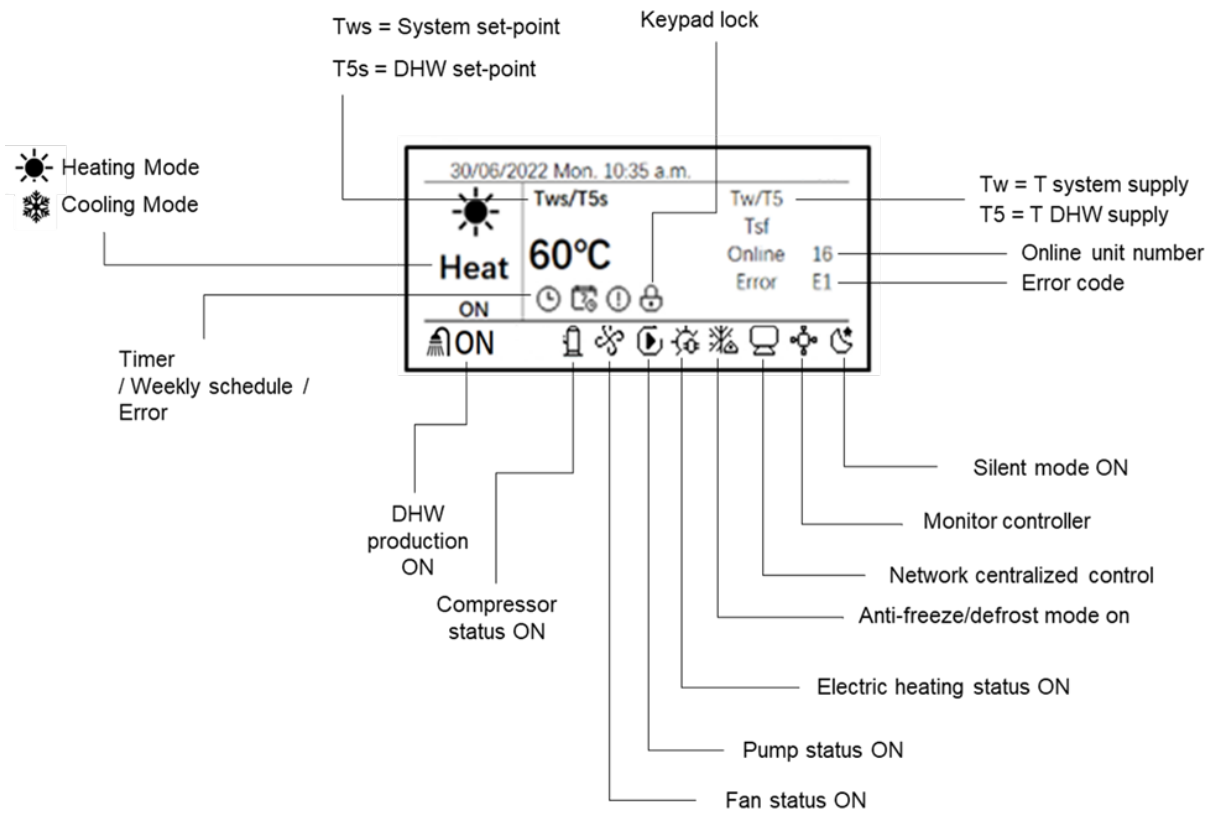
User interface (HMI)



|                     |            |                |
|---------------------|------------|----------------|
| Resolution          |            | 1°C            |
| Temperature sensor  |            | NTC 5k 1%      |
| Power input         |            | < 1 W          |
| Storage temperature |            | -20÷50°C       |
| Communication       |            | RS485          |
| Wiring              | Type       | Shielded cable |
|                     | MAX Length | 40 m           |

The unit is equipped with a user interface (HMI) installed on board, to be used for managing the functions and equipped with an integrated temperature probe.

The user interface comes standard with 22 selectable languages: Italian / English / French / Spanish / Polish / Portuguese / German / Dutch / Romanian / Russian / Turkish / Greek / Swedish / Slovenian / Czech / Slovakian / Bulgarian / Serbian / Danish / Ukrainian / Hungarian / Croatian

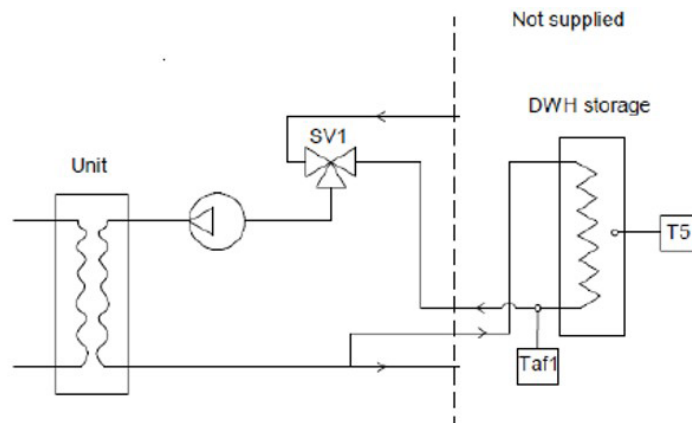


# Features and options

## DHW management

The following components are required for DHW management:

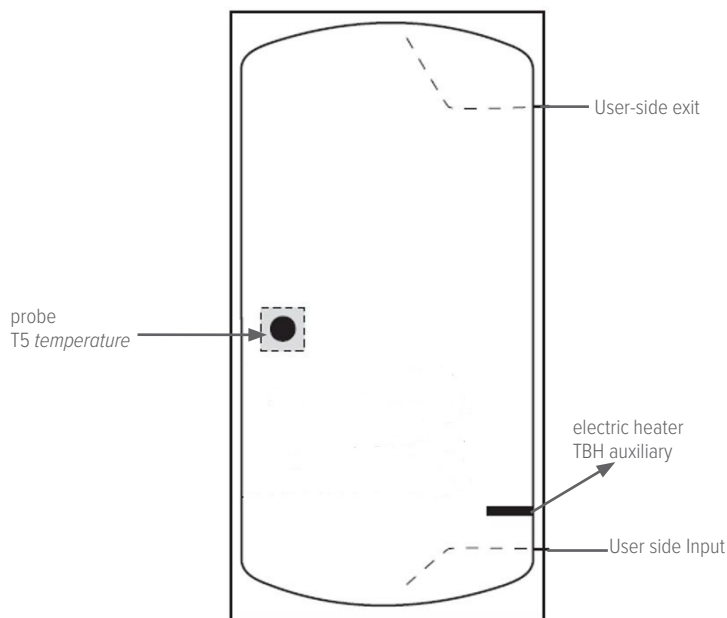
- SV1: 3-way valve
- Taf1: temperature probe, for DHW antifreeze protection
- T5: Temperature probe, for temperature control and switch between system and DHW



## DHW tank connection

As an option, the unit can be connected to a DHW storage tank of suitable volume, by fitting the system with a 3-way diverter valve controlled by the unit. It is advisable to connect the DHW tank at a distance of no more than 10 m from the unit, and preferably as close as possible to the unit. The sizing of the connecting pipes and their thermal insulation must always be considered with care, especially in the case of long distances between the unit and the storage tank.

The standard boiler must have these characteristics:



It is recommended to select one with sacrificial anode and integrated auxiliary electric heater, which will be managed by the unit. Make sure that the coil or the intermediate exchanger are suitably sized to ensure correct heat exchange.

## Double Set-Point function

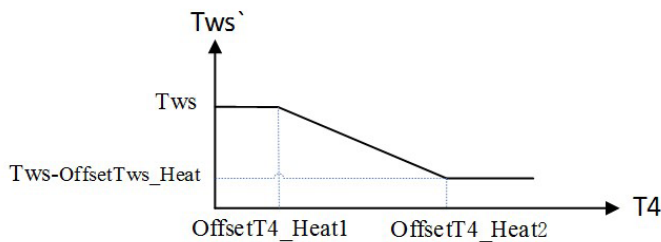
It allows to enable the Double setpoint function with HMI. Once enabled, you need to configure the first target water temperature (SetPoint1) and second target water temperature (SetPoint2). At this point the unit detects the closed status of the Double\_SP door (normally open). If the contact is open, the unit will operate at the first target water temperature; otherwise, it will operate at the second target temperature.

## Set-Point compensation function based on the outside air temperature

Allows to enable the temperature compensation function via HMI. Once the function has been enabled, it is necessary to set:

- The two offset points for the external air temperature (OffsetT4\_1 ; OffsetT4\_2), which will define the external air temperature field on which the set-point variation will take place;
- The offset point for the water production temperature (OffsetTws) which represents the maximum variation of the set-point allowed.

### Example of temperature compensation in heating



- When the external air temperature ( $T_4$ ) is lower than the offset one ( $T_4 < \text{OffsetT4\_Heat1}$ ) the set-point remains unchanged
- When the external air temperature ( $T_4$ ) is between the two offset temperatures ( $\text{OffsetT4\_Heat1} \leq T_4 < \text{OffsetT4\_Heat2}$ ), the set-point is reduced in direct proportion to the increase in external air temperature.
- When the outside air temperature ( $T_4$ ) is higher than the highest offset temperature ( $T_4 \geq \text{OffsetT4\_Heat2}$ ) there will be the maximum reduction in the set-point temperature.

## ENEMON function

Through the HMI it is possible to access the display of the main energy parameters of the unit and in detail

Power Output = instantaneous power produced in kW

Power Input = instantaneous power absorbed in kW

Current efficiency = instantaneous efficiency represents the EER or the COP

Current efficiency = instantaneous efficiency represents the EER or the COP

Total energy production is the cumulative energy produced in MWh

| STATE QUERY                                                 |        |
|-------------------------------------------------------------|--------|
| POWER OUTPUT                                                | 100 KW |
| POWER INPUT                                                 | 50 KW  |
| CURRENT EFFICIENCY                                          | 2      |
| TOTAL ENERGY OUTPUT                                         | 10 MWh |
| TOTAL ENERGY INPUT                                          | 3 MWh  |
| <div> <div>BACK</div> <div>2/2</div> <div>▲▼◀▶</div> </div> |        |

All energy meter display items are available via Modbus, on addresses from  $232 + (\text{Circuit address}) * 100$  a  $236 + (\text{Circuit address}) * 100$ .

# Features and options

## SILENCED function

The function allows to select up to four acoustic modes, for maximum sound configurability of the units.

For two of these modes, Standard, Silent and Supersilent, the heating/cooling capacity, efficiencies and sound levels of all sizes are shown in the general technical data section of the bulletin, as well as on the navigator.

The Night Mode configuration, on the other hand, allows for a further reduction in the sound level of up to 3 dB(A) compared to the supersilent mode, for an even lower acoustic impact of the unit.

To select the mode of interest, simply set it from the HMI through the User menu as shown in the following screen.



## Smart Grid & EVU functions (REMAU option required)

The unit is certified Smart Grid Ready and is equipped with logic for connection to devices that balance the loads connected to the electric grid and optimize general electricity consumption. The connection is optional, the function can be enabled from the REMAU and is linked to the ON/OFF SG input, which receives a status signal from the electrical network.

The unit is also set up to store free thermal energy in the DHW tank. The function is activated by the REMAU enabling the Smart Grid function and is linked to the ON/OFF EVU input, which receives a signal from the energy meter which indicates to the unit when free energy overproduction is available.

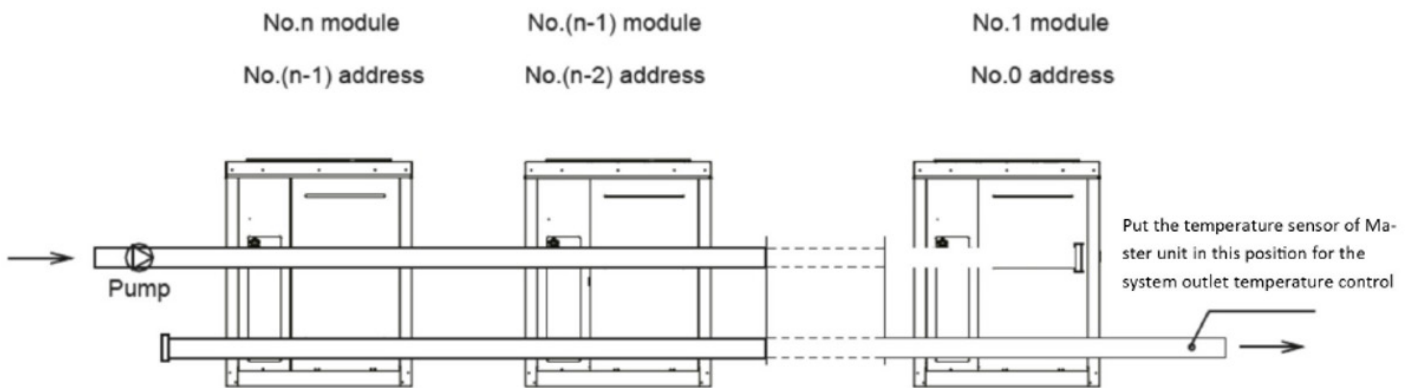
The regulation logic of the two contacts is:

| CONTACT |     | OPERATION  |                                                                                                                                  |
|---------|-----|------------|----------------------------------------------------------------------------------------------------------------------------------|
| SG      | EVU | SYSTEM     | DHW                                                                                                                              |
| ON      | ON  | DHW forced | Forced DHW operation with set point T5S = 60°C<br>Once the DHW set-point is reached, the Heat Pump returns to work on the system |
| OFF     | ON  | OFF forced | OFF forced                                                                                                                       |
| OFF     | OFF | Standard   | Standard                                                                                                                         |
| ON      | OFF | Standard   | Standard                                                                                                                         |

## Modularity

Many applications require drives to be installed as back-up to the main system or have loads that can change significantly during annual operation.

Through this function, without the aid of further accessories, it is possible to operate with up to 16 units hydraulically connected in parallel. From the user interface of the unit defined as Master, the other units are electrically connected in series through the dedicated terminals P, Q and E. Each connected module is identified by an address, from 0 to 15: the Master unit is identified as 0. Complete control of the system (including ancillary elements such as external pumping system and auxiliary heater) is handled by the Master unit.

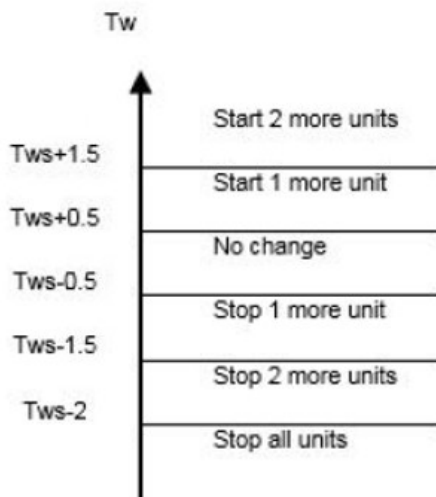


## Operation

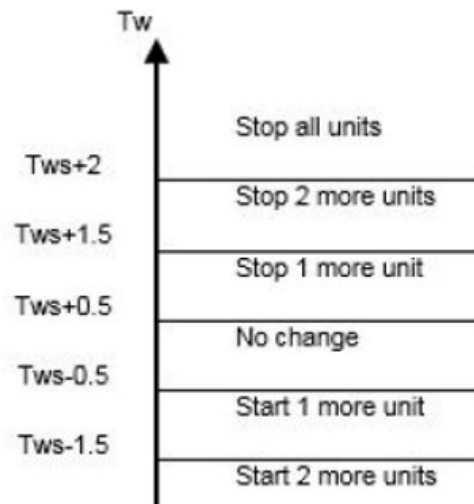
The Master unit calculates the required heating/cooling capacity of the system based on the water delivery temperature and the temperature set-point. Instead, each individual unit calculates its required heating/cooling capacity based on the delivery and return temperatures. The activation of the units takes place according to the last in first out logic (the last unit to be activated will also be the first to be deactivated) and is indicated in the following two figures.

- $T_w$  = Water supply temperature
- $T_{ws}$  = Water supply temperature set-point

### Cooling mode



### Heating mode



In cooling mode, if  $T_w \geq T_{ws} - 10^\circ\text{C}$  50% of the units in the system are activated.

In heating mode, if  $T_w \leq T_{ws} - 10^\circ\text{C}$  50% of the system units are activated.

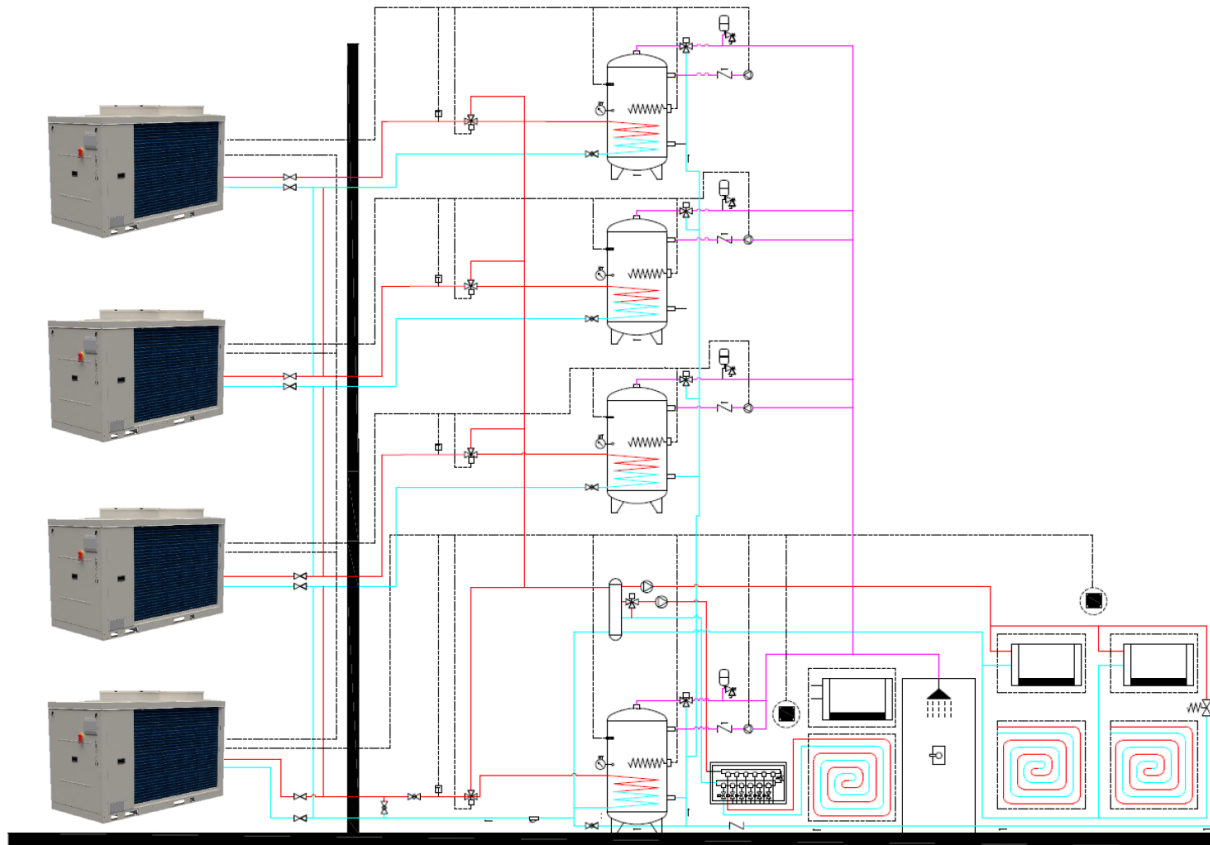
After having satisfied the system load and having deactivated the units, at the next start-up the first unit to have been deactivated will be the first to be started, in order to guarantee the correct balancing of the operating hours.



## Modularity and management of cascade units

Applications may require different management mode. Through the modular system it is possible to configure the system in different modes, here below one example:

- A. Configuration with independent operation: in this configuration it is necessary to have a DHW tank for each unit and a DHW three-way valve for each unit. The operation of each unit is independent from the others, each unit manages its own DHW production request.

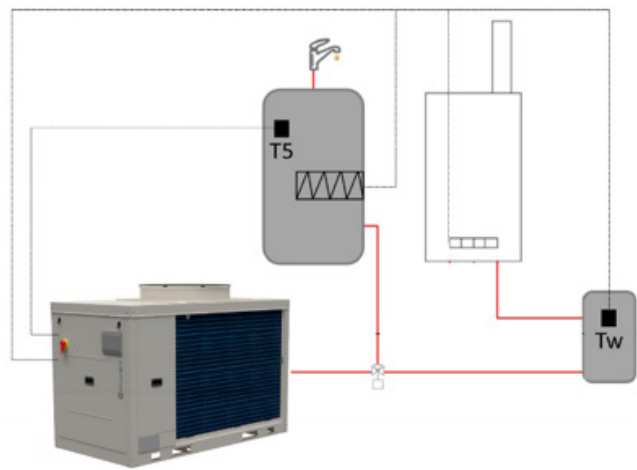


# Management of auxiliary heat sources

The optimal configuration solution of the auxiliary heat source involves the positioning of the electric heater in derivation on a DHW tank and the positioning of the boiler on the system.

The electric heater must be positioned into the DHW tank and its operation is linked to a dedicated T5 able to detect the DHW tank temperature

The boiler must be installed in parallel with the heat pump and acts on the system: it is installed on a hydraulic separator, where the TW probe must also be positioned



The setting must be completed during installation, by selecting the boiler operating mode using the unit keyboard.

The auxiliary heater source can perform the function of integration to the heat pump. To activate the functions of the heat pump integration heater, make sure that Dip-Switch S6-1 is in the ON position (upwards) and you must have activated Heat1 from the HMI; as regards the other parameters, they must be configured according to your needs once you understand their function which is described below.

Within 2 minutes of switching on the pump, the auxiliary heater control is kept OFF and the following cases may arise:

- A. Operation of the auxiliary heater in place of the heat pump: When the heat pump cannot operate due to a fault or is in protection mode (compressors not limited): in this case the auxiliary heater intervenes in place of the heat pump when the water temperature is less than 3K compared to the set point and switches off once the water temperature has exceeded the set point by 2K (adjustable value from the HMI).
- B. Heat 1 activation forcing: In this mode, manual operation of the auxiliary heater will be started. Once the set point is reached the auxiliary heater will switch off. The manual command is valid only once therefore even if the water temperature drops below the setpoint it will not start automatically and will need a new manual command to start.
- C. Operation of the auxiliary heater at low air temperature: In case the unit is operating in heat pump mode with an air temperature lower than 5°C (Value adjustable from the HMI) but does not reach the set point within 90 min (value adjustable from the HMI), then the auxiliary heater integrates with the heat pump.
- D. Activation of the auxiliary heater in integration with the heat pump: If the set point is higher than the maximum set point of the unit envelope, then the auxiliary heater is activated in integration with the heat pump.

| Title         | Effect                                       | Predetermined Area | Default |
|---------------|----------------------------------------------|--------------------|---------|
| Heat1 Enable  | System auxiliary heater                      | No/Yes             | No      |
| T_Heat1_Delay | Activation time                              | 60.....240 min     | 90 min  |
| DT_Heat1_OFF  | ΔT off as compared to set point              | 2.....10°C         | 5°C     |
| T4_Heat1_ON   | Air temperature below which Heat1 intervenes | -5..... 13°C       | 5°C     |

# Management of auxiliary heat sources

A further HEAT2 function is also available, useful for controlling the auxiliary heater for DHW storage.

This function must also be enabled from the HMI and requires the installation of a T5 probe which makes possible the DHW auxiliary heater management very similar to the ones already explained previously. Only one differs substantially and is the intervention of the auxiliary generator during the disinfection process of the domestic hot water storage, which takes place as described below:

Intervention of the auxiliary heater in the DHW storage disinfection process. Once the function has been enabled from the HMI, this sends the disinfection cycle request:

If the unit is in stand-by/cooling or heating mode, it enters DHW mode and starts the disinfection cycle;

If the unit is performing a defrost cycle, the cycle is completed first and then the disinfection function is activated.

In this process, the permanence of the DHW storage tank temperature T5 above 69°C is evaluated. whenever the temperature drops below 69°C.

At the beginning of the disinfection cycle, on the other hand, a second Timer2 time count starts.

Based on the two time parameters above, the disinfection cycle ends if the domestic hot water storage tank has maintained a temperature equal to or higher than 69°C for at least twenty minutes, or if the disinfection cycle has lasted at least 60 minutes

The unit therefore allows the hybrid version solution in combination with an external boiler supplied by Clivet "Factory made" or a third-party generator, thanks to the control of the auxiliary generator via the HEAT1/HEAT2 contact as previously reported.

The "Factory made" hybrid heat pumps are equipped with a matching boiler which is selected in order to optimize system operation.

The boilers available are for Heating only and are set up for operation with Natural Gas (G20-G25) or LPG (G30-G31) fuel by regulating or applying a reducer to the nozzle on site. There are three "Factory made" boilers available: Gas Boiler 70.2, Gas Boiler 115.2, Gas Boiler 200F.2.

Some simplified functional diagrams are shown below with different combinations of unit and boiler: these diagrams are proposed by way of example.

## Boilers for centralized systems

| MODEL                                           |              |              |          | UC 70.2 | UC 115.2 | UC 200F.2 |
|-------------------------------------------------|--------------|--------------|----------|---------|----------|-----------|
| <b>Performance in heating</b>                   |              |              |          |         |          |           |
| Modulation ratio                                | -            | -            | -        | 1 : 7   | 1 : 5,8  | 1 : 10    |
| Nominal heat capacity (Qn)                      | -            | Maximum      | [kW]     | 67,5    | 115,0    | 199,0     |
|                                                 |              | Minimum      | [kW]     | 9,6     | 20,0     | 20,0      |
| Heating capacity (Pn)                           | 60/80°C      | Maximum      | [kW]     | 65,7    | 111,9    | 195,0     |
|                                                 |              | Minimum      | [kW]     | 9,1     | 19,2     | 19,1      |
|                                                 | 30/50°C      | Maximum      | [kW]     | 68,7    | 120,3    | 206,0     |
|                                                 |              | Minimum      | [kW]     | 10,3    | 21,4     | 21,2      |
| Efficiency                                      | 60/80°C      | Maximum      | %        | 97,3    | 97,3     | 97,9      |
|                                                 |              | Minimum      | %        | 94,9    | 95,9     | 95,6      |
|                                                 | 30/50°C      | Maximum      | %        | 101,7   | 104,3    | 104,0     |
|                                                 |              | Minimum      | %        | 107,6   | 107,1    | 106,0     |
|                                                 | 30% di Pn    |              | -        | 107,3   | 107,2    | 108,9     |
|                                                 |              |              | %        |         |          |           |
| Combustion efficiency                           | Reduced load |              | %        | 98,3    | 98,3     | 98,2      |
|                                                 | Nominal load |              | %        | 97,4    | 97,7     | 98,0      |
| Water content                                   | -            | -            | [l]      | 3,9     | 9,0      | 22,0      |
| Operating pressure                              | PMS          | Maximum      | [bar]    | 6       | 6        | 6         |
|                                                 | -            | Minimum      | [bar]    | 0,5     | 0,5      | 0,5       |
| Expansion tank                                  | Volume       | -            | [l]      |         |          |           |
|                                                 | Precharge    | -            | [bar]    |         |          |           |
| <b>ErP Data</b>                                 |              |              |          |         |          |           |
| "Seasonal eff. Average climate"                 | heating      | ηs           | %        | 93      | 92       | 93        |
|                                                 |              | Energy class | -        | A       | A        | A         |
| Sound power level                               |              | Lwa          | [dB(A)]  | 63      | -        | -         |
| <b>Thermal losses and discharge of flue gas</b> |              |              |          |         |          |           |
| Casing losses                                   | burner ON    | Qn           | %        | 0,09    | 0,41     | 0,14      |
|                                                 |              | Qmin         | %        | 3,44    | 2,36     | 2,60      |
| Flue loss                                       | burner ON    | Pmax         | %        | 2,62    | 2,27     | 2,00      |
|                                                 |              | Pmin         | %        | 1,66    | 1,74     | 1,80      |
| "Flue gas temperature (TF-TA)"                  | -            | Pmax         | [°C]     | 51,3    | 46,1     | 40        |
|                                                 |              | Pmin         | [°C]     | 34      | 33,4     | 34        |
| Flue gas flow rate                              | -            | Pmax         | [g/s]    | 111,4   | 184,7    | 319,57    |
|                                                 |              | Pmin         | [g/s]    | 15,9    | 34,3     | 34,3      |
| Nitrogen oxide (NOX) emissions                  | -            | Class        | -        | 6       | 5        | 6         |
|                                                 |              |              | [mg/kWh] | 59      | 47       | 68        |

# Management of auxiliary heat sources

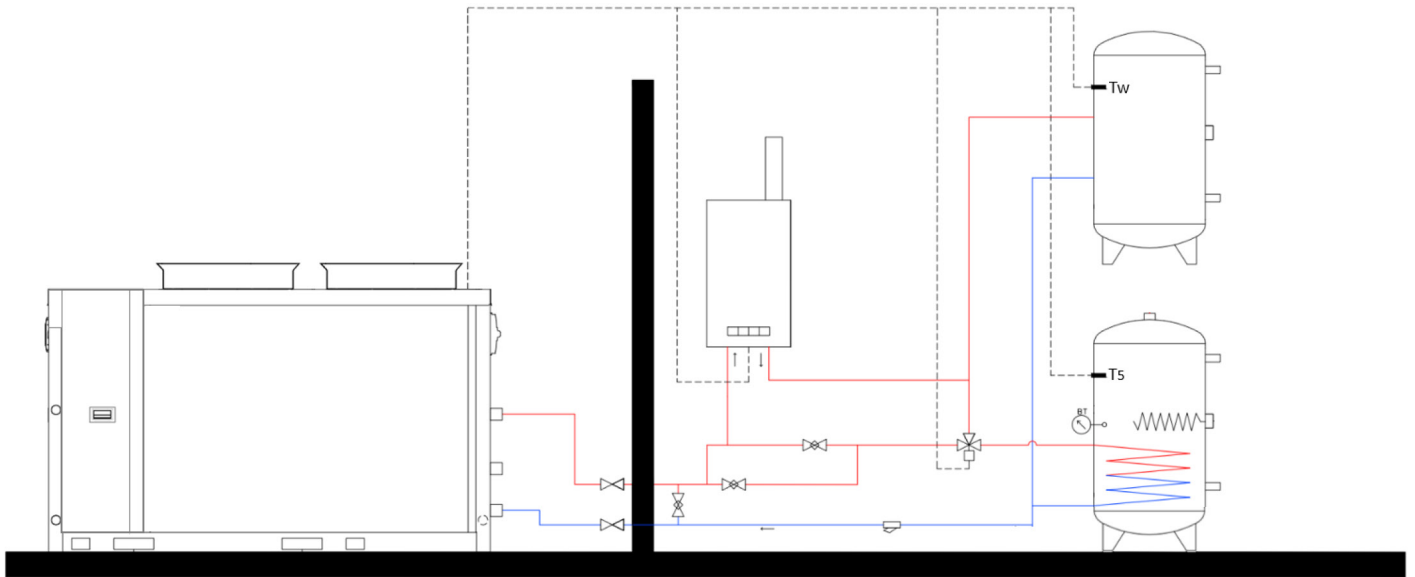
## Hybrid combinations

| Combination       | Heat pumps                |                |                  |          | Compatible boiler |       |        |
|-------------------|---------------------------|----------------|------------------|----------|-------------------|-------|--------|
|                   | Size                      | Energy Version | Acoustic Version | Capacity | 70.2              | 115.2 | 200F.2 |
| 1 unit            | 10.1                      | PRM            | SC               | kW 27,9  | x                 | x     | x      |
|                   | 12.1                      | PRM            | SC               | kW 32,3  | x                 | x     | x      |
|                   | 14.1                      | PRM            | SC               | kW 38,0  | -                 | x     | x      |
|                   | 16.2                      | PRM            | SC               | kW 54,4  | -                 | x     | x      |
|                   | 18.2                      | PRM            | SC               | kW 58,7  | -                 | -     | x      |
|                   | 22.2                      | PRM            | SC               | kW 67,1  | -                 | -     | x      |
|                   | 30.2                      | PRM            | SC               | kW 84,8  | -                 | -     | x      |
|                   | 35.2                      | PRM            | SC               | kW 94,2  | -                 | -     | x      |
|                   | 40.2                      | PRM            | SC               | kW 101   | -                 | -     | -      |
|                   | 10.1                      | PRM            | EN               | kW 21,1  | x                 | x     | x      |
|                   | 12.1                      | PRM            | EN               | kW 24,6  | x                 | x     | x      |
|                   | 14.1                      | PRM            | EN               | kW 27,5  | x                 | x     | x      |
|                   | 16.2                      | PRM            | EN               | kW 46,3  | -                 | x     | x      |
|                   | 18.2                      | PRM            | EN               | kW 51,2  | -                 | x     | x      |
|                   | 22.2                      | PRM            | EN               | kW 55,3  | -                 | x     | x      |
|                   | 30.2                      | PRM            | EN               | kW 68,6  | -                 | -     | x      |
|                   | 35.2                      | PRM            | EN               | kW 76,1  | -                 | -     | x      |
|                   | 40.2                      | PRM            | EN               | kW 81,9  | -                 | -     | x      |
|                   | 10.1                      | EXC            | SC               | kW 26,1  | x                 | x     | x      |
|                   | 12.1                      | EXC            | SC               | kW 30,5  | x                 | x     | x      |
|                   | 14.1                      | EXC            | SC               | kW 37,0  | -                 | x     | x      |
|                   | 16.2                      | EXC            | SC               | kW 51,5  | -                 | x     | x      |
|                   | 18.2                      | EXC            | SC               | kW 55,5  | -                 | x     | x      |
|                   | 22.2                      | EXC            | SC               | kW 64,1  | -                 | -     | x      |
|                   | 30.2                      | EXC            | SC               | kW 78,6  | -                 | -     | x      |
|                   | 35.2                      | EXC            | SC               | kW 87,5  | -                 | -     | x      |
|                   | 10.1                      | EXC            | EN               | kW 21,5  | x                 | x     | x      |
|                   | 12.1                      | EXC            | EN               | kW 24,3  | x                 | x     | x      |
|                   | 14.1                      | EXC            | EN               | kW 26,9  | x                 | x     | x      |
|                   | 16.2                      | EXC            | EN               | kW 44,8  | -                 | x     | x      |
|                   | 18.2                      | EXC            | EN               | kW 48,7  | -                 | x     | x      |
|                   | 22.2                      | EXC            | EN               | kW 53,4  | -                 | x     | x      |
|                   | 30.2                      | EXC            | EN               | kW 65,4  | -                 | -     | x      |
|                   | 35.2                      | EXC            | EN               | kW 72,7  | -                 | -     | x      |
| 2 units (cascade) | 10.1 + 10.1               | PRM            | SC               | kW 55,8  | -                 | -     | x      |
|                   | 12.1 + 12.1               | PRM            | SC               | kW 64,6  | -                 | -     | x      |
|                   | 14.1 + 14.1               | PRM            | SC               | kW 76,0  | -                 | -     | x      |
|                   | 10.1 + 10.1               | PRM            | EN               | kW 42,2  | -                 | x     | x      |
|                   | 12.1 + 12.1               | PRM            | EN               | kW 49,2  | -                 | x     | x      |
|                   | 14.1 + 14.1               | PRM            | EN               | kW 55,0  | -                 | x     | x      |
|                   | 16.2 + 16.2               | PRM            | EN               | kW 92,6  | -                 | -     | x      |
|                   | 10.1 + 10.1               | EXC            | SC               | kW 52,2  | -                 | x     | x      |
|                   | 12.1 + 12.1               | EXC            | SC               | kW 61,0  | -                 | -     | x      |
|                   | 14.1 + 14.1               | EXC            | SC               | kW 74,0  | -                 | -     | x      |
|                   | 10.1 + 10.1               | EXC            | EN               | kW 43,0  | -                 | x     | x      |
|                   | 12.1 + 12.1               | EXC            | EN               | kW 48,6  | -                 | x     | x      |
|                   | 14.1 + 14.1               | EXC            | EN               | kW 53,8  | -                 | x     | x      |
|                   | 16.2 + 16.2               | EXC            | EN               | kW 89,6  | -                 | -     | x      |
|                   | 18.2 + 18.2               | EXC            | EN               | kW 97,4  | -                 | -     | x      |
| 3 units (cascade) | 10.1 + 10.1 + 10.1        | PRM            | SC               | kW 83,7  | -                 | -     | x      |
|                   | 12.1 + 12.1 + 12.1        | PRM            | SC               | kW 96,9  | -                 | -     | x      |
|                   | 10.1 + 10.1 + 10.1        | PRM            | EN               | kW 63,3  | -                 | -     | x      |
|                   | 12.1 + 12.1 + 12.1        | PRM            | EN               | kW 73,8  | -                 | -     | x      |
|                   | 14.1 + 14.1 + 14.1        | PRM            | EN               | kW 82,5  | -                 | -     | x      |
|                   | 10.1 + 10.1 + 10.1        | EXC            | SC               | kW 78,3  | -                 | -     | x      |
|                   | 12.1 + 12.1 + 12.1        | EXC            | SC               | kW 91,5  | -                 | -     | x      |
|                   | 10.1 + 10.1 + 10.1        | EXC            | EN               | kW 64,5  | -                 | -     | x      |
|                   | 12.1 + 12.1 + 12.1        | EXC            | EN               | kW 72,9  | -                 | -     | x      |
| 4 units (cascade) | 14.1 + 14.1 + 14.1        | EXC            | EN               | kW 80,7  | -                 | -     | x      |
|                   | 10.1 + 10.1 + 10.1 + 10.1 | PRM            | EN               | kW 84,4  | -                 | -     | x      |
|                   | 10.1 + 10.1 + 10.1 + 10.1 | EXC            | EN               | kW 86,0  | -                 | -     | x      |
| 4 units (cascade) | 12.1 + 12.1 + 12.1 + 12.1 | EXC            | EN               | kW 97,2  | -                 | -     | x      |

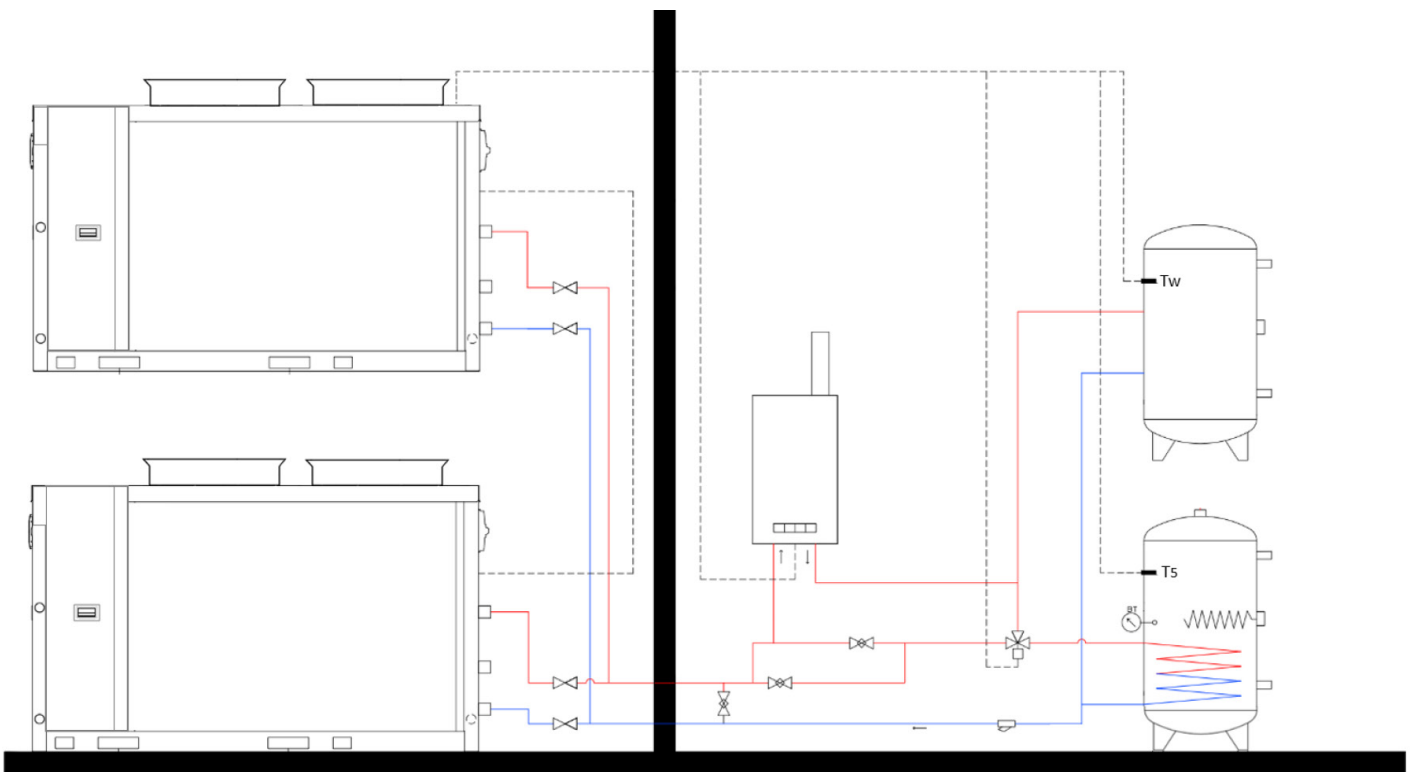
# Management of auxiliary heat sources

In a multi-zone configuration with one or more heat pump units in cascade, and a single gas boiler, the auxiliary heat generator will be activated when the heat pump or the heat pump cascade system is not sufficient to satisfy the demand of the system.

## Single heat pump and single gas boiler



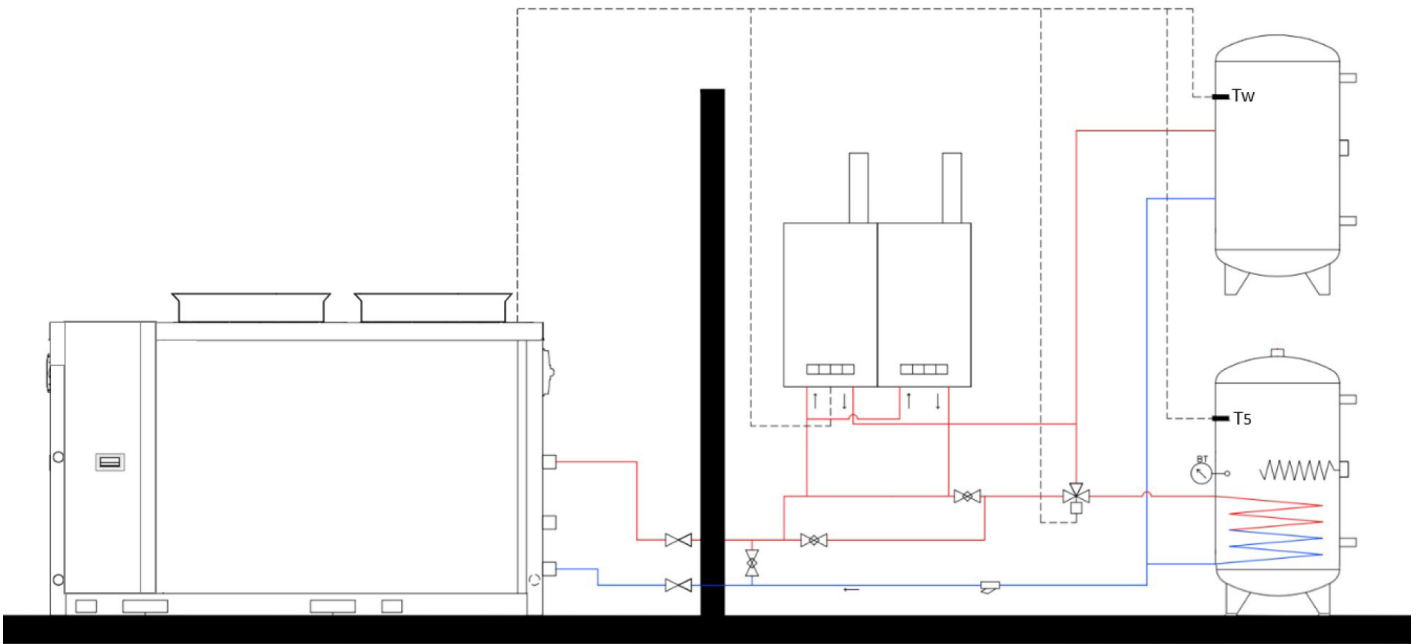
## Single heat pump and cascade gas boiler



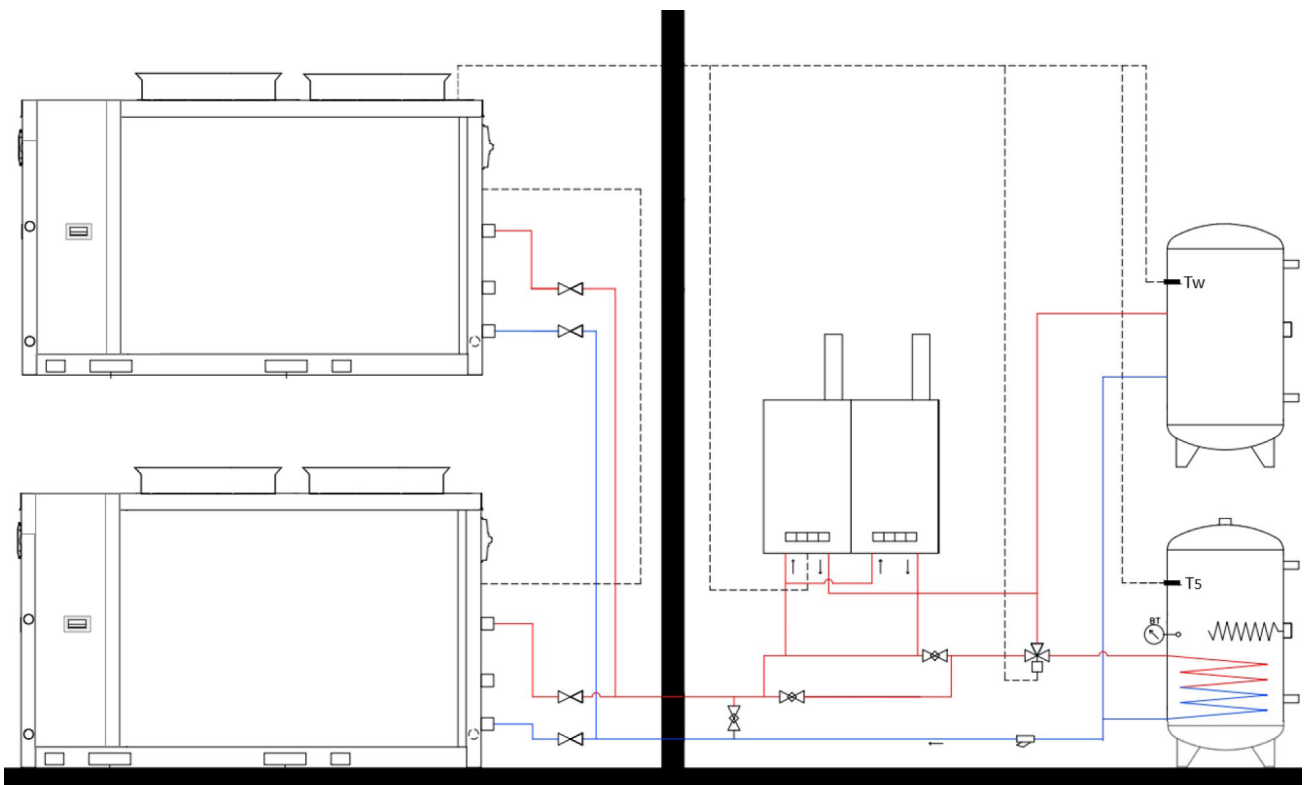
# Management of auxiliary heat sources

In a multi-zone configuration with one or more heat pump units in cascade, and Gas Boiler system in cascade, the auxiliary heat generator is activated when the heat pump or the heat pump cascade system in cascade is not sufficient to satisfy the system request. When even the first auxiliary heat generator is not sufficient to satisfy the request, the second generator will also be activated for integration.

## Single heat pump and cascade gas boiler



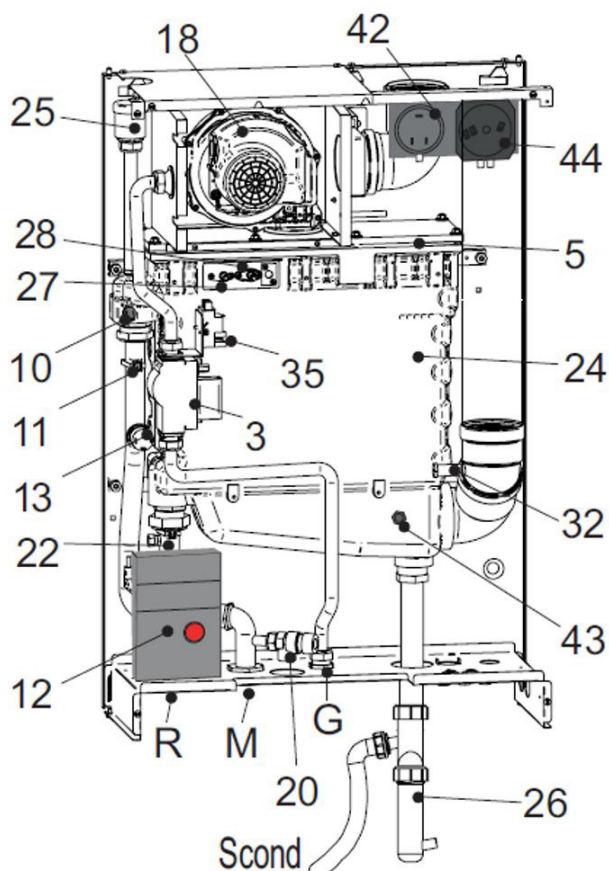
## System with cascade heat pumps and cascade gas boiler



## Centralized systems

The boilers available are for heating only and can be made to operate with Natural Gas (G20-G25) or LPG (G30-G31) by adjusting or applying a reducer to the nozzle on site.

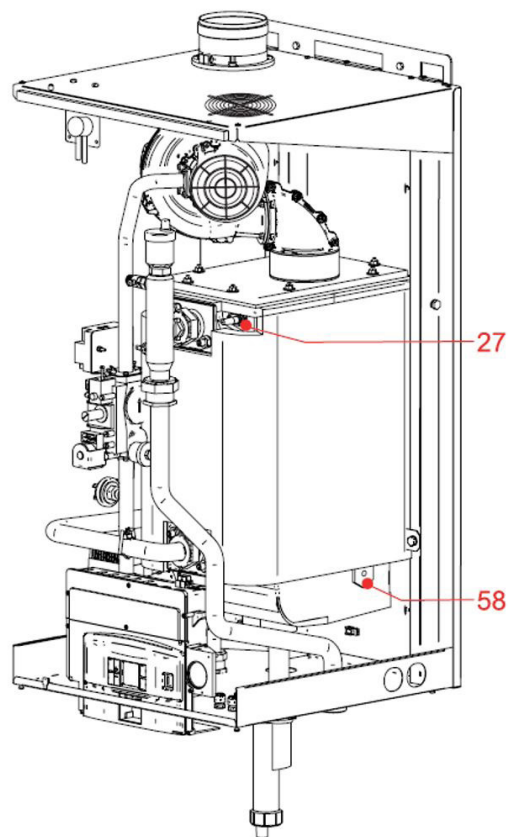
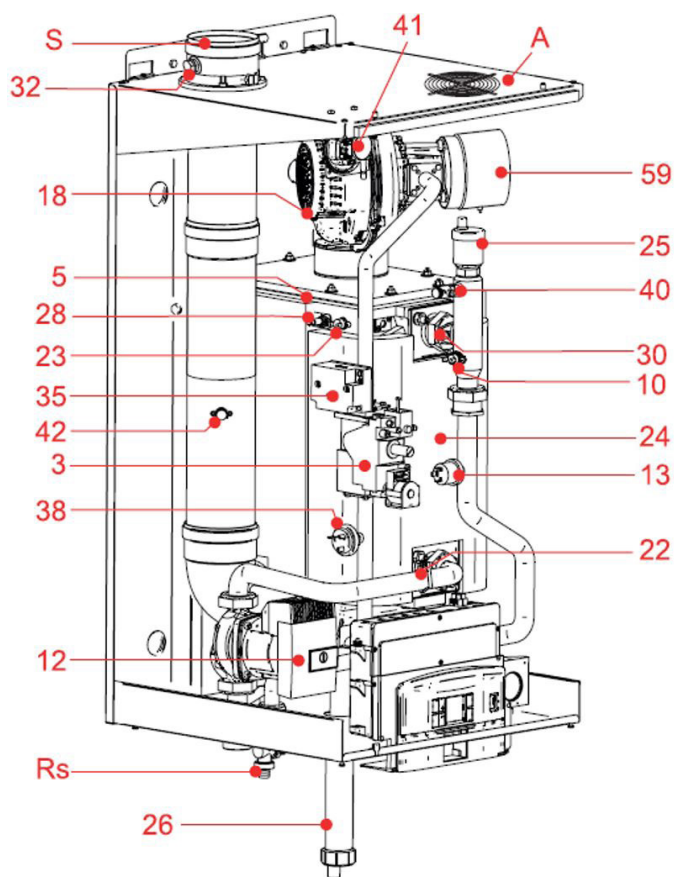
### • Gas Boiler UC 70.2



|    | DESCRIPTION                       |
|----|-----------------------------------|
| 3  | Gas valve                         |
| 5  | Burner                            |
| 10 | Safety thermostat                 |
| 11 | Water temperature sensor - supply |
| 12 | Modulating circulator             |
| 13 | Low water pressure switch         |
| 18 | Modulating fan                    |
| 20 | Safety valve                      |
| 22 | Water temperature sensor - return |
| 24 | Aluminium exchanger / condenser   |
| 25 | Vent valve                        |
| 26 | Condensate drain trap             |
| 27 | Detection electrode               |
| 28 | Ignition electrode                |
| 32 | Flue gas inspection point         |
| 35 | Ignition transformer              |
| 42 | Flue gas maximum pressure switch  |
| 43 | Condensate level sensor           |
| 44 | Flue gas minimum pressure switch  |

# Management of auxiliary heat sources

## • Gas Boiler UC 115.2

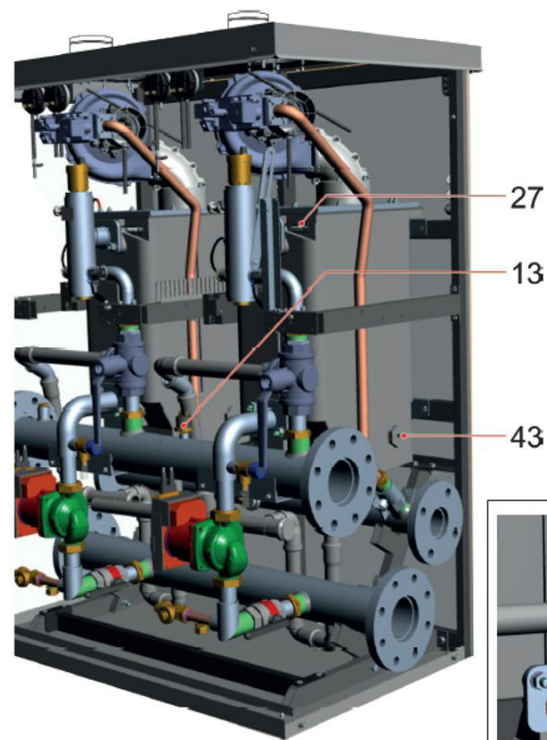
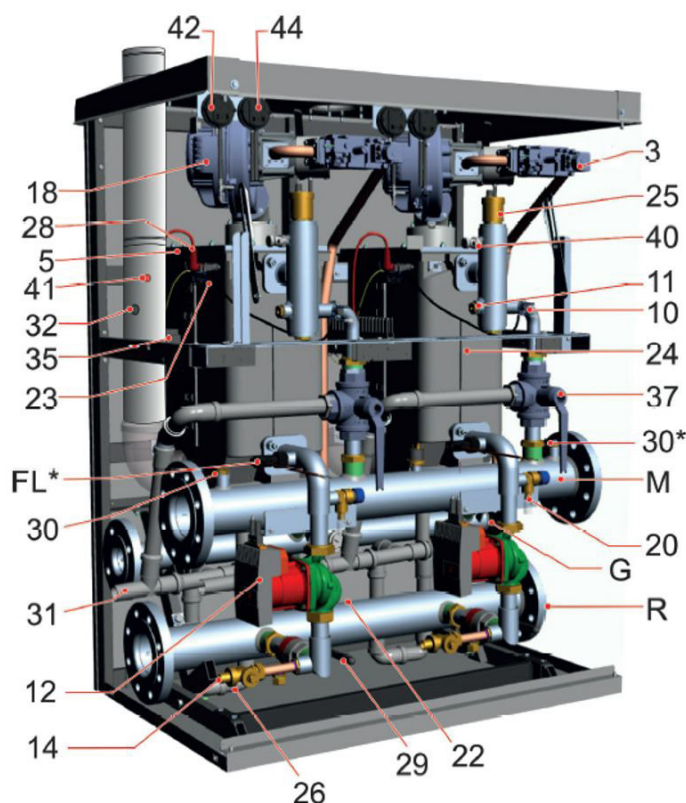


### DESCRIPTION

|    |                                   |
|----|-----------------------------------|
| 3  | Gas valve                         |
| 5  | Burner                            |
| 10 | Safety thermostat                 |
| 12 | Modulating circulator             |
| 13 | Low water pressure switch         |
| 18 | Modulating fan                    |
| 22 | Water temperature sensor - return |
| 23 | Unit body safety thermostat       |
| 24 | Aluminium exchanger / condenser   |
| 25 | Vent valve                        |
| 26 | Condensate drain trap             |
| 27 | Detection electrode               |
| 28 | Ignition electrode                |
| 30 | Water temperature sensor - supply |
| 32 | Flue gas inspection point         |
| 35 | Ignition transformer              |
| 38 | Flue gas minimum pressure switch  |
| 40 | Manual vent valve                 |
| 41 | Fan pressure switch               |
| 42 | Flue thermostat                   |
| 58 | Level sensor                      |
| 59 | Pipe with intake grille           |

# Management of auxiliary heat sources

## • Gas Boiler UC 200F.2



### DESCRIPTION

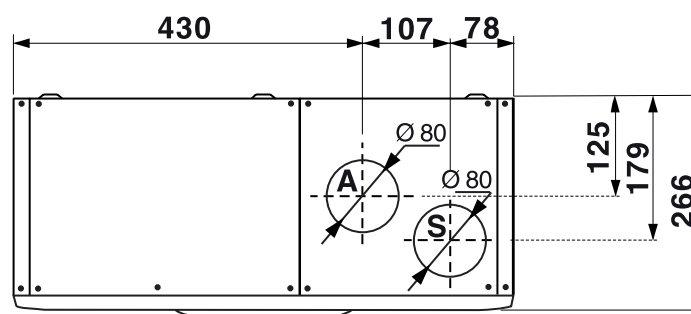
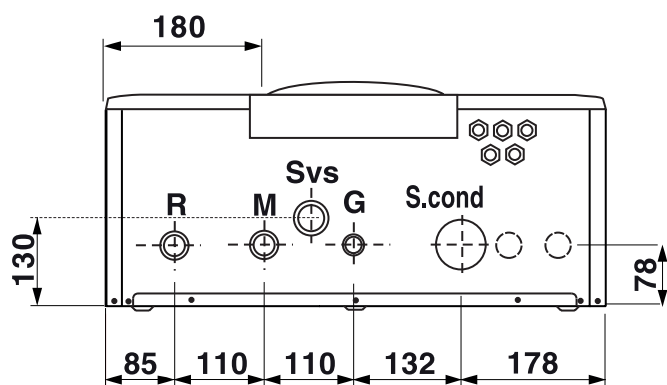
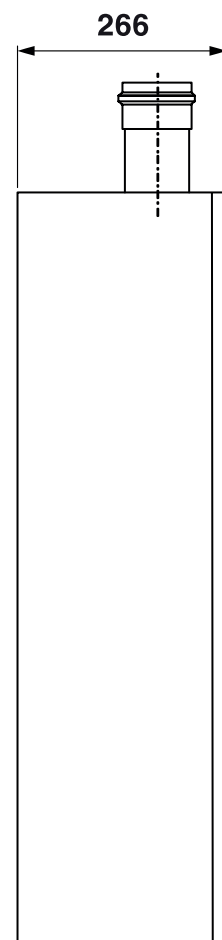
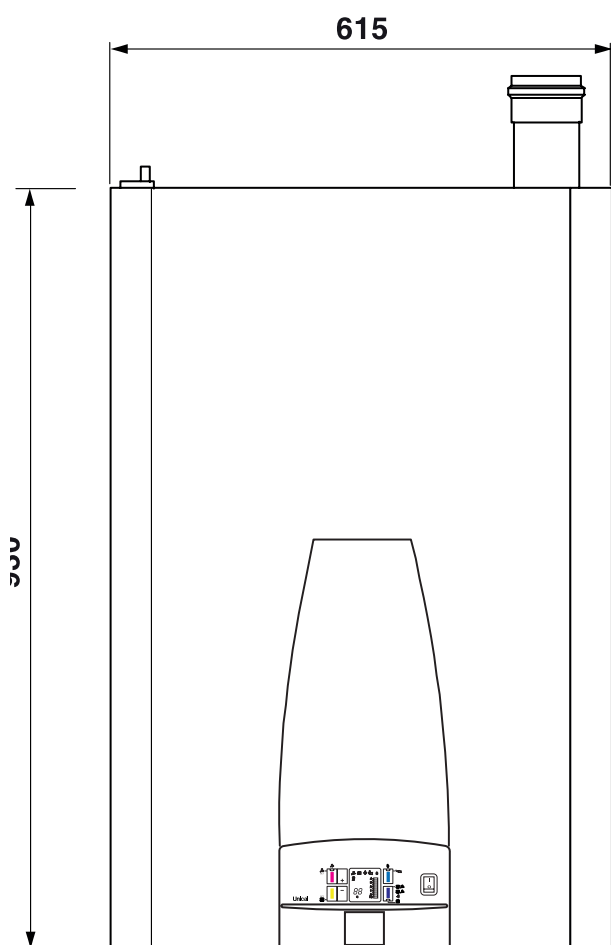
|    |                                   |
|----|-----------------------------------|
| 3  | Gas valve                         |
| 5  | Burner                            |
| 10 | Safety thermostat                 |
| 11 | Heating temperature sensor        |
| 12 | Modulating circulator             |
| 13 | Low water pressure switch         |
| 14 | Drain valve                       |
| 18 | Modulating fan                    |
| 20 | Safety valve                      |
| 22 | Water temperature sensor - return |
| 23 | Unit body safety thermostat       |
| 24 | Aluminium exchanger / condenser   |
| 25 | Vent valve                        |
| 26 | Condensate drain trap             |
| 27 | Detection electrode               |

### DESCRIPTION

|        |                                                                            |
|--------|----------------------------------------------------------------------------|
| 28     | Ignition electrode                                                         |
| 29     | 3-way shut-off valve - return                                              |
| 30/30* | Water temperature sensor - supply<br><i>Probe can be positioned in 30*</i> |
| 31     | Condensate drain                                                           |
| 32     | Flue gas inspection point                                                  |
| 35     | Ignition transformer                                                       |
| 37     | 3-way shut-off valve - supply                                              |
| 38     | Gas minimum pressure switch                                                |
| 40     | Manual vent valve                                                          |
| 41     | Flue thermostat                                                            |
| 42     | Flue gas maximum pressure switch                                           |
| 43     | Condensate level sensor                                                    |
| 44     | Flue gas minimum pressure switch                                           |
| FL*    | Vane flow switch                                                           |

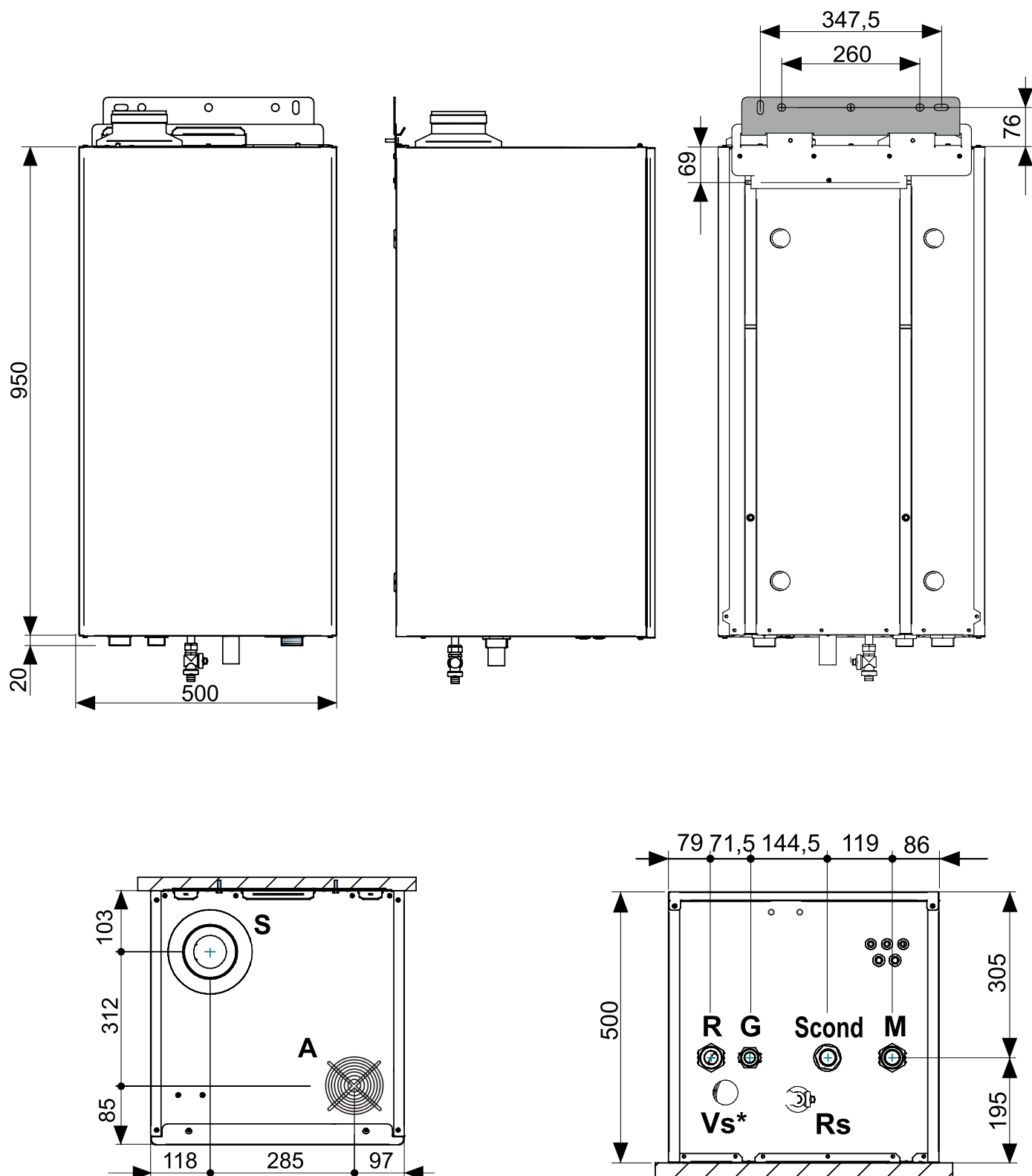
# Gas boiler: technical details

## Gas Boiler UC 70.2



R = Ø 1/4" heating system return  
M = Ø 1/4" heating system supply  
G = Ø 3/4" gas inlet  
Scond = Ø 18.1 mm condensate drain  
A = Ø 80 mm air intake  
S = Ø 80 mm flue gas drain  
Svs = pressure relief valve

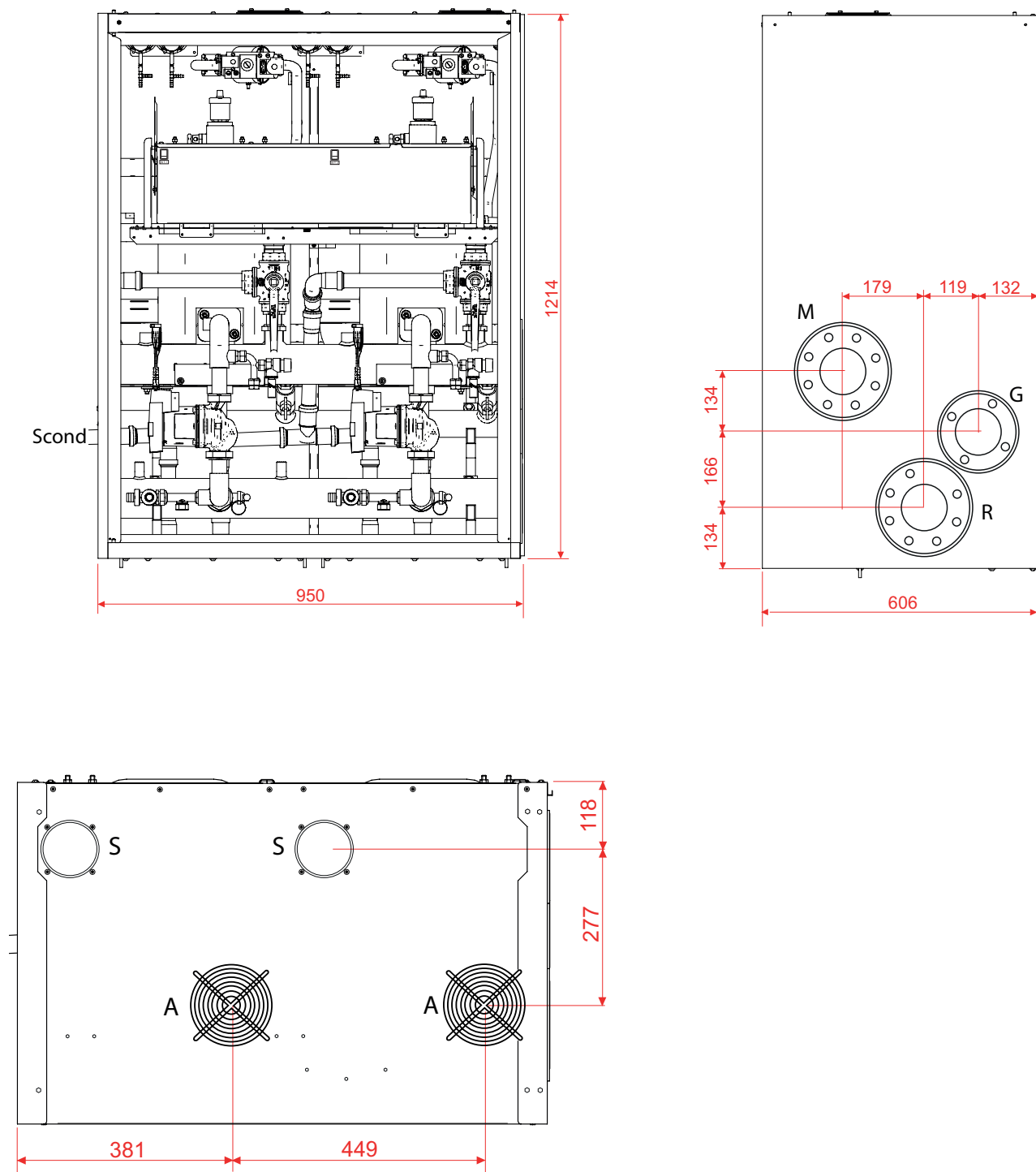
## Gas Boiler UC 115.2



R = Ø 1" 1/4 heating system return  
 M = Ø 1" 1/4 heating system supply  
 G = Ø 1" gas inlet  
 Scond = Ø 32 mm condensate drain  
 A = Ø 80 mm air intake (Ø 100 mm grille)  
 S = Ø 100 mm flue gas drain  
 Vs = pressure relief valve  
 Rs = drain valve

# Gas boiler: technical details

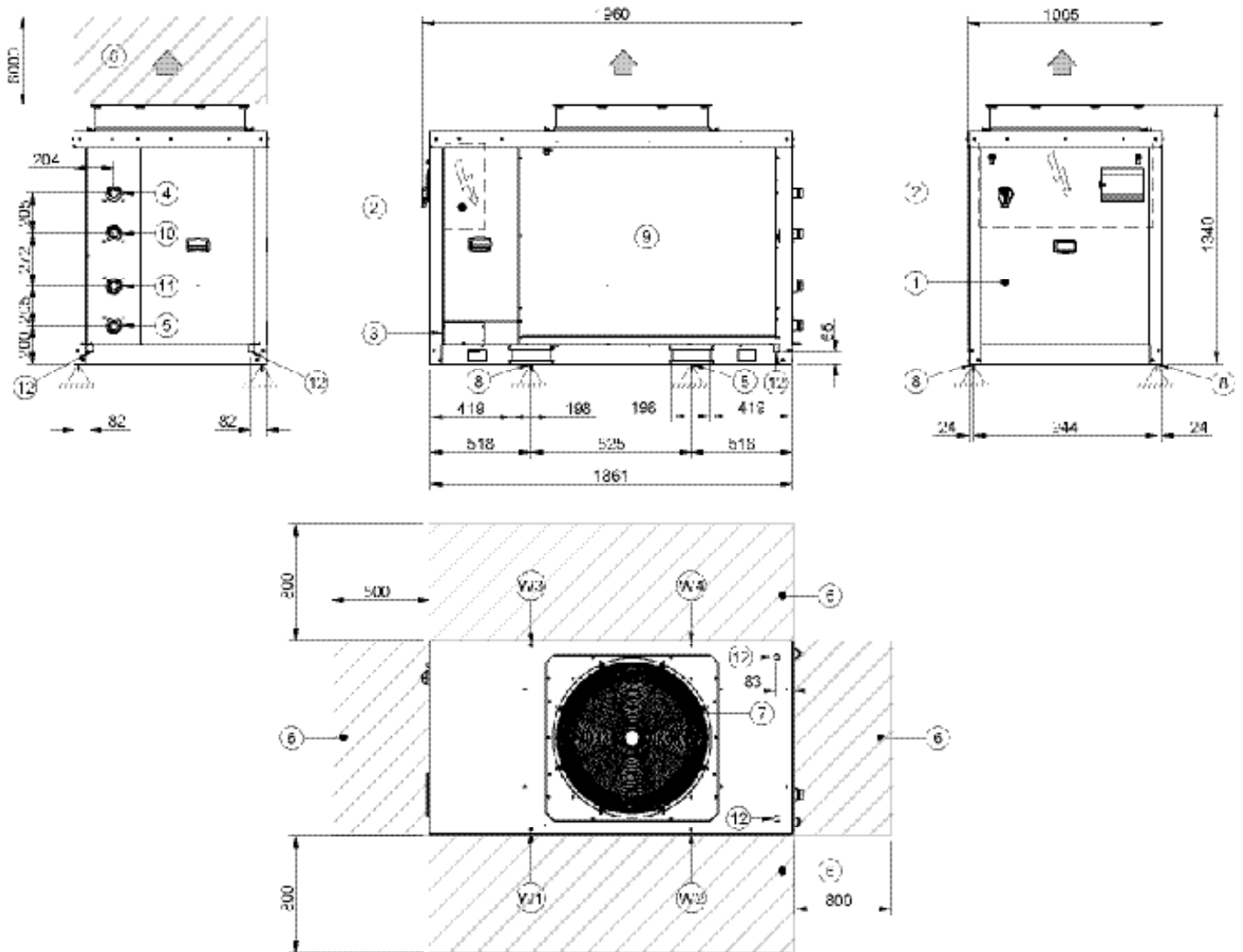
## Gas Boiler UC 200F.2



R = Ø 88.9 mm heating system return manifold  
M = Ø 88.9 mm heating system supply manifold  
G = Ø 60.3 mm gas inlet manifold  
Scond = Ø 32 mm condensate drain  
A = Ø 80 mm air intake (Ø 100 mm grille)  
S = Ø 100 mm flue gas drain

SIZE 10.1 ÷ 14.1

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DATA/DATE 06/03/2023



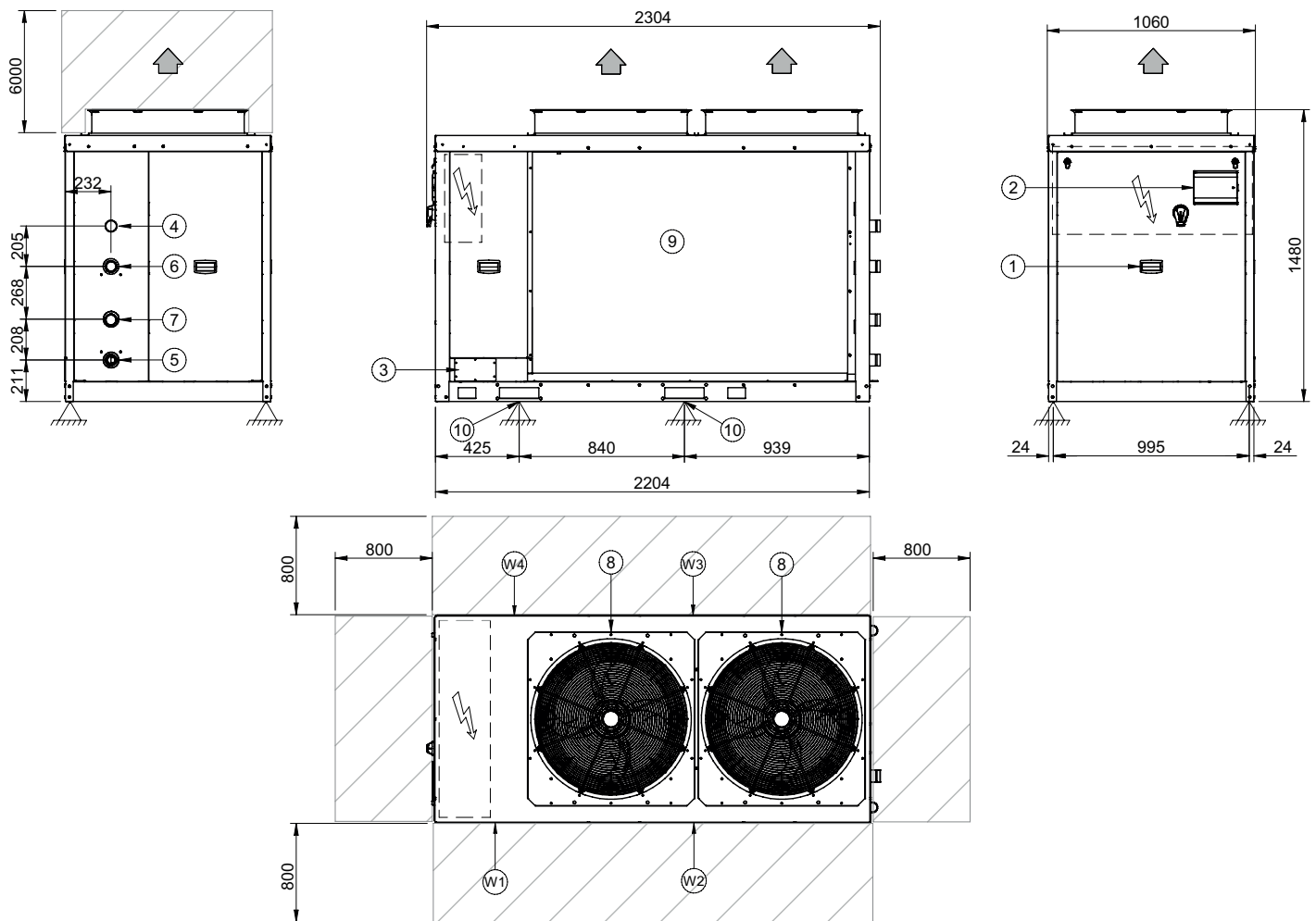
- |                                             |                                            |
|---------------------------------------------|--------------------------------------------|
| 1. Compressor compartment                   | 8. Unit fixing holes                       |
| 2. Electrical panel                         | 9. External exchanger                      |
| 3. Power input                              | 10. DHW inlet (optional) Victaulic 1 1/2"  |
| 4. Inlet water connection Victaulic 1" 1/2  | 11. DHW outlet (optional) Victaulic 1 1/2" |
| 5. Outlet water connection Victaulic 1" 1/2 | 12. Condensate drain 1" M                  |
| 6. Functional clearances                    |                                            |
| 7. Fan                                      |                                            |

| SIZE             |    | 10.1 | 12.1 | 14.1 |
|------------------|----|------|------|------|
| Length           | mm | 1960 | 1960 | 1960 |
| Depth            | mm | 1005 | 1005 | 1005 |
| Height           | mm | 1340 | 1340 | 1340 |
| W1 Support point | kg | 90   | 90   | 90   |
| W2 Support point | kg | 71   | 71   | 71   |
| W3 Support point | kg | 91   | 91   | 91   |
| W4 Support point | kg | 71   | 71   | 71   |
| Operation weight | kg | 323  | 323  | 323  |
| Operating weight | kg | 333  | 333  | 333  |

# Dimensional drawings

SIZE 16.2 ÷ 22.2

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DATA/DATE 06/03/2023

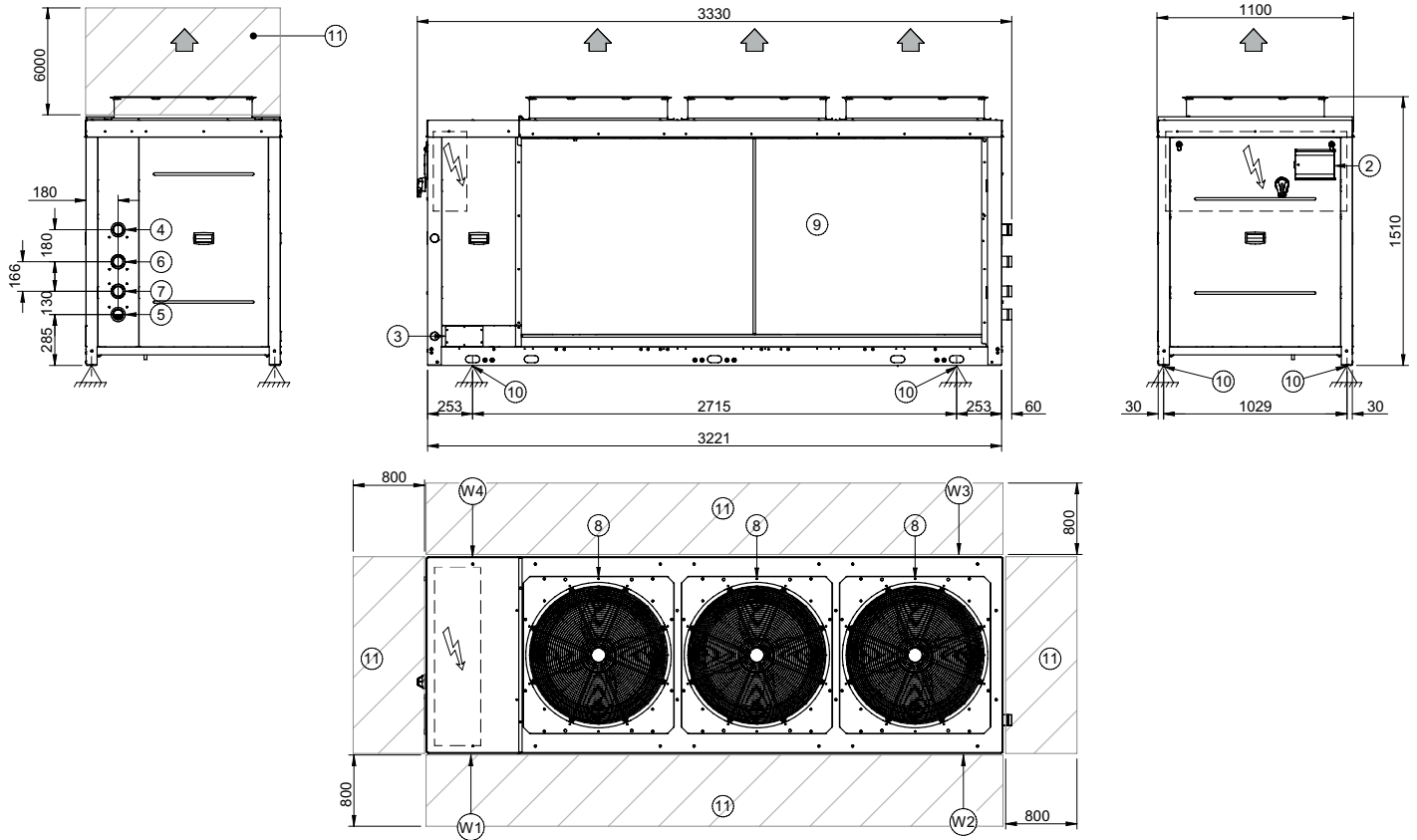


- |                                         |                           |
|-----------------------------------------|---------------------------|
| 1. Compressor compartment               | 8. Fan                    |
| 2. Electrical panel                     | 9. External exchanger     |
| 3. Power input                          | 10. Unit fixing holes     |
| 4. Inlet water connection Victaulic 2"  | 11. Functional clearances |
| 5. Outlet water connection Victaulic 2" |                           |
| 6. Inlet DHW connection Victaulic 2"    |                           |
| 7. Outlet DHW connection Victaulic 2"   |                           |

| SIZE             |    | 16.2 | 18.2 | 22.2 |
|------------------|----|------|------|------|
| Length           | mm | 2304 | 2304 | 2304 |
| Depth            | mm | 1060 | 1060 | 1060 |
| Height           | mm | 1480 | 1480 | 1480 |
| W1 Support point | kg | 170  | 170  | 170  |
| W2 Support point | kg | 87   | 87   | 87   |
| W3 Support point | kg | 163  | 163  | 163  |
| W4 Support point | kg | 80   | 80   | 80   |
| Operation weight | kg | 500  | 500  | 500  |
| Operating weight | kg | 513  | 513  | 513  |

**SIZE 30.2 ÷ 40.2**

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- |                                         |                           |
|-----------------------------------------|---------------------------|
| 1. Compressor compartment               | 8. Fan                    |
| 2. Electrical panel                     | 9. External exchanger     |
| 3. Power input                          | 10. Unit fixing holes     |
| 4. Inlet water connection Victaulic 2"  | 11. Functional clearances |
| 5. Outlet water connection Victaulic 2" |                           |
| 6. Inlet DHW connection Victaulic 2"    |                           |
| 7. Outlet DHW connection Victaulic 2"   |                           |

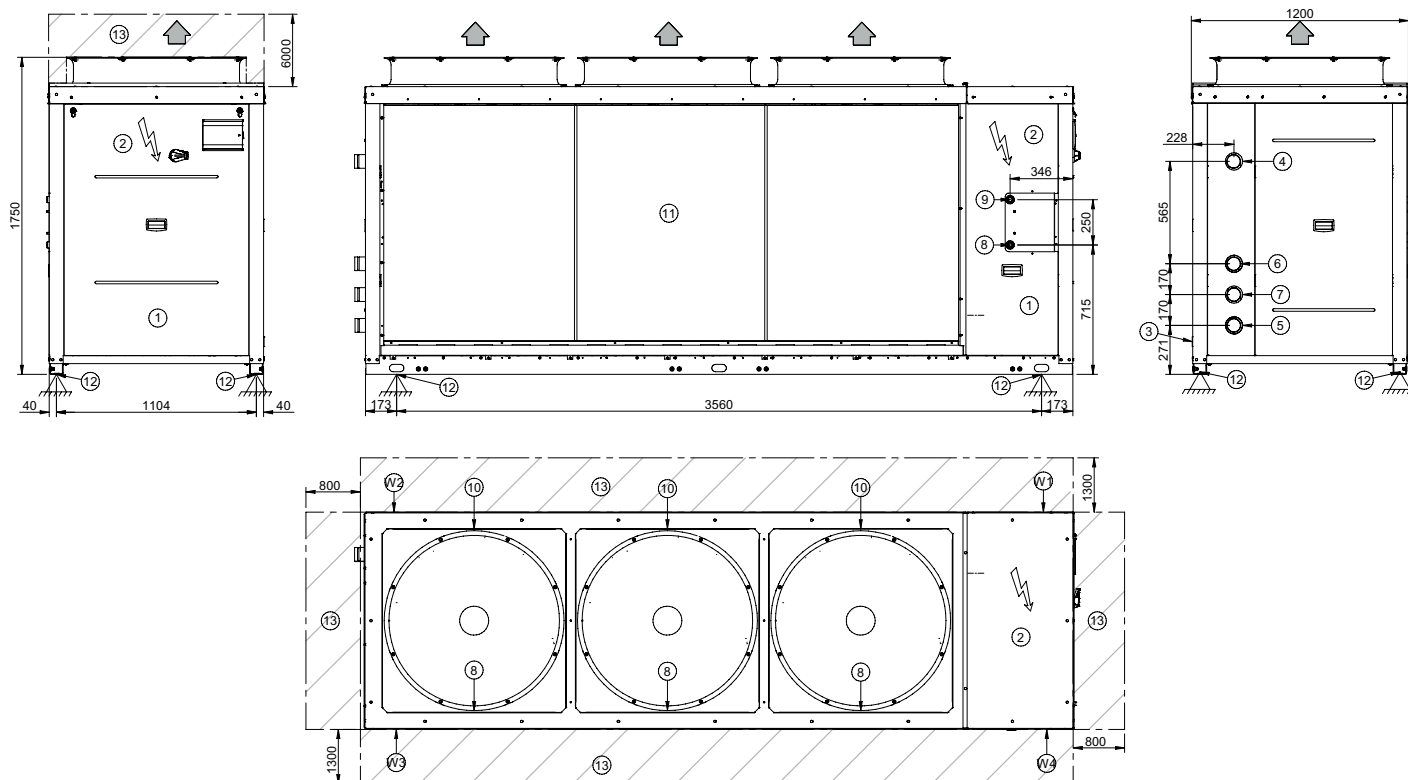
| SIZE             |    | 30.2 | 35.2 | 40.2* |
|------------------|----|------|------|-------|
| Length           | mm | 3330 | 3330 | 3330  |
| Depth            | mm | 1100 | 1100 | 1100  |
| Height           | mm | 1510 | 1510 | 1510  |
| W1 Support point | kg | 280  | 280  | 280   |
| W2 Support point | kg | 135  | 135  | 135   |
| W3 Support point | kg | 135  | 135  | 135   |
| W4 Support point | kg | 280  | 280  | 280   |
| Operation weight | kg | 830  | 830  | 830   |
| Operating weight | kg | 830  | 830  | 830   |

\*Size 40.2 available only in PRM version

# Dimensional drawings

SIZE 43.2 ÷ 45.2 EXC

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DATA/DATE 20/04/2023



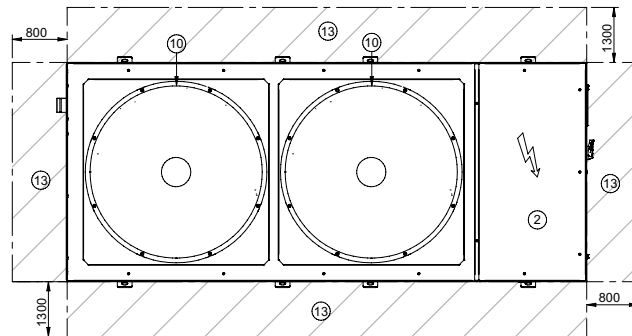
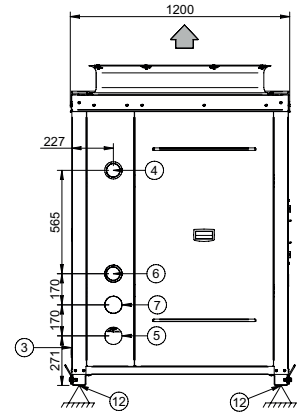
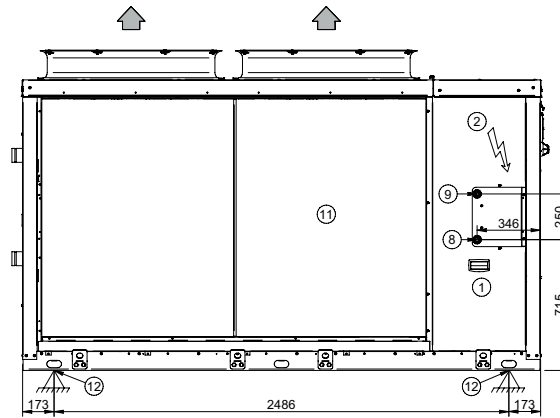
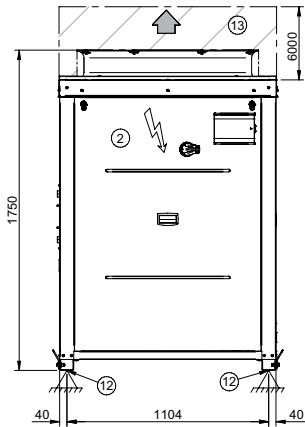
1. Compressor compartment
2. Electrical panel
3. Power input
4. Inlet water connection Victaulic 2" 1/2
5. Outlet water connection Victaulic 2" 1/2
6. Inlet DHW connection Victaulic 2" 1/2
7. Outlet DHW connection Victaulic 2" 1/2

8. Inlet desuperheater water connection 2" 1/2
9. Outlet desuperheater water connection 2" 1/2
10. Fan
11. Source exchanger
12. Unit fixing holes
13. Functional clearances

| SIZE             |    | 43.2 | 45.2 |
|------------------|----|------|------|
| Length           | mm | 3906 | 3906 |
| Depth            | mm | 1184 | 1184 |
| Height           | mm | 1750 | 1750 |
| W1 Support point | kg | 385  | 385  |
| W2 Support point | kg | 221  | 221  |
| W3 Support point | kg | 191  | 191  |
| W4 Support point | kg | 345  | 345  |
| Operation weight | kg | 1143 | 1143 |
| Operating weight | kg | 1114 | 1114 |

SIZE 45.2 ÷ 55.2 PRM

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1. Compressor compartment
2. Electrical panel
3. Power input
4. Inlet water connection Victaulic 2" 1/2
5. Outlet water connection Victaulic 2" 1/2
6. Inlet DHW connection Victaulic 2" 1/2
7. Outlet DHW connection Victaulic 2" 1/2

8. Inlet desuperheater water connection 2" 1/2
9. Outlet desuperheater water connection 2" 1/2
10. Fan
11. Source exchanger
12. Unit fixing holes
13. Functional clearances

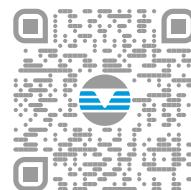
| SIZE             |    | 45.2 | 50.2 | 55.2 |
|------------------|----|------|------|------|
| Length           | mm | 2832 | 2832 | 2832 |
| Depth            | mm | 1184 | 1184 | 1184 |
| Height           | mm | 1750 | 1750 | 1750 |
| W1 Support point | kg | 271  | 271  | 271  |
| W2 Support point | kg | 187  | 187  | 187  |
| W3 Support point | kg | 162  | 162  | 162  |
| W4 Support point | kg | 242  | 242  | 242  |
| Operation weight | kg | 862  | 862  | 862  |
| Operating weight | kg | 877  | 877  | 877  |

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