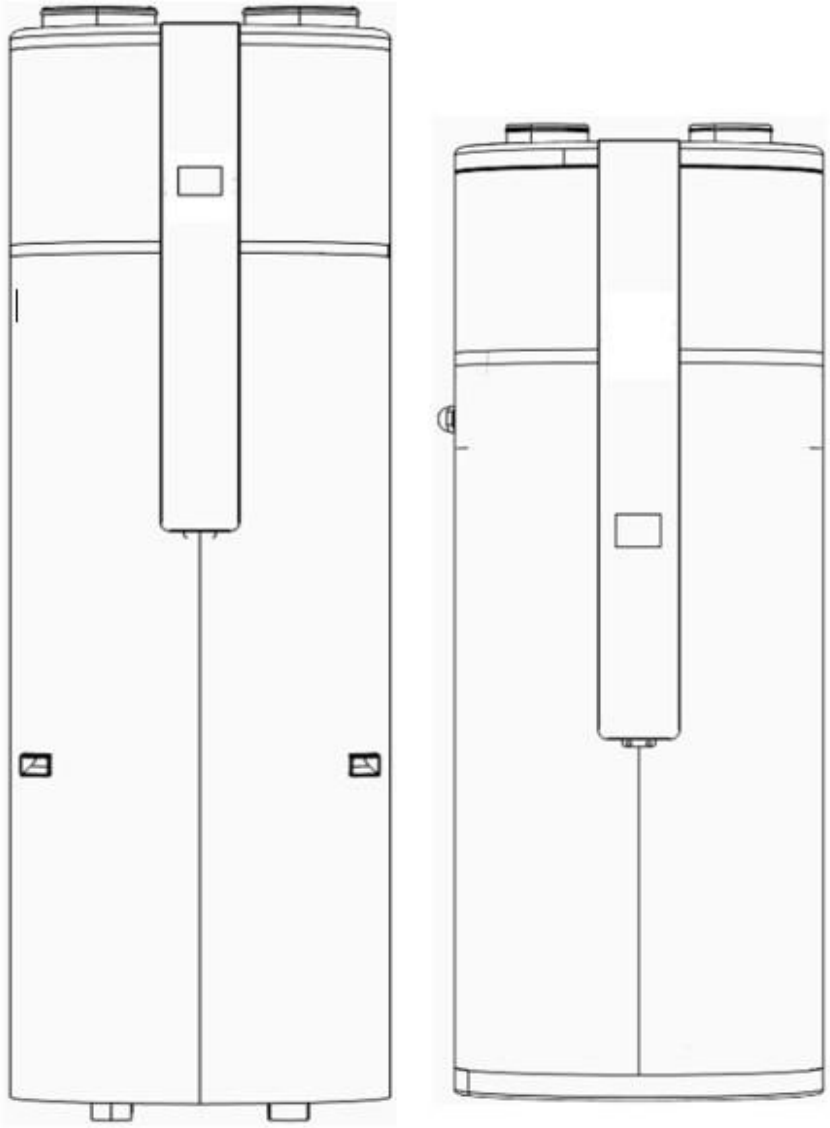
DOMUSA TEKNIK

HYDREA

Heat pump for domestic water



EN | OPERATION AND INSTALLATION MANUAL

Thank you for choosing a **DOMUSA TEKNIK** product. Within the **DOMUSA TEKNIK** product range, you have selected a **HYDREA** model, a heat pump system specifically designed for domestic hot water production.

The **HYDREA** Monobloc Aerothermal system can provide the appropriate level of comfort for your home with maximum energy savings.

This document is an essential part of the product and must be handed over to the end-user. It is advisable to carefully read the warnings and advice contained in this manual, as they provide important information regarding installation safety, use, and maintenance.

The installation of these water heaters must only be carried out by qualified personnel, in accordance with current regulations and following the manufacturer's instructions.

Both the commissioning and any maintenance operation on these water heaters must only be performed by **DOMUSA TEKNIK** authorized Technical Assistance Services.

Incorrect installation of these water heaters can cause damage to people, animals, and property, for which the manufacturer is not responsible.

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INTRODUCTION

The **HYDREA** domestic hot water heat pump is one of the most economical systems for heating domestic water for household use. By utilizing free renewable energy from the air, the unit is highly efficient and has low running costs. Its efficiency can be up to 3 or 4 times greater than that of conventional gas boilers or electric water heaters.

This manual includes necessary information about the unit. Please read this manual carefully before using and performing any maintenance on the equipment.

The main features of the equipment are as follows:

- Waste Heat Recovery

The unit can be installed near the kitchen, in the boiler room, or in the garage (basically in any room that has a large amount of waste heat) so that the unit has greater energy efficiency, even with very low outdoor temperatures during winter.

- Hot Water and Dehumidification

The units can be placed in the laundry room or clothes drying room. When producing hot water, it reduces the temperature where it discharges air and dehumidifies the room. These advantages can be experienced especially in the humid season.

- Ventilation

The units can be placed in the garage, gym, basement, storage rooms, pantries, etc. When producing hot water, it cools the room.

- Multiple Functions

The special design of the air inlet and outlet makes the unit suitable for various connection methods. With different installation methods, the unit can function as a simple heat pump, but also as a fresh air renovator, a dehumidifier, or an energy recovery device.

- Other Features

The duplex 2205 stainless steel tank ensures the tank's durability. The high-efficiency compressor with R290 refrigerant and the auxiliary electric heater ensure constant hot water even in extremely cold winters.

1 SAFETY WARNINGS

To prevent injury to the user, other people, or damage to property, the following instructions must be followed. Incorrect operation due to ignorance of these instructions can cause damage or injury.

Install the equipment in compliance with local norms, regulations, and standards. Verify the mains voltage and frequency. This unit is only suitable for grounded power outlets, connection voltage 220 - 240 V ~ / 50 Hz.

The following safety precautions must always be taken into account:

- Make sure to read the following WARNING before installing the unit.
- Be sure to observe the precautions specified in this manual, as they include important safety-related items.
- After reading these instructions, be sure to keep them handy for future reference. **DOMUSA TEKNIK** assumes no responsibility for damages that occur due to failure to comply with these instructions.

1.1 Installation, Maintenance, and Use Warnings

WARNING

Do not install the equipment yourself; incorrect installation could cause injury due to fire, electric shock, falling of the unit, or water leaks. Consult the dealer from whom you purchased the unit or a specialized installer.

Install the equipment securely on a flat, strong surface that can support its weight without increasing noise or vibration, as incorrect installation could cause the unit to fall and lead to injury. Also, when installing the unit in a small room, ensure sufficient ventilation to prevent asphyxiation from a possible refrigerant leak.

For electrical connections, use the specified electrical cables and connect them firmly to the terminal board. Perform electrical connections according to the installation manual and make sure to use an appropriate wire gauge, with 16 A fuses. Incorrect connection and fastening could lead to fire.

The unit must always have an earth connection. If the power supply is not grounded, you will not be able to connect the unit.

Make sure to use the parts provided or specified for the installation work. The use of defective parts could cause injury due to possible fire, electric shock, falling of the unit, etc.

Perform the installation safely and consult the installation instructions. Incorrect installation could cause injury due to possible fire, electric shock, falling of the unit, water leaks, etc.

Never use an extension cord to connect the unit to the electrical power supply. If a suitable grounded wall outlet is not available, ask a qualified electrician to install one.

Do not install the unit in a place where there is a possibility of flammable gas leaks. If there is a gas leak and the gas accumulates in the area surrounding the unit, it could cause an explosion.

Perform drainage/piping work according to the installation instructions. If there is a defect in the drainage/piping work, water could leak from the unit and household items could get wet and be damaged.

Do not clean the unit when the power is on. Always turn off the unit when cleaning or performing maintenance on the unit. Otherwise, it could cause injury due to the high-speed operation of the fan or electric shock.

Do not continue to operate the unit when there is any abnormality. The power supply must be turned off to stop the unit; otherwise, this could cause electric shock or fire.

Do not insert fingers or other objects into the fan or evaporator. The internal parts of the heat pump can operate at high speed or high temperature, which could cause serious injury. Do not remove the grilles from the fan outlet or the top cover.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Hot water may need to be mixed with cold water for final use; water that is too hot (above 50 °C) may cause injury.

Always wear appropriate personal protective equipment (protective gloves, safety glasses, etc.) when performing installation and/or maintenance operations on the unit.

Do not touch any switch with wet fingers. Touching a switch with wet fingers can cause electric shocks. Before accessing the electrical components of the heat pump, completely disconnect the electrical supply.

Disconnect all electrical power sources before disassembling the service panel of the electrical box or before making any type of connection or accessing electrical parts.

In order to avoid electric shocks, make sure to disconnect the power for 1 minute (or more) before performing maintenance on electrical parts. Even after 1 minute, always measure the voltage at the terminals of the main circuit capacitors and other electrical parts before touching them; make sure the voltage is equal to or less than 50 V DC.

When the cover is removed, energized parts can be easily accessed. Never leave the unit unattended during installation or during maintenance work when the heat pump cover is removed.

Do not touch the refrigerant pipes, water pipes, or internal parts during and immediately after operation. Pipes and internal parts can be excessively hot or cold, depending on the unit's use.

Hands can suffer cold or heat burns if pipes or internal parts are touched improperly. To prevent injury, allow time for the pipes and internal parts to return to their normal temperature, or if they must be accessed, be sure to use appropriate safety gloves.

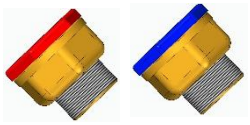
2 PRODUCT DESCRIPTION

2.1 Supplied accessories

The following accessories are supplied inside the packaging box of the HYDREA heat pump domestic water heater. Before proceeding with the machine's installation, ensure you receive them and that they are in good condition.



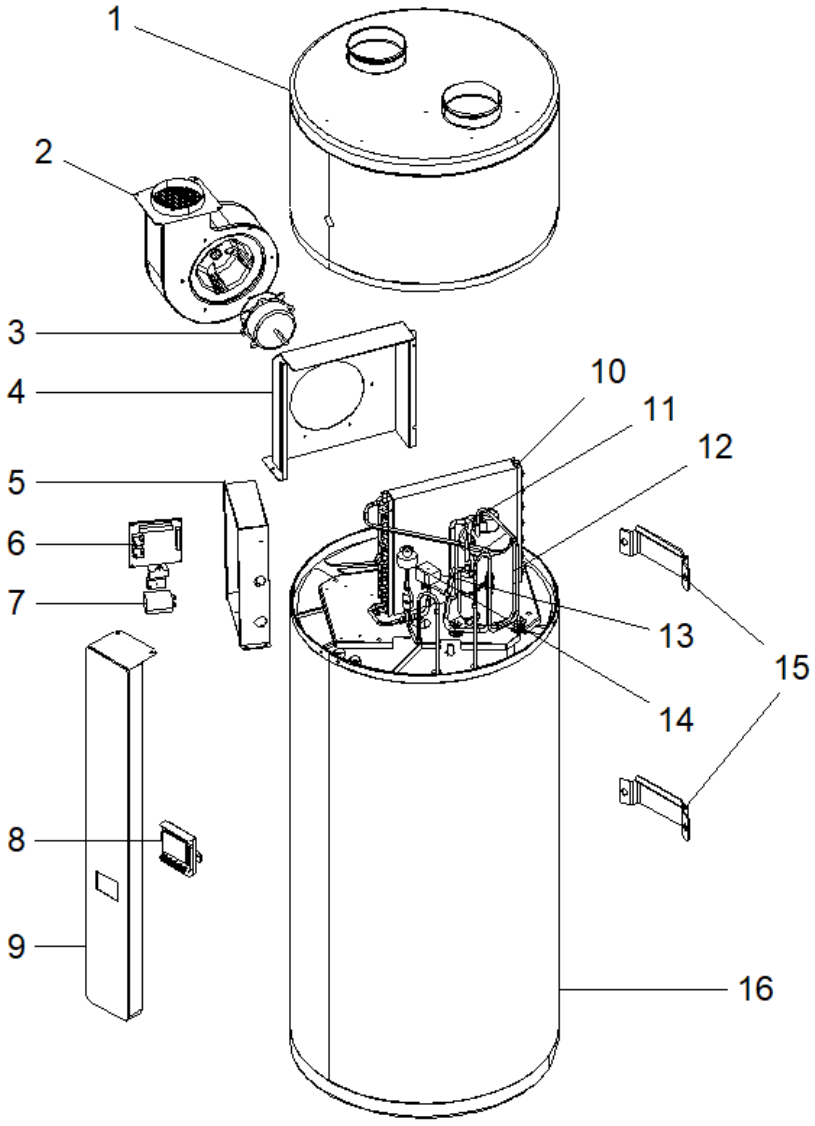
Documentation: Inside the machine, by opening the front door, you'll find the documentation bag, which includes all the manuals and necessary documents for the use and installation of the heat pump.



Dielectric unions: These are supplied inside the machine to prevent the risk of galvanic couples that could damage the accumulator tank.

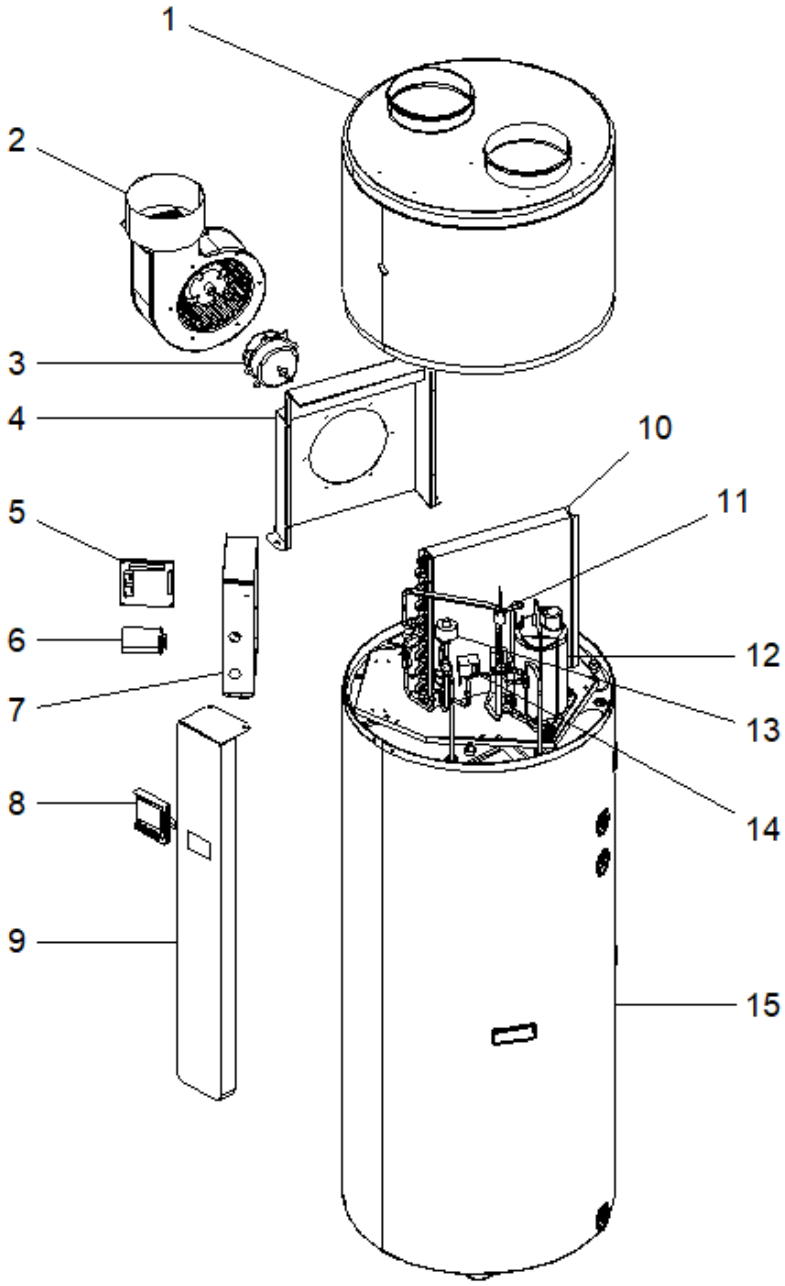
2.2 HYDREA 150 Components

1. Top cover
2. Fan
3. Fan motor
4. Fan plate
5. Electrical box
6. PcB
7. Transformer
8. Controller
9. Decorative panel
10. Evaporator
11. Low pressure switch
12. Compressor
13. 2-way valve
14. Electronic expansion valve
15. Wall bracket
16. Water tank



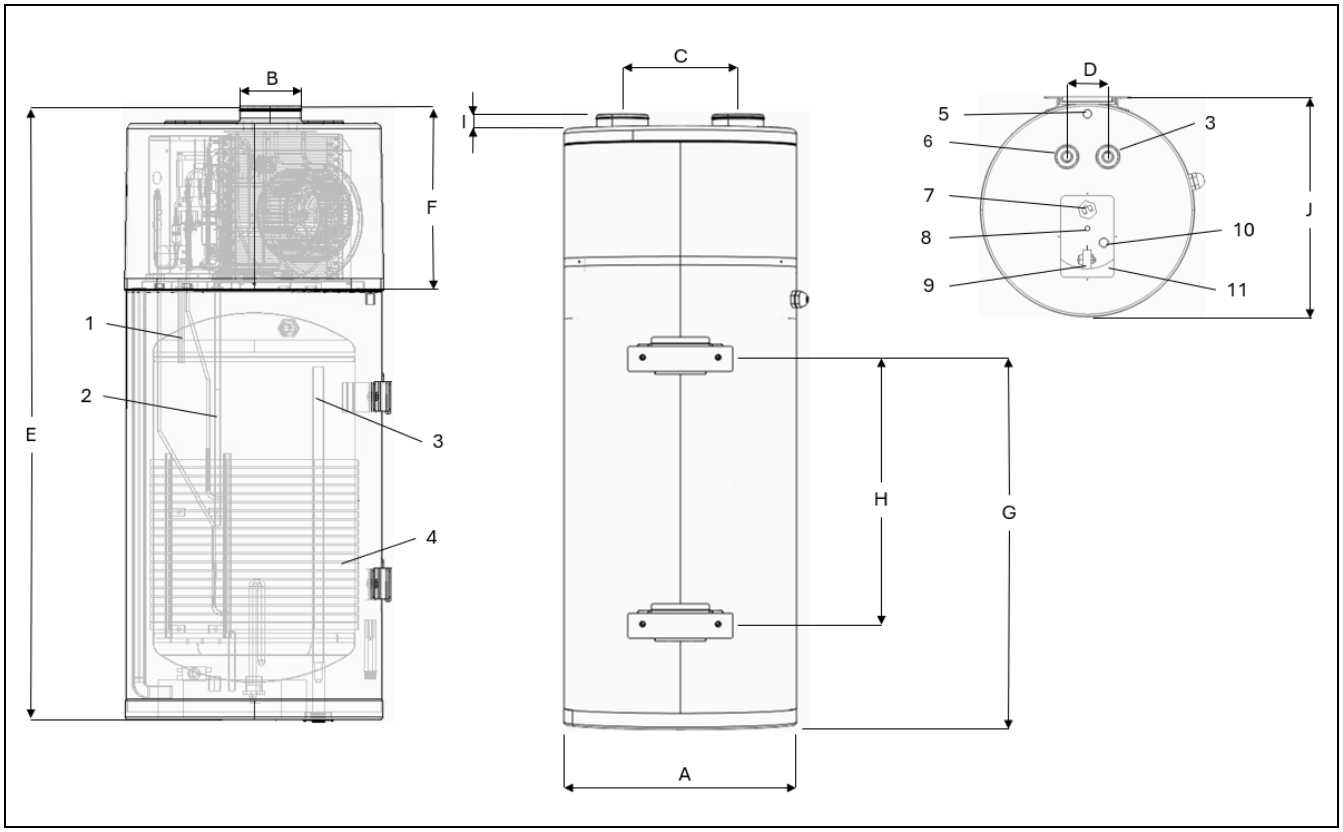
2.3 HYDREA 200 /280 Components

1. Top cover
2. Fan
3. Fan motor
4. Fan plate
5. PcB
6. Transformer
7. Electrical box
8. Controller
9. Decorative panel
10. Evaporator
11. Low pressure switch
12. Compressor
13. Electronic Expansion Valve
14. 2-way valve
15. Water tank



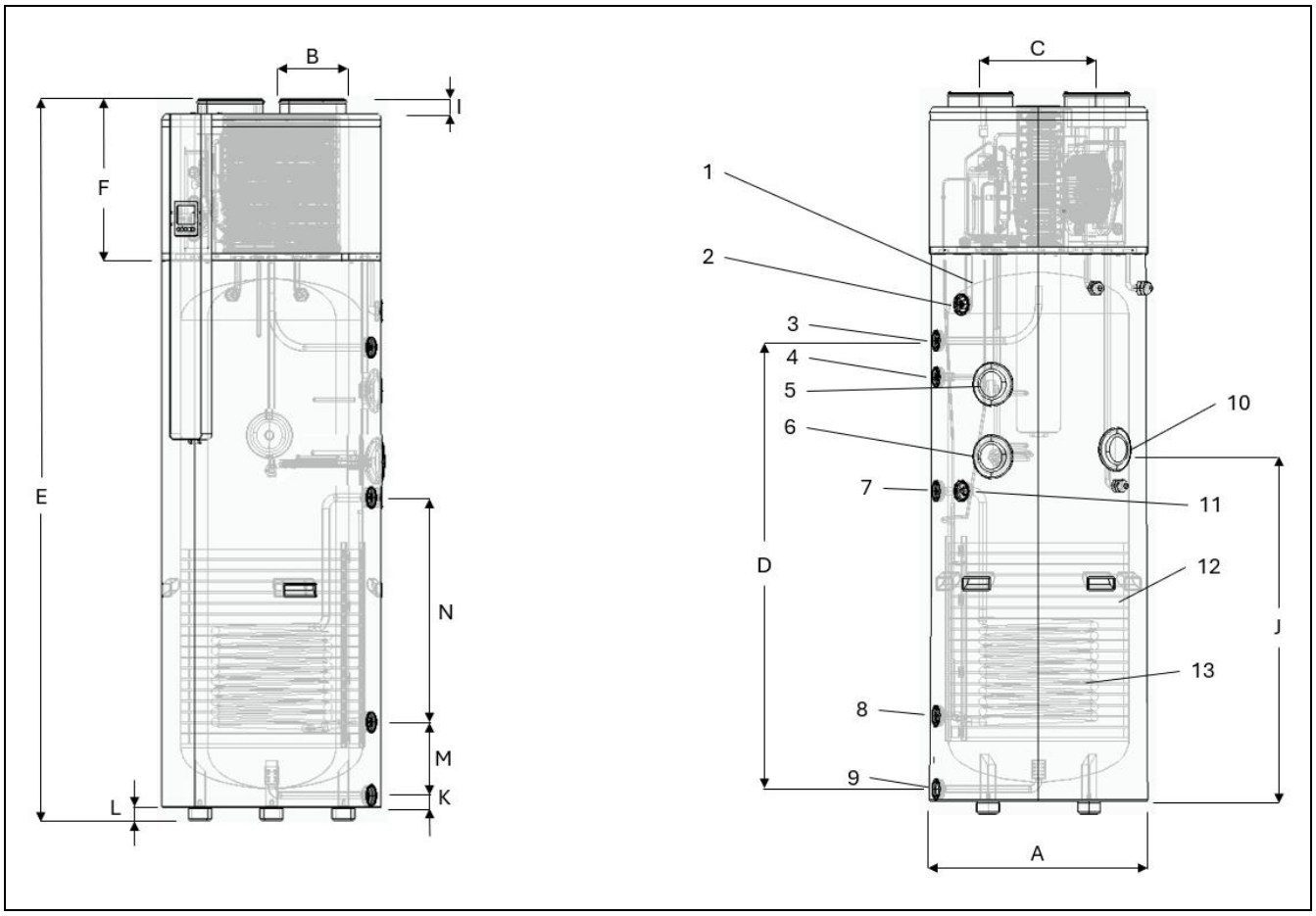
2.4 Sketch and Dimensions

HYDREA 150



1. Upper tank water temp. sensor
2. Lower tank water temp. sensor
3. Water outlet
4. Microchannel heat exchanger
5. Condenser water outlet
6. Water inlet
7. Electrical resistance
8. 80 ºC auto reset protector
9. 85ºC manual reset protector
10. Anode connection (optional)
11. Base cover

HYDREA 200/280

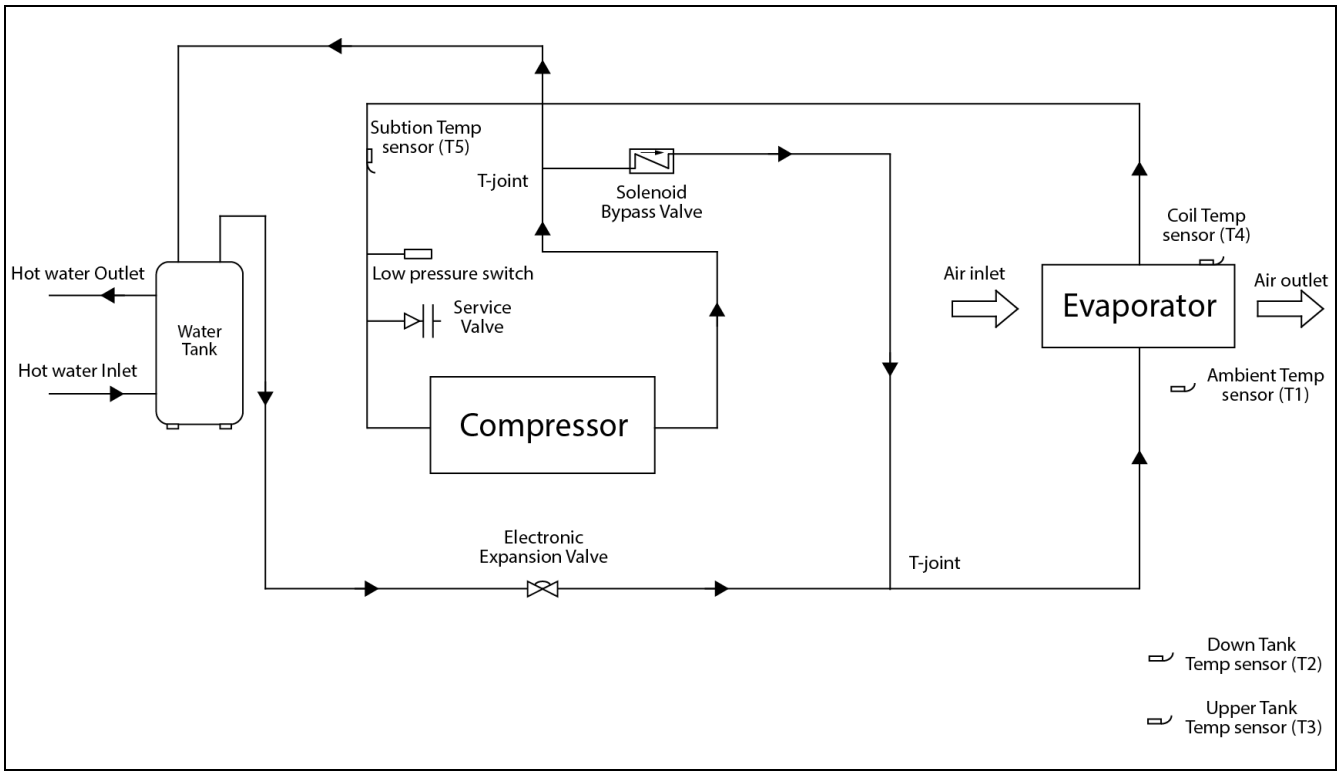


1. Upper tank water temp. sensor
2. Condenser water drain
3. Hot water outlet
4. Anode connection (optional)
5. 85 ºC manual reset protector
6. Electrical resistance
7. Solar inlet (only at 280 S)
8. Solar outlet (only at 280 S)
9. Water inlet
10. Connecting the water pump signal (only for 280 S)
11. Lower tank water temp. sensor / 80 ºC automatic reset protector
12. Microchannel heat exchanger
13. Solar coil (only at 280 S)

	HYDREA 150	HYDREA 200	HYDREA 280
A	Ø 560	Ø 560	Ø 600
B	Ø 120	Ø 160	Ø 160
C	280	280	325
D	100	1125	1370
E	1475	1745	1990
F	365	445	445
G	885	/	/
H	675	/	/
I	35	40	40
J	580	800	950
K	/	32,5	32,5
L	/	35	35
M	/	210	210
N	/	/	620

NOTE: Only the HYDREA 280 S model is equipped with an auxiliary heat exchanger for solar energy, a boiler, or some other auxiliary energy source.

2.5 Refrigeration/water circuit diagram



3 INSTALLATION INSTRUCTIONS

WARNING

Please ask your dealer/installer to install the unit. If the installation is not performed correctly, water leakage, electric shock, or fire may occur.

Indoor installation is strongly recommended. It is not permitted to install the unit outdoors or in places where it rains.

Installation in a location without direct sunlight or other heat sources is recommended. If unavoidable, install a cover.

The unit must be securely fixed to prevent noise and vibration.

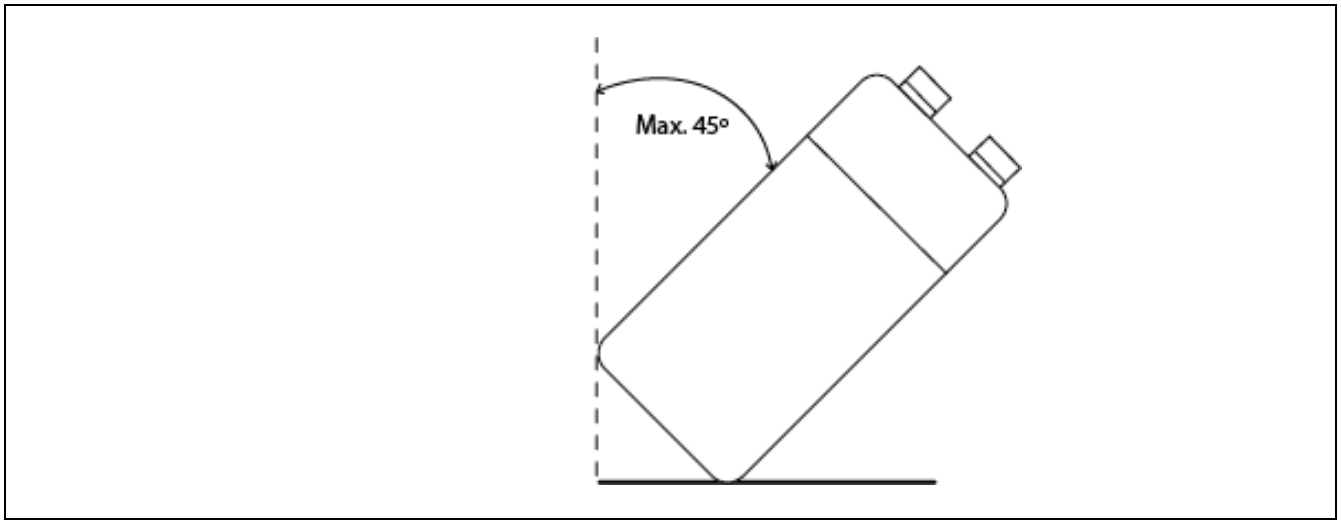
Ensure there are no obstacles around the unit.

In locations with strong wind, move the unit to a wind-protected location.

3.1 Transportation

As a rule, the equipment must be stored and/or transported in its shipping container in an upright position and without water load. For short-distance transport, or when passing through doors or corridors (provided it is done carefully), an inclination angle of up to 45 degrees is allowed, both during transport and during storage. Ambient temperatures of -20 to +70 degrees Celsius are permitted.

- **If the unit is transported with a forklift**, it must remain mounted on the pallet. The lifting speed must be minimal. Due to its heavy weight, the unit must be secured to prevent it from tipping over. To avoid damage, the unit must be placed on a level surface.
- **For manual transport**, a wooden or plastic pallet can be used. Using ropes or transport straps, a second or third handling configuration is possible. With this type of handling, it is recommended not to exceed the maximum allowed inclination angle of 45 degrees. If transport in an inclined position cannot be avoided, the unit must be put into operation one hour after being moved to its final position.



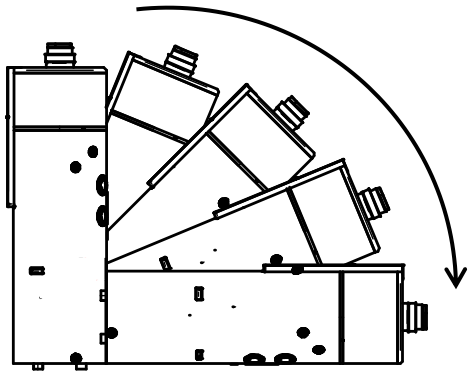
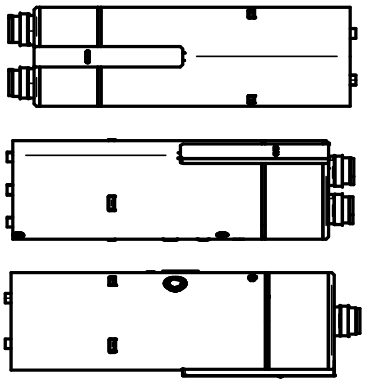
DANGER: Due to the high center of gravity during handling and transport, the unit must be secured to prevent it from tipping over.

3.2 Manipulation

The product incorporates several handles to facilitate handling to the installation site.

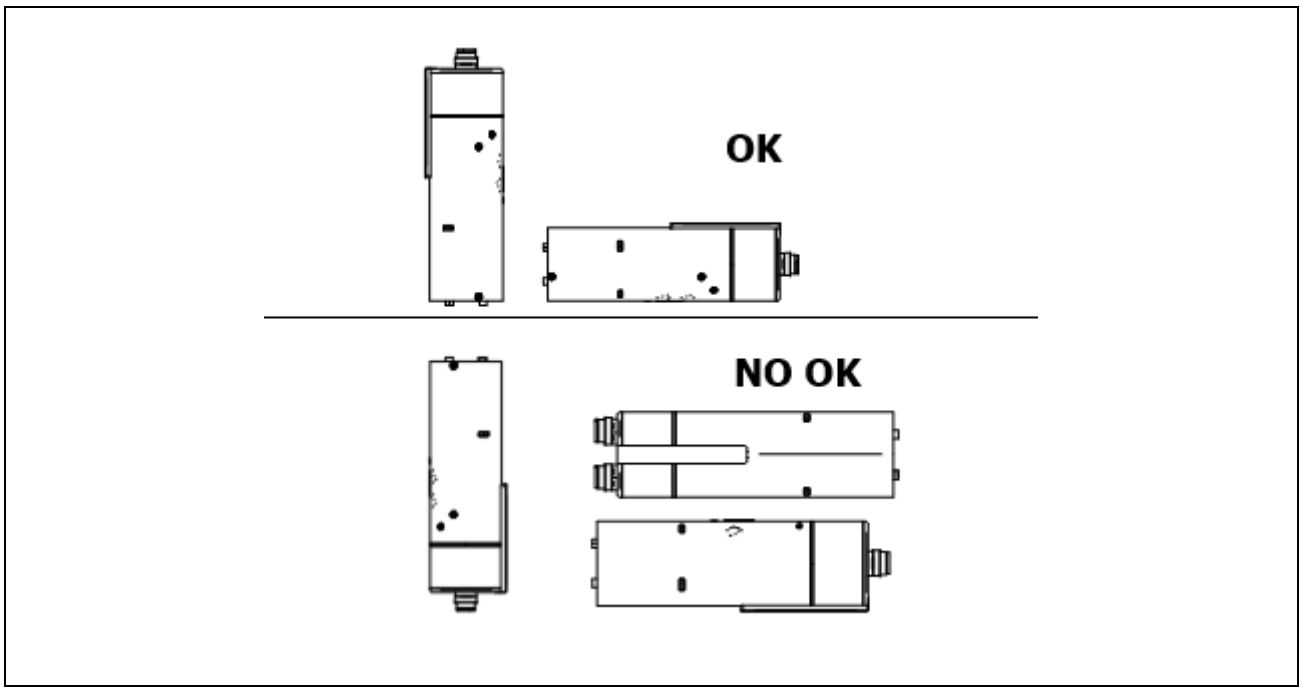
To transport the heat pump to the installation site, use the lower and upper handles.

THE DEVICE MUST BE HANDLED AND STORED IN AN UPRIGHT POSITION.

	
Accepted position	**Prohibited position**

The product may only be handled horizontally and exclusively for short distances, limiting oneself to translational movements such as passing through a doorway, resting it on the rear section indicated for this purpose and ensuring the screen is positioned at the top and facing upwards. In this case, wait at least 12 hours before starting up the appliance once it has been correctly positioned vertically and/or installed. This is to ensure that the lubricating oil inside the cooling circuit is distributed properly and to prevent damage to the compressor.

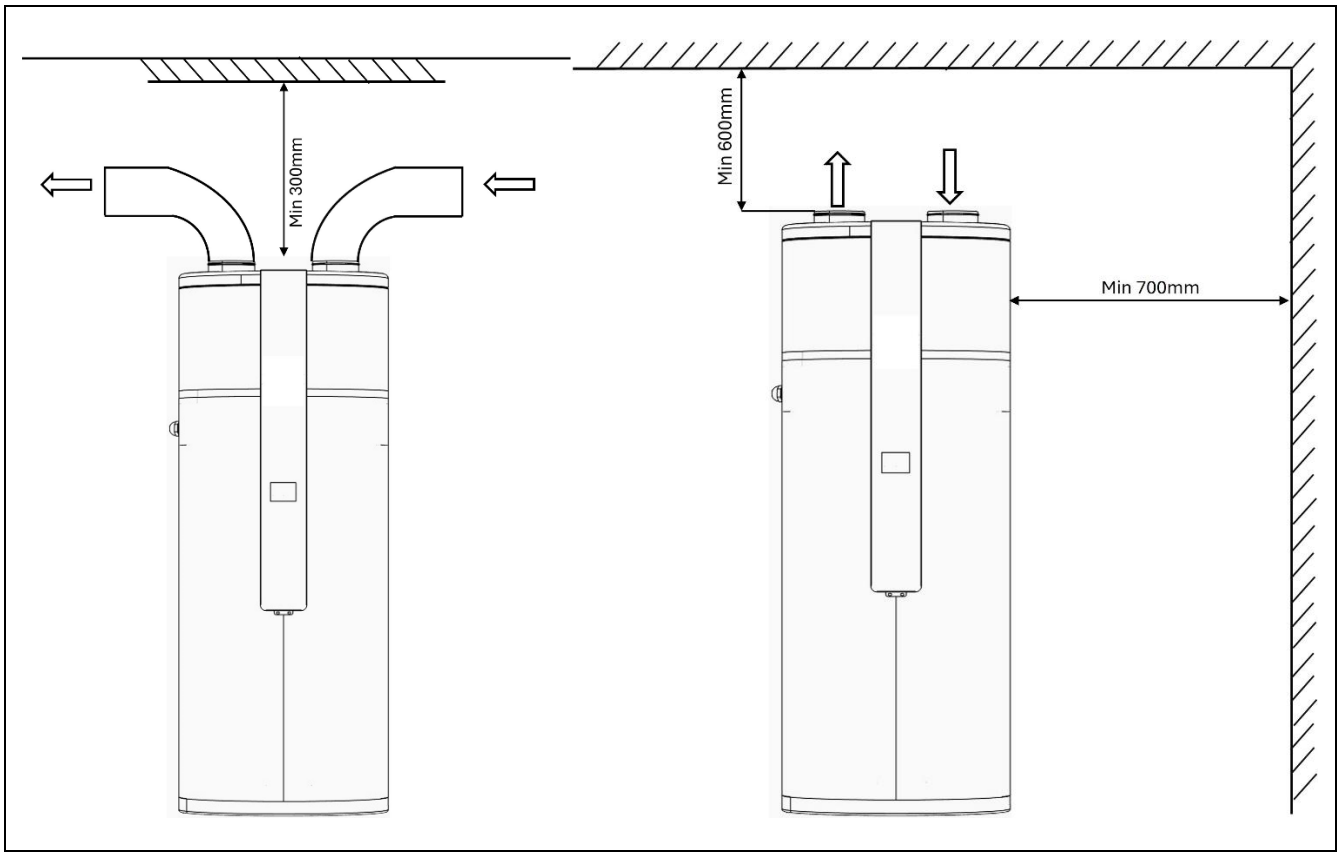
DANGER: Follow the transport and handling recommendations provided on the heat pump packaging.



3.3 Required Service Space

At least the minimum necessary space must be left to perform service and maintenance tasks on the units according to the following indications:

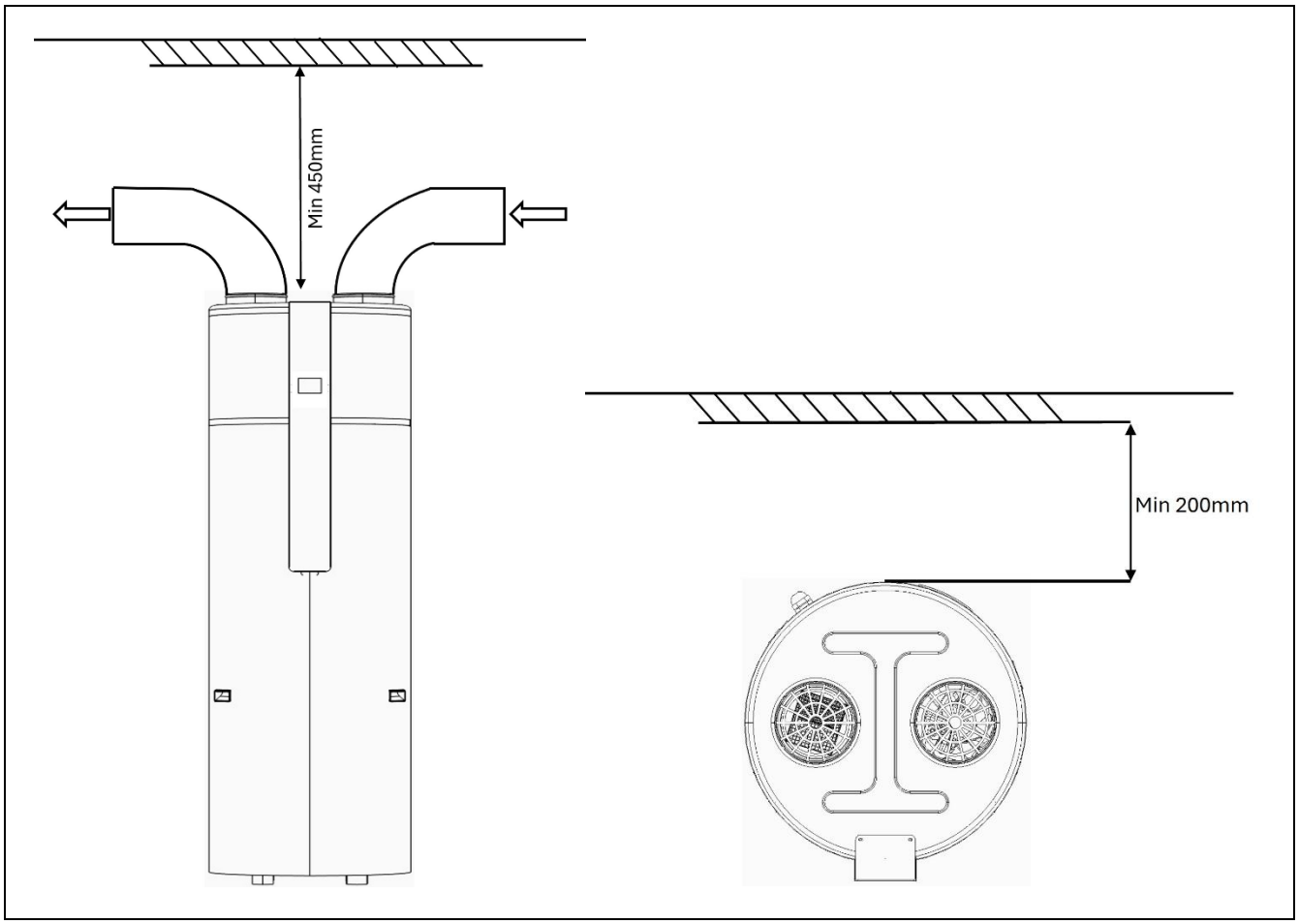
HYDREA 150



Maximum duct length (inlet+outlet)		Diameter = 120 mm	Diameter = 160 mm
No bends		10 m	12.5 m
No. of 90º bends	1	7.5 m	10 m
	2	5 m	7.5 m
	3	3 m	5 m
	4	/	2.5 m

NOTE: If the unit is connected to air ducts, these must be: DN 120 mm for rigid pipes or 120 mm internal diameter for flexible hoses. The total duct length must not exceed 10 meters, and the maximum static pressure must not exceed 70 Pa. If the air ducts have bends, the pressure drop will be greater. The table shows the maximum total lengths to be observed for the air duct depending on the geometry. The table shows the maximum total lengths to be observed for the air duct based on the geometry (original 120 mm) and if you wish to extend the diameter to 160 mm.

HYDREA 200/280



Maximum duct length (inlet+outlet)		Diameter = 160 mm	Diameter = 180 mm
No bends		17 m	22 m
No. of 90º bends	1	14.5 m	20.5 m
	2	11.5 m	18.5 m
	3	9 m	16.5 m
	4	6 m	14.5 m

NOTA: If the unit is connected to air ducts, these must be: DN 160 mm for rigid pipes or 160 mm internal diameter for flexible hoses. The total duct length must not exceed 18 meters, and the maximum static pressure must not exceed 85 Pa. If the air ducts have bends, the pressure drop will be greater. The table shows the maximum total lengths to be observed for the air duct based on the geometry (original 160 mm) and if you wish to extend the diameter to 180 mm.

WARNING: Air ducts must have a smooth inner wall and be insulated to prevent condensation.

3.4 Installation conditions

When choosing the installation location, the following points should be considered:

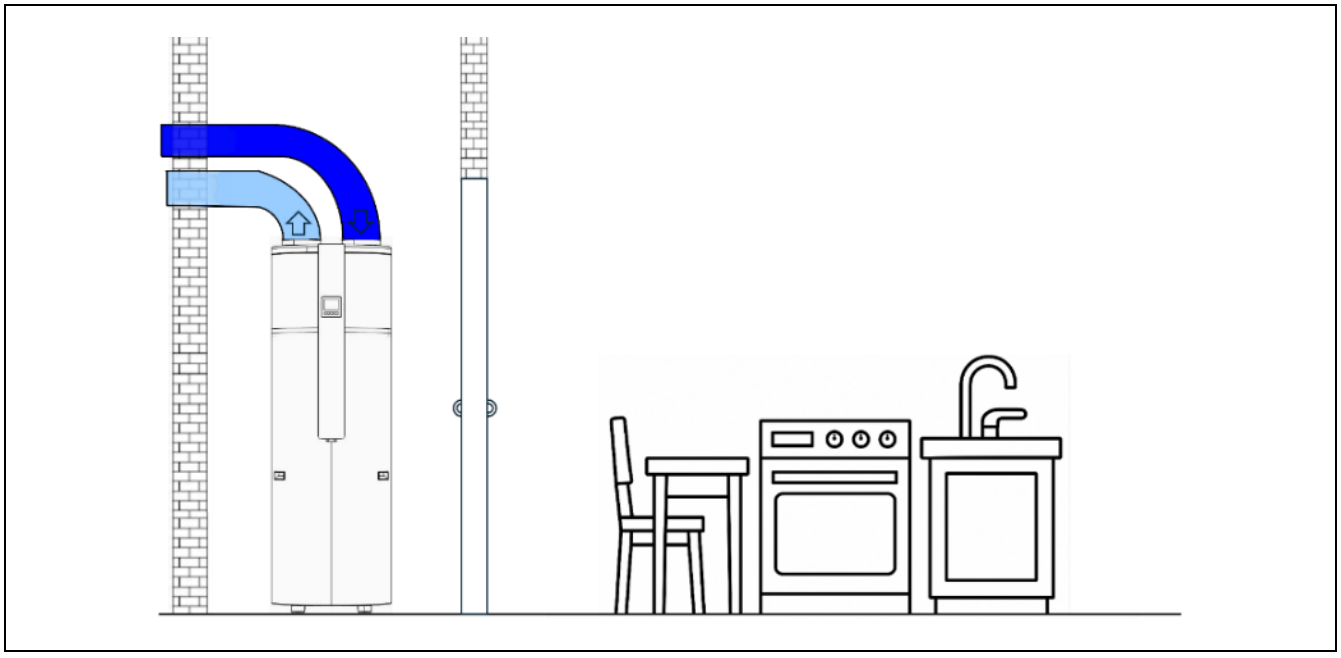
- The appliance must be placed in a dry, frost-protected location. The higher the air temperature, the greater the appliance's efficiency, up to the maximum operating limit of the refrigeration circuit. Conversely, the refrigeration circuit stops working below its minimum operating temperature.
- The appliance's surface must be firm and sufficiently level.
- The air outlet and inlet must not be in places where there is a risk of explosion due to gas, vapor, or dust.
- Ensure that the condensate drains properly.
- The surface on which the appliance rests must be sufficiently strong (the appliance weighs approximately 400 kg with a full tank, evenly distributed over its four adjustable feet).

3.5 Installation positioning

The units must be installed inside the building. They can be placed in the kitchen, boiler room, or garage, essentially in areas that have waste heat so that the unit achieves greater energy efficiency, even with very low outdoor temperatures during winter.

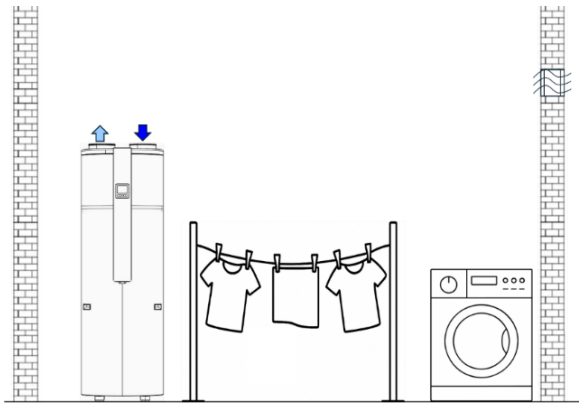
3.6 Air intake installation configurations

Outdoor Inlet and Outlet Ducts (Outdoor/Outdoor)



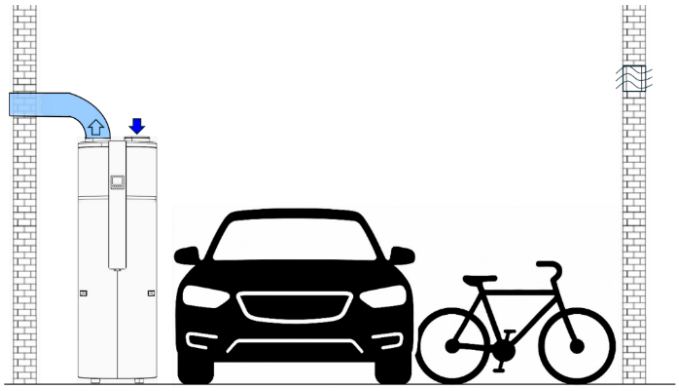
For this configuration, the unit draws air from outside the dwelling. This air is channelled through rigid or semi-rigid ducts, designed with a smooth interior to optimize flow. Heat is efficiently extracted from this outdoor air, serving as the primary source for the heat pump. Once used, the air is expelled back outside the building. In this way, the system does not create an additional demand on the home's heating needs. It can be installed in a room with or without heating. It is essential that the installation has pipes of the correct dimensions, which comply with the working pressure provided in this manual.

Direct Room Inlet and Outlet Ducts (Indoor/Indoor)



For this configuration, the unit draws and expels air from within the room. When the unit is producing hot water, the room temperature is reduced, and the room is dehumidified. The advantages can be especially appreciated in humid seasons. This configuration must be installed in unheated rooms, as the unit expels cool air into the environment. The minimum room volume must be $\geq 20\ m^3$. The distance between the top of the unit and the ceiling must be $\geq$ 600 mm; if the distance is less, an elbow must be installed on one of the two duct connections to ensure that the inlet and outlet air recirculates and does not mix.

Room Inlet and Outdoor Outlet Ducts (Indoor/Outdoor)



For this configuration, the unit draws air from indoors, extracting its heat and expelling it outdoors. For proper operation, the room must have a minimum volume of 20 m^3 and a ventilation grille of appropriate dimensions for air intake.

WARNING: Inadequate ducting type affects product performance and significantly increases heating time.

WARNING: Respect the minimum separation distances indicated to prevent air recirculation between duct inlet and outlet.

WARNING: When the inlet and outlet are in different spaces, each space needs to have an opening to the outside or needs to be connected with an opening surface ≥ 300 mm² to equalize pressures.

3.7 Fixation

To mount the **HYDREA 150** model to the wall, they come with brackets. Follow these installation instructions:

1. Drill the holes in the wall according to the bracket dimensions and install the fixings, depending on the weight of the **HYDREA 150** heat pump and the type of wall (see wall module weight table).

2. Secure the bracket to the wall.

3. Hang the **HYDREA 150** heat pump on the bracket.

HEAT PUMP WEIGHT TABLE	
MODEL	WEIGHT FULL OF WATER
HYDREA 150	210 Kg

There are several mounting options depending on the wall type:

Thin walls (plasterboard partitions)

10 mm diameter threaded rods passing through the wall, connected using profiles or counter plates.

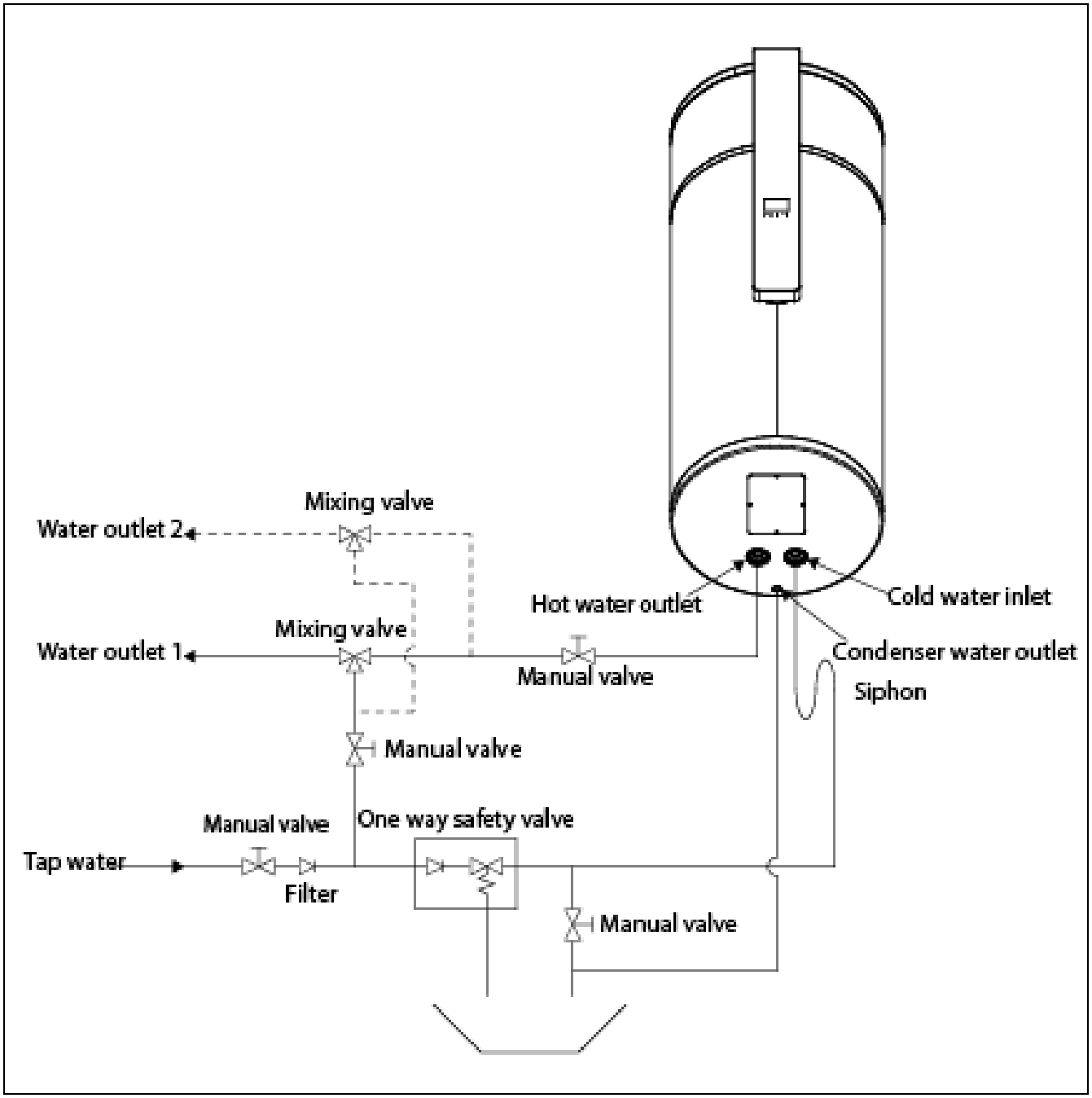
Thick, hard walls (concrete, stone, brick)

Seal the 10 mm diameter studs or drill the holes to fit the 12 mm diameter metal anchors adapted to the wall type.

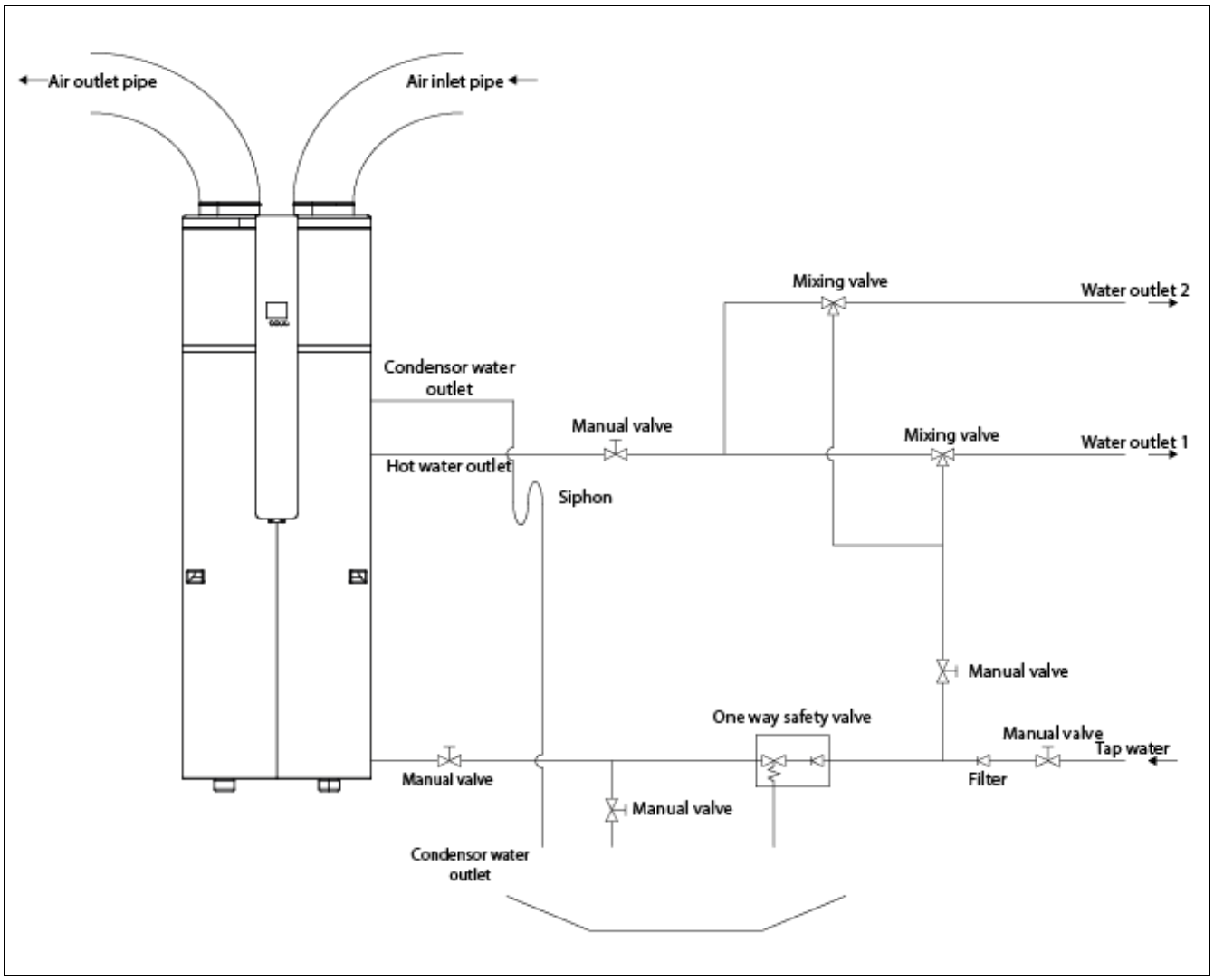
Once the heat pump is mounted on the wall and connected to the water supply, fill it with water and check that the wall to which it is attached can support its weight.

3.8 Hydraulic installation overview

HYDREA 150



HYDREA 200/280



3.9 Installation warnings

WARNING

- A one-way safety valve must be installed. Otherwise, it could cause damage to the unit or even injure people. The set point for this safety valve is 0,7 MPa (7 bar). For the installation location, refer to the pipe connection diagram.
- The discharge pipe connected to the one-way safety valve must be installed in a continuously downward direction and in a frost-free environment.
- Water may drip from the discharge pipe of the one-way safety valve, and this pipe must be left open to the atmosphere.
- The one-way safety valve must be operated regularly to remove scale deposits and verify that it is not blocked. Be careful not to scald yourself due to the high-water temperature.
- The water in the tank can be drained through the drain hole at the bottom of the tank.
- Once all pipes are installed, open the cold-water inlet and hot water outlet to fill the tank. When water flows normally from the water outlet, the tank is full. Close all valves and check all pipes. If there are any leaks, repair them.
- If the water inlet pressure is less than 0,15 MPa (1,5 bar), a pressure pump must be installed at the water inlet. In installations where the mains water supply pressure is greater than 0,65 MPa (6,5 bar), a reducing valve must be fitted on the water inlet pipe.
- If the unit is connected to ducts, it is essential to install filters at the air inlet. These filters must be specific for air conditioning or ventilation systems. Make sure to place them at the duct inlet.
- Otherwise, ensure that the drain outlet is at the lowest point. It's recommended that the unit's inclination angle at ground level does not exceed 2 degrees. It is necessary to install a siphon at the condensate outlet of the heat pump.
- In regions with hard water (Th>20°F), treatment is recommended. Water hardness must be greater than 15°F using a water softener. The use of a water softener does not void our warranty, provided it is approved and adjusted according to industry standards and regular checks and maintenance are performed.
- The water used in the water heater must comply with Directive (EU) 2020/2184. Particular attention must be paid to the following parameters:
    - Chloride concentration: Max. 500 mg/l.
    - Conductivity: Max. 800 µS/cm.
    - The warranty can only be validated for use with water with a pH between 6 and 9.

DOMUSA TEKNIK will not assume liability for breakdowns caused by improper use of the DHW heat pump.

DANGER: Whenever working on the unit's electrical installation, ensure it is disconnected from the mains power supply.

WARNING: It is mandatory to install a siphon at the condensate outlet of the heat pump.

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3.10 Water circuit connection

Pay attention to the following points when connecting the water circuit piping:

- Ensure there is nothing in the piping and that the water circuit is smooth. Carefully check the piping for any leaks, then fill the piping with insulation.
- Install the one-way valve and the safety valve in the water circulation system.
- The nominal pipe diameter for field-installed sanitary facilities must be selected based on the available water pressure and the expected pressure drop within the piping system.
- Water pipes can be of the flexible type. To prevent corrosion damage, ensure that the materials used in the piping system are compatible.
- When installing the piping at the client's site, any contamination of the piping system must be avoided.

3.11 Filling the water tank

- If the unit is used for the first time or reused after emptying the tank, ensure the tank is full of water before turning it on.
- Open the cold-water inlet and the hot water outlet.
- When water flows normally from the hot water outlet, the tank is full.
- Close the hot water outlet valve, and the water filling will be complete.

WARNING: Operating without water in the tank can cause damage to the auxiliary electric heater.

3.12 Emptying the water tank

If it is necessary to clean, move, etc., the unit, the tank must be emptied.

- Close the cold-water inlet
- Open the hot water outlet and open the manual valve on the drainpipe
- Begin draining the water.
- After draining, close the manual valve.

3.13 Electrical connections

- The power cable specification is 3 x 1,5 mm².
- The fuse specification is T 3.15 A 250 V.
- A switch must be installed when connecting the unit to the electrical power system. The switch current is 10 A.
- The unit must have a leakage circuit breaker (RCD) installed near the power supply and must be effectively grounded. The leakage circuit breaker specification is 30 mA, with an activation time of less than 0.1 s.

NOTE: Operating without water in the tank can cause damage to the auxiliary electric heater.

NOTE: The appliance must be installed in compliance with current regulations.

3.14 Installing a DHW Recirculation Pump (only in private homes)

It is essential to keep the following considerations in mind when installing a domestic hot water recirculation pump:

- **Energy consumption:** Installing a recirculation pump can generate considerable energy consumption. This is mainly due to heat losses through the pipe walls, especially if the pipes are not adequately insulated. It is essential to keep the pipes as short as possible, as excessive length accentuates this effect.
- **Equipment wear:** Due to these heat losses, the heat pump may be forced to operate for excessive periods of time to maintain the desired DHW temperature. This not only increases energy consumption but can also lead to premature equipment wear.
- **Programmable timer:** To mitigate the aforementioned effects and optimize energy efficiency, the recirculation pump must be equipped with a programmable timer. This timer will allow precise control of DHW recirculation periods, ensuring that the pump only operates when necessary.
- **DHW recirculation inlet:** To connect the DHW recirculation return, the optional anode inlet can be used.

WARNING: It is prohibited to install a DHW recirculation circuit in HYDREA 150 models.

3.15 Checks before commissioning

- Check both the water in the tank and the water pipe connection.
- Check the electrical system, ensuring the power supply is normal and the cable connection is secure.
- Check the water inlet pressure and ensure it is sufficient (greater than 0,15 Mpa, 1,5 bar).
- Check if water is coming out of the hot water outlet and ensure the tank is full of water.
- Check the unit; ensure everything is okay before turning on the unit. Verify the wired controller light when the unit is in operation.
- The unit must be installed with a circuit breaker near the power source and must have a ground wire.
- Use the wired controller to start the unit.
- Listen carefully to the unit when turning it on. Turn off the unit if you hear an abnormal sound.
- Measure the water temperature to check the increase in water temperature.
- Once the parameters have been set, the user cannot change them optionally. Ask a qualified service technician to do so.

4 OTHER INSTALLATION METHODS

4.1 Solar collector integration

The planning and installation of the solar circuit with all its elements (Fig. 1) must be carried out by a qualified specialist.

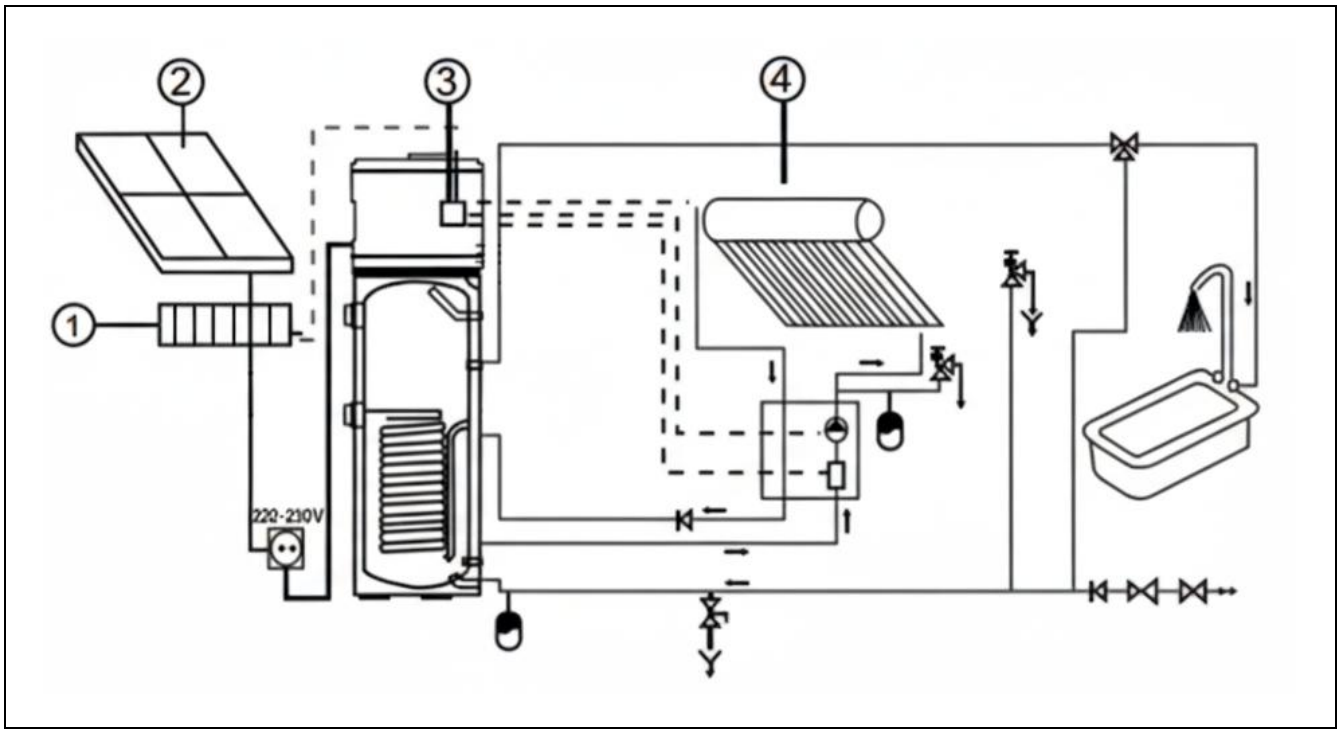


Fig. 1

[1] Inverter
[2] Photovoltaic module
[3] Heat pump regulator
[4] Solar collector

	External thermal sensor
	Water switch
	Circulation pump
	Non-return valve
	Expansion valve
	Drain safety valve
	Accumulator drain valve
	Safety valve
	Thermostatic mixing valve
	Water inlet pressure regulator
	Shut-off valve
	Water inlet pipe

The parameters described in this chapter can be found in Chapter *"Parameter list".*

The following steps are necessary to connect and adjust the control device:

- Configure parameter 24 (2 = solar water circuit)
- Connect the solar circuit pump and the solar sensor (T6). The water switch connection is optional.

If the water switch is not present:

- Short-circuit the water switch

If the water switch signal turns off for five seconds after the pump has been running for 30 seconds, the pump will stop, and error code E5 will appear on the unit's display. After three minutes, the pump restarts. If this error occurs three times in 30 minutes, the pump cannot restart until it has been turned off and on again. Error code E5 will appear on the unit's display. Only the pump stops; the device remains active.

The pump starts when the following conditions are met:

- The device is on.
- T6 ≥ T1 + Parameter 27
- T1 ≤ 78 ºC

The pump stops when one of the following conditions is met:

- The device is off.
- T6 ≤ T1 + Parameter 28
- T1 ≥ 83 ºC

While the solar thermal function is active, the heat pump compressor is running.

WARNING: Device Damage. The solar heat exchanger is designed for use with circulating clean water, as well as a mixture of water and propylene glycol in liquid state. The presence of anti-corrosive additives is mandatory. The use of other liquids, as well as liquids in a different state, will result in a warranty violation.

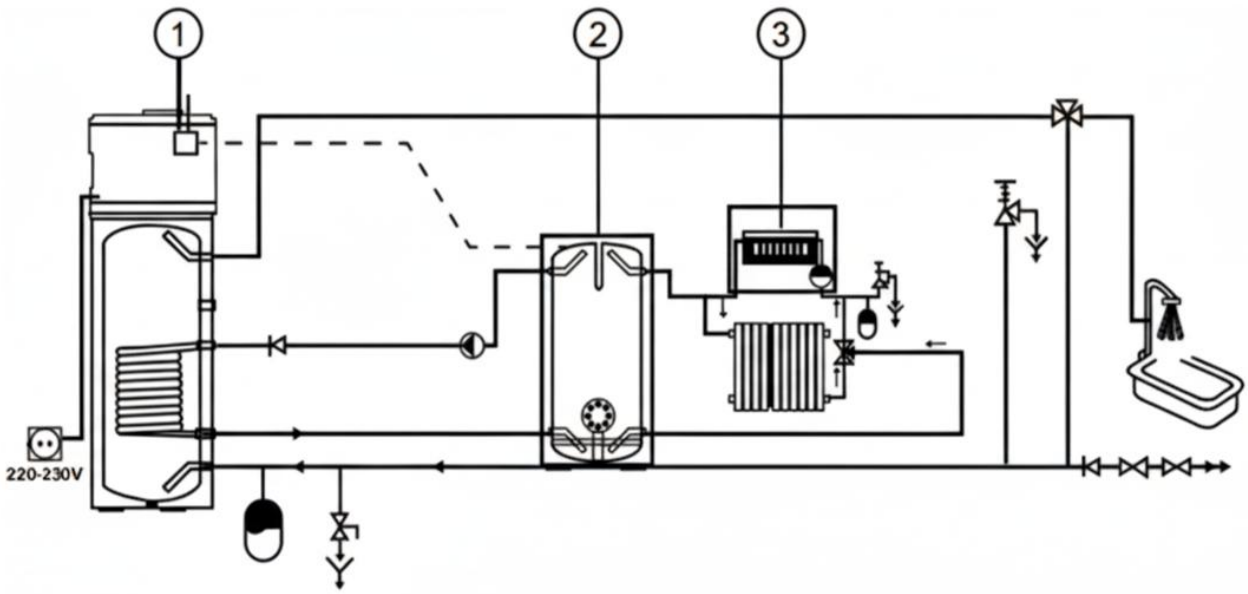
4.2 Boiler and heat pump connection

There are two ways to connect the boiler to the heat pump: via a controller integrated into the heat pump or via an external controller.

Centralized Control

The parameters described in this chapter can be found in Chapter *"Parameter list".*

An integrated controller can be connected as an alternative to the solar connection (Fig. 2).



① Heat pump controller ② Buffer tank ③ Boiler

Fig. 2

The pump starts when the following conditions are met:

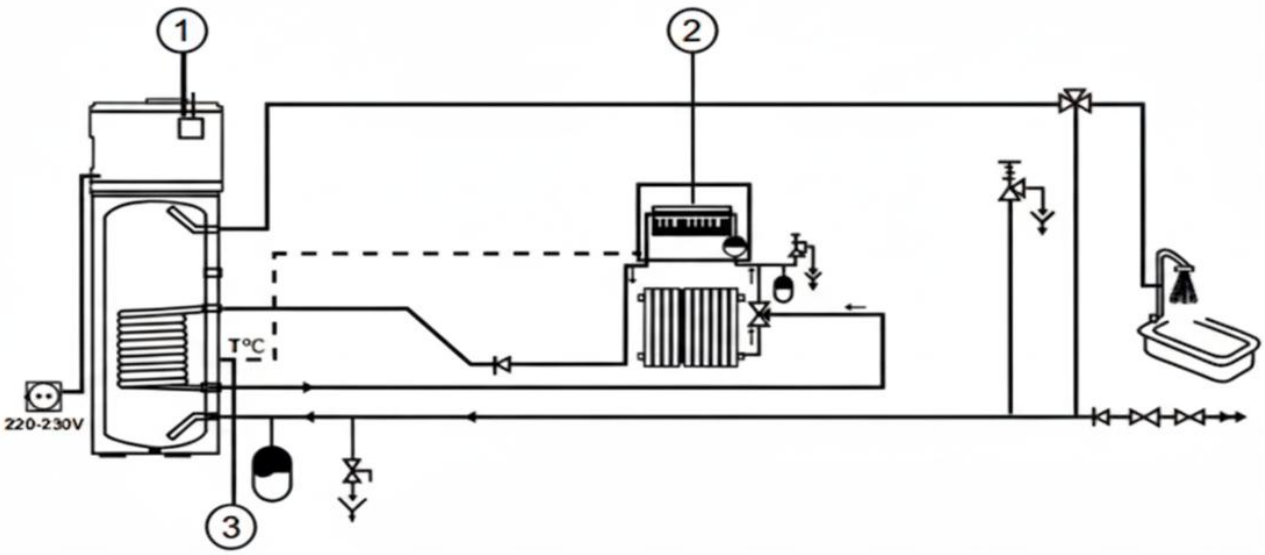
- T6 ≥ T1 + P27 (P27 is an adjustable parameter. The standard temperature is set to 5 ºC and the temperature range is between 5 ºC and 20 ºC).
- T1 ≤ 78 ºC
- T6 ≤ T1 + P28 (P28 is an adjustable parameter. The standard temperature is set to 2 ºC and the temperature range is between 1 ºC y 4 ºC).
- T1 ≥ 83 ºC

Parameter 24 must be set to value 2 (solar water pump).

The maximum heat pump temperature is 83 ºC, even if the buffer tank temperature is, for example, 90 ºC.

External Control

Connecting via an external controller (Fig. 3) does not require any adjustments to the heat pump.



① Heat pump controller ② Boiler ③ Boiler sensor

Fig. 3

Note: Device Damage! The installer must:

- Limit the maximum temperature to 83 ºC
- Configure the maximum storage temperature to 83 ºC

WARNING: Device Damage. The solar heat exchanger is designed for use with circulating clean water, as well as a mixture of water and propylene glycol in liquid state. The presence of anti-corrosive additives is mandatory. The use of other liquids, as well as liquids in a different state, will result in a warranty violation.

4.3 Photovoltaic system integration

CAUTION: The planning and installation of the photovoltaic system must be carried out by a qualified specialist.

The parameters described in this chapter can be found in Chapter *"Parameter list".*

If the power generated by the photovoltaic system is high enough to keep the heat pump running, the heat pump or electric auxiliary heater can be requested via an **on/off** contact. The heat pump then increases the target water temperature to obtain more hot water. This **on/off** contact **(ON/OFF contact)** is a normally open relay contact, which switches to closed when the photovoltaic system generates enough power to power the heat pump.

4.4 ON/OFF connection for photovoltaic inverter

CAUTION: The planning and installation of the ON/OFF system must be carried out by a qualified professional.

The parameters described in this chapter can be found in Chapter *"Parameter list".*

If parameter 17 is set to "0," meaning the photovoltaic connection switch is selected, and the ON/OFF contact is closed while the controller is on, the device can operate, and the operating mode is determined by the controller's settings.

- If the ON/OFF contact is open but the controller is off, the appliance cannot operate, except for the external pump.
- When the control is on and the ON/OFF status changes from OPEN to CLOSED, the device will operate with the previous control settings (automatic restart).
- If the device was previously in standby mode and the ON/OFF status changes from OPEN to CLOSED, the device remains in standby mode.
- In the event of a remote shutdown signal (open contact), a signal/warning is displayed. This allows the user to understand why the device is not operating.

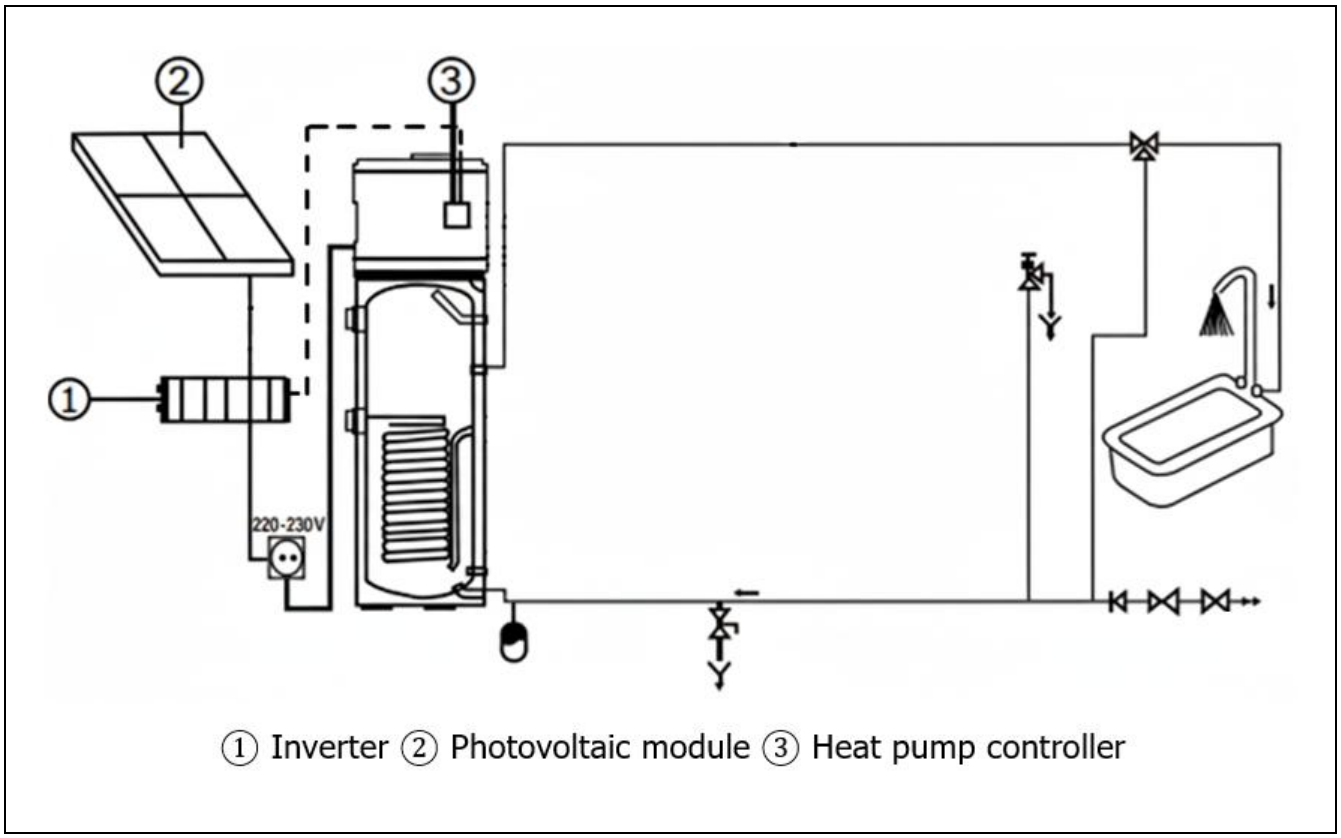
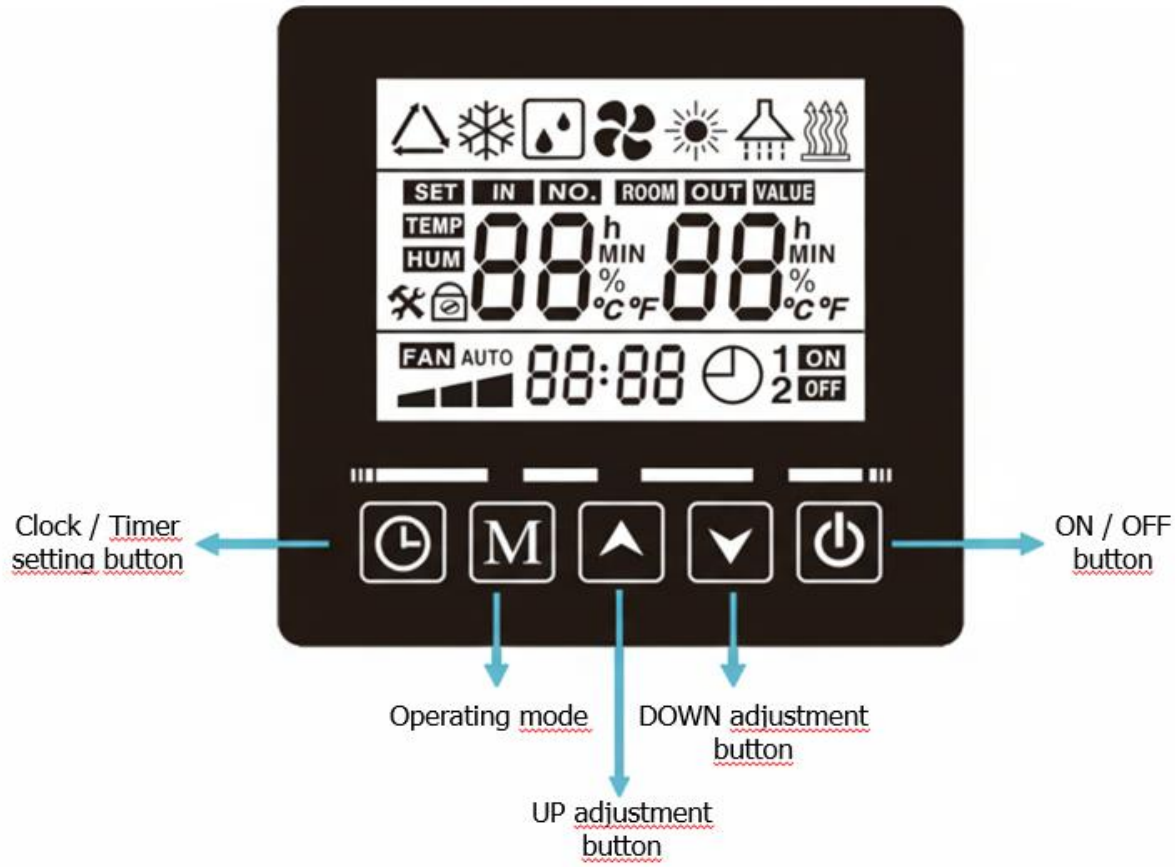


Fig. 4

5 UNIT OPERATION

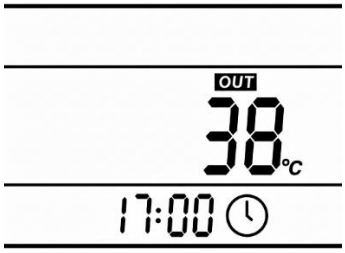
5.1 User Interface and operation



5.2 Operations

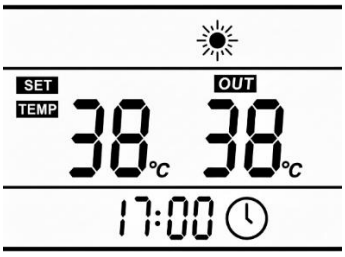
- **"ON" Power-up**

  When you turn on the power , all icons display on the controller screen for 3 seconds. After checking that everything is okay, the unit enters standby mode. The water temperature and time are displayed on the screen.



- **Button**

  Press and hold this button for 3 seconds when the unit is in standby mode. The unit can be turned off by pressing this command for 3 seconds. Short press this command to exit settings or parameter checks.



NOTE: After 30 seconds of inactivity on the screen, the screen will automatically lock. To unlock the screen, press and hold the button for 3 seconds. The screen will unlock.

- **Buttons and**
  - These are multifunction buttons. They are used for temperature setting, parameter configuration, parameter checking, clock setting, and timer setting.
  - During operating status, press the or button to adjust the set temperature.
  - Press these buttons when the unit is in the clock setting status to adjust the clock's hour and minutes.
  - Press these buttons when the unit is in the timer setting status to adjust the "**ON**"/"**OFF**" timer's hour and minutes.
- **Button**

  Clock Adjustment:
  - Press and hold the button for 3 seconds to unlock the screen.
  - After the screen lights up, briefly press to enter the clock adjustment interface. The hour icon "88:" flashes, press and to set the exact hour.
  - After setting the hour, briefly press again to switch to minute adjustment. The minutes "88" flash. Press and to set the minutes.
  - Press again to confirm and exit.
- **Timer Adjustment:**

  Scheduled Power On Setting
  - Press and hold the button for 3 seconds to enter setting mode.
  - In power on setting mode, the "**ON**" will start flashing on the display, indicating you are setting the startup time.
  - Use the Up and down buttons to set the hour, press and adjust the minute to startup. Press to confirm and move to the power off setting.

Scheduled Power Off Setting

- "**OFF**" will flash on the display.
- Use the Up and down buttons to set the hour, press and adjust the minute to turn off. Press to confirm the setting.
- The display will show "1 **ON**" and "2 **OFF**" to indicate the programmed time.

When flashing "ON" or "OFF", press the button M to stop flashing "ON" and "OFF", indicating that the timer has been enabled.

To reschedule or modify the scheduled on/off time, you must repeat the entire timer setting process.

NOTE: If the screen is locked, touch any button to illuminate the screen. After the screen illuminates, press and hold the timer button for 3 seconds to unlock it. If no operation is performed for 30 seconds, the monitor automatically returns to the main interface and locks the screen.

- **Button** M

  When the screen is unlocked:

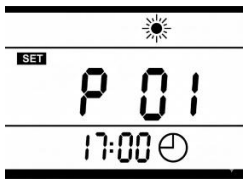
  - Briefly press M to adjust the operating mode.
    - **AUTO** Mode (heat pump + electric heater)
    - **GREEN** Mode (only the heat pump will operate under normal working conditions)
    - **BOOST** Mode and (heat pump + electric heater operate simultaneously)
    - Electric Heater Mode (only the electric heater will operate)
  - Check system parameters
    - Press and hold M for 3 seconds to enter the system parameter check interface.
    - Press the and buttons to check the system parameters.

  If there is no operation for 30 seconds, the controller will automatically exit and save the settings.

NOTE: When the parameters have already been set, the user cannot change the parameters optionally. Please ask a qualified service technician to do so when necessary (see chapter 6.3 of this manual).

- **Error Codes**

  During standby or operation, if there is a malfunction, the unit will automatically stop and display the error code on the left screen of the controller.



5.3 Auxiliar Ventilation

This function can be activated in conjunction with any of the operating modes (AUTO, GREEN, BOOST…). Once the setpoint has been reached, if auxiliary ventilation is selected, it will start automatically.

Press and hold M to activate the auxiliary ventilation function. Press and hold M to deactivate the auxiliary ventilation function.

After the auxiliary ventilation function is activated. When the user presses and holds the power button on the remote control to turn on the device, the fan Will remain on, and the icon will be illuminated. When the user presses and holds the power button on the remote control to turn off the device, the fan will turn off, and the icon will go out.

5.4 AUTO mode

The icon remains lit. After reaching the set temperature, the icon is displayed. When heating, the icon is turned off.

When the auxiliary ventilation is activated, the icon remains lit. When the auxiliary ventilation is deactivated, the icon goes out.

5.5 GREEN mode

The icon remains lit. After reaching the set temperature, the icon is displayed. When heating, the icon is turned off.

When the auxiliary ventilation is activated, the icon remains lit. When the auxiliary ventilation is deactivated, the icon goes out.

5.6 BOOST mode

The icons + remain lit. After reaching the set temperature, the icon is displayed. When heating, the icon is turned off.

When the auxiliary ventilation is activated, the icon remains lit. When the auxiliary ventilation is deactivated, the icon goes out.

5.7 Electric heater mode

The icon remains lit. After reaching the set temperature, the icon is displayed. When heating, the icon is turned off.

When the auxiliary ventilation is activated, the icon remains lit. When the auxiliary ventilation is deactivated, the icon goes out.

5.8 Icons on the LCD screen

- **Ventilate**
  This icon indicates that the fan function is active.
- **Electric Heater**
  This icon indicates that the electric heater function is activated. The electric heater will operate according to the control program.
- **Defrost**
  This icon shows that the heat pump is in the defrosting process.
- **Automatic operation**
  The icon shows that the heat pump is in automatic operation mode.
- **Heat Pump + Electric Heater Heating +**
  These icons show that both the heat pump and the electric heater are operating.
- **Screen Lock**
  This icon indicates that the key lock function is activated. The keys cannot be used until this function is deactivated.
- **Heat Pump Heating**
  This icon shows that the heat pump is operating.
- **Left Temperature Display** 88
  This display shows the set water temperature. When checking or adjusting parameters, this section will show the corresponding parameter number.
- **Right Temperature Display** 88
  This display shows the current upper water temperature of the water tank. When checking or adjusting parameters, this section will show the related parameter value. In case of any malfunction, this section will show the related error code.
- **Time Display** 88:88
  This display shows the clock time or the timer time.
- **"ON" Timer** ON
  This icon indicates that the "ON" timer function is activated.
- **"OFF" Timer** OFF
  This icon indicates that the "OFF" timer function is activated.
- **Error**
  This icon indicates that there is an operating error.

6 OPERATION, CHECKING AND ADJUSTMENT OF PARAMETERS

6.1 Parameter list

Some parameters can be checked and adjusted by the controller. The list of parameters is shown below.

HYDREA 150				
Parameter nr.	**Description**	**Range**	**Default**	**Notes**
A	Lower tank temperature sensor	-20 ~ 99 ℃	In case of lower tank temp. sensor failure, the error code "P01" will be displayed.	
B	Upper tank temperature sensor	-20 ~ 99 ℃	In case of upper tank temp. sensor failure, the error code "P02" will be displayed.	
C	Evaporation temperature sensor	-20 ~ 99 ℃	In case of evaporation temp. sensor failure, the error code "P03" will be displayed.	
D	Compressor suction temperature sensor	-20 ~ 99 ℃	In case of compressor suction temperature sensor failure, the error code "P04" will be displayed.	
E	Room temperature sensor	-20 ~ 99 ℃	In case of room temperature sensor failure, the error code "P05" will be displayed.	
F	EEV open steps	100 ~ 470 step	Not adjustable	
G	Number of compressors starts	/	measured value	
H	Comtime of running time	/	measured value	
I	Number of times the electric heater is switched on	/	measured value	
J	Running time of the electric heating	/	measured value	
K	The number of frost removal	/	measured value	

HYDREA 200 / HYDREA 280 / HYDREA 280 S				
Parameter nr.	**Description**	**Range**	**Default**	**Notes**
A	Lower tank temperature sensor	-20 ~ 99 ℃	In case of lower tank temp. sensor failure, the error code "**P01**" will be displayed.	
B	Upper tank temperature sensor	-20 ~ 99 ℃	In case of upper tank temp. sensor failure, the error code "**P02**" will be displayed.	
C	Evaporation temperature sensor	-20 ~ 99 ℃	In case of evaporation temp. sensor failure, the error code "**P03**" will be displayed.	
D	Compressor suction temperature sensor	-20 ~ 99 ℃	In case of compressor suction temperature sensor failure, the error code "**P04**" will be displayed.	
E	Room temperature sensor	-20 ~ 99 ℃	In case of room temperature sensor failure, the error code "**P05**" will be displayed.	
F	EEV open steps	100 ~ 470 step	Not adjustable	
G	Return water temperature / Solar temperature	-20 ℃ ~ 99 ℃	In case of room temperature sensor failure, the error code "**P07**" will be displayed.	
H	Number of compressors starts	/	measured value	
I	Comtime of running time	/	measured value	
J	Number of times the electric heater is switched on	/	measured value	
K	Running time of the electric heating	/	measured value	
L	The number of frost removal	/	measured value	

HYDREA 150 / HYDREA 200 / HYDREA 280 / HYDREA 280 S				
01	ΔT compared to the compressor restart setting temperature	2 ~ 15 ºC	5 ºC	Adjustable
02	Sterilization cycle frequency	3 ~ 90 days	14 days	Adjustable
03	Electric auxiliary hot start delay time	0~ 90 min	6 min	Adjustable
04	Weekly disinfection temperature (Antilegionela)	50 ~ 70 ºC	65 ºC	Adjustable
05	Holding time of the disinfection temperature (Antilegionela)	0 ~ 90 min	30 min	Adjustable
06	Defrosting cycle time duration	30 ~ 90 min	45 min	Adjustable
07	Outside temperature of defrost cycle initialization	-30 ~ 0 ºC	* -7/-3 ºC	Adjustable
08	Defrosting termination temperature	2 ~ 30 ºC	20 ºC	Adjustable
09	Maximum defrosting cycle time	1 ~ 12 min	* 8/12 min	Adjustable
10	Operating mode of the electronic expansion valve	0 (auto) 1 (manual)	0	Adjustable
11	Superheat setting value	-9 ~ 9 ºC	2 ºC	Adjustable
12	Steps for manual adjustment of the electronic expansion valve (X10)	10 ~ 47 step	35 steps	Adjustable
13	Time to start a disinfection cycle	0 ~ 23	1	Adjustable (N*10)
14	ΔT for electric heater initialization	2 ~ 20 ºC	7ºC	Adjustable (hours)
15	Compressor cumulative operation time	10 ~ 80 min	30 min	Adjustable
16	Increase of the lower tank temperature	0 ~ 20ºC	2ºC	Adjustable
17	Switch application	0 (From remote signal) 1 (from photovoltaic system)	0	Adjustable
18	Room temperature update period	2 – 120 min	15 min	Adjustable
19	Compensation temperature for the climatic curve	-10 – 10 ºC	0 ºC	Adjustable
20	Type of temperature set control	0 (set by TS1) – 1 (65ºC)	0	Adjustable
21	Annular temperature limit Low temperature value	-10 – 10 ºC	-5 ºC	Adjustable
22	Target superheat 2	-9 – 9 ºC	6 ºC	Adjustable
23	Target superheat 3	-9 – 9 ºC	7ºC	Adjustable
24	Pump attribute selection (0 without water pump,1 water suction pump,2 solar water pump) **	0/1/2	0	Adjustable
25	Water return temperature setting **	15 ~ 50 ºC	35 ºC	Adjustable
26	Start the temperature difference of the return water pump **	1-15 ºC	2 ºC	Adjustable
27	Solar water pump start temperature difference **	5-20 ºC	5 ºC	Adjustable
28	Solar water pump shut off the difference **	1-4 ºC	2 ºC	Adjustable

* The values of parameters 7 and 9 differ depending on the model, with the first option (-7 ºC and 8 min) for models 200, 280, and 280 S, and the second option (-3 ºC and 12 min) for model 150.

** Only available in 200, 280 and 280 S models.

6.2 Modification of already established parameters

Once the parameters have been set, modifications should **only be made by a qualified technician**.

Instructions for viewing and modifying previously set parameters:

Press and hold the button M for 3 seconds to view the heat pump's operating status and parameters (non-modifiable parameters "**A**" to "**K**"), using the "▲" or "▼" commands. When the numerical parameters (modifiable parameters) are displayed on the screen, to modify them, when you reach the parameter you wish to modify, press and hold the command M for 3 seconds; when the value flashes, press M, and then use the "▲" or "▼" commands to modify the parameter. Then, press and hold the button M again until the value stops flashing to confirm that the parameter modification is complete. Repeat the operation to modify other parameters. To exit this state, press the command ⏻ .

6.3 Unit malfunction and error codes

When an error occurs or protection mode is automatically activated, both the circuit board and the controller will display the error message.

Protection / Malfunction	Error code	LED indicator	Possible reasons	Corrective actions
Standby		Dark		
Normal running		Bright		
Lower tank water temp. sensor failure	**P1**	☆● (1 flash 1 dark)	1) The sensor open circuit 2) The sensor short circuit	1) Check the sensor connection 2) Replace the sensor
Upper tank water temp. sensor failure	**P2**	☆☆● (2 flashes 1 dark)	1) The sensor open circuit 2) The sensor short circuit	1) Check the sensor connection 2) Replace the sensor
Evaporator coil temp. sensor failure	**P3**	☆☆☆● (3 flashes 1 dark)	1) The sensor open circuit 2) The sensor short circuit	1) Check the sensor connection 2) Replace the sensor
Return air temp sensor failure	**P4**	☆☆☆☆● (4 flashes 1 dark)	1) The sensor open circuit 2) The sensor short circuit	1) Check the sensor connection 2) Replace the sensor
Ambient temp. sensor failure	**P5**	☆☆☆☆☆ ● (5 flashes 1 dark)	1) The sensor open circuit 2) The sensor short circuit	1) Check the sensor connection 2) Replace the sensor
Anti-freeze protection	**P6**	☆☆☆☆☆ ☆☆☆☆☆ ● (10 flashes 1 dark)	1) Lower water tank temp too low	The unit will be auto anti-freeze
Low pressure protection (LP Switch)	**E2**	☆☆☆☆☆ ☆☆● (7 flashes 1 dark)	1) Too low air inlet temp 2) The electronic expansion valve assembly blocked 3) Too less refrigerant 4) The switch damaged 5) The fan assembly cannot work	1) Check if the air inlet temp is over the working limited 2) Replace the electronic expansion valve assembly 3) Charge some refrigerant 4) Replace a new switch 5) Check if the fan working when the compressor is working. If not, there are some

				problems with the fan assembly
Overheat protection (HTP Switch)	**E3**	☆☆☆☆☆ ☆☆☆● (8 flashes 1 dark)	1) Too high tank water temp 2) The switch damaged	1) If the tank water temp is over 85C, the switch will open, and the unit will stop for protection. After the water comes to normal temp, 2) Replace a new switch
Water flow error E5	**E5**	☆☆☆☆☆ ☆☆☆☆● (9 flashes 1 dark)		1)Please check if water flow switch fails or not. 2)Please check if connection is loose. 3)If solar doesn't be connected, please shortly connect the switch
Defrost	**Defrosting indicate**	☆☆☆☆☆ ☆☆☆..... (all long flashes)		
Communication failure	**E8**	Bright	1) The communication line is not plugged into the socket.	1) Check if the socket of the communication line is plugged in.

6.4 Error code PA: Ambient temperature limit protection

Error code PA indicates that the intake air temperature (ambient temperature) is outside the permitted operating range.

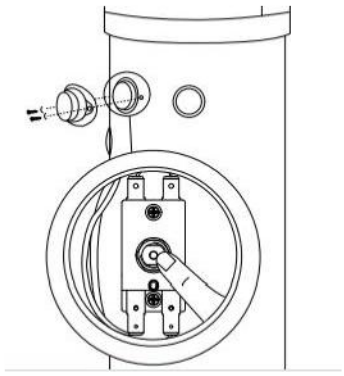
- **When the ambient temperature** > 43°C, the unit enters the limit-protection state and reports error PA.
- **When the ambient temperature** < 41°C, the unit exits the limit protection state and error PA clears.
- **When the ambient temperature** < P21 (default value: 5°C), the unit enters the limit-protection state.
- **When the ambient temperature** > P21 + 2°C, the unit exits the limit-protection state.

7 MAINTENANCE

7.1 Maintenance activities

To guarantee optimal operation of the unit, you should carry out a series of checks and inspections on the unit at regular intervals, preferably annually.

- Check the water supply and air purging frequently to prevent lack of water or air in the water circuit.
- Clean the water filter regularly to maintain good water quality. Lack of water and dirty water can damage the unit.
- Keep the unit in a dry, clean, and well-ventilated place. Clean the heat exchanger every one or two months.
- Check every part of the unit and the system pressure. Replace any defective parts if found and recharge refrigerant if necessary.
- Check the power supply and electrical system, ensure that electrical components are in good condition and wiring is correct. If there is a damaged part or a strange smell, replace it promptly.
- If the heat pump is not used for a long time, drain all water from the unit and seal it to keep it in good condition. Drain water from the lowest point of the boiler to prevent freezing in winter. A water refill and a complete inspection of the heat pump are required before it restarts.
- Do not turn off the power when the unit is in continuous use, or the water in the pipe will freeze and break it.
- It is recommended to clean the tank and electric heater regularly to maintain efficient performance.
- It is recommended to set a lower temperature to decrease heat release, prevent scale buildup, and save energy if the outlet water is sufficient.
- Clean the air filter regularly, at least once a month, to ensure its functionality.
- When the water temperature exceeds 85 ºC, the temperature protection switch will disconnect, and the machine will stop operating. If the water tank temperature drops, manually open the temperature protector cover and press the reset switch, as shown in the figure below.



7.2 Troubleshooting

This section provides useful information for diagnosing and correcting certain problems that may occur. Before starting the troubleshooting procedure, perform a thorough visual inspection of the unit and look for obvious defects, such as loose connections or faulty wiring.

Before contacting your local dealer, read this chapter carefully; it will save you time and money.

⚠ CAUTION: When performing an inspection in the unit's switch box, always ensure that the unit's main switch is in the "off" position.

The following indications might help you resolve your problem. If you cannot solve it, consult your installer/local dealer.

- No image on the controller (blank screen): Check if the main power supply is still connected.
- One of the error codes appears: Consult your local dealer.
- The programmed timer works, but the scheduled actions are executed at the wrong time (e.g., 1 hour too late or too early): Check if the clock and day of the week are set correctly; adjust them if necessary.

7.3 Environmental Information

This equipment contains R290 refrigerant in the quantity indicated in the specification. Do not release R290 into the atmosphere: R290 is a greenhouse gas with a Global Warming Potential (GWP) = 3.

7.4 Disposal Requirements

The dismantling of the unit, and the treatment of refrigerant, oil, and other parts must be carried out in accordance with relevant local and national legislation.



Your product is marked with this symbol. This means that electrical and electronic products should not be mixed with unsorted household waste.

Do not attempt to dismantle the system yourself: The dismantling of the system, and the treatment of refrigerant, oil, and other parts must be carried out by a qualified installer in accordance with relevant local and national legislation.

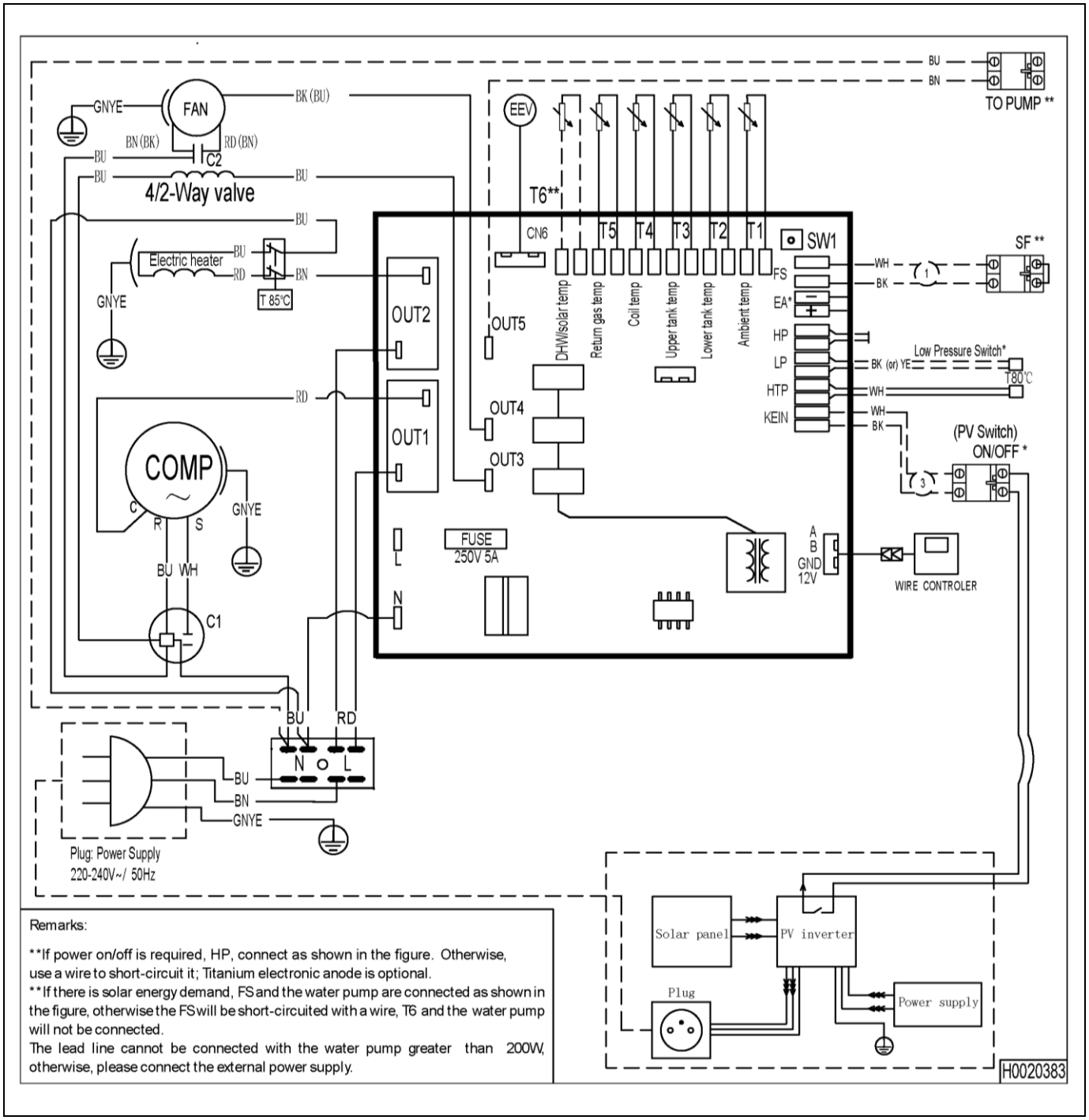
Units must be treated at a specialized treatment facility for reuse, recycling, and recovery. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

7.5 Anti-legionella disinfection cycle

The anti-legionella disinfection cycle is performed automatically every 14 days. The control panel compares the water tank temperature with the programmed temperature for the anti-legionella cycle. If the tank temperature is lower than programmed, it uses the heat pump to bring the tank water to the maximum achievable temperature. Then, it turns off the heat pump and activates the electric heater to complete the last step and bring the tank water to a suitable temperature for disinfection. It is also possible to activate the anti-legionella cycle manually.

8 ELECTRICAL DIAGRAM

Please refer to the wiring diagram in the electrical box.



T1: Ambient temperature probe.

T2: Lower tank temperature probe.

T3: Upper tank temperature probe.

T4: Evaporator temperature probe.

T5: Compressor suction temperature probe.

T6: Solar probe.

SF: Water switch.

LP: Low pressure sensor.

HTP: Thermal limit 80°C.

KEIN: Photovoltaic ON/OFF signal.

9 TECHNICAL SPECIFICATIONS

TECHNICAL DATA		150 L	200 L	280 L
Power supply	V/Ph/Hz	220-240/1/50		
Water tank Volume	L	150	200	280
Heating capacity	kW	1.0* (+1.5**)	1.5* (+1.5**)	1.5* (+1.5**)
Max power input	W	330+1500 (e-heater)	700+1500 (e-heater)	700+1500 (e-heater)
Max current	A	1.8*+6.5 (e-heater)	3.1*+6.5 (e-heater)	3.1*+6.5 (e-heater)
Max. outlet water temperature range (without using e-heater)	°C	65		
Max. water temperature	°C	70		
Min. water temperature	°C	35		
Ambient working temp.	°C	-5-43		
Max. discharge pressure	bar	32		
Min. discharge pressure	bar	0,2		
Refrigerant type		R290/140 g	R290/150 g	
Compressor	Type	Rotary		
Fan motor	Type	asynchronous motor		
	RPM	1000		
Air flow	m3/h	270	290	
Duct diameter	mm	120	160 (Fit flexible 160/180mm duct)	
Max allowed pressure of the tank	bar	10		
Inside body material of tank		Stainless steel \ Duplex steel		
Auxiliary electrical heater	kW	1.5		
Electronic expansion valve		yes		
Hot water outlet	inch	G 1 / 2	G 3 / 4	
Cold water inlet	inch	G 1 / 2	G 3 / 4	
Solar energy inlet and outlet	inch	/	/	G 3 / 4
Condensed water outlet	inch	G 1 / 2		
Heat pump heat exchanger material		Microchannel		
Net Dimensions	mm	Φ560x1475	Φ560x1745	Φ600x1990
Packing Dimensions	mm	610x580x1610	570x630x1850	650x650x2100
Net Weight	kg	56	90	105
Weight with full water	kg	206	290	385
Gross Weight	kg	66	100	115
Noise level	dB (A)	45	49	

10 R-T CONVERSION TABLE FOR TEMPERATURE SENSOR

R25 = 5.0KΩ ±1.0% B 25-50 = 3470K ± 1.0%

°C	Rmin. /KΩ	KΩ	Rmax / KΩ	°C	Rmin. /KΩ	KΩ	Rmax / KΩ	°C	Rmin /KΩ	KO	Rmax / KO
-20	36.195	37.303	38.441	21	5.779	5.847	5,914	62	1.343	1.374	1.406
-19	34.402	35.437	36.499	22	5.558	5.62	5.683	63	1.301	1.331	1.362
-18	32.709	33.676	34.668	23	5.346	5.404	5.463	64	1.26	1.29	1.321
-17	31.109	32.012	32.939	24	5.144	5.198	5.252	65	1.221	1.25	1.28
-16	29.597	30.441	31.306	25	4,95	5	5.05	66	1.183	1.212	1.242
-15	28.168	28.957	29.765	26	4.761	4.811	4.861	67	1.147	1.175	1.204
-14	26.816	27.554	28.308	27	4.58	4.63	4.68	68	1.111	1.139	1.168
-13	25.538	26.227	26.932	28	4.408	4.457	4.507	69	1.077	1.105	1.133
-12	24.328	24.972	25.631	29	4.242	4.292	4.341	70	1.045	1.072	1.099
-11	23.183	23.785	24.4	30	4.084	4.133	4.182	71	1.013	1.04	1.067
-10	22.098	22.661	23.236	31	3.933	3.981	4.03	72	0,983	1.009	1.035
-9	21.071	21.598	22.135	32	3.788	3.836	3.885	73	0,953	0,979	1.005
-8	20.098	20,59	21.093	33	3.649	3.697	3.745	74	0,925	0,95	0,975
-7	19.176	19.636	20.106	34	3.516	3.563	3.611	75	0,897	0,922	0,947
-6	18.301	18.732	19.171	35	3.388	3.435	3.483	76	0,871	0,895	0,919
-5	17.472	17.875	18.285	36	3.266	3.313	3.36	77	0,845	0,869	0,893
-4	16.686	17.063	17.446	37	3.149	3.195	3.241	78	0,82	0,843	0,867
-3	15,94	16.292	16,65	38	3.037	3.082	3.128	79	0,796	0,819	0,842
-2	15.231	15.561	15.896	39	2.929	2.974	3.019	80	0,773	0,795	0,818
-1	14.559	14.867	15.18	40	2.826	2.87	2.915	81	0,751	0,773	0,795
0	13,92	14.208	14.501	41	2.726	2,77	2.815	82	0,729	0,751	0,773
1	13.313	13.582	13.856	42	2.631	2.675	2.718	83	0,708	0,729	0,751
2	12.736	12.988	13.244	43	2.54	2.583	2.626	84	0,688	0,709	0,73
3	12.188	12.423	12.662	44	2.452	2.494	2.537	85	0,668	0,689	0,709
4	11.666	11.887	12.11	45	2.368	2.409	2.451	86	0,649	0,669	0,69
5	11.17	11.376	11.585	46	2.287	2.328	2.369	87	0,631	0,651	0,671
6	10.698	10.891	11.086	47	2.209	2.25	2.29	88	0,613	0,632	0,652
7	10.249	10.429	10.611	48	2.135	2.174	2.214	89	0,596	0,615	0,634
8	9.822	9,99	10.16	49	2.063	2.102	2.141	90	0,579	0,598	0,617
9	9.414	9.572	9.73	50	1.994	2.032	2.071	91	0,563	0,581	0.6
10	9.027	9.173	9.321	51	1.927	1.965	2.003	92	0,548	0,566	0,584
11	8.657	8.794	8.932	52	1.863	1.901	1.938	93	0,533	0,55	0,568
12	8.305	8.432	8.561	53	1.802	1.839	1.876	94	0,518	0,535	0,553
13	7.969	8.088	8.208	54	1.743	1.779	1.815	95	0,504	0,521	0,538
14	7.648	7,76	7.872	55	1.686	1.721	1.757	96	0,49	0,507	0,524
15	7.343	7.446	7.551	56	1.631	1.666	1.701	97	0,477	0,493	0,51

16	7.051	7.148	7.245	57	1.579	1.613	1.647	98	0,464	0,48	0,496
17	6.773	6.863	6.953	58	1.528	1.561	1.595	99	0,452	0,467	0,483
18	6.507	6.5911	6.675	59	1.479	1.512	1.545	100	0,439	0,455	0,47
19	6.253	6.331	6.41	60	1.432	1.464	1.497				
20	6.011	6.083	6.156	61	1.386	1.418	1.451				

11 WARRANTY CONDITIONS

The **DOMUSA TEKNIK** commercial warranty ensures the normal operation of **Domusa Calefacción S.Coop**. products, in accordance with the following conditions and terms:

1. This **commercial warranty** is valid for the following periods from the **invoice date**:

2 years for electrical and hydraulic components, valves, heat pump compressors, etc.

5 years for the stainless steel tank.

2. Annual maintenance is not included in the terms of this warranty.

3. Sufficient access must be provided for maintenance and repair of heat pumps. Expenses incurred due to faulty access are not included in the terms of this warranty.

4. The **commercial warranty** will be void when: Maintenance has not been performed at the required intervals.

- Maintenance has not been performed as required.
- The heat pump has not been installed in compliance with current laws and regulations.
- The quality of the sanitary water does not comply with the requirements of the instruction manual that accompanies the product.

Failures caused by misuse or incorrect installation, unsuitable energy or fuel, failures caused by feed water with physicochemical characteristics that cause scale or corrosion, improper handling of the appliance, and, in general, any reason beyond the control of **DOMUSA TEKNIK** are excluded from this warranty.

This warranty does not affect the rights available to the consumer under the provisions of the law.

NOTES:

DOMUSA
TEKNIK

POSTAL ADDRESS
Apartado 95
20730 AZPEITIA
Tel.: (+34) 943 813 899

FACTORY AND OFFICES
Bº San Esteban s/n
20737 ERREZIL (Gipuzkoa)
Fax: (+34) 943 815 666

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www.domusateknik.com

DOMUSA TEKNIK reserves the right to make changes to the characteristics of its products without prior notice.