



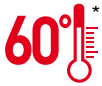
EREBA™ 17-21

Inverter Air-Cooled Liquid chillers
& Reversible Air-to-Water Heat Pumps



Easy and fast installation
Hydraulic module available
Inverter technology
compressor and fans

Nominal cooling capacity : 15-18 kW
Nominal heating capacity: 17-21 kW



Cooling or
heating



HFC
R-410A



HEAT PUMPS
www.marque-nf.com

* 60°C for 17HT / 57°C for 21HT

USE

The **EREBA™** air-to-water heat pump is designed for heating and cooling applications in new, existing individual homes and small businesses models.

When installed alone, **EREBA™** is compatible with low to medium temperature emitters (underfloor heating, fan coil units, water cassettes, radiators, mixed installations, etc.).

EREBA™ is also compatible with medium to high temperature emitters for boiler backup operation.

The **EREBA™** heat pump is installed outside in an open area, ideally as close as possible to the boiler room.

Each unit is tested in the factory and delivered ready for operation.

RANGE

EREBA™'s range is composed by 2 models in cooling only and 2 models reversible.

Operating range **EREBA™** 17-21HT in cooling mode with an outdoor temperature from 0°C to 46°C and in heating from -20°C to +30°C.

If the heat pump is the only source of heat:

Below this temperature, heating must be provided by a separate

heating source or an additional electrical supply

If the heat pump is used for backup operation:

Operates down to the equilibrium point (temperature below which the heat pump can no longer keep up with heating needs). Below this point, the heat pump and boiler run alternately (heat pump OR boiler).

COMPLIANCE

Low Voltage Directive 2014/35/EU

EMC : ElectroMagnetic Compatibility 2014/30/EU

PED : Pressure Equipment Directive 2014/6/EU

WEEE : Waste Electrical & Electronic Equipment 2012/19/EU

RoHS : Restriction of Hazardous Substances Directive 2011/65/EU

The **EREBA™** liquid chiller/heat pump range was designed for commercial applications such as the air conditioning of offices, hotels and large residential houses.

The units integrate the latest technological innovations: Non-ozone depleting refrigerant R410A, DC inverter twin-rotary compressors, low-noise variable speed fans and microprocessor control.

With exceptional energy efficiency values the inverter chillers qualify for local tax reductions and incentive plans in all EU countries.

For added flexibility the **EREBA™** units are available with hydraulic module integrated into the unit chassis, limiting the installation to straightforward operations like connection of the power supply and the water supply and return piping.

Features

The **EREBA™** heat pump systems can be used with a wide choice of CIAT terminal fan coil units, and ductable products.

Ecodesign is the European Directive that sets mandatory requirements for Energy related Products (ErP) to improve their energy efficiency.

Quiet operation

■ Compressors

- Low-noise INVERTER Twin rotary compressor with low vibration levels
- Advanced technology providing maximum energy-efficiency with high capacity available at peak conditions and optimised efficiency at low and mid compressor speeds. The **EREBA™** heat pump DC inverter uses Intelligent Power Drive Unit (IPDU) hybrid inverter technology. An electronic management logic is used to optimised compressor operation in all conditions, minimised temperature fluctuation to give a perfect individual comfort control with significant reduction of energy consumption:

PWM: pulse width modulation of the direct current controls the compressor at partial load conditions, adjusting the frequency at fixed voltage. The compressor speed is fine-tuned and the system provides high-level comfort (no temperature fluctuations) at exceptionally efficient working conditions.

Compressor frequency is increased continuously up to the maximum level. This ensures that there are no current draw peaks in the start-up phase. Inverter ramp-up speed makes soft starts unnecessary and ensures immediate maximum power.

- The two rotary compression cylinders, offset from each other by 180°, and the DC brushless motor with the shaft in perfect balance ensure reduced vibration and noise, even at very low operating speeds. This results in an extremely wide range between minimum and maximum capacity with continuous operation, guaranteeing that the system is always optimised and provides maximum comfort at exceptionally high efficiency levels.
- Twin-rotary cylinders, low vibrations and low load to the shaft ensure highest compressor reliability and a long trouble-free operating life.
- All DC brushless twin-rotary compressors are equipped with internal system to secure the motor against oil issues due to colder climate.

■ Air heat exchanger section

- Vertical air heat exchanger coils
- The latest-generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise
- Rigid fan installation for reduced start-up noise.

Easy and fast installation

■ Integrated hydraulic module

- Variable speed circulator
- Water filter protecting the water pump against circulating debris
- High-capacity membrane expansion tank ensures pressurisation of the water circuit
- Overpressure valve, set to 3 bar
- Thermal insulation and frost protection down to -20°C, using an electric resistance heater and pump cycling.



No additional buffer tank required, simplifying and speeding up the installation process (to be checked with the water volume of installation).

■ Physical features

- Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that is easy to transport even through narrow doors. Reduced operating weight and a handle on the unit panels to facilitate transport.
- The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- A neutral colour (RAL 7035) to facilitate the integration in residential areas

■ Simplified electrical connections

- Main disconnect switch with high trip capacity
- Transformer for safe 24 V control circuit supply included

■ Fast commissioning

- Systematic factory operation test before shipment
- Quick-test function for step-by-step verification of the instruments, electrical components and motors.

Economical operation

■ Increased seasonal efficiency

- In accordance with EN 14825:2022, Average Climate, energy label reach A+ (see Physical data EREBA™ Reversible units).

■ Reduced maintenance costs

- Maintenance-free twin rotary compressors
- Fast diagnosis of possible incidents and their history via the user interface WUI
- R410A refrigerant is easier to use than other refrigerant blends

Environmental care

■ Ozone-friendly R410A refrigerant

- Chlorine-free refrigerant of the HFC group with zero ozone depletion potential
- Very efficient - gives an increased energy efficiency ratio (EER)

■ Leak-tight refrigerant circuit

- Brazed refrigerant connections for increased leak-tightness
- Verification of pressure transducers and temperature sensors without transferring refrigerant charge

Superior reliability

■ Auto-adaptive control

- Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydraulic circuit.

■ Exceptional endurance tests

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

NHC Control

NHC control associate with compressor and fan variable frequency driver combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressor, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

■ Ease-of-use

- NHC control can be associated with a new User interface (WUI) which allow an easy access to the configuration parameters (frequency compressor, refrigerant circuit temperature, sets points, air temp, entering water temp, alarm report...).
- This user interface is also very intuitive in its use. It allows reading and easy selection of the operating mode. The functions are represented by icons on the LCD backlit screen.

To facilitate the use of this interface, 3 levels of access are available: end user, installer and factory.

■ Key features

- Heating and cooling mode
- Predefined climatic curves (12) or customised climatic curves (water temperature setpoint control)
- Air temperature set point control
- Scheduling mode
- Low noise level or night mode
- Anti-freeze protection
- Floor heating thermal cutoff
- Slab curing mode
- Backup electric heater controlled in 1 /2 /3 heat stage(s)
- Backup by oil or gas boiler in alternating mode
- Hydraulic module with control of the flow rate
- Managed an additional pump
- Management of swimming pool heating during spring and autumn
- Manage domestic hot water with or without
 - Anti-legionella mode
 - DHW backup
 - DHW backup + Boosted by 1 or 2 or 3 electric heat stage(s)
- Master/slave control of 4 units operating in parallel with operating time equalization and automatic changeover in case of a unit fault (sensor in accessory).
- ModBUS Protocol

■ Choice of control product

3 options are available to drive the EREBA™ 17 - 21:

- Dry contact
- User interface WUI
- ModBus protocol

User Interface WUI



This interface can be installed up to 50 m away. It is connected to the NHC board with a 4 wires cable.

2 installation possibilities:

- WUI has an internal sensor to measure the room temperature take with the internal sensor, setpoint selected is air temperature.

■ Modbus

Direct access with Modbus connection to set, configure and monitor the EREBA™.

■ Input remote contact :

- Remote On/Off Contact
- Remote Heat/Cool Contact: This switch is used to select the Cooling Mode (contact opened) or the Heating Mode (contact closed).
- Remote Economic Contact: This switch is used to select the regular Home Mode when contact is opened or the Economic Away Mode when contact is closed.
- Safety Input Contact: This switch is normally closed type, according to configuration it is used either to stop the unit, to ban the Heating Mode or to ban the Cooling Mode when contact is opened.

■ Large choice of Input Contacts

Several functions can be configured by the installer. They allow to adapt to the environment of the machine:

- Power Limitation / Night Mode: This switch is used to reduce the compressor maximum frequency to avoid noise.
- Off Peak: If the General Purpose Contact, configured to “Off Peak”, is closed then the Electric Heat Stages are not allowed.
- Loadshed Request: If the General Purpose Contact, configured to “Loadshed Request”, is closed then unit shall be stopped as soon as possible.
- Solar Input: If the General Purpose Contact, configured to “Solar Input”, is closed then the unit is not allowed to run in Heating or DHW Mode because hot water is produced from a solar source.
- DHW Request Switch from tank : When this input is closed, the Domestic Hot Water production is requested (need DHW sensor delivered in accessory).
- DHW Priority : When this input is closed, the unit is switching to Domestic Hot Water production regardless of the Space Heating demand and the current DHW schedule (need DHW sensor delivered in accessory).
- Anti-Legionella Cycle Request : When this input is closed, the Domestic Hot Water production is requested with the Anti-Legionella setpoint.
- Summer Switch : This switch is used to select the Winter (contact opened) or the Summer Mode (contact closed).
- Energy Meter Input : This input is used to count the number of pulses received from an external energy meter (not supplied)
- External Alarm Indication Input : When this input is opened, alarm is tripped. This alarm is for information only, it does not affect the unit operation.

■ Output remote contact available

2 Output contacts could be chosen on the NHC board, upon configuration for the following purposes:

alert, alarm , standby, running (Cool, Heat, DHW or Defrost Modes), indoor air temperature reached, electrical heat stage 2, electrical heat stage 3.

PHYSICAL DATA, EREBA™ COOLING 17T - 21T

| EREBA™ Cooling only | | | 17T | 21T | |
|---|---|------------------|--------------------------------------|-------------|-------------|
| Cooling | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 16,0 | 19,2 |
| | | EER | kW/kW | 3,46 | 3,30 |
| | | Eurovent class | | A | A |
| | CA2 | Nominal capacity | kW | 22,2 | 25,9 |
| | | EER | kW/kW | 4,29 | 4,10 |
| | | Eurovent class | | A | A |
| Standard unit Seasonal energy efficiency** | SEER_{12/7 °C} Comfort low temp. | | kWh/kWh | 5,56 | 5,48 |
| | η_{s cool} 12/7 °C | | % | 219 | 216 |
| Sound power level ⁽¹⁾ | | | dB(A) | 71 | 74 |
| Sound pressure level at 10 m ⁽²⁾ | | | dB(A) | 40 | 43 |
| Length | | | mm | 1140 | |
| Width | | | mm | 585 | |
| Height | | | mm | 1580 | |
| Operating Weight ⁽³⁾ | | | kg | 169 | 177 |
| Compressors | | | Rotary compressor | | |
| R410A refrigerant charge ⁽³⁾ | | | kg | 6,25 | |
| Minimum capacity control ⁽⁴⁾ | | | % | 33% | 41% |
| Condenser | | | Grooved copper tubes, aluminium fins | | |
| Quantity axial fan | | | 2 | | |
| Maximum total air flow | | | l/s | 2000 | 2400 |
| Maximum rotational speed | | | rps | 14 | 16 |
| Evaporator | | | Braze plate heat exchanger | | |
| Water volume | | | L | 1,52 | 1,9 |
| Expansion tank volume | | | l | 8 | |
| Max. water-side operating pressure with hydraulic module ⁽⁵⁾ | | | kPa | 300 | 300 |
| Outlet diameter / with adaptor | | | 1"G male / 1"1/4 G male | | |
| Chassis paint colour | | | RAL 7035 | | |

* In accordance with standard EN 14511-3:2022

** In accordance with standard EN 14825:2022, average climate

CA1 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 12 °C/7 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.

CA2 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 23 °C/18 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.

η_{s cool} 12/7 °C & SEER_{12/7 °C}
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

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

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

(4) Cooling Eurovent condition

(5) Min. water-side operating pressure with variable speed hydraulic module is 40 kPa.



PHYSICAL DATA, EREBA™ 17HT - 21HT

| Reversible EREBA™ | | | 17HT | 21HT | |
|---|-----|---|--------------|--------------------------------------|-------------|
| Heating | | | | | |
| Standard unit Full load performances* | HA1 | Nominal capacity | kW | 16,9 | 20,7 |
| | | COP | kW/kW | 4,23 | 4,15 |
| | HA2 | Nominal capacity | kW | 15,8 | 19,5 |
| | | COP | kW/kW | 3,44 | 3,32 |
| | HA3 | Nominal capacity | kW | 15,0 | 18,8 |
| | | COP | kW/kW | 2,68 | 2,50 |
| Standard unit Seasonal energy efficiency** | HA3 | SCOP _{47/55 °C} | kW/kW | 3,03 | 2,85 |
| | | η_s heat _{47/55 °C} | % | 118 | 111 |
| | | P _{rated} | kW | 9 | 15 |
| Cooling | | | | | |
| Standard unit Full load performances* | CA1 | Nominal capacity | kW | 15,2 | 19,1 |
| | | EER | kW/kW | 3,14 | 3,18 |
| | | Eurovent class | kW | B | A |
| | CA2 | Nominal capacity | kW/kW | 21,4 | 26,4 |
| | | EER | kW | 3,99 | 3,98 |
| | | Eurovent class | kW/kW | A | A |
| Standard unit Seasonal energy efficiency** | | SEER _{12/7 °C} Comfort low temp. | kW/kW | 4,60 | 4,50 |
| | | η _s cool _{12/7 °C} | kW | 181 | 177 |
| Sound power level ⁽¹⁾ | | | dB(A) | 71 | 74 |
| Sound pressure level at 10 m ⁽²⁾ | | | dB(A) | 40 | 43 |
| Length | | | mm | 1140 | |
| Width | | | mm | 585 | |
| Height | | | mm | 1580 | |
| Operating Weight ⁽³⁾ | | | kg | 191 | 199 |
| Compressors | | | | Rotary compressor | |
| R410A refrigerant charge ⁽³⁾ | | | kg | 8 | |
| Minimum capacity control ⁽⁴⁾ | | | % | 33% | 41% |
| Air heat exchanger | | | | Grooved copper tubes, aluminium fins | |
| Quantity axial fan | | | | 2 | |
| Maximum total air flow | | | l/s | 2000 | 2400 |
| Maximum rotational speed | | | rps | 14 | 16 |
| Water heat exchanger | | | | Brazed plate heat exchanger | |
| Water volume | | | L | 1,52 | 1,9 |
| Expansion tank volume | | | | 8 | |
| Max. water-side operating pressure with hydraulic module ⁽⁵⁾ | | | | 300 | |
| Outlet diameter / with adaptor | | | | 1"G male / 1"1/4 G male | |
| Chassis paint colour | | | | RAL 7035 | |

* In accordance with standard EN 14511-3:2022

** In accordance with standard EN 14825:2022, average climate

HA1 Heating mode conditions: Temperature of the entering/leaving water to/from the exchanger 30 °C/35 °C, outdoor air temperature tdb/ twb at 7 °C/6 °C wb, evaporator fouling factor 0 m² k/W

HA2 Heating mode conditions: Temperature of the entering/leaving water to/from the exchanger 40 °C/45 °C, outdoor air temperature tdb/ twb at 7 °C/6 °C wb, evaporator fouling factor 0 m² k/W

HA3 Heating mode conditions: Temperature of the entering/leaving water to/from the exchanger 47 °C/55 °C, outdoor air temperature tdb/ twb at 7 °C/6 °C wb, evaporator fouling factor 0 m² k/W

CA1 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 12 °C/7 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.

CA2 Cooling mode conditions: Temperature of the entering/leaving water to/from the evaporator 23 °C/18 °C, outdoor air temperature at 35 °C. Evaporator fouling factor 0 m² k/W.

η_s heat_{47/55 °C} & SCOP_{47/55 °C}
η_s cool_{12/7 °C} & SEER_{12/7 °C}

Values in bold comply with Ecodesign Regulation (EU) No. 813/2013 for heating application
 Values calculated in accordance with EN 14825:2022

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

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

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

(4) Cooling Eurovent condition

(5) Min. water-side operating pressure with variable speed hydraulic module is 40 kPa.



EREBA™ 17-21

Inverter Air-Cooled Liquid
chillers & Reversible Air-to-Water
Heat Pumps

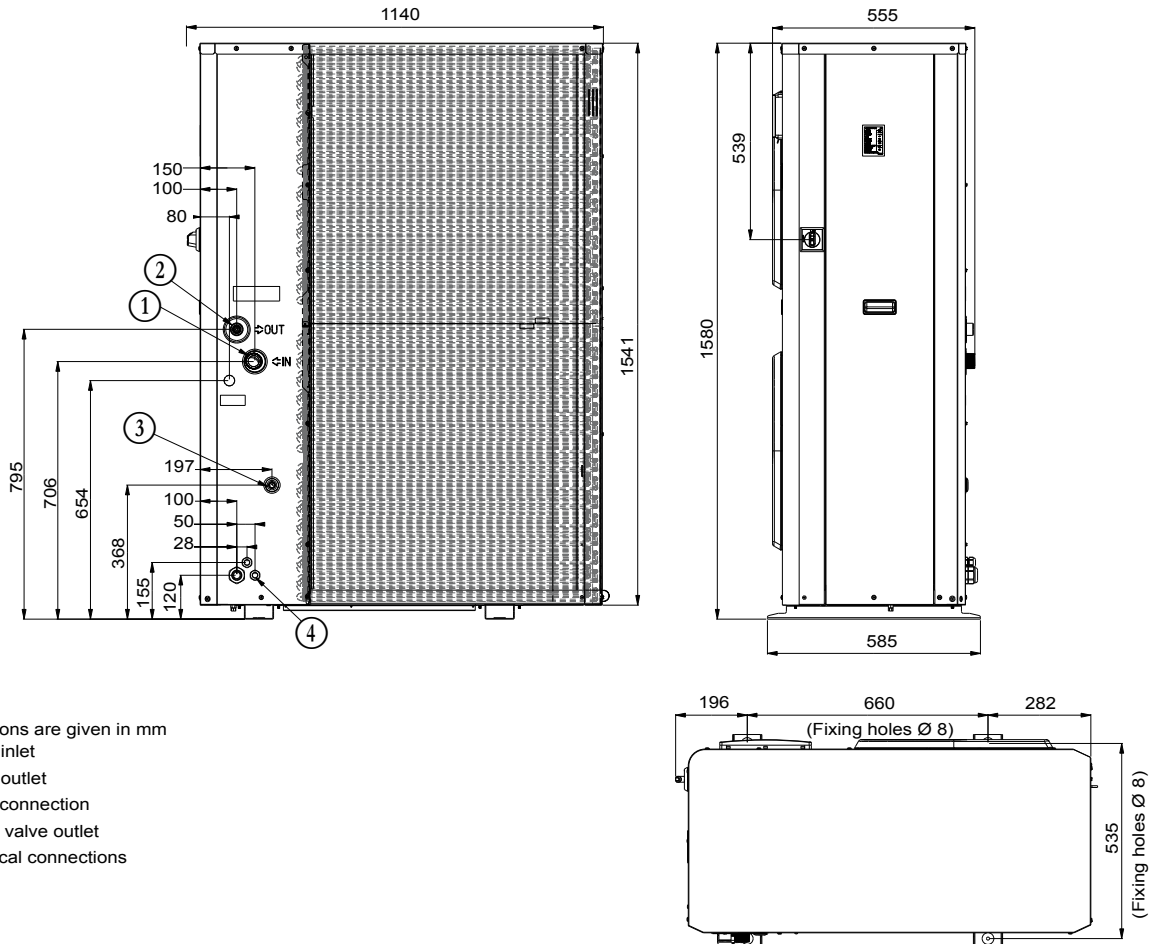
ELECTRICAL DATA, EREBA™ 17T-21T/17HT-21HT

| EREBA™ | | 17 | 21 |
|--|---------|---------------------------------|------------|
| Nominal power supply | V-ph-Hz | 400-3+N-50 | 400-3+N-50 |
| Voltage range | V | 360-440 | 360-440 |
| Control circuit supply | | 24V AC via internal transformer | |
| Nominal unit current drawn (Un) ⁽¹⁾ | A | 12,5 | 14,3 |
| Maximum unit power input (Un) ⁽²⁾ | kW | 10,8 | 12,4 |
| Cos Phi unit at maximum power ⁽²⁾ | | 0,93 | 0,93 |
| Maximum unit current drawn (Un-10%) ⁽³⁾ | A | 18,5 | 21,2 |
| Maximum unit current drawn (Un) ⁽⁴⁾ | A | 16,7 | 19,2 |

- (1) Conditions equivalent to the standardised Eurovent conditions (evaporator water entering/leaving temperature = 12 °C/7 °C, outside air temperature = 35 °C).
(2) Power input, compressors and fans, at the unit operating limits (saturated suction temperature 15 °C, saturated condensing temperature 68.3 °C) and nominal voltage of 400 V (data given on the unit nameplate).
(3) Maximum unit operating current at maximum unit power input and at 360 V.
(4) Maximum unit operating current at maximum unit power input and at 400 V (values given on the unit nameplate).
Fan motor electrical data: at Eurovent equivalent conditions and motor ambient air temperature of 50 °C at 400 V: 3.8 A, start-up current 20 A, power input 1.75 kW

DIMENSIONS (IN MM)

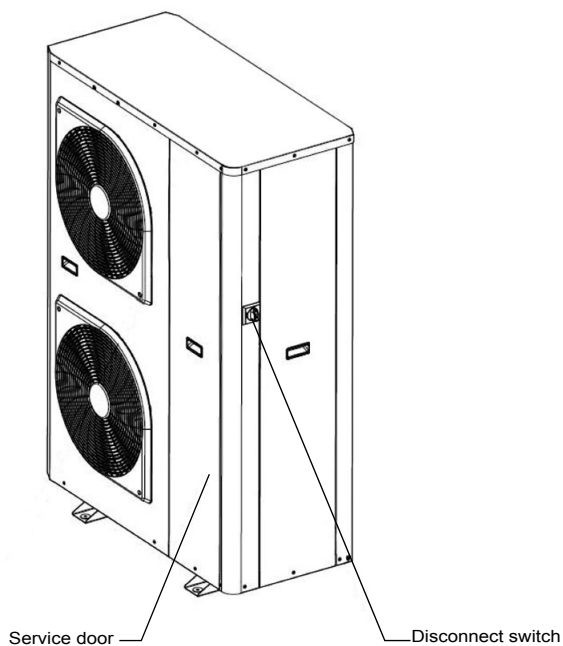
■ EREBA™ 17T-21T / 17HT-21HT



Legend

All dimensions are given in mm

- ① Water inlet
- ② Water outlet
- ③ Fill kit connection
- ④ Safety valve outlet
- ⑤ Electrical connections



| Weight (in kg) | |
|----------------|---------------------------------|
| EREBA™ | Operating weight ⁽¹⁾ |
| 17T | 169 |
| 21T | 177 |
| 17HT | 191 |
| 21HT | 199 |

(1) Values are guidelines only. Refer to the unit nameplate