# ELFOEnergy SHEEN EVO

## WSAN-YSi 10.1 - 22.2 RANGE

Air source inverter heat pump for outdoor installation

| Size | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 |
|---|---|---|---|---|---|---|
| Cooling capacity kW | 22,3 | 25,8 | 29,0 | 45,1 | 50,3 | 55,0 |
| Heating capacity kW | 25,3 | 28,2 | 32,0 | 48,6 | 54,0 | 62,0 |

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

ErP

R-32

Pagina


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# Features and benefits

ELFOEnergy Sheen EVO series is the new air cooled heat pump, equipped with Full DC Inverter technology and R-32 refrigerant, for outdoor installation. It is available from 20 kW up to 55 kW and is the most effective and valuable solution both in terms of capital investment and running costs.

## Energy Efficiency

Class A Eurovent at full load in heating and in cooling.
SCOP up to 4,30, which reaches the A++ class according to EU Regulation 811/2013 (ErP) with low water temperature (LWT 35°C).
SEER up to 4,64 which makes it extremely competitive even compared to the cooling only units.
Capacity modulation from 30% to 100%.

## Wide operating range

| Outdoor air temperature | max | min |
|---|---|---|
| • heating mode | 30 °C | -14°C |
| • domestic hot water mode | 43 °C | -14°C |
| • cooling mode | 48 °C | -10 °C |
| **Outlet water temperature** | **max** | **min** |
| • heating mode | 54 °C | 15 °C |
| • domestic hot water mode | 54 °C | 15 °C |
| • cooling mode | 20 °C | 0 °C |

## Functionality

- Management and production of domestic hot water up to 55 ° C
- Climate compensation with outdoor temperature
- Double set-point adjustable
- Additional heating source management

SILENT mode:
- speed reduction of compressors and fans
- three levels of silence: standard mode, silenced, super silenced

## Modular design

ELFOEnergy Sheen EVO has been designed for modularity. It is possible to connect up to 16 units in a local network, reaching a maximum capacity of 960 kW. The combinations can also take place with different capacity units. The modular system, obtained by combining several modules, preserves the strengths of the single module, but multiplies the advantages:

- Increased system efficiency
- Higher reliability
- Simplified handling and installation
- Quick and easy maintenance
- Scalability

## 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
- 3-way valve for the domestic hot water production
- System storage tank: 140 liters (size 10.1 – 14.1) or 180 liters (size 16.2 – 22.2)

## Technology

The technical solutions adopted place ELFOEnergy Sheen EVO on top of its category:

- DC inverter technology on compressors and fans
- Electronic expansion valve
- Flow switch
- Hydrophilic battery

## Tax credit

Due to its high efficiency, ELFOEnergy Sheen EVO may be eligible for heat pump subsidies in Your Country.

# Standard unit technical specifications

## Compressors

Inverter controlled twin 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.
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 from 12/10 to 20/10, hot dip galvanized and painted, for the parts in view, with polyester powder Pantone Warm Grey 2 C 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 Pantone Warm Grey 2 C 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.

## External exchanger

Direct expansion finned coil exchanger made with inner grooved copper pipes placed on staggered rows mechanically expanded to better adhere to the fin collar. The fins are made from aluminum with a hydrophilic treatment.
A particular refrigerant circuit prevents the formation of frost on the base of the exchanger during winter operation.

## Fan

Axial fans with sickle profile blades terminating ABS ASG-20 resin reinforced with 20% glass fiber, directly coupled to the electronic controlled motor (IP23), driven by the magnetic switching of the stator. 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

Refrigeration circuit with:

- electronic expansion valve
- 4-way reverse cycle valve
- high pressure safety switch
- low pressure safety switch
- liquid receiver
- liquid separator
- oil separator
- pressure transducer
- high temperature protection switch
- temperature sensors

## Electrical panel

The capacity section includes:

- terminals main power
- auxiliary components protection fuse
- AC filter on power supply
- power supply phase sequence protection
- protection for compressor over current
- protection for compressor overload
- sensor malfunction protection

The control section includes:

- compressor overload protection and timer
- relay for remote cumulative fault signal
- defrosting cycle optimization
- condenser control
- dry contact for remote ON/OFF
- dry contact for remote HEAT/COOL mode control

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 withmodbus port (RS485) for remote comunication

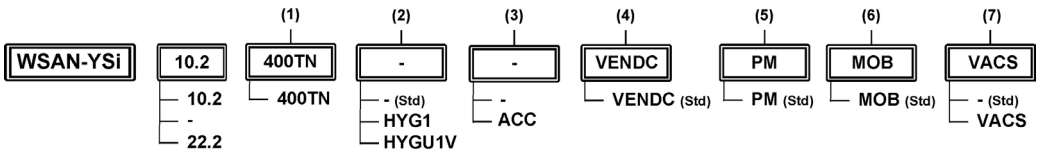
## Water circuit

- Safety valve 6 bar
- Flow switch
- Antifreeze water flow heater
- Drain valve
- Temperature sensors

## 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 configuration




(1) Voltage
400TN - Supply voltage 400/3/50 + N (standard)

(2) User side hydronic unit
(-) not required (standard)
HYG1 - Hydronic assembly with 1 ON/OFF pump
HYGU1V - User side hydronic assembly with 1 inverter pump

(3) Storage tank
(-) not required (standard)
ACC - Storage tank

(4) Fans
VENDC - DC high efficiency fans (standard)

(5) Phase monitor
PM - Phase monitor (standard)

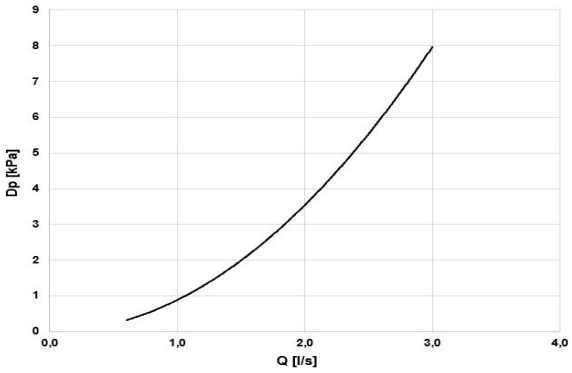
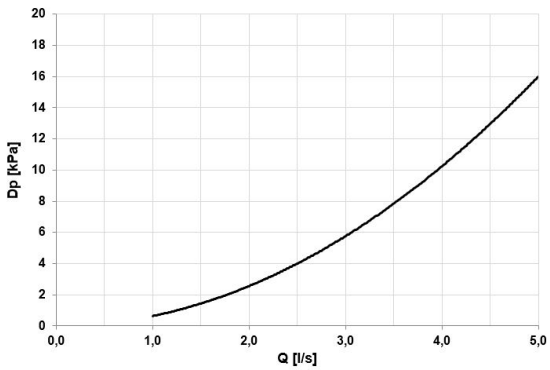
(6) Serial communication module
MOB - RS485 Serial port with Modbus protocol

(7) Domestic hot water valve
(-) not required (standard)
VACS - DHW switching valve

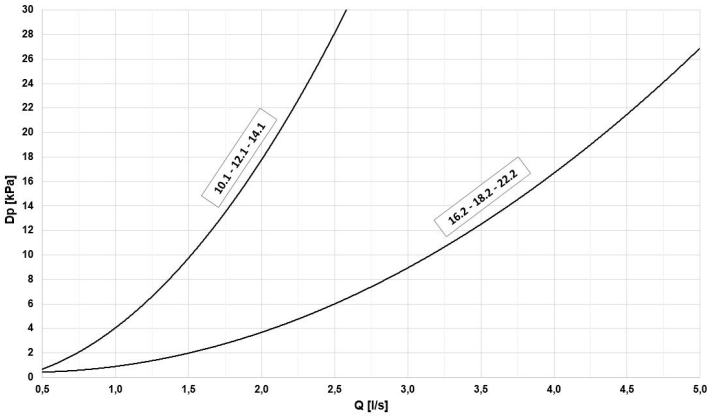
## Options separately supplied

- IFWX - Steel mesh strainer on the water side
- AVIBX - Anti-vibration mount support

# Built-in options

| Accessory | | Description |
|---|---|---|
| HYG1 | Hydronic group with 1 ON/ OFF pump | Hydronic unit made of 1 centrifugal electric pump, with body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection and complete with heat formed insulating casing. The water connection are 2"Victaulic.<br>Hydronic unit performance is available on page 15. |
| HYGU1V | User side hydronic group with 1 inverter pump | Hydronic unit made of a centrifugal electric pump, adjusted by way of inverter, body and propeller made in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55 protection and complete with heat formed insulating casing. The water connection are 2"Victaulic.<br>Hydronic unit performance is available on page 16 and 17. |
| ACC | Storage tank | Option supplied built-in the unit. 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.<br>The storage tank capacity is 140 liters for size 10.1, 12.1 and 14.1.<br>The storage tank capacity is 180 liters for size 16.2, 18.2 and 22.2.<br><br>!! *Not available with option VACS at the same time.* |
| VACS | DHW switching valve | The 3-way diverter valve deviating the water flow towards a heating storage tank for domestic water is installed on the side of the unit.<br>If the temperature of the ACS is under the set-point, ELFOEnergy Sheen EVO changes to ACS production mode (priority compared to other operational modes can be set).<br>The unit controller closes a digital output driving the flow deviation valve from the storage system until it reaches the ACS set-point set on the user interface.<br>The water connections are 2"Victaulic.<br>Valve pressure drop - Size 10.1 - 12.1 - 14.1<br>  <br><br>Valve pressure drop - Size 16.2 - 18.2 - 22.2<br>  <br><br>*Q = Water flow rate [l/s]*<br>*Dp = Water side pressure drops [kPa]*<br><br>!! *The maximum nominal pressure of the unit with the 3-way valve option is 6bar*<br>!! *Not available with option ACC at the same time.* |

# Options separately supplied

| Accessory | | Description |
|---|---|---|
| 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.<br>Filter fittings are Victaulic type by 2".<br><br>Steel mesh strainer pressure drops<br>  <br><br>*Q = Water flow rate [l/s]*<br>*DP = Water side pressure drops [kPa]* |
| 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. |

# General technical data

## Performance

| Size | | | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 |
|---|---|---|---|---|---|---|---|---|
| **Radiant panels** | | | | | | | | |
| **Heating** | | | | | | | | |
| Heating capacity (EN 14511:2018) | 1,8 | kW | 25,3 | 28,2 | 32,0 | 48,6 | 54,0 | 62,0 |
| COP (EN 14511:2018) | 2 | | 4,17 | 4,25 | 4,16 | 4,01 | 4,01 | 3,90 |
| ErP Space Heating Energy Class - AVERAGE Climate - W35 | 7 | | A++ | A++ | A++ | A++ | A++ | A++ |
| SCOP - Average climate -W35 | 9 | | 4,30 | 4,25 | 4,24 | 3,91 | 3,90 | 3,87 |
| **Cooling** | | | | | | | | |
| Cooling capacity (EN 14511:2018) | 4,8 | kW | 29,9 | 34,6 | 38,9 | 57,7 | 66,0 | 75,6 |
| EER (EN 14511:2013) | 5 | | 4,28 | 3,94 | 3,62 | 3,83 | 3,53 | 3,23 |
| Water flow-rate | 4 | l/s | 1,43 | 1,66 | 1,86 | 2,76 | 3,15 | 3,61 |
| Internal exchanger pressure drops | 4 | kPa | 40 | 50 | 63 | 37 | 49 | 62 |
| **Terminal units** | | | | | | | | |
| **Heating** | | | | | | | | |
| Heating capacity (EN 14511:2018) | 3 | kW | 24,3 | 27,1 | 31,4 | 48,6 | 54,0 | 62,0 |
| COP (EN 14511:2018) | 2 | | 3,30 | 3,27 | 3,20 | 3,32 | 3,26 | 3,10 |
| **Cooling** | | | | | | | | |
| Cooling capacity (EN 14511:2018) | 6 | kW | 22,3 | 25,8 | 29,0 | 42,0 | 48,0 | 55,0 |
| EER (EN 14511:2018) | 5 | | 3,02 | 2,84 | 2,80 | 2,69 | 2,63 | 2,64 |
| SEER | 8 | | 4,63 | 4,64 | 4,63 | 4,00 | 3,99 | 4,01 |
| Water flow-rate | 6 | l/s | 1,06 | 1,23 | 1,39 | 2,01 | 2,29 | 2,63 |
| Internal exchanger pressure drops | 6 | kPa | 23 | 29 | 41 | 28 | 32 | 36 |

*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 capacitu and power input in compliance with EN 14511:2018. The overall power absorbed is calculed 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 + thepower 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 temperature35 °C*
*5. EER (EN 14511:2018) cooling performance coefficient. Ratio between delivered coolimg capacitu and power input in compliance with EN 14511:2018. The overall power absorbed is calculated by adding the power absorbed by the compressor + the powerabsorbed 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 presure drop outside + thepower absorbed by the auxiliary electrical circuit.*
*6. User side entering/leaving water temperature 12/7 °C, external exchanger entering air 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 according to the EN 14825:2016 Regulation*

# General technical data

## Construction

| Size | | | | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 |
|---|---|---|---|---|---|---|---|---|---|
| **Compressor** | | | | | | | | | |
| Type of compressors | | | | Rotary Inverter | | | | | |
| Refrigerant | | | | R32 | | | | | |
| No. of compressors | | | Nr | 1 | 1 | 1 | 2 | 2 | 2 |
| Oil charge | | | l | 2,3 | 2,3 | 2,3 | 4,6 | 4,6 | 4,6 |
| Refrigerant Charge | | | Kg | 7,9 | 7,9 | 7,9 | 14 | 14 | 14 |
| No. of circuits | | | Nr | 1 | 1 | 1 | 1 | 1 | 1 |
| **User side exchanger** | | | | | | | | | |
| Type of internal exchanger | 1 | | | PHE | | | | | |
| Water content | | | l | 2,44 | 2,44 | 2,44 | 5,17 | 5,17 | 5,17 |
| **External Section Fans** | | | | | | | | | |
| Type of fans | | | | Brushless DC | | | | | |
| No. of fans | | | Nr | 1 | 1 | 1 | 2 | 2 | 2 |
| Standard airflow | | | m3/h | 12500 | 12500 | 12500 | 24000 | 24000 | 24000 |
| Installed unit power | | | kW | 0,75 | 0,75 | 0,75 | 1,2 | 1,2 | 1,2 |
| **Water circuit** | | | | | | | | | |
| Maximum water side pressure | | | kPa | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Minimum circuit water volume in heating | | | l | 171 | 178 | 185 | 326 | 340 | 358 |
| Minimum circuit water volume in cooling | | | l | 70 | 75 | 80 | 140 | 145 | 150 |
| Total internal water volume | | | l | 5,44 | 5,44 | 5,44 | 10,3 | 10,3 | 10,3 |
| **Power supply** | | | | | | | | | |
| Standard power supply | | | | 400/3/50+N | 400/3/50+N | 400/3/50+N | 400/3/50+N | 400/3/50+N | 400/3/50+N |

*1. PHE = plate exchanger*

## Electrical data

| Size | | | 10.1 | 12.1 | 14.1 | 16.2 | 18.2 | 22.2 |
|---|---|---|---|---|---|---|---|---|
| **F.L.A. Full load current at max admissible conditions** | | | | | | | | |
| F.L.A. - Total | | [A] | 20,0 | 20,0 | 20,0 | 40,50 | 40,50 | 40,50 |
| **F.L.I. Full load power input at max admissible conditions** | | | | | | | | |
| F.L.I. - Total | | [kW] | 12,08 | 12,08 | 12,08 | 24,50 | 24,50 | 24,50 |
| **M.I.C. Maximum inrush current** | | | | | | | | |
| M.I.C. - Total | | [A] | 20,0 | 20,0 | 20,0 | 40,50 | 40,50 | 40,50 |

*Power supply 400/3/50 (+ NEUTRAL) +/- 10%.*
*Maximum Phase Unbalance: 2%.*
*For non standard voltage please contact Clivet technical office*

# General technical data

## Sound levels - Standard mode

| Size | Sound power level | | | | | | | | Sound pressure level | Sound power level |
|---|---|---|---|---|---|---|---|---|---|---|
| | Octave band (Hz) | | | | | | | | | |
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | dB(A) | dB(A) |
| 10.1 | 55 | 66 | 67 | 70 | 72 | 68 | 60 | 52 | 59 | 75 |
| 12.1 | 63 | 68 | 69 | 72 | 74 | 69 | 62 | 52 | 60 | 76 |
| 14.1 | 58 | 67 | 69 | 72 | 73 | 68 | 61 | 49 | 60 | 76 |
| 16.2 | 55 | 87 | 86 | 82 | 79 | 76 | 70 | 65 | 68 | 84 |
| 18.2 | 56 | 88 | 86 | 84 | 79 | 75 | 70 | 65 | 69 | 85 |
| 22.2 | 58 | 89 | 87 | 83 | 81 | 76 | 70 | 65 | 70 | 86 |

*Sound levels refer to units with full load under nominal test conditions.*
*The sound pressure level refers to a distance of 1 meter from the outer surface of the unit operating in open field.*

## Sound levels - Silenced mode

| Size | Sound pressure level | Sound power level |
|---|---|---|
| | dB(A) | dB(A) |
| 10.1 | 57 | 74 |
| 12.1 | 58 | 74 |
| 14.1 | 59 | 75 |
| 16.2 | 67 | 83 |
| 18.2 | 68 | 84 |
| 22.2 | 69 | 85 |

*Sound levels refer to units with maximum test conditions.*
*For maximum capacity supplied in silent mode, a correction factor of 0,90 shall be used.*
*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 - Super silenced mode

| Size | Sound pressure level | Sound power level |
|---|---|---|
| | dB(A) | dB(A) |
| 10.1 | 56 | 72 |
| 12.1 | 57 | 73 |
| 14.1 | 58 | 74 |
| 16.2 | 66 | 82 |
| 18.2 | 67 | 83 |
| 22.2 | 68 | 84 |

*Sound levels refer to units with maximum test conditions.*
*For maximum capacity supplied in super silent mode, a correction factor of 0,85 shall be used.*
*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

## Correction factors for glycol use

| % 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 | | | 1 | 0,984 | 0,973 | 0,965 | 0,96 | 0,95 |
| Correction factor for flow rate | | | 1 | 1,019 | 1,051 | 1,092 | 1,145 | 1,2 |
| Correction factor for system pressure drop | | | 1 | 1,118 | 1,268 | 1,482 | 1,791 | 2,1 |

*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.*

## Fouling Correction Factors

| | Internal exchanger | |
|---|---|---|
| $m^2C/W$ | F1 | FK1 |
| 0,44x10 (-4) | - | - |
| 0,88x10 (-4) | 0,96 | 0,99 |
| 1,76x10 (-4) | 0,93 | 0,98 |

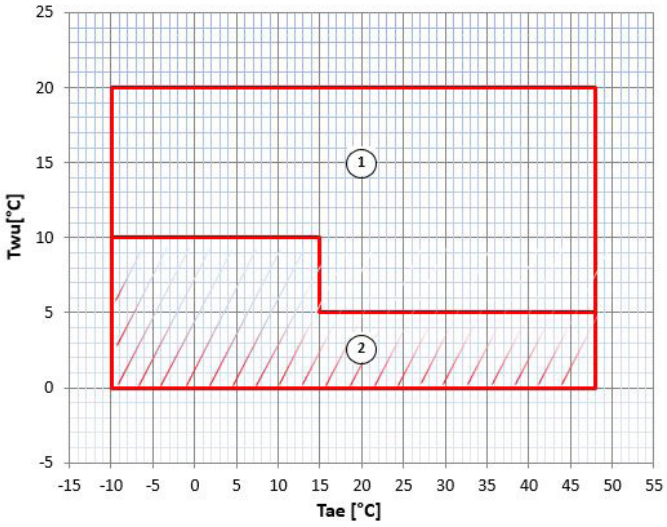
*The cooling performance values provided in the tables are based on the external exchanger having clean plates (fouling factor 1). For different fouling factor values, multiply the performance by the coefficients shown in the table.*
*F1 = Cooling capacity correction factors*
*FK1 = Compressor power input correction factor*

## Overload and control device calibrations

| | | Open | Close | Value |
|---|---|---|---|---|
| **Refrigerant side** | | | | |
| High pressure safety pressure switch | [kPa] | 4200 | 3200 | - |
| Low pressure safety switch | [kPa] | 140 | 300 | - |
| Gas-liquid separator safety valve | [kPa] | - | - | 4500 |
| Compressor discharge high temperature safety thermostat | [°C] | 75 | 115 | - |
| **Water side** | | | | |
| Antifreeze protection | [°C] | 8 | 4 | - |
| High pressure safety valve | [kPa] | - | - | 600 |

# General technical data

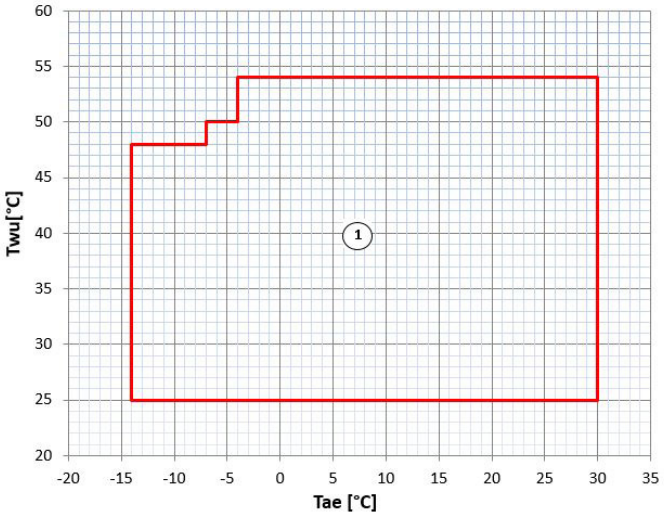
## Operating range - Cooling




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

*1. Normal operating range.*
*2. Operating range where the use of ethylene glycol is mandatory in relation to the temperature of the water at the outlet of the user side exchanger.*

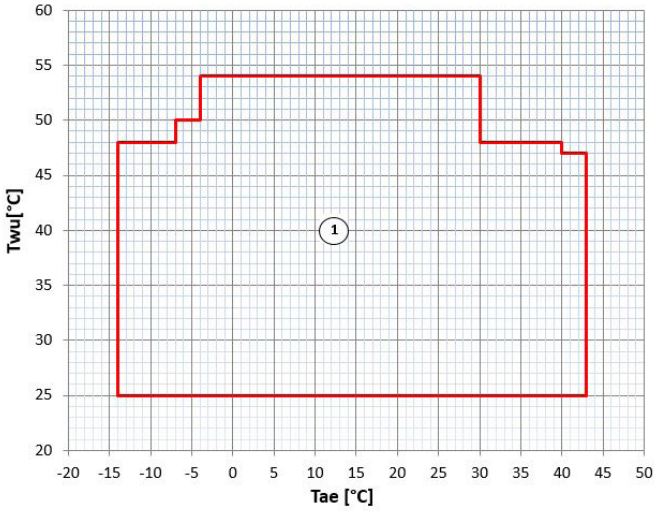
## Operating range - Heating




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

*1. Normal operating range.*

## Operating range - DHW




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

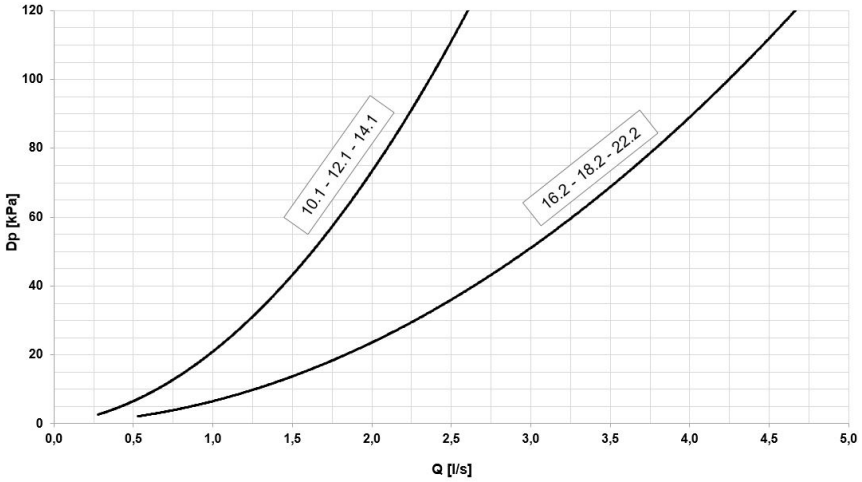
*1. Normal operating range.*

# General technical data

## Internal exchanger pressure drop

The standard unit not include a hydronic group.
For the sizes 10.1, 12.1 and 14.1 the water connections are screwed by 1 1/2".
For the sizes 16.2, 18.2 e 22.2 water fittings are Victaulic type by 2".

### Internal exchanger pressure drop curves




*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 x 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 as accessory.*

## 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 |
|---|---|---|---|---|---|---|---|
| Minimum flow | [l/s] | 0,9 | 0,9 | 0,9 | 1,8 | 1,8 | 1,8 |
| Maximum flow-rate | [l/s] | 2,6 | 2,6 | 2,6 | 5,0 | 5,0 | 5,0 |

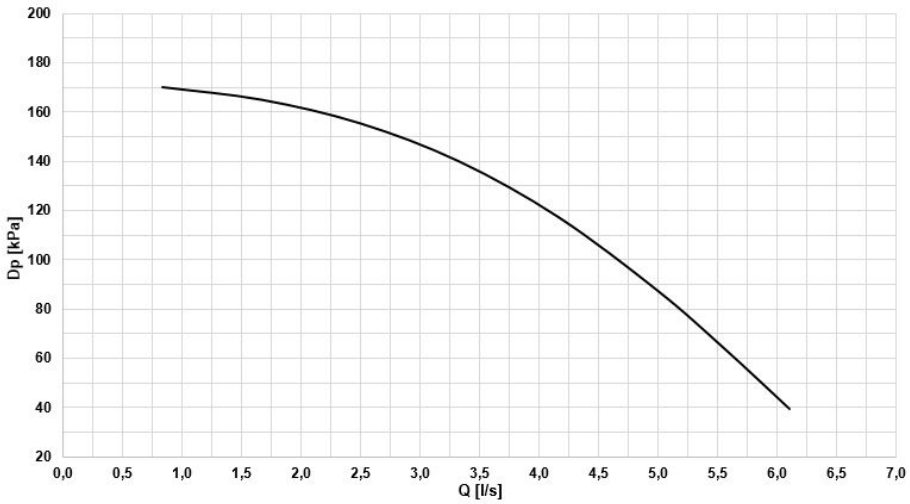
# General technical data

## Hydronic assembly

## Unit with 1 ON/OFF pump (HYG1)

Configuration with 1 centrifugal electric pump, with housing and impeller made with AISI 304. The electric pump is equipped with three-phase electric motor with IP55-protection and complete with thermoformed insulated casing.
For the sizes 10.1, 12.1 and 14.1 the water connections are screwed by 1 1/2".
For the sizes 16.2, 18.2 e 22.2 water fittings are Victaulic type by 2".

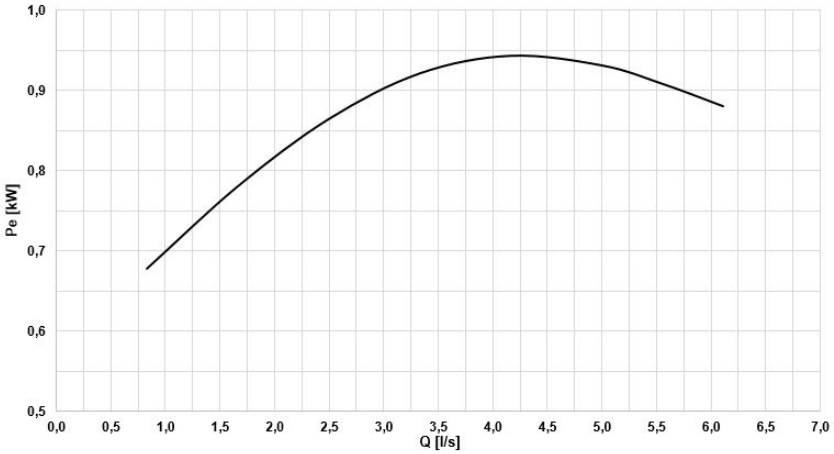
### Pump available pressure curves




*DP = Available pressure [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)*

### Pump absorbtion curves




*Pe = Absorbed electrical power [kW]*
*Q = Water flow-rate [l/s]*

### 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 |

# General technical data

## Hydronic assembly

## Unit with 1 inverter pump (HYGU1V)

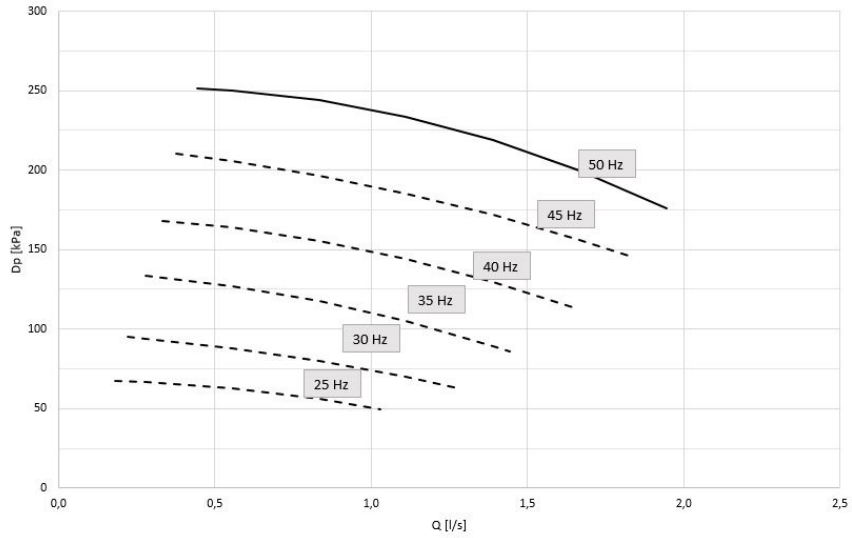
This configuration provides for one inverter-controlled electric centrifugal pump with body and impeller in AISI 304 steel. The electric pump is equipped with three-phase electric motor with IP55-protection and complete with thermoformed insulated casing.

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.

For the sizes 10.1, 12.1 and 14.1 the water connections are screwed by 1 1/2".
For the sizes 16.2, 18.2 e 22.2 water fittings are Victaulic type by 2".

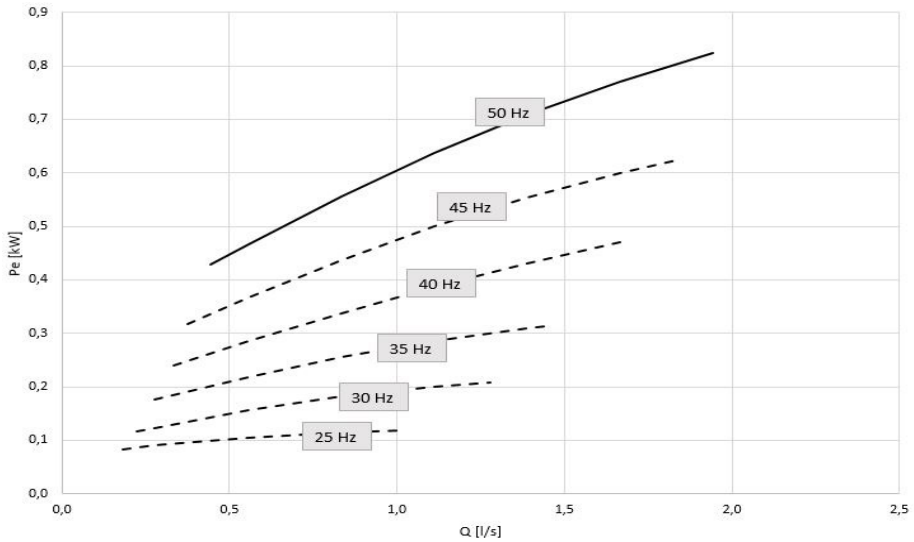
### Pump available pressure curves size 10.1 - 12.1 - 14.1




*DP = Available pressure [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)*

### Pump absorbtion curves size 10.1 - 12.1 - 14.1



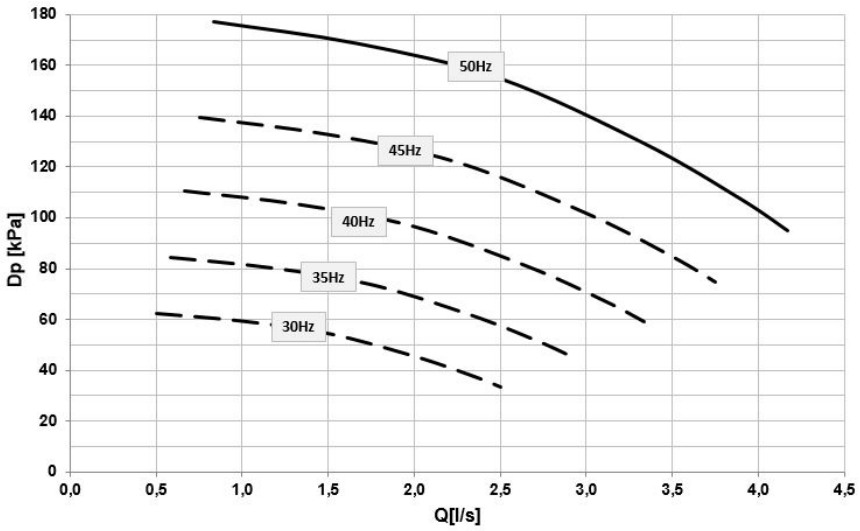

*Pe = Power input [kW]*
*Q = Water flow-rate [l/s]*

# General technical data

## Hydronic assembly

## Unit with 1 inverter pump (HYGU1V)

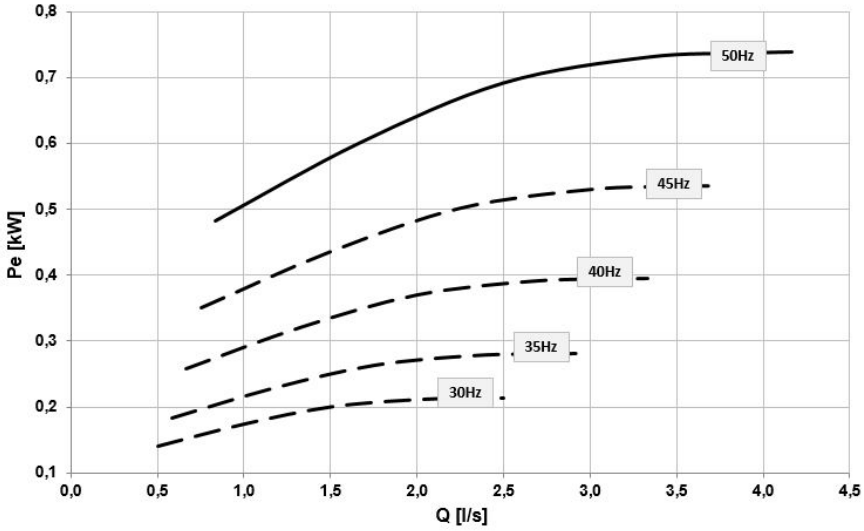
### Pump available pressure curves size 16.2 - 18.2 - 22.2




*DP = Available pressure [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)*

### Pump absorbtion curves size 16.2 - 18.2 - 22.2




*Pe = Power input [kW]*
*Q = Water flow-rate [l/s]*

### 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 |

# General technical data

## Performances in heating - Size 10.1

| To | Tae DB/WB | Heating capacity EN14511 | | | | | | | COP EN14511 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | Percentage of compressor load | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 100% | 90% | 80% | 70% | 60% | 50% | 40% |
| 25 | -14/-14,3 | 12,6 | 11,1 | 9,72 | 8,34 | 6,92 | 5,52 | 4,11 | 2,75 | 2,72 | 2,71 | 2,68 | 2,65 | 2,63 | 2,61 |
| | -7/-8 | 17,0 | 15,2 | 13,6 | 12,0 | 10,3 | 8,66 | 6,99 | 3,54 | 3,55 | 3,57 | 3,62 | 3,64 | 3,67 | 3,69 |
| | 2/1,1 | 22,7 | 20,6 | 18,5 | 16,4 | 14,3 | 12,2 | 10,1 | 4,56 | 4,63 | 4,69 | 4,76 | 4,83 | 4,89 | 4,96 |
| | 7/6 | 26,3 | 23,9 | 21,5 | 19,0 | 16,6 | 14,2 | 11,8 | 5,23 | 5,32 | 5,41 | 5,49 | 5,58 | 5,67 | 5,76 |
| | 10/8,2 | 28,1 | 25,5 | 22,8 | 20,2 | 17,5 | 14,9 | 12,3 | 5,59 | 5,68 | 5,75 | 5,85 | 5,93 | 6,01 | 6,10 |
| | 18/14 | 34,6 | 31,3 | 28,1 | 24,9 | 21,6 | 18,4 | 15,1 | 6,88 | 7,05 | 7,20 | 7,33 | 7,49 | 7,64 | 7,79 |
| 30 | -14/-14,3 | 12,2 | 10,8 | 9,39 | 8,07 | 6,67 | 5,30 | 3,92 | 2,49 | 2,47 | 2,44 | 2,41 | 2,38 | 2,35 | 2,32 |
| | -7/-8 | 16,6 | 14,9 | 13,3 | 11,8 | 10,1 | 8,49 | 6,87 | 3,18 | 3,19 | 3,22 | 3,25 | 3,27 | 3,29 | 3,31 |
| | 2/1,1 | 22,3 | 20,2 | 18,1 | 16,0 | 14,0 | 11,9 | 9,80 | 4,06 | 4,13 | 4,18 | 4,23 | 4,29 | 4,34 | 4,40 |
| | 7/6 | 25,8 | 23,4 | 21,0 | 18,6 | 16,2 | 13,8 | 11,39 | 4,63 | 4,71 | 4,78 | 4,85 | 4,92 | 5,00 | 5,07 |
| | 10/8,2 | 27,5 | 24,9 | 22,3 | 19,7 | 17,1 | 14,5 | 11,9 | 4,91 | 4,98 | 5,06 | 5,13 | 5,21 | 5,28 | 5,36 |
| | 18/14 | 33,8 | 30,6 | 27,4 | 24,2 | 21,0 | 17,7 | 14,5 | 5,97 | 6,11 | 6,23 | 6,33 | 6,47 | 6,59 | 6,71 |
| 35 | -14/-14,3 | 11,9 | 10,5 | 9,14 | 7,87 | 6,49 | 5,14 | 3,79 | 2,27 | 2,24 | 2,21 | 2,17 | 2,14 | 2,11 | 2,08 |
| | -7/-8 | 16,3 | 14,7 | 13,1 | 11,5 | 9,93 | 8,35 | 6,77 | 2,88 | 2,90 | 2,91 | 2,92 | 2,94 | 2,96 | 2,97 |
| | 2/1,1 | 21,9 | 19,8 | 17,7 | 15,7 | 13,6 | 11,6 | 9,49 | 3,65 | 3,70 | 3,74 | 3,77 | 3,82 | 3,86 | 3,90 |
| | 7/6 | 25,3 | 22,9 | 20,5 | 18,1 | 15,7 | 13,4 | 11,0 | 4,17 | 4,19 | 4,25 | 4,29 | 4,35 | 4,41 | 4,47 |
| | 10/8,2 | 26,9 | 24,3 | 21,8 | 19,3 | 16,7 | 14,2 | 11,6 | 4,35 | 4,42 | 4,48 | 4,53 | 4,60 | 4,67 | 4,73 |
| | 18/14 | 33,0 | 29,9 | 26,7 | 23,5 | 20,3 | 17,1 | 13,9 | 5,23 | 5,35 | 5,45 | 5,51 | 5,62 | 5,71 | 5,81 |
| 40 | -14/-14,3 | 11,7 | 10,3 | 8,96 | 7,76 | 6,39 | 5,09 | 3,78 | 2,07 | 2,04 | 2,01 | 1,99 | 1,95 | 1,92 | 1,90 |
| | -7/-8 | 16,0 | 14,4 | 12,9 | 11,3 | 9,76 | 8,20 | 6,64 | 2,61 | 2,63 | 2,64 | 2,64 | 2,65 | 2,66 | 2,67 |
| | 2/1,1 | 21,5 | 19,4 | 17,4 | 15,3 | 13,3 | 11,2 | 9,19 | 3,27 | 3,31 | 3,34 | 3,35 | 3,39 | 3,42 | 3,45 |
| | 7/6 | 24,8 | 22,4 | 20,1 | 17,7 | 15,3 | 12,9 | 10,6 | 3,66 | 3,72 | 3,76 | 3,78 | 3,83 | 3,87 | 3,91 |
| | 10/8,2 | 26,3 | 23,8 | 21,3 | 18,8 | 16,3 | 13,8 | 11,3 | 3,84 | 3,91 | 3,96 | 3,98 | 4,04 | 4,09 | 4,14 |
| | 18/14 | 32,2 | 29,1 | 25,9 | 22,7 | 19,6 | 16,4 | 13,3 | 4,56 | 4,66 | 4,74 | 4,77 | 4,86 | 4,93 | 5,00 |
| 45 | -14/-14,3 | 11,4 | 10,1 | 8,85 | 7,71 | 6,41 | 5,17 | 3,93 | 1,90 | 1,87 | 1,84 | 1,83 | 1,80 | 1,78 | 1,75 |
| | -7/-8 | 15,8 | 14,2 | 12,7 | 11,2 | 9,65 | 8,11 | 6,58 | 2,38 | 2,39 | 2,39 | 2,39 | 2,40 | 2,41 | 2,41 |
| | 2/1,1 | 21,1 | 19,1 | 17,0 | 15,0 | 13,0 | 10,9 | 8,91 | 2,93 | 2,97 | 2,99 | 2,99 | 3,02 | 3,04 | 3,06 |
| | 7/6 | 24,3 | 21,9 | 19,6 | 17,2 | 14,9 | 12,5 | 10,2 | 3,30 | 3,31 | 3,34 | 3,34 | 3,38 | 3,41 | 3,43 |
| | 10/8,2 | 25,7 | 23,3 | 20,8 | 18,2 | 15,7 | 13,2 | 10,7 | 3,41 | 3,47 | 3,50 | 3,51 | 3,55 | 3,59 | 3,62 |
| | 18/14 | 31,3 | 28,2 | 25,1 | 21,9 | 18,8 | 15,7 | 12,6 | 4,00 | 4,07 | 4,13 | 4,15 | 4,21 | 4,26 | 4,31 |
| 50 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | 15,6 | 14,1 | 12,6 | 11,0 | 9,53 | 8,01 | 6,49 | 2,17 | 2,18 | 2,18 | 2,19 | 2,20 | 2,21 | 2,22 |
| | 2/1,1 | 20,7 | 18,7 | 16,7 | 14,7 | 12,7 | 10,7 | 8,66 | 2,64 | 2,67 | 2,68 | 2,70 | 2,72 | 2,74 | 2,76 |
| | 7/6 | 23,8 | 21,4 | 19,1 | 16,8 | 14,5 | 12,2 | 9,83 | 2,91 | 2,95 | 2,97 | 3,00 | 3,03 | 3,06 | 3,08 |
| | 10/8,2 | 25,2 | 22,7 | 20,2 | 17,7 | 15,3 | 12,8 | 10,3 | 3,03 | 3,07 | 3,10 | 3,13 | 3,17 | 3,20 | 3,23 |
| | 18/14 | 30,5 | 27,3 | 24,2 | 21,1 | 17,9 | 14,8 | 11,7 | 3,57 | 3,56 | 3,59 | 3,60 | 3,61 | 3,62 | 3,63 |
| 54 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2/1,1 | 20,5 | 18,4 | 16,5 | 14,5 | 12,5 | 10,5 | 8,47 | 2,43 | 2,45 | 2,46 | 2,48 | 2,49 | 2,51 | 2,52 |
| | 7/6 | 23,3 | 21,1 | 18,7 | 16,4 | 14,1 | 11,8 | 9,53 | 2,66 | 2,69 | 2,70 | 2,73 | 2,75 | 2,78 | 2,80 |
| | 10/8,2 | 24,7 | 22,2 | 19,8 | 17,3 | 14,8 | 12,3 | 9,85 | 2,77 | 2,80 | 2,81 | 2,83 | 2,85 | 2,86 | 2,88 |
| | 18/14 | 29,8 | 26,7 | 23,5 | 20,3 | 17,2 | 14,0 | 10,8 | 3,27 | 3,26 | 3,22 | 3,20 | 3,17 | 3,15 | 3,12 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Heating capacity and COP calculated according to EN 14511:2018*
*ATTENTION: The data of the heat capacity and COP include defrostings.*

# General technical data

## Performances in cooling - Size 10.1

| To | Tae | Cooling capacity EN14511 | | | | | | | | EER EN14511 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | | Percentage of compressor load | | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% |
| 7 | 15 | 27,4 | 25,1 | 22,9 | 20,6 | 18,3 | 16,0 | 13,8 | 11,1 | 5,55 | 5,73 | 5,91 | 6,09 | 6,26 | 6,44 | 6,62 | 6,86 |
| | 20 | 26,1 | 24,0 | 21,8 | 19,6 | 17,5 | 15,3 | 13,1 | 10,6 | 4,74 | 4,91 | 5,07 | 5,23 | 5,40 | 5,56 | 5,72 | 5,91 |
| | 25 | 24,9 | 22,8 | 20,7 | 18,7 | 16,6 | 14,6 | 12,5 | 10,0 | 4,07 | 4,21 | 4,35 | 4,49 | 4,63 | 4,77 | 4,91 | 5,05 |
| | 30 | 23,6 | 21,6 | 19,7 | 17,7 | 15,8 | 13,8 | 11,9 | 9,57 | 3,51 | 3,63 | 3,75 | 3,87 | 3,99 | 4,11 | 4,23 | 4,38 |
| | 35 | 22,3 | 20,4 | 18,6 | 16,7 | 14,9 | 13,0 | 11,2 | 8,96 | 3,02 | 3,13 | 3,23 | 3,33 | 3,43 | 3,54 | 3,64 | 3,72 |
| | 40 | 20,9 | 19,2 | 17,5 | 15,7 | 14,0 | 12,3 | 10,5 | 8,38 | 2,61 | 2,69 | 2,77 | 2,85 | 2,94 | 3,02 | 3,10 | 3,17 |
| | 44 | 19,6 | 18,0 | 16,4 | 14,7 | 13,1 | 11,5 | 9,88 | 7,81 | 2,25 | 2,31 | 2,38 | 2,45 | 2,52 | 2,59 | 2,66 | 2,62 |
| 10 | 15 | 30,1 | 27,6 | 25,1 | 22,6 | 20,2 | 17,7 | 15,2 | 12,2 | 6,06 | 6,27 | 6,49 | 6,71 | 6,92 | 7,14 | 7,35 | 7,62 |
| | 20 | 28,8 | 26,4 | 24,0 | 21,6 | 19,2 | 16,9 | 14,5 | 11,6 | 5,16 | 5,36 | 5,55 | 5,74 | 5,93 | 6,13 | 6,32 | 6,52 |
| | 25 | 27,4 | 25,1 | 22,8 | 20,4 | 18,1 | 15,7 | 13,4 | 11,0 | 4,46 | 4,58 | 4,70 | 4,82 | 4,94 | 5,06 | 5,18 | 5,56 |
| | 30 | 26,0 | 23,8 | 21,7 | 19,5 | 17,4 | 15,2 | 13,1 | 10,5 | 3,80 | 3,94 | 4,08 | 4,22 | 4,36 | 4,50 | 4,64 | 4,78 |
| | 35 | 24,5 | 22,5 | 20,5 | 18,5 | 16,4 | 14,4 | 12,4 | 9,85 | 3,27 | 3,39 | 3,50 | 3,62 | 3,74 | 3,86 | 3,98 | 4,07 |
| | 40 | 23,1 | 21,2 | 19,3 | 17,3 | 15,4 | 13,5 | 11,6 | 9,21 | 2,81 | 2,91 | 3,01 | 3,10 | 3,20 | 3,29 | 3,39 | 3,46 |
| | 44 | 21,6 | 19,8 | 18,0 | 16,2 | 14,4 | 12,6 | 10,8 | 8,55 | 2,43 | 2,50 | 2,58 | 2,66 | 2,73 | 2,81 | 2,89 | 2,84 |
| 12 | 15 | 32,0 | 29,3 | 26,7 | 24,1 | 21,4 | 18,8 | 16,1 | 12,9 | 6,41 | 6,66 | 6,92 | 7,17 | 7,43 | 7,68 | 7,93 | 8,20 |
| | 20 | 30,5 | 28,0 | 25,5 | 23,0 | 20,4 | 17,9 | 15,4 | 12,3 | 5,45 | 5,67 | 5,89 | 6,10 | 6,32 | 6,54 | 6,76 | 6,98 |
| | 25 | 29,1 | 26,7 | 24,2 | 21,7 | 19,3 | 16,8 | 14,4 | 11,7 | 4,68 | 4,84 | 5,00 | 5,15 | 5,31 | 5,46 | 5,62 | 5,93 |
| | 30 | 27,6 | 25,3 | 23,1 | 20,8 | 18,5 | 16,2 | 14,0 | 11,1 | 4,00 | 4,15 | 4,31 | 4,46 | 4,62 | 4,77 | 4,93 | 5,08 |
| | 35 | 26,1 | 23,9 | 21,8 | 19,6 | 17,5 | 15,3 | 13,1 | 10,4 | 3,44 | 3,56 | 3,69 | 3,81 | 3,94 | 4,06 | 4,19 | 4,32 |
| | 40 | 24,5 | 22,5 | 20,5 | 18,4 | 16,4 | 14,3 | 12,3 | 9,75 | 2,96 | 3,06 | 3,16 | 3,27 | 3,37 | 3,47 | 3,58 | 3,66 |
| | 44 | 23,0 | 21,1 | 19,1 | 17,2 | 15,3 | 13,4 | 11,5 | 9,05 | 2,55 | 2,63 | 2,72 | 2,80 | 2,89 | 2,98 | 3,06 | 3,00 |
| 15 | 15 | 34,9 | 32,0 | 29,1 | 26,2 | 23,3 | 20,4 | 17,5 | 13,8 | 6,96 | 7,26 | 7,56 | 7,86 | 8,16 | 8,46 | 8,76 | 9,15 |
| | 20 | 33,3 | 30,5 | 27,8 | 25,0 | 22,3 | 19,5 | 16,8 | 13,3 | 5,89 | 6,14 | 6,40 | 6,65 | 6,91 | 7,16 | 7,41 | 7,76 |
| | 25 | 31,8 | 29,1 | 26,5 | 23,9 | 21,3 | 18,7 | 16,1 | 12,6 | 5,04 | 5,27 | 5,50 | 5,73 | 5,96 | 6,18 | 6,41 | 6,58 |
| | 30 | 30,1 | 27,6 | 25,1 | 22,7 | 20,2 | 17,7 | 15,2 | 12,1 | 4,31 | 4,49 | 4,67 | 4,85 | 5,03 | 5,20 | 5,38 | 5,63 |
| | 35 | 28,5 | 26,1 | 23,8 | 21,4 | 19,0 | 16,7 | 14,3 | 11,4 | 3,70 | 3,85 | 3,99 | 4,14 | 4,29 | 4,44 | 4,58 | 4,78 |
| | 40 | 26,8 | 24,5 | 22,3 | 20,1 | 17,8 | 15,6 | 13,4 | 10,6 | 3,18 | 3,30 | 3,42 | 3,54 | 3,66 | 3,78 | 3,90 | 3,99 |
| | 44 | 25,1 | 23,0 | 20,9 | 18,8 | 16,7 | 14,6 | 12,5 | 9,76 | 2,73 | 2,83 | 2,92 | 3,02 | 3,11 | 3,21 | 3,30 | 3,36 |
| 18 | 15 | 37,8 | 34,7 | 31,5 | 28,4 | 25,3 | 22,1 | 19,0 | 15,2 | 7,54 | 7,89 | 8,25 | 8,61 | 8,96 | 9,32 | 9,68 | 10,06 |
| | 20 | 36,1 | 33,1 | 30,1 | 27,1 | 24,1 | 21,1 | 18,1 | 14,4 | 6,36 | 6,67 | 6,97 | 7,28 | 7,58 | 7,89 | 8,19 | 8,39 |
| | 25 | 34,5 | 31,6 | 28,8 | 25,9 | 23,0 | 20,2 | 17,3 | 13,8 | 5,42 | 5,68 | 5,93 | 6,18 | 6,43 | 6,69 | 6,94 | 7,24 |
| | 30 | 32,7 | 30,0 | 27,3 | 24,5 | 21,8 | 19,1 | 16,4 | 13,1 | 4,63 | 4,83 | 5,04 | 5,24 | 5,45 | 5,65 | 5,86 | 6,13 |
| | 35 | 31,3 | 29,9 | 25,7 | 23,2 | 20,6 | 18,0 | 15,4 | 12,3 | 4,12 | 4,28 | 4,34 | 4,46 | 4,63 | 4,80 | 4,96 | 5,21 |
| | 40 | 29,1 | 26,6 | 24,2 | 21,8 | 19,3 | 16,9 | 14,5 | 11,4 | 3,30 | 3,43 | 3,56 | 3,68 | 3,81 | 3,94 | 4,07 | 4,28 |
| | 44 | 27,2 | 25,0 | 22,7 | 20,4 | 18,1 | 15,8 | 13,5 | 10,6 | 2,64 | 2,73 | 2,82 | 2,91 | 3,00 | 3,08 | 3,17 | 3,36 |
| 20 | 15 | 39,9 | 36,5 | 33,2 | 29,9 | 26,6 | 23,2 | 19,9 | 15,7 | 7,94 | 8,35 | 8,76 | 9,17 | 9,58 | 9,99 | 10,40 | 10,92 |
| | 20 | 38,1 | 34,9 | 31,8 | 28,6 | 25,4 | 22,3 | 19,1 | 15,0 | 6,68 | 7,02 | 7,37 | 7,71 | 8,05 | 8,40 | 8,74 | 9,08 |
| | 25 | 36,3 | 33,3 | 30,3 | 27,3 | 24,3 | 21,3 | 18,3 | 14,5 | 5,69 | 5,97 | 6,25 | 6,53 | 6,82 | 7,10 | 7,38 | 7,76 |
| | 30 | 34,4 | 31,6 | 28,7 | 25,8 | 23,0 | 20,1 | 17,2 | 13,7 | 4,85 | 5,07 | 5,30 | 5,53 | 5,75 | 5,98 | 6,20 | 6,51 |
| | 35 | 32,5 | 29,8 | 27,1 | 24,4 | 21,7 | 19,0 | 16,3 | 13,0 | 4,15 | 4,33 | 4,52 | 4,70 | 4,88 | 5,07 | 5,25 | 5,50 |
| | 40 | 30,6 | 28,0 | 25,5 | 22,9 | 20,4 | 17,8 | 15,2 | 12,1 | 3,56 | 3,71 | 3,85 | 4,00 | 4,15 | 4,29 | 4,44 | 4,65 |
| | 44 | 28,7 | 26,3 | 23,8 | 21,4 | 19,0 | 16,6 | 14,1 | 11,4 | 2,97 | 3,08 | 3,19 | 3,30 | 3,41 | 3,52 | 3,63 | 3,80 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Cooling capacity and EER calculated according to EN 14511:2018*

# General technical data

## Performances in heating - Size 12.1

| To | Tae DB/WB | Heating capacity EN14511 | | | | | | | COP EN14511 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | Percentage of compressor load | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 100% | 90% | 80% | 70% | 60% | 50% | 40% |
| 25 | -14/-14,3 | 14,5 | 12,6 | 11,1 | 9,44 | 7,82 | 6,15 | 4,52 | 3,10 | 3,05 | 3,01 | 2,99 | 2,96 | 2,92 | 2,88 |
| | -7/-8 | 19,1 | 17,0 | 15,2 | 13,3 | 11,4 | 9,47 | 7,55 | 3,89 | 3,92 | 3,93 | 3,97 | 4,03 | 4,10 | 4,11 |
| | 2/1,1 | 25,3 | 22,7 | 20,6 | 18,1 | 15,6 | 13,3 | 10,9 | 4,96 | 5,05 | 5,13 | 5,21 | 5,31 | 5,39 | 5,47 |
| | 7/6 | 29,2 | 26,3 | 23,9 | 21,0 | 18,1 | 15,4 | 12,7 | 5,66 | 5,79 | 5,89 | 6,01 | 6,12 | 6,20 | 6,32 |
| | 10/8,2 | 31,2 | 28,1 | 25,5 | 22,3 | 19,2 | 16,3 | 13,3 | 6,04 | 6,18 | 6,29 | 6,38 | 6,50 | 6,61 | 6,72 |
| | 18/14 | 38,5 | 34,6 | 31,3 | 27,5 | 23,6 | 20,0 | 16,3 | 7,39 | 7,62 | 7,81 | 7,99 | 8,16 | 8,28 | 8,50 |
| 30 | -14/-14,3 | 14,0 | 12,2 | 10,8 | 9,12 | 7,57 | 5,95 | 4,35 | 2,81 | 2,76 | 2,73 | 2,69 | 2,66 | 2,62 | 2,58 |
| | -7/-8 | 18,7 | 16,6 | 14,9 | 13,0 | 11,1 | 9,25 | 7,37 | 3,51 | 3,52 | 3,53 | 3,57 | 3,61 | 3,65 | 3,66 |
| | 2/1,1 | 24,8 | 22,3 | 20,2 | 17,7 | 15,2 | 12,9 | 10,5 | 4,42 | 4,50 | 4,57 | 4,64 | 4,70 | 4,77 | 4,84 |
| | 7/6 | 28,7 | 25,8 | 23,4 | 20,5 | 17,6 | 15,0 | 12,2 | 5,01 | 5,12 | 5,21 | 5,31 | 5,38 | 5,43 | 5,54 |
| | 10/8,2 | 30,6 | 27,5 | 24,9 | 21,8 | 18,7 | 15,8 | 12,9 | 5,31 | 5,43 | 5,52 | 5,62 | 5,71 | 5,76 | 5,88 |
| | 18/14 | 37,7 | 33,8 | 30,6 | 26,8 | 22,9 | 19,3 | 15,6 | 6,51 | 6,61 | 6,77 | 6,92 | 7,06 | 7,11 | 7,28 |
| 35 | -14/-14,3 | 13,6 | 11,9 | 10,5 | 8,87 | 7,40 | 5,81 | 4,26 | 2,55 | 2,51 | 2,48 | 2,44 | 2,40 | 2,37 | 2,33 |
| | -7/-8 | 18,3 | 16,3 | 14,7 | 12,8 | 10,9 | 9,09 | 7,25 | 3,18 | 3,19 | 3,21 | 3,23 | 3,25 | 3,26 | 3,28 |
| | 2/1,1 | 24,4 | 21,9 | 19,8 | 17,3 | 14,9 | 12,6 | 10,2 | 3,97 | 4,04 | 4,10 | 4,15 | 4,19 | 4,25 | 4,31 |
| | 7/6 | 28,2 | 25,3 | 22,9 | 20,0 | 17,2 | 14,6 | 11,8 | 4,25 | 4,56 | 4,64 | 4,71 | 4,75 | 4,84 | 4,92 |
| | 10/8,2 | 30,1 | 26,9 | 24,3 | 21,3 | 18,2 | 15,4 | 12,4 | 4,71 | 4,81 | 4,89 | 4,97 | 5,02 | 5,11 | 5,19 |
| | 18/14 | 36,8 | 33,0 | 29,9 | 26,0 | 22,2 | 18,7 | 15,1 | 5,61 | 5,79 | 5,93 | 6,04 | 6,12 | 6,28 | 6,41 |
| 40 | -14/-14,3 | 13,3 | 11,7 | 10,3 | 8,71 | 7,30 | 5,75 | 4,24 | 2,32 | 2,30 | 2,26 | 2,22 | 2,19 | 2,16 | 2,12 |
| | -7/-8 | 18,0 | 16,0 | 14,4 | 12,6 | 10,7 | 8,96 | 7,16 | 2,87 | 2,89 | 2,91 | 2,92 | 2,92 | 2,92 | 2,94 |
| | 2/1,1 | 24,0 | 21,5 | 19,4 | 17,0 | 14,5 | 12,3 | 9,92 | 3,55 | 3,62 | 3,66 | 3,70 | 3,72 | 3,77 | 3,81 |
| | 7/6 | 27,6 | 24,8 | 22,4 | 19,6 | 16,7 | 14,1 | 11,4 | 3,96 | 4,05 | 4,12 | 4,17 | 4,19 | 4,15 | 4,25 |
| | 10/8,2 | 29,4 | 26,3 | 23,8 | 20,8 | 17,7 | 14,9 | 12,1 | 4,16 | 4,25 | 4,33 | 4,40 | 4,40 | 4,35 | 4,46 |
| | 18/14 | 36,0 | 32,2 | 29,1 | 25,3 | 21,4 | 18,0 | 14,4 | 4,94 | 5,05 | 5,16 | 5,26 | 5,29 | 5,25 | 5,39 |
| 45 | -14/-14,3 | 13,1 | 11,4 | 10,1 | 8,61 | 7,32 | 5,79 | 4,35 | 1,97 | 1,95 | 1,92 | 1,89 | 1,88 | 1,84 | 1,82 |
| | -7/-8 | 17,7 | 15,8 | 14,2 | 12,4 | 10,6 | 8,86 | 7,10 | 2,42 | 2,44 | 2,45 | 2,46 | 2,46 | 2,47 | 2,48 |
| | 2/1,1 | 23,6 | 21,1 | 19,1 | 16,6 | 14,2 | 12,0 | 9,63 | 2,96 | 3,01 | 3,05 | 3,07 | 3,06 | 3,11 | 3,14 |
| | 7/6 | 27,1 | 24,3 | 21,9 | 19,1 | 16,3 | 13,7 | 11,0 | 3,27 | 3,35 | 3,40 | 3,43 | 3,42 | 3,49 | 3,53 |
| | 10/8,2 | 28,7 | 25,7 | 23,3 | 20,3 | 17,2 | 14,5 | 11,6 | 3,41 | 3,50 | 3,56 | 3,60 | 3,58 | 3,66 | 3,71 |
| | 18/14 | 35,2 | 31,3 | 28,2 | 24,5 | 20,7 | 17,2 | 13,6 | 4,07 | 4,11 | 4,18 | 4,25 | 4,25 | 4,32 | 4,37 |
| 50 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | 17,5 | 15,6 | 14,1 | 12,3 | 10,5 | 8,80 | 7,06 | 2,21 | 2,22 | 2,23 | 2,24 | 2,23 | 2,25 | 2,25 |
| | 2/1,1 | 23,2 | 20,7 | 18,7 | 16,3 | 11,8 | 10,0 | 7,30 | 2,66 | 2,71 | 2,74 | 2,75 | 2,79 | 2,82 | 2,85 |
| | 7/6 | 26,5 | 23,8 | 21,4 | 18,7 | 15,8 | 13,3 | 10,6 | 2,92 | 2,98 | 3,03 | 3,04 | 3,02 | 3,08 | 3,11 |
| | 10/8,2 | 28,1 | 25,2 | 22,7 | 19,7 | 16,6 | 13,9 | 11,0 | 3,05 | 3,11 | 3,16 | 3,18 | 3,14 | 3,20 | 3,22 |
| | 18/14 | 34,3 | 30,5 | 27,3 | 23,6 | 19,9 | 16,4 | 12,8 | 3,64 | 3,66 | 3,65 | 3,69 | 3,67 | 3,69 | 3,70 |
| 54 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2/1,1 | 22,8 | 20,5 | 18,4 | 16,2 | 14,0 | 11,8 | 9,60 | 2,45 | 2,49 | 2,52 | 2,56 | 2,59 | 2,63 | 2,66 |
| | 7/6 | 26,2 | 23,3 | 21,1 | 18,3 | 15,7 | 13,1 | 10,5 | 2,70 | 2,73 | 2,76 | 2,77 | 2,80 | 2,83 | 2,85 |
| | 10/8,2 | 27,7 | 24,7 | 22,2 | 19,2 | 16,5 | 13,7 | 10,9 | 2,83 | 2,85 | 2,87 | 2,88 | 2,90 | 2,92 | 2,94 |
| | 18/14 | 32,8 | 29,3 | 26,3 | 22,8 | 19,5 | 16,2 | 12,9 | 3,23 | 3,26 | 3,28 | 3,29 | 3,32 | 3,34 | 3,36 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Heating capacity and COP calculated according to EN 14511:2018*
*ATTENTION: The data of the heat capacity and COP include defrostings.*

# General technical data

## Performances in cooling - Size 12.1

| To | Tae | Cooling capacity EN14511 | | | | | | | | EER EN14511 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | | Percentage of compressor load | | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% |
| 7 | 15 | 31,9 | 29,2 | 26,1 | 22,9 | 20,1 | 17,1 | 14,1 | 11,1 | 5,18 | 5,41 | 5,66 | 5,92 | 6,13 | 6,38 | 6,62 | 6,86 |
| | 20 | 30,4 | 27,9 | 24,8 | 21,8 | 19,2 | 16,3 | 13,4 | 10,6 | 4,42 | 4,62 | 4,84 | 5,06 | 5,26 | 5,48 | 5,70 | 5,91 |
| | 25 | 28,9 | 26,5 | 23,6 | 20,7 | 18,2 | 15,5 | 12,7 | 10,0 | 3,80 | 3,97 | 4,15 | 4,34 | 4,51 | 4,69 | 4,87 | 5,05 |
| | 30 | 27,4 | 25,1 | 22,4 | 19,7 | 17,3 | 14,7 | 12,1 | 9,6 | 3,26 | 3,41 | 3,58 | 3,75 | 3,89 | 4,06 | 4,22 | 4,38 |
| | 35 | 25,8 | 23,7 | 21,2 | 18,6 | 16,3 | 13,8 | 11,4 | 9,0 | 2,84 | 2,94 | 3,08 | 3,22 | 3,31 | 3,46 | 3,59 | 3,72 |
| | 40 | 24,2 | 22,3 | 19,9 | 17,4 | 15,2 | 13,0 | 10,7 | 8,4 | 2,42 | 2,53 | 2,66 | 2,76 | 2,83 | 2,96 | 3,06 | 3,17 |
| | 44 | 22,7 | 20,9 | 18,6 | 16,3 | 14,2 | 12,1 | 10,0 | 7,8 | 2,09 | 2,18 | 2,29 | 2,37 | 2,35 | 2,47 | 2,54 | 2,62 |
| 10 | 15 | 35,0 | 32,1 | 28,6 | 25,1 | 22,1 | 18,7 | 15,5 | 12,2 | 5,61 | 5,88 | 6,19 | 6,48 | 6,75 | 7,04 | 7,33 | 7,62 |
| | 20 | 33,4 | 30,6 | 27,3 | 24,0 | 21,1 | 17,9 | 14,8 | 11,6 | 4,77 | 5,01 | 5,27 | 5,54 | 5,75 | 6,02 | 6,27 | 6,52 |
| | 25 | 31,8 | 29,2 | 26,0 | 22,8 | 20,0 | 17,0 | 14,0 | 11,0 | 4,09 | 4,30 | 4,52 | 4,74 | 4,92 | 5,14 | 5,35 | 5,56 |
| | 30 | 30,1 | 27,7 | 24,7 | 21,6 | 19,0 | 16,1 | 13,3 | 10,5 | 3,51 | 3,69 | 3,89 | 4,07 | 4,22 | 4,42 | 4,60 | 4,78 |
| | 35 | 28,4 | 26,1 | 23,3 | 20,4 | 17,9 | 15,2 | 12,5 | 9,8 | 3,02 | 3,17 | 3,34 | 3,49 | 3,60 | 3,77 | 3,92 | 4,07 |
| | 40 | 26,7 | 24,6 | 21,9 | 19,2 | 16,8 | 14,3 | 11,7 | 9,2 | 2,60 | 2,73 | 2,87 | 2,99 | 3,07 | 3,22 | 3,34 | 3,46 |
| | 44 | 25,0 | 23,0 | 20,5 | 17,9 | 15,6 | 13,3 | 10,9 | 8,6 | 2,25 | 2,35 | 2,47 | 2,57 | 2,54 | 2,68 | 2,76 | 2,84 |
| 12 | 15 | 37,2 | 34,1 | 30,4 | 26,7 | 23,5 | 19,9 | 16,4 | 12,9 | 5,91 | 6,22 | 6,56 | 6,90 | 7,20 | 7,54 | 7,87 | 8,20 |
| | 20 | 35,5 | 32,5 | 29,0 | 25,5 | 22,4 | 19,0 | 15,7 | 12,3 | 5,01 | 5,28 | 5,57 | 5,87 | 6,12 | 6,42 | 6,70 | 6,98 |
| | 25 | 33,8 | 31,0 | 27,7 | 24,2 | 21,3 | 18,1 | 14,9 | 11,7 | 4,29 | 4,52 | 4,80 | 5,01 | 5,21 | 5,47 | 5,70 | 5,93 |
| | 30 | 32,0 | 29,4 | 26,2 | 23,0 | 20,2 | 17,1 | 14,1 | 11,1 | 3,68 | 3,88 | 4,09 | 4,30 | 4,46 | 4,68 | 4,88 | 5,08 |
| | 35 | 30,2 | 27,8 | 24,8 | 21,7 | 19,0 | 16,1 | 13,3 | 10,4 | 3,16 | 3,33 | 3,52 | 3,69 | 3,80 | 3,99 | 4,16 | 4,32 |
| | 40 | 28,4 | 26,1 | 23,3 | 20,4 | 17,8 | 15,1 | 12,4 | 9,8 | 2,73 | 2,87 | 3,02 | 3,15 | 3,24 | 3,40 | 3,53 | 3,66 |
| | 44 | 26,6 | 24,5 | 21,8 | 19,1 | 16,6 | 14,1 | 11,6 | 9,0 | 2,36 | 2,47 | 2,60 | 2,70 | 2,68 | 2,82 | 2,91 | 3,00 |
| 15 | 15 | 40,5 | 37,1 | 33,1 | 29,1 | 25,5 | 21,5 | 17,7 | 13,8 | 6,36 | 6,72 | 7,14 | 7,56 | 7,91 | 8,35 | 8,75 | 9,15 |
| | 20 | 38,7 | 35,5 | 31,7 | 27,8 | 24,4 | 20,6 | 16,9 | 13,3 | 5,38 | 5,68 | 6,05 | 6,40 | 6,70 | 7,07 | 7,42 | 7,76 |
| | 25 | 36,8 | 33,8 | 30,2 | 26,4 | 23,2 | 19,6 | 16,1 | 12,6 | 4,60 | 4,87 | 5,18 | 5,44 | 5,68 | 6,01 | 6,29 | 6,58 |
| | 30 | 34,9 | 32,1 | 28,6 | 25,1 | 22,0 | 18,6 | 15,4 | 12,1 | 3,94 | 4,16 | 4,42 | 4,66 | 4,85 | 5,15 | 5,39 | 5,63 |
| | 35 | 33,0 | 30,3 | 27,1 | 23,7 | 20,7 | 17,6 | 14,5 | 11,4 | 3,38 | 3,58 | 3,78 | 3,98 | 4,12 | 4,38 | 4,58 | 4,78 |
| | 40 | 31,0 | 28,5 | 25,5 | 22,2 | 19,4 | 16,5 | 13,5 | 10,6 | 2,91 | 3,07 | 3,25 | 3,40 | 3,51 | 3,68 | 3,83 | 3,99 |
| | 44 | 29,0 | 26,7 | 23,8 | 20,8 | 18,0 | 15,3 | 12,5 | 9,8 | 2,52 | 2,65 | 2,79 | 2,91 | 2,97 | 3,12 | 3,24 | 3,36 |
| 18 | 15 | 44,0 | 40,3 | 36,0 | 31,5 | 27,7 | 23,4 | 19,3 | 15,2 | 6,82 | 7,25 | 7,75 | 8,20 | 8,67 | 9,13 | 9,60 | 10,06 |
| | 20 | 42,0 | 38,5 | 34,4 | 30,1 | 26,4 | 22,3 | 18,4 | 14,4 | 5,79 | 6,11 | 6,54 | 6,90 | 7,27 | 7,65 | 8,02 | 8,39 |
| | 25 | 40,0 | 36,7 | 32,8 | 28,8 | 25,1 | 21,4 | 17,6 | 13,8 | 4,91 | 5,22 | 5,58 | 5,91 | 6,24 | 6,57 | 6,91 | 7,24 |
| | 30 | 37,9 | 34,8 | 31,1 | 27,2 | 23,8 | 20,2 | 16,6 | 13,1 | 4,20 | 4,46 | 4,76 | 5,03 | 5,30 | 5,58 | 5,86 | 6,13 |
| | 35 | 34,6 | 32,9 | 29,4 | 25,7 | 22,4 | 19,1 | 15,7 | 12,3 | 3,94 | 3,98 | 4,07 | 4,29 | 4,52 | 4,75 | 4,98 | 5,21 |
| | 40 | 33,6 | 30,9 | 27,6 | 24,1 | 21,0 | 17,8 | 14,6 | 11,4 | 3,02 | 3,19 | 3,38 | 3,56 | 3,74 | 3,92 | 4,10 | 4,28 |
| | 44 | 31,5 | 29,0 | 25,9 | 22,6 | 19,6 | 16,6 | 13,6 | 10,6 | 2,43 | 2,56 | 2,70 | 2,83 | 2,96 | 3,09 | 3,22 | 3,36 |
| 20 | 15 | 46,3 | 42,5 | 37,9 | 33,2 | 29,1 | 24,5 | 20,1 | 15,7 | 7,13 | 7,61 | 8,18 | 8,76 | 9,28 | 9,83 | 10,37 | 10,92 |
| | 20 | 44,3 | 40,7 | 36,2 | 31,7 | 27,8 | 23,4 | 19,2 | 15,0 | 6,04 | 6,51 | 6,88 | 7,36 | 7,78 | 8,21 | 8,65 | 9,08 |
| | 25 | 42,1 | 38,7 | 34,5 | 30,2 | 26,4 | 22,5 | 18,5 | 14,5 | 5,13 | 5,46 | 5,86 | 6,26 | 6,62 | 7,00 | 7,38 | 7,76 |
| | 30 | 39,9 | 36,7 | 32,7 | 28,6 | 25,0 | 21,3 | 17,5 | 13,7 | 4,38 | 4,67 | 4,99 | 5,30 | 5,60 | 5,90 | 6,21 | 6,51 |
| | 35 | 37,7 | 34,6 | 30,9 | 27,0 | 23,6 | 20,1 | 16,5 | 13,0 | 3,76 | 4,00 | 4,26 | 4,50 | 4,75 | 5,00 | 5,25 | 5,50 |
| | 40 | 35,4 | 32,6 | 29,1 | 25,4 | 22,2 | 18,9 | 15,5 | 12,1 | 3,24 | 3,43 | 3,65 | 3,84 | 4,04 | 4,25 | 4,45 | 4,65 |
| | 44 | 33,2 | 30,5 | 27,2 | 23,7 | 20,9 | 17,7 | 14,6 | 11,4 | 2,72 | 2,87 | 3,03 | 3,18 | 3,34 | 3,49 | 3,64 | 3,80 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Cooling capacity and EER calculated according to EN 14511:2018*

# General technical data

## Performances in heating - Size 14.1

| To | Tae DB/WB | Heating capacity EN14511 | | | | | | | COP EN14511 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | Percentage of compressor load | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 100% | 90% | 80% | 70% | 60% | 50% | 40% |
| 25 | -14/-14,3 | 17,2 | 15,1 | 12,9 | 11,1 | 9,16 | 7,57 | 5,37 | 2,95 | 2,89 | 2,83 | 2,79 | 2,76 | 2,75 | 2,64 |
| | -7/-8 | 22,1 | 19,9 | 17,4 | 15,2 | 13,0 | 11,1 | 8,67 | 3,59 | 3,60 | 3,63 | 3,64 | 3,69 | 3,74 | 3,78 |
| | 2/1,1 | 28,8 | 26,1 | 23,1 | 20,6 | 17,7 | 15,2 | 12,3 | 4,50 | 4,57 | 4,67 | 4,75 | 4,84 | 4,93 | 5,10 |
| | 7/6 | 33,1 | 30,2 | 26,8 | 23,9 | 20,5 | 17,6 | 14,4 | 5,09 | 5,21 | 5,35 | 5,46 | 5,59 | 5,69 | 5,94 |
| | 10/8,2 | 35,4 | 32,3 | 28,6 | 25,5 | 21,8 | 18,7 | 15,2 | 5,40 | 5,55 | 5,71 | 5,83 | 5,93 | 6,05 | 6,32 |
| | 18/14 | 43,7 | 39,8 | 35,2 | 31,3 | 26,8 | 22,9 | 18,6 | 6,58 | 6,78 | 7,03 | 7,24 | 7,44 | 7,59 | 8,05 |
| 30 | -14/-14,3 | 16,7 | 14,6 | 12,5 | 10,8 | 8,85 | 7,33 | 5,22 | 2,66 | 2,62 | 2,56 | 2,53 | 2,48 | 2,46 | 2,37 |
| | -7/-8 | 21,6 | 19,4 | 17,0 | 14,9 | 12,7 | 10,8 | 8,46 | 3,23 | 3,25 | 3,26 | 3,28 | 3,32 | 3,35 | 3,39 |
| | 2/1,1 | 28,3 | 25,7 | 22,7 | 20,2 | 17,3 | 14,8 | 12,0 | 3,99 | 4,07 | 4,16 | 4,24 | 4,31 | 4,37 | 4,54 |
| | 7/6 | 32,5 | 29,6 | 26,3 | 23,4 | 20,0 | 17,1 | 14,0 | 4,49 | 4,60 | 4,73 | 4,83 | 4,93 | 5,00 | 5,23 |
| | 10/8,2 | 34,8 | 31,7 | 28,1 | 24,9 | 21,3 | 18,2 | 14,8 | 4,74 | 4,88 | 5,02 | 5,11 | 5,22 | 5,30 | 5,55 |
| | 18/14 | 42,9 | 39,1 | 34,5 | 30,6 | 26,1 | 22,2 | 18,0 | 5,78 | 6,02 | 6,09 | 6,28 | 6,44 | 6,55 | 6,87 |
| 35 | -14/-14,3 | 16,2 | 14,3 | 12,2 | 10,5 | 8,62 | 6,70 | 4,81 | 2,42 | 2,38 | 2,34 | 2,30 | 2,25 | 2,21 | 2,13 |
| | -7/-8 | 21,2 | 19,1 | 16,6 | 14,7 | 12,5 | 10,2 | 8,04 | 2,92 | 2,94 | 2,95 | 2,97 | 2,99 | 3,01 | 3,05 |
| | 2/1,1 | 27,8 | 25,2 | 22,3 | 19,8 | 16,9 | 14,3 | 11,5 | 3,58 | 3,65 | 3,73 | 3,80 | 3,85 | 3,93 | 4,07 |
| | 7/6 | 32,0 | 29,1 | 25,8 | 22,9 | 19,6 | 16,6 | 13,4 | 4,16 | 4,18 | 4,21 | 4,30 | 4,37 | 4,48 | 4,67 |
| | 10/8,2 | 34,2 | 31,1 | 27,4 | 24,3 | 20,8 | 17,5 | 14,1 | 4,20 | 4,33 | 4,45 | 4,53 | 4,62 | 4,74 | 4,95 |
| | 18/14 | 42,0 | 38,1 | 33,7 | 29,9 | 25,4 | 21,4 | 17,2 | 5,07 | 5,15 | 5,35 | 5,50 | 5,63 | 5,78 | 6,07 |
| 40 | -14/-14,3 | 15,7 | 13,9 | 12,0 | 10,3 | 8,46 | 7,09 | 5,10 | 2,19 | 2,16 | 2,13 | 2,09 | 2,05 | 2,03 | 1,96 |
| | -7/-8 | 20,8 | 18,7 | 16,3 | 14,4 | 12,2 | 10,4 | 8,20 | 2,64 | 2,66 | 2,68 | 2,70 | 2,71 | 2,71 | 2,75 |
| | 2/1,1 | 27,3 | 24,8 | 21,9 | 19,4 | 16,6 | 14,1 | 11,4 | 3,20 | 3,27 | 3,34 | 3,39 | 3,44 | 3,44 | 3,57 |
| | 7/6 | 31,4 | 28,6 | 25,3 | 22,4 | 19,1 | 16,3 | 13,1 | 3,54 | 3,64 | 3,75 | 3,82 | 3,87 | 3,88 | 4,06 |
| | 10/8,2 | 33,5 | 30,4 | 26,8 | 23,8 | 20,3 | 17,2 | 13,8 | 3,72 | 3,83 | 3,93 | 4,02 | 4,08 | 4,08 | 4,28 |
| | 18/14 | 41,1 | 37,3 | 32,8 | 29,1 | 24,6 | 20,8 | 16,6 | 4,49 | 4,56 | 4,66 | 4,79 | 4,89 | 4,90 | 5,12 |
| 45 | -14/-14,3 | 15,7 | 13,9 | 11,9 | 10,3 | 8,53 | 6,70 | 4,91 | 2,00 | 1,98 | 1,95 | 1,92 | 1,88 | 1,86 | 1,80 |
| | -7/-8 | 20,8 | 18,7 | 16,4 | 14,5 | 12,3 | 10,2 | 8,09 | 2,39 | 2,41 | 2,44 | 2,45 | 2,46 | 2,48 | 2,52 |
| | 2/1,1 | 27,4 | 24,8 | 21,9 | 19,4 | 16,5 | 13,9 | 11,2 | 2,87 | 2,94 | 3,00 | 3,05 | 3,07 | 3,14 | 3,24 |
| | 7/6 | 31,4 | 28,6 | 25,2 | 22,4 | 19,0 | 16,0 | 12,9 | 3,20 | 3,25 | 3,34 | 3,40 | 3,43 | 3,52 | 3,66 |
| | 10/8,2 | 33,5 | 30,3 | 26,7 | 23,7 | 20,1 | 16,9 | 13,6 | 3,33 | 3,38 | 3,49 | 3,56 | 3,60 | 3,69 | 3,83 |
| | 18/14 | 41,0 | 37,1 | 32,6 | 28,7 | 24,3 | 20,2 | 16,0 | 4,00 | 4,06 | 4,10 | 4,18 | 4,25 | 4,30 | 4,43 |
| 50 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | 20,5 | 18,5 | 16,2 | 14,3 | 12,2 | 10,1 | 8,08 | 2,17 | 2,20 | 2,22 | 2,23 | 2,24 | 2,26 | 2,30 |
| | 2/1,1 | 26,9 | 24,4 | 21,5 | 19,1 | 16,2 | 13,6 | 10,9 | 2,58 | 2,64 | 2,70 | 2,74 | 2,75 | 2,81 | 2,90 |
| | 7/6 | 30,9 | 28,0 | 24,7 | 21,9 | 18,5 | 15,5 | 12,4 | 2,86 | 2,90 | 2,98 | 3,03 | 3,04 | 3,11 | 3,20 |
| | 10/8,2 | 32,8 | 29,7 | 26,1 | 23,1 | 19,6 | 16,4 | 13,1 | 3,00 | 3,04 | 3,10 | 3,16 | 3,18 | 3,23 | 3,33 |
| | 18/14 | 40,1 | 36,2 | 31,7 | 27,8 | 23,4 | 19,3 | 15,2 | 3,58 | 3,63 | 3,66 | 3,65 | 3,69 | 3,72 | 3,77 |
| 54 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2/1,1 | 26,6 | 24,1 | 21,2 | 18,8 | 16,1 | 13,5 | 10,9 | 2,40 | 2,43 | 2,49 | 2,52 | 2,56 | 2,60 | 2,68 |
| | 7/6 | 30,5 | 27,6 | 24,2 | 21,4 | 18,3 | 15,3 | 12,2 | 2,66 | 2,69 | 2,72 | 2,76 | 2,79 | 2,82 | 2,89 |
| | 10/8,2 | 32,3 | 29,2 | 25,7 | 22,6 | 19,3 | 16,1 | 12,8 | 2,79 | 2,82 | 2,85 | 2,87 | 2,90 | 2,93 | 2,98 |
| | 18/14 | 38,3 | 34,7 | 30,5 | 26,8 | 22,9 | 19,1 | 15,2 | 3,18 | 3,22 | 3,26 | 3,28 | 3,32 | 3,35 | 3,42 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Heating capacity and COP calculated according to EN 14511:2018*
*ATTENTION: The data of the heat capacity and COP include defrostings.*

# General technical data

## Performances in cooling - Size 14.1

| To | Tae | Cooling capacity EN14511 | | | | | | | | EER EN14511 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | | Percentage of compressor load | | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% |
| 7 | 15 | 38,0 | 35,0 | 31,0 | 27,5 | 23,9 | 20,4 | 16,8 | 13,2 | 5,24 | 5,48 | 5,79 | 6,05 | 6,31 | 6,59 | 6,86 | 7,13 |
| | 20 | 36,2 | 33,4 | 29,6 | 26,2 | 22,8 | 19,5 | 16,1 | 12,7 | 4,46 | 4,67 | 4,95 | 5,17 | 5,40 | 5,65 | 5,89 | 6,13 |
| | 25 | 34,4 | 31,8 | 28,1 | 24,9 | 21,7 | 18,5 | 15,3 | 12,1 | 3,82 | 4,01 | 4,24 | 4,44 | 4,64 | 4,85 | 5,05 | 5,26 |
| | 30 | 32,5 | 30,1 | 26,7 | 23,7 | 20,6 | 17,6 | 14,6 | 11,6 | 3,28 | 3,44 | 3,66 | 3,83 | 3,99 | 4,19 | 4,37 | 4,55 |
| | 35 | 29,0 | 28,4 | 25,2 | 22,3 | 19,4 | 16,6 | 13,8 | 10,9 | 2,80 | 2,97 | 3,15 | 3,30 | 3,42 | 3,59 | 3,74 | 3,90 |
| | 40 | 28,7 | 26,6 | 23,7 | 21,0 | 18,2 | 15,6 | 13,0 | 10,3 | 2,43 | 2,56 | 2,71 | 2,84 | 2,94 | 3,08 | 3,21 | 3,34 |
| | 44 | 26,8 | 24,9 | 22,2 | 19,6 | 17,0 | 14,6 | 12,1 | 9,6 | 2,10 | 2,21 | 2,34 | 2,44 | 2,52 | 2,64 | 2,75 | 2,86 |
| 10 | 15 | 41,7 | 38,5 | 34,1 | 30,2 | 26,3 | 22,4 | 18,5 | 14,6 | 5,65 | 5,94 | 6,31 | 6,63 | 6,93 | 7,27 | 7,60 | 7,92 |
| | 20 | 39,7 | 36,7 | 32,5 | 28,8 | 25,1 | 21,4 | 17,7 | 14,0 | 4,79 | 5,05 | 5,37 | 5,66 | 5,93 | 6,22 | 6,51 | 6,80 |
| | 25 | 37,8 | 34,9 | 31,0 | 27,4 | 23,9 | 20,4 | 16,9 | 13,4 | 4,10 | 4,33 | 4,64 | 4,84 | 5,07 | 5,33 | 5,57 | 5,82 |
| | 30 | 35,7 | 33,1 | 29,4 | 26,1 | 22,6 | 19,4 | 16,1 | 12,8 | 3,52 | 3,71 | 3,96 | 4,17 | 4,35 | 4,58 | 4,79 | 5,00 |
| | 35 | 33,7 | 31,2 | 27,8 | 24,6 | 21,3 | 18,3 | 15,2 | 12,1 | 3,03 | 3,19 | 3,40 | 3,57 | 3,72 | 3,92 | 4,09 | 4,27 |
| | 40 | 31,6 | 29,3 | 26,1 | 23,1 | 20,0 | 17,2 | 14,3 | 11,3 | 2,61 | 2,75 | 2,93 | 3,07 | 3,19 | 3,35 | 3,50 | 3,65 |
| | 44 | 29,6 | 27,5 | 24,5 | 21,6 | 18,7 | 16,1 | 13,3 | 10,6 | 2,26 | 2,37 | 2,53 | 2,64 | 2,73 | 2,87 | 2,99 | 3,11 |
| 12 | 15 | 44,2 | 40,8 | 36,2 | 32,1 | 27,9 | 23,8 | 19,7 | 15,5 | 5,93 | 6,25 | 6,68 | 7,04 | 7,38 | 7,77 | 8,14 | 8,51 |
| | 20 | 42,2 | 39,0 | 34,6 | 30,6 | 26,6 | 22,8 | 18,8 | 14,9 | 5,02 | 5,30 | 5,67 | 5,99 | 6,29 | 6,62 | 6,95 | 7,27 |
| | 25 | 40,1 | 37,1 | 33,0 | 29,2 | 25,3 | 21,7 | 17,9 | 14,2 | 4,30 | 4,54 | 4,86 | 5,10 | 5,36 | 5,64 | 5,91 | 6,18 |
| | 30 | 38,0 | 35,2 | 31,2 | 27,7 | 24,0 | 20,6 | 17,1 | 13,6 | 3,68 | 3,89 | 4,17 | 4,39 | 4,60 | 4,85 | 5,08 | 5,31 |
| | 35 | 35,8 | 33,2 | 29,5 | 26,2 | 22,7 | 19,5 | 16,1 | 12,8 | 3,17 | 3,34 | 3,58 | 3,76 | 3,93 | 4,14 | 4,33 | 4,53 |
| | 40 | 33,6 | 31,2 | 27,8 | 24,6 | 21,3 | 18,3 | 15,2 | 12,0 | 2,73 | 2,88 | 3,08 | 3,23 | 3,36 | 3,54 | 3,70 | 3,86 |
| | 44 | 31,5 | 29,2 | 26,0 | 23,0 | 19,9 | 17,1 | 14,1 | 11,2 | 2,36 | 2,49 | 2,65 | 2,77 | 2,87 | 3,02 | 3,15 | 3,28 |
| 15 | 15 | 48,2 | 44,5 | 39,5 | 35,0 | 30,4 | 26,1 | 21,6 | 17,2 | 6,35 | 6,73 | 7,24 | 7,67 | 8,10 | 8,57 | 9,02 | 9,47 |
| | 20 | 46,0 | 42,5 | 37,7 | 33,4 | 29,0 | 25,0 | 20,7 | 16,4 | 5,40 | 5,69 | 6,13 | 6,50 | 6,87 | 7,24 | 7,61 | 7,99 |
| | 25 | 43,7 | 40,5 | 35,9 | 32,0 | 27,6 | 24,1 | 20,1 | 16,1 | 4,59 | 4,87 | 5,24 | 5,62 | 5,83 | 6,30 | 6,64 | 6,99 |
| | 30 | 41,4 | 38,4 | 34,1 | 30,2 | 26,2 | 22,8 | 19,0 | 15,2 | 3,93 | 4,17 | 4,48 | 4,74 | 4,99 | 5,29 | 5,57 | 5,84 |
| | 35 | 39,1 | 36,2 | 32,2 | 28,5 | 24,7 | 21,6 | 18,0 | 14,4 | 3,38 | 3,58 | 3,85 | 4,06 | 4,25 | 4,52 | 4,75 | 4,98 |
| | 40 | 36,7 | 34,1 | 30,3 | 26,8 | 23,2 | 19,9 | 16,5 | 13,1 | 2,91 | 3,08 | 3,30 | 3,48 | 3,63 | 3,83 | 4,01 | 4,19 |
| | 44 | 34,3 | 31,9 | 28,4 | 25,1 | 21,6 | 18,6 | 15,4 | 12,2 | 2,52 | 2,67 | 2,84 | 2,99 | 3,09 | 3,26 | 3,41 | 3,55 |
| 18 | 15 | 52,3 | 48,3 | 42,8 | 37,9 | 32,9 | 28,1 | 23,2 | 18,3 | 6,77 | 7,22 | 7,83 | 8,33 | 8,86 | 9,39 | 9,92 | 10,45 |
| | 20 | 49,9 | 46,2 | 40,9 | 36,2 | 31,5 | 27,1 | 22,2 | 17,5 | 5,74 | 6,14 | 6,61 | 7,02 | 7,45 | 7,88 | 8,31 | 8,75 |
| | 25 | 47,4 | 43,9 | 39,0 | 34,6 | 29,9 | 26,0 | 21,2 | 16,8 | 4,89 | 5,20 | 5,64 | 5,99 | 6,37 | 6,74 | 7,12 | 7,49 |
| | 30 | 44,9 | 41,6 | 37,0 | 32,8 | 28,4 | 24,7 | 20,2 | 16,0 | 4,18 | 4,45 | 4,81 | 5,11 | 5,42 | 5,74 | 6,05 | 6,36 |
| | 35 | 41,0 | 38,9 | 35,0 | 31,0 | 26,8 | 23,4 | 19,1 | 15,1 | 3,60 | 3,62 | 4,12 | 4,37 | 4,63 | 4,90 | 5,16 | 5,42 |
| | 40 | 39,8 | 37,0 | 32,9 | 29,1 | 25,1 | 21,6 | 17,9 | 14,2 | 3,01 | 3,20 | 3,43 | 3,63 | 3,84 | 4,05 | 4,26 | 4,48 |
| | 44 | 37,3 | 34,6 | 30,8 | 27,3 | 23,5 | 20,2 | 16,7 | 13,2 | 2,42 | 2,57 | 2,74 | 2,90 | 3,05 | 3,21 | 3,37 | 3,53 |
| 20 | 15 | 55,0 | 50,9 | 45,1 | 39,9 | 34,7 | 29,9 | 24,8 | 19,6 | 7,06 | 7,56 | 8,23 | 8,83 | 9,41 | 10,01 | 10,60 | 11,20 |
| | 20 | 52,5 | 48,6 | 43,1 | 38,2 | 33,1 | 28,6 | 23,7 | 18,8 | 5,99 | 6,40 | 6,94 | 7,43 | 7,90 | 8,39 | 8,87 | 9,36 |
| | 25 | 49,9 | 46,2 | 41,1 | 36,4 | 31,5 | 27,4 | 22,8 | 18,2 | 5,09 | 5,44 | 5,90 | 6,32 | 6,72 | 7,14 | 7,55 | 7,97 |
| | 30 | 47,3 | 43,8 | 39,0 | 34,5 | 29,9 | 26,0 | 21,7 | 17,4 | 4,35 | 4,65 | 5,03 | 5,37 | 5,71 | 6,05 | 6,40 | 6,74 |
| | 35 | 44,6 | 41,4 | 36,8 | 32,6 | 28,2 | 24,6 | 20,6 | 16,5 | 3,75 | 3,99 | 4,31 | 4,58 | 4,86 | 5,15 | 5,43 | 5,71 |
| | 40 | 41,9 | 38,9 | 34,6 | 30,6 | 27,0 | 23,2 | 19,4 | 15,6 | 3,23 | 3,43 | 3,70 | 3,92 | 4,15 | 4,39 | 4,62 | 4,85 |
| | 44 | 39,2 | 36,5 | 32,4 | 28,7 | 25,8 | 22,1 | 18,7 | 15,2 | 2,71 | 2,88 | 3,09 | 3,26 | 3,44 | 3,63 | 3,81 | 4,00 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Cooling capacity and EER calculated according to EN 14511:2018*

# General technical data

## Performances in heating - Size 16.2

| To | Tae DB/WB | Heating capacity EN14511 | | | | | | | COP EN14511 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | Percentage of compressor load | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 100% | 90% | 80% | 70% | 60% | 50% | 40% |
| 25 | -14/-14,3 | 24,4 | 21,5 | 18,3 | 15,3 | 12,3 | 9,25 | 6,22 | 2,68 | 2,64 | 2,60 | 2,55 | 2,51 | 2,46 | 2,42 |
| | -7/-8 | 32,4 | 29,2 | 25,5 | 22,6 | 19,8 | 16,4 | 13,2 | 3,44 | 3,44 | 3,45 | 3,49 | 3,54 | 3,54 | 3,57 |
| | 2/1,1 | 43,3 | 39,5 | 34,9 | 31,1 | 27,4 | 23,7 | 19,3 | 4,51 | 4,56 | 4,61 | 4,66 | 4,73 | 4,82 | 4,97 |
| | 7/6 | 50,3 | 45,9 | 40,7 | 36,3 | 31,9 | 27,6 | 22,4 | 5,24 | 5,31 | 5,38 | 5,45 | 5,52 | 5,60 | 5,73 |
| | 10/8,2 | 54,0 | 49,3 | 43,6 | 38,9 | 34,2 | 29,5 | 23,8 | 5,65 | 5,72 | 5,79 | 5,86 | 5,93 | 6,01 | 6,12 |
| | 18/14 | 66,6 | 61,0 | 54,2 | 48,3 | 42,3 | 36,2 | 28,9 | 7,11 | 7,26 | 7,42 | 7,51 | 7,61 | 7,68 | 7,80 |
| 30 | -14/-14,3 | 23,5 | 20,8 | 17,8 | 15,3 | 12,3 | 9,25 | 6,22 | 2,43 | 2,39 | 2,36 | 2,32 | 2,28 | 2,24 | 2,21 |
| | -7/-8 | 31,7 | 28,5 | 24,9 | 22,1 | 19,3 | 16,0 | 12,8 | 3,11 | 3,11 | 3,12 | 3,15 | 3,18 | 3,19 | 3,21 |
| | 2/1,1 | 42,6 | 38,7 | 34,1 | 30,4 | 26,7 | 23,0 | 18,7 | 4,04 | 4,08 | 4,13 | 4,17 | 4,21 | 4,27 | 4,33 |
| | 7/6 | 49,4 | 45,1 | 39,9 | 35,5 | 31,1 | 26,8 | 21,6 | 4,65 | 4,72 | 4,79 | 4,83 | 4,88 | 4,92 | 4,96 |
| | 10/8,2 | 53,1 | 48,4 | 42,7 | 38,0 | 33,4 | 28,5 | 23,0 | 4,99 | 5,06 | 5,12 | 5,18 | 5,24 | 5,24 | 5,30 |
| | 18/14 | 65,4 | 59,9 | 53,0 | 47,1 | 41,1 | 35,0 | 27,8 | 6,18 | 6,32 | 6,46 | 6,55 | 6,60 | 6,62 | 6,62 |
| 35 | -14/-14,3 | 22,9 | 20,3 | 17,4 | 15,3 | 12,3 | 9,25 | 6,22 | 2,21 | 2,18 | 2,15 | 2,12 | 2,08 | 2,05 | 2,02 |
| | -7/-8 | 31,1 | 27,9 | 24,4 | 21,6 | 18,9 | 15,6 | 12,5 | 2,82 | 2,82 | 2,83 | 2,84 | 2,86 | 2,86 | 2,88 |
| | 2/1,1 | 41,8 | 38,0 | 33,5 | 29,8 | 26,1 | 22,4 | 18,1 | 3,62 | 3,66 | 3,70 | 3,73 | 3,75 | 3,77 | 3,76 |
| | 7/6 | 48,6 | 44,3 | 39,1 | 34,7 | 30,4 | 26,0 | 20,8 | 4,01 | 4,07 | 4,12 | 4,16 | 4,18 | 4,18 | 4,15 |
| | 10/8,2 | 52,1 | 47,4 | 41,8 | 37,2 | 32,4 | 27,6 | 22,2 | 4,42 | 4,48 | 4,54 | 4,58 | 4,60 | 4,58 | 4,57 |
| | 18/14 | 64,2 | 58,7 | 51,9 | 45,9 | 39,9 | 33,9 | 26,6 | 5,40 | 5,53 | 5,65 | 5,70 | 5,72 | 5,71 | 5,59 |
| 40 | -14/-14,3 | 22,4 | 19,9 | 18,6 | 15,6 | 12,7 | 9,82 | 6,91 | 2,03 | 2,00 | 1,97 | 1,94 | 1,91 | 1,88 | 1,85 |
| | -7/-8 | 30,5 | 27,5 | 24,0 | 21,3 | 18,6 | 15,3 | 12,3 | 2,56 | 2,56 | 2,57 | 2,58 | 2,58 | 2,59 | 2,59 |
| | 2/1,1 | 41,2 | 37,4 | 32,9 | 29,2 | 25,5 | 21,9 | 17,4 | 3,27 | 3,30 | 3,33 | 3,34 | 3,35 | 3,38 | 3,40 |
| | 7/6 | 47,8 | 43,5 | 38,3 | 34,0 | 29,6 | 25,3 | 20,1 | 3,71 | 3,76 | 3,80 | 3,82 | 3,82 | 3,80 | 3,70 |
| | 10/8,2 | 51,2 | 46,5 | 41,0 | 36,4 | 31,5 | 26,9 | 21,4 | 3,94 | 3,99 | 4,04 | 4,07 | 4,05 | 4,02 | 3,93 |
| | 18/14 | 63,0 | 57,5 | 50,6 | 44,7 | 38,7 | 32,7 | 25,5 | 4,77 | 4,87 | 4,97 | 4,99 | 4,99 | 4,92 | 4,75 |
| 45 | -14/-14,3 | 22,7 | 20,3 | 17,5 | 15,8 | 12,7 | 9,57 | 6,43 | 1,86 | 1,84 | 1,82 | 1,79 | 1,77 | 1,75 | 1,73 |
| | -7/-8 | 31,1 | 28,0 | 24,6 | 21,7 | 19,0 | 15,7 | 12,6 | 2,34 | 2,34 | 2,35 | 2,34 | 2,34 | 2,34 | 2,59 |
| | 2/1,1 | 41,9 | 38,0 | 33,4 | 29,6 | 25,8 | 22,1 | 17,6 | 2,94 | 2,97 | 2,99 | 3,00 | 2,99 | 2,95 | 2,86 |
| | 7/6 | 48,6 | 44,1 | 38,8 | 34,3 | 29,9 | 25,4 | 20,0 | 3,32 | 3,36 | 3,39 | 3,40 | 3,38 | 3,33 | 3,19 |
| | 10/8,2 | 51,9 | 47,2 | 41,5 | 36,6 | 31,6 | 27,0 | 21,3 | 3,51 | 3,55 | 3,60 | 3,59 | 3,56 | 3,52 | 3,38 |
| | 18/14 | 63,8 | 58,1 | 51,0 | 44,9 | 38,7 | 32,5 | 25,1 | 4,20 | 4,28 | 4,35 | 4,36 | 4,33 | 4,23 | 4,01 |
| 50 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | 30,7 | 27,8 | 24,3 | 21,5 | 18,9 | 15,6 | 12,6 | 2,14 | 2,14 | 2,14 | 2,14 | 2,13 | 2,13 | 2,59 |
| | 2/1,1 | 41,3 | 37,4 | 32,9 | 29,1 | 25,3 | 21,6 | 17,1 | 2,66 | 2,68 | 2,70 | 2,70 | 2,67 | 2,62 | 2,50 |
| | 7/6 | 47,8 | 43,4 | 38,0 | 33,6 | 29,1 | 24,7 | 19,2 | 2,98 | 3,01 | 3,03 | 3,03 | 3,00 | 2,93 | 2,75 |
| | 10/8,2 | 50,9 | 46,3 | 40,5 | 35,6 | 30,9 | 26,2 | 20,5 | 3,13 | 3,17 | 3,20 | 3,18 | 3,15 | 3,08 | 2,90 |
| | 18/14 | 62,4 | 56,6 | 49,5 | 43,5 | 37,4 | 31,2 | 23,9 | 3,70 | 3,77 | 3,82 | 3,81 | 3,76 | 3,64 | 3,38 |
| 54 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2/1,1 | 40,8 | 37,0 | 32,5 | 28,7 | 25,0 | 21,2 | 16,7 | 2,46 | 2,48 | 2,49 | 2,48 | 2,45 | 2,38 | 2,25 |
| | 7/6 | 47,1 | 42,7 | 37,4 | 33,0 | 28,6 | 24,1 | 18,6 | 2,73 | 2,76 | 2,78 | 2,76 | 2,72 | 2,64 | 2,44 |
| | 10/8,2 | 50,2 | 45,6 | 39,7 | 34,9 | 30,3 | 25,6 | 19,8 | 2,87 | 2,90 | 2,91 | 2,89 | 2,86 | 2,78 | 2,57 |
| | 18/14 | 61,1 | 55,4 | 48,3 | 42,3 | 36,3 | 30,1 | 22,8 | 3,35 | 3,41 | 3,44 | 3,43 | 3,36 | 3,22 | 2,95 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Heating capacity and COP calculated according to EN 14511:2018*
*ATTENTION: The data of the heat capacity and COP include defrostings.*

# General technical data

## Performances in cooling - Size 16.2

| To | Tae | Cooling capacity EN14511 | | | | | | | | EER EN14511 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | | Percentage of compressor load | | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% |
| 7 | 15 | 51,2 | 46,1 | 41,8 | 36,8 | 32,6 | 27,6 | 22,8 | 18,2 | 5,29 | 5,44 | 5,56 | 5,70 | 5,83 | 6,04 | 6,37 | 6,42 |
| | 20 | 49,0 | 44,1 | 40,0 | 35,1 | 31,1 | 26,2 | 21,5 | 17,1 | 4,52 | 4,67 | 4,77 | 4,91 | 5,02 | 5,18 | 5,41 | 5,49 |
| | 25 | 46,7 | 42,0 | 38,1 | 33,4 | 29,5 | 24,8 | 20,2 | 16,0 | 3,88 | 4,01 | 4,11 | 4,22 | 4,31 | 4,42 | 4,56 | 4,65 |
| | 30 | 44,4 | 39,9 | 36,2 | 31,6 | 27,9 | 23,3 | 18,9 | 14,9 | 3,35 | 3,45 | 3,54 | 3,63 | 3,69 | 3,75 | 3,82 | 3,91 |
| | 35 | 42,0 | 37,8 | 34,2 | 29,9 | 26,3 | 21,9 | 17,5 | 13,7 | 2,69 | 2,98 | 3,05 | 3,12 | 3,16 | 3,18 | 3,17 | 3,27 |
| | 40 | 39,6 | 35,6 | 32,2 | 28,1 | 24,6 | 20,3 | 16,1 | 12,5 | 2,49 | 2,57 | 2,62 | 2,67 | 2,69 | 2,67 | 2,62 | 2,72 |
| | 44 | 37,2 | 33,4 | 30,2 | 26,3 | 22,9 | 18,8 | 14,6 | 11,3 | 2,15 | 2,21 | 2,25 | 2,28 | 2,28 | 2,24 | 2,14 | 2,23 |
| 10 | 15 | 56,4 | 50,8 | 46,1 | 40,5 | 35,8 | 30,3 | 24,8 | 19,8 | 5,83 | 6,01 | 6,15 | 6,33 | 6,49 | 6,71 | 7,03 | 7,13 |
| | 20 | 54,0 | 48,6 | 44,1 | 38,6 | 34,1 | 28,8 | 23,4 | 18,6 | 4,96 | 5,13 | 5,26 | 5,42 | 5,55 | 5,72 | 5,94 | 6,06 |
| | 25 | 51,5 | 46,3 | 42,0 | 36,8 | 32,4 | 27,2 | 22,0 | 17,4 | 4,24 | 4,39 | 4,51 | 4,64 | 4,74 | 4,86 | 4,98 | 5,11 |
| | 30 | 49,0 | 44,1 | 39,9 | 34,9 | 30,7 | 25,6 | 20,6 | 16,2 | 3,65 | 3,78 | 3,87 | 3,98 | 4,05 | 4,11 | 4,15 | 4,28 |
| | 35 | 46,4 | 41,8 | 37,8 | 33,0 | 28,9 | 24,0 | 19,1 | 15,0 | 3,14 | 3,25 | 3,33 | 3,41 | 3,46 | 3,48 | 3,47 | 3,59 |
| | 40 | 43,8 | 39,4 | 35,6 | 31,0 | 27,1 | 22,3 | 17,5 | 13,6 | 2,70 | 2,80 | 2,86 | 2,92 | 2,94 | 2,91 | 2,83 | 2,95 |
| | 44 | 41,1 | 37,0 | 33,4 | 29,0 | 25,2 | 20,6 | 15,9 | 12,2 | 2,33 | 2,41 | 2,45 | 2,49 | 2,49 | 2,43 | 2,31 | 2,42 |
| 12 | 15 | 60,0 | 54,0 | 49,0 | 43,0 | 38,0 | 32,1 | 26,2 | 20,9 | 6,20 | 6,41 | 6,57 | 6,77 | 6,94 | 7,19 | 7,55 | 7,66 |
| | 20 | 57,4 | 51,7 | 46,9 | 41,1 | 36,3 | 30,5 | 24,8 | 19,7 | 5,27 | 5,46 | 5,61 | 5,78 | 5,93 | 6,11 | 6,35 | 6,49 |
| | 25 | 54,8 | 49,3 | 44,7 | 39,1 | 34,5 | 28,9 | 23,3 | 18,4 | 4,49 | 4,66 | 4,80 | 4,94 | 5,05 | 5,18 | 5,30 | 5,45 |
| | 30 | 52,2 | 47,0 | 42,6 | 37,1 | 32,6 | 27,2 | 21,7 | 17,1 | 3,86 | 4,01 | 4,13 | 4,22 | 4,31 | 4,38 | 4,40 | 4,55 |
| | 35 | 49,5 | 44,5 | 40,3 | 35,1 | 30,7 | 25,5 | 20,2 | 15,7 | 3,32 | 3,44 | 3,53 | 3,61 | 3,67 | 3,69 | 3,65 | 3,79 |
| | 40 | 46,7 | 42,0 | 37,9 | 33,0 | 28,8 | 23,6 | 18,5 | 14,3 | 2,85 | 2,95 | 3,03 | 3,09 | 3,11 | 3,08 | 2,98 | 3,12 |
| | 44 | 43,9 | 39,4 | 35,6 | 30,8 | 26,8 | 21,8 | 16,7 | 12,8 | 2,46 | 2,54 | 2,59 | 2,63 | 2,63 | 2,57 | 2,42 | 2,55 |
| 15 | 15 | 65,6 | 59,0 | 53,5 | 46,9 | 41,4 | 34,8 | 28,3 | 22,5 | 6,80 | 7,05 | 7,26 | 7,50 | 7,71 | 8,02 | 8,44 | 8,58 |
| | 20 | 62,8 | 56,5 | 51,2 | 44,8 | 39,5 | 33,1 | 26,8 | 21,2 | 5,74 | 5,98 | 6,16 | 6,37 | 6,55 | 6,77 | 7,05 | 7,22 |
| | 25 | 60,0 | 54,0 | 48,9 | 42,7 | 37,6 | 31,4 | 25,2 | 19,8 | 4,89 | 5,09 | 5,24 | 5,42 | 5,56 | 5,70 | 5,84 | 6,02 |
| | 30 | 57,1 | 51,4 | 46,5 | 40,6 | 35,6 | 29,6 | 23,5 | 18,4 | 4,19 | 4,36 | 4,49 | 4,62 | 4,71 | 4,79 | 4,82 | 4,99 |
| | 35 | 54,1 | 48,7 | 44,0 | 38,3 | 33,5 | 27,7 | 21,8 | 16,9 | 3,59 | 3,73 | 3,84 | 3,94 | 4,00 | 4,02 | 3,97 | 4,14 |
| | 40 | 51,1 | 45,9 | 41,5 | 36,0 | 31,4 | 25,7 | 20,0 | 15,4 | 3,08 | 3,20 | 3,28 | 3,35 | 3,38 | 3,35 | 3,23 | 3,39 |
| | 44 | 48,0 | 43,1 | 38,9 | 33,6 | 29,2 | 23,7 | 18,1 | 13,7 | 2,65 | 2,75 | 2,80 | 2,85 | 2,85 | 2,78 | 2,61 | 2,76 |
| 18 | 15 | 71,3 | 64,2 | 58,1 | 50,9 | 44,9 | 37,7 | 31,2 | 24,5 | 7,42 | 7,75 | 8,00 | 8,31 | 8,57 | 8,94 | 9,20 | 9,50 |
| | 20 | 68,3 | 61,5 | 55,7 | 48,7 | 42,8 | 35,8 | 29,6 | 23,2 | 6,25 | 6,54 | 6,76 | 7,01 | 7,23 | 7,50 | 7,74 | 9,20 |
| | 25 | 65,3 | 58,7 | 53,2 | 46,4 | 40,8 | 33,9 | 28,0 | 21,8 | 5,31 | 5,54 | 5,73 | 5,94 | 6,10 | 6,28 | 6,49 | 7,74 |
| | 30 | 62,2 | 55,9 | 50,6 | 44,2 | 38,6 | 32,0 | 26,3 | 20,3 | 4,53 | 4,73 | 4,89 | 5,07 | 5,15 | 5,24 | 5,44 | 6,49 |
| | 35 | 57,7 | 53,0 | 47,9 | 41,6 | 36,4 | 29,9 | 24,5 | 18,8 | 3,83 | 4,04 | 4,16 | 4,28 | 4,35 | 4,39 | 4,54 | 5,44 |
| | 40 | 55,7 | 50,0 | 45,1 | 39,1 | 34,0 | 27,8 | 22,6 | 17,1 | 3,32 | 3,46 | 3,55 | 3,63 | 3,67 | 3,64 | 3,77 | 4,54 |
| | 44 | 52,3 | 46,9 | 42,3 | 36,5 | 31,6 | 25,6 | 20,7 | 15,4 | 2,85 | 2,96 | 3,03 | 3,08 | 3,08 | 3,01 | 3,12 | 3,77 |
| 20 | 15 | 75,2 | 67,6 | 61,3 | 53,6 | 47,2 | 40,0 | 33,0 | 26,0 | 7,87 | 8,23 | 8,54 | 8,90 | 9,22 | 9,56 | 9,90 | 10,24 |
| | 20 | 72,1 | 64,9 | 58,7 | 51,3 | 45,1 | 38,2 | 31,4 | 24,7 | 6,60 | 6,92 | 7,18 | 7,48 | 7,72 | 8,02 | 8,30 | 8,58 |
| | 25 | 68,8 | 62,0 | 56,1 | 48,9 | 42,9 | 36,3 | 29,8 | 23,3 | 5,58 | 5,86 | 6,07 | 6,31 | 6,49 | 6,74 | 6,97 | 7,19 |
| | 30 | 65,6 | 59,0 | 53,4 | 46,5 | 40,6 | 34,3 | 28,0 | 21,8 | 4,76 | 4,99 | 5,16 | 5,35 | 5,46 | 5,67 | 5,85 | 6,03 |
| | 35 | 62,2 | 55,9 | 50,5 | 43,9 | 38,3 | 32,2 | 26,2 | 20,2 | 4,07 | 4,25 | 4,39 | 4,52 | 4,60 | 4,77 | 4,90 | 5,03 |
| | 40 | 58,7 | 52,7 | 47,6 | 41,2 | 35,8 | 30,0 | 24,3 | 18,5 | 3,49 | 3,64 | 3,74 | 3,83 | 3,87 | 4,00 | 4,09 | 4,19 |
| | 44 | 55,2 | 49,5 | 44,6 | 38,5 | 33,3 | 27,7 | 22,3 | 16,8 | 2,99 | 3,11 | 3,18 | 3,24 | 3,24 | 3,35 | 3,41 | 3,47 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Cooling capacity and EER calculated according to EN 14511:2018*

# General technical data

## Performances in heating - Size 18.2

| To | Tae DB/WB | Heating capacity EN14511 | | | | | | | COP EN14511 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | Percentage of compressor load | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 100% | 90% | 80% | 70% | 60% | 50% | 40% |
| 25 | -14/-14,3 | 29,2 | 25,2 | 21,6 | 18,4 | 14,6 | 11,1 | 7,47 | 2,76 | 2,68 | 2,63 | 2,59 | 2,53 | 2,47 | 2,42 |
| | -7/-8 | 37,8 | 33,5 | 29,6 | 25,8 | 22,2 | 19,4 | 15,1 | 3,45 | 3,44 | 3,44 | 3,46 | 3,51 | 3,58 | 3,56 |
| | 2/1,1 | 49,7 | 44,8 | 40,0 | 35,3 | 30,6 | 26,8 | 22,2 | 4,46 | 4,51 | 4,57 | 4,62 | 4,69 | 4,76 | 4,89 |
| | 7/6 | 57,5 | 52,0 | 46,6 | 41,1 | 35,7 | 31,2 | 25,8 | 5,17 | 5,24 | 5,32 | 5,40 | 5,48 | 5,56 | 5,66 |
| | 10/8,2 | 61,7 | 55,9 | 50,0 | 44,1 | 38,3 | 33,5 | 27,5 | 5,56 | 5,65 | 5,74 | 5,81 | 5,89 | 5,97 | 6,03 |
| | 18/14 | 76,0 | 68,9 | 61,9 | 54,8 | 47,4 | 41,2 | 33,7 | 6,96 | 7,11 | 7,28 | 7,44 | 7,55 | 7,64 | 7,74 |
| 30 | -14/-14,3 | 28,1 | 24,3 | 21,0 | 17,3 | 13,7 | 10,1 | 6,57 | 2,50 | 2,43 | 2,39 | 2,33 | 2,27 | 2,21 | 2,15 |
| | -7/-8 | 36,9 | 32,8 | 28,9 | 25,2 | 21,7 | 18,9 | 14,7 | 3,11 | 3,11 | 3,11 | 3,13 | 3,16 | 3,20 | 3,11 |
| | 2/1,1 | 48,8 | 44,0 | 39,2 | 34,5 | 29,9 | 26,1 | 21,6 | 3,99 | 4,04 | 4,09 | 4,13 | 4,18 | 4,23 | 4,29 |
| | 7/6 | 56,5 | 51,1 | 45,7 | 40,3 | 34,9 | 30,4 | 25,0 | 4,57 | 4,65 | 4,72 | 4,80 | 4,85 | 4,90 | 4,94 |
| | 10/8,2 | 60,7 | 54,9 | 49,0 | 43,1 | 37,4 | 32,5 | 26,6 | 4,90 | 4,99 | 5,07 | 5,14 | 5,20 | 5,24 | 5,27 |
| | 18/14 | 74,4 | 67,6 | 60,7 | 53,6 | 46,2 | 40,0 | 32,5 | 6,00 | 6,18 | 6,34 | 6,48 | 6,57 | 6,61 | 6,63 |
| 35 | -14/-14,3 | 27,2 | 23,7 | 20,4 | 17,0 | 13,6 | 10,2 | 6,79 | 2,27 | 2,21 | 2,17 | 2,12 | 2,07 | 2,02 | 1,98 |
| | -7/-8 | 36,1 | 32,1 | 28,3 | 24,7 | 21,3 | 18,4 | 14,4 | 2,82 | 2,82 | 2,82 | 2,83 | 2,85 | 2,87 | 2,87 |
| | 2/1,1 | 48,0 | 43,3 | 38,5 | 33,8 | 29,2 | 25,4 | 20,9 | 3,58 | 3,62 | 3,67 | 3,71 | 3,74 | 3,76 | 3,77 |
| | 7/6 | 54,0 | 50,2 | 44,9 | 39,5 | 34,1 | 29,6 | 24,2 | 4,01 | 4,14 | 4,21 | 4,26 | 4,30 | 4,32 | 4,31 |
| | 10/8,2 | 59,7 | 53,9 | 48,0 | 42,3 | 36,5 | 31,5 | 25,8 | 4,33 | 4,42 | 4,49 | 4,55 | 4,60 | 4,59 | 4,58 |
| | 18/14 | 73,2 | 66,4 | 59,5 | 52,4 | 45,0 | 38,8 | 31,3 | 5,24 | 5,40 | 5,55 | 5,66 | 5,72 | 5,73 | 5,67 |
| 40 | -14/-14,3 | 26,5 | 23,1 | 20,0 | 16,8 | 13,6 | 10,3 | 7,12 | 2,07 | 2,03 | 1,99 | 1,95 | 1,91 | 1,87 | 1,83 |
| | -7/-8 | 35,4 | 31,5 | 27,8 | 24,3 | 20,9 | 17,1 | 13,4 | 2,56 | 2,56 | 2,57 | 2,57 | 2,58 | 2,58 | 2,58 |
| | 2/1,1 | 47,3 | 42,6 | 37,9 | 33,2 | 28,6 | 24,9 | 20,3 | 3,22 | 3,27 | 3,30 | 3,33 | 3,35 | 3,35 | 3,31 |
| | 7/6 | 54,8 | 49,4 | 44,1 | 38,7 | 33,3 | 28,8 | 23,5 | 3,64 | 3,71 | 3,77 | 3,81 | 3,83 | 3,82 | 3,76 |
| | 10/8,2 | 58,7 | 53,0 | 47,1 | 41,4 | 35,6 | 30,6 | 25,0 | 3,87 | 3,94 | 4,00 | 4,05 | 4,07 | 4,04 | 3,99 |
| | 18/14 | 71,9 | 65,1 | 58,3 | 51,1 | 43,7 | 37,6 | 30,1 | 4,63 | 4,77 | 4,89 | 4,97 | 5,00 | 4,97 | 4,85 |
| 45 | -14/-14,3 | 25,9 | 22,7 | 19,8 | 16,7 | 13,6 | 10,6 | 7,49 | 1,89 | 1,86 | 1,83 | 1,80 | 1,77 | 1,74 | 1,71 |
| | -7/-8 | 34,9 | 31,1 | 27,5 | 24,0 | 20,6 | 17,9 | 13,3 | 2,33 | 2,34 | 2,34 | 2,34 | 2,34 | 2,34 | 2,34 |
| | 2/1,1 | 46,6 | 41,9 | 37,3 | 32,7 | 28,1 | 24,3 | 19,8 | 2,90 | 2,94 | 2,97 | 2,99 | 3,00 | 2,98 | 2,91 |
| | 7/6 | 54,0 | 48,6 | 43,3 | 37,9 | 32,6 | 28,1 | 22,7 | 3,26 | 3,32 | 3,37 | 3,39 | 3,40 | 3,37 | 3,27 |
| | 10/8,2 | 57,7 | 52,0 | 46,2 | 40,6 | 34,6 | 29,8 | 24,2 | 3,44 | 3,51 | 3,56 | 3,60 | 3,58 | 3,55 | 3,47 |
| | 18/14 | 70,5 | 63,8 | 56,9 | 49,8 | 42,4 | 36,3 | 28,8 | 4,07 | 4,20 | 4,30 | 4,35 | 4,36 | 4,30 | 4,13 |
| 50 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | 34,4 | 30,7 | 27,2 | 23,7 | 20,4 | 17,8 | 13,3 | 2,13 | 2,14 | 2,14 | 2,14 | 2,14 | 2,13 | 2,13 |
| | 2/1,1 | 45,9 | 41,3 | 36,7 | 32,1 | 27,6 | 23,8 | 19,3 | 2,62 | 2,66 | 2,69 | 2,70 | 2,69 | 2,66 | 2,57 |
| | 7/6 | 53,1 | 47,8 | 42,5 | 37,2 | 31,8 | 27,4 | 22,0 | 2,92 | 2,98 | 3,02 | 3,03 | 3,02 | 2,97 | 2,85 |
| | 10/8,2 | 56,7 | 51,0 | 45,3 | 39,6 | 33,6 | 29,0 | 23,4 | 3,07 | 3,13 | 3,18 | 3,20 | 3,17 | 3,13 | 3,01 |
| | 18/14 | 69,1 | 62,4 | 55,5 | 48,3 | 41,1 | 34,9 | 27,6 | 3,61 | 3,70 | 3,78 | 3,82 | 3,80 | 3,72 | 3,53 |
| 54 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2/1,1 | 45,4 | 40,8 | 36,3 | 31,7 | 27,2 | 23,5 | 19,0 | 2,42 | 2,46 | 2,48 | 2,49 | 2,47 | 2,43 | 2,33 |
| | 7/6 | 52,4 | 47,1 | 41,8 | 36,6 | 31,2 | 26,8 | 21,4 | 2,68 | 2,73 | 2,77 | 2,78 | 2,75 | 2,70 | 2,56 |
| | 10/8,2 | 55,8 | 50,2 | 44,6 | 38,7 | 33,0 | 28,4 | 22,7 | 2,81 | 2,87 | 2,91 | 2,91 | 2,88 | 2,83 | 2,69 |
| | 18/14 | 68,0 | 61,1 | 54,3 | 47,2 | 39,9 | 33,8 | 26,5 | 3,31 | 3,35 | 3,42 | 3,44 | 3,41 | 3,32 | 3,11 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Heating capacity and COP calculated according to EN 14511:2018*
*ATTENTION: The data of the heat capacity and COP include defrostings.*

# General technical data

## Performances in cooling - Size 18.2

| To | Tae | Cooling capacity EN14511 | | | | | | | | EER EN14511 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | | Percentage of compressor load | | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% |
| 7 | 15 | 58,7 | 53,4 | 47,3 | 42,1 | 36,9 | 31,7 | 25,8 | 21,0 | 5,21 | 5,36 | 5,54 | 5,68 | 5,83 | 6,01 | 6,29 | 6,75 |
| | 20 | 56,1 | 51,1 | 45,2 | 40,2 | 35,2 | 30,2 | 24,5 | 19,7 | 4,44 | 4,58 | 4,75 | 4,89 | 5,02 | 5,17 | 5,37 | 5,70 |
| | 25 | 53,4 | 48,7 | 43,1 | 38,3 | 33,4 | 28,6 | 23,0 | 18,4 | 3,80 | 3,93 | 4,08 | 4,20 | 4,32 | 4,43 | 4,55 | 4,75 |
| | 30 | 50,7 | 46,3 | 40,9 | 36,3 | 31,7 | 27,0 | 21,6 | 17,1 | 3,27 | 3,39 | 3,52 | 3,62 | 3,71 | 3,78 | 3,84 | 3,92 |
| | 35 | 48,0 | 43,8 | 38,8 | 34,4 | 29,9 | 25,4 | 20,2 | 15,7 | 2,63 | 2,92 | 3,04 | 3,12 | 3,19 | 3,23 | 3,24 | 3,21 |
| | 40 | 45,2 | 41,3 | 36,5 | 32,4 | 28,1 | 23,8 | 18,6 | 14,3 | 2,43 | 2,52 | 2,62 | 2,68 | 2,73 | 2,74 | 2,70 | 2,61 |
| | 44 | 42,5 | 38,8 | 34,3 | 30,3 | 26,2 | 22,1 | 17,1 | 12,9 | 2,09 | 2,17 | 2,25 | 2,30 | 2,33 | 2,32 | 2,23 | 2,10 |
| 10 | 15 | 64,6 | 58,8 | 52,1 | 46,3 | 40,5 | 34,8 | 28,2 | 22,7 | 5,71 | 5,90 | 6,12 | 6,30 | 6,47 | 6,67 | 6,97 | 7,46 |
| | 20 | 61,8 | 56,3 | 49,8 | 44,3 | 38,7 | 33,2 | 26,8 | 21,4 | 4,84 | 5,02 | 5,22 | 5,38 | 5,55 | 5,71 | 5,92 | 6,26 |
| | 25 | 58,9 | 53,7 | 47,5 | 42,2 | 36,9 | 31,5 | 25,2 | 20,0 | 4,13 | 4,29 | 4,48 | 4,62 | 4,75 | 4,88 | 5,01 | 5,18 |
| | 30 | 56,0 | 51,1 | 45,2 | 40,1 | 34,9 | 29,7 | 23,7 | 18,5 | 3,55 | 3,70 | 3,86 | 3,97 | 4,07 | 4,15 | 4,21 | 4,27 |
| | 35 | 53,0 | 48,4 | 42,8 | 38,0 | 33,0 | 28,0 | 22,1 | 17,0 | 3,05 | 3,18 | 3,31 | 3,41 | 3,49 | 3,53 | 3,53 | 3,48 |
| | 40 | 50,0 | 45,7 | 40,4 | 35,8 | 31,0 | 26,2 | 20,4 | 15,5 | 2,63 | 2,74 | 2,85 | 2,93 | 2,98 | 2,99 | 2,93 | 2,82 |
| | 44 | 47,0 | 42,9 | 37,9 | 33,5 | 28,9 | 24,3 | 18,7 | 13,9 | 2,27 | 2,36 | 2,45 | 2,51 | 2,54 | 2,52 | 2,42 | 2,25 |
| 12 | 15 | 68,6 | 62,6 | 55,4 | 49,2 | 43,1 | 36,9 | 29,9 | 23,9 | 6,05 | 6,28 | 6,53 | 6,73 | 6,94 | 7,15 | 7,48 | 7,98 |
| | 20 | 65,7 | 59,9 | 53,0 | 47,1 | 41,2 | 35,2 | 28,3 | 22,5 | 5,12 | 5,33 | 5,56 | 5,74 | 5,92 | 6,11 | 6,34 | 6,67 |
| | 25 | 62,7 | 57,2 | 50,6 | 44,9 | 39,2 | 33,4 | 26,7 | 21,1 | 4,37 | 4,55 | 4,75 | 4,91 | 5,06 | 5,19 | 5,34 | 5,52 |
| | 30 | 59,7 | 54,4 | 48,2 | 42,7 | 37,2 | 31,6 | 25,1 | 19,5 | 3,75 | 3,91 | 4,08 | 4,20 | 4,32 | 4,41 | 4,47 | 4,52 |
| | 35 | 56,5 | 51,6 | 45,6 | 40,4 | 35,1 | 29,7 | 23,4 | 18,0 | 3,22 | 3,36 | 3,50 | 3,61 | 3,70 | 3,75 | 3,74 | 3,67 |
| | 40 | 53,3 | 48,7 | 43,1 | 38,1 | 33,0 | 27,8 | 21,6 | 16,3 | 2,77 | 2,89 | 3,01 | 3,09 | 3,15 | 3,17 | 3,10 | 2,97 |
| | 44 | 50,1 | 45,7 | 40,4 | 35,7 | 30,8 | 25,8 | 19,8 | 14,6 | 2,39 | 2,49 | 2,59 | 2,65 | 2,68 | 2,66 | 2,55 | 2,36 |
| 15 | 15 | 75,0 | 68,3 | 60,5 | 53,7 | 47,0 | 40,2 | 32,4 | 25,8 | 6,59 | 6,87 | 7,18 | 7,43 | 7,68 | 7,96 | 8,35 | 8,91 |
| | 20 | 71,8 | 65,5 | 58,0 | 51,4 | 44,9 | 38,3 | 30,7 | 24,3 | 5,56 | 5,81 | 6,09 | 6,31 | 6,53 | 6,74 | 7,03 | 7,37 |
| | 25 | 68,5 | 62,5 | 55,3 | 49,1 | 42,8 | 36,4 | 29,0 | 22,7 | 4,73 | 4,95 | 5,18 | 5,37 | 5,55 | 5,71 | 5,87 | 6,05 |
| | 30 | 65,3 | 59,6 | 52,7 | 46,7 | 40,6 | 34,4 | 27,2 | 21,1 | 4,05 | 4,23 | 4,44 | 4,60 | 4,72 | 4,83 | 4,91 | 4,93 |
| | 35 | 61,9 | 56,5 | 49,9 | 44,2 | 38,3 | 32,4 | 25,4 | 19,4 | 3,47 | 3,63 | 3,80 | 3,93 | 4,03 | 4,09 | 4,08 | 4,01 |
| | 40 | 58,4 | 53,3 | 47,1 | 41,6 | 36,0 | 30,3 | 23,4 | 17,6 | 2,99 | 3,12 | 3,26 | 3,36 | 3,42 | 3,44 | 3,37 | 3,20 |
| | 44 | 54,9 | 50,1 | 44,2 | 39,0 | 33,6 | 28,1 | 21,4 | 15,7 | 2,57 | 2,68 | 2,80 | 2,87 | 2,90 | 2,89 | 2,76 | 2,54 |
| 18 | 15 | 81,6 | 74,3 | 65,8 | 58,4 | 51,0 | 43,5 | 34,9 | 27,6 | 7,16 | 7,51 | 7,90 | 8,21 | 8,52 | 8,85 | 9,36 | 9,63 |
| | 20 | 78,2 | 71,2 | 63,1 | 55,9 | 48,7 | 41,6 | 33,2 | 26,8 | 6,02 | 6,31 | 6,66 | 6,92 | 7,19 | 7,45 | 7,81 | 8,67 |
| | 25 | 74,7 | 68,0 | 60,2 | 53,4 | 46,5 | 39,5 | 31,3 | 25,1 | 5,12 | 5,36 | 5,64 | 5,87 | 6,08 | 6,27 | 6,48 | 7,04 |
| | 30 | 71,0 | 64,9 | 57,4 | 50,8 | 44,1 | 37,3 | 29,4 | 23,3 | 4,36 | 4,58 | 4,82 | 5,01 | 5,16 | 5,28 | 5,37 | 5,71 |
| | 35 | 66,0 | 61,5 | 54,4 | 48,1 | 41,6 | 35,1 | 27,4 | 21,4 | 3,53 | 3,92 | 4,12 | 4,26 | 4,38 | 4,45 | 4,45 | 4,62 |
| | 40 | 63,6 | 58,0 | 51,3 | 45,3 | 39,1 | 32,8 | 25,3 | 19,4 | 3,21 | 3,36 | 3,52 | 3,63 | 3,71 | 3,74 | 3,66 | 3,70 |
| | 44 | 59,8 | 54,5 | 48,1 | 42,4 | 36,5 | 30,4 | 23,1 | 17,3 | 2,76 | 2,89 | 3,01 | 3,10 | 3,14 | 3,12 | 2,99 | 2,98 |
| 20 | 15 | 86,2 | 78,5 | 69,4 | 61,6 | 53,7 | 45,8 | 35,1 | 26,4 | 7,56 | 7,95 | 8,39 | 8,76 | 9,13 | 9,52 | 9,92 | 10,30 |
| | 20 | 82,5 | 75,2 | 66,5 | 59,0 | 51,4 | 43,7 | 35,3 | 28,2 | 6,34 | 6,67 | 7,05 | 7,37 | 7,67 | 7,98 | 8,61 | 9,55 |
| | 25 | 78,8 | 71,9 | 63,5 | 56,3 | 48,9 | 41,5 | 33,3 | 26,3 | 5,38 | 5,69 | 5,97 | 6,22 | 6,46 | 6,68 | 7,07 | 7,64 |
| | 30 | 75,0 | 68,4 | 60,5 | 53,6 | 46,5 | 39,3 | 31,4 | 24,5 | 4,57 | 4,81 | 5,08 | 5,29 | 5,49 | 5,61 | 5,86 | 6,18 |
| | 35 | 71,1 | 64,9 | 57,3 | 50,7 | 43,9 | 37,0 | 29,2 | 22,5 | 3,91 | 4,12 | 4,33 | 4,50 | 4,63 | 4,71 | 4,83 | 4,95 |
| | 40 | 67,1 | 61,3 | 54,1 | 47,7 | 41,2 | 34,5 | 26,9 | 20,4 | 3,36 | 3,53 | 3,70 | 3,83 | 3,91 | 3,94 | 3,98 | 3,94 |
| | 44 | 63,1 | 57,5 | 50,8 | 44,7 | 38,4 | 31,9 | 24,6 | 18,2 | 2,89 | 3,03 | 3,17 | 3,26 | 3,30 | 3,29 | 3,26 | 3,16 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Cooling capacity and EER calculated according to EN 14511:2018*

# General technical data

## Performances in heating - Size 22.2

| To | Tae DB/WB | Heating capacity EN14511 | | | | | | | COP EN14511 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | Percentage of compressor load | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 100% | 90% | 80% | 70% | 60% | 50% | 40% |
| 25 | -14/-14,3 | 34,0 | 29,2 | 24,9 | 21,1 | 16,5 | 12,2 | 7,93 | 2,86 | 2,76 | 2,68 | 2,62 | 2,53 | 2,45 | 2,37 |
| | -7/-8 | 42,6 | 37,8 | 33,2 | 28,9 | 24,8 | 21,1 | 16,3 | 3,47 | 3,45 | 3,44 | 3,44 | 3,46 | 3,53 | 3,52 |
| | 2/1,1 | 55,1 | 49,7 | 44,4 | 39,2 | 34,1 | 29,1 | 23,7 | 4,41 | 4,46 | 4,52 | 4,58 | 4,64 | 4,72 | 4,84 |
| | 7/6 | 63,5 | 57,5 | 51,5 | 45,7 | 39,8 | 33,9 | 27,6 | 5,09 | 5,17 | 5,25 | 5,33 | 5,42 | 5,51 | 5,62 |
| | 10/8,2 | 67,8 | 61,7 | 55,4 | 49,1 | 42,6 | 36,3 | 29,5 | 5,44 | 5,56 | 5,65 | 5,75 | 5,82 | 5,92 | 6,01 |
| | 18/14 | 83,9 | 76,0 | 68,3 | 60,8 | 53,0 | 44,9 | 36,2 | 6,81 | 6,96 | 7,13 | 7,31 | 7,47 | 7,59 | 7,69 |
| 30 | -14/-14,3 | 32,6 | 28,1 | 24,1 | 20,4 | 16,1 | 12,1 | 8,00 | 2,58 | 2,50 | 2,43 | 2,38 | 2,30 | 2,23 | 2,16 |
| | -7/-8 | 41,5 | 36,9 | 32,4 | 28,2 | 24,3 | 20,5 | 16,0 | 3,13 | 3,11 | 3,11 | 3,11 | 3,13 | 3,17 | 3,16 |
| | 2/1,1 | 54,1 | 48,8 | 43,6 | 38,4 | 33,4 | 28,4 | 23,1 | 3,93 | 3,99 | 4,04 | 4,10 | 4,15 | 4,21 | 4,28 |
| | 7/6 | 62,4 | 56,5 | 50,7 | 44,8 | 38,9 | 33,1 | 26,8 | 4,49 | 4,57 | 4,66 | 4,74 | 4,81 | 4,87 | 4,93 |
| | 10/8,2 | 66,8 | 60,7 | 54,4 | 48,0 | 41,7 | 35,4 | 28,5 | 4,78 | 4,90 | 4,99 | 5,08 | 5,15 | 5,22 | 5,24 |
| | 18/14 | 82,4 | 74,4 | 67,1 | 59,6 | 51,8 | 43,7 | 35,0 | 5,86 | 6,00 | 6,20 | 6,37 | 6,50 | 6,59 | 6,63 |
| 35 | -14/-14,3 | 31,5 | 27,2 | 23,4 | 19,9 | 15,9 | 12,0 | 8,17 | 2,34 | 2,27 | 2,21 | 2,17 | 2,10 | 2,04 | 1,99 |
| | -7/-8 | 40,6 | 36,1 | 31,8 | 27,7 | 23,8 | 20,1 | 15,7 | 2,82 | 2,82 | 2,82 | 2,82 | 2,84 | 2,86 | 2,85 |
| | 2/1,1 | 53,3 | 48,0 | 42,9 | 37,7 | 32,7 | 27,7 | 22,4 | 3,52 | 3,58 | 3,63 | 3,67 | 3,71 | 3,75 | 3,77 |
| | 7/6 | 62,0 | 55,6 | 49,8 | 44,0 | 38,1 | 32,3 | 26,0 | 3,90 | 4,07 | 4,15 | 4,22 | 4,27 | 4,31 | 4,32 |
| | 10/8,2 | 65,7 | 59,7 | 53,4 | 47,1 | 40,8 | 34,6 | 27,6 | 4,22 | 4,33 | 4,43 | 4,50 | 4,56 | 4,61 | 4,58 |
| | 18/14 | 80,6 | 73,2 | 65,8 | 58,3 | 50,5 | 42,5 | 33,8 | 5,07 | 5,24 | 5,42 | 5,57 | 5,68 | 5,73 | 5,70 |
| 40 | -14/-14,3 | 30,5 | 26,5 | 22,9 | 19,6 | 15,7 | 12,1 | 8,44 | 2,13 | 2,07 | 2,02 | 1,98 | 1,93 | 1,88 | 1,84 |
| | -7/-8 | 39,8 | 35,4 | 31,2 | 27,2 | 23,4 | 19,7 | 15,4 | 2,56 | 2,56 | 2,57 | 2,57 | 2,57 | 2,58 | 2,58 |
| | 2/1,1 | 52,5 | 47,3 | 42,2 | 37,1 | 32,1 | 27,1 | 21,9 | 3,17 | 3,22 | 3,27 | 3,31 | 3,34 | 3,35 | 3,33 |
| | 7/6 | 60,6 | 54,8 | 49,0 | 43,2 | 37,4 | 31,5 | 25,3 | 3,56 | 3,64 | 3,71 | 3,77 | 3,82 | 3,83 | 3,79 |
| | 10/8,2 | 64,8 | 58,7 | 52,5 | 46,2 | 40,0 | 33,6 | 26,9 | 3,76 | 3,87 | 3,95 | 4,01 | 4,06 | 4,05 | 4,01 |
| | 18/14 | 79,1 | 71,9 | 64,6 | 57,1 | 49,3 | 41,3 | 32,6 | 4,46 | 4,63 | 4,78 | 4,91 | 4,98 | 4,99 | 4,91 |
| 45 | -14/-14,3 | 30,8 | 26,9 | 23,3 | 20,1 | 16,3 | 12,8 | 9,17 | 1,94 | 1,89 | 1,86 | 1,83 | 1,79 | 1,75 | 1,72 |
| | -7/-8 | 40,6 | 36,2 | 31,9 | 27,9 | 24,0 | 20,2 | 15,9 | 2,33 | 2,33 | 2,34 | 2,34 | 2,34 | 2,34 | 2,35 |
| | 2/1,1 | 53,7 | 48,4 | 43,1 | 37,9 | 32,7 | 27,6 | 22,1 | 2,85 | 2,90 | 2,95 | 2,98 | 3,00 | 2,99 | 2,94 |
| | 7/6 | 62,0 | 56,0 | 50,0 | 44,0 | 38,0 | 32,0 | 25,4 | 3,10 | 3,18 | 3,24 | 3,29 | 3,31 | 3,30 | 3,23 |
| | 10/8,2 | 66,2 | 59,9 | 53,4 | 47,0 | 40,6 | 33,9 | 27,1 | 3,35 | 3,44 | 3,51 | 3,57 | 3,60 | 3,57 | 3,50 |
| | 18/14 | 80,7 | 73,2 | 65,6 | 57,9 | 49,8 | 41,5 | 32,5 | 3,95 | 4,07 | 4,21 | 4,31 | 4,36 | 4,34 | 4,20 |
| 50 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | 40,0 | 35,7 | 31,6 | 27,7 | 23,7 | 20,1 | 15,9 | 2,12 | 2,13 | 2,14 | 2,15 | 2,14 | 2,14 | 2,14 |
| | 2/1,1 | 53,0 | 47,7 | 42,5 | 37,3 | 32,2 | 27,1 | 21,6 | 2,57 | 2,62 | 2,66 | 2,69 | 2,70 | 2,68 | 2,61 |
| | 7/6 | 61,1 | 55,1 | 49,2 | 43,2 | 37,2 | 31,2 | 24,7 | 2,85 | 2,92 | 2,98 | 3,02 | 3,03 | 3,01 | 2,90 |
| | 10/8,2 | 65,1 | 58,9 | 52,4 | 46,1 | 39,5 | 33,0 | 26,2 | 2,99 | 3,07 | 3,14 | 3,19 | 3,19 | 3,16 | 3,06 |
| | 18/14 | 79,3 | 71,7 | 64,2 | 56,4 | 48,3 | 40,1 | 31,1 | 3,53 | 3,61 | 3,71 | 3,79 | 3,82 | 3,78 | 3,60 |
| 54 | -14/-14,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | -7/-8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 2/1,1 | 52,4 | 47,2 | 42,0 | 36,9 | 31,8 | 26,7 | 21,2 | 2,38 | 2,42 | 2,46 | 2,48 | 2,48 | 2,46 | 2,37 |
| | 7/6 | 60,3 | 54,4 | 48,5 | 42,5 | 36,6 | 30,6 | 24,1 | 2,62 | 2,68 | 2,73 | 2,77 | 2,77 | 2,73 | 2,61 |
| | 10/8,2 | 64,3 | 57,9 | 51,6 | 45,3 | 38,7 | 32,4 | 25,6 | 2,74 | 2,81 | 2,87 | 2,91 | 2,90 | 2,87 | 2,75 |
| | 18/14 | 78,2 | 70,6 | 62,8 | 55,1 | 47,1 | 38,9 | 30,0 | 3,25 | 3,31 | 3,35 | 3,42 | 3,44 | 3,38 | 3,19 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Heating capacity and COP calculated according to EN 14511:2018*
*ATTENTION: The data of the heat capacity and COP include defrostings.*

# General technical data

## Performances in cooling - Size 22.2

| To | Tae | Cooling capacity EN14511 | | | | | | | | EER EN14511 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percentage of compressor load | | | | | | | | Percentage of compressor load | | | | | | | |
| °C | °C | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% | 100% | 90% | 80% | 70% | 60% | 50% | 40% | 30% |
| 7 | 15 | 67,6 | 61,2 | 54,8 | 48,4 | 42,0 | 35,7 | 28,7 | 22,7 | 5,02 | 5,21 | 5,39 | 5,56 | 5,74 | 5,91 | 6,19 | 6,66 |
| | 20 | 64,5 | 58,4 | 52,3 | 46,2 | 40,1 | 34,0 | 27,2 | 21,3 | 4,25 | 4,44 | 4,61 | 4,77 | 4,93 | 5,09 | 5,30 | 5,63 |
| | 25 | 61,3 | 55,6 | 49,9 | 44,1 | 38,2 | 32,3 | 25,7 | 20,0 | 3,63 | 3,80 | 3,96 | 4,10 | 4,24 | 4,37 | 4,52 | 4,71 |
| | 30 | 58,2 | 52,9 | 47,4 | 41,9 | 36,2 | 30,6 | 24,1 | 18,6 | 3,12 | 3,27 | 3,41 | 3,53 | 3,65 | 3,75 | 3,83 | 3,91 |
| | 35 | 55,0 | 50,0 | 44,9 | 39,6 | 34,3 | 28,9 | 22,6 | 17,1 | 2,64 | 2,82 | 2,94 | 3,05 | 3,15 | 3,21 | 3,24 | 3,22 |
| | 40 | 51,8 | 47,1 | 42,3 | 37,4 | 32,3 | 27,0 | 21,0 | 15,7 | 2,31 | 2,43 | 2,54 | 2,63 | 2,70 | 2,74 | 2,72 | 2,64 |
| | 44 | 48,5 | 44,2 | 39,8 | 35,1 | 30,2 | 25,2 | 19,3 | 14,1 | 1,99 | 2,09 | 2,19 | 2,26 | 2,32 | 2,33 | 2,27 | 2,13 |
| 10 | 15 | 74,2 | 67,3 | 60,3 | 53,3 | 46,2 | 39,3 | 31,4 | 24,6 | 5,46 | 5,71 | 5,93 | 6,14 | 6,36 | 6,56 | 6,88 | 7,34 |
| | 20 | 70,9 | 64,4 | 57,7 | 51,0 | 44,2 | 37,5 | 29,8 | 23,2 | 4,62 | 4,84 | 5,05 | 5,25 | 5,44 | 5,63 | 5,86 | 6,19 |
| | 25 | 67,6 | 61,4 | 55,0 | 48,6 | 42,1 | 35,6 | 28,2 | 21,7 | 3,94 | 4,13 | 4,32 | 4,50 | 4,66 | 4,82 | 4,97 | 5,15 |
| | 30 | 64,2 | 58,4 | 52,4 | 46,3 | 40,0 | 33,7 | 26,5 | 20,2 | 3,38 | 3,55 | 3,72 | 3,88 | 4,00 | 4,11 | 4,20 | 4,26 |
| | 35 | 60,7 | 55,3 | 49,6 | 43,8 | 37,9 | 31,8 | 24,8 | 18,6 | 2,90 | 3,05 | 3,20 | 3,33 | 3,44 | 3,51 | 3,54 | 3,49 |
| | 40 | 57,2 | 52,1 | 46,8 | 41,3 | 35,6 | 29,8 | 23,0 | 17,0 | 2,50 | 2,63 | 2,75 | 2,86 | 2,95 | 2,99 | 2,96 | 2,85 |
| | 44 | 53,7 | 48,9 | 44,0 | 38,8 | 33,4 | 27,7 | 21,2 | 15,3 | 2,15 | 2,27 | 2,37 | 2,46 | 2,52 | 2,54 | 2,46 | 2,29 |
| 12 | 15 | 78,8 | 71,5 | 64,1 | 56,7 | 49,2 | 41,7 | 33,2 | 26,0 | 5,77 | 6,05 | 6,32 | 6,57 | 6,80 | 7,04 | 7,39 | 7,88 |
| | 20 | 75,4 | 68,5 | 61,4 | 54,2 | 47,0 | 39,8 | 31,6 | 24,5 | 4,87 | 5,12 | 5,36 | 5,59 | 5,80 | 6,01 | 6,27 | 6,59 |
| | 25 | 72,0 | 65,3 | 58,6 | 51,8 | 44,8 | 37,8 | 29,8 | 22,9 | 4,18 | 4,37 | 4,58 | 4,78 | 4,96 | 5,12 | 5,30 | 5,47 |
| | 30 | 68,3 | 62,2 | 55,8 | 49,3 | 42,6 | 35,8 | 28,1 | 21,3 | 3,55 | 3,75 | 3,93 | 4,11 | 4,25 | 4,37 | 4,46 | 4,51 |
| | 35 | 64,7 | 58,9 | 52,9 | 46,7 | 40,3 | 33,8 | 26,3 | 19,7 | 3,05 | 3,22 | 3,38 | 3,52 | 3,64 | 3,73 | 3,75 | 3,69 |
| | 40 | 61,0 | 55,6 | 49,9 | 44,0 | 37,9 | 31,7 | 24,4 | 17,9 | 2,62 | 2,77 | 2,91 | 3,02 | 3,12 | 3,16 | 3,13 | 2,99 |
| | 44 | 57,2 | 52,2 | 46,9 | 41,3 | 35,5 | 29,5 | 22,4 | 16,1 | 2,26 | 2,39 | 2,50 | 2,60 | 2,66 | 2,68 | 2,60 | 2,40 |
| 15 | 15 | 86,2 | 78,2 | 70,1 | 61,9 | 53,6 | 45,4 | 36,1 | 28,0 | 6,25 | 6,59 | 6,92 | 7,23 | 7,52 | 7,81 | 8,22 | 8,79 |
| | 20 | 82,4 | 74,8 | 67,2 | 59,3 | 51,3 | 43,4 | 34,3 | 26,4 | 5,26 | 5,56 | 5,85 | 6,13 | 6,38 | 6,63 | 6,93 | 7,29 |
| | 25 | 78,6 | 71,4 | 64,1 | 56,6 | 49,0 | 41,3 | 32,4 | 24,7 | 4,48 | 4,73 | 4,98 | 5,22 | 5,44 | 5,63 | 5,83 | 6,00 |
| | 30 | 74,7 | 68,0 | 61,1 | 53,9 | 46,6 | 39,1 | 30,5 | 23,0 | 3,82 | 4,05 | 4,27 | 4,47 | 4,67 | 4,78 | 4,89 | 4,91 |
| | 35 | 70,7 | 64,5 | 57,9 | 51,1 | 44,0 | 36,9 | 28,5 | 21,2 | 3,28 | 3,47 | 3,65 | 3,82 | 3,97 | 4,06 | 4,09 | 4,03 |
| | 40 | 66,8 | 60,9 | 54,6 | 48,2 | 41,4 | 34,5 | 26,5 | 19,3 | 2,82 | 2,99 | 3,14 | 3,28 | 3,38 | 3,44 | 3,40 | 3,23 |
| | 44 | 62,7 | 57,2 | 51,3 | 45,2 | 38,8 | 32,1 | 24,3 | 17,3 | 2,43 | 2,57 | 2,70 | 2,81 | 2,88 | 2,90 | 2,81 | 2,58 |
| 18 | 15 | 93,8 | 85,1 | 76,2 | 67,3 | 58,3 | 49,2 | 39,0 | 30,7 | 6,22 | 6,59 | 6,96 | 7,31 | 7,64 | 7,99 | 8,46 | 8,09 |
| | 20 | 89,7 | 81,4 | 73,0 | 64,5 | 55,8 | 47,1 | 37,1 | 29,4 | 5,22 | 5,54 | 5,85 | 6,17 | 6,46 | 6,74 | 7,08 | 7,48 |
| | 25 | 85,6 | 77,8 | 69,8 | 61,6 | 53,2 | 44,8 | 35,1 | 27,5 | 4,43 | 4,71 | 4,97 | 5,23 | 5,47 | 5,69 | 5,92 | 6,12 |
| | 30 | 81,4 | 74,0 | 66,5 | 58,7 | 50,6 | 42,4 | 33,0 | 25,6 | 3,77 | 4,01 | 4,25 | 4,46 | 4,66 | 4,81 | 4,93 | 4,96 |
| | 35 | 75,6 | 70,2 | 63,0 | 55,6 | 47,9 | 40,0 | 30,9 | 23,7 | 3,23 | 3,44 | 3,63 | 3,81 | 3,96 | 4,07 | 4,11 | 4,02 |
| | 40 | 72,6 | 66,3 | 59,5 | 52,4 | 45,1 | 37,5 | 28,6 | 21,5 | 2,78 | 2,95 | 3,12 | 3,26 | 3,37 | 3,43 | 3,40 | 3,22 |
| | 44 | 68,3 | 62,3 | 55,9 | 49,2 | 42,2 | 34,9 | 26,3 | 19,3 | 2,39 | 2,54 | 2,67 | 2,79 | 2,87 | 2,89 | 2,80 | 2,55 |
| 20 | 15 | 99,0 | 89,8 | 80,4 | 70,9 | 61,4 | 51,8 | 38,8 | 27,9 | 6,53 | 6,96 | 7,38 | 7,78 | 8,17 | 8,57 | 8,46 | 8,09 |
| | 20 | 94,7 | 86,0 | 77,0 | 68,0 | 58,8 | 49,5 | 39,6 | 30,9 | 5,47 | 5,83 | 6,19 | 6,54 | 6,87 | 7,19 | 7,59 | 8,09 |
| | 25 | 90,3 | 82,1 | 73,6 | 65,0 | 56,1 | 47,2 | 37,4 | 28,9 | 4,64 | 4,95 | 5,23 | 5,53 | 5,80 | 6,06 | 6,31 | 6,55 |
| | 30 | 85,9 | 78,1 | 70,1 | 61,9 | 53,4 | 44,7 | 35,3 | 27,0 | 3,95 | 4,21 | 4,47 | 4,71 | 4,93 | 5,10 | 5,24 | 5,29 |
| | 35 | 81,3 | 74,0 | 66,5 | 58,6 | 50,5 | 42,1 | 33,0 | 25,0 | 3,38 | 3,60 | 3,82 | 4,01 | 4,18 | 4,30 | 4,35 | 4,26 |
| | 40 | 76,7 | 70,0 | 62,8 | 55,3 | 47,5 | 39,5 | 30,6 | 22,7 | 2,91 | 3,09 | 3,27 | 3,43 | 3,55 | 3,62 | 3,59 | 3,40 |
| | 44 | 72,0 | 65,7 | 59,0 | 51,9 | 44,4 | 36,7 | 28,1 | 20,4 | 2,50 | 2,66 | 2,81 | 2,93 | 3,02 | 3,04 | 2,95 | 2,68 |

*To = Leaving internal exchanger water temperature (°C)*
*Tae [°C]= External exchanger inlet air temperature*
*Performances in function of the inlet/outlet water temperature differential = 5°C*
*Cooling capacity and EER calculated according to EN 14511:2018*

# System configurations

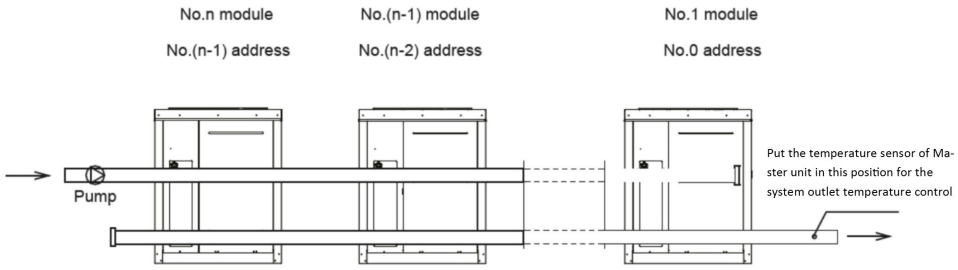
## Management of auxiliary heat source

In heating mode, ELFOEnergy Sheen EVO is able to manage (on/off) an auxiliary heating source (eg. a traditional gas boiler), in integration to the heat pomp. Control signal is given through terminals CN19_L and CN19_N, while power supply of auxiliary heater must be independent.
Activation of this auxiliary heater is related to outdoor air temperature and supply water temperature, as follow:

- **Outdoor air temperature.** Auxiliary heater can be activated when outdoor air temperature is < 13°C. Once in operation, it is deactivated when outdoor air temperature is ≥ 15°C
- **Supply water temperature.** Values set by default require auxiliary heater to be activated when leaving water temperature is < 25°C, while it is deactivated when it reaches a value ≥ 45 ° C. These values can be set directly on user interface. Auxiliary heater activation/deactivation temperature cannot be higher of the set-point one.

## Modularity

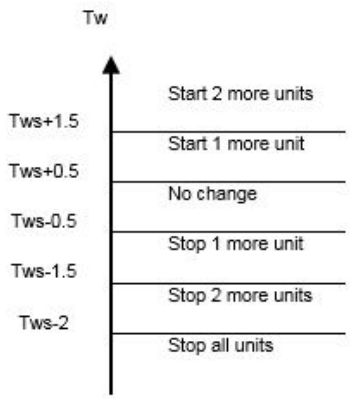
Thanks to this functionality, already activated on all ELFOEnergy Sheen EVO units without any additional accessory, it is possible to operate with up to 16 units connected in hydraulic parallel.
All the slave units are wired together in series, through dedicated terminals P, Q and E on respective main board, and to the Master unit user interface.
Each connected module is identified with an address, from 0 to 15: Master unit is identified as 0. The system is completely managed by the Master unit (including auxiliary components such as auxiliary heater and external pumping group).



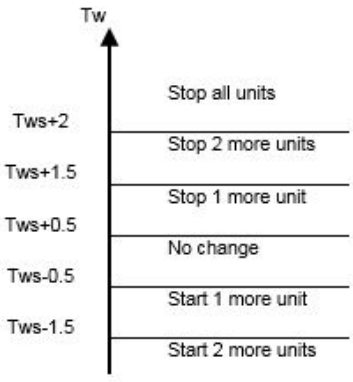

## Operation

Master unit calculates the modular combination heating/cooling, based on supply water temperature and set-point temperature. Each single unit calculates the capacity output based on its own water outlet and inlet temperature. Activation of Slave follows the logic of first in first out (the first unit to be activated will be also the first to be deactivated) and it is indicated in the charts below:
Tw = Supply water temperature
Tws = Set-point of Supply water temperature

Cooling mode




Heating mode




In cooling mode, if Tw≥Tws-10°C 50% of units are activated.
In the same way, in heating mode, if Tw≤Tws-10°C 50% of units are activated.

# System configurations

## Operation during a fault or in "protection" mode

When Master unit or a Slave unit is in "protection" mode (unit is in stand-by while hydraulic pump continues to run, except the case when there is no water flow), only the unit in "protection" stops while all the other units continue to operate.

On the other hand, if Master unit fails and then stops, also all the Slave units of the system stop to operate. If a Slave unit fails, all the other units continue to operate.

Protection mode occurs during one of the following conditions:

- System high pressure or exhaust temperature protection is activated
- System low voltage protection is activated
- Compressor current protection is activated
- Frequency protection of inverter compressor in cooling mode and heating mode is activated
- Condenser high temperature protection is activated
- High temperature difference between inlet water and outlet water protection is activated
- Anti-freezing protection is activated
- Discharge temperature sensor malfunction
- Evaporator low temperature protection is activated (invalid when in standby state)
- Frequency protection is activated
- Inverter compressor malfunction
- DC fan motor protection is activated
- High return water temperature protection in cooling mode is activated
- Low pressure anti-freezing protection is activated
- High temperature of inverter compressor module

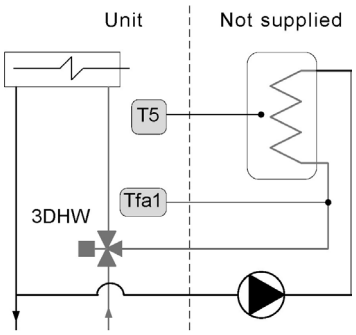
## Domestic hot water management in the modular system

Every module of the system can produce domestic hot water.

- It is necessary for each module dedicated to producing DHW to be equipped with 3-way valve installed on board (3DHW).
- Every module must have its own circulation pump and its own domestic hot water storage (responsibility of the Customer).
- The DHW pumping unit will be managed directly by the unit dedicated to DHW using a free contact.
- DHW production only takes place if the DHW storage temperature is above a minimum threshold. The minimum temperature threshold varies based on the external temperature. In order to avoid that it falls under the minimum temperature, it is best to install a backup electric heater on the DHW storage.

| t outdoor | t5 (DHW storage) | compr. | backup heater |
|---|---|---|---|
| 24°C < t.o ≤ 30°C | < 15°C | OFF | ON |
| 24°C < t.o ≤ 30°C | ≥ 15°C | ON | OFF |
| t.o > 30°C | < 20°C | OFF | ON |
| t.o > 30°C | ≥ 20°C | ON | OFF |

Domestic hot water management is of priority compared to the system.




*Connection diagram for connecting the individual module for producing domestic hot water*

### If the system is satisfied (unit off):

When the temperature probe (T5), supplied by Clivet and positioned inside the storage calls for production of DHW, the unit dedicated to DHW activates, changing the set-point from set system to set DHW and diverts the water flow through the built-in 3-way valve. The unit will remain active until the DHW set-point has been satisfied, then it will shut-off.

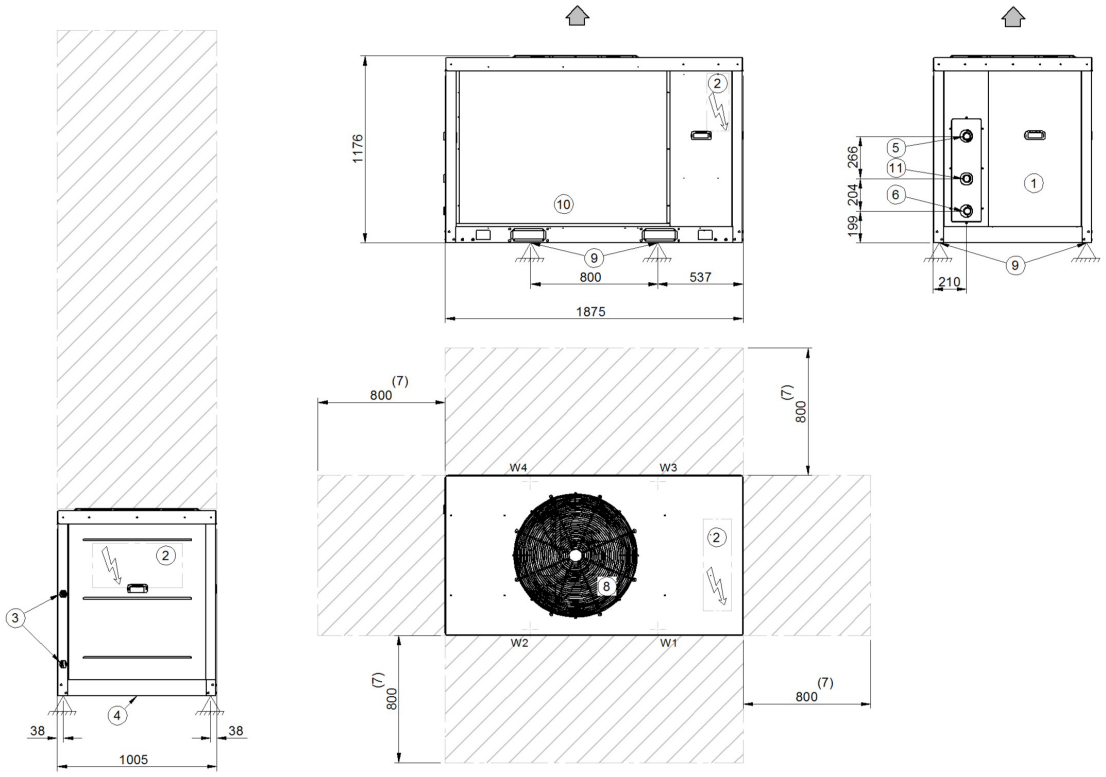
### If the system has a request (unit is on):

When the temperature probe (T5) sends a request for production of DHW, the unit dedicated to DHW, which is already active for the system stops, the cycle changes and if producing cooled water, the set-point changes from set system to set DHW and diverts the water flow through the built-in 3-way valve. The unit will remain active until the DHW set-point has been satisfied, then it will return to producing the system.

# Dimensional drawings

## Size 10.1 -12.1 - 14.1

DAAND0001_2_REV02
Data/Date 2811/2019




*1. Compressor compartment*
*2. Electrical panel*
*3. Power input*
*4. Condensate drain*
*5. Inlet water connection 1 1/4" Victaulic*
*6. Outlet water connection 1 1/4" Victaulic*
*7. Functional spaces*
*8. Electric fan*
*9. Unit fixing holes*
*10. External exchanger*
*11. DHW outlet (optional) Victaulic 1 1/2"*

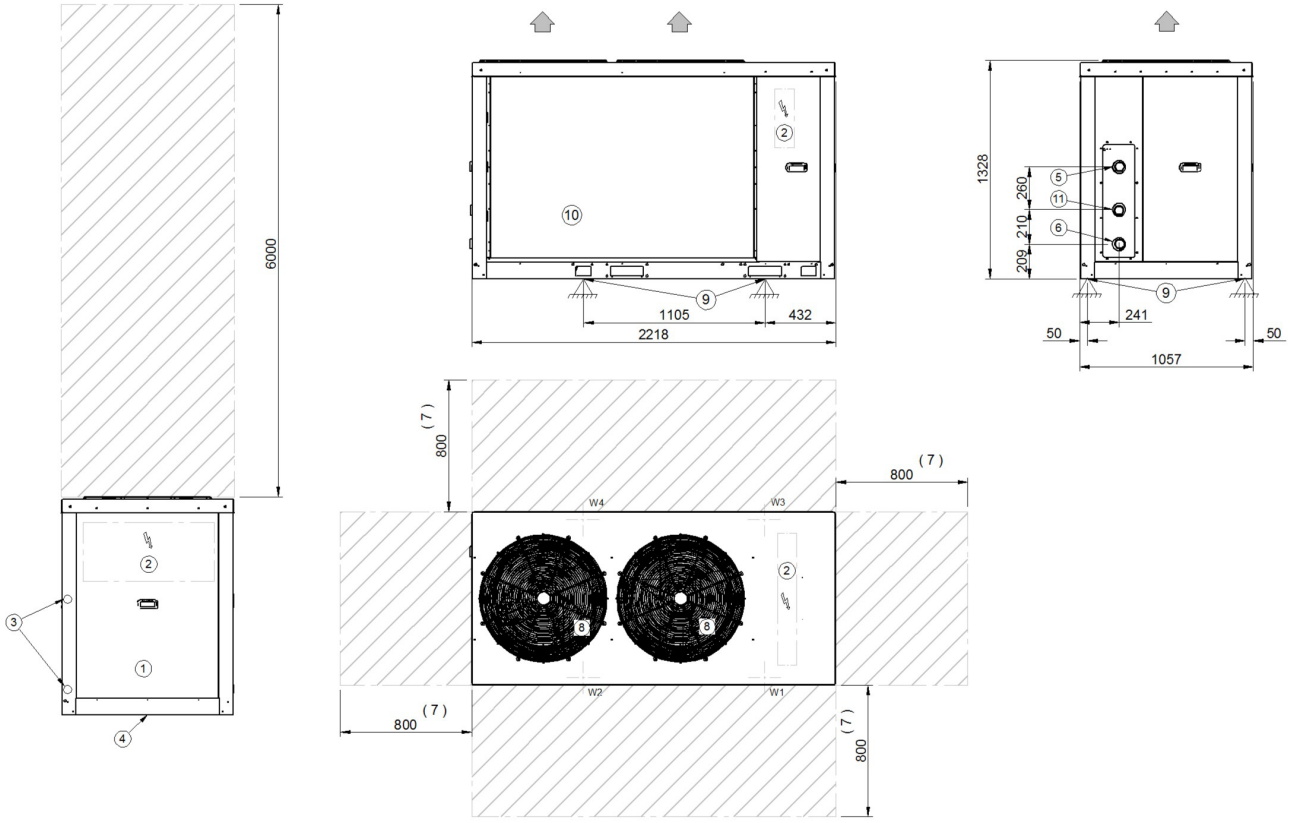
| Size | | | 10.1 | 12.1 | 14.1 |
|---|---|---|---|---|---|
| Length | | mm | 1875 | 1875 | 1875 |
| Depth | | mm | 1005 | 1005 | 1005 |
| Height | | mm | 1176 | 1176 | 1176 |
| Operating weight | | kg | 310 | 310 | 310 |
| Shipping weight | | kg | 300 | 300 | 300 |

*The presence of optional accessories may result in a substantial variation of the weights shown in the table.*

# Dimensional drawings

## Size 16.2 - 18.2 - 22.2

DAAND0002_1_REV01
Data/Date28/11/2019




1. *Compressor compartment*
2. *Electrical panel*
3. *Power input*
4. *Condensate drain*
5. *Inlet water connection 2" Victaulic*
6. *Outlet water connection 2" Victaulic*
7. *Functional spaces*
8. *Electric fan*
9. *Unit fixing holes*
10. *External exchanger*
11. *DHW outlet (optional) Victaulic 2"*

| Size | | | 16.2 | 18.2 | 22.2 |
|---|---|---|---|---|---|
| Length | | mm | 2218 | 2218 | 2218 |
| Depth | | mm | 1057 | 1057 | 1057 |
| Height | | mm | 1339 | 1339 | 1339 |
| Operating weight | | kg | 490 | 490 | 490 |
| Shipping weight | | kg | 480 | 480 | 480 |

*The presence of optional accessories may result in a substantial variation of the weights shown in the table.*

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