Project cürv

Heat Pump Water Heater
Operation and Installation Manual

CE UKCA

Model

CURV-HP200M7

CURV-HP250M7

kiwa approved product
UK BUILDING REGULATIONS

kiwa approved product
UK WATER SUPPLY REGULATIONS

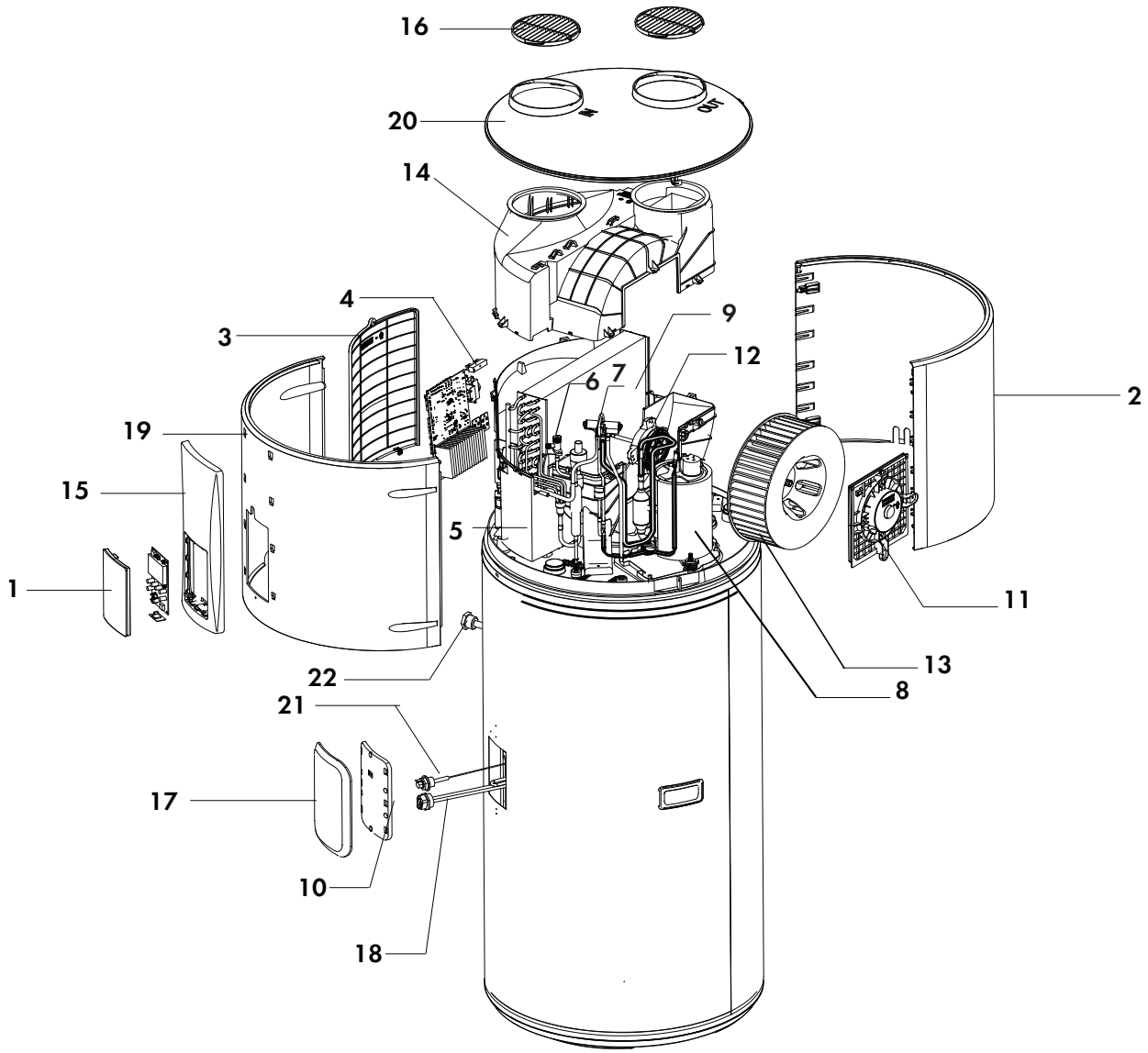
EN 12897:2016

Please read this manual carefully prior to your use of this water heater.
The appearance of the water heater given in this manual is for reference only.

Contents:

Description of parts and components

Exploded view of the heat pump

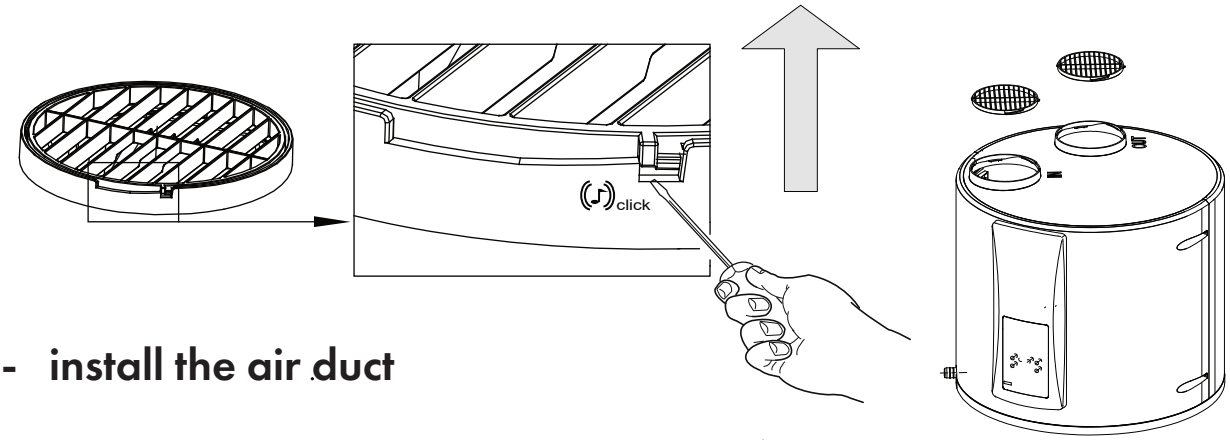


S/N	Description	S/N	Description
1	Display panel	12	DC motor
2	Back cover	13	Fan blade
3	Electrical box cover	14	Diversion air duct
4	Control panel	15	Decoration
5	Electrical box	16	Outlet grate
6	Electronic expansion valve	17	Outer waterproof cover
7	Four-way valve	18	Heating element
8	Compressor	19	Front cover
9	Evaporator	20	Top cover
10	Inner waterproof cover	21	Magnesium rod
11	Support	22	Temperature and pressure valve

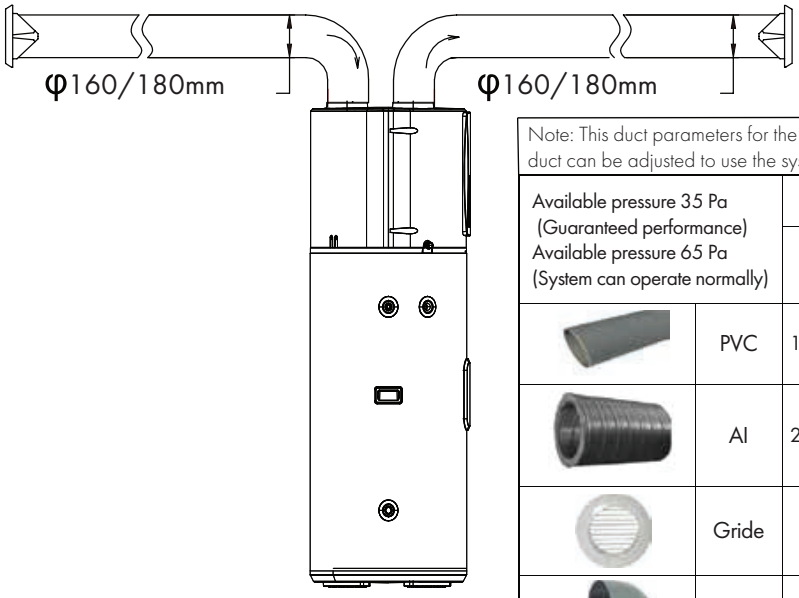
Installation instructions

Air connection

- **Remove air grille first**



- **install the air duct**



Note: This duct parameters for the system's default air speed parameters, if you need to lengthen the duct can be adjusted to use the system V1/V2 block to strengthen the exhaust air

Available pressure 35 Pa (Guaranteed performance) Available pressure 65 Pa (System can operate normally)		Φ160mm		Φ180mm	
		Drop Pressure (Pa)	Equivalent 1m-long	Drop Pressure (Pa)	Equivalent 1m-long
	PVC	1.50/1 meter	1.00	0.96/1 meter	1.00
	Al	2.75/1 meter	1.83	1.67/1 meter	1.74
	Gride	3.41/unit	2.27	2.69/unit	2.80
	90°PVC	4.49/unit	2.99	2.86/unit	2.98
	90°Al	3.54/unit	2.36	2.72/unit	2.83

Installation suggestions: 160mm x + y < 11m (PVC) x + y < 6m (Al)	Installation suggestions: 180mm x + y < 22m (PVC) x + y < 13m (Al)

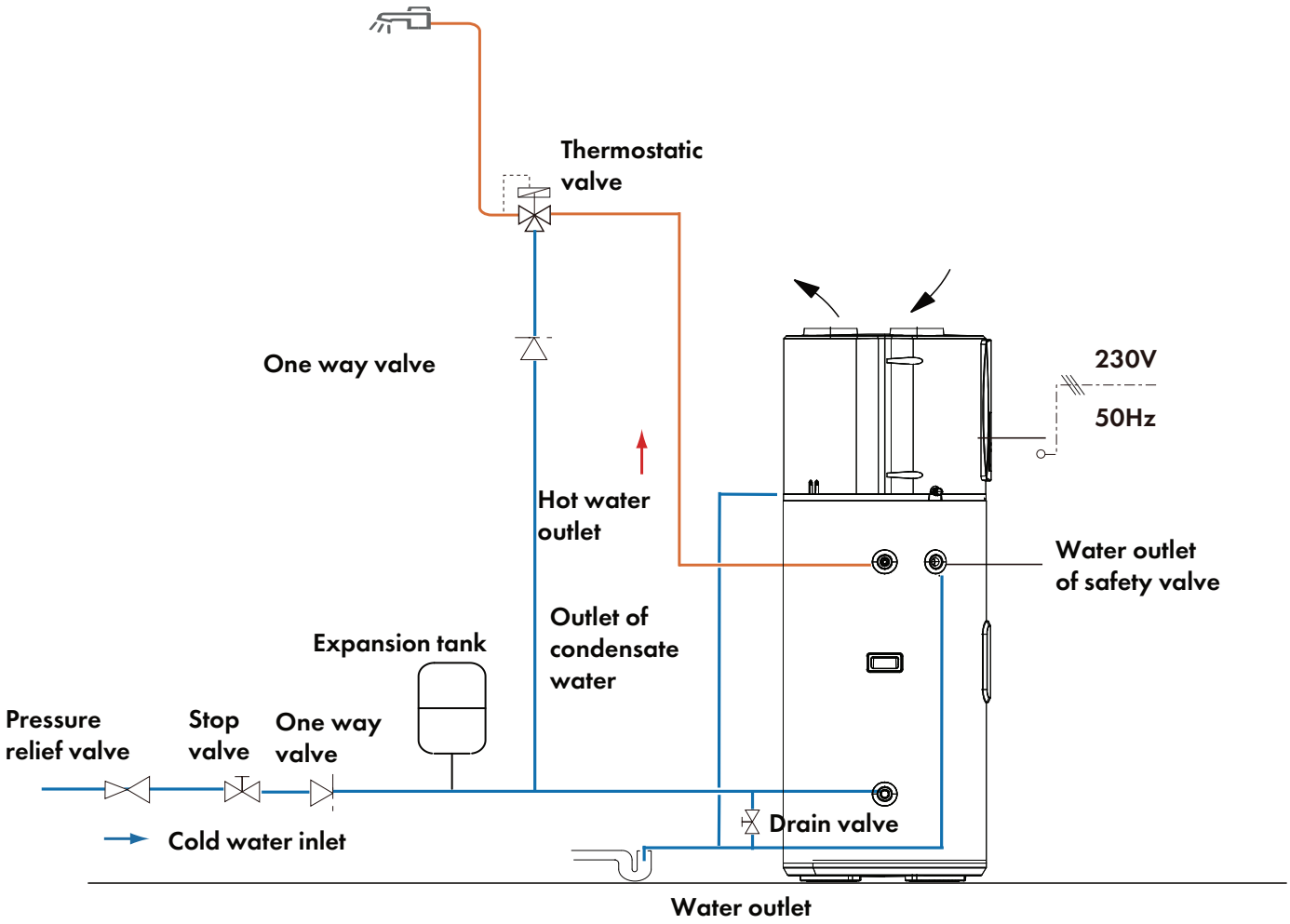
- Pressure drops from duct must be lower than or equal to the static pressure of the fan.
- If the pressure drops out of range, the performance of the appliance will be impaired.

It is recommended that an air grille with a mosquito net be installed at the air inlet of the air guide duct. The ventilation area shall not be less than 180cm^2

Installation instructions

Pipeline installation diagram

Installation A



Installation instructions

Electrical connections precautions

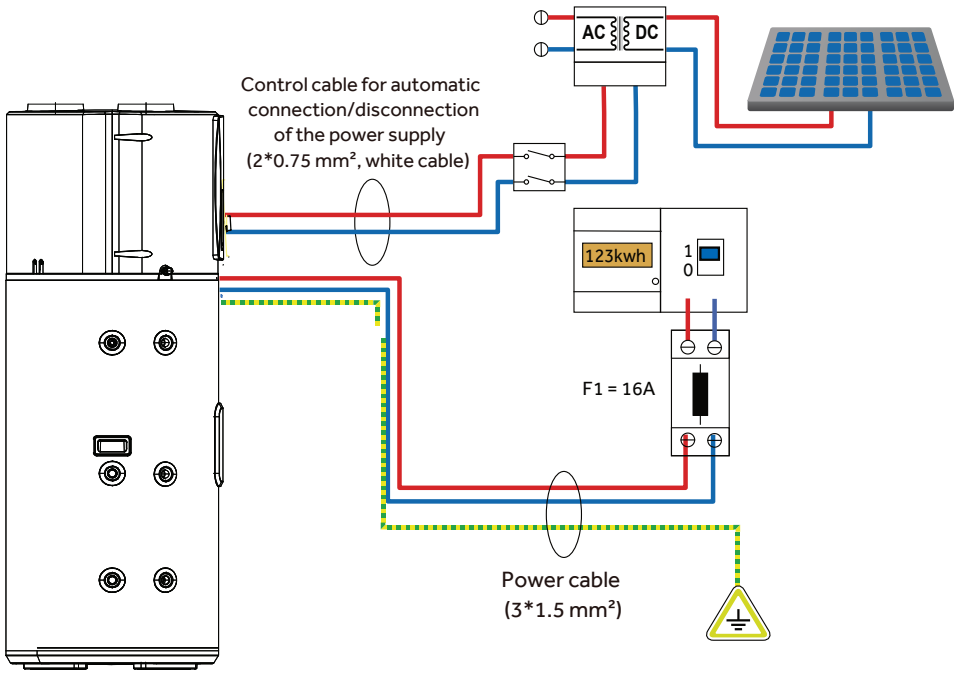
Installation A

WARNING

- Only qualified professionals may carry out electrical connections, always with the power off.
- The earthing shall comply with local standards.

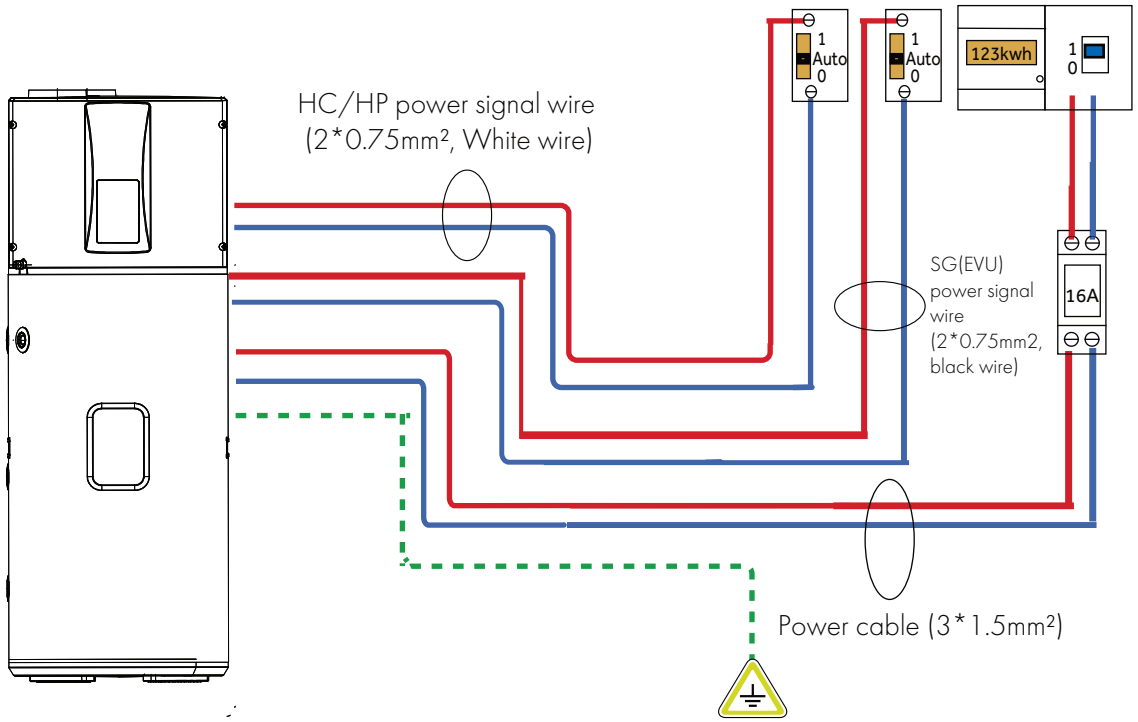
- Water heaters shall be equipped with a dedicated power line and residual current circuit breakers. The action current shall not exceed 30 mA;
- The ground line and the zero line of the power supply shall be separated entirely. Connecting the zero line to the ground line is not allowed.
- Parameter of the power line: 3 × 1.5mm² or more.
- If a power cable is damaged, it shall be replaced by qualified professionals to avoid risks.
- In the case of places and walls where water may be splashed to, installation height of a power socket shall not be less than 1.8 m, and it shall be ensured that water would not be splashed on these places. The socket shall be installed out of children's reach.
- The phase line, zero line and ground line inside a power socket used in your home shall be wired correctly without any wrong positioning or false connection, and internal short circuit shall be avoided. Wrong wiring may cause fire accidents.

Connection to a PV system



Installation instructions

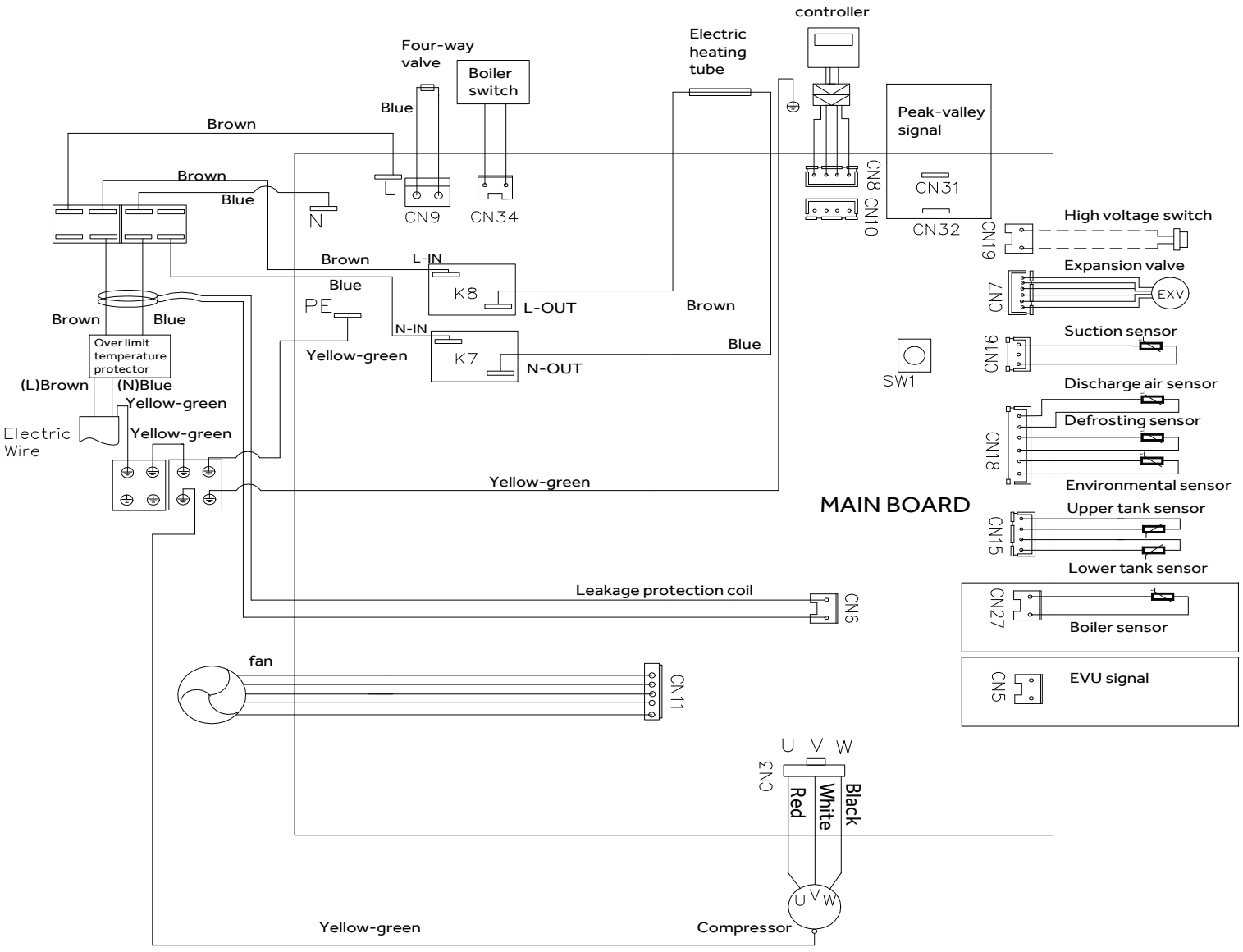
HC/HP power signal wire connection



Note:SG(Applicable in Germany, Austria and Switzerland only)

Installation instructions

Wiring diagram



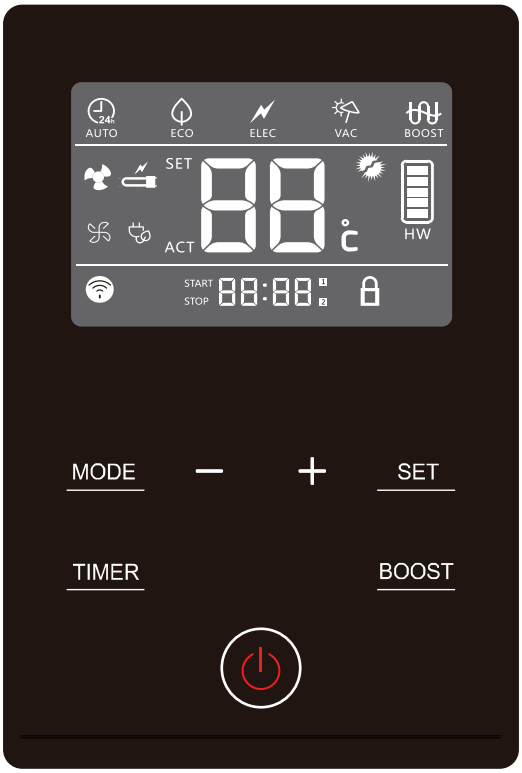
Connection to a PV system

Installation operators shall use checking items for trial running of water heaters as per the operationmanual, and make ✓ in ☐.

- ☐ The electrical connection is correctly connected.
- ☐ Water drain pipes are laid correctly.
- ☐ the ground wire in the hardwire connection.
- ☐ The control panel works well.
- ☐ The water tank has been connected with dedicated temperature pressure relief valve
- ☐ (TPR valve) and check valve.
- ☐ After the water system is completed, the water tank is filled with water. Water drained out of the water outlet of the hot water pipeline.
- ☐ After the water pipe of the water system is filled, check the whole water pipeline. There is no leakage.
- ☐ Once the tank is filled, the TPR valve releases water when the lever is pulled.
- ☐ All hot water lines are correctly insulated.

Operation and functions

Display



Functions & Protections

A. Electrical leakage protection
The control system of this machine features an electricity leakage protection function.

B. 3-minutes protection
When starting the machine after electricity input, the system will start after approximately 3 minutes ,which is considered to be normal.
When restarting the machine immediately after shutdown, the system goes into the protection mode and starts after approximately 3 minutes, which is considered to be normal.

C. Automatic defrosting function
The defrosting mode is automatically activated if the outdoor temperature is too low and after the compressor already runs continuously for a certain period.

D. Overload protection
The working load of the compressor will be heavy if temperature is high in summer. In order to meet hot water requirements of users and to lengthen service life of the compressor, this product automatically adjusts the fan speed to ensure reliable operation of the compressor.

E. Anti-freezing function
The heat pump starts heating to avoid freezing of the water tank if the temperature in the water tank is too low.

F. The default temperature setting is 56°C.

Function Introduction

Installer settings

- To open the installer settings, press switch off the system, then press and SET at the same time for 5 seconds.
- When menu is open, press or to change the value of the settings.
- Press SET to confirm the settings.
- - Press to close the menu.

Parameters	Description	Factory setting	Adjustment range
LP 01, 02 03, 04	**Off-peak logic type** - In four ways-01 Disable function. - 02HC signal. - 03PV signal. - 04SG signal. (Applicable in Germany, Austria and Switzerland only)	**01**	**01 , 02** **03 , 04**
LL no,nc	**Off-peak signal type** When you use off-peak time clock control, first determine the type of signals, Only allow professional installers to operate. - When the home power signal comes, the relay is off, please select NO - When the home power signal comes, the relay is on please select NC; - If LP is set to 04, LL can only be set to NO	**NO**	**NO , NC**
LA 01, 02	**Heating method** - 01: Heat according to the initial heating or insulation heating starting condition, and change the target temperature according to the "Lb" setting temperature. No signal returns to the current mode. - 02: Only activate and heat in the heating time of the current mode, and change the target temperature according to the "Lb" setting temperature. No signal returns to the current mode. - This parameter is valid only when the LP value is not 01 .If LP is set to 04, LA can only be set to 01	**01**	**01, 02**
Lb 55-75	**Target temperature when PV/SG/HC signal is active** - The temperature setting is adjustable between 55°C and 75°C. - This parameter is valid only when the LP value is not 01 .If LP is set to 04, LA can only be set to 01.	**65**	**55-75**
LC 01, 02 03	**Heat source selection in PV/SG/HC functionin** - 01 Compressor and electric heating work at the same time. - 02 The compressor shall be started first. When the system does not meet the operating conditions, the electric heating can be started. - 03 Only electric heating is operated. - This parameter is valid only when the LP value is not 01 .If LP is set to 04, LA can only be set to 01.	**02**	**01,02,03**

Function Introduction

Installer settings

Parameters	Description	Factory setting	Adjustment range
	**Sterilize** - This parameter is the switch of sterilization function. - Every once in a while, heat all domestic hot water to 60~75 ° C	ON	ON , OFF
	**The sterilization target temperature** - The sterilization target temperature can be adjusted between 60 and 75 ° C	65	60-75
	**Sterilization interval** - Sterilization interval can be 7 days, 30 days, only once effective, choose one of the three 07,30,once.	07	07,30, ONCE
	**Start time of sterilization** - Start sterilization at the set time, only hours can be set.	00:00	00:00-23:00
	**Compressor maximum continuous working time** - If the maximum continuous working time of the compressor more than Set Time, start auxiliary power.	20	5-20
	**Average water temperature starting return difference** - When the actual average water temperature is 10°C lower than the set temperature, the heat pump will start again, and the adjustment range is 5-15 ° C.	10	5-15
	**Upper water temperature starting return difference** - When the actual upper water temperature is 5°C lower than the set temperature, the heat pump will start again, and the adjustment range is 5-15 ° C.	5	5-15
	**Fan speed function** - This function can be enabled when the total length of air ducts exceeds 20 MB. This function is equivalent to the constant speed during heating start-up and heating, which has a certain adverse effect on system performance. - 00 Disable function - 01 V1 gear (fan speed 700 RPM) - 02 V2 gear (fan speed 800 RPM)	00	00,01,02
	**External auxiliary heating source** - This function can be set when the external boiler or solar energy is connected. - 00Disable function - 01boiler - 02solar energy	00	00,01,02

Installer settings & WIFI connection

WIFI connection

Your appliance can be connected to your home wireless network and operated remotely using the app.Getting started:

1. Search for "CURV Smart App”in the app store, download and install it on your phone.
2. Register an account and log in.
3. Ensure your home Wi-Fi network is turned on and that the device is powered on.
4. Turn off the device, then press and hold the "-" button to enter the distribution network status. At this point the Wi-Fi icon will start flashing.
5. Open the app and click "Add Device" in the upper right corner. Add the device through either auto-discovery or by scanning the QR code. If the connection is successful, the Wi-Fi icon will remain solid.

Step1

Download the CURV Smart life app on the stores, search “CURV Smart App”

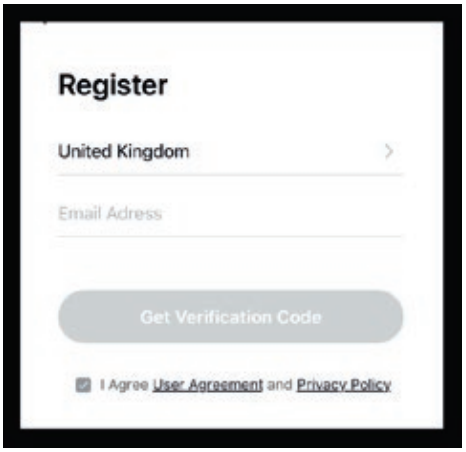
GET IT ON Google Play

Download on the App Store

EXPLORE IT ON AppGallery

Step2

Create your account on the CURV Smart App or log in if youalready have an account



1. When the download is finished, click ‘Create New Account’.
2. Enter your email address and press ‘Get Code’.
3. You will receive an email with a verification code (If it doesn’t appear in your inbox, check your spam/junk folder.)
4. Set your password and click ‘Done’ to finish.

Checking and Maintenance

- Installation and maintenance of the appliance must be undertaken by a qualified professional.
- Before working on the appliance, shut down the machine and cut off the power supply.
- Do not touch with wet hands.
- Maintenance operations are important to guarantee optimal performance and extend the life of the appliance.

Checking of the TPR valve

- Operate the TPR valve at least once every six months to check if it is running correctly. Otherwise check for blocking and replace the safety valve if necessary.

Checking of the hydraulic circuit

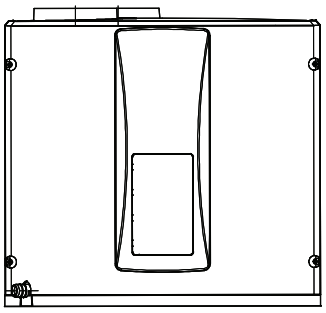
- Check the watertightness of the water connections.

Cleaning of the fan

- Check and clean the fan annually.

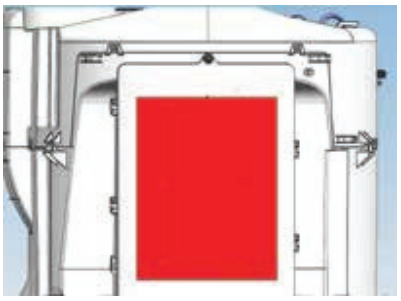
Top Cover Removal

- Remove the 4screws on the left side with a screwdriver;
- Push forward to open the front housing.



Checking of the main control board

- Use a screwdriver to remove the screw.



Checking and Maintenance

Checking of the evaporator

- The evaporate fins are sharp and can cause injury or cuts to hands.
- Avoid damaging the evaporator fins as this can affect the performance of the appliance

- It is recommended that the evaporator is cleaned every two years.
  Clean the evaporator with a soft brush and water if required. Do not use cleaning agents to clean the evaporator fins.

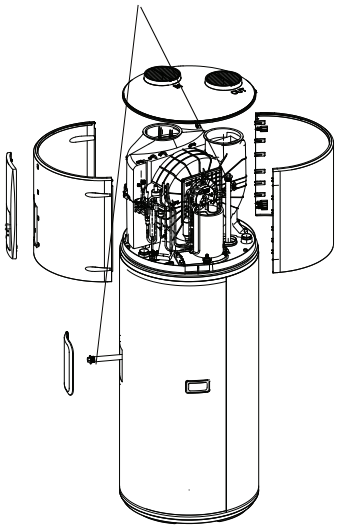
Checking of the condensates drain

- Check the pipe cleanliness.
- An obstruction may cause poor condensates flow or even a risk accumulation of water heat pump base.

Checking of the anode

- To avoid irreversible corrosion of the cylinder, it is recommended to check the anode every two years. If degraded, replace the anode.
- Checking magnesium anode once every 2 years.

Magnesium anode



Note:
When checking the magnesium rod, remove the air duct and top cover first

Drain the water tank to empty

- Cut the power supply and shut down water inlet valve, then drain the cylinder.
  Please avoid the hot water inside the water tank to avoid injury.

Faults and Protection

Water Quality

Water supply from an unfiltered water source that maybe highly conductive or have a high mineral content may void the system warranty.
Therefore, to ensure water quality guidelines are met, the following characteristics should not be exceeded.

Total Dissolved Solids (TDS)

Water Properties	Acceptable Level
Total hardness	200 mg/litre or ppm
Total Dissolved Solids(TDS)	600 mg/litre or ppm
Chloride	200 mg/litre or ppm
Magnesium	10 mg/litre or ppm
Sodium	150 mg/litre or ppm
pH	Min 6.5 to Max 8.5
Electricity conductivity	850 µS/cm

In areas of poor water quality, it is recommended that a softener, conditioner or similar device be fitted to the water supply.

WARNING

A breach of this condition may void the warranty in the event of damage caused by water quality exceeding these characteristics.

Faults and Protection

Water Quality

ANODE

The enamellining cylinder of the water heater is only covered by warranty when the total dissolved solids (TDS) content in water is less than 2500 mg/L and the anode protection equipment is used correctly. If an incorrect colour coded anode is used in the water heater, any resultant faults will not be covered by the warranty. In addition, the use of an incorrect colour coded anode may shorten the life of the water heater cylinder.

The correct colour coded anode is as shown in the following table:

Total Dissolved Solids	Anode colour code
0 - 40 mg/L	Green
40 - 150 mg/L	Green or Black
150 - 400 mg/L	Black
400 - 600 mg/L	Black or Blue
600 - 2500 mg/L	Blue
2500 mg/L+	Blue (No Cylinder Warranty)

Fault Types

Fault type	Action	Digital Indication	Release
Compressor Protection	Operating temperature protection	F2	After fault is solved, switch on power supply for release
	Air exhaust temperature protection	F3	
	Evaporation high temperature protection	F5	
Compressor Over-current Protection	Over-current protection	F6	
Electricity Leakage Alarming	The system will automatically cut off power supply if any line fault occurs	E1	After fault is solved, switch on power supply for release
Over Teperature Alarming	The actual water temperature ≥85°C	E2	
Fault of the Inner Temperature Sensor	If short circuit or circuit break occurs to the sensor	E3	
Fault of the Ambient Temperature Sensor	If short circuit or circuit break occurs to the sensor	E4	
Fault of the Evaporation Temperature Sensor	If short circuit or circuit break occurs to the sensor	E5	
Fault of the Air Exhaust Temperature Sensor	If short circuit or circuit break occurs to the sensor	E6	
Fault of the Air Intake Temperature Sensor	If short circuit or circuit break occurs to the sensor	ED	
Communication Fault	Communication of main control panel and display panel is abnormal	E7	
Pressure Switch Protection	Action of the pressure switch at the exhaust outlet	E8	
Ambient Temperature Protection	Ambient or outdoor temperature <-7°C or >45°C	E9	
Fault of the Solar or Boiler Temperature Sensor	If short circuit or circuit break occurs to the sensor (for HP250M3C)	EE	
Fault of the Off-peak Power Switching Signal	If not received the Off-peak signal when selecting switch signals by power companies	EF	

Fault Types

Fault type	Action	Digital Indication	Release
Transient hardware overcurrent of the press phase current	The MCU detects a low level input at the FO port or a bus current greater than the 19.4Apeak threshold set by the MCU internal comparator	P1	Power on or off the device again. The fault is rectified
Press phase current software transient overcurrent	The instantaneous output current is greater than 17A	P2	When the current is less than the set protection value, the system automatically recovers after 20s
The heat sink (IPM)	IPM module temperature > 100 ° C	P3	60 seconds later, the MCU

Fault Types

temperature is too high			detects that the IPM module temperature is lower than 85°C and automatically recovers
Input overflow load	The input current RMS exceeds 18A or the peak output current exceeds 17A	P4	The press automatically recovers after shutdown
undervoltage protection	Bus voltage below 200V lasts for 5ms	P5	If the VDC is greater than or equal to 210V after the compressor is stopped for 20 seconds, the fault is rectified
Over Voltage Protection	PFC voltage or bus voltage VDC greater than 390V for 5ms	P6	After the compressor is stopped for 20 seconds, the fault is rectified if the VDC ≤ 380V
The communication between the main control chip and the driver chip is abnormal	The master control and driver cannot receive data or a data error persists for 2 minutes	P7	After receiving the communication from the other party, it automatically recovers and the fault is eliminated
The current detection on the frequency conversion side is abnormal	Before the press is in operation, there is a 10-20% deviation between the AD value of the incoming voltage detected by the sampling circuit and the AD value of 1.65V	P8	The circuit is repaired and then powered on again
Press out of step	The actual running speed of the compressor is less than 50% or more than 120% of the target speed of the drive for more than 5S	PB	Detect normal fault elimination
Instantaneous Software Overflow on the rectifier Side	The instantaneous value of the input current is greater than 30A for 3 times, and each PWM cycle is detected once	PD	After the press is stopped for 20 seconds, the current is less than 30A and automatically recovers. Power off and restart. The fault is rectified
Transient hardware overcurrent on the rectifier side	The instantaneous input current is greater than 31A for four times	PF	The press automatically recovers when the current is less than 31A after 20 seconds of shutdown. Power off and restart. The fault is rectified
Boiler/solar sensor failure	On the premise that the boiler/solar switch signal is turned on, the sensor is detected to be short and open for 3s	Lb	Detect normal fault elimination

Fault Types

Fault type	Action	Digital Indication	Release
Compressor protection	Range operating temperature protection	F2	After fault is solved, Automatic release.
	Air exhaust temperature protection	F3	After fault is solved, restart or switch on power supply for release.
	Evaporation high temperature protection	F5	
Electricity leakage alarming	Low electrical insulation	E1	
Over temperature alarming	The actual water temperature ≥85 °C	E2	After fault is solved, Automatic release.
Fault of the tank temperature sensor	If short circuit or circuit break occurs to the sensor	E3	
Fault of the ambient temperature sensor	If short circuit or circuit break occurs to the sensor	E4	
Fault of the evaporation temperature sensor	If short circuit or circuit break occurs to the sensor	E5	
Fault of the compressor exhaust temperature sensor	If short circuit or circuit break occurs to the sensor	E6	
Fault of the compressor intake temperature sensor	If short circuit or circuit break occursto the sensor	ED	
Communication fault	Communication of main control paneland display panel is abnormal	E7	
Ambient temperature protection	Ambient or outdoor temperature <-7°C or >45°C.	E9	
Fault of the Off-speak power switching signal	If not received the Off-peak signal when selecting switch signals by power companies.	EF	
Fault of the external heat source temperature sensor	If short circuit or circuit break occurs to the sensor.	Lb	
Pressure switch protection	Action of the pressure switch at theexhaust outlet.	E8	After fault is solved, restart or switch on power supply for release.
Fault of the fan	Fan blade is stuck or fan and control panel communication failure.	L7	
Wi-Fi communication fault	The communication between the display board and the WiFi module fails when the wifi module is in configuration mode.	F0	After fault is solved, Automatic release.

Fault Types

Fault type	Action	Digital Indication	Release
Variable frequency side fault	Compressor phase current hardware transient overcurrent.	P1	After fault is solved, restart or switch on power supply for release.
	Compressor phase current software instantaneous overcurrent.	P2	After fault is solved, Automatic release.
	IPM temperature anomaly.	P3	
	Current overload.	P4	
	Under voltage protection.	P5	
	Overvoltage protection.	P6	
	The communication between the main control and driver is faulty.	P7	
	The current detection circuit on the frequency conversion side is abnormal.	P8	After fault is solved, restart or switch on power supply for release.
	Out of step detection.	PB	
	Software transient overcurrent on the rectifier side.	PD	After fault is solved, Automatic release.
	The hardware on the rectifier side is overcurrent.	PF	After fault is solved, restart or switch on power supply for release.
As we can see the latest errors in memory and reset it.			

The  symbol on the product or on its packaging indicates that this product is not to be treated as regular household waste. Instead, it must be takento a recycling collection point for electrical and electronic equipment. By properly disposing of this product, you are contributing to the preservation of the environment and the wellbeing of your fellow citizens. Improper disposal is hazardous to health and environment. You can obtain further information on how to recycle this product from your municipality, your waste management service or the shop where you purchased it.

Common Issues

PROBLEM	POSSIBLE CAUSE	WHAT TO DO
The water delivered is cold or insufficiently hot	Temperature setting is low	Raise the water temperature setting
	Machine malfunctioning	Check for errors on the display and follow the instructions on the "Errors" table
	No electrical connection, wires disconnected or damaged	Check the voltage on the power terminals, check the condition of the wires and connections
	HC/HP signal missing (if the product is installed with EDF signal cable)	To check the operation of the product start the "Boost" mode; if the outcome is positive check the presence of the HC/HP signal from the meter and check that the EDF cabling is intact
	Malfunctioning of the timer for the two-tier rate (if the product is installed with this configuration)	Check the operation of the day/night meter and that the set time is sufficient to heat the water
	Insufficient air flow to the evaporator	Clean the grilles and ducts regularly
	Product is switched OFF	Check the mains power supply. Switch the product ON
	Use of a significant amount of	hot water when the product is in heating phase
	Sensor error	Check for NTC errors, even occasional ones.
The water is boiling (with possible steam on the taps)	High level of limescale build-up in the boiler and components	Unplug the power supply, empty the appliance, remove the heating element sheath and clean the limescale from the inside of the boiler, taking care not to damage the enamel on the boiler and the heating element sheath. Reassemble the product in its original configuration. We recommend replacing the flange gasket
	Sensor error	Check for NTC errors, even occasional ones
Reduced operation of the heat pump, electrical heating element is in almost continuous operation	"Time W" value too low	Set a lower temperature parameter or a higher "Time W" parameter
	Installation performed with non-compliant electricity power supply (voltage too low)	Power the product with the correct voltage
	Evaporator obstructed or frozen	Make sure that the evaporator is clean
	Problems with the heat pump circuit	Check the disply for error messages
	8 days have not passed yet since: Initial start-up Time W parameter change Power failure	Wait 8 days
Insufficient hot water flow	Leaks or obstructions in the hydraulic circuit	Check the circuit for leaks, check the condition of the deflector on the inlet cold water pipe and the integrity of the delivery hot water pipe
Water leaking from the pressure safety device	It is normal for some water to drip from the device during heating phase	To prevent water from dripping, an expansion vessel must be installed on the delivery system. If the leak continues even after the heating phase, check the calibration of the device and the mains water pressure. Warning: Never obstruct the device's discharge outlet!
Increased noise level	Presence of an internal obstruction	Check the moving components of the unit, clean the fan and other moving parts which could cause noise
	Some components are vibrating	Check the components connected using mobile clamps, ensuring the screws are well tightened
Problems with viewing the display or the display turning off	Failure or electrical connection problems between the motherboard and the interface PCB	Check the connection status and the correct operation of the PCBs.
	Power failure	Check the power supply
A bad odour is coming from the prodcut	No siphon or siphon is empty	Install a siphon. Ensure it contains the necessary amount of water
Abnormal or excessive consumption than expected	Leaks or partial obstruction in the refrigerant gas circuit	Switch the product ON in heat pump mode, use a leak detector for the specific type of gas to ensure there are no leaks
	Unfavourable environmental or installation condition	
	Evaporator is partially obstructed	Check the condition of the evaporator, grille and conduits to ensure they are clean
	Non-compliant installation	
Other		Contact technical assistance

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*Information correct as of 09/24.