

*Air source inverter heat pump  
for outdoor installation*

# ELFOENERGY EDGE EVO

## WSAN-YMi 21÷141 RANGE

TECHNICAL BULLETIN



SIZE	21	31	41	61	71	81	91	101	121	141
COOLING CAPACITY kW	4,85	6,30	7,95	10,9	12,9	13,8	17,0	21,0	26,0	29,5
HEATING CAPACITY kW	4,80	6,70	8,60	12,4	14,1	16,2	18,0	22,0	26,0	30,0



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Page

3	Standard unit technical specifications
5	Built-in options
6	Accessories separately supplied
9	General technical data
19	Performances
30	Special functions
32	System configurations
34	Application considerations
35	Simplified system diagrams
39	Data for the UNI/TS 11300 calculation
47	Dimensional drawings



Clivet is taking part in the EUROVENT certification programme up to 1.500 kW. The products concerned appear in the certified products list of the EUROVENT [www.eurovent-certification.com](http://www.eurovent-certification.com) site.

# Standard unit technical specifications

## Compressors

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

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

## Structure

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

## Panelling

External paneling made of sheet steel, thickness of 8/10 and 10/10, hot dip galvanized and painted with polyester powder RAL 9001 that guarantees excellent mechanical characteristics and high corrosion strength over time. The panels can be easily removed to fully access internal components.

## Internal exchanger

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

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

## External exchanger

Direct expansion finned coil exchanger made with copper pipes placed on staggered rows mechanically expanded to better adhere to the fin collar. The fins are made from aluminum with a hydrophilic treatment. They are appropriately distanced to ensure the maximum heat exchange efficiency. A particula 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, 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 RAL 7037.

Both fans and prevention guards are designed with CFD technology. Variable speed control.

## Hydronic assembly

Circulator with cast-iron body and impeller, equipped with direct current Brushless motor (3-speed regulation) with IP44-protection complete with thermoformed insulated casing. All connections are screwed.

## Refrigeration circuit

Refrigeration circuit with:

- electronic expansion valve
- 4-way reverse cycle valve
- liquid receiver
- inlet liquid separator
- pressure probes
- low pressure safety
- high pressure safety
- discharge overtemperature protection system of the compressor with automatic regulation to guarantee continuity operation.

## Drain pan

Condensate collection tray provided with drain circuit made of sheet steel, thickness of 8/10 and 10/10, hot dip galvanized and painted with polyester powder RAL 9001 that guarantees excellent mechanical characteristics and high corrosion strength over time.

## Electrical panel

The capacity section includes:

- terminals main power;
- general protection fuse;
- auxiliary components protection fuse;
- hydronic circuit control module protection fuse.
- module for wi-fi connection

The control section includes:

- compressor overload protection and timer;
- relay for remote cumulative fault signal;
- defrosting cycle optimization;
- condenser control;
- set point compensation with outdoor temperature;
- double set-point;
- auxiliary generator control;
- dry contact for remote ON/OFF.

The control keypad includes:

- remote 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;
- serial port with Modbus port (RS485) for remote communication.

## Water circuit

- water side safety vale set to 3 bar
- steel mesh strainer (installation by the Customer)
- flow switch
- manometer
- expansion vessel
- relief valve
- temperature sensor for domestic hot water tank with 10 m cable (installation by the Customer)

## Accessories

- IBHX - Back-up electric heater (Only for size 21 - 31 - 41 - 61 - 71 - 81)
- KTFLX - Hose kit for connection to the chiller/heat pump
- QERAX - Connection electrical panel of the DHW storage heater
- ACS200X - 200-litre domestic hot water storage tank
- ACS500X - 500-litre domestic hot water storage tank
- ACS300X - 300-litre domestic hot water storage tank
- ACS2SX - 200-litre domestic hot water storage tank with solar coil
- ACS5SX - 500-litre domestic hot water storage tank with solar coil
- ACS3SX - 300-litre domestic hot water storage tank with solar coil
- 3DHWX - Three-way valve for domestic hot water
- TANKX - Buffer tank
- KTCAMX - Piping kit for the connection to the buffer tank on supply water side
- KTCARX - Piping kit for the connection to the buffer tank on return water side
- T1BX - Additionally temperature probe for system using an auxiliary heating source or IBHX and requesting domestic hot water.
- HID-TCXB - White soft touch chronothermostat, with temperature control and management via App / Voice control
- HID-TCXN - Black soft touch chronothermostat, with temperature control and management via App / Voice control
- SWCX - Switch IoT to be combined with HID-TConnect, for managing the heat pump mode or switching the terminal units/radiant systems ON/OFF
- DIX - 1-litre circuit breaker
- DI50X - 50-litre circuit breaker
- KSAX - 100-litre circuit breaker
- KCSX - Secondary circuit kit (1-litre circuit breaker + pump)

## Built-in options

- IBH - Back-up electrical heater (Only for sizes 61 - 71 - 81)

## Condensing boiler for the hybrid solution

Wall-mounted condensing gas-fired instantaneous boiler for heating and domestic hot water production with integrated exchanger for indoor installation, made up of a condensing hot water heat generator with low polluting emissions, type B23P, B33, C13, C33, C43, C53, C63, C83, C93, consisting of a Combi-Tech® integrated exchanger with stainless steel single-pipe coils, micro-flame burner with modulating operation and low emissions.

- 24kW or 34kW power;
- Integrated exchanger with high heating and DHW production efficiency;
- pneumatic double shutter gas valve;
- switch-on circuit board and ionisation control probe;
- sealed steel sheet chamber with modulating electronic variable speed high pressure electric fan;
- high efficiency ErP electronic circulator with PWM control with built-in air separator;
- system filling and emptying device;
- heating system pressure gauge;
- condensate drainage circuit with siphon and drain hose;
- 8-litre diaphragm system expansion tank;
- electric 3-way valve with no sliding parts;
- automatic by-pass;
- domestic hot water priority electronic flow switch;
- heating system pressure gauge;
- control panel with microprocessor circuit board with continuous flame modulation;

## Control and safety systems

- Self-diagnosis of correct operation of the control systems;
- temperature control with NTC probes;
- pump post-circulation in heating operation;
- Low water control pressure switch with boiler shutdown in case of low pressure;
- safety thermostat against overheating of the water/smoke exchanger;
- pump anti-jamming system;
- pressure relief valve that can be inspected on the heat circuit connected to a siphon and set at 3 bar;
- total anti-freeze device;
- safety probe against smoke overheating;

# Built-in options

## IBH

### Back-up electrical heater

The back-up electrical heater provide additional heating capacity during extremely cold outdoor temperatures operation conditions.

The configuration is available for sizes 61-71-81 single-phase in 3kW / single-phase version and for sizes 61-71-81 three-phase in 4.5kW / three-phase version.

- ⚠ The units with integrated electric heater are not managed in stock and are provided on request.
- ⚠ The option is not available for sizes 21-31-41 and 91-101-121-141.
- ⚠ The option cannot be selected in the Hybrid Solution
- ⚠ The configuration with additional electrical resistance excludes the external boiler connection kit

## Hybrid Solution

EDGE EVO Hybrid: hybrid version consisting of the EDGE EVO heat pump and boiler, designed to work simultaneously with or in replacement of each other.

The production of domestic hot water is guaranteed instantly by the boiler, which also allows simultaneous heating or cooling operation by the heat pump.

### The kit includes:

- 24kW condensing boiler for size from 21 to 51, 34kW for size from 61 to 81
- 10 m long T1 temperature probe.



## Options

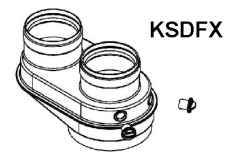
### KSDFX

#### Splitter for boiler smoke discharge

The KSDFX kit consists of a splitter (Ø 80/80) that can be connected to a boiler for air intake and smoke exhaust.

Connection to the flue must be made in compliance with the current technical regulations.

The unit is provided with a dedicated drain for the condensate coming from the boiler; this condensate with high acidity in residential use can be introduced in the waste water drain of the home (UNI 11071).



Split exhaust Ø 80/80  
Accessories separately supplied

### KCSAFX

#### Coaxial fitting for smoke discharge and intake (Ø60/100)

Coaxial polypropylene flanged connection (Ø60/100) for combustion gas discharge and air intake through two coaxial ducts..



### KAS80X

#### Smoke intake and discharge fittings, 80 mm diameter

The boiler is supplied with flanged connections for discharge/intake (Ø 80).

The KAS80X kit consists of 2 fittings (Ø 80) for splitting the air intake and smoke exhaust directly from the boiler body.



### KTCGPLX

#### Kit to convert boiler from methane to LPG

The boiler is supplied as STANDARD with methane gas operation.

To convert from methane gas to LPG, the accessory is supplied separately; its use will require recalibration following the instructions given in the documentation provided with the unit.

## IBHX Back-up electrical heater

The back-up electrical heater provide additional heating capacity during extremely cold outdoor temperatures operation conditions.

The accessory is available for sizes 21-31-41 in the 3kW / single-phase version and for sizes 61-71-81 in the 4.5kW / single-phase or 4.5kW / three-phase version.

⚠ The option is not available for sizes 91-101-121-141.

⚠ The configuration with additional electrical resistance excludes the external boiler connection kit

## KTFLX Hose kit for connection to the chiller/heat pump

The kit is made up of: no. 2 of flexible pipes, length 300 mm, necessary for the connection of the unit to the installation.

For size from 21 to 41 the diameter is G1".

For size from 61 to 141 the diameter is G1"1/4.

## KSAX 100-litre circuit breaker

Storage tank Fe360b and anti-corrosion treatment with organic enamelling, external insulation with polyurethane and polyethylene mat, thickness 50 mm maximum of operation 6 bar.

Diameter 500 mm, height 900 mm, 8 connections.

Suitable for all WSAN-YMi sizes.

Not for external installation.

## QERAX Connection electrical panel of the DHW storage heater

Remote electrical panel for the control of DHW tank electric heater.

The panel is made up of a Gewiss box (190x140x70 mm) with a relay to receive the in-line 230V power supply from the outdoor unit and to transfer it via the XT2 terminal block to the resistors placed on the tank. Electrical panel is equipped with fuse protection and must be supplied with 230V voltage via the XT1 terminal board.

It is suggested to install the electrical panel close to the tank because the resistance cable supplied is 1,5 m long. If necessary, disconnect the cable and install one of adequate length by avoiding junctions of the original one.

<b>ACS200X</b>	<b>200-liter domestic hot water storage tank</b>
<b>ACS2SX</b>	<b>200-liter domestic hot water storage tank with solar coil</b>
<b>ACS300X</b>	<b>300-liter domestic hot water storage tank</b>
<b>ACS3SX</b>	<b>300-liter domestic hot water storage tank with solar coil</b>
<b>ACS500X</b>	<b>500-liter domestic hot water storage tank</b>
<b>ACS5SX</b>	<b>500-liter domestic hot water storage tank with solar coil</b>

Carbon steel tanks with internal vitrification treatment according to DIN 4753-3 and UNI 10025. Complete with magnesium anodic protection, inspection flange, electric heater.

All the tanks have an external insulation in 70 mm rigid polyurethane which allows to reduce heat losses to a minimum and increase efficiency.

		ACS200X	ACS2SX	ACS300X	ACS3SX	ACS500X	ACS5SX
Capacity	[l]	196	194	273	267	475	464
Diameter	[mm]	640	640	640	640	790	790
Height	[mm]	1215	1215	1615	1615	1705	1705
Surface of exchanger	[m <sup>2</sup> ]	1,5	1,5	1,8	1,8	2,2	2,2
T <sub>MAX</sub> entering the solar coil	[°C]	110	110	110	110	110	110
Surface of solar exchanger	[m <sup>2</sup> ]	\	0,5	\	1,1	\	1,3
Max pressure of hot water	[bar]	10	10	10	10	10	10
Tank energy class	[-]	B	B	B	B	B	B
Storage dispersion*	[W]	51	51	63	63	80	80
Thermal dispersions	[W/K]	1,13	1,13	1,40	1,40	1,78	1,78
Electric heater	[kW]	2,0	2,0	2,0	2,0	2,0	2,0
Storage T <sup>MAX</sup>	[°C]	95	95	95	95	95	95

\* Conditions: Water temperature 65°C / Air temperature 20°C, according to EN12897:2006.

Data according to DIN 4708 / EN 12897 / en 15332

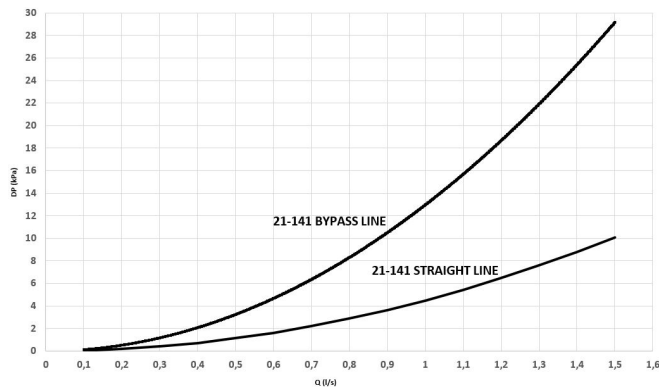
⚠ For the electrical connection to the unit, it is compulsory to select the option QERAX in combination with this accessory.

# Accessories separately supplied

## 3DHWX Three-way valve for domestic hot water

The 3-way switching valve for the deviation of the water flow to a DHW heating storage tank is separately supplied. If the DHW temperature does not reach the set-point, ELFOEnergy Edge EVO switches to DHW production mode (the priority over other operating modes can be set). The unit controller closes a digital output to control the flow diverter valve from the installation to the tank till the achievement of the DHW Set-point set in the user interface. For sizes from 21 to 41 the 3-way valve is of G1" 1/4 with G1" connections. For sizes from 61 to 141 the 3-way valve is G1" 1/4".

### 3-way valve pressure drop



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

## TANKX Buffer tank

60-liter tank in painted sheet metal, thermally insulated. The cylinder is included inside a box which can be positioned below the heat pump.

## KTCAMX Piping kit for the connection to the buffer tank on supply water side

The kit is made of no.2 of rigid copper pipes, necessary for the connection of the unit to the buffer tank. For size from 21 to 41 the diameter is G1". For the size from 61 to 141 the diameter is G1" 1/4

## KTCARX Piping kit for the connection to the buffer tank on return water side

The kit is made of no.2 of rigid copper pipes, necessary for the connection of the unit to the buffer tank. For size from 21 to 41 the diameter is G1". For the size from 61 to 141 the diameter is G1" 1/4.

## T1BX Probe for auxiliary heating source T1B

Additionally temperature probe for system using an auxiliary heating source or IBHX and requesting domestic hot water.

# Accessories separately supplied

**HID-TCXB** White soft touch chronothermostat, with temperature control and management via App / Voice control  
**HID-TCXN** Black soft touch chronothermostat, with temperature control and management via App / Voice control

For semi-uncased installation

Main functions available from the thermostat:

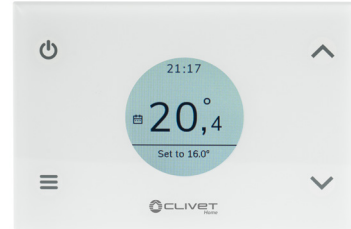
- ON/OFF
- keypad lock
- set-point control and limitation
- room temperature display
- setting change (manual / scheduled)
- antifreeze function (prevents temperatures that are too low)

Additional functions available on the Clivet Home Connect App

- weekly schedule
- boost (forced system switch-on)
- temperature and consumptions log

Technical specifications:

- display: colour soft-touch
- combinable SwitchConnect receivers: max 2
- installation: semi-uncased
- power supply: 100÷253V / 50÷60Hz
- settable temperature: 5÷40°C
- antifreeze temperature: 2÷25°C
- temperature offset: ±5°C (std 0°C)
- protection rating: IP30
- Wi-Fi: 802.11 b/g/n
- self-adjusting clock via web with back-up battery
- dimensions: 122x82x15mm



## SWCX SwitchConnect radio receiver

Radio receiver for HID-TConnect, for managing the request of terminal units or radiant systems, the heat pump mode change or the double set-point.

Technical specifications:

- functions: radio receiver for use with HID-TConnect
- combinable thermostats: max 6
- frequency: 2.4GHz
- transmission distance: max 30m (in buildings) / max 100m (in open range)
- contacts: 2 relays (voltage-free)
- power supply: 95÷290V / 47÷440Hz
- operation temperature: 0÷40°C
- operation humidity: 20÷80% RH
- dimensions: 125x78x30.5mm



## SOLAR THERMAL SYSTEM

The ELFOSun2 solar thermal system, which can be combined with Clivet residential heat pumps, is available on request. It consists of various kits used to control solutions with a single collector up to solutions with 5 new generation collectors.

The kits can be chosen in relation to the ELFOSystem in which they are used and the specific type of installation required.

For further details, please refer to the documentation available on Clivet's website



# Accessories separately supplied

## DIX 1-litre circuit breaker

The CP60 hydraulic separator is a compensation chamber designed to make connected hydraulic circuits independent. It is used when the circulator of the primary circuit interacts with one or more parts of the secondary circuit in the same system. Furthermore, the separator performs the function of a deaerator.

With the following benefits and advantages:

- makes the connected hydraulic circuits independent;
- ensures effective operation of the secondary circulators that provide the hydraulic demand of air conditioning systems
- air extraction system;
- thermally insulated black EPP
- zone manifold connection kit

Technical data:

Nominal diameter DN 20

Connection 1" F

Max overall dimensions 120 x 420 x 945

Max temperature 110°C

Max pressure 6 bar

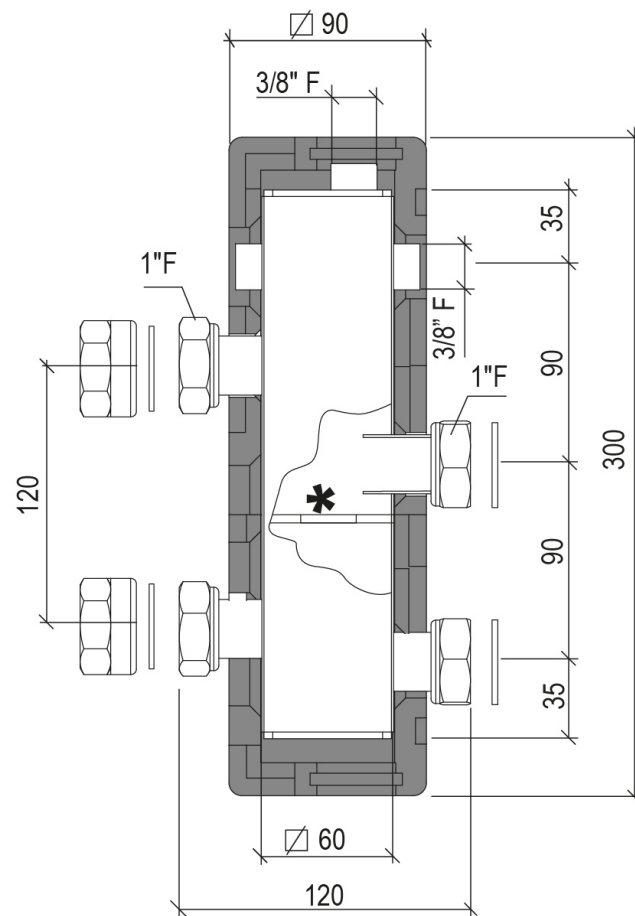
Circuit breaker material S235 steel

Insulation material EPP (40 g/l)

Insulation thickness 20 mm

The kit is supplied with a plate for wall mounting

## DIMENSIONAL



## DI50X

### 50-litre circuit breaker

Technical 50-litre storage tank with the function of a hydraulic separator and inertial tank ensures effective operation of the secondary circulators that provide the hydraulic demand of air conditioning systems.

Technical data:

Circuit breaker diameter 380 mm

Circuit breaker height 933 mm

Connections 1" 1/4 F

Max temperature 95°C

Max pressure 6 bar

Circuit breaker material S235JR steel

Circuit breaker capacity 57 litres

Circuit breaker weight 25 kg

Insulation material Polyurethane foam

Insulation thickness 40 mm

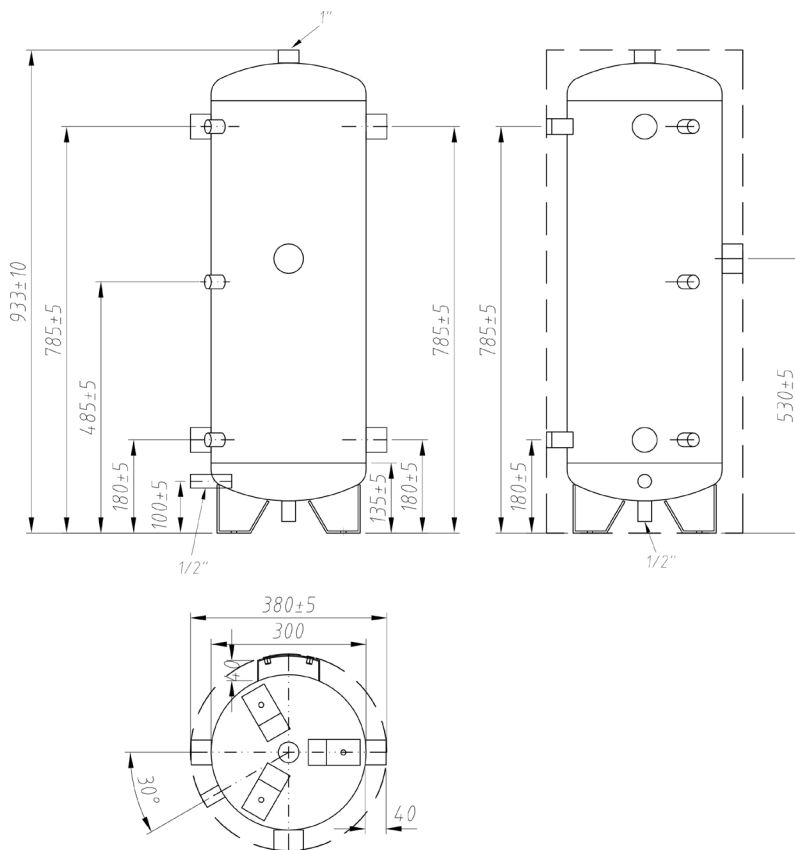
Energy class B

Specific heat loss 0.76 W/K



The kit is supplied with brackets for wall mounting.

### DIMENSIONAL



## KSAX

### 100-litre circuit breaker

Storage tank in Fe360b and anti-corrosion treatment with organic enamelling, 50 mm thick polyethylene and polyurethane external insulation and a maximum operating pressure of 6 bar.

Diameter 500 mm, height 900 mm, 8 connections.

Suitable for all WSA-NYMi sizes.

Not suitable for outdoor installation.

# Accessories separately supplied

## KCSX

### Secondary circuit kit (1-litre circuit breaker + pump)

The single-zone kit consists of a DIX hydraulic separator combined with a high efficiency pump, all inside a box for easy installation. Allows interaction between the primary circuit circulator and the secondary circuit circulator. Furthermore, the separator also has the function of a deaerator. With the following benefits and advantages:

- makes the connected hydraulic circuits independent;
- ensures effective operation of the secondary circulator that provides the hydraulic demand of air conditioning systems
- air extraction system;
- thermally insulated black EPP;
- zone manifold connection kit.

The kit is comprised of:

- 1 1-litre circuit breaker;
- 2 copper pipes;
- 1 circulator;
- 1 circolatore;
- closing plates

Dimensions:

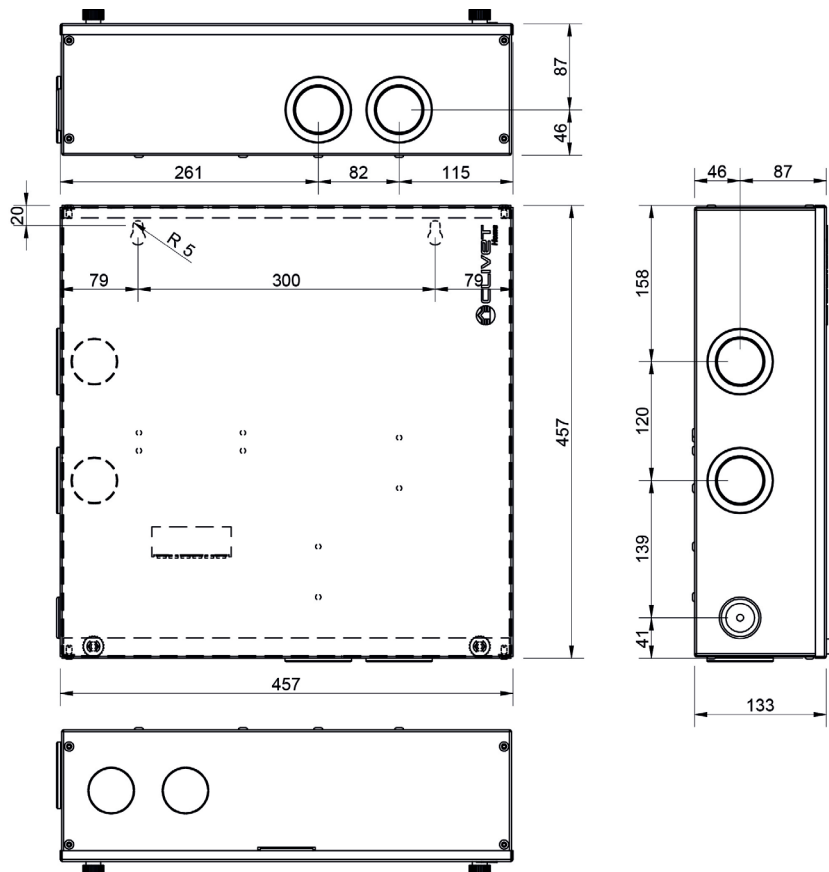
Length 457 mm

Height 457 mm

Depth 133 mm



## DIMENSIONAL



## Performance

SIZE			21	31	41	61	71	81	61	71	81	91	101	121	141
<b>Power supply</b>			230/50/1						400/50/3+N						
<b>RADIANT PANELS</b>															
<b>Heating</b>															
Heating capacity (EN 14511:2018)	1,9	kW	4,65	6,65	8,60	12,3	14,1	16,3	12,3	14,1	16,3	18,0	22,0	26,0	30,1
Total power input (EN 14511:2018)	1	kW	0,93	1,35	1,87	2,56	3,07	3,66	2,54	3,05	3,63	3,83	5,00	6,37	7,70
COP (EN 14511:2018)	2		5,00	4,94	4,60	4,81	4,60	4,45	4,84	4,63	4,49	4,70	4,40	4,08	3,91
ErP Space Heating Energy Class - AVERAGE Climate - W35	8,11		A+++	A+++	A+++	A++	A++	A++	A++	A++	A++	A+++	A+++	A+++	A++
SCOP - AVERAGE Climate - W35	10		4,48	4,49	4,51	4,30	4,35	4,30	4,30	4,35	4,30	4,60	4,53	4,50	4,19
<b>Cooling</b>															
Cooling capacity (EN 14511:2018)	5,9	kW	4,60	6,45	8,00	12,2	14,0	15,5	12,2	14,0	15,5	18,5	23,0	27,0	31,0
Total power input (EN 14511:2018)	5	kW	0,95	1,39	1,92	2,55	3,10	3,64	2,53	3,11	3,63	3,90	5,00	6,28	7,75
EER (EN 14511:2013)	6		4,82	4,65	4,16	4,78	4,52	4,26	4,83	4,50	4,27	4,75	4,60	4,30	4,00
Water flow-rate	5	l/s	0,22	0,31	0,38	0,58	0,67	0,74	0,58	0,67	0,74	0,88	1,10	1,29	1,48
Useful pump discharge head	5	kPa	61,4	49,5	37,6	40,9	29,5	19,6	40,9	29,5	19,6	99,5	89,4	74,4	54,0
<b>TERMINAL UNIT</b>															
<b>Heating</b>															
Heating capacity (EN 14511:2018)	3	kW	4,80	6,70	8,60	12,4	14,1	16,2	12,4	14,1	16,2	18,0	22,0	26,0	30,0
Total power input (EN 14511:2018)	3	kW	1,33	1,88	2,50	3,52	4,06	4,72	3,45	3,99	4,70	5,14	6,47	8,39	10,3
COP (EN 14511:2018)	2		3,60	3,57	3,44	3,53	3,47	3,43	3,59	3,54	3,45	3,50	3,40	3,10	2,90
<b>Cooling</b>															
Cooling capacity (EN 14511:2018)	7	kW	4,85	6,30	7,95	10,9	12,9	13,8	10,9	12,9	13,8	17,0	21,0	26,0	29,5
Total power input (EN 14511:2018)	7	kW	1,63	2,27	3,15	3,74	4,64	5,21	3,72	4,62	5,19	5,57	7,12	9,63	11,6
EER (EN 14511:2018)	6		2,98	2,77	2,53	2,92	2,78	2,65	2,93	2,80	2,66	3,05	2,95	2,70	2,55
SEER	10		4,71	4,99	4,92	4,85	4,73	4,54	4,85	4,73	4,54	4,70	4,70	4,66	4,49
Water flow-rate	7	l/s	0,23	0,30	0,35	0,52	0,62	0,66	0,52	0,62	0,66	0,81	1,00	1,05	1,10
Useful pump discharge head	7	kPa	60,6	50,7	37,8	49,7	36,4	30,7	49,7	36,4	30,7	102	94,6	78,8	59,4
<b>RADIATORS</b>															
<b>Heating</b>															
Heating capacity (EN 14511:2018)	4	kW	4,65	6,8	8,6	11,9	14,2	16,1	11,9	14,2	16,1	18,0	22,0	26,0	30,0
Total power input (EN 14511:2018)	4	kW	1,77	2,42	3,13	4,28	5,16	5,9	4,23	5,09	5,83	6,55	8,30	10,61	13,0
COP (EN 14511:2018)	2		2,63	2,81	2,75	2,78	2,75	2,73	2,81	2,79	2,76	2,75	2,65	2,45	2,30
ErP Space Heating Energy Class - AVERAGE Climate - W55	8		A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A++	A+	A+
SCOP - AVERAGE Climate - W55	10		3,23	3,24	3,22	3,23	3,26	3,27	3,23	3,26	3,27	3,21	3,22	3,14	3,14
Water flow-rate	4	l/s	0,14	0,20	0,26	0,36	0,42	0,48	0,36	0,42	0,48	0,54	0,66	0,78	0,90
Useful pump discharge head	4	kPa	65,4	62,5	56,7	72,7	63,4	55,5	72,7	63,4	55,5	109	106	103	99,1

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

\*Contains fluorinated greenhouse gases\*(GWP 675).

1. Entering/leaving water temperature user side 30/35 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%).
2. COP (EN 14511:2018) Heating performance coefficient. Ratio between delivered heating capacity and power input in compliance with EN 14511:2018.
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 47/55 °C, Entering external exchanger air temperature 7 °C (R.H. = 85%).
5. Entering/leaving water temperature user side 23/18 °C, Entering external exchanger air temperature 35 °C.
6. EER (EN 14511:2018) cooling performance coefficient. Ratio between delivered cooling capacity and power input in compliance with EN 14511:2018.
7. User side entering/leaving water temperature 12/7 °C, external exchanger entering air 35°C.
8. Seasonal Space Heating Energy Efficiency Class according to Commission delegated Regulation (EU) No 811/2013. W = Water outlet temperature (°C).
9. Data referred to unit operation with inverter frequency optimized for this application.
10. Data calculated according to the EN 14825:2016 Regulation.

# General technical data

## Construction

SIZE		21	31	41	61	71	81	61	71	81	91	101	121	141
<b>Compressor</b>														
Type of compressors		Rotary Inverter DC						Rotary Inverter DC						
Refrigerant		R32						R32						
No. of compressors	Nr	1	1	1	1	1	1	1	1	1	1	1	1	1
Oil charge	l	0,46	0,46	0,46	1,1	1,1	1,1	1,1	1,1	1,1	1,5	1,5	1,5	1,1
Refrigerant Charge	kg	2	2	2	2,8	2,8	2,8	2,8	2,8	2,8	5	5	5	5
<b>User side exchanger</b>														
Type of internal exchanger	1	PHE						PHE						
Water content	l	0,7	0,7	0,7	1,01	1,01	1,01	1,01	1,01	1,01	3,5	3,5	3,5	3,5
<b>External Section Fans</b>														
Type of fans		Brushless DC motor						Brushless DC motor						
No. of fans	Nr	1	1	1	2	2	2	2	2	2	2	2	2	2
Standard airflow	m <sup>3</sup> /h	850	850	850	1710	1710	1710	1710	1710	1710	2958	2958	3108	3108
Installed total power	kW	0,094	0,094	0,094	0,226	0,226	0,226	0,226	0,226	0,226	0,442	0,442	0,500	0,500
<b>Water circuit</b>														
Maximum water side pressure	kPa	300	300	300	300	300	300	300	300	300	300	300	300	300
Safety valve calibration	kPa	300	300	300	300	300	300	300	300	300	300	300	300	300
Minimum circuit water volume	l	20	20	20	40	40	40	40	40	40	40	40	40	40
Total internal water volume	l	2	2	2	3,2	3,2	3,2	3,2	3,2	3,2	3,5	3,5	3,5	3,5
Expansion tank volume	l	2	2	2	5	5	5	5	5	5	8	8	8	5
Expansion tank maximum working pressure	bar	8	8	8	8	8	8	8	8	8	3	3	3	3
Back-up electric heater capacity	kW	3	3	3	3	3	3	4,5	4,5	4,5	-	-	-	-

1. PHE = plate exchanger

## Condensing boiler technical data

Boiler model		R2K 24	R2K 34
Max. nominal heat capacity for heating	kW	23,5	34,0
Max. nominal heat capacity for domestic hot water	kW	23,5	34,0
Minimum nominal heat capacity	kW	2,9	4,1
Available nominal heating capacity 60/80°C	kW	22,7	33,4
Available minimum nominal heating capacity 60/80°C	kW	-	3,9
Available nominal heating capacity 30/50°C	kW	24,8	36,2
Available nominal heat yield 60/80°C	%	96,6	98,1
Available nominal heat yield 30/50°C	%	105,5	106,4
Partial load heat yield 30%	%	107,5	108,6
Seasonal environment heating energy efficiency $\eta_s$	%	91	93
Domestic hot water energy class	-	A	A
Declared load profile	-	XL	XL
Specific capacity in continuous service $\Delta t$ 30°C	l/min	11,5	16
Water heating energy efficiency $\eta_h$	%	81	83
Chimney losses	%	2,6	2,4
Casing losses	%	1	0,5
Smoke temperature at nominal heat capacity	°C	73,7	69,4
NOx Class	classe	6	6
Sound power level	dB	52	52
Width	mm	410	410
Depth	mm	307	350
Height	mm	642	642
Shipping weight	kg	35	44

## Electrical data

### Supply voltage 230/50/1

SIZE		21	31	41	61	71	81
<b>F.L.A. - Full load current at max admissible conditions</b>							
F.L.A. - Pump	[A]	0,44	0,44	0,44	0,60	0,60	0,60
F.L.A. - Total	[A]	14,1	14,1	14,1	26,8	26,8	26,8
<b>F.L.I. - Full load power input at max admissible conditions</b>							
F.L.I. - Pump	[kW]	0,045	0,045	0,045	0,075	0,075	0,075
F.L.I. - Back-up electric heater	[kW]	-	-	-	3	3	3
F.L.I. - Total	[kW]	3,50	3,50	3,50	6,50	6,50	6,50
<b>M.I.C. - Maximum inrush current</b>							
M.I.C. - Total	[A]	14,1	14,1	14,1	26,8	26,8	26,8

Power supply 230/50/1 Hz +/-10%

Back-up heater has independent supply.

The units compliant with the requirements of the European standard EN 60335-1 and 60335-2-40

### Supply voltage 400/50/3+N

SIZE		61	71	81	91	101	121	141
<b>F.L.A. - Full load current at max admissible conditions</b>								
F.L.A. - Pump	[A]	0,60	0,60	0,60	1,50	1,50	1,50	1,50
F.L.A. - Total	[A]	11,0	11,0	11,0	21,0	24,5	27,0	28,5
<b>F.L.I. - Full load power input at max admissible conditions</b>								
F.L.I. - Pump	[kW]	0,075	0,075	0,075	0,310	0,310	0,310	0,310
F.L.I. - Back-up electric heater	[kW]	4,5	4,5	4,5	-	-	-	-
F.L.I. - Total	[kW]	6,50	6,50	6,50	10,60	12,50	13,80	14,50
<b>M.I.C. - Maximum inrush current</b>								
M.I.C. - Total	[A]	11,0	11,0	11,0	21,0	24,5	27,0	28,5

Maximum Phase Unbalance: 2%

Power supply 400/50/3 +N +/-10%

Back-up heater has independent supply.

The units compliant with the requirements of the European standard EN 60335-1 and 60335-2-40

⚠ When rating the unit, check that the absorptions are conforming to the utility contract in the country of installation

### Storage tanks for domestic hot water

SIZE		ACS200X	ACS25X	ACS300X	ACS35X	ACS500X	ACS55X
<b>Power supply 220-240V ~50Hz</b>							
F.L.A. - Current absorbed by the electric heater	A	8,70	8,70	8,70	8,70	8,70	8,70
F.L.I. - Power input of the electric heater	kW	2,00	2,00	2,00	2,00	2,00	2,00
M.I.C. Unit maximum starting current	A	8,70	8,70	8,70	8,70	8,70	8,70

Power supply 220-240V ~ 50Hz +/-10%

The units are conforming with the prescriptions of European Standards CEI EN 60335 and EN 60335-2-40

Data to be added to the values of the standard indoor unit.

The tanks are supplied with immersed electric heater.

### Hybrid solution condensing boiler electrical data

SIZE		R2K 24	R2K 34
<b>Power supply 220-240V ~50Hz</b>			
F.L.A. - Full load current at max admissible conditions	A	0,72	0,98
F.L.I. - Full load power input at max admissible conditions	kW	0,78	0,78

Power supply 220-240V ~ 50Hz +/-10%

The units are conforming with the prescriptions of European Standards CEI EN 60335 and EN 60335-2-40

Data to be added to the values of the standard indoor unit.

# 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)
<b>21</b>	55	54	48	46	45	38	37	32	49	61
<b>31</b>	59	56	52	50	50	44	41	37	52	64
<b>41</b>	60	57	54	53	52	47	44	39	55	67
<b>61</b>	61	56	53	51	51	42	36	35	54	68
<b>71</b>	68	62	57	54	52	48	42	40	55	71
<b>81</b>	68	61	57	55	52	47	42	40	56	71
<b>61</b>	62	58	53	51	48	44	38	34	54	68
<b>71</b>	67	62	58	56	53	48	43	39	56	71
<b>81</b>	68	61	59	55	53	48	43	39	56	71
<b>91</b>	78	77	65	63	60	53	48	45	57	70
<b>101</b>	67	66	66	65	62	56	53	48	59	72
<b>121</b>	71	70	68	67	65	58	54	51	61	74
<b>141</b>	80	79	71	70	67	61	56	52	63	77

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.

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

## Sound levels - Silenced Mode

SIZE	Sound pressure level	Sound power level
	dB(A)	dB(A)
<b>21</b>	49	61
<b>31</b>	51	63
<b>41</b>	53	65
<b>61</b>	53	67
<b>71</b>	51	67
<b>81</b>	52	67
<b>61</b>	53	67
<b>71</b>	52	67
<b>81</b>	52	68
<b>91</b>	53	68
<b>101</b>	54	69
<b>121</b>	56	71
<b>141</b>	58	73

Sound levels refer to units with maximum test conditions.

For maximum capacity supplied in silent mode, a correction factor of 0,8 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)
<b>21</b>	46	59
<b>31</b>	49	60
<b>41</b>	50	62
<b>61</b>	49	63
<b>71</b>	47	63
<b>81</b>	50	65
<b>61</b>	49	63
<b>71</b>	50	65
<b>81</b>	51	66
<b>91</b>	50	65
<b>101</b>	51	66
<b>121</b>	53	68
<b>141</b>	54	69

Sound levels refer to units with maximum test conditions. For maximum capacity supplied in super silent mode, a correction factor of 0,6 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:

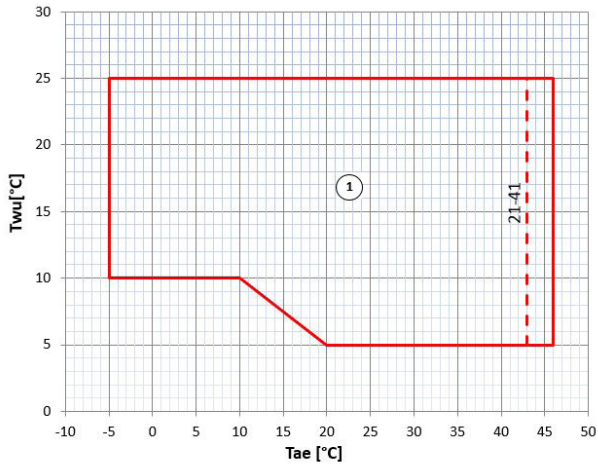
- internal exchanger water = 12/7°C
- ambient temperature 35°C



# General technical data

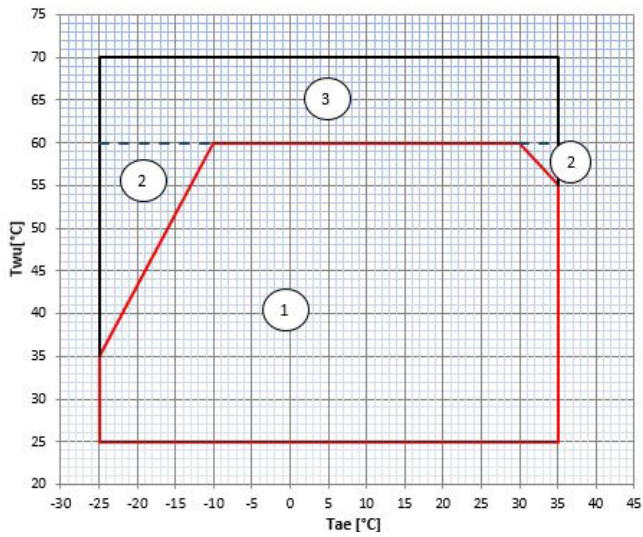
## Operating range

### Cooling



$T_{wu}$  [°C] = Leaving exchanger water temperature  
 $T_{ae}$  [°C] = External exchanger inlet air temperature

1. Normal operating range

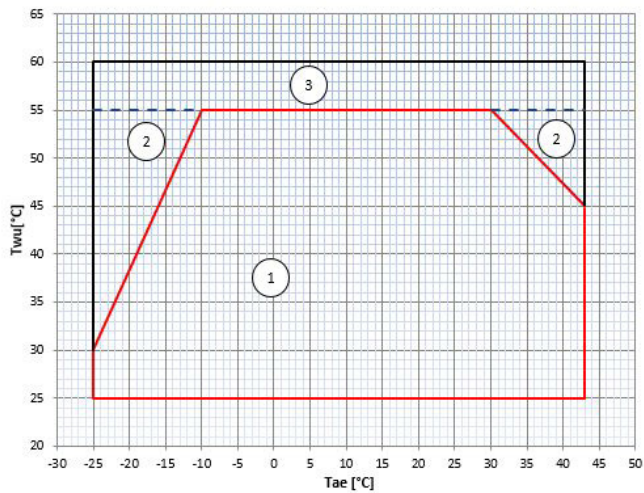


$T_{wu}$  [°C] = Leaving exchanger water temperature  
 $T_{ae}$  [°C] = External exchanger inlet air temperature

1. Normal operating range
2. Operating range with only back-up heater
3. Operating range with the Hybrid version of the condensing boiler

⚠ The operating range with only the back-up heater depends on the specific size and is for reference only

### DHW

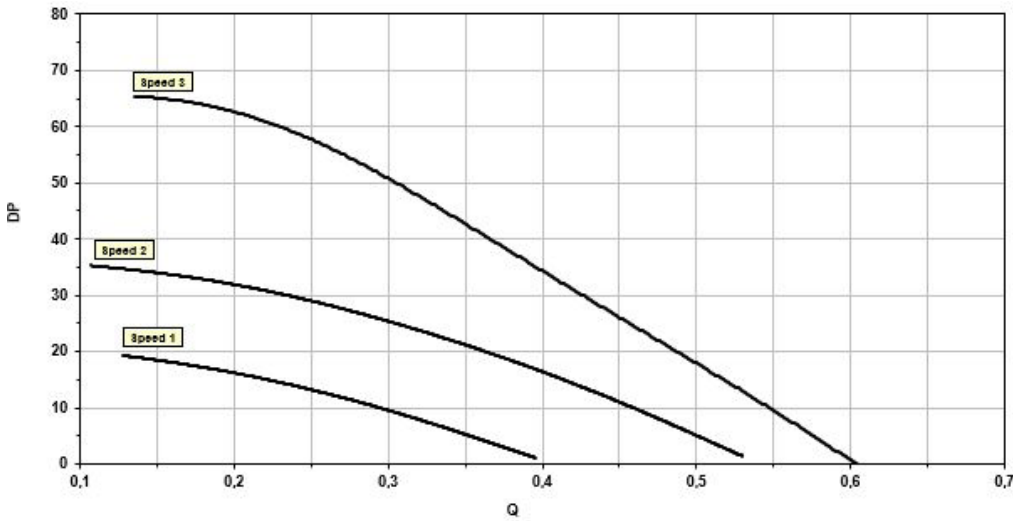


$T_{wu}$  [°C] = Leaving exchanger water temperature  
 $T_{ae}$  [°C] = External exchanger inlet air temperature

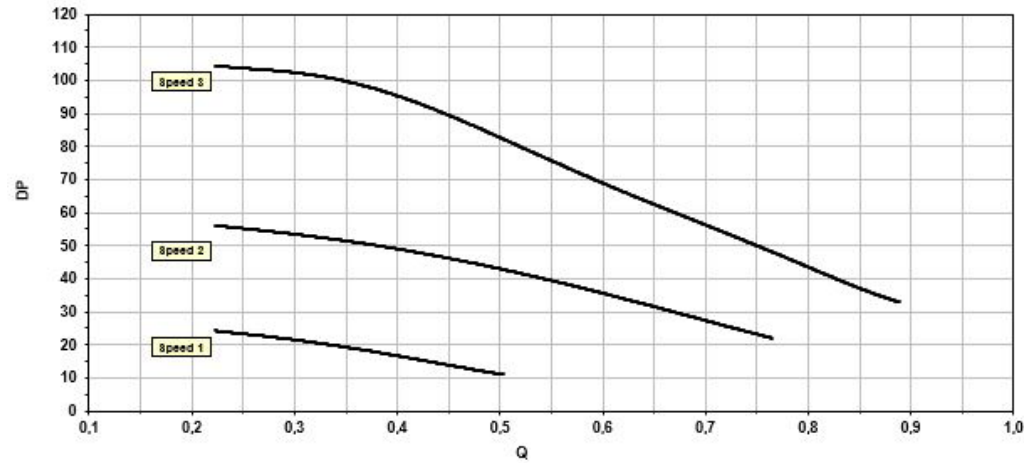
1. Normal operating range
2. Operating range with only back-up heater
3. Operating range with the Hybrid version of the condensing boiler

Available pressure of the standard circulator at the unit connections

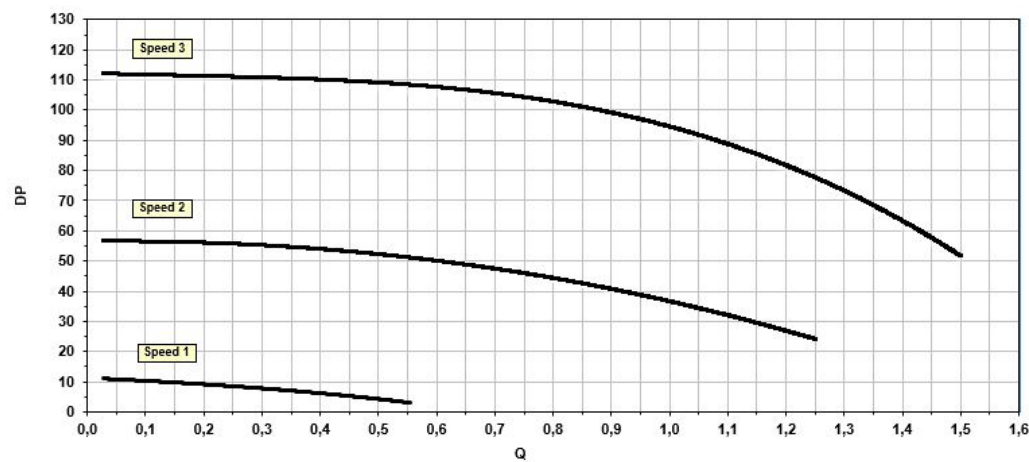
Size 21 - 41



Size 61 - 81



Size 91 - 141



Available pressure curves with hydronic assembly

DP = Available pressure [kPa]

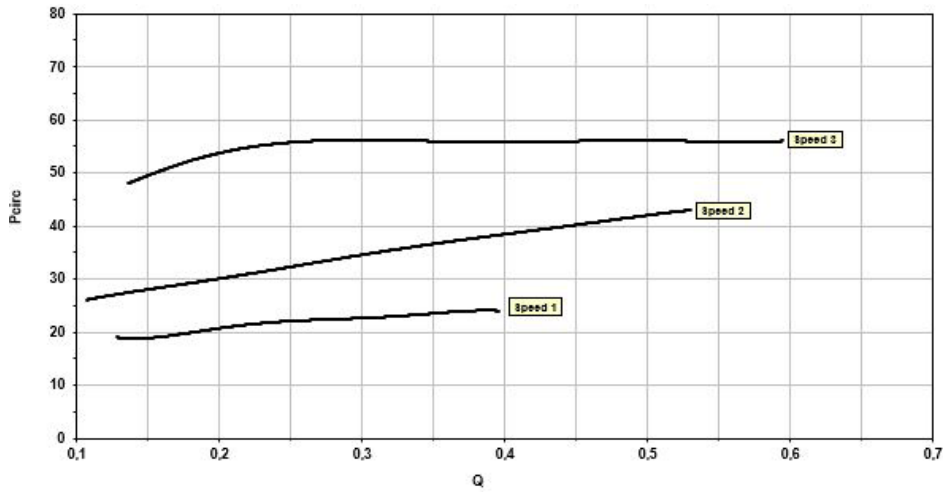
Q = Water flow-rate [l/s]

The pressure drops of the steel mesh strainer, supplied with the unit, have not been taken into consideration

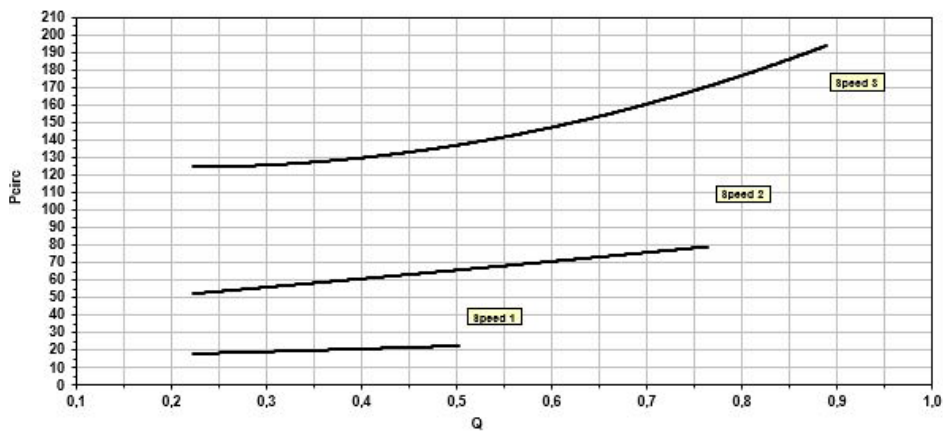
# General technical data

## Absorption of the standard circulator

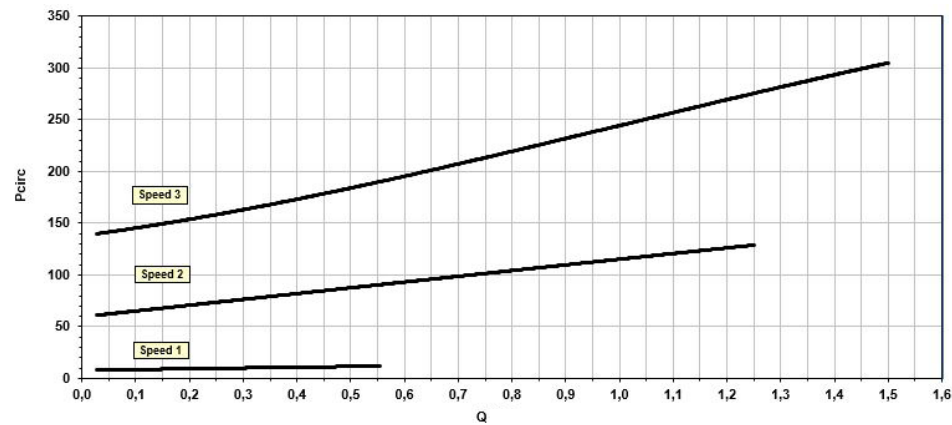
### Size 21 - 41



### Size 61-81

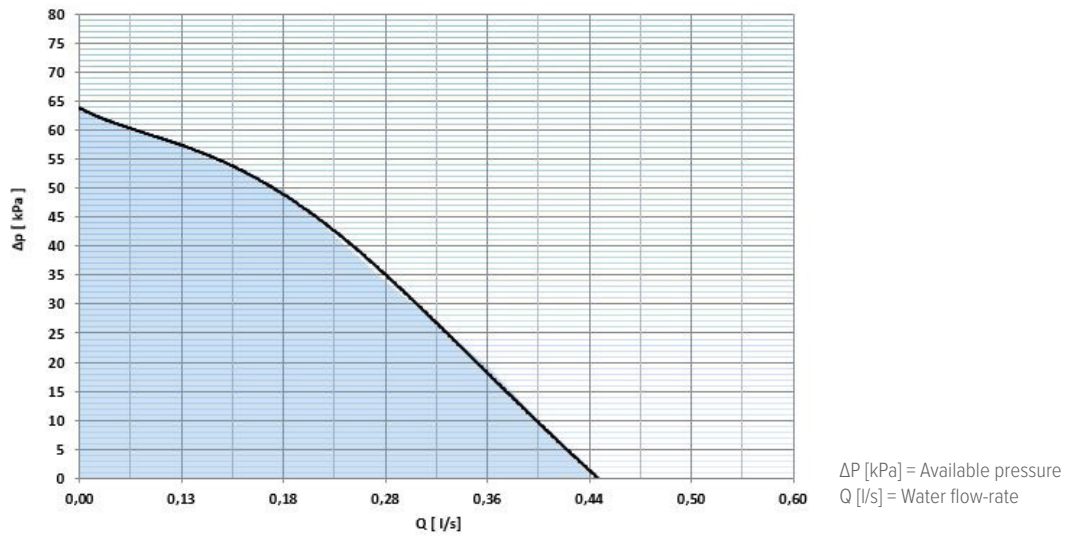


### Size 91-141



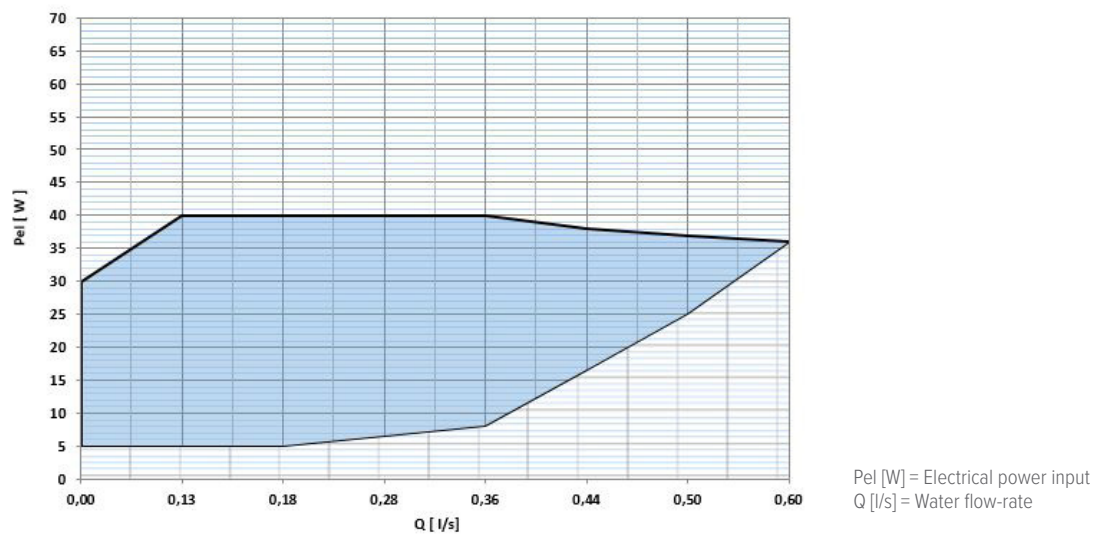
P<sub>circ</sub> = Circulator absorbed power [W]  
Q = Water flow-rate [l/s]

## Boiler circulator available pressure



Circulator operating field

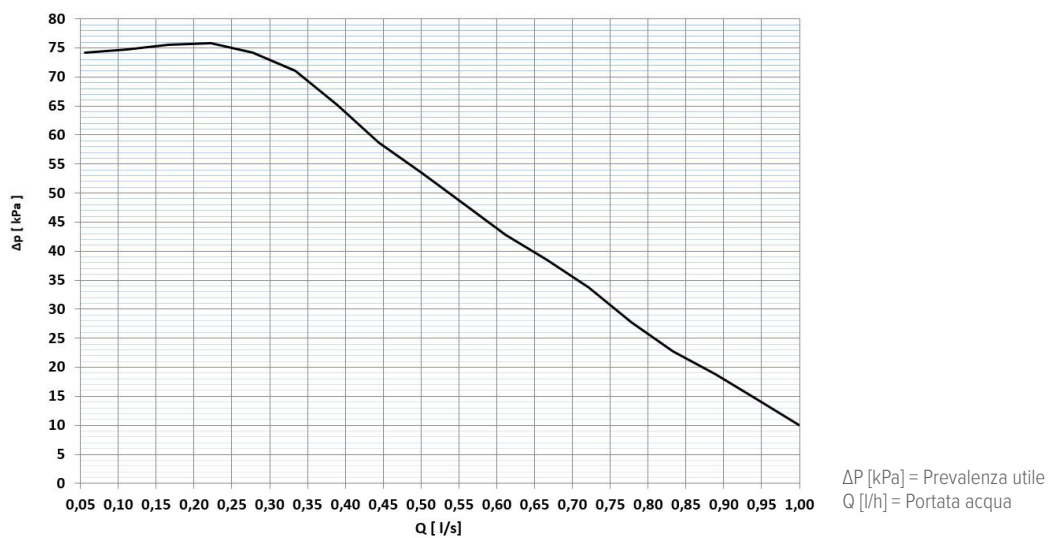
## Boiler circulator absorption



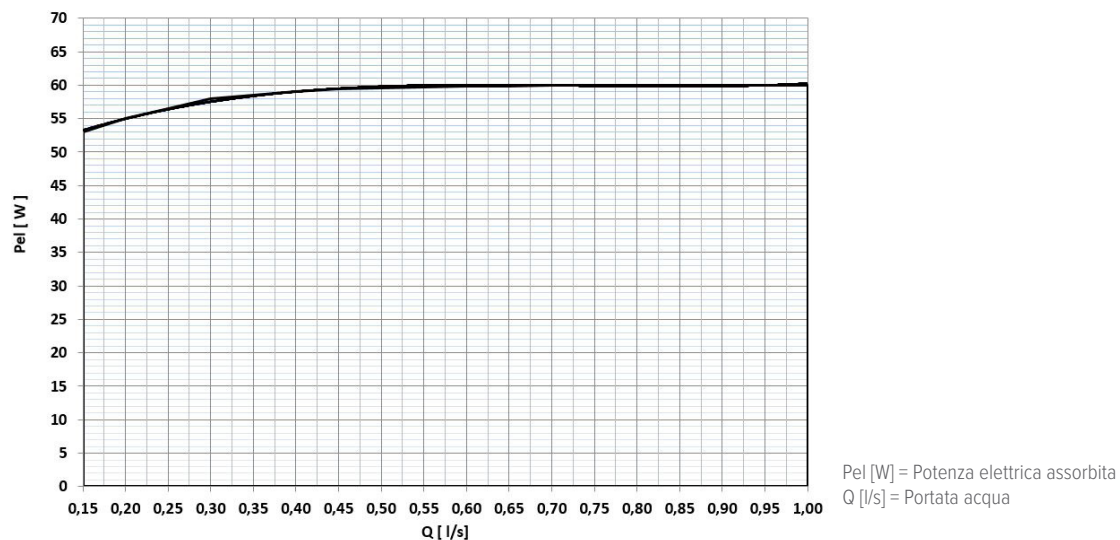
Circulator operating field

# General technical data

## KCSX secondary circuit kit available pressure



## KCSX secondary circuit kit absorption



## Admissible water flow rates

SIZE			21	31	41	61	71	81	91	101	121	141
Minimum flow-rate	Qmin	[l/s]	0,14	0,20	0,26	0,36	0,42	0,48	0,54	0,66	0,78	0,90
Maximum flow-rate	Qmin	[l/s]	0,29	0,40	0,52	0,69	0,80	0,92	1,03	1,26	1,49	1,72

## 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		1,000	0,984	0,973	0,965	0,960	0,950
Correction factor for flow rate		1,000	1,019	1,051	1,092	1,145	1,200
Correction factor for system pressure drop		1,000	1,118	1,268	1,482	1,791	2,100

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

m <sup>2</sup> C/W	Internal exchanger	
	F1	FK1
0,44x10 <sup>-4</sup>	1	1
0,88x10 <sup>-4</sup>	0,96	0,99
1,76x10 <sup>-4</sup>	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

# Performances

## Cooling

SIZE	Tae [°C]	Operation	Water supply temperature [°C]																	
			5			7			10			12			15			18		
			kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER
<b>21</b>	20	nom	4,60	1,34	3,43	4,69	1,24	3,78	4,75	1,12	4,23	4,80	1,04	4,61	4,86	0,92	5,26	4,93	0,81	6,11
		max	7,03	2,53	2,78	7,45	2,49	3,00	8,10	2,50	3,24	8,55	2,48	3,45	6,78	1,52	4,45	7,31	1,46	5,02
	25	nom	4,85	1,50	3,23	4,94	1,37	3,61	5,01	1,24	4,04	5,06	1,15	4,40	5,13	1,02	5,02	5,20	0,89	5,84
		max	6,69	2,43	2,75	7,09	2,36	3,01	7,72	2,37	3,26	8,16	2,35	3,47	6,47	1,45	4,47	6,98	1,39	5,03
	30	nom	4,92	1,64	3,00	5,02	1,50	3,35	5,09	1,36	3,76	5,14	1,26	4,09	5,21	1,12	4,67	4,80	0,89	5,42
		max	6,34	2,40	2,64	6,73	2,33	2,90	7,34	2,34	3,13	7,75	2,33	3,33	6,16	1,43	4,29	6,65	1,44	4,61
	35	nom	4,80	1,78	2,70	4,85	1,63	2,98	4,92	1,47	3,34	4,96	1,36	3,64	5,03	1,21	4,15	4,60	0,95	4,82
		max	5,99	2,48	2,41	6,36	2,45	2,60	6,95	2,47	2,81	7,35	2,46	2,99	5,84	1,52	3,85	6,32	1,54	4,11
	40	nom	4,20	1,90	2,21	4,34	1,76	2,47	4,40	1,59	2,77	4,44	1,47	3,02	4,50	1,31	3,44	4,20	1,05	4,00
		max	5,64	2,95	1,91	5,99	2,85	2,10	6,55	2,88	2,27	6,93	2,87	2,41	5,52	1,78	3,11	5,98	1,78	3,35
	43	nom	3,66	1,95	1,87	3,78	1,82	2,07	3,83	1,65	2,32	3,87	1,53	2,53	3,92	1,36	2,88	3,83	1,14	3,35
		max	5,42	3,52	1,54	5,77	3,44	1,68	6,31	3,48	1,81	6,68	3,47	1,93	5,32	2,15	2,48	5,77	2,11	2,73
<b>31</b>	20	nom	6,00	1,90	3,16	6,09	1,73	3,51	6,13	1,55	3,96	6,15	1,42	4,33	6,19	1,24	4,99	6,23	1,06	5,90
		max	8,97	4,24	2,11	9,47	3,36	2,82	10,24	3,35	3,06	10,77	3,29	3,27	8,68	2,06	4,21	9,33	1,94	4,82
	25	nom	6,40	2,10	3,05	6,42	1,91	3,35	6,46	1,71	3,78	6,49	1,57	4,14	6,53	1,37	4,76	6,57	1,17	5,63
		max	8,53	3,73	2,29	9,01	3,18	2,83	9,75	3,17	3,07	10,27	3,12	3,29	8,29	1,96	4,23	8,93	1,85	4,83
	30	nom	6,50	2,30	2,83	6,52	2,09	3,12	6,57	1,87	3,51	6,60	1,72	3,84	6,64	1,50	4,43	6,68	1,28	5,23
		max	8,08	3,55	2,27	8,54	3,14	2,72	9,26	3,13	2,96	9,75	3,08	3,16	7,90	1,95	4,06	8,52	1,84	4,63
	35	nom	6,20	2,50	2,48	6,30	2,27	2,77	6,34	2,03	3,12	6,37	1,86	3,42	6,41	1,63	3,94	6,45	1,39	4,65
		max	7,62	3,78	2,02	8,07	3,30	2,45	8,76	3,30	2,66	9,23	3,25	2,84	7,51	2,06	3,64	8,09	1,95	4,15
	40	nom	5,50	2,70	2,04	5,64	2,45	2,30	5,67	2,19	2,59	5,70	2,01	2,83	5,73	1,76	3,26	5,77	1,50	3,86
		max	7,16	4,58	1,56	7,59	3,83	1,98	8,24	3,84	2,15	8,70	3,79	2,29	7,10	2,42	2,93	7,67	2,29	3,35
	43	nom	4,78	2,79	1,71	4,91	2,55	1,93	4,94	2,28	2,17	4,96	2,09	2,38	5,00	1,83	2,74	5,03	1,55	3,23
		max	6,88	5,79	1,19	7,29	4,61	1,58	7,93	4,63	1,71	8,37	4,57	1,83	6,85	2,93	2,34	7,41	2,78	2,67
<b>41</b>	20	nom	7,20	2,50	2,88	7,34	2,29	3,21	7,45	2,06	3,61	7,52	1,91	3,94	7,62	1,69	4,51	7,73	1,47	5,27
		max	10,06	4,88	2,06	10,65	4,00	2,66	11,57	4,00	2,89	12,20	3,95	3,09	10,57	2,76	3,83	11,39	2,62	4,34
	25	nom	7,60	2,80	2,71	7,74	2,53	3,06	7,85	2,28	3,45	7,93	2,11	3,76	8,04	1,87	4,31	8,15	1,62	5,04
		max	9,57	4,44	2,16	10,14	3,79	2,68	11,02	3,79	2,91	11,63	3,74	3,11	10,09	2,62	3,85	10,88	2,50	4,36
	30	nom	7,80	3,10	2,52	7,87	2,77	2,85	7,98	2,49	3,20	8,06	2,31	3,50	8,17	2,04	4,00	8,29	1,77	4,68
		max	9,07	4,19	2,16	9,61	3,73	2,58	10,46	3,74	2,80	11,05	3,70	2,99	9,60	2,60	3,69	10,37	2,48	4,18
	35	nom	7,50	3,30	2,27	7,95	3,14	2,53	7,71	2,71	2,85	7,78	2,50	3,11	7,89	2,22	3,56	8,00	1,92	4,16
		max	8,56	4,30	1,99	9,08	3,84	2,37	9,90	3,94	2,51	10,46	3,90	2,68	9,11	2,75	3,31	9,84	2,62	3,75
	40	nom	6,70	3,50	1,91	7,10	3,38	2,10	6,90	2,92	2,36	6,96	2,70	2,58	7,06	2,39	2,95	7,16	2,08	3,45
		max	8,04	5,04	1,59	8,54	4,47	1,91	9,32	4,59	2,03	9,86	4,55	2,17	8,60	3,22	2,67	9,31	3,08	3,02
	43	nom	5,80	3,66	1,59	6,26	3,56	1,76	6,01	3,04	1,98	6,07	2,81	2,16	6,15	2,49	2,48	6,24	2,16	2,89
		max	7,73	6,49	1,19	8,22	5,35	1,54	8,97	5,54	1,62	9,49	5,49	1,73	8,30	3,90	2,13	8,99	3,73	2,41
<b>61 230M</b>	20	nom	10,10	3,10	3,26	10,53	2,85	3,70	10,87	2,60	4,18	11,10	2,43	4,57	11,44	2,19	5,22	11,79	1,94	6,06
		max	13,85	5,83	2,38	14,75	4,72	3,12	16,16	4,72	3,43	17,14	4,66	3,68	14,77	3,21	4,60	16,09	3,10	5,19
	25	nom	10,70	3,40	3,15	11,10	3,15	3,53	11,46	2,87	3,99	11,71	2,68	4,36	12,07	2,42	4,99	12,43	2,15	5,79
		max	13,37	5,31	2,52	14,25	4,57	3,12	15,62	4,57	3,42	16,58	4,52	3,66	14,28	3,11	4,58	15,56	3,01	5,17
	30	nom	11,00	3,70	2,97	11,29	3,44	3,28	11,66	3,14	3,71	11,90	2,94	4,05	12,27	2,65	4,63	12,64	2,35	5,38
		max	12,89	5,08	2,54	13,74	4,62	2,97	15,08	4,63	3,26	16,01	4,58	3,49	13,79	3,15	4,37	15,03	3,05	4,93
	35	nom	10,50	4,00	2,63	10,90	3,73	2,92	11,26	3,41	3,30	11,49	3,19	3,60	11,85	2,88	4,12	12,20	2,55	4,78
		max	12,39	5,57	2,22	13,22	4,99	2,65	14,52	5,01	2,90	15,43	4,96	3,11	13,29	3,42	3,89	14,50	3,30	4,39
	40	nom	9,50	4,30	2,21	9,75	4,04	2,42	10,07	3,69	2,73	10,28	3,44	2,99	10,60	3,10	3,42	10,92	2,75	3,96
		max	11,90	6,74	1,76	12,70	6,00	2,12	13,96	6,02	2,32	14,84	5,97	2,49	12,78	4,11	3,11	13,95	3,98	3,51
	45	nom	7,50	4,60	1,63	7,66	4,33	1,77	7,91	3,96	2,00	8,08	3,70	2,19	8,32	3,33	2,50	8,57	2,96	2,90
		max	11,39	10,61	1,07	12,17	8,67	1,40	13,39	8,71	1,54	14,24	8,65	1,65	12,26	5,96	2,06	13,39	5,77	2,32

Tae = Ambient temperature  
 kWf = Cooling capacity [kW]  
 kWe = Unit total power input [kW]  
 Difference between inlet / outlet water temperature = 5°C  
 Data according to EN 14511 2018

## Cooling

SIZE	T <sub>ae</sub> [°C]	Operation	Water supply temperature [°C]																		
			5			7			10			12			15			18			
			kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	
<b>71</b> <b>230M</b>	20	nom	12,20	3,90	3,13	12,46	3,54	3,52	12,75	3,22	3,96	12,95	3,00	4,32	13,24	2,69	4,92	13,53	2,37	5,71	
		max	15,47	6,27	2,47	16,42	5,35	3,07	17,91	5,36	3,34	18,94	5,31	3,57	16,41	3,71	4,42	17,82	3,59	4,97	
	25	nom	12,80	4,20	3,05	13,14	3,90	3,37	13,45	3,55	3,78	13,65	3,31	4,12	13,96	2,97	4,70	14,26	2,62	5,45	
		max	14,95	5,73	2,61	15,88	5,18	3,06	17,33	5,20	3,33	18,34	5,15	3,56	15,89	3,61	4,41	17,27	3,49	4,95	
	30	nom	13,10	4,70	2,79	13,36	4,27	3,13	13,67	3,89	3,52	13,88	3,62	3,83	14,19	3,25	4,37	14,50	2,86	5,06	
		max	14,42	5,69	2,53	15,32	5,25	2,92	16,75	5,27	3,18	17,73	5,23	3,39	15,36	3,66	4,20	16,70	3,54	4,72	
	35	nom	12,50	5,10	2,45	12,90	4,64	2,78	13,20	4,22	3,13	13,40	3,93	3,41	13,70	3,53	3,88	14,00	3,10	4,52	
		max	13,88	6,28	2,21	14,76	5,68	2,60	16,15	5,71	2,83	17,10	5,67	3,02	14,82	3,97	3,73	16,12	3,83	4,21	
	40	nom	11,20	5,50	2,04	11,54	5,01	2,31	11,81	4,56	2,59	11,99	4,24	2,82	12,26	3,81	3,22	12,53	3,36	3,73	
		max	13,33	7,79	1,71	14,19	6,82	2,08	15,53	6,87	2,26	16,46	6,83	2,41	14,27	4,78	2,98	15,53	4,63	3,35	
	43	nom	8,90	5,80	1,53	9,07	5,38	1,69	9,28	4,89	1,90	9,42	4,56	2,07	9,63	4,09	2,36	9,84	3,60	2,73	
		max	12,77	11,94	1,07	13,60	9,88	1,38	14,91	9,97	1,50	15,81	9,91	1,59	13,71	6,94	1,97	14,93	6,74	2,22	
	<b>81</b> <b>230M</b>	20	nom	12,80	4,30	2,98	13,33	3,97	3,36	13,78	3,64	3,78	14,08	3,42	4,12	14,53	3,10	4,68	14,97	2,78	5,39
			max	16,31	6,98	2,34	17,34	5,89	2,95	18,95	5,87	3,23	20,06	5,81	3,45	17,95	4,26	4,21	19,52	4,13	4,72
25		nom	13,50	4,80	2,81	14,06	4,38	3,21	14,53	4,02	3,61	14,84	3,77	3,93	15,32	3,42	4,47	15,79	3,06	5,15	
		max	15,75	6,53	2,41	16,75	5,70	2,94	18,32	5,69	3,22	19,40	5,64	3,44	17,37	4,13	4,20	18,89	4,01	4,71	
30		nom	13,70	5,30	2,58	14,29	4,79	2,98	14,77	4,40	3,36	15,09	4,13	3,66	15,57	3,75	4,16	16,05	3,35	4,79	
		max	15,17	6,50	2,33	16,15	5,76	2,80	17,67	5,76	3,07	18,73	5,71	3,28	16,77	4,19	4,01	18,25	4,07	4,49	
35		nom	13,20	5,70	2,32	13,80	5,19	2,66	14,26	4,78	2,98	14,57	4,48	3,25	15,04	4,07	3,70	15,50	3,63	4,27	
		max	14,59	6,97	2,09	15,54	6,20	2,51	17,02	6,23	2,73	18,05	6,18	2,92	16,16	4,53	3,56	17,60	4,39	4,01	
40		nom	11,80	6,10	1,93	12,35	5,62	2,20	12,76	5,16	2,47	13,04	4,84	2,69	13,45	4,39	3,06	13,87	3,93	3,53	
		max	14,00	8,59	1,63	14,92	7,46	2,00	16,36	7,49	2,18	17,35	7,43	2,34	15,55	5,46	2,85	16,94	5,31	3,19	
43		nom	9,30	6,60	1,41	9,70	6,03	1,61	10,02	5,54	1,81	10,24	5,20	1,97	10,57	4,71	2,24	10,89	4,22	2,58	
		max	13,40	13,70	0,98	14,29	10,79	1,32	15,68	10,84	1,45	16,64	10,76	1,55	14,92	7,91	1,89	16,26	7,70	2,11	
<b>61</b> <b>400TN</b>		20	nom	10,10	3,10	3,26	10,53	2,85	3,70	10,87	2,60	4,18	11,10	2,43	4,57	11,44	2,19	5,22	11,79	1,94	6,06
			max	13,85	5,83	2,38	14,75	4,72	3,12	16,16	4,72	3,43	17,14	4,66	3,68	14,77	3,21	4,60	16,09	3,10	5,19
	25	nom	10,70	3,40	3,15	11,10	3,15	3,53	11,46	2,87	3,99	11,71	2,68	4,36	12,07	2,42	4,99	12,43	2,15	5,79	
		max	13,37	5,31	2,52	14,25	4,57	3,12	15,62	4,57	3,42	16,58	4,52	3,66	14,28	3,11	4,58	15,56	3,01	5,17	
	30	nom	10,80	3,80	2,84	11,29	3,44	3,28	11,66	3,14	3,71	11,90	2,94	4,05	12,27	2,65	4,63	12,64	2,35	5,38	
		max	12,89	5,41	2,38	13,74	4,62	2,97	15,08	4,63	3,26	16,01	4,58	3,49	13,79	3,15	4,37	15,03	3,05	4,93	
	35	nom	10,50	4,10	2,56	10,90	3,72	2,93	11,26	3,41	3,30	11,49	3,19	3,60	11,85	2,88	4,12	12,20	2,53	4,83	
		max	12,39	5,71	2,17	13,22	4,97	2,66	14,52	5,01	2,90	15,43	4,96	3,11	13,29	3,42	3,89	14,50	3,27	4,43	
	40	nom	9,50	4,40	2,16	9,75	4,04	2,42	10,07	3,69	2,73	10,28	3,44	2,99	10,60	3,10	3,42	10,92	2,75	3,96	
		max	11,90	6,90	1,72	12,70	6,00	2,12	13,96	6,02	2,32	14,84	5,97	2,49	12,78	4,11	3,11	13,95	3,98	3,51	
	43	nom	7,50	4,70	1,60	7,66	4,33	1,77	7,91	3,96	2,00	8,08	3,70	2,19	8,32	3,33	2,50	8,57	2,96	2,90	
		max	11,39	10,84	1,05	12,17	8,67	1,40	13,39	8,71	1,54	14,24	8,65	1,65	12,26	5,96	2,06	13,39	5,77	2,32	
	<b>71</b> <b>400TN</b>	20	nom	12,20	3,90	3,13	12,46	3,54	3,52	12,75	3,22	3,96	12,95	3,00	4,32	13,24	2,69	4,92	13,53	2,37	5,71
			max	15,47	6,27	2,47	16,42	5,35	3,07	17,91	5,36	3,34	18,94	5,31	3,57	16,41	3,71	4,42	17,82	3,59	4,97
25		nom	12,80	4,20	3,05	13,14	3,90	3,37	13,45	3,55	3,78	13,65	3,31	4,12	13,96	2,97	4,70	14,26	2,62	5,45	
		max	14,95	5,73	2,61	15,88	5,18	3,06	17,33	5,20	3,33	18,34	5,15	3,56	15,89	3,61	4,41	17,27	3,49	4,95	
30		nom	13,10	4,70	2,79	13,36	4,27	3,13	13,67	3,89	3,52	13,88	3,62	3,83	14,19	3,25	4,37	14,50	2,86	5,06	
		max	14,42	5,69	2,53	15,32	5,25	2,92	16,75	5,27	3,18	17,73	5,23	3,39	15,36	3,66	4,20	16,70	3,54	4,72	
35		nom	12,50	5,10	2,45	12,90	4,61	2,80	13,20	4,22	3,13	13,40	3,93	3,41	13,70	3,53	3,88	14,00	3,11	4,50	
		max	13,88	6,28	2,21	14,76	5,64	2,62	16,15	5,71	2,83	17,10	5,67	3,02	14,82	3,97	3,73	16,12	3,84	4,19	
40		nom	11,20	5,50	2,04	11,54	5,01	2,31	11,81	4,56	2,59	11,99	4,24	2,82	12,26	3,81	3,22	12,53	3,36	3,73	
		max	13,33	7,79	1,71	14,19	6,82	2,08	15,53	6,87	2,26	16,46	6,83	2,41	14,27	4,78	2,98	15,53	4,63	3,35	
45		nom	8,90	5,80	1,53	9,07	5,38	1,69	9,28	4,89	1,90	9,42	4,56	2,07	9,63	4,09	2,36	9,84	3,60	2,73	
		max	12,77	11,94	1,07	13,60	9,88	1,38	14,91	9,97	1,50	15,81	9,91	1,59	13,71	6,94	1,97	14,93	6,74	2,22	

T<sub>ae</sub> = Ambient temperature  
 kWf = Cooling capacity [kW]  
 kWe = Unit total power input [kW]  
 Difference between inlet / outlet water temperature = 5°C  
 Data according to EN 14511 2018



# Performances

## Cooling

SIZE	T <sub>ae</sub> [°C]	Operation	Water supply temperature [°C]																		
			5			7			10			12			15			18			
			kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	
81 400TN	20	nom	12,80	4,30	2,98	13,33	3,97	3,36	13,78	3,64	3,78	14,08	3,42	4,12	14,53	3,10	4,68	14,97	2,78	5,39	
		max	16,31	6,98	2,34	17,34	5,89	2,95	18,95	5,87	3,23	20,06	5,81	3,45	17,95	4,26	4,21	19,52	4,13	4,72	
	25	nom	13,50	4,80	2,81	14,06	4,38	3,21	14,53	4,02	3,61	14,84	3,77	3,93	15,32	3,42	4,47	15,79	3,06	5,15	
		max	15,75	6,53	2,41	16,75	5,70	2,94	18,32	5,69	3,22	19,40	5,64	3,44	17,37	4,13	4,20	18,89	4,01	4,71	
	30	nom	13,70	5,30	2,58	14,29	4,79	2,98	14,77	4,40	3,36	15,09	4,13	3,66	15,57	3,75	4,16	16,05	3,35	4,79	
		max	15,17	6,50	2,33	16,15	5,76	2,80	17,67	5,76	3,07	18,73	5,71	3,28	16,77	4,19	4,01	18,25	4,07	4,49	
	35	nom	13,20	5,70	2,32	13,80	5,19	2,66	14,26	4,78	2,98	14,57	4,48	3,25	15,04	4,07	3,70	15,50	3,63	4,27	
		max	14,59	6,97	2,09	15,54	6,20	2,51	17,02	6,23	2,73	18,05	6,18	2,92	16,16	4,53	3,56	17,60	4,39	4,01	
	40	nom	11,80	6,10	1,93	12,35	5,62	2,20	12,76	5,16	2,47	13,04	4,84	2,69	13,45	4,39	3,06	13,87	3,93	3,53	
		max	14,00	8,59	1,63	14,92	7,46	2,00	16,36	7,49	2,18	17,35	7,43	2,34	15,55	5,46	2,85	16,94	5,31	3,19	
	43	nom	9,30	6,60	1,41	9,70	6,03	1,61	10,02	5,54	1,81	10,24	5,20	1,97	10,57	4,71	2,24	10,89	4,22	2,58	
		max	13,40	13,70	0,98	14,29	10,79	1,32	15,68	10,84	1,45	16,64	10,76	1,55	14,92	7,91	1,89	16,26	7,70	2,11	
	91	20	nom	17,80	3,75	4,74	18,53	3,46	5,35	18,53	3,46	5,35	19,09	3,32	5,76	18,46	2,80	6,59	18,08	2,49	7,26
			max	20,03	4,75	4,21	21,22	4,24	5,00	23,07	4,81	4,80	24,34	4,77	5,10	23,02	3,90	5,91	23,07	3,59	6,43
25		nom	17,97	4,72	3,80	18,71	4,31	4,34	18,71	4,31	4,34	20,06	3,96	5,06	20,84	3,41	6,12	20,70	3,01	6,88	
		max	19,01	5,28	3,60	20,15	4,82	4,18	21,93	5,47	4,01	23,15	4,91	4,71	23,38	4,05	5,78	22,00	3,30	6,67	
30		nom	18,03	5,92	3,05	18,81	5,36	3,51	18,81	5,36	3,51	21,39	5,28	4,05	23,66	4,87	4,86	22,91	4,20	5,45	
		max	18,03	5,92	3,05	19,07	5,47	3,49	20,77	6,21	3,34	21,94	5,48	4,00	23,66	4,87	4,86	22,91	4,20	5,45	
35		nom	16,35	6,10	2,68	17,00	5,57	3,05	17,09	5,98	2,86	20,13	6,08	3,31	22,48	5,67	3,96	18,50	3,90	4,75	
		max	16,93	6,54	2,59	17,97	6,06	2,97	19,60	7,34	2,67	20,72	6,35	3,26	22,48	5,67	3,96	19,80	4,31	4,59	
40		nom	14,35	6,73	2,13	15,02	6,20	2,42	15,02	6,20	2,42	17,90	6,38	2,81	20,43	6,11	3,34	18,39	4,90	3,75	
		max	15,87	8,23	1,93	16,86	7,38	2,29	18,41	8,42	2,19	19,49	7,24	2,69	20,43	6,11	3,34	18,68	5,02	3,72	
43		nom	12,41	7,02	1,77	12,94	6,42	2,02	12,94	6,42	2,02	15,67	6,68	2,35	18,37	6,55	2,80	18,28	5,90	3,10	
		max	14,79	9,98	1,48	15,74	8,61	1,83	17,22	9,85	1,75	18,24	8,38	2,18	18,52	6,63	2,79	18,28	5,90	3,10	
101		20	nom	20,55	4,70	4,37	21,40	4,34	4,93	21,40	4,34	4,93	21,65	4,10	5,28	21,91	3,67	5,98	23,54	3,61	6,52
			max	24,32	6,58	3,69	25,75	5,73	4,50	27,97	6,48	4,31	29,50	6,53	4,52	27,52	5,16	5,33	27,99	4,68	5,98
	25	nom	19,89	5,67	3,51	20,72	5,18	4,00	20,72	5,18	4,00	22,80	4,97	4,59	25,11	4,60	5,46	24,49	4,03	6,07	
		max	23,05	7,62	3,03	24,43	6,63	3,68	26,56	7,52	3,53	28,03	6,77	4,14	25,94	4,83	5,37	26,65	4,58	5,82	
	30	nom	20,84	7,45	2,80	21,74	6,74	3,22	21,74	6,74	3,22	24,75	6,69	3,70	26,91	6,07	4,43	23,75	4,52	5,26	
		max	21,77	8,14	2,68	23,09	7,38	3,13	25,13	8,38	3,00	26,54	7,44	3,57	26,91	6,07	4,43	25,30	4,97	5,09	
	35	nom	19,34	8,47	2,28	21,00	7,12	2,95	20,22	7,74	2,61	23,81	7,86	3,03	26,19	7,14	3,67	23,00	5,00	4,60	
		max	20,48	9,50	2,16	21,74	7,50	2,90	23,69	9,82	2,41	25,04	8,48	2,95	26,19	7,14	3,67	23,94	5,31	4,51	
	40	nom	17,19	8,54	2,01	17,99	7,87	2,29	17,99	7,87	2,29	21,19	7,98	2,66	23,70	7,38	3,21	20,79	5,78	3,60	
		max	19,17	10,63	1,80	20,37	9,48	2,15	22,23	10,81	2,06	23,51	9,33	2,52	23,70	7,38	3,21	22,56	6,53	3,46	
	43	nom	15,11	8,75	1,73	15,76	8,00	1,97	15,76	8,00	1,97	18,57	8,10	2,29	21,21	7,63	2,78	18,92	6,08	3,11	
		max	17,85	12,22	1,46	18,98	10,58	1,79	20,75	12,09	1,72	21,97	10,42	2,11	21,73	7,91	2,75	21,17	7,20	2,94	
	121	20	nom	24,66	6,08	4,06	25,69	5,61	4,58	25,69	5,61	4,58	26,23	5,38	4,87	27,06	4,94	5,47	27,37	4,61	5,93
			max	29,81	8,89	3,35	31,53	7,63	4,13	34,19	8,62	3,97	36,01	8,66	4,16	33,69	6,86	4,91	34,78	6,61	5,26
25		nom	25,99	7,98	3,26	27,06	7,29	3,71	27,06	7,29	3,71	30,01	7,15	4,20	32,73	6,63	4,94	33,70	6,17	5,46	
		max	28,28	9,45	2,99	29,93	8,47	3,53	32,48	9,58	3,39	34,24	8,71	3,93	32,73	6,63	4,94	33,70	6,17	5,46	
30		nom	25,84	9,99	2,59	26,95	9,04	2,98	26,95	9,04	2,98	30,77	9,05	3,40	34,06	8,35	4,08	33,52	7,30	4,59	
		max	26,73	10,69	2,50	28,31	9,73	2,91	30,76	11,01	2,79	32,44	9,80	3,31	34,06	8,35	4,08	33,52	7,30	4,59	
35		nom	23,81	11,32	2,10	26,00	9,63	2,70	24,90	10,34	2,41	29,32	10,51	2,79	32,85	9,62	3,41	27,00	6,28	4,30	
		max	25,15	12,62	1,99	26,66	10,00	2,67	29,00	13,00	2,23	30,62	11,22	2,73	32,85	9,62	3,41	29,76	7,27	4,10	
40		nom	20,12	10,54	1,91	21,05	9,71	2,17	21,05	9,71	2,17	24,08	9,55	2,52	28,29	9,16	3,09	20,90	5,96	3,51	
		max	23,56	14,45	1,63	24,99	12,56	1,99	27,23	14,28	1,91	28,77	12,48	2,31	28,29	9,16	3,09	28,05	9,27	3,03	
45		nom	15,23	9,01	1,69	15,88	8,23	1,93	15,88	8,24	1,93	17,76	7,92	2,24	21,08	7,65	2,76	18,91	6,05	3,12	
		max	21,94	18,71	1,17	23,30	14,62	1,59	25,43	16,69	1,52	26,89	14,76	1,82	25,11	9,94	2,53	25,77	9,64	2,67	

T<sub>ae</sub> = Ambient temperature  
 kWf = Cooling capacity [kW]  
 kWe = Unit total power input [kW]  
 Difference between inlet / outlet water temperature = 5°C  
 Data according to EN 14511 2018

## Cooling

SIZE	T <sub>ae</sub> [°C]	Operation	Water supply temperature [°C]																	
			5			7			10			12			15			18		
			kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER	kWf	kWe	EER
141	20	nom	28,15	7,44	3,79	29,32	6,86	4,27	31,41	7,35	4,27	30,83	6,80	4,54	31,49	6,22	5,06	32,18	5,90	5,45
		max	32,89	10,15	3,24	34,71	8,84	3,93	37,52	9,60	3,91	39,43	9,83	4,01	40,04	8,92	4,49	41,67	8,70	4,79
	25	nom	29,21	9,60	3,04	30,41	8,76	3,47	30,41	8,76	3,47	33,77	8,71	3,88	37,19	8,24	4,52	35,95	7,24	4,96
		max	31,18	10,94	2,85	32,92	9,87	3,34	35,62	11,10	3,21	37,46	10,18	3,68	37,61	8,38	4,49	39,65	8,39	4,73
	30	nom	29,83	12,38	2,41	31,12	11,20	2,78	31,12	11,20	2,78	34,08	10,83	3,15	38,98	10,31	3,78	33,92	7,95	4,27
		max	29,83	12,38	2,41	31,12	11,20	2,78	33,68	12,61	2,67	35,45	11,49	3,08	38,98	10,31	3,78	37,61	9,28	4,05
	35	nom	24,43	12,50	1,95	29,50	11,57	2,55	25,54	11,42	2,24	30,78	11,91	2,58	36,63	11,46	3,20	31,00	7,75	4,00
		max	27,66	16,03	1,73	29,50	11,57	2,55	31,72	15,81	2,01	33,41	13,47	2,48	36,63	11,46	3,20	35,54	9,51	3,74
	40	nom	20,47	11,26	1,82	21,42	10,37	2,07	21,42	10,37	2,07	24,06	10,03	2,40	28,26	9,51	2,97	21,00	6,15	3,42
		max	25,87	17,98	1,44	27,38	14,99	1,83	29,73	16,96	1,75	32,50	15,75	2,06	32,27	11,60	2,78	33,44	12,35	2,71
	43	nom	15,73	9,49	1,66	16,40	8,68	1,89	16,40	8,68	1,89	17,77	8,09	2,20	20,95	7,67	2,73	18,89	6,02	3,14
		max	24,86	23,72	1,05	23,48	14,87	1,58	25,57	16,90	1,51	27,02	15,17	1,78	28,43	12,12	2,35	29,77	11,91	2,50

T<sub>ae</sub> = Ambient temperature

kWf = Cooling capacity [kW]

kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C

Data according to EN 14511 2018

# Performances

## Heating

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

Tae = Ambient temperature  
 D.B. = Dry bulb  
 W.B. = Wet bulb  
 kWt = Heating capacity [kW]  
 kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C  
 The data of the heat capacity and COP include defrostings

## Heating

SIZE	Tae [DB/WB] [°C]	Operation	Water supply temperature [°C]											
			35			45			55			60		
			kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP
41	-25/-	nom	3,13	1,40	2,23	-	-	-	-	-	-	-	-	-
		max	3,13	1,40	2,23	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	3,98	1,48	2,70	-	-	-	-	-	-	-	-	-
		max	3,98	1,48	2,70	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	4,84	1,55	3,12	4,64	2,35	1,98	-	-	-	-	-	-
		max	4,84	1,55	3,12	4,64	2,35	1,98	-	-	-	-	-	-
	-10/-11	nom	5,69	1,62	3,51	5,46	2,41	2,26	5,23	3,20	1,63	5,11	3,60	1,42
		max	7,25	2,33	3,11	5,46	2,41	2,26	5,23	3,20	1,63	5,11	3,60	1,42
	-7/-8	nom	6,21	1,67	3,72	5,95	2,43	2,44	5,70	3,20	1,78	5,57	3,59	1,55
		max	7,76	2,33	3,33	6,19	2,58	2,40	5,70	3,20	1,78	5,57	3,59	1,55
	-5/-6	nom	6,55	1,70	3,86	6,28	2,44	2,58	6,01	3,18	1,89	5,88	3,55	1,66
		max	8,12	2,34	3,46	8,05	3,54	2,28	6,51	3,58	1,82	5,88	3,55	1,66
	-2/-3	nom	7,06	1,74	4,06	6,77	2,44	2,77	6,49	3,15	2,06	6,34	3,50	1,81
		max	8,69	2,37	3,66	8,62	3,51	2,46	8,56	4,78	1,79	6,93	4,00	1,73
	0/-1	nom	7,40	1,77	4,19	7,10	2,44	2,91	6,90	3,15	2,19	6,65	3,44	1,93
		max	9,09	2,40	3,78	9,02	3,49	2,58	8,96	4,67	1,92	8,90	5,33	1,67
	2/1	nom	7,74	1,80	4,31	7,90	2,58	3,06	7,70	3,31	2,33	6,96	3,37	2,06
		max	9,49	2,44	3,89	9,43	3,36	2,80	9,37	4,44	2,11	9,31	5,21	1,79
	7/6	nom	8,60	1,87	4,60	8,60	2,50	3,44	8,60	3,13	2,75	7,72	3,12	2,47
		max	10,56	2,55	4,15	10,50	3,37	3,11	10,43	4,18	2,50	10,36	4,85	2,14
15/12	nom	9,33	1,58	5,90	8,95	2,01	4,46	8,57	2,43	3,53	8,38	2,64	3,17	
	max	12,42	2,43	5,11	12,34	3,25	3,80	12,25	4,15	2,95	12,15	4,62	2,63	
20/15	nom	9,15	1,39	6,60	8,78	1,76	5,00	8,40	2,13	3,95	8,22	2,31	3,55	
	max	13,63	2,52	5,41	13,53	3,36	4,02	13,42	4,29	3,12	13,31	4,77	2,79	
35/24	nom	5,67	0,72	7,89	5,44	0,91	5,97	5,21	1,10	4,72	-	-	-	
	max	5,67	0,72	7,89	5,44	0,91	5,97	5,21	1,10	4,72	-	-	-	
61 230M	-25/-	nom	4,47	1,92	2,33	-	-	-	-	-	-	-	-	-
		max	4,47	1,92	2,33	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	5,70	2,02	2,82	-	-	-	-	-	-	-	-	-
		max	5,70	2,02	2,82	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	6,92	2,12	3,27	6,52	3,20	2,04	-	-	-	-	-	-
		max	8,24	2,76	2,99	6,52	3,20	2,04	-	-	-	-	-	-
	-10/-11	nom	8,14	2,22	3,67	7,68	3,29	2,33	7,21	4,37	1,65	6,98	4,91	1,42
		max	9,80	2,93	3,34	9,68	4,66	2,08	7,21	4,37	1,65	6,98	4,91	1,42
	-7/-8	nom	8,87	2,28	3,90	8,37	3,32	2,52	7,86	4,37	1,80	7,61	4,89	1,56
		max	10,43	2,90	3,59	10,34	4,56	2,27	7,86	4,37	1,80	7,61	4,89	1,56
	-5/-6	nom	9,36	2,32	4,04	8,83	3,33	2,65	8,30	4,34	1,91	8,03	4,84	1,66
		max	10,89	2,91	3,74	10,82	4,52	2,40	10,37	6,06	1,71	8,03	4,84	1,66
	-2/-3	nom	10,10	2,38	4,25	9,52	3,34	2,85	8,95	4,30	2,08	8,66	4,78	1,81
		max	11,64	2,94	3,95	11,59	4,48	2,59	11,14	5,96	1,87	11,91	7,71	1,55
	0/-1	nom	10,59	2,42	4,38	9,98	3,33	3,00	9,38	4,24	2,21	9,08	4,70	1,93
		max	12,18	2,98	4,08	12,15	4,47	2,72	11,67	5,88	1,98	12,48	7,57	1,65
	2/1	nom	11,08	2,46	4,51	10,97	3,48	3,15	9,82	4,17	2,36	9,50	4,60	2,07
		max	12,75	3,03	4,20	12,72	4,35	2,93	12,24	5,80	2,11	12,17	6,66	1,83
	7/6	nom	12,30	2,56	4,81	12,40	3,51	3,53	10,90	3,73	2,92	10,55	4,26	2,48
		max	14,27	3,19	4,47	14,27	4,34	3,29	13,73	5,28	2,60	13,66	6,28	2,18
15/12	nom	13,34	2,16	6,17	12,58	2,74	4,59	11,82	3,32	3,57	11,44	3,60	3,18	
	max	17,01	3,11	5,46	17,05	4,32	3,95	16,40	5,42	3,03	16,32	6,14	2,66	
20/15	nom	13,08	1,89	6,91	12,34	2,40	5,14	11,59	2,90	3,99	11,22	3,16	3,56	
	max	18,82	3,27	5,76	18,87	4,54	4,16	18,15	5,69	3,19	18,06	6,44	2,80	
35/24	nom	8,10	0,98	8,26	7,64	1,24	6,15	7,18	1,51	4,77	-	-	-	
	max	8,10	0,98	8,26	7,64	1,24	6,15	7,18	1,51	4,77	-	-	-	

Tae = Ambient temperature  
 D.B. = Dry bulb  
 W.B. = Wet bulb  
 kWt = Heating capacity [kW]  
 kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C  
 The data of the heat capacity and COP include defrostings

# Performances

## Heating

SIZE	Tae [DB/WB] [°C]	Operation	Water supply temperature [°C]												
			35			45			55			60			
			kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	
<b>71 230M</b>	-25/-	nom	5,13	2,30	2,23	-	-	-	-	-	-	-	-	-	-
		max	5,13	2,30	2,23	-	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	6,53	2,42	2,70	-	-	-	-	-	-	-	-	-	-
		max	6,53	2,42	2,70	-	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	7,93	2,54	3,12	7,65	3,88	1,97	-	-	-	-	-	-	-
		max	8,37	2,75	3,04	7,65	3,88	1,97	-	-	-	-	-	-	-
	-10/-11	nom	9,33	2,66	3,51	9,00	3,98	2,26	8,67	5,31	1,63	8,50	5,97	1,42	
		max	11,60	3,68	3,15	9,43	4,27	2,21	8,67	5,31	1,63	8,50	5,97	1,42	
	-7/-8	nom	10,17	2,73	3,73	9,81	4,02	2,44	9,45	5,31	1,78	9,27	5,96	1,56	
		max	12,29	3,63	3,39	10,23	4,28	2,39	9,45	5,31	1,78	9,27	5,96	1,56	
	-5/-6	nom	10,73	2,78	3,86	10,35	4,03	2,57	9,97	5,27	1,89	9,78	5,89	1,66	
		max	12,80	3,62	3,53	12,59	5,40	2,33	10,76	5,91	1,82	9,78	5,89	1,66	
	-2/-3	nom	11,58	2,85	4,06	11,17	4,04	2,77	10,75	5,22	2,06	10,55	5,81	1,81	
		max	13,64	3,65	3,74	13,44	5,33	2,52	11,54	5,81	1,99	12,30	7,32	1,68	
	0/-1	nom	12,14	2,90	4,19	11,71	4,03	2,91	11,28	5,15	2,19	11,06	5,72	1,93	
		max	14,24	3,68	3,87	14,05	5,29	2,65	13,94	7,08	1,97	12,03	6,49	1,85	
	2/1	nom	12,70	2,95	4,31	12,80	4,19	3,06	12,50	5,37	2,33	11,57	5,60	2,07	
		max	14,86	3,73	3,98	14,68	5,14	2,86	14,57	6,76	2,16	14,52	7,87	1,85	
	7/6	nom	14,10	3,07	4,60	14,10	4,06	3,47	14,20	5,16	2,75	12,85	5,19	2,48	
		max	16,54	3,90	4,25	16,36	5,08	3,22	16,26	6,33	2,57	16,21	7,35	2,20	
15/12	nom	15,30	2,59	5,90	14,75	3,31	4,46	14,80	4,20	3,53	13,94	4,39	3,18		
	max	19,57	3,75	5,22	19,37	4,98	3,89	19,24	6,22	3,09	19,19	7,09	2,71		
20/15	nom	15,00	2,27	6,61	14,47	2,90	4,99	13,93	3,53	3,95	13,67	3,84	3,56		
	max	21,56	3,91	5,51	21,34	5,20	4,11	21,20	6,62	3,20	21,13	7,39	2,86		
35/24	nom	9,29	1,18	7,89	8,96	1,50	5,96	8,63	1,83	4,72	-	-	-		
	max	9,29	1,18	7,89	8,96	1,50	5,96	8,63	1,83	4,72	-	-	-		
<b>81 230M</b>	-25/-	nom	5,93	2,75	2,16	-	-	-	-	-	-	-	-	-	
		max	5,93	2,75	2,16	-	-	-	-	-	-	-	-	-	
	-20/20,1	nom	7,55	2,89	2,61	-	-	-	-	-	-	-	-	-	
		max	7,55	2,89	2,61	-	-	-	-	-	-	-	-	-	
	-15/15,3	nom	9,17	3,04	3,02	8,77	4,50	1,95	-	-	-	-	-	-	
		max	9,17	3,04	3,02	8,77	4,50	1,95	-	-	-	-	-	-	
	-10/-11	nom	10,79	3,18	3,39	10,33	4,63	2,23	9,86	6,08	1,62	9,63	6,81	1,41	
		max	11,39	3,45	3,30	10,33	4,63	2,23	9,86	6,08	1,62	9,63	6,81	1,41	
	-7/-8	nom	11,76	3,26	3,60	11,26	4,67	2,41	10,75	6,09	1,77	10,50	6,79	1,55	
		max	13,59	4,05	3,35	11,91	5,09	2,34	10,75	6,09	1,77	10,50	6,79	1,55	
	-5/-6	nom	12,41	3,32	3,73	11,88	4,68	2,54	11,34	6,04	1,88	11,08	6,72	1,65	
		max	14,13	4,04	3,50	12,44	5,02	2,48	11,83	6,43	1,84	11,08	6,72	1,65	
	-2/-3	nom	13,41	3,94	3,41	13,93	0,84	4,69	2,73	0,46	5,98	2,04	0,31	6,63	
		max	15,01	4,66	3,22	14,89	6,18	2,41	13,17	4,84	2,72	13,11	5,01	2,62	
	0/-1	nom	14,03	3,46	4,05	13,43	4,68	2,87	12,83	5,90	2,17	12,52	6,51	1,92	
		max	15,65	4,08	3,84	15,54	5,83	2,67	13,78	6,57	2,10	13,72	7,47	1,84	
	2/1	nom	14,68	3,52	4,17	14,60	4,84	3,01	14,20	6,14	2,31	13,10	6,37	2,06	
		max	16,31	4,12	3,96	16,22	5,67	2,86	16,13	7,43	2,17	14,36	7,31	1,96	
	7/6	nom	16,30	3,66	4,45	16,20	4,72	3,43	16,10	5,90	2,73	14,55	5,91	2,46	
		max	18,09	4,28	4,22	18,02	5,54	3,25	17,95	6,94	2,59	17,91	8,07	2,22	
15/12	nom	17,68	3,10	5,71	16,92	3,86	4,39	16,16	4,62	3,50	15,78	5,00	3,16		
	max	21,29	4,09	5,20	21,23	5,42	3,92	21,16	6,91	3,06	19,66	6,95	2,83		
20/15	nom	17,34	2,71	6,39	16,59	3,38	4,91	15,85	4,04	3,92	15,48	4,37	3,54		
	max	23,40	4,25	5,50	23,33	5,63	4,14	23,25	7,18	3,24	21,66	7,24	2,99		
35/24	nom	10,74	1,41	7,64	10,28	1,75	5,87	9,82	2,10	4,68	-	-	-		
	max	10,74	1,41	7,64	10,28	1,75	5,87	9,82	2,10	4,68	-	-	-		

Tae = Ambient temperature  
D.B. = Dry bulb  
W.B. = Wet bulb  
kWt = Heating capacity [kW]  
kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C  
The data of the heat capacity and COP include defrostings

## Heating

SIZE	Tae [DB/WB] [°C]	Operation	Water supply temperature [°C]												
			35			45			55			60			
			kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	
61 400TN	-25/-	nom	4,47	1,92	2,33	-	-	-	-	-	-	-	-	-	-
		max	4,47	1,92	2,33	-	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	5,70	2,02	2,82	-	-	-	-	-	-	-	-	-	-
		max	5,70	2,02	2,82	-	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	6,92	2,12	3,27	6,52	3,20	2,04	-	-	-	-	-	-	-
		max	8,24	2,76	2,99	6,52	3,20	2,04	-	-	-	-	-	-	-
	-10/-11	nom	8,14	2,22	3,67	7,68	3,29	2,33	7,21	4,37	1,65	6,98	4,91	1,42	
		max	9,80	2,93	3,34	9,68	4,66	2,08	7,21	4,37	1,65	6,98	4,91	1,42	
	-7/-8	nom	8,87	2,28	3,90	8,37	3,32	2,52	7,86	4,37	1,80	7,61	4,89	1,56	
		max	10,43	2,90	3,59	10,34	4,56	2,27	7,86	4,37	1,80	7,61	4,89	1,56	
	-5/-6	nom	9,36	2,32	4,04	8,83	3,33	2,65	8,30	4,34	1,91	8,03	4,84	1,66	
		max	10,89	2,91	3,74	10,82	4,52	2,40	10,37	6,06	1,71	8,03	4,84	1,66	
	-2/-3	nom	10,10	2,38	4,25	9,52	3,34	2,85	8,95	4,30	2,08	8,66	4,78	1,81	
		max	11,64	2,94	3,95	11,59	4,48	2,59	11,14	5,96	1,87	11,91	7,71	1,55	
	0/-1	nom	10,59	2,42	4,38	9,98	3,33	3,00	9,38	4,24	2,21	9,08	4,70	1,93	
		max	12,18	2,98	4,08	12,15	4,47	2,72	11,67	5,88	1,98	12,48	7,57	1,65	
	2/1	nom	11,08	2,46	4,51	10,75	3,41	3,15	9,82	4,17	2,36	9,50	4,60	2,07	
		max	12,75	3,03	4,20	12,72	4,39	2,90	12,24	5,80	2,11	12,17	6,66	1,83	
	7/6	nom	12,30	2,54	4,84	12,40	3,45	3,59	10,90	3,72	2,93	10,55	4,26	2,48	
		max	14,27	3,18	4,49	14,27	4,26	3,35	13,73	5,26	2,61	13,66	6,28	2,18	
15/12	nom	13,34	2,16	6,17	12,58	2,74	4,59	11,82	3,32	3,57	11,44	3,60	3,18		
	max	17,01	3,11	5,46	17,05	4,32	3,95	16,40	5,42	3,03	16,32	6,14	2,66		
20/15	nom	13,08	1,89	6,91	12,34	2,40	5,14	11,59	2,90	3,99	11,22	3,16	3,56		
	max	18,82	3,27	5,76	18,87	4,54	4,16	18,15	5,69	3,19	18,06	6,44	2,80		
35/24	nom	8,10	0,98	8,26	7,64	1,24	6,15	7,18	1,51	4,77	-	-	-		
	max	8,10	0,98	8,26	7,64	1,24	6,15	7,18	1,51	4,77	-	-	-		
71 400TN	-25/-	nom	5,13	2,30	2,23	-	-	-	-	-	-	-	-	-	
		max	5,13	2,30	2,23	-	-	-	-	-	-	-	-	-	
	-20/20,1	nom	6,53	2,42	2,70	-	-	-	-	-	-	-	-	-	
		max	6,53	2,42	2,70	-	-	-	-	-	-	-	-	-	
	-15/15,3	nom	7,93	2,54	3,12	7,65	3,88	1,97	-	-	-	-	-	-	
		max	8,37	2,75	3,04	7,65	3,88	1,97	-	-	-	-	-	-	
	-10/-11	nom	9,33	2,66	3,51	9,00	3,98	2,26	8,67	5,31	1,63	8,50	5,97	1,42	
		max	11,60	3,68	3,15	9,43	4,27	2,21	8,67	5,31	1,63	8,50	5,97	1,42	
	-7/-8	nom	10,17	2,73	3,73	9,81	4,02	2,44	9,45	5,31	1,78	9,27	5,96	1,56	
		max	12,29	3,63	3,39	10,23	4,28	2,39	9,45	5,31	1,78	9,27	5,96	1,56	
	-5/-6	nom	10,73	2,78	3,86	10,35	4,03	2,57	9,97	5,27	1,89	9,78	5,89	1,66	
		max	12,80	3,62	3,53	12,59	5,40	2,33	10,76	5,91	1,82	9,78	5,89	1,66	
	-2/-3	nom	11,58	2,85	4,06	11,17	4,04	2,77	10,75	5,22	2,06	10,55	5,81	1,81	
		max	13,64	3,65	3,74	13,44	5,33	2,52	11,54	5,81	1,99	12,30	7,32	1,68	
	0/-1	nom	12,14	2,90	4,19	11,71	4,03	2,91	11,28	5,15	2,19	11,06	5,72	1,93	
		max	14,24	3,68	3,87	14,05	5,29	2,65	13,94	7,08	1,97	12,03	6,49	1,85	
	2/1	nom	12,70	2,95	4,31	12,80	4,19	3,06	12,30	5,28	2,33	11,57	5,60	2,07	
		max	14,86	3,73	3,98	14,68	5,14	2,86	14,57	6,81	2,14	14,52	7,87	1,85	
	7/6	nom	14,10	3,05	4,63	14,10	3,98	3,54	14,20	5,08	2,79	12,85	5,19	2,48	
		max	16,54	3,87	4,27	16,36	4,98	3,29	16,26	6,23	2,61	16,21	7,35	2,20	
15/12	nom	15,30	2,59	5,90	14,75	3,31	4,46	14,50	4,11	3,53	13,94	4,39	3,18		
	max	19,57	3,75	5,22	19,37	4,98	3,89	19,24	6,29	3,06	19,19	7,09	2,71		
20/15	nom	15,00	2,27	6,61	14,47	2,90	4,99	13,93	3,53	3,95	13,67	3,84	3,56		
	max	21,56	3,91	5,51	21,34	5,20	4,11	21,20	6,62	3,20	21,13	7,39	2,86		
35/24	nom	9,29	1,18	7,89	8,96	1,50	5,96	8,63	1,83	4,72	-	-	-		
	max	9,29	1,18	7,89	8,96	1,50	5,96	8,63	1,83	4,72	-	-	-		

Tae = Ambient temperature  
D.B. = Dry bulb  
W.B. = Wet bulb  
kWt = Heating capacity [kW]  
kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C  
The data of the heat capacity and COP include defrostings

# Performances

## Heating

SIZE	Tae [DB/WB] [°C]	Operation	Water supply temperature [°C]												
			35			45			55			60			
			kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	
<b>81 400TN</b>	-25/-	nom	5,93	2,75	2,16	-	-	-	-	-	-	-	-	-	-
		max	5,93	2,75	2,16	-	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	7,55	2,89	2,61	-	-	-	-	-	-	-	-	-	-
		max	7,55	2,89	2,61	-	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	9,17	3,04	3,02	8,77	4,50	1,95	-	-	-	-	-	-	-
		max	9,17	3,04	3,02	8,77	4,50	1,95	-	-	-	-	-	-	-
	-10/-11	nom	10,79	3,18	3,39	10,33	4,63	2,23	9,86	6,08	1,62	9,63	6,81	1,41	
		max	11,39	3,45	3,30	10,33	4,63	2,23	9,86	6,08	1,62	9,63	6,81	1,41	
	-7/-8	nom	11,76	3,26	3,60	11,26	4,67	2,41	10,75	6,09	1,77	10,50	6,79	1,55	
		max	13,59	4,05	3,35	11,91	5,09	2,34	10,75	6,09	1,77	10,50	6,79	1,55	
	-5/-6	nom	12,41	3,32	3,73	11,88	4,68	2,54	11,34	6,04	1,88	11,08	6,72	1,65	
		max	14,13	4,04	3,50	12,44	5,02	2,48	11,83	6,43	1,84	11,08	6,72	1,65	
	-2/-3	nom	13,38	3,41	3,93	12,81	4,69	2,73	12,23	5,98	2,04	11,95	6,63	1,80	
		max	15,01	4,05	3,71	14,89	5,89	2,53	13,17	6,68	1,97	13,11	7,62	1,72	
	0/-1	nom	14,03	3,46	4,05	13,43	4,68	2,87	12,83	5,90	2,17	12,52	6,51	1,92	
		max	15,65	4,08	3,84	15,54	5,83	2,67	13,78	6,57	2,10	13,72	7,47	1,84	
	2/1	nom	14,68	3,52	4,17	14,70	4,88	3,01	14,20	6,14	2,31	13,10	6,37	2,06	
		max	16,31	4,12	3,96	16,22	5,65	2,87	16,13	7,43	2,17	14,36	7,31	1,96	
	7/6	nom	16,30	3,63	4,49	16,20	4,70	3,45	16,10	5,83	2,76	14,55	5,91	2,46	
		max	18,09	4,24	4,27	18,02	5,51	3,27	17,95	6,87	2,61	17,91	8,07	2,22	
	15/12	nom	17,68	3,10	5,71	16,92	3,86	4,39	16,16	4,62	3,50	15,78	5,00	3,16	
		max	21,29	4,09	5,20	21,23	5,42	3,92	21,16	6,91	3,06	19,66	6,95	2,83	
	20/15	nom	17,34	2,71	6,39	16,59	3,38	4,91	15,85	4,04	3,92	15,48	4,37	3,54	
		max	23,40	4,25	5,50	23,33	5,63	4,14	23,25	7,18	3,24	21,66	7,24	2,99	
35/24	nom	10,74	1,41	7,64	10,28	1,75	5,87	9,82	2,10	4,68	-	-	-		
	max	10,74	1,41	7,64	10,28	1,75	5,87	9,82	2,10	4,68	-	-	-		
<b>91</b>	-25/-	nom	7,84	6,52	1,20	-	-	-	-	-	-	-	-	-	
		max	7,84	6,52	1,20	-	-	-	-	-	-	-	-	-	
	-20/20,1	nom	9,96	6,12	1,63	-	-	-	-	-	-	-	-	-	
		max	9,96	6,12	1,63	-	-	-	-	-	-	-	-	-	
	-15/15,3	nom	14,69	6,97	2,11	12,44	8,74	1,42	-	-	-	-	-	-	
		max	14,69	6,97	2,11	12,44	8,74	1,42	-	-	-	-	-	-	
	-10/-11	nom	17,36	7,69	2,26	14,30	8,46	1,69	-	-	-	-	-	-	
		max	17,36	7,69	2,26	14,30	8,46	1,69	-	-	-	-	-	-	
	-7/-8	nom	18,00	6,67	2,70	16,16	8,17	1,98	10,08	8,52	1,18	8,08	7,43	1,09	
		max	18,00	6,67	2,70	16,16	8,17	1,98	10,08	8,52	1,18	8,08	7,43	1,09	
	-5/-6	nom	17,52	6,80	2,58	16,72	8,05	2,08	11,09	8,67	1,28	9,14	8,20	1,11	
		max	17,52	6,80	2,58	16,84	8,13	2,07	14,99	13,62	1,10	9,14	8,20	1,11	
	-2/-3	nom	16,79	7,02	2,39	17,57	7,89	2,23	12,61	8,87	1,42	10,72	9,27	1,16	
		max	17,97	7,76	2,31	18,06	8,23	2,20	18,18	15,35	1,18	18,04	20,23	0,89	
	0/-1	nom	18,51	6,71	2,76	18,77	7,73	2,43	15,17	8,56	1,77	13,78	8,92	1,54	
		max	18,80	6,87	2,74	18,91	7,81	2,42	19,03	12,03	1,58	18,89	14,32	1,32	
	2/1	nom	18,00	5,33	3,38	19,97	7,56	2,64	17,74	8,25	2,15	16,84	8,57	1,96	
		max	19,67	6,08	3,23	19,97	7,56	2,64	19,91	9,82	2,03	19,76	10,90	1,81	
	7/6	nom	18,00	3,83	4,70	18,00	5,14	3,50	18,00	6,55	2,75	18,38	8,61	2,13	
		max	21,94	5,15	4,26	22,06	6,98	3,16	22,20	8,97	2,48	22,02	11,29	1,95	
	15/12	nom	22,08	5,11	4,32	20,89	5,37	3,89	19,18	5,95	3,22	19,03	6,42	2,96	
		max	25,90	6,49	3,99	26,02	7,47	3,48	26,14	9,47	2,76	25,90	10,20	2,54	
	20/15	nom	23,78	5,33	4,46	21,28	5,22	4,08	20,38	5,92	3,44	19,93	6,27	3,18	
		max	28,47	6,98	4,08	28,59	8,13	3,52	28,69	9,89	2,90	28,41	10,67	2,66	
35/24	nom	12,48	1,90	6,58	11,91	2,27	5,24	11,13	2,92	3,81	10,74	3,24	3,31		
	max	12,48	1,90	6,58	11,91	2,27	5,24	11,13	2,92	3,81	10,74	3,24	3,31		

Tae = Ambient temperature  
 D.B. = Dry bulb  
 W.B. = Wet bulb  
 kWt = Heating capacity [kW]  
 kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C  
 The data of the heat capacity and COP include defrostings

## Heating

SIZE	Tae [DB/WB] [°C]	Operation	Water supply temperature [°C]												
			35			45			55			60			
			kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	
101	-25/-	nom	7,37	6,34	1,16	-	-	-	-	-	-	-	-	-	-
		max	7,37	6,34	1,16	-	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	10,22	6,19	1,65	-	-	-	-	-	-	-	-	-	-
		max	10,22	6,19	1,65	-	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	15,91	7,35	2,17	12,51	9,82	1,27	-	-	-	-	-	-	-
		max	15,91	7,35	2,17	12,51	9,82	1,27	-	-	-	-	-	-	-
	-10/-11	nom	17,94	7,90	2,27	16,17	9,79	1,65	6,27	5,02	1,25	-	-	-	-
		max	17,94	7,90	2,27	16,17	9,79	1,65	6,27	5,02	1,25	-	-	-	-
	-7/-8	nom	21,00	8,08	2,60	19,82	9,75	2,03	12,55	10,03	1,25	10,73	10,15	1,06	-
		max	21,00	8,08	2,60	19,82	9,75	2,03	12,55	10,03	1,25	10,73	10,15	1,06	-
	-5/-6	nom	21,09	8,08	2,61	20,04	9,66	2,07	13,81	10,05	1,37	12,12	10,30	1,18	-
		max	21,09	8,08	2,61	20,14	9,73	2,07	15,95	12,48	1,28	12,12	10,30	1,18	-
	-2/-3	nom	21,22	8,08	2,63	20,35	9,53	2,14	15,71	10,07	1,56	14,20	10,47	1,36	-
		max	21,46	8,21	2,61	21,54	10,38	2,08	21,66	16,31	1,33	19,51	16,87	1,16	-
	0/-1	nom	21,44	8,07	2,66	22,43	9,62	2,33	18,38	10,00	1,84	17,14	10,34	1,66	-
		max	22,42	8,63	2,60	22,52	9,67	2,33	22,65	13,68	1,65	22,52	15,57	1,45	-
	2/1	nom	22,00	7,10	3,10	22,22	8,04	2,76	21,04	9,93	2,12	20,08	10,20	1,97	-
		max	23,41	7,79	3,01	23,52	8,76	2,68	23,66	11,84	2,00	23,53	12,94	1,82	-
	7/6	nom	22,00	5,00	4,40	22,00	6,47	3,40	22,00	8,30	2,65	22,44	10,55	2,13	-
		max	26,00	6,42	4,05	26,14	8,38	3,12	26,28	10,84	2,42	26,14	13,26	1,97	-
15/12	nom	28,05	6,79	4,13	26,31	7,40	3,56	24,59	7,91	3,11	23,73	8,17	2,90	-	
	max	30,49	7,70	3,96	30,64	9,30	3,30	30,77	11,08	2,78	30,57	11,95	2,56	-	
20/15	nom	27,75	6,41	4,33	25,97	6,88	3,77	23,95	7,25	3,30	22,94	7,43	3,09	-	
	max	33,41	8,46	3,95	33,55	10,10	3,32	33,67	12,08	2,79	33,43	13,07	2,56	-	
35/24	nom	12,46	1,92	6,48	11,88	2,30	5,17	11,20	2,94	3,81	10,85	3,26	3,33	-	
	max	12,46	1,92	6,48	11,88	2,30	5,17	11,20	2,94	3,81	10,85	3,26	3,33	-	
121	-25/-	nom	6,91	6,16	1,12	-	-	-	-	-	-	-	-	-	-
		max	6,91	6,16	1,12	-	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	10,49	6,25	1,68	-	-	-	-	-	-	-	-	-	-
		max	10,49	6,25	1,68	-	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	17,13	7,72	2,22	11,41	10,07	1,13	-	-	-	-	-	-	-
		max	17,13	7,72	2,22	11,41	10,07	1,13	-	-	-	-	-	-	-
	-10/-11	nom	18,52	8,11	2,28	16,43	10,19	1,61	-	-	-	-	-	-	-
		max	20,55	9,47	2,17	16,43	10,19	1,61	-	-	-	-	-	-	-
	-7/-8	nom	22,00	8,80	2,50	21,45	10,31	2,08	15,28	11,63	1,31	10,19	9,46	1,08	-
		max	22,00	8,80	2,50	21,45	10,31	2,08	15,28	11,63	1,31	10,19	9,46	1,08	-
	-5/-6	nom	22,48	8,83	2,55	20,84	10,07	2,07	16,52	11,24	1,47	13,23	10,36	1,28	-
		max	22,92	9,09	2,52	22,94	11,64	1,97	17,79	12,55	1,42	13,23	10,36	1,28	-
	-2/-3	nom	23,20	8,88	2,61	19,91	9,71	2,05	18,39	10,78	1,71	17,80	11,29	1,58	-
		max	24,45	9,60	2,55	24,51	13,27	1,85	24,60	16,67	1,48	22,04	15,56	1,42	-
	0/-1	nom	23,60	8,60	2,74	21,88	9,80	2,23	20,75	10,92	1,90	20,19	11,37	1,78	-
		max	25,51	9,67	2,64	25,59	12,39	2,06	26,49	15,75	1,68	24,68	15,37	1,61	-
	2/1	nom	24,00	8,33	2,88	23,85	9,89	2,41	23,10	11,05	2,09	22,58	11,45	1,97	-
		max	26,60	9,73	2,74	26,70	11,71	2,28	26,81	13,82	1,94	25,76	13,95	1,85	-
	7/6	nom	26,00	6,37	4,08	26,00	8,39	3,10	26,00	10,61	2,45	24,31	11,47	2,12	-
		max	29,46	7,69	3,83	29,58	10,18	2,91	29,72	12,97	2,29	28,56	14,61	1,96	-
15/12	nom	29,24	7,05	4,15	30,62	9,28	3,30	26,56	8,85	3,00	24,90	8,75	2,85	-	
	max	34,40	9,00	3,82	34,54	11,12	3,11	34,66	13,20	2,63	33,31	13,53	2,46	-	
20/15	nom	32,48	7,72	4,21	30,13	8,54	3,53	26,78	8,43	3,18	25,11	8,38	3,00	-	
	max	37,60	9,62	3,91	37,73	11,96	3,15	37,84	14,16	2,67	36,36	14,59	2,49	-	
35/24	nom	12,43	1,95	6,38	11,85	2,32	5,10	11,26	2,96	3,81	10,97	3,28	3,35	-	
	max	12,43	1,95	6,38	11,85	2,32	5,10	11,26	2,96	3,81	10,97	3,28	3,35	-	

Tae = Ambient temperature  
 D.B. = Dry bulb  
 W.B. = Wet bulb  
 kWt = Heating capacity [kW]  
 kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C  
 The data of the heat capacity and COP include defrostings



# Performances

## Heating

SIZE	Tae [DB/WB] [°C]	Operation	Water supply temperature [°C]											
			35			45			55			60		
			kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP	kWt	kWe	COP
141	-25/-	nom	6,85	6,36	1,08	-	-	-	-	-	-	-	-	-
		max	6,85	6,36	1,08	-	-	-	-	-	-	-	-	-
	-20/20,1	nom	10,41	6,45	1,61	-	-	-	-	-	-	-	-	-
		max	10,41	6,45	1,61	-	-	-	-	-	-	-	-	-
	-15/15,3	nom	17,00	7,97	2,13	11,64	10,56	1,10	-	-	-	-	-	-
		max	17,00	7,97	2,13	11,64	10,56	1,10	-	-	-	-	-	-
	-10/-11	nom	16,32	7,80	2,09	13,96	10,09	1,38	-	-	-	-	-	-
		max	22,13	12,32	1,80	15,49	11,79	1,31	-	-	-	-	-	-
	-7/-8	nom	23,00	9,39	2,45	16,28	9,61	1,69	15,98	12,88	1,24	10,29	9,75	1,05
		max	23,61	9,77	2,42	18,64	11,77	1,58	15,98	12,88	1,24	10,29	9,75	1,05
	-5/-6	nom	23,74	9,55	2,48	17,90	9,86	1,81	17,29	12,45	1,39	13,78	11,22	1,23
		max	24,65	10,11	2,44	24,53	15,83	1,55	18,80	14,12	1,33	13,78	11,22	1,23
	-2/-3	nom	24,85	9,80	2,54	20,32	10,18	2,00	19,26	11,96	1,61	19,02	12,78	1,49
		max	26,29	10,66	2,47	26,19	14,91	1,76	24,86	17,54	1,42	22,04	15,95	1,38
	0/-1	nom	25,43	9,54	2,67	21,86	10,57	2,07	21,96	12,22	1,80	21,38	12,76	1,67
		max	27,42	10,68	2,57	27,34	14,78	1,85	25,96	15,72	1,65	24,68	15,83	1,56
	2/1	nom	26,00	9,29	2,80	23,40	10,95	2,14	24,65	12,49	1,97	23,74	12,75	1,86
		max	28,58	10,70	2,67	28,51	14,73	1,94	27,09	14,39	1,88	25,76	14,41	1,79
	7/6	nom	30,10	7,70	3,91	30,00	10,35	2,90	30,00	13,04	2,30	26,89	13,44	2,00
		max	31,63	8,29	3,81	31,57	11,17	2,83	30,80	13,57	2,27	28,56	14,71	1,94
	15/12	nom	32,69	8,64	3,79	36,01	11,64	3,09	32,58	11,24	2,90	27,20	9,76	2,79
		max	36,88	10,35	3,56	36,81	12,03	3,06	34,95	12,48	2,80	33,31	13,23	2,52
	20/15	nom	32,98	8,08	4,08	35,34	10,62	3,33	32,48	10,62	3,06	27,14	9,33	2,91
		max	40,28	10,90	3,70	40,19	12,88	3,12	38,14	13,51	2,82	36,36	14,47	2,51
35/24	nom	12,40	1,97	6,29	11,82	2,35	5,03	11,33	2,98	3,80	11,09	3,29	3,37	
	max	12,40	1,97	6,29	11,82	2,35	5,03	11,33	2,98	3,80	11,09	3,29	3,37	

Tae = Ambient temperature

D.B. = Dry bulb

W.B. = Wet bulb

kWt = Heating capacity [kW]

kWe = Unit total power input [kW]

Difference between inlet / outlet water temperature = 5°C

The data of the heat capacity and COP include defrostings

## Operating mode

- **Cooling / Heating / DHW Operation Priority:**  
when there are several requests from the system, it defines which has the priority.
- **Default temperatures:**  
used to set the water supply set-point, different to those in standard operation, for time intervals.  
Note: this function is not available in AUTO mode or if Timer or Weekly schedule is running. The function is only activated if the unit is not switched off and is deactivated if the operating mode is changed. For a system in two zones, the temperatures that can be set by this function are only active in zone 1.
- **Set-point with climatic curve:**  
sets a variable water supply set-point based on a climatic curve dependent on the outdoor air temperature: the hotter it is, the more the Heating is reduced.  
You can choose from 32 preset climatic curves: 8 for Heating and 8 for Cooling with Medium temperature systems, 8 for Heating and 8 for Cooling with Low temperature systems.  
Note: this function can also be set for Heating or Cooling only. By activating this function, the set-point cannot be set from the user interface
- **ECO mode:**  
operating mode that optimises energy saving: the unit adjusts the water set-point according to the climatic curve dependent on the outdoor air temperature. It is also possible to set the time interval in which the mode is activated and deactivated.

## Domestic Hot Water

- **Disinfection:**  
function used to protect the Domestic Hot Water storage from the formation of legionella bacteria. The DHW tank is brought to a high temperature (65-70°C) on a set day/time of the week.
- **Fast DHW:**  
Domestic Hot Water is supplied quickly, with priority over any operating mode running. The heat pump and any other heat sources connected (e.g. heater or boiler) are activated in DHW mode and the DHW set-point becomes 60°C.
- **Tank heater:**  
the unit forcibly produces DHW with the storage electric heater. With this function DHW can be produced while the heat pump continues to fulfil the system in Heating or Cooling, or when the unit is in error.

## Programming

- **Timer:**  
sets a time interval in which the unit operates with certain mode settings and supply water set-points.
- **Weekly schedule:**  
schedules weekly unit operation such as mode and supply water set-point  
Note: if both the Timer and a weekly schedule are set, the last setting takes precedence. The Timer and Weekly schedule settings have priority over preset Temperatures and Set-Points with climatic curve

## Other options

- **Silent mode:**  
used to choose between two operating profiles with extreme silence and reduced performance, typically used at night. It is possible to set a duration or simply activate/deactivate it.
- **Holiday away:**  
prevents the system from freezing during the winter holidays and restarts the unit before returning home. DHW mode and Disinfection are turned off and the water supply set-point is changed to a lower value to prevent the formation of ice in the pipes.
- **Holiday at home:**  
changes the weekly schedule settings for a fixed period of time so that standard unit operation does not have to be changed  
Note: during the Holiday away or Holiday at home setting, the Timer and Weekly schedule are excluded and the unit does not respond to any demands from the system or to new settings made from the user interface
- **Backup heater:**  
forces activation of the auxiliary heater, if present, connected and set correctly  
Note: the function is not available in AUTO mode or if only Heating mode is enabled
- **Child lock:**  
prevents accidental changes by requiring a password for any changes to the supply water set-point, DHW set-point, Heating/Cooling/DHW mode activation/deactivation
- **Error codes and parameters:**  
displays the last 8 error codes and the main parameters set

# Special functions

## Connectivity

### Control with the App

The unit has Wi-Fi connection for connecting to the MSmartLife APP, available from Google Play and the App Store. The App allows you to manage all of the main heat pump functions, such as management of the set-points and scheduling of the various operating modes.

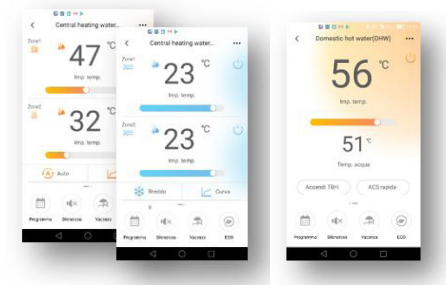
⚠ The App supports English / Italian / German / French / Spanish / Finnish / Dutch / Polish / Romanian / Russian / Turkish / Ukrainian / Portuguese



### Area management:

based on the user interface settings, the App displays different sections: area 1 / area 2 / DHW. The areas can be renamed on the Settings menu → Area name. For each area it is possible to set ON/OFF, water supply set-point (fixed or climatic), mode change. For the DHW it is possible to set ON/OFF, DHW set-point, use the Fast DHW and Tank Heater functions.

The Silent Mode, Holiday away, Holiday at home, Timer, Weekly schedule, ECO mode functions are also available.



### Fixed set-point temperature control:

generally, the water supply set-point can be set for each area. If the user interface is set as area thermostat, the ambient air set-point can also be managed

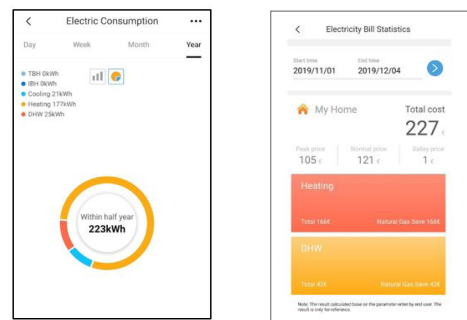
The values that can be set are:

- **Water supply set-point:**  
Low Temperature: Cooling: 7°C (5÷25°C adjustable) / Heating: 35°C (25÷55°C adjustable)  
High Temperature 18°C (18÷25°C adjustable) / Heating: 45°C (35÷60°C adjustable)
- **Ambient air set-point:**  
Cooling / Heating: 24°C (17÷30°C adjustable)

### Consumption control

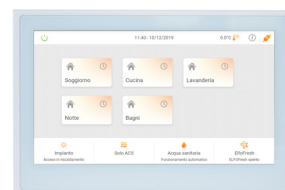
the App can display the specific energy consumption of Heating / Cooling / DHW / Auxiliary system heater / ASC heater. The data are displayed in graphs and can be daily, weekly, monthly or yearly. By entering a few reference parameters, the App provides an estimate of operating costs and savings compared to a gas boiler system.

- **Display settings:**  
the App can graphically display the history of the ambient temperature and the water supply and DHW set-point settings.
- **Display errors:**  
the App can display any unit errors



### Modbus connection and ELFOControl<sup>3</sup> EVO

The standard equipment also includes modbus connection, to link to ELFOControl<sup>3</sup> EVO and with other supervision systems using this type of protocol.



## Cascade operation (sizes 91 - 101 - 121 - 141 only)

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

Cascade operation allows up to 6 units to be connected in parallel, thereby ensuring that the system is fully reliable and efficient. The Master unit controls and displays the parameters of the entire system on its User Interface, activating the Slave units when its capacity is not enough to fulfil the system load.

### Simultaneity

Properly connected, the Cascade function is used to manage the simultaneous production of DHW (from the Master unit) and system Heating or Cooling (from the Slave unit)

### Rotation and Back-up

The system rotates operation of all of the units by counting the compressor's operating hours, so as to use them evenly. If a Slave unit malfunctions, the Master unit is programmed to activate the next one and guarantee continuity of service.



The Master unit self-addresses the Slave units.

The following functions can only be connected to the Master unit

- DHW operation (tank and 3-way valve)
- auxiliary heat source (e.g. Boiler)

The connections of the manageable system elements must be made on the Master unit  
See the "System diagrams" section to check the recommended system configuration

# System configurations

## Operation with auxiliary heat source or electric heater

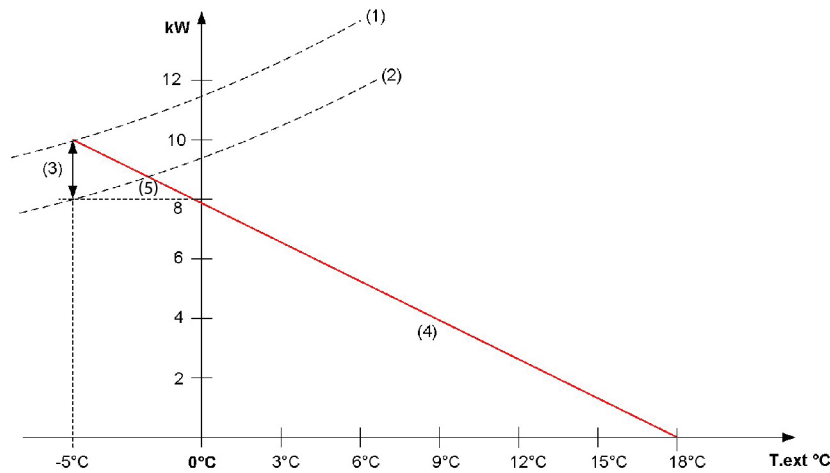
The heat capacity of the heat pump decreases when the outdoor temperature decreases. ELFOEnergy Edge EVO can be combined with an auxiliary heat source (AHS) or with a back-up electric heater (IBHX - accessory supplied separately) to fulfil the system heat load demand also when the Heat Pump alone would be insufficient.

AHS and IBHX can work in two ways:

- as a replacement for the Heat Pump, when they supply all of the heat required by the system
- as an integration to the Heat Pump, when they supply part of the heat required by the system

The desired operation can be set by changing the water temperature and ambient temperature parameters on the user interface. Using the user interface settings, it is also possible to choose whether AHS and IBHX should intervene only in Heating, only in DHW or in both cases.

The chart illustrates the working logic of the auxiliary sources replacing the Heat Pump:



1. Operation in Heat Pump only
2. Heat Pump + AHS (or IBHX) combined operation
3. Capacity supplied by AHS (or IBHX)
4. System Heat Load
5. Equilibrium point

- Operation in Heat Pump alone (1): the Heat Pump fully supplies the capacity required to fulfil the system heat load (4) and no integration is needed
- Heat Pump + AHS or Heat Pump + IBHX (2): the heat Pump fully supplies the capacity required up to the equilibrium point (5). When the outdoor temperature drops below this point, the auxiliary heat source or the back-up electric heater will supply the missing heat to fulfil the system heat load (3).

⚠ AHS is managed by the unit with an ON/OFF contact, see the "System diagrams" section to check the recommended system configuration.

## Smart Grid and Photovoltaic ready (sizes 91 - 101 - 121 - 141)

The unit is fitted with a Smart Grid contact to reduce operating costs: in combination with the photovoltaic system it maximises self-consumption and limits absorption from the mains.

The Smart Grid function is optional and is enabled by connecting two inputs in the board: Photovoltaics and Smart Grid. There are three cases of management logic:

	Photovoltaic	Smart-Grid
Unit works normally	OFF	OFF
Unit is switched off (after a certain time)	OFF	ON
Unit forced in DHW (set-point at 70°C)	ON	ON o OFF

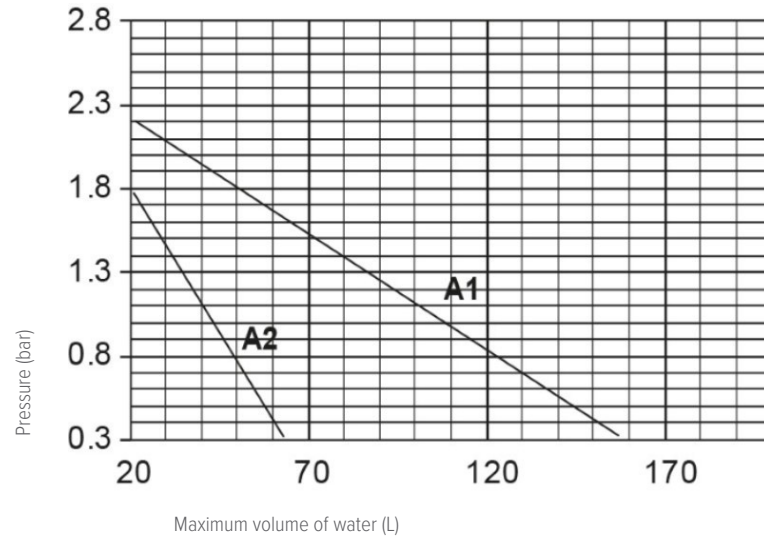
When the unit is forced into DHW, the storage resistance is activated to heat the tank. The heat pump continues to operate in the required mode.

⚠ The Smart Grid function is available for sizes 91-141

## Checking allowed water volume

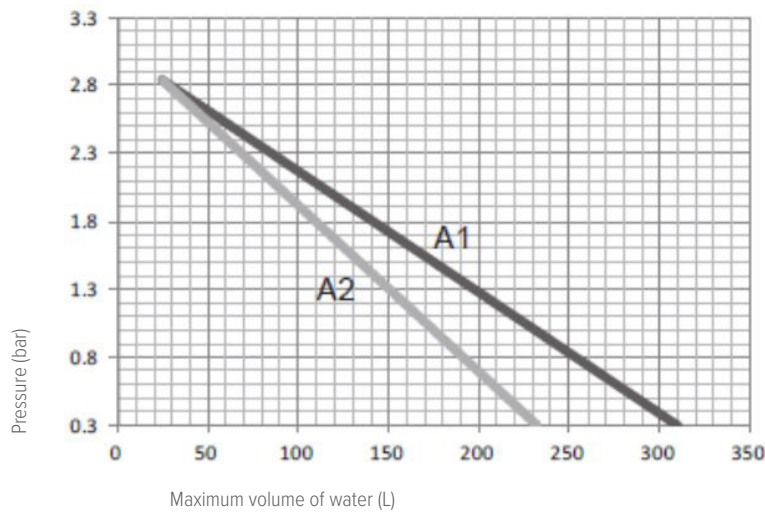
Maximum allowed water volume in the entire circuit can be determined from the graph below with the pre-pressure ( $P_g$ ) calculated. If the water volume in the entire water circuit is higher than the value found, an additional expansion vessel for the circuit is required.

### Size 21 - 81



A1: System without glycol for 1-phase 61-81 units and 3-phase 61-81 units  
 A2: System without glycol for the 21 and 41 units

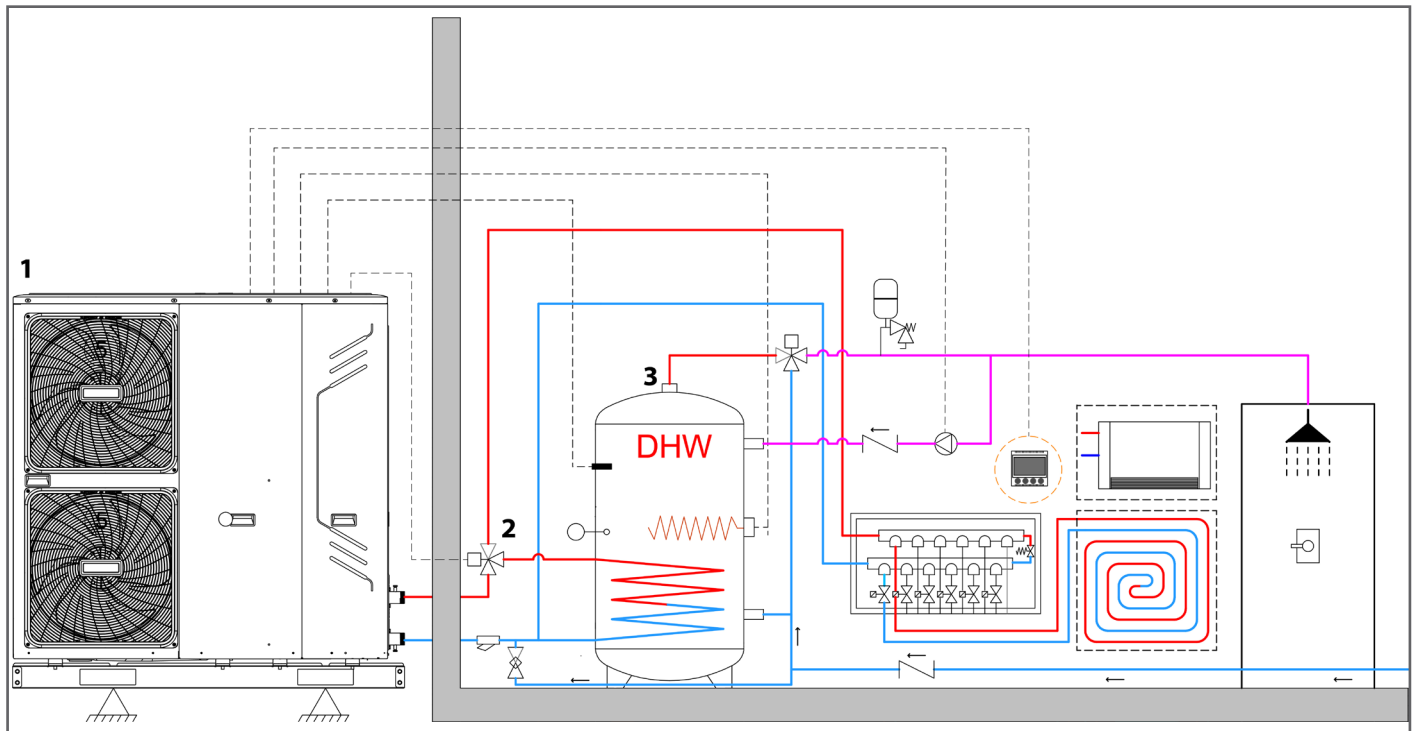
### Size 91 - 141



A1. System without glycol  
 A2. System with 25% propylene glycol

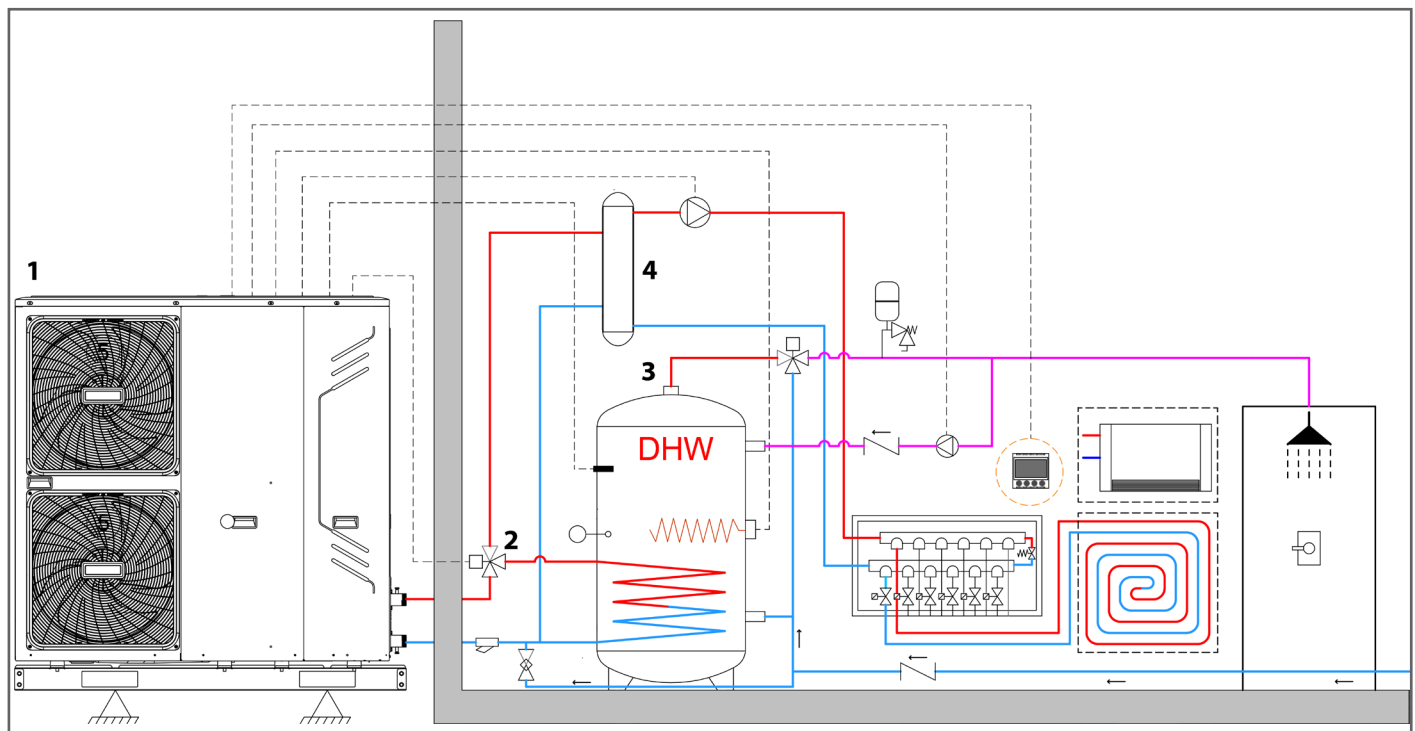
# Simplified system diagrams

## Single zone system



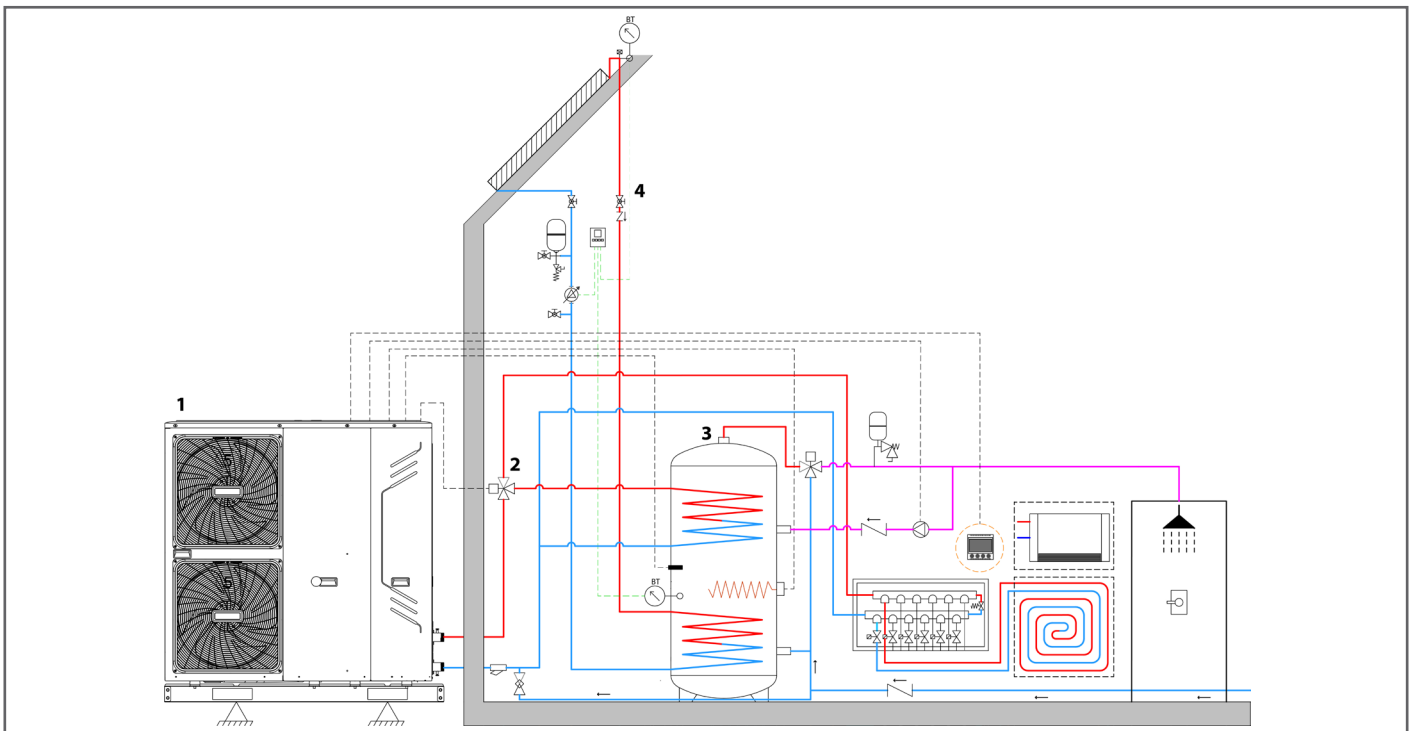
1. Outdoor unit
2. 3-way valve (Optional)
3. DHW storage (Optional)

## Single zone system with primary and secondary circuit



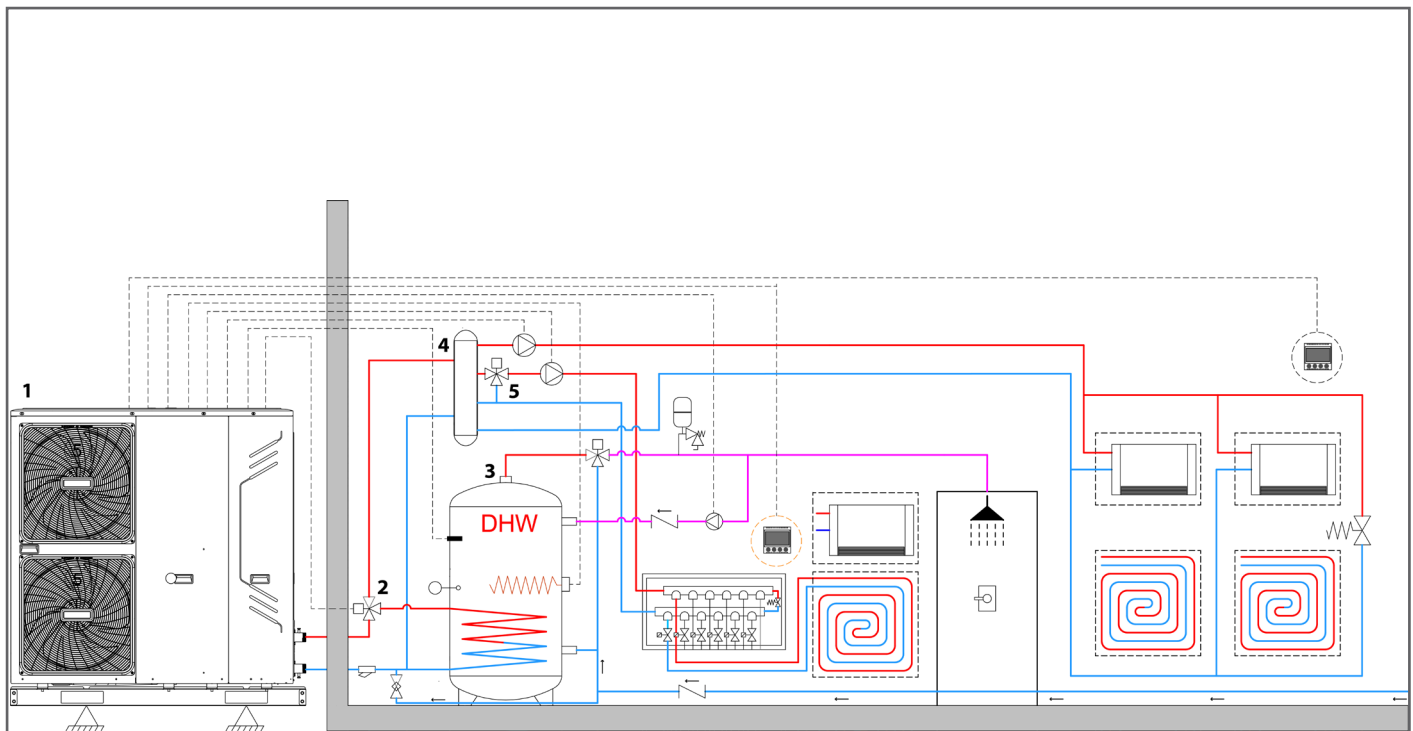
1. Outdoor unit
2. 3-way valve (Optional)
3. DHW storage (Optional)
4. Hydraulic circuit breaker (Optional)

## Single-zone system with solar thermal



1. Outdoor unit
2. 3-way valve (Optional)
3. DHW storage (Optional)
4. Solar thermal panel and control unit (Optional)

## 2 zone system

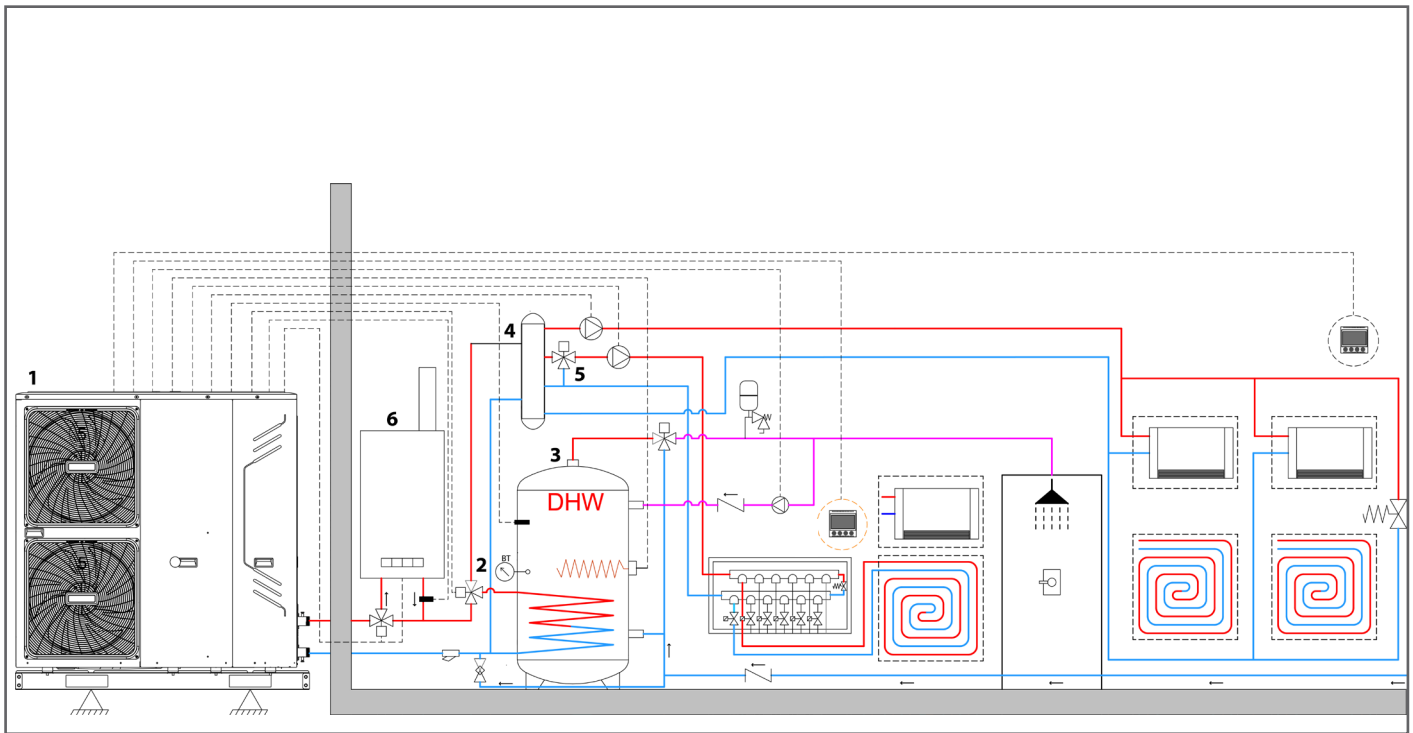


1. Outdoor unit
2. 3-way valve (Optional)
3. DHW storage (Optional)
4. Hydraulic circuit breaker (Optional)
5. 3-way mechanical mixing valve



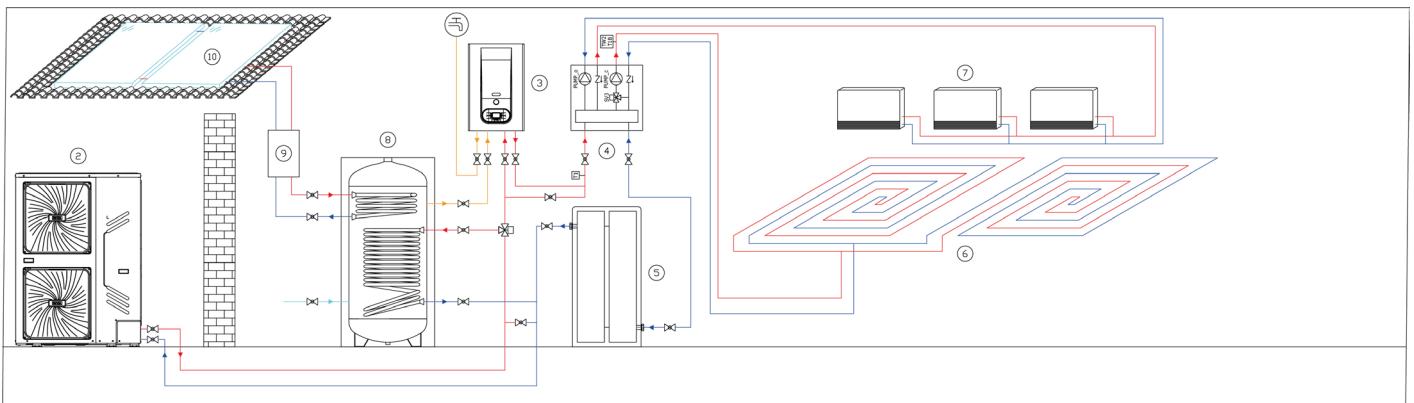
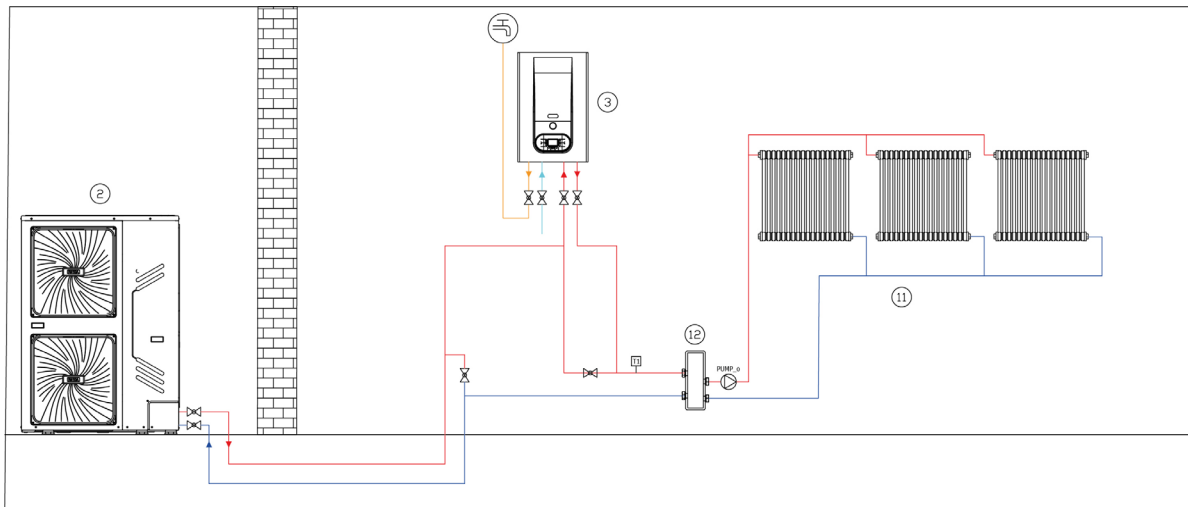
# Simplified system diagrams

## 2-zone system with boiler



1. Outdoor unit
2. 3-way valve (Optional)
3. DHW storage (Optional)
4. Hydraulic circuit breaker (Optional)
5. 3-way mechanical mixing valve
6. Boiler

## Hybrid solution system diagrams



1. Outdoor unit
2. Indoor unit
3. Boiler
4. Boosters
5. System storage
6. Low temperature use
7. Medium temperature use
8. DHW storage
9. Solar kit
10. Solar panels
11. High temperature use

# Data for the UNI/TS 11300 calculation

Clivet S.p.A. declares that the data to be used for the calculation pursuant to UNI/TS 11300 part 4 of the efficiency of their heat pump are given in the following tables.

The data given in this document may be updated without advance notice by the manufacturer when upgrading his product range.

## UNI/TS 11300 Part 4

### EDGE EVO 21

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
21	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		3,72	5,45	4,66	4,86
	CR		1,00	0,42	0,31	0,13
	P	4,21	3,72	2,26	1,46	0,65
	COP (part load)		2,91	4,38	5,89	5,89
	COP (full load)		4,23	5,52	5,01	6,03
	Fcop		0,69	0,79	1,18	0,98
Data to be provided for power and COP under full load cold source air						
21	Te	Tm	-7	2	7	12
	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C	3,72	5,45	4,66	4,86
		45°C	3,58	4,68	4,33	4,57
		55°C	3,29	4,51	4,00	4,26
		35°C	4,23	5,52	5,01	6,12
	COP	45°C	2,68	3,52	3,53	4,26
		55°C	1,82	2,68	2,63	3,11
	DHW Power and COP data under full load					
2.1	Te	Tm	7	15	20	35
	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C	4,00	4,34	4,25	2,64
	COP	55°C	2,63	3,37	3,78	4,52

### EDGE EVO 31

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
31	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		5,31	7,78	6,65	7,01
	CR		1,00	0,42	0,31	0,13
	P	6,00	5,31	3,23	2,08	0,92
	COP (part load)		2,91	4,38	5,89	5,89
	COP (full load)		4,17	5,44	4,93	5,99
	Fcop		0,70	0,81	1,19	0,98
Data to be provided for power and COP under full load cold source air						
31	Te	Tm	-7	2	7	12
	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C	5,31	7,78	6,65	7,01
		45°C	5,27	6,90	6,37	5,79
		55°C	5,02	6,88	6,10	4,40
		35°C	4,17	5,44	4,93	5,99
	COP	45°C	2,75	3,61	3,62	4,37
		55°C	1,93	2,87	2,81	3,42
	DHW Power and COP data under full load					
31	Te	Tm	7	15	20	35
	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C	6,10	6,62	6,49	4,02
	COP	55°C	2,81	3,6	4,04	4,82

# Data for the UNI/TS 11300 calculation

## EDGE EVO 41

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
41	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		6,86	10,01	8,60	9,10
	CR		1,00	0,42	0,31	0,13
	P	7,75	6,86	4,18	2,68	1,19
	COP (part load)		2,80	4,33	6,20	7,61
	COP (full load)		3,89	5,07	4,60	5,63
	Fcop		0,72	0,85	1,35	1,35

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
41	Heating capacity $\Phi_{H,HP out}$ (kW)		35°C	6,86	10,01	8,60	9,10
			45°C	6,82	8,93	8,25	8,68
			55°C	6,50	8,91	7,90	8,30
	COP		35°C	3,89	5,07	4,60	5,63
			45°C	2,64	3,47	3,48	4,28
			55°C	1,89	2,80	2,75	3,24

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
41	Heating capacity $\Phi_{H,HP out}$ (kW)		55°C	7,90	8,57	8,40	5,21
	COP		55°C	2,75	3,53	3,95	4,72

## EDGE EVO 61 - THREE-PHASE

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
61	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		9,81	14,40	12,30	13,00
	CR		1,00	0,41	0,31	0,13
	P	11,09	9,81	5,97	3,84	1,71
	COP (part load)		2,88	4,15	5,74	5,40
	COP (full load)		4,07	5,30	4,81	5,87
	Fcop		0,71	0,78	1,19	0,92

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
61	Heating capacity $\Phi_{H,HP out}$ (kW)		35°C	9,81	14,40	12,30	13,00
			45°C	9,58	12,60	11,60	12,30
			55°C	8,97	12,30	10,90	11,50
	COP		35°C	4,07	5,30	4,81	5,87
			45°C	2,72	3,58	3,58	4,36
			55°C	1,91	2,84	2,78	3,31

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
61	Heating capacity $\Phi_{H,HP out}$ (kW)		55°C	10,90	11,80	11,60	7,18
	COP		55°C	2,78	3,57	3,99	4,77

Terms and definitions

Tm = Delivery temperature

Tdesignh = A - Average design climate temperature (pursuant to UNI EN 14825)

A, B, C, D = names of the four conditions with which different outdoors air temperatures are associated (Te)

Te = Outdoors air temperature

PLR = part load ratio

DC = power under full load referred to the specified temperatures

CR = heat pump load factor

P = system power demand

COP (full load) = COP under full load referred to the indicated outdoors air temperatures

COP (partial load) = COP under partial load referred to the indicated outdoors air temperatures

F<sub>COP</sub> = COP correction factor, as follows: COP' (full load) / COP (partial load)

HP = heat pump

DHW = domestic hot water

# Data for the UNI/TS 11300 calculation

## EDGE EVO 61

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
61	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		9,81	14,40	12,30	13,00
	CR		1,00	0,41	0,31	0,13
	P	11,09	9,81	5,97	3,84	1,71
	COP (part load)		2,88	4,15	5,74	5,40
	COP (full load)		4,07	5,30	4,81	5,77
	Fcop		0,71	0,78	1,19	0,94

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
61	Heating capacity $\Phi_{H,HP out}$ (kW)		35°C	9,81	14,40	12,30	13,00
			45°C	9,58	12,60	11,60	12,20
			55°C	8,97	12,30	10,90	11,50
	COP		35°C	4,07	5,30	4,81	5,77
			45°C	2,72	3,58	3,58	4,22
			55°C	1,91	2,84	2,78	3,33

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
61	Heating capacity $\Phi_{H,HP out}$ (kW)		55°C	10,90	11,80	11,60	7,18
	COP		55°C	2,78	3,57	3,99	4,77

## EDGE EVO 71 - THREE-PHASE

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
71	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		11,30	16,50	14,10	14,90
	CR		1,00	0,42	0,31	0,13
	P	12,77	11,30	6,88	4,42	1,97
	COP (part load)		2,84	4,19	5,99	5,30
	COP (full load)		3,89	5,07	4,60	5,63
	Fcop		0,73	0,83	1,30	0,94

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
71	Heating capacity $\Phi_{H,HP out}$ (kW)		35°C	11,30	16,50	14,10	14,90
			45°C	11,20	14,70	13,60	14,55
			55°C	10,80	14,80	13,10	13,87
	COP		35°C	3,89	5,07	4,60	5,63
			45°C	2,64	3,47	3,47	4,28
			55°C	1,89	2,80	4,28	3,32

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
71	Heating capacity $\Phi_{H,HP out}$ (kW)		55°C	13,10	14,20	13,90	8,63
	COP		55°C	2,75	3,53	3,95	4,72

Terms and definitions

Tm = Delivery temperature

Tdesignh = A - Average design climate temperature (pursuant to UNI EN 14825)

A, B, C, D = names of the four conditions with which different outdoors air temperatures are associated (Te)

Te = Outdoors air temperature

PLR = part load ratio

DC = power under full load referred to the specified temperatures

CR = heat pump load factor

P = system power demand

COP (full load) = COP under full load referred to the indicated outdoors air temperatures

COP (partial load) = COP under partial load referred to the indicated outdoors air temperatures

F<sub>COP</sub> = COP correction factor, as follows: COP' (full load) / COP (partial load)

HP = heat pump

DHW = domestic hot water

# Data for the UNI/TS 11300 calculation

## EDGE EVO 71

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
71	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		11,30	16,50	14,10	15,00
	CR		1,00	0,42	0,31	0,13
	P	12,77	11,30	6,88	4,42	1,97
	COP (part load)		2,84	4,19	5,99	5,30
	COP (full load)		3,89	5,07	4,60	5,57
	Fcop		0,73	0,83	1,30	0,95

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
71	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C		11,30	16,50	14,10	15,00
		45°C		11,20	14,70	13,60	14,50
		55°C		10,80	14,80	13,10	13,80
	COP	35°C		3,89	5,07	4,60	5,57
		45°C		2,64	3,47	3,47	4,24
		55°C		1,89	2,80	2,75	3,30

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
71	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C		13,10	14,20	13,90	8,63
		COP	55°C		2,75	3,53	3,95

## EDGE EVO 81 - THREE-PHASE

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
81	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		13,00	19,10	16,30	17,30
	CR		1,00	0,41	0,31	0,13
	P	14,70	13,00	7,91	5,09	2,26
	COP (part load)		2,72	4,17	5,86	6,28
	COP (full load)		3,76	4,90	4,45	5,44
	Fcop		0,72	0,85	1,32	1,15

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
81	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C		13,00	19,10	16,30	17,30
		45°C		12,90	16,90	15,60	16,50
		55°C		12,30	16,80	14,90	15,90
	COP	35°C		3,76	4,90	4,45	5,44
		45°C		2,60	3,42	3,42	4,18
		55°C		1,87	2,78	2,73	3,26

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
81	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C		14,90	16,20	15,80	9,82
		COP	55°C		2,73	3,50	4,04

Terms and definitions

Tm = Delivery temperature

Tdesignh = A - Average design climate temperature (pursuant to UNI EN 14825)

A, B, C, D = names of the four conditions with which different outdoors air temperatures are associated (Te)

Te = Outdoors air temperature

PLR = part load ratio

DC = power under full load referred to the specified temperatures

CR = heat pump load factor

P = system power demand

COP (full load) = COP under full load referred to the indicated outdoors air temperatures

COP (partial load) = COP under partial load referred to the indicated outdoors air temperatures

F<sub>COP</sub> = COP correction factor, as follows: COP' (full load) / COP (partial load)

HP = heat pump

DHW = domestic hot water

# Data for the UNI/TS 11300 calculation

## EDGE EVO 81

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
81	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		13,00	19,10	16,30	17,40
	CR		1,00	0,41	0,31	0,13
	P	14,70	13,00	7,91	5,09	2,26
	COP (part load)		2,72	4,17	5,86	6,28
	COP (full load)		3,76	4,90	4,45	5,33
	Fcop		0,72	0,85	1,32	1,18

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
81	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C		13,00	19,10	16,30	17,40
		45°C		12,90	16,90	15,60	16,50
		55°C		12,30	16,80	14,90	15,70
	COP	35°C		3,76	4,90	4,45	5,33
		45°C		2,60	3,42	3,42	4,18
		55°C		1,87	2,78	2,73	3,29

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
81	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C		14,90	16,20	15,80	9,82
	COP	55°C		2,73	3,50	3,92	4,68

## EDGE EVO 91

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
91	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		18,00	18,00	18,00	20,50
	CR		0,88	0,54	0,35	0,14
	P	17,99	15,91	9,69	6,23	2,77
	COP (part load)		2,85	4,57	5,95	6,73
	COP (full load)		2,70	3,38	4,70	4,44
	Fcop		1,06	1,35	1,27	1,52

### Data to be provided for power and COP under full load cold source air

		Te	Tm	-7	2	7	12
91	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C		18,00	18,00	18,00	20,50
		45°C		16,20	20,00	18,00	19,80
		55°C		10,10	17,70	18,00	18,70
	COP	35°C		2,70	3,38	4,70	4,44
		45°C		1,98	2,64	3,50	3,75
		55°C		1,18	2,15	2,75	3,03

### DHW Power and COP data under full load

		Te	Tm	7	15	20	35
91	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C		18,00	19,20	20,40	11,10
	COP	55°C		2,75	3,22	3,44	3,81

Terms and definitions

Tm = Delivery temperature

Tdesignh = A - Average design climate temperature (pursuant to UNI EN 14825)

A, B, C, D = names of the four conditions with which different outdoors air temperatures are associated (Te)

Te = Outdoors air temperature

PLR = part load ratio

DC = power under full load referred to the specified temperatures

CR = heat pump load factor

P = system power demand

COP (full load) = COP under full load referred to the indicated outdoors air temperatures

COP (partial load) = COP under partial load referred to the indicated outdoors air temperatures

F<sub>COP</sub> = COP correction factor, as follows: COP' (full load) / COP (partial load)HP= heat pump

DHW = domestic hot water

# Data for the UNI/TS 11300 calculation

## EDGE EVO 101

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
101	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		21,00	22,00	22,00	25,80
	CR		1,00	0,58	0,37	0,14
	P	23,74	21,00	12,78	8,22	3,65
	COP (part load)		2,74	4,40	6,24	6,92
	COP (full load)		2,60	3,10	4,40	4,21
	Fcop		1,05	1,42	1,42	1,64

Data to be provided for power and COP under full load cold source air		Tm	1,05			
101	Te	Tm	-7	2	7	12
	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C	21,00	22,00	22,00	25,80
		45°C	19,80	22,00	22,00	24,70
		55°C	12,50	21,00	22,00	23,60
	COP	35°C	2,60	3,10	4,40	4,21
		45°C	2,03	2,76	3,40	3,50
		55°C	1,25	2,12	2,65	2,93

DHW Power and COP data under full load		Tm				
101	Te	Tm	7	15	20	35
	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C	22,00	24,60	24,00	11,20
	COP	55°C	2,65	3,11	3,30	3,81

## EDGE EVO 121

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
121	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		22,00	24,00	26,00	28,00
	CR		1,00	0,56	0,33	0,14
	P	24,87	22,00	13,39	8,61	3,83
	COP (part load)		2,56	4,41	6,43	7,08
	COP (full load)		2,50	2,88	4,08	4,12
	Fcop		1,02	1,53	1,58	1,72

Data to be provided for power and COP under full load cold source air		Tm				
121	Te	Tm	-7	2	7	12
	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C	22,00	24,00	26,00	28,00
		45°C	21,50	23,80	26,00	28,90
		55°C	15,30	23,10	26,00	26,30
	COP	35°C	2,50	2,88	4,08	4,12
		45°C	2,08	2,41	3,10	3,23
		55°C	1,31	2,09	2,45	2,77

DHW Power and COP data under full load		Tm				
121	Te	Tm	7	15	20	35
	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C	26,00	26,60	26,80	11,30
	COP	55°C	2,45	3,00	3,18	3,81

### Terms and definitions

Tm = Delivery temperature

Tdesignh = A - Average design climate temperature (pursuant to UNI EN 14825)

A, B, C, D = names of the four conditions with which different outdoors air temperatures are associated (Te)

Te = Outdoors air temperature

PLR = part load ratio

DC = power under full load referred to the specified temperatures

CR = heat pump load factor

P = system power demand

COP (full load) = COP under full load referred to the indicated outdoors air temperatures

COP (partial load) = COP under partial load referred to the indicated outdoors air temperatures

F<sub>COP</sub> = COP correction factor, as follows: COP' (full load) / COP (partial load)

HP = heat pump

DHW = domestic hot water



# Data for the UNI/TS 11300 calculation

## EDGE EVO 141

Data for determination of COPPL T delivery 20°C		Tdesignh	A	B	C	D
141	Te	-10	-7	2	7	12
	PLR	100%	88%	54%	35%	15%
	DC		23,00	26,00	30,10	31,70
	CR		0,69	0,37	0,21	0,09
	P	26,00	15,91	9,69	6,23	2,77
	COP (part load)		2,53	4,12	6,21	7,14
	COP (full load)		2,45	2,80	3,91	3,83
	Fcop		1,03	1,47	1,59	1,86
Data to be provided for power and COP under full load cold source air						
141	Te	Tm	-7	2	7	12
	Heating capacity $\Phi_{H,HP out}$ (kW)	35°C	23,00	26,00	30,10	31,7
		45°C	16,30	23,40	30,00	33,80
		55°C	16,00	24,70	30,00	31,60
	COP	35°C	2,45	2,80	3,91	3,83
		45°C	1,69	2,14	2,90	3,03
		55°C	1,24	2,97	2,30	2,65
	DHW Power and COP data under full load					
141	Te	Tm	7	15	20	35
	Heating capacity $\Phi_{H,HP out}$ (kW)	55°C	30,00	32,60	32,50	11,30
	COP	55°C	2,30	2,90	3,06	3,8

### Terms and definitions

Tm = Delivery temperature

Tdesignh = A - Average design climate temperature (pursuant to UNI EN 14825)

A, B, C, D = names of the four conditions with which different outdoors air temperatures are associated (Te)

Te = Outdoors air temperature

PLR = part load ratio

DC = power under full load referred to the specified temperatures

CR = heat pump load factor

P = system power demand

COP (full load) = COP under full load referred to the indicated outdoors air temperatures

COP (partial load) = COP under partial load referred to the indicated outdoors air temperatures

F<sub>COP</sub> = COP correction factor, as follows: COP' (full load) / COP (partial load)

HP = heat pump

DHW = domestic hot water

# Data for the UNI/TS 11300 calculation

The specified data refer to the nominal power values under the declared conditions.

## UNI/TS 11300 Part 3

SIZE	Test	Cooling capacity kW				EER			
		1	2	3	4	1	2	3	4
		100%	75%	50%	25%	100%	75%	50%	25%
<b>220-240V N 50Hz</b>									
	<b>21</b>	4,85	3,64	2,43	1,21	2,98	4,13	5,01	4,32
	<b>31</b>	6,30	4,73	3,15	1,58	2,77	3,98	5,41	5,54
	<b>41</b>	7,60	5,70	3,80	1,90	2,53	3,86	5,95	7,25
	<b>61</b>	10,90	8,18	5,45	2,73	2,92	3,82	4,80	5,58
	<b>71</b>	12,90	9,68	6,45	3,23	2,78	3,69	4,79	5,60
	<b>81</b>	13,80	10,35	6,90	3,45	2,65	3,59	4,59	5,42
	<b>61 3PH</b>	10,90	8,18	5,45	2,73	2,92	3,82	4,80	5,58
	<b>71 3PH</b>	12,90	9,68	6,45	3,23	2,78	3,69	4,79	5,60
	<b>81 3PH</b>	13,80	10,35	6,90	3,45	2,65	3,59	4,59	5,42
	<b>91</b>	17,0	12,8	8,5	4,3	3,14	4,13	5,59	5,55
	<b>101</b>	21,0	15,8	10,5	5,3	2,89	3,95	5,37	6,19
	<b>121</b>	26,0	19,5	13,0	6,5	2,63	3,79	5,19	6,84
	<b>141</b>	29,5	22,1	14,8	7,4	2,29	3,62	5,06	6,75

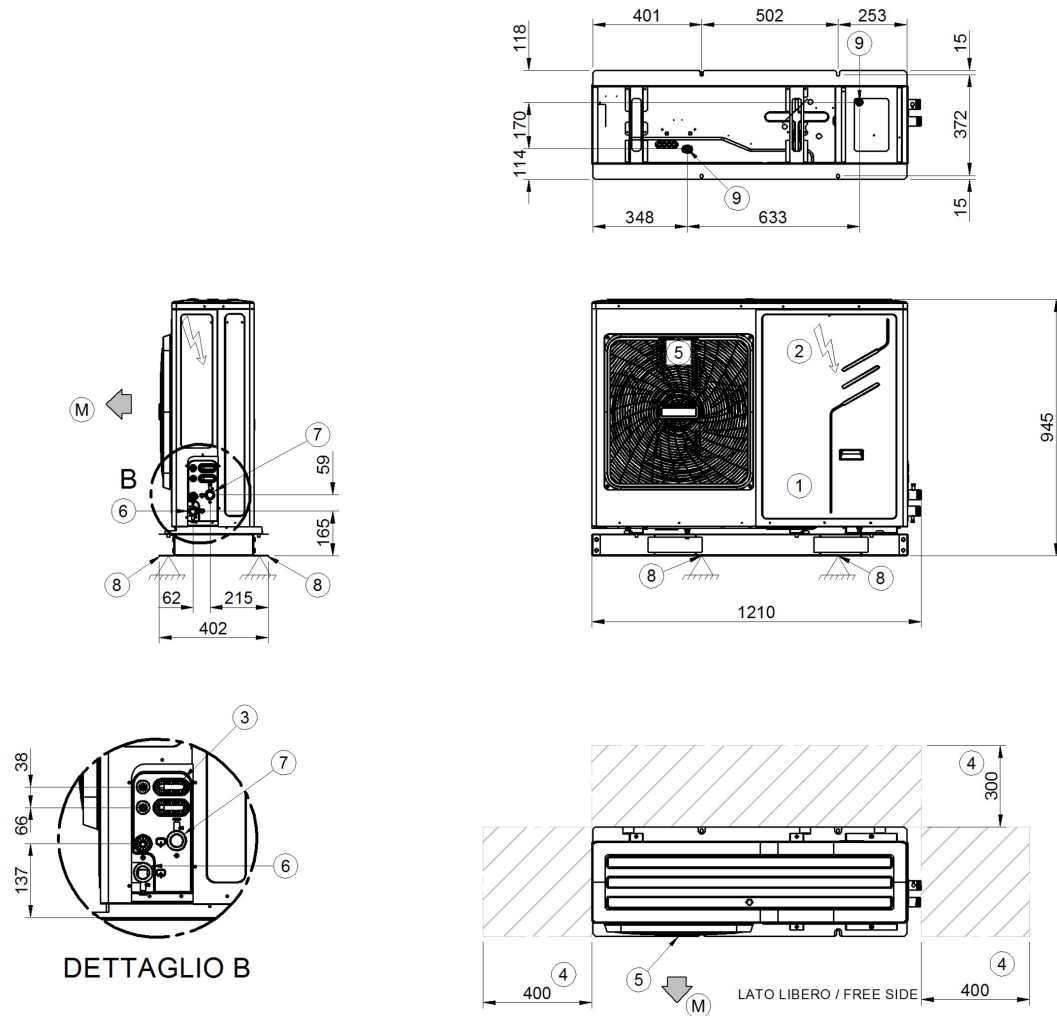
Reference conditions prescribed by UNI/TS 11300-3:

1. External air temperature B.S. 35°C Refrigerated water temperature at the fancoil inlet/outlet 12/7 °C
2. External air temperature B.S. 30°C Refrigerated water temperature at the fancoil outlet /7 °C
3. External air temperature B.S. 25°C Refrigerated water temperature at the fancoil outlet /7 °C
4. External air temperature B.S. 20°C Refrigerated water temperature at the fancoil outlet /7 °C

# Dimensional drawings

Size 21-41

DAAPB0001\_0  
DATA/DATE 13/05/2019



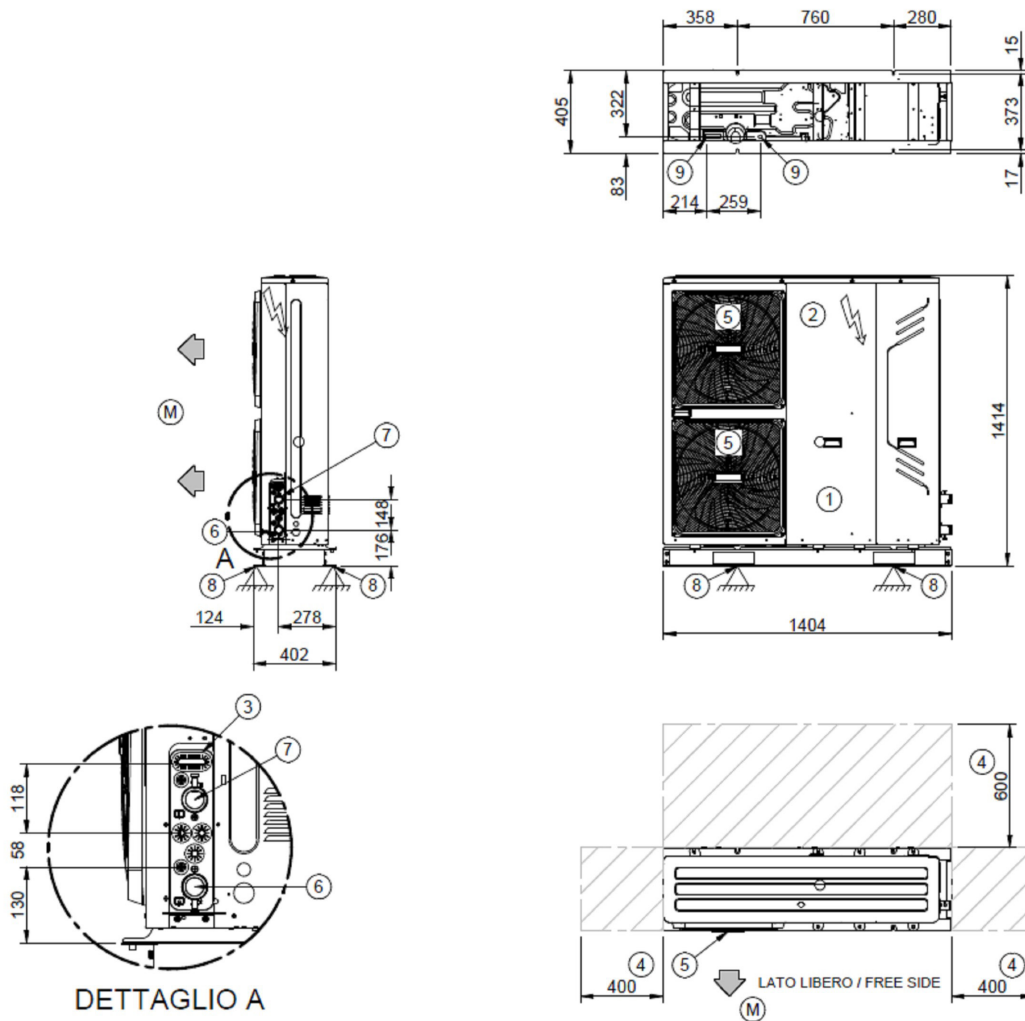
- 1. Compressor compartment
- 2. Electrical panel
- 3. Power input
- 4. Functional spaces
- 5. Electric fan (supply - return)
- 6. Internal exchanger water inlet (OD = 1" GAS M)
- 7. Internal exchanger water outlet (OD = 1" GAS M)
- 8. Support point
- 9. Drain hole
- (M) Air Supply

SIZE		21	31	41
Length	mm	1210	1210	1210
Depth	mm	402	402	402
Height	mm	945	945	945
Operating weight	kg	92	92	92
Shipping weight	kg	111	111	111

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

## Size 61-81 Monophase

DAAPB0002\_0  
DATA/DATE 15/05/2019



- 1. Compressor compartment
- 2. Electrical panel
- 3. Power input
- 4. Functional spaces
- 5. Electric fan (supply - return)
- 6. Internal exchanger water inlet (OD = 1" 1/4 GAS M)
- 7. Internal exchanger water outlet (OD = 1" 1/4 GAS M)
- 8. Support point
- 9. Drain hole
- (M) Air Supply

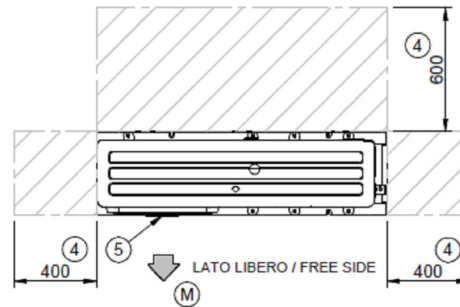
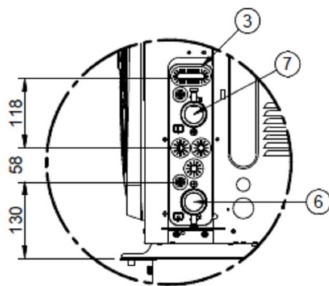
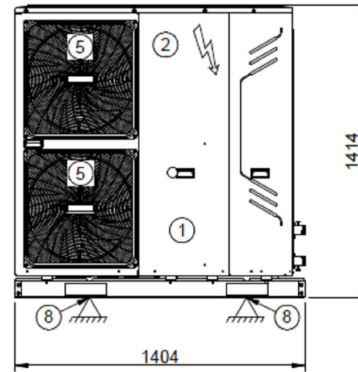
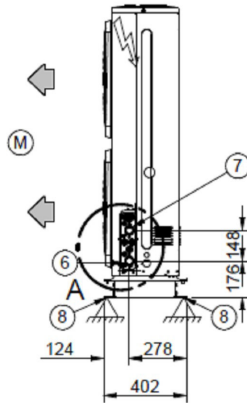
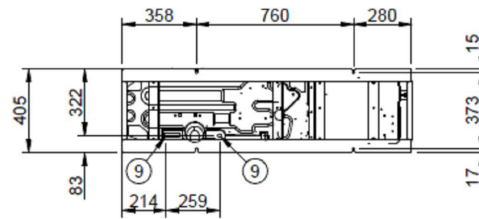
SIZE		61	71	81
Length	mm	1404	1404	1404
Depth	mm	405	405	405
Height	mm	1414	1414	1414
Operating weight	kg	158	158	158
Shipping weight	kg	178	178	178

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

# Dimensional drawings

Size 61-81 Three Phase

DAAPB0002\_0  
DATA/DATE 15/05/2019



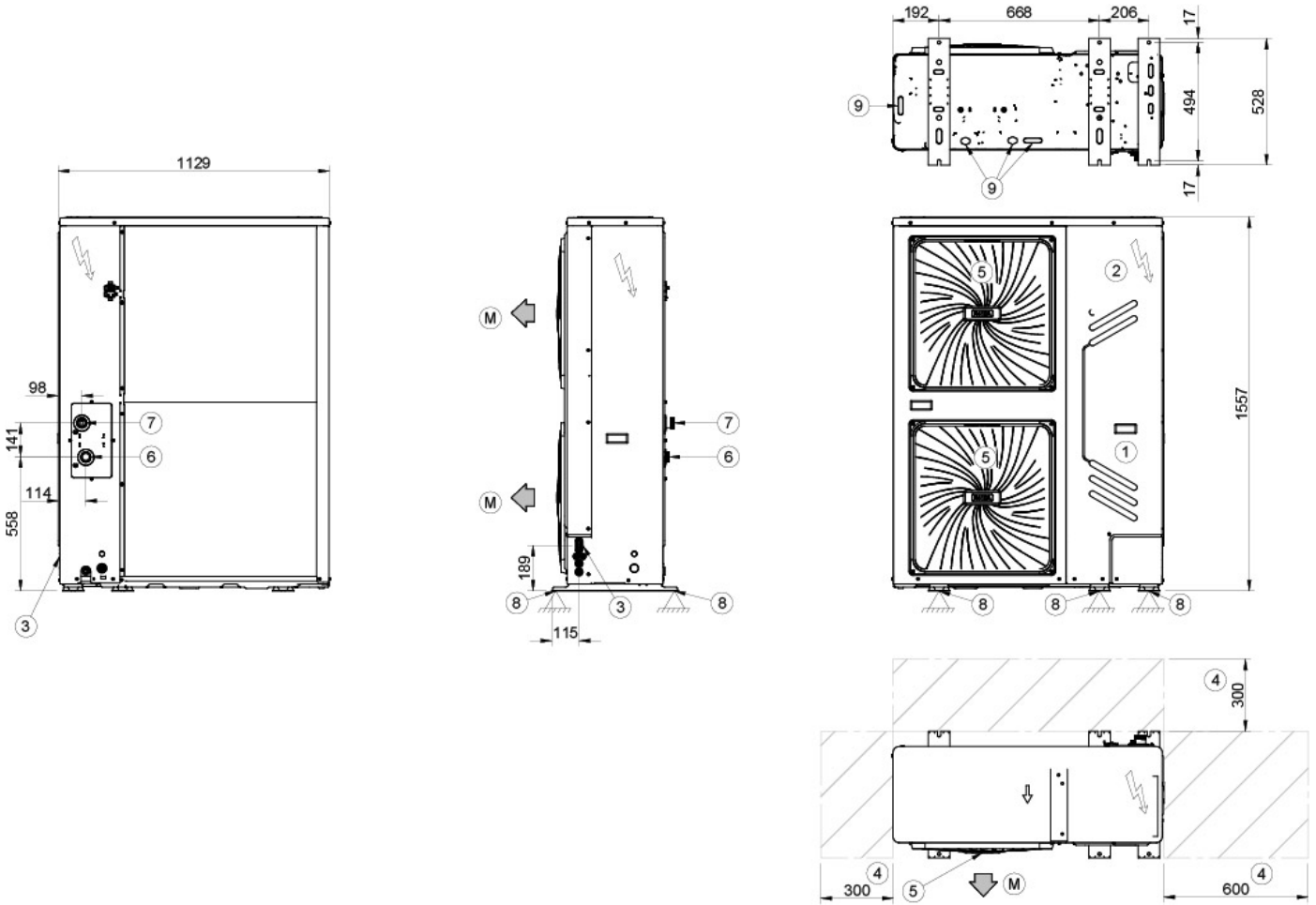
- 1. Compressor compartment
- 2. Electrical panel
- 3. Power input
- 4. Functional spaces
- 5. Electric fan (supply - return)
- 6. Internal exchanger water inlet (OD = 1" 1/4 GAS M)
- 7. Internal exchanger water outlet (OD = 1" 1/4 GAS M)
- 8. Support point
- 9. Drain hole
- (M) Air Supply

SIZE		61	71	81
Length	mm	1404	1404	1404
Depth	mm	405	405	405
Height	mm	1414	1414	1414
Operating weight	kg	172	172	172
Shipping weight	kg	193	193	193

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

## Size 91-141 Three Phase

DABPB0001\_0  
DATA/DATE 14/05/2020



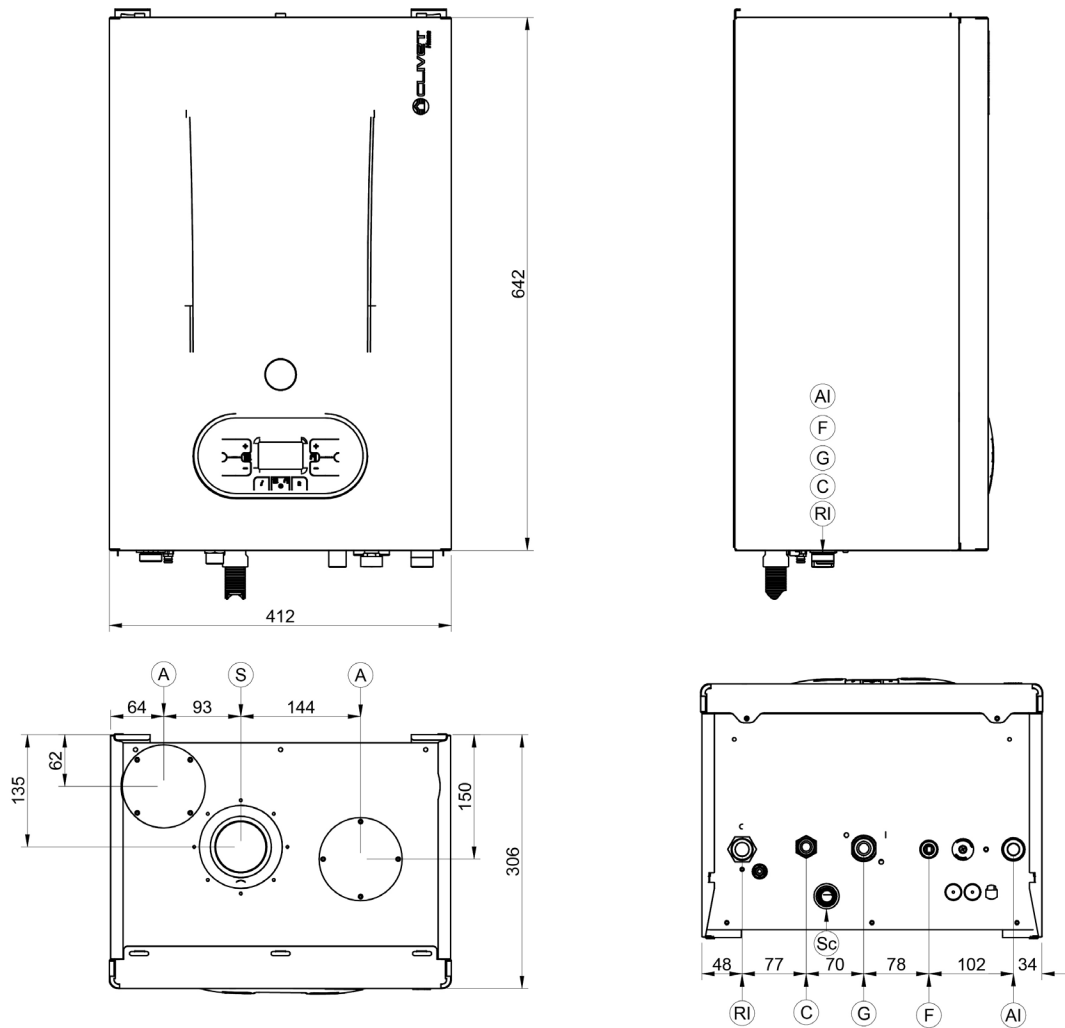
1. Compressor compartment
  2. Electrical panel
  3. Power input
  4. Functional spaces
  5. Electric fan (supply - return)
  6. Internal exchanger water inlet (OD = 1" 1/4 GAS M)
  7. Internal exchanger water outlet (OD = 1" 1/4 GAS M)
  8. Support point
  9. Drain hole
- (M) Air Supply

SIZE		91	101	121	141
Length	mm	1129	1129	1129	1129
Depth	mm	440	440	440	440
Height	mm	1558	1558	1558	1558
Operating weight	kg	177	177	177	177
Shipping weight	kg	206	206	206	206

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

# Dimensional drawings

## Dimensionale caldaia gas metano - COMBI-TECH R2K 24 - 24kW



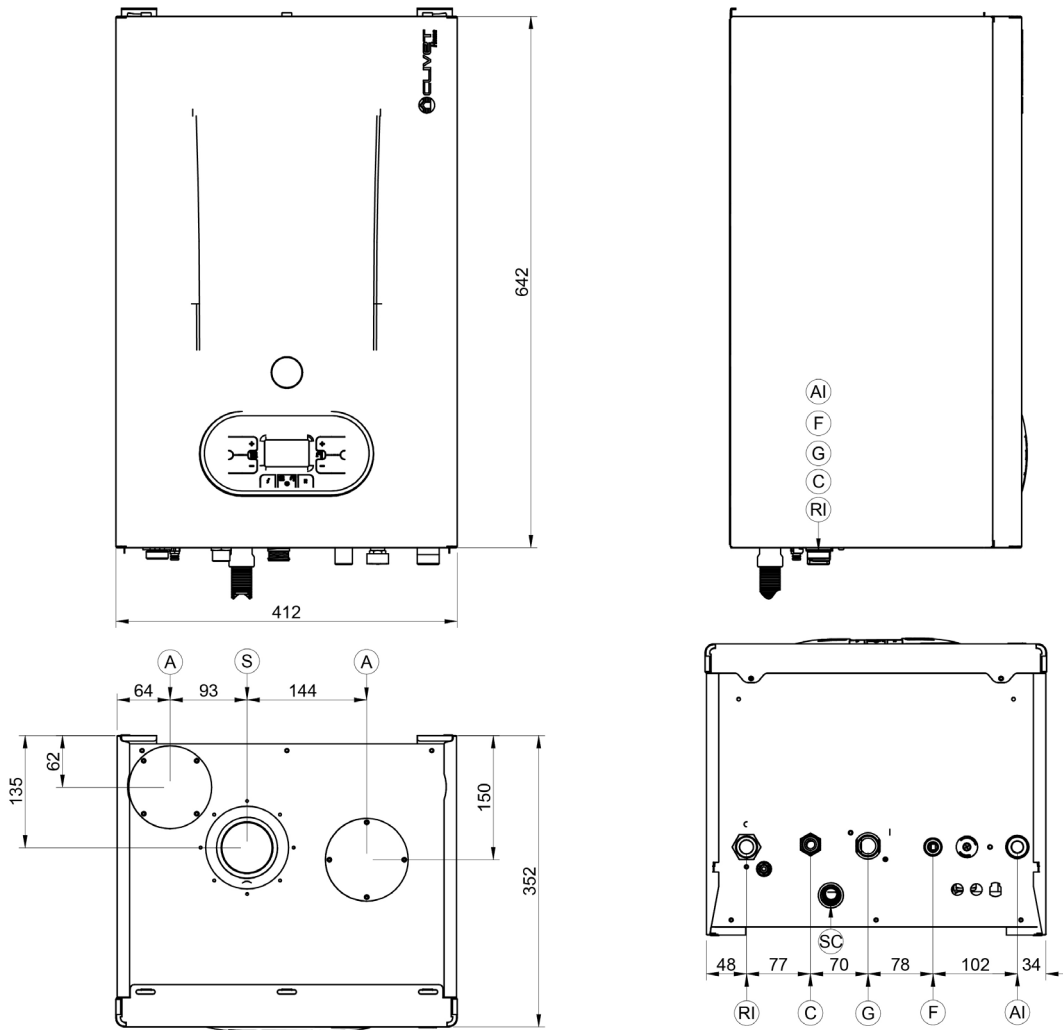
- AI = Andata impianto Ø3/4"
- RI = Ritorno impianto Ø3/4"
- G = Gas Ø3/4"
- F = Entrata acqua sanitaria Ø1/2"
- C = Uscita acqua sanitaria calda Ø1/2"
- SC = Scarico condensa Ø25
- A = Aspirazione aria Ø80
- S = Scarico fumi Ø80

### FUMISTERIA

#### DISTANZA TRA LINEA SUPERIORE MANTELLO E ASSE GOMITO

Concentrico orizzontale Ø60/100	100
Concentrico orizzontale Ø80/125	117
Sdoppiato orizzontale Ø80/80	129
Sdoppiato orizzontale Ø60/60	192

## Methane gas boiler dimensions - COMBI-TECH R2K 24 - 24kW



- AI = System flow Ø3/4"
- RI = System return Ø3/4"
- G = Gas Ø3/4"
- F = Domestic hot water inlet Ø1/2"
- C = Domestic hot water outlet Ø1/2"
- SC = Condensate drain Ø25
- A = Air intake Ø80
- S = Smoke discharge Ø80

### FLUE

#### DISTANCE BETWEEN UPPER CASING LINE AND ELBOW AXIS

Horizontal concentric Ø60/100	100
Horizontal concentric Ø80/125	117
Horizontal split Ø80/80	129
Horizontal split Ø60/60	192



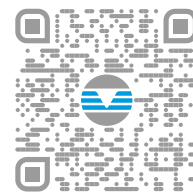
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