

Haier

Heat Pump Water Heater

Installation and Service Manual

Model

HP200M7-F9

HP250M7-F9

HP200M7C-F9

HP250M7C-F9



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.

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1. Product safety statement

1. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
2. Children shall be closely supervised to make sure they stay away from this product.
3. The method of installing safety valve please refer to Page 16.
4. The water may drip from the discharge pipe of the pressure relief device and this pipe must be left open to the atmosphere.
5. The water heater is to be drained according to the instructions specified on page 27.

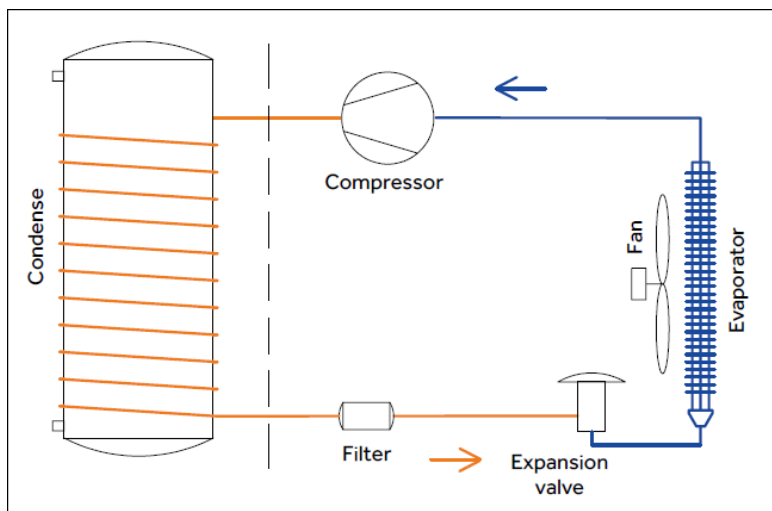
Safety instructions (to be followed at any time)

Refrigerant: R290; When handling product, you should

- No smoking
- Prevent the accumulation of electrostatic charges
- Work in a well ventilated place.
- Avoid contact with the skin and eyes
- Do not inhale the vapours
- Evacuate the hazardous area
- Stop the leakage

2. Functionings & principles

A low-pressure liquid refrigerant is vaporized in the heat pump's evaporator and passed into the compressor. As the pressure of the refrigerant increases, so does its temperature. The heated refrigerant runs through a condenser coil within the storage tank, transferring heat to the water stored there. As the refrigerant delivers its heat to the water, it cools and condenses, and then passes through an expansion valve where the pressure is reduced and the cycle starts over.

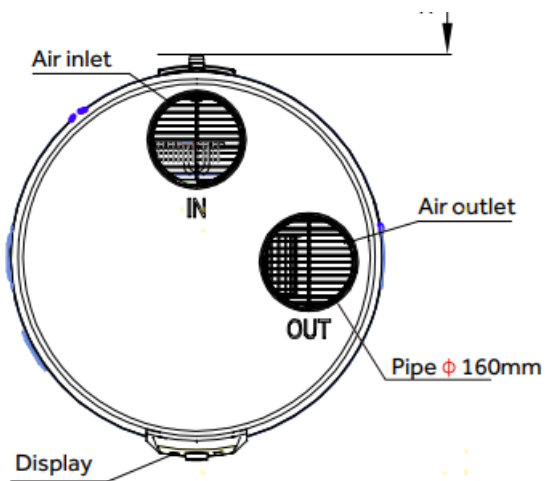
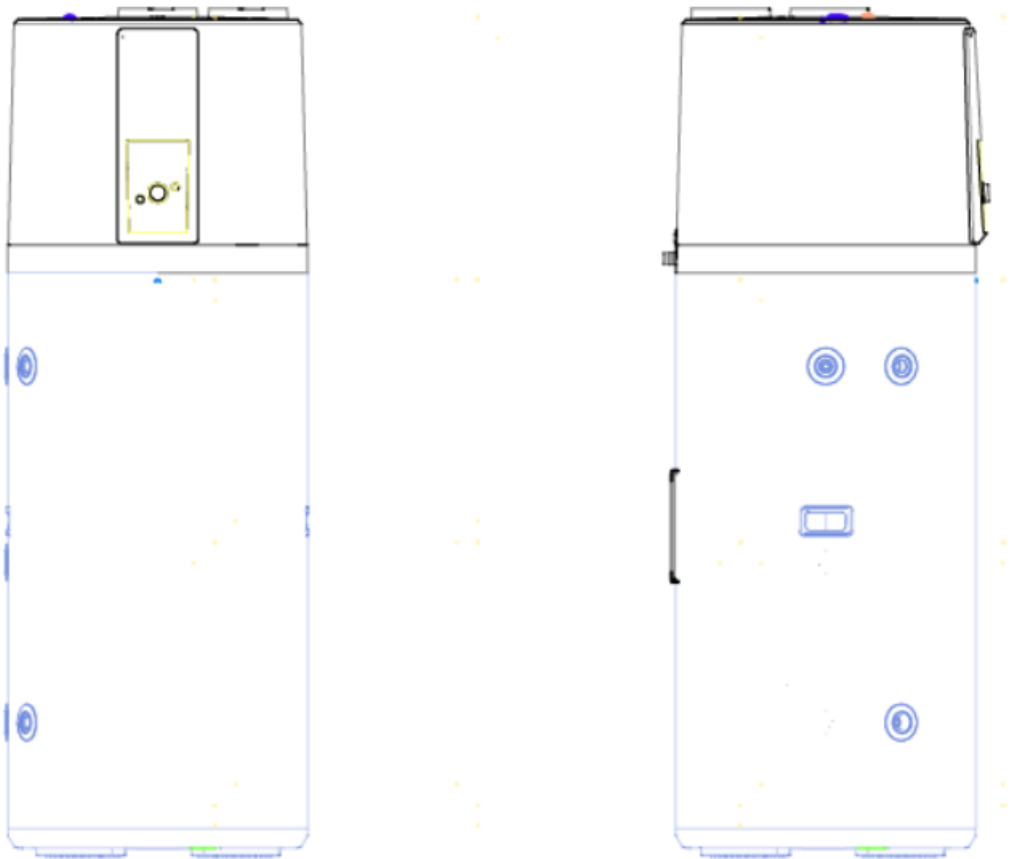


3. Technical parameters

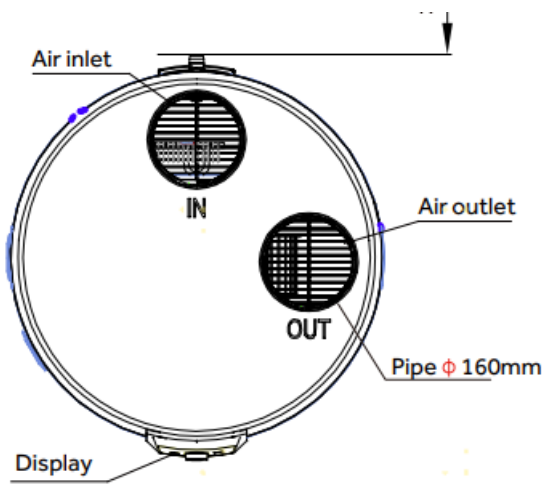
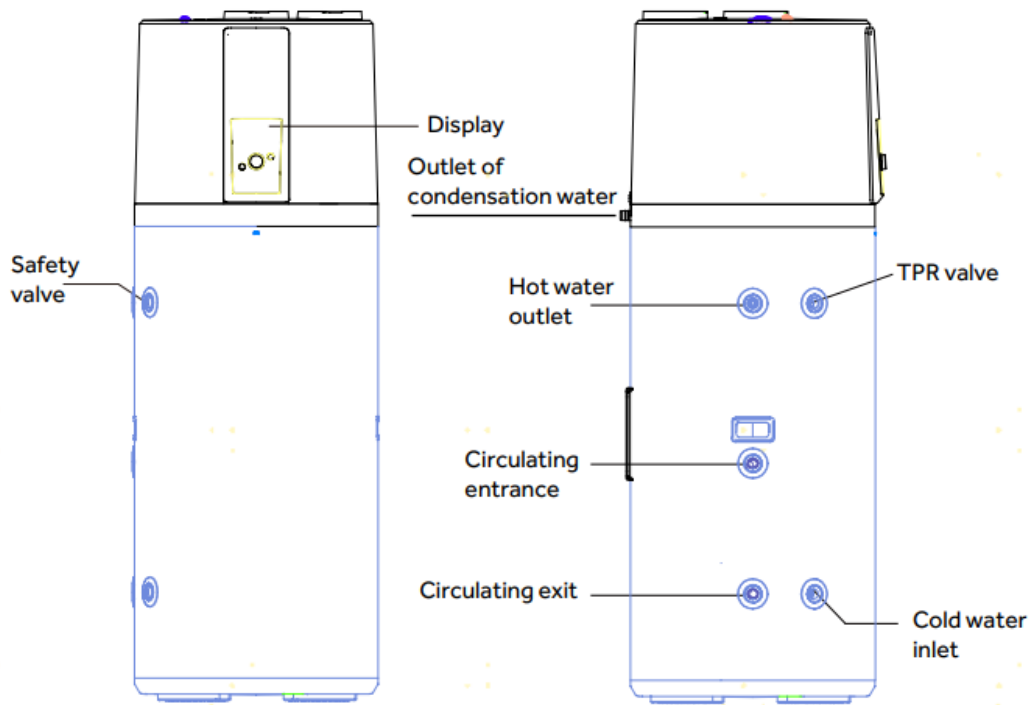
Model	HP200M7-F9	HP200M7C-F9	HP250M7-F9	HP250M7C-F9
Tank				
Total cylinder capacity	192L	185L	246L	240L
Rated voltage/frequency	220-240V/50Hz	220-240V/50Hz	220-240V/50Hz	220-240V/50Hz
Tank max pressure	700kPa	700kPa	700kPa	700kPa
Thermal insulation	50mm	50mm	50mm	50mm
Corrosion protection	Magnesium rod	Magnesium rod	Magnesium rod	Magnesium rod
Insulation Protection Rating	IPX4	IPX4	IPX4	IPX4
Performances(7°C/6°C Ambient air temperature, 10°C-55°C water temperature)				
COP@2°C(EN16147)	2.79	2.43	2.66	2.81
COP@7°C(EN16147)	3.26	3.24	3.21	3.27
COP@14°C(EN16147)	3.5	3.55	3.45	3.45
Max air quantity	710m³/h	710m³/h	710m³/h	710m³/h
Power input by electric backup	1500W	1500W	1500W	1500W
Rated power input by heat pump	320W	320W	320W	320W
Maximum power input by heat pump	535W	535W	535W	535W
Maximum power input	2035W	2035W	2035W	2035W
Heating water capacity	24L/h	24L/h	24L/h	24L/h
Heating up time (10°C-55°C)@7°C	7.8h	6.71h	10.51h	10.09h
Default temperature setting	65°C	65°C	65°C	65°C
Temperature setting range-with heater	35°C-75°C	35°C-75°C	35°C-75°C	35°C-75°C
maximum temperature output for the heat pump only	65°C	65°C	65°C	65°C
Refrigerant type/weight	R290/0.15kg	R290/0.15kg	R290/0.15kg	R290/0.15kg
Sound power level	50dB(A)	50dB(A)	50dB(A)	50dB(A)
Sound Pressure at 1 m	36dB	36dB	36dB	36dB
V40	234L	229L	313L	314L
Air source temperature range of HP	-7°C-45°C	-7°C-45°C	-7°C-45°C	-7°C-45°C
Thermal dispersion [kWh/24h]	0.840	0.720	0.672	0.840
Thermal dispersion S [W]	35	30	28	35
Thermal dispersion Ktank [W/K]	0.78	0.67	0.62	0.78
Dimension and connections				
Water inlet and outlet connection	Rp 3/4 Large Flow	Rp 3/4 Large Flow	Rp 3/4 Large Flow	Rp 3/4 Large Flow
TPR valve connection	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
Drain & Water inlet connection	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
Product Dimensions	(600*620*1694)mm	(600*620*1694)mm	(600*620*1989)mm	(600*620*1989)mm
Packing dimension with pallet	(736*695*1940)mm	(736*695*1940)mm	(736*695*2250)mm	(736*695*2250)mm
Net/Gross weight	87/110kg	97/120kg	99/122kg	108/132kg
Filled weight of the appliance	279kg	282kg	345kg	348kg

4. Description of parts and components

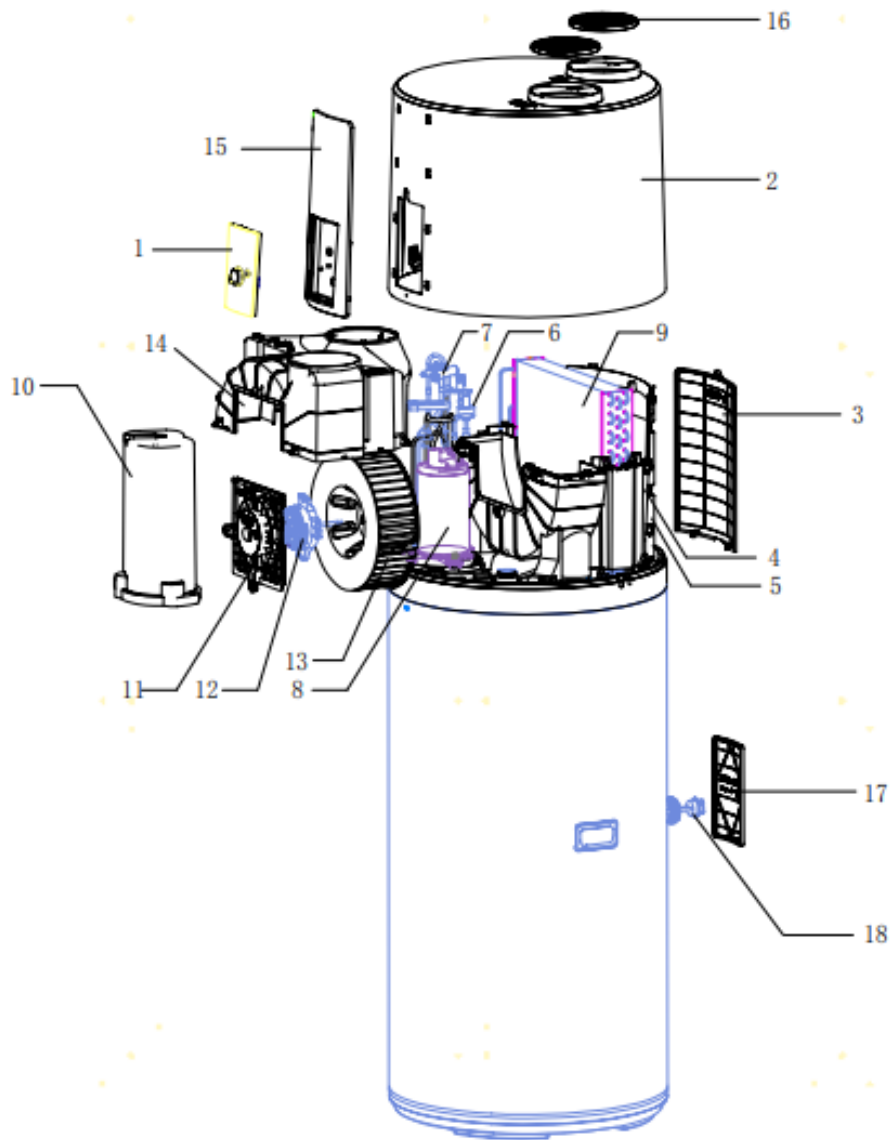
Heat pump structure (HP200M7-F9 / HP250M7-F9)



Heat pump structure (HP200M7C-F9 / HP250M7C-F9)



Exploded view



S/N	Description	S/N	Description
1	Display panel	10	Press cover housing
2	shell	11	Support
3	Electrical box cover	12	DC motor
4	Control panel	13	Fan blade
5	Electrical box	14	Diversion air duct
6	Electronic expansion valve	15	Decoration
7	Four-way valve	16	Outlet grate
8	Compressor	17	Waterproof cover
9	Evaporator	18	Heating element

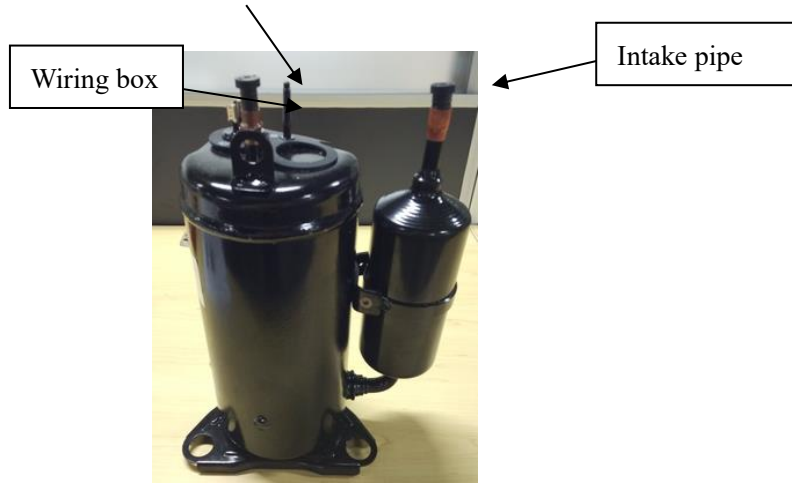
Heat pump system components

1. Compressor

The compressor is to effect a low-temperature low-pressure evaporator refrigerant vapor sucked and compressed

Exhaust pipe

into high temperature and pressure of the superheated vapor, and then discharged to the condenser heat exchanger.



2. Evaporator

Evaporator effects: it makes the liquid refrigerant absorbs heat and is evaporated into steam.



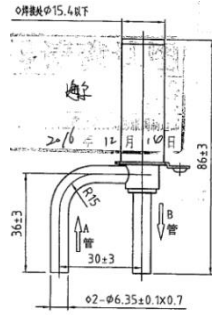
3. Condenser

A condenser: high-temperature high-pressure refrigerant vapor is condensed into liquid, during condensation, the refrigerant vapor discharge heat, the heat is absorbed by the heating medium.



4. Electronic expansion valve:

The refrigerant passes through the electric expansion valve, the pressure from the condensing pressure is reduced to the evaporation pressure, part of the refrigerant will evaporate into gas in the throttling process.



5. Filter

It's interior has a filter and desiccant, the desiccant absorbs moisture from the refrigerant, the filter can filter out impurities in the refrigerant.



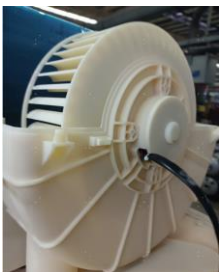
6. High Voltage Switchgear

High-voltage switch is to prevent excessive pressure in the system, thus affecting the life of the system components, high-pressure of the high-voltage switch is 2.8MPa.



9. Fan

It forced air through the duct, and then flows through a heat exchanger to improve heat transfer efficiency of the heat exchanger.



9. Refrigerant

Heat pump refrigerant is R290, ODP value is 0, no damage to the ozone layer. R290 refrigerant cans appearance is as follows:

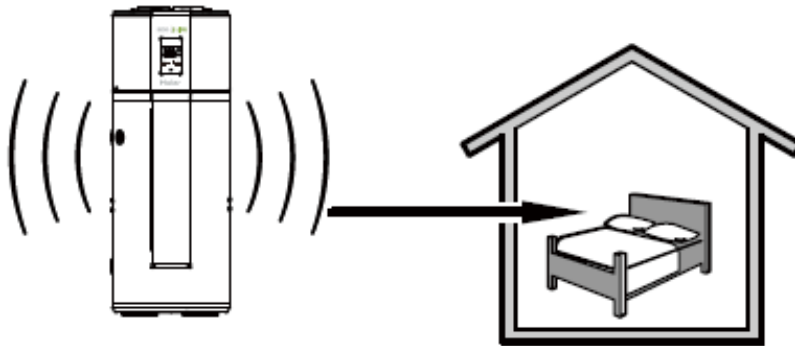


5. Installation introduction

a. Installation precaution

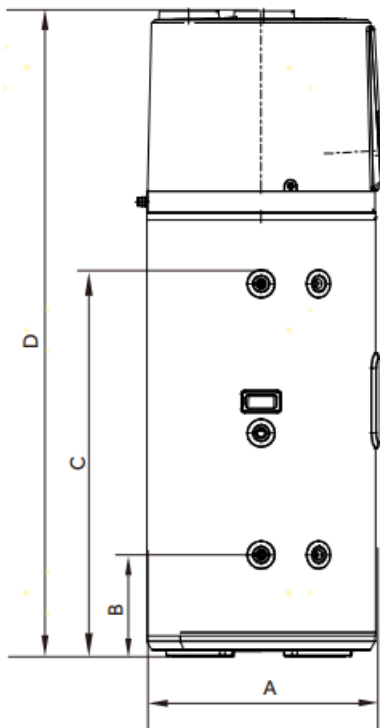
- Do not install the water heater in the position where exposed to gas, vapours or dust.
- Install the appliance on a flat, solid surface. The surface can support the machine weight and the condensate water can be drained freely.
- Noise due to operating and air flow do not bother neighbors.
- Make sure there is sufficient space left for installation and maintenance.
- There is no strong electromagnetic interference around that may affect control functions.
- There is no sulfur gas or mineral oil existing at the installation place, which may cause corrosion of the machine and the fittings.
- The water pipe for the water heater used at temperatures below 0°C shall not freeze.
- It shall not be set in rooms where a heating system is used so that heating supply to the room will not be affected.
- It shall not be set inside a totally-enclosed space.
- The air taken in must in no event be dusty.
- Install the appliance in a dry, frost-free room.
- Temperature of the ambient air or of the air taken in by the heat pump for optimum running: from 10 to 35°C.

Keep an adequate distance between the working heat-pump and the resting places.

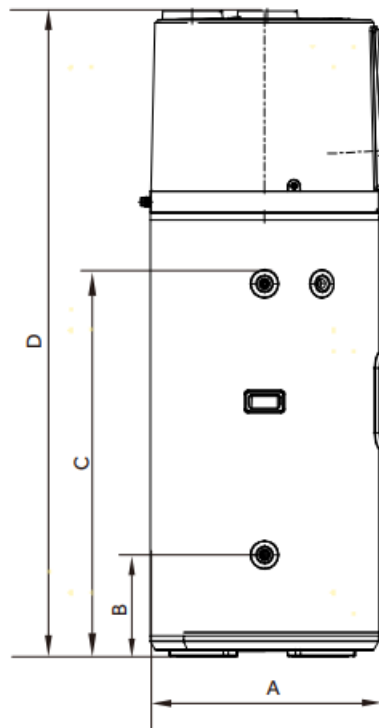


b. Installation dimensions (mm)

Installation dimensions for a heat pump



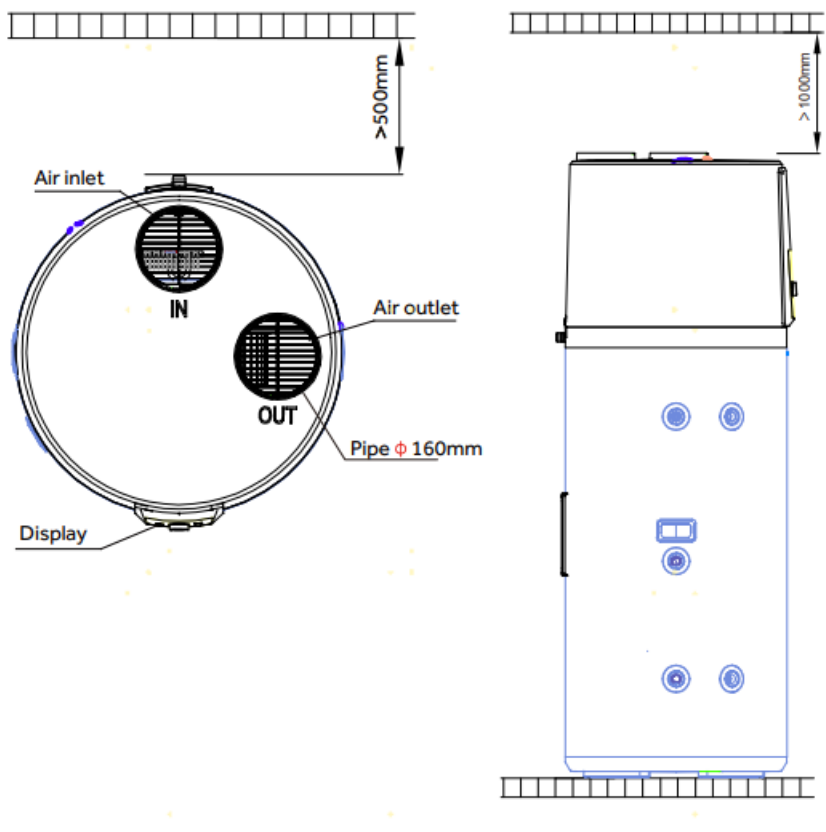
HP200M7C-F9/HP250M7C-F9



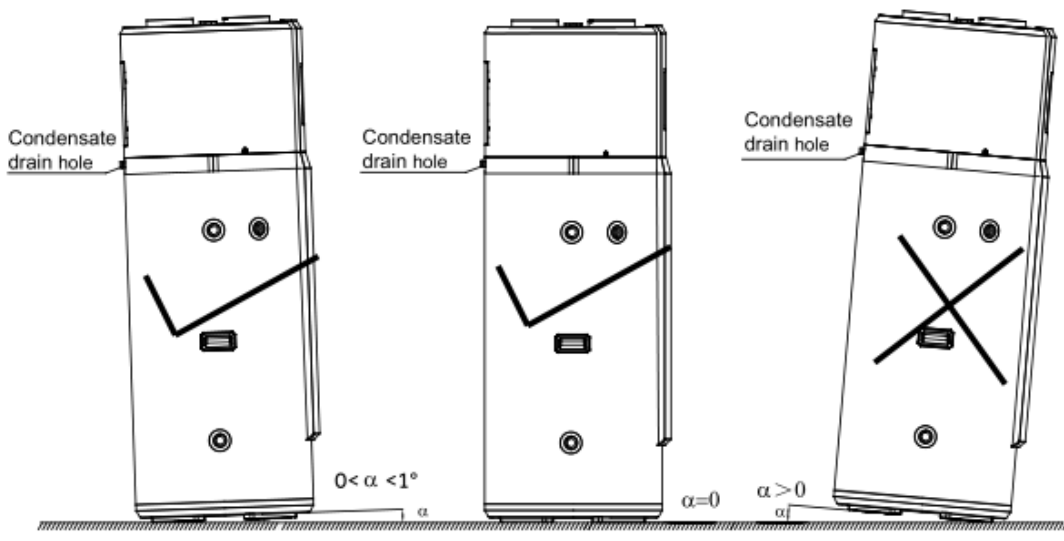
HP200M7-F9/HP250M7-F9

unit: mm

Model	A	B	C	D
HP200M7-F9	620	270	980	1694
HP250M7-F9	620	270	1275	1989
HP200M7C-F9	620	270	980	1694
HP250M7C-F9	620	270	1275	1989

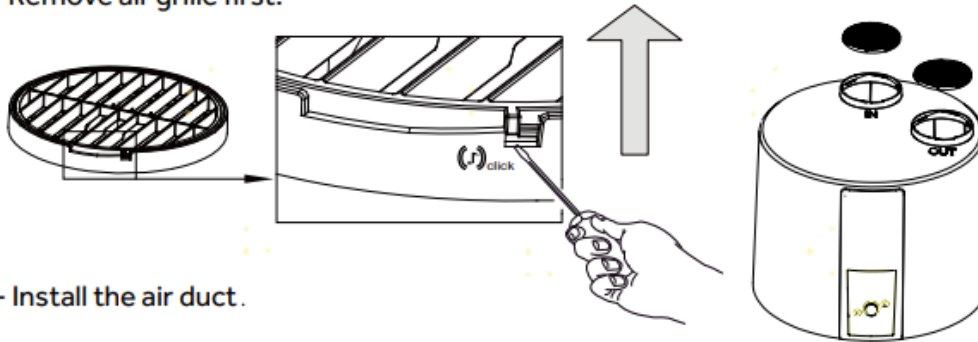


c. Installation angle refer to the following diagrams

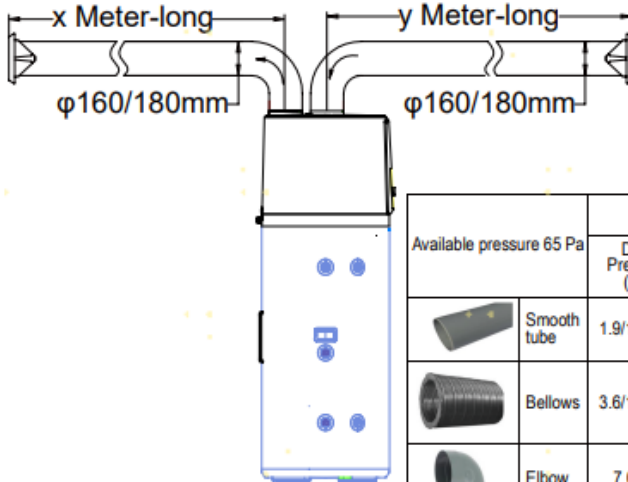


Pipe connection

- Remove air grille first.



- Install the air duct.



Available pressure 65 Pa		φ160mm		φ180mm	
		Drop Pressure (Pa)	Equivalent 1m-long	Drop Pressure (Pa)	Equivalent 1m-long
	Smooth tube	1.9/1 meter	1	1.6/1 meter	1
	Bellows	3.6/1 meter	2	3.2/1 meter	2
	Elbow	7.0/unit	4	6.3/unit	4
	Air grid	9.0/unit	5	8.0/unit	5

Calculation of the length of air ducts connected to different static pressures

pipe diameter	160mm		180mm		200mm	
	pressure loss	Equivalent	pressure loss	Equivalent	pressure loss	Equivalent
1m PVC	1.5	1	0.96	1	0.64	1
1m AI	2.75	1.8	1.67	1.7	1.07	1.7
Grile	3.41	2.3	2.69	2.8	2.13	3.3
PVC 90°	4.49	3.0	2.86	3.0	1.92	3
AI 90°	3.54	2.4	2.72	2.8	2.13	3.3

300m ³ /H	PA max 35		PA max 61 (V1)		PA max 99 (V2)	
PVC	X+Y<11	11.52	X+Y<27	27.12	X+Y<49	49.92
AI	X+Y<7	6.905455	X+Y<15	15.41455	X+Y<27	27.85090909

Explanation: The length of the above air duct includes two 90 degree elbows, two grilles, and two air duct lengths (with a diameter of 160mm), with a reduction coefficient of 0.9

300m ³ /H	PA max 35		PA max 61 (V1)		PA max 99 (V2)	
PVC	X+Y<22	22.40625	X+Y<46	46.78125	X+Y<82	82.40625
AI	X+Y<13	13.03114	X+Y<27	27.04311	X+Y<47	47.52215569

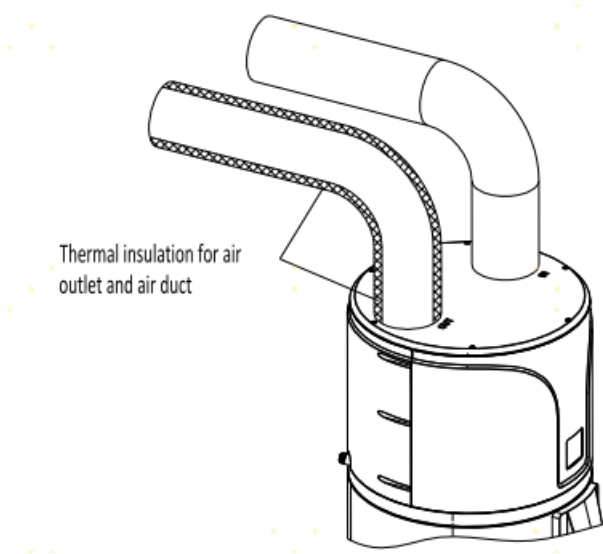
Explanation: The length of the above air duct includes two 90 degree elbows, two grilles, and two air duct lengths (with a diameter of 160mm), with a reduction coefficient of 0.9

300m ³ /H	PA max 35		PA max 61 (V1)		PA max 99 (V2)	
PVC	X+Y<11	37.82813	X+Y<27	74.39063	X+Y<49	127.828125
AI	X+Y<6	22.2729	X+Y<15	44.14206	X+Y<27	76.1046729

Explanation: The length of the above air duct includes two 90 degree elbows, two grilles, and two air duct lengths (with a diameter of 160mm), with a reduction coefficient of 0.9

Thermal insulation for air outlet to prevent condensate water

When installing the unit with air duct, please conduct thermal insulation for air outlet and air duct to prevent condensate water;

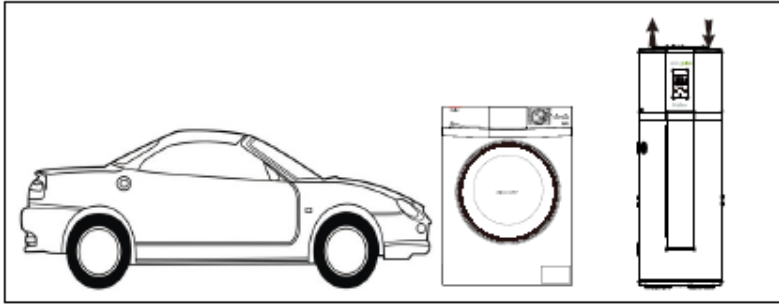


c. Advised positions

Garage or laundry room (without ducts):

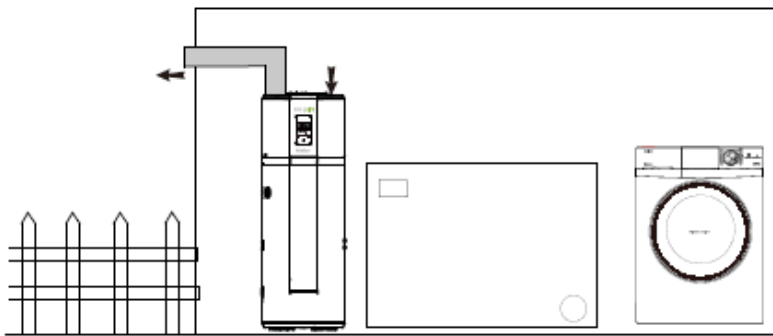
-Unheated room.

-Enables recovery of the free energy released by your vehicle's engine when switched off after use or by household appliances in operation.



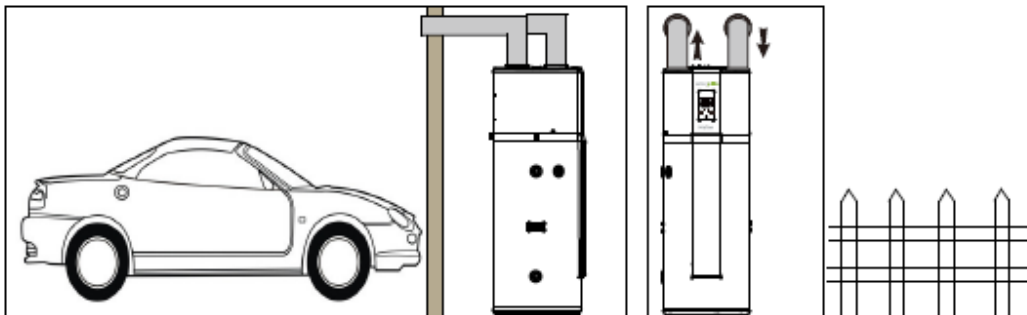
Laundry room (with one duct):

- Unheated room.
- Enables recovery of the free energy released by your vehicle's engine when switched off after use or by household appliances in operation.
- Referring installer menu, adjust the fan speed.



Habitable room or outside air (with two ducts):

- Can obtain free heat from the garage.
- If the outside air temperature is low, connection to the outside air may lead to overconsumption of electricity.
- Referring installer menu, adjust the fan speed



d. Installation caution

When making the connections, you should respect the standards and local directives.

- Before making the connection, rinse the drinking water inlet pipes and water tank exchanger (HP250M3C), in order not to introduce metal or other particles into the tank.

Select copper pipes for pipeline connection.

- The inlet water pressure is between 0.1~0.5MPa. If lower than 0.1 MPa, a booster pump shall be added at the

water inlet; if higher than 0.5 MPa, a pressure relief valve shall be added at the water inlet.

- The inlet water temperature is suggested between 10-30° C.
- Outdoor water pipeline and valves should be proper insulated.
- In accordance with safety rules, a safety valve(7bar,99° C,R3/4M) must be installed on the tank.For France, we recommend hydraulic safety units fitted with a membrane with the NF marking.

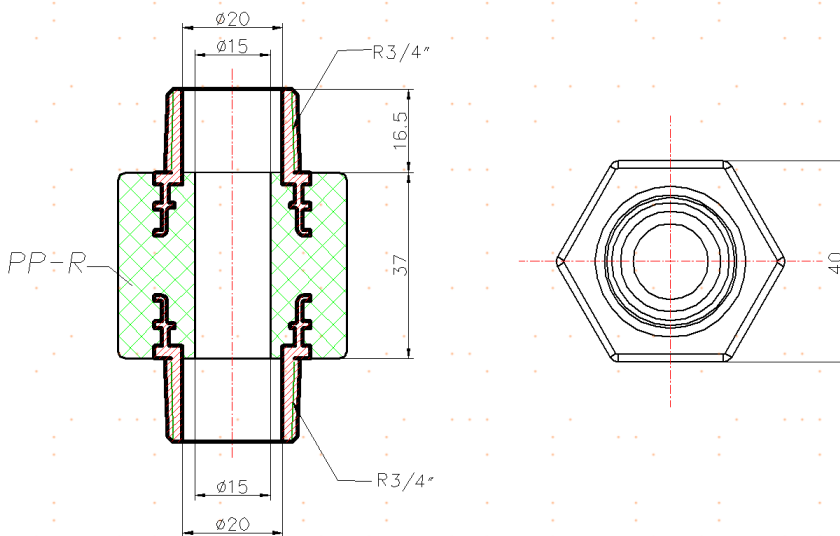
Integrate the safety valve in the cold water circuit.Install the safety valve close to the tank in a place which is easy to access.

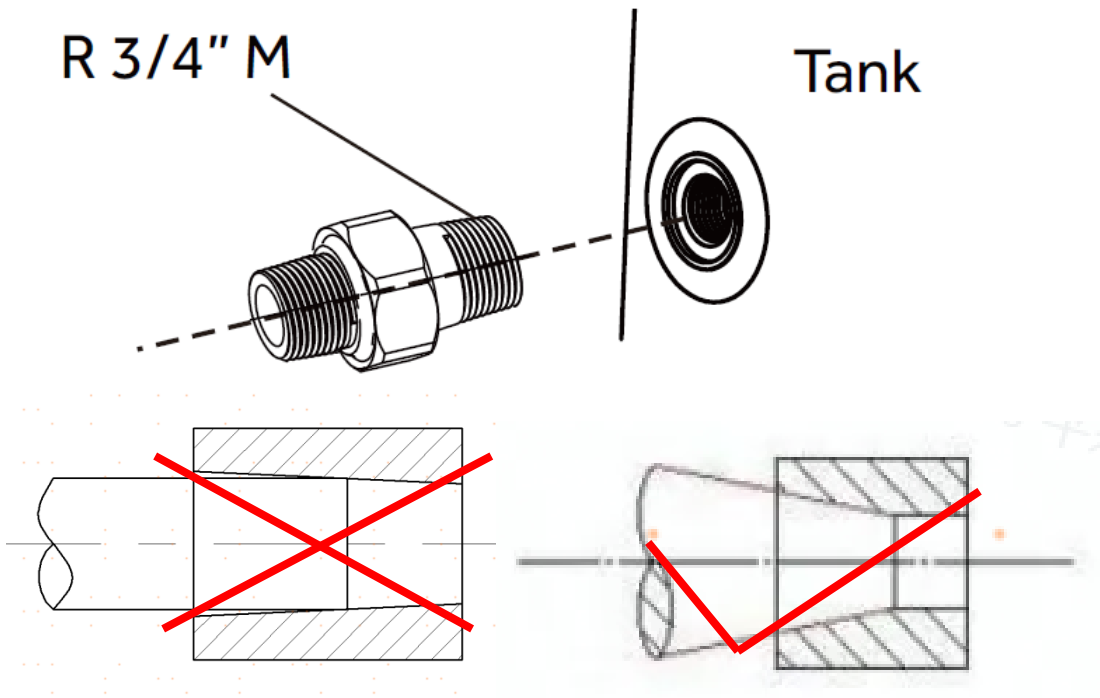
No isolating devices should be located between the safety valve or unit and the tank

The rated pressure of the safety valve shall not exceed 0.7MPa.

- The outlet pipe in the valve or safety assembly must not be blocked.
- The diameter of the safety unit and its connection to the calorifer must be at least equal to the diameter of the domestic cold water inlet on the calorifer.
- If the mains pressure exceeds 80% of safety valve, a pressure reducer must be installed upstream of the appliance.

Do not connect the domestic hot water connection directly to copper pipes in order to prevent galvanic couples in iron/copper (risk of corrosion). It is compulsory to fit the domestic hot water connection with a dielectric connection (PARTS NUMBER: 0040206321).





R 3/4" dielectric connection and pipe fittings must be used.

DO NOT use G 3/4" thread. Otherwise, there is a danger of water leakage.

It is recommended to purchase them from Haier's after-sales spare parts system, and do not buy them by yourself.



Step 1, on the thread of dielectric connection (PARTS NUMBER: 0040206321), wrap the raw material belt along the direction of the thread, at least 10 laps.

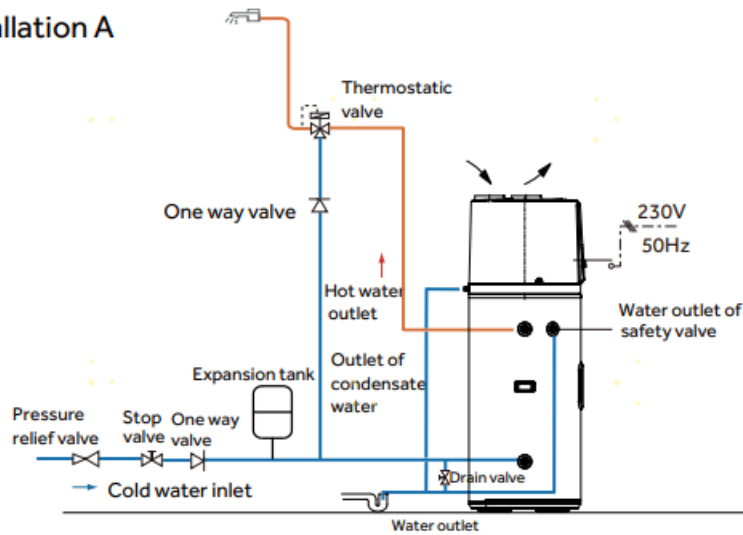


Step 2, screw the pipe joint to the water pipe on the water tank.

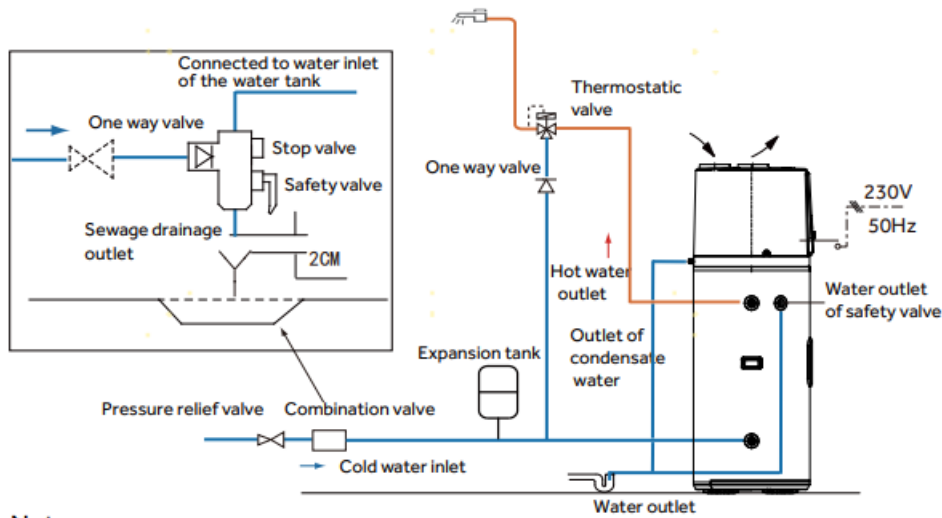


Step 3, Tighten the joint with wrench, torque requirement above 40N/m, torque wrench is recommended.

Installation A



Installation B (for France only)

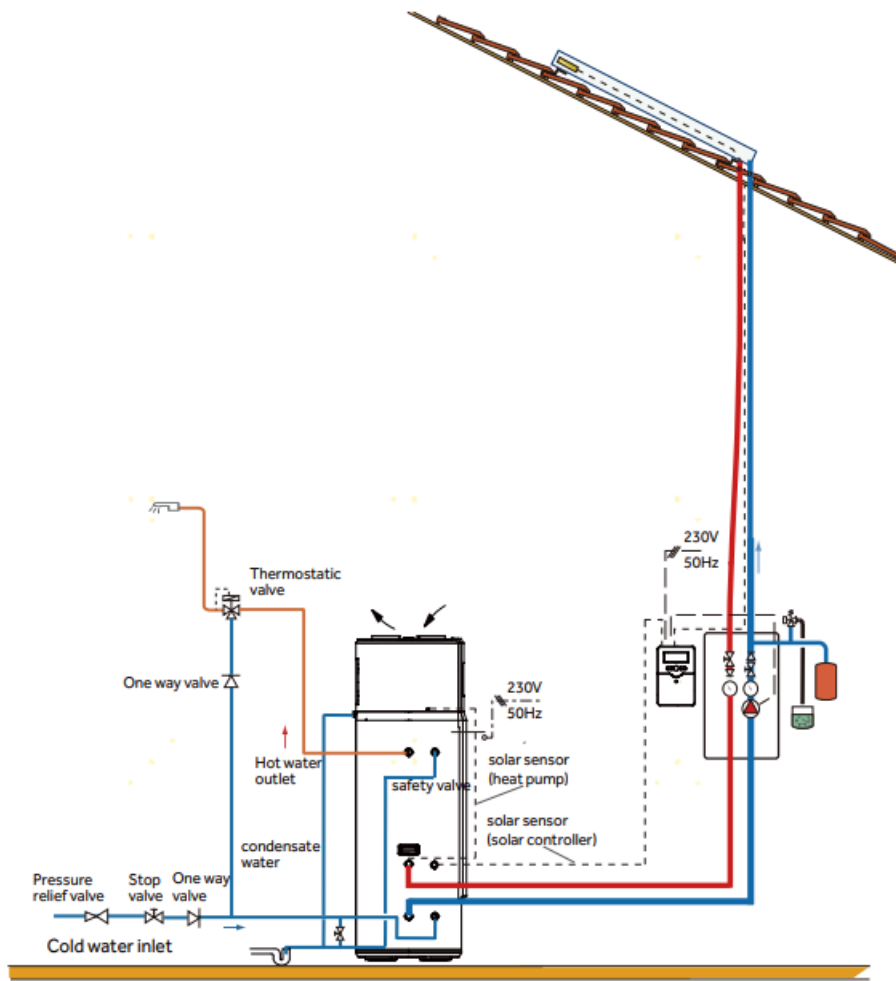


Note:

- Pressure relief valve, thermostatic valve, stop valve, One way valve, T&P valve and French combination valve are not included in the accessories, please select proper fittings in local market;
- Valves with NF/CE certification are recommended.

Installation instructions

Connection to solar collectors (Version HP200M7C-F9/HP250M7C-F9)



WARNING:Plumber -Be Aware

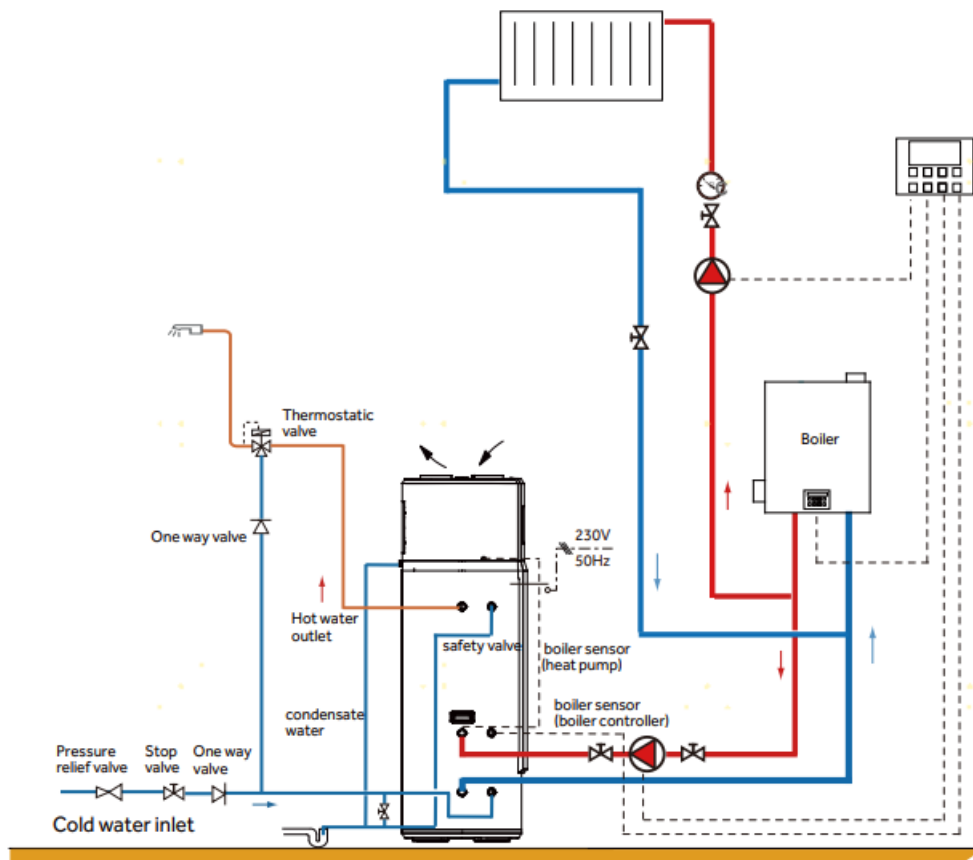
Using solar energy, please make sure that the heat pump water tank temperature does not exceed 85 °C.

WARNING: Plumber -Be Aware

Using solar energy, please make sure that the heat pump water tank temperature not more than 85 °C.

Installation instructions

Connection to gas boiler (Version HP200M7C-F9/HP250M7C-F9)



WARNING:Plumber -Be Aware

Using boiler auxiliary heating, please make sure that the heat pump water tank temperature does not exceed 85 °C.

g. Electrical connections precautions

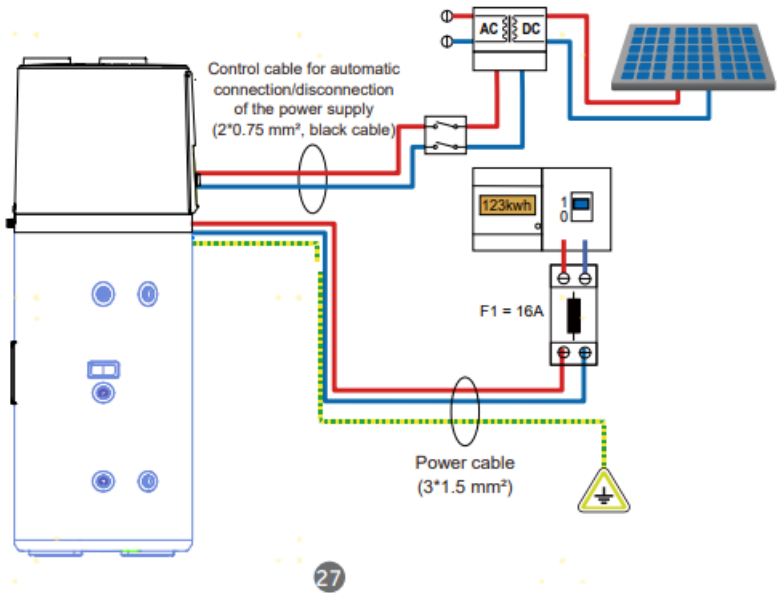
WARNING

- 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: $3 \times 1.5 \text{mm}^2$ 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.

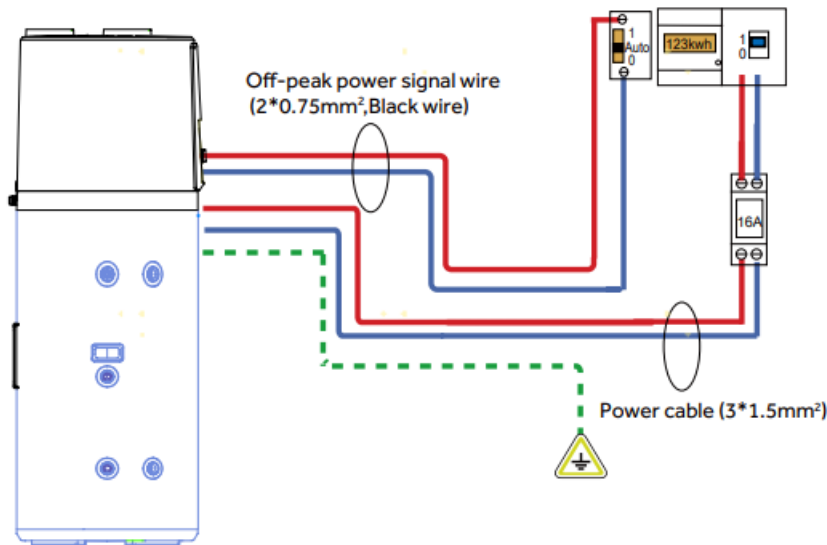
- The phase line, zero line and ground line inside a power socket used in your home shall be wired correctly without any wrong positioning or false connection, and internal short circuit shall be avoided. Wrong wiring may cause fire accidents.

Connection to a PV system (HP200M7C-F9/HP250M7C-F9)



Installation instructions

Off-peak power signal wire connection (HP200M7C-F9/HP250M7C-F9)

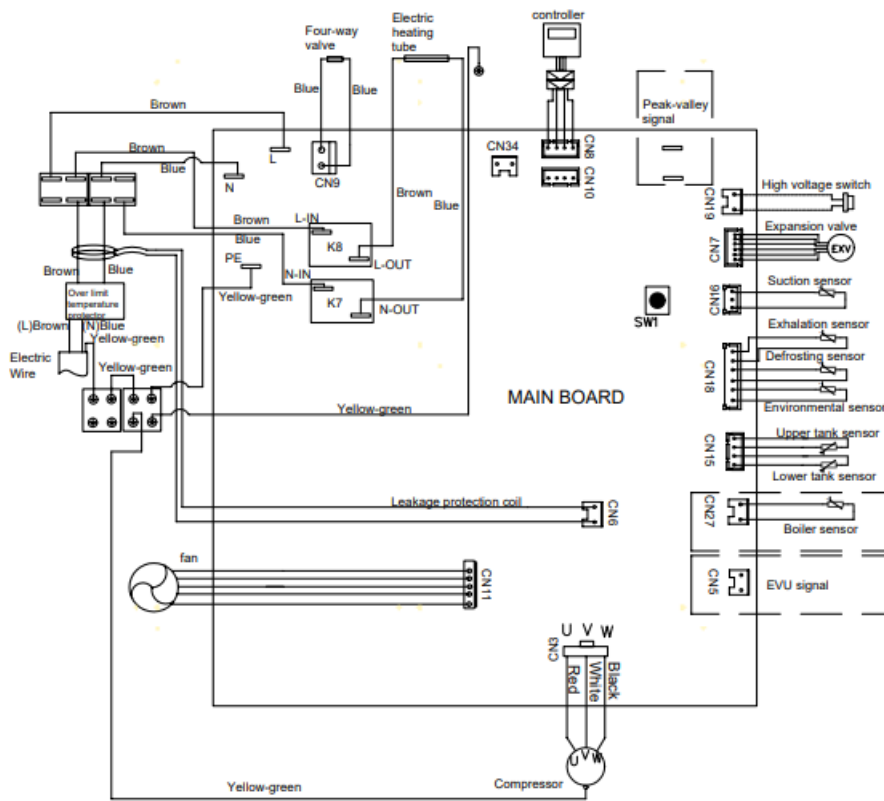


Boiler signal line 2*0.75mm2

- Connect the boiler back-up connector (boiler back-up).refer to the boiler instruction manual.

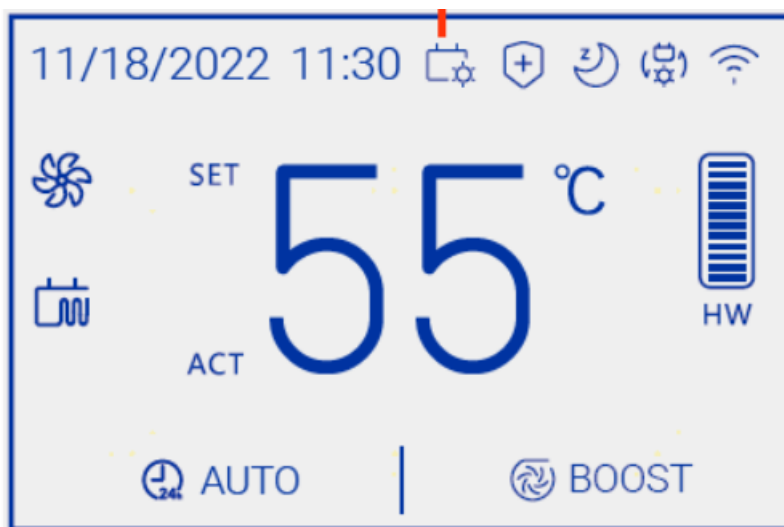
- Referring installer menu, adjust the parameters **AH** and **65** .

i. Wiring diagram



6. Operation and functions





Display




















Functions & Protections

- A. Electrical leakage protection**
This machine features an electricity leakage protection function.
- B. 3-minutes protection**
When switched on, the system will take approximately 3 minutes to start.
- C. Automatic defrosting function**
The defrosting mode is automatically activated if the outdoor temperature low and the compressor has run for some time.
- D. Overload protection**
The working load of the compressor will be high in warm ambient air temperatures. 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 maintains a minimum temperature to avoid damage to the appliance cause by freezing.
- F. The default temperature setting is 55°C.**
- G. The display board turns off after no operation on the home screen for 30 seconds. Operate any key and the screen lights up again.**
- H. If the 6 seconds does not perform any operation on the non-home screen, it automatically returns to the previous screen until the home screen is displayed.**
- I. Start the machine and enter the initial setting. Select confirmation language (China/UK/France/Italy/Germany/Spain/Portugal/Poland) -Temperature (°C / °F) -Time setting -target temperature setting by rotating the button. Click the rotary key to confirm. The default mode on the home screen is AUTO. After the initial setting is complete, power off and then power on, enter the previous setting mode, and do not enter the initial setting unless the user chooses to restore the initial setting.**

Description of the icons

Symbol	Description
 Menu key	Enter the menu
 Return key	Returns the last operation or screen
 Rotary key	Hold down the Rotary key for 6s to power off the machine In the off state, press the Rotary key to turn on the machine
	Child lock setting In the child lock state, the mode, temperature and other Settings cannot be performed. Double-click the Rotary key, exit the child lock state, you can set the function

	<p>Boost mode. Heat pump and backup element a reactivated at the same time.</p> <p>This function is effective once, heating to the set temperature, automatic exit</p>
	<p>Working mode selection</p> <p>The AUTO/ECO/ELEC/VAC/MUTE/STERILIZE mode can be selected</p>
	<p>Information parameter query</p> <p>Users can query Energy accumulation 、 Energy consumption 、 Operation information and Message reset</p>
	<p>Parameter setting</p> <p>Date, connect, language, temperature, HP Duration and volume Settings are available</p>
	<p>–Optimised management of the heat pump and backup element for guaranteed comfort;</p> <p>– The compressor maximum continuous working time (HP Duration) can be adjust in the installer settings.</p>
	<p>- In this mode ,priority of heat pump heating;</p> <p>User entered timer settings;</p> <p>If the set time starts and ends at the same time, the function is invalid.</p>
	<p>- In this mode, the backup element is used as the only heat source.</p> <p>- This function ensures hot water supply when the heat pump is not working properly;</p>
	<p>– Maintains a minimum temperature to prevent freezing.</p> <p>This mode is set for a number of days.</p>
	<p>In this mode, the heat pump heating in a state of low noise</p>
	<p>Bactericidal mode</p> <p>User entered Temperature setting 、 Start time settings、 Frequency setting</p>
	<p>Heat pump working icon</p>
	<p>Auxiliary electrical heater working icon</p>
	<p>PV mode</p> <p>–Communication from power companies.</p> <p>When the PV signal is valid, the system automatically sets the current PV. The Settings include Signal type, Target temp, Starting heat source, and Activate heating</p>

	<p>HC/off-peaking mode</p> <p>–Communication from power companies.</p> <p>When the HC/ off-peaking signal is valid, the system automatically executes the current HC/ off-peaking Settings. The Settings include Signal type, Target temp, Starting heat source, and Activate heating</p>
	<p>SG mode</p> <p>–Communication from power companies.</p> <p>When the SG signal is valid, the system automatically executes the current SG Settings. The Settings include Target temp, Starting heat source</p>
	<p>Auxiliary heat can be selected boiler, solar heating</p>
	<p>Hot water volume display.</p>

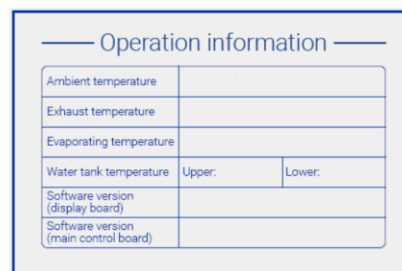
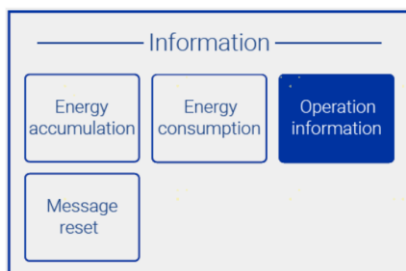
Note: Under certain conditions, ECO mode may result in shortages of hot water if the ambient air temperature is low.

factory pattern

In the startup state, long press the menu button for 10 seconds, the display board displays 01, 02, 03, 04, 05, and select the serial number by rotating the button.

1. Select 01, click the rotation button to confirm, enter the offline detection function.
2. Enter the demonstration prototype function select 02, click the rotation button to confirm, enter the shell prototype mode, and display A1 and A2 at the temperature of the display board. (A1 stands for real program; A2 stands for shell program (mask all fault codes, display Tr25 degrees Ts50, hot water roll). Press the "Rotate" button to select Confirm A1 or A2, press the "rotate" button to confirm and exit the setting interface. Default real machine A1.
3. Select 03, press the button to enter, you can query the fault, you can display the latest 10 faults, no fault no display.
4. Select 04, click the button to enter, you can set the temperature of the second return difference. Upper and average temperature Settings are available.
5. Select 05, click the button to enter, you can perform the test function, 00 indicates automatic entry, 01 indicates manual entry, the default is 00. Do not enter this 05 mode without test requirements.

Operation information



Select the operation information by rotating the rotation button and click the rotation button to

enter the operation information interface. Users can view real-time parameter values.


The displayed voltage and current are different from the actual. They are for reference only.

WiFi connection

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

Getting started:

1. Ensure your home WiFi network is turned on.
2. Select connect through Settings and then proceed with the distribution network status. At this time, the WiFi

icon () will flash. If the connection is successful, the WiFi icon () will always be on.

If the connection is not successful, the WiFi icon () will always be flashing.

3. It may take up to 10 minutes to connect your appliance.

On your mobile device:

1. In App Store search “hOn” to download and install the app.
2. Register and create an account.
3. Add your appliance and set up the WiFi connection.

7. Checking and maintenance

- Installation and maintenance of the appliance must be done 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 optimum performance and extend the life of the equipment.

Checking the Safety valve

- Operate the safety valve at least one time per month to check if it is running correctly. Otherwise check for blocking and replace the safety valve if necessary.

Checking the hydraulic circuit

- Check the watertightness of the water connections.

Cleaning the fan

- Check the cleanliness of the fan one time per year.

Checking the evaporator

- Clean the evaporator at regular intervals using a soft-haired brush.
- If they are bent. Carefully realign the evaporator using a suitable comb.
- Because the evaporator fins is very sharp. Risk of injury on your finger.
- Do not damage the fins. Avoid affecting the performance.

It is recommended that the evaporator be cleaned every two years. It is recommended to clean the evaporator with a soft brush. If required, water can be used. But it is not recommended to use cleaning agents.

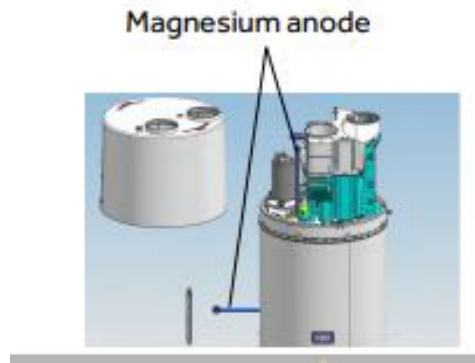
Checking the condensates discharge pipe

- Check the pipe cleanliness

- An obstruction by dust may cause poor condensates flow or even a risk accumulation of water in the heat pump plastic base.

Checking the Magnesium rod

- The magnesium anode should be replaced in time, avoid tank corrosion.
- Checking magnesium anode once every 2 years. For the water with higher hardness then 200mg/L of CaCO₃ (20 degreesF). please check 1 time par year.



Drain the water tank to empty

Cut off power supply and shut down water inlet valve, then drain the water tank to empty via the sewage outlet.

Please stay away from the sewage outlet if there is hot water inside the water tank to avoid injury.

8. Faults and protection

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	After fault is solved, switch on power supply for release
Electricity leakage alarming	The system will automatically cut off power supply if any line fault occurs	E1	
Over temperature alarming	The actual water temperature $\geq 85^{\circ}\text{C}$	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 $< -7^{\circ}\text{C}$ or $> 45^{\circ}\text{C}$	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	

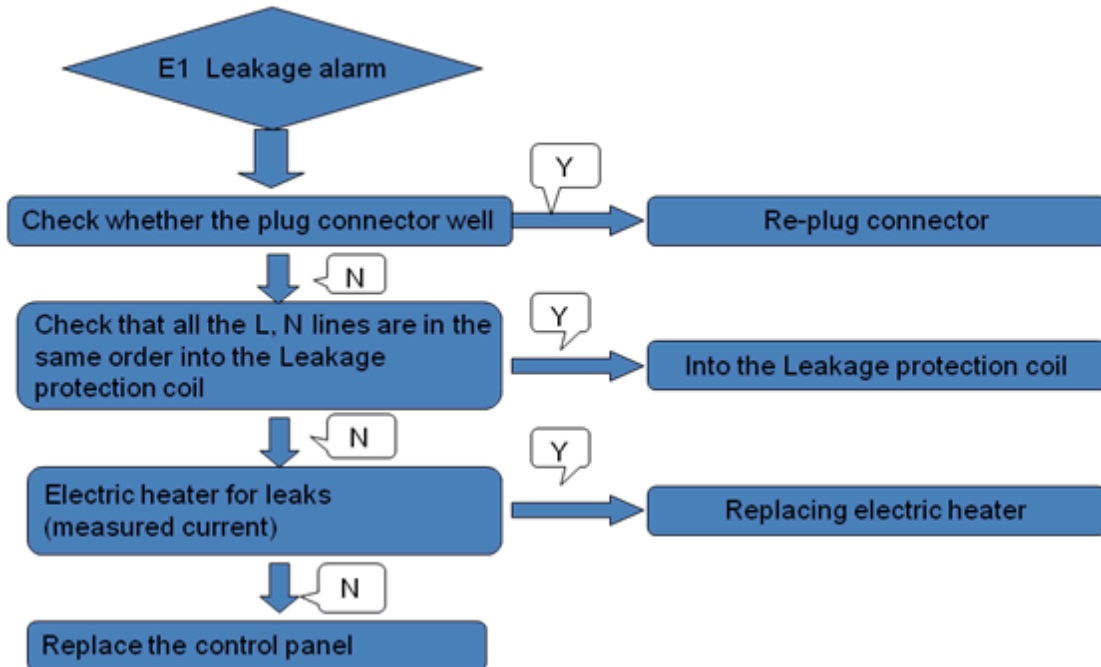
Fault type	Action	Digital indication	Release
Transient hardware overcurrent of the press phase current	The MCU detects a low level input at the FO port or a bus current greater than the 19.4A peak threshold set by the MCU internal comparator	P1	Power on or off the device again. The fault is rectified
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 $> 100^{\circ}\text{C}$	P3	60 seconds later, the MCU

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 $VDC \leq 380V$
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

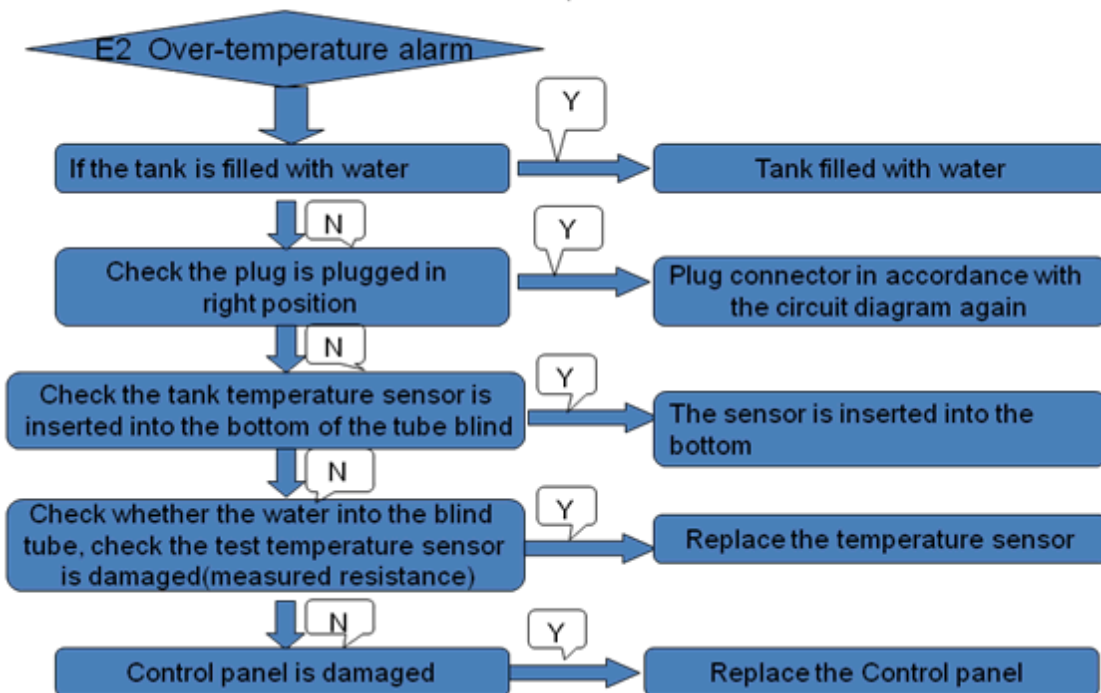
PROBLEM	POSSIBLE CAUSE	WHAT TO DO
The water delivered is cold or insufficiently hot	Temperature setting is low	Raise the water temperature setting
	Machine malfunctioning	Check for errors on the display and follow the instructions on the "Errors" table
	No electrical connection, wires disconnected or 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 display for error messages
	8 days have not passed yet since: <ul style="list-style-type: none"> - 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 the 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 product	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 conditions	
	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

Fault code identification method:

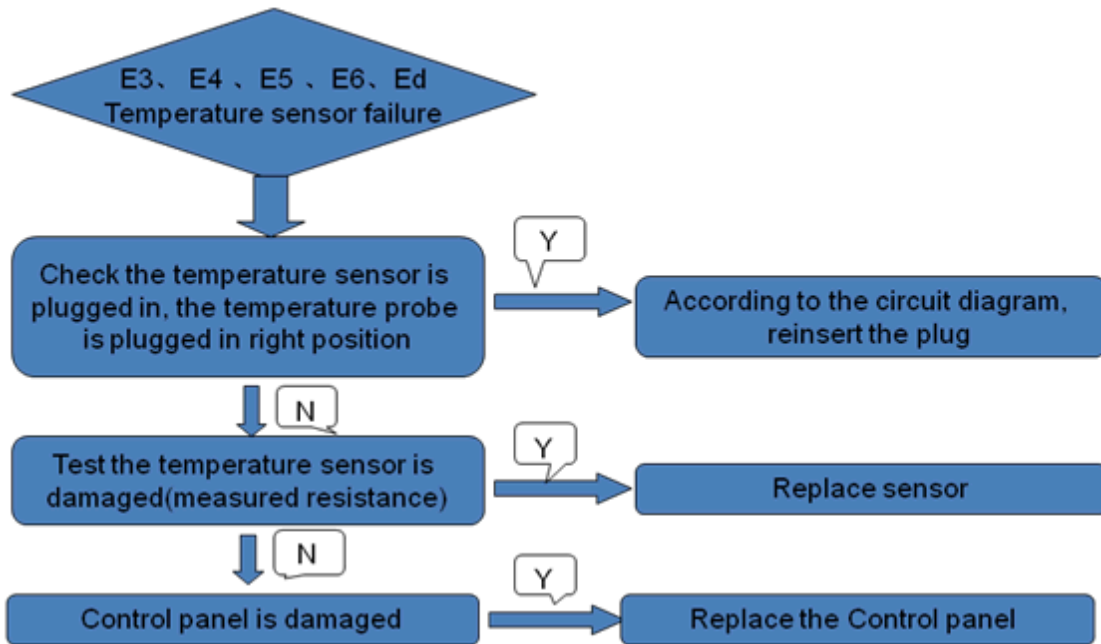
" E1 "error code and identification process



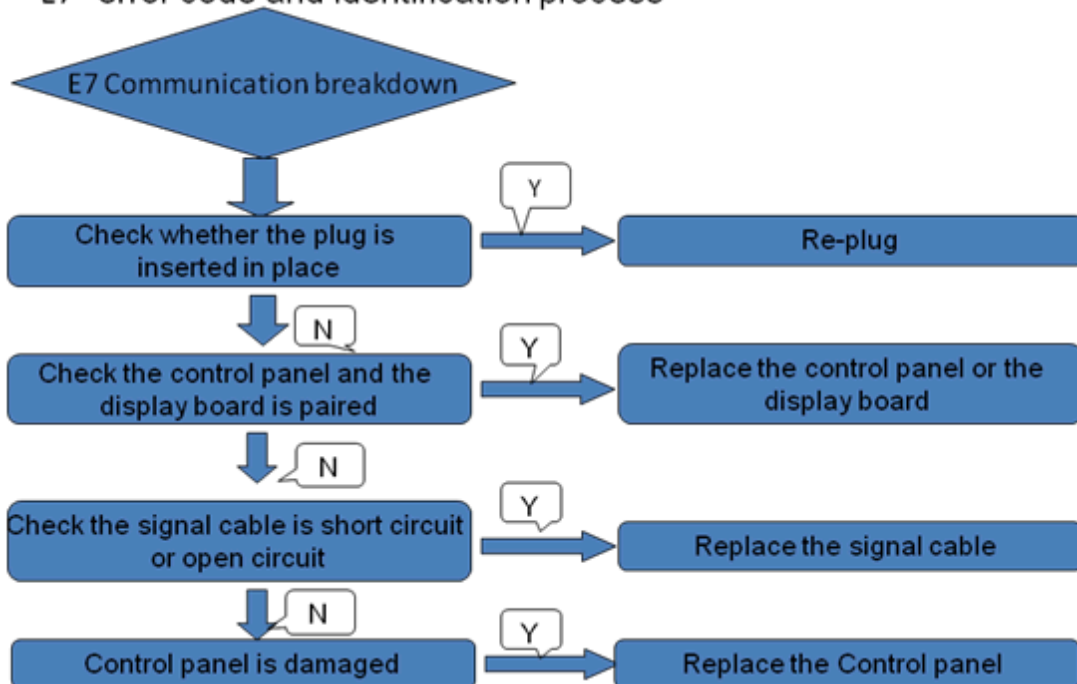
"E2" error code and identification process



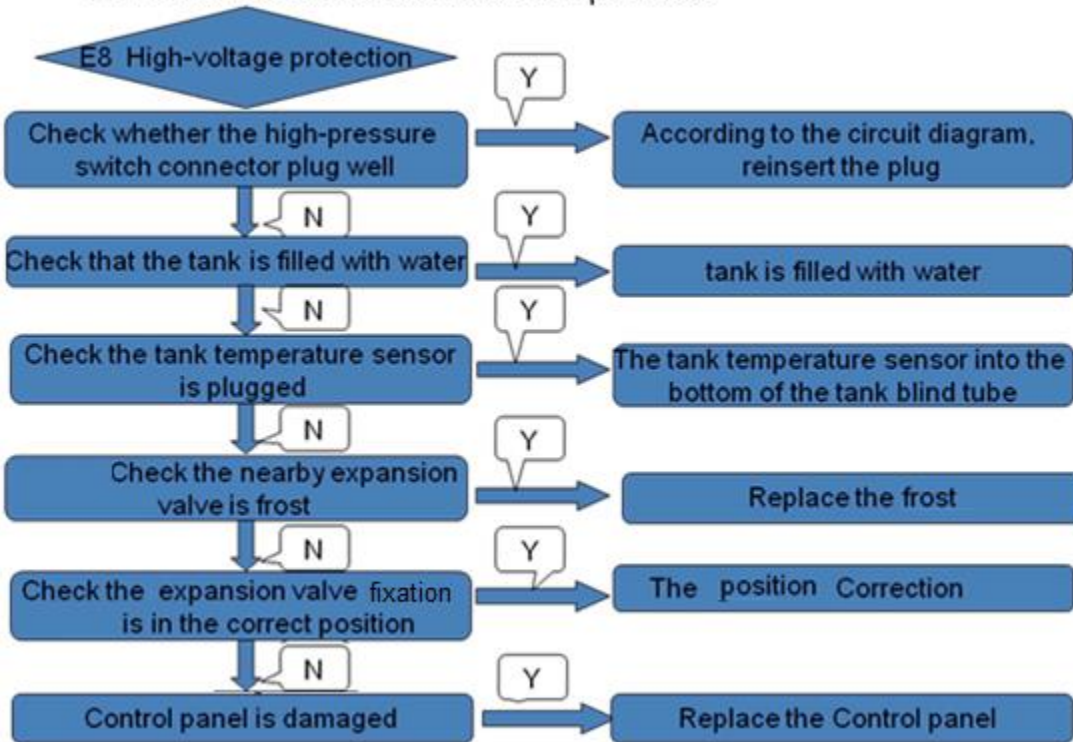
“E3、 E4 、 E5 、 E6、 Ed” error code and identification process



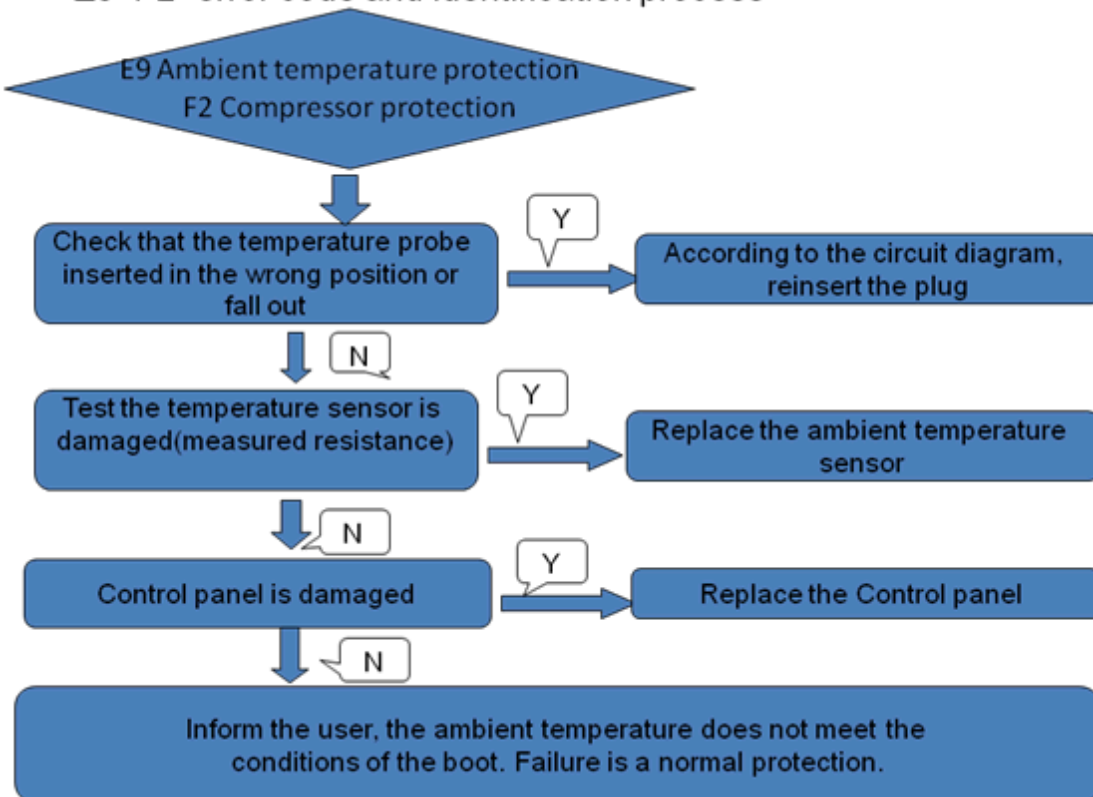
“E7” error code and identification process



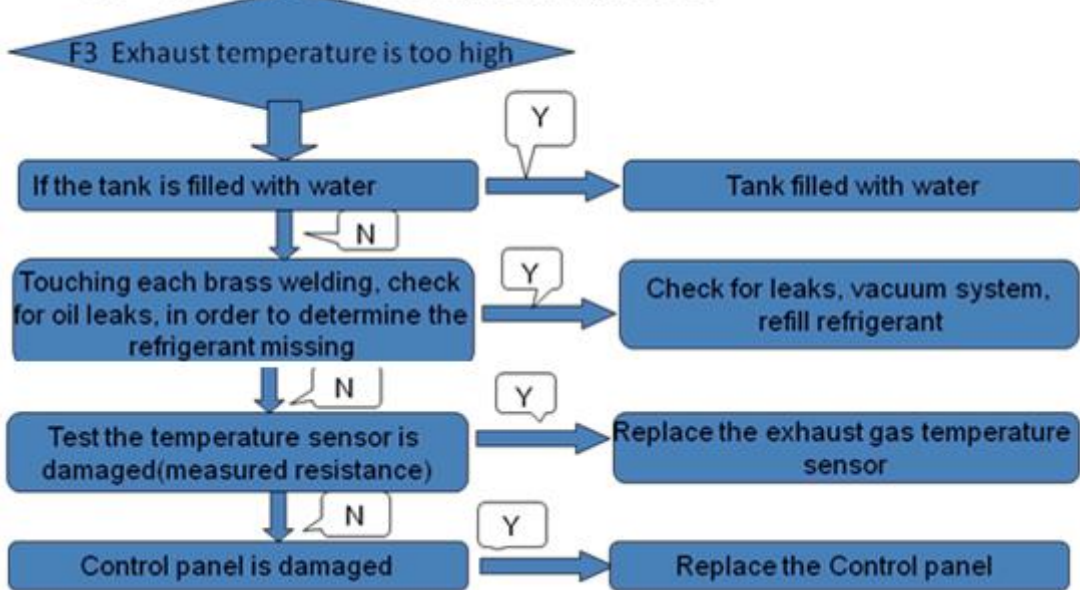
“E8” error code and identification process



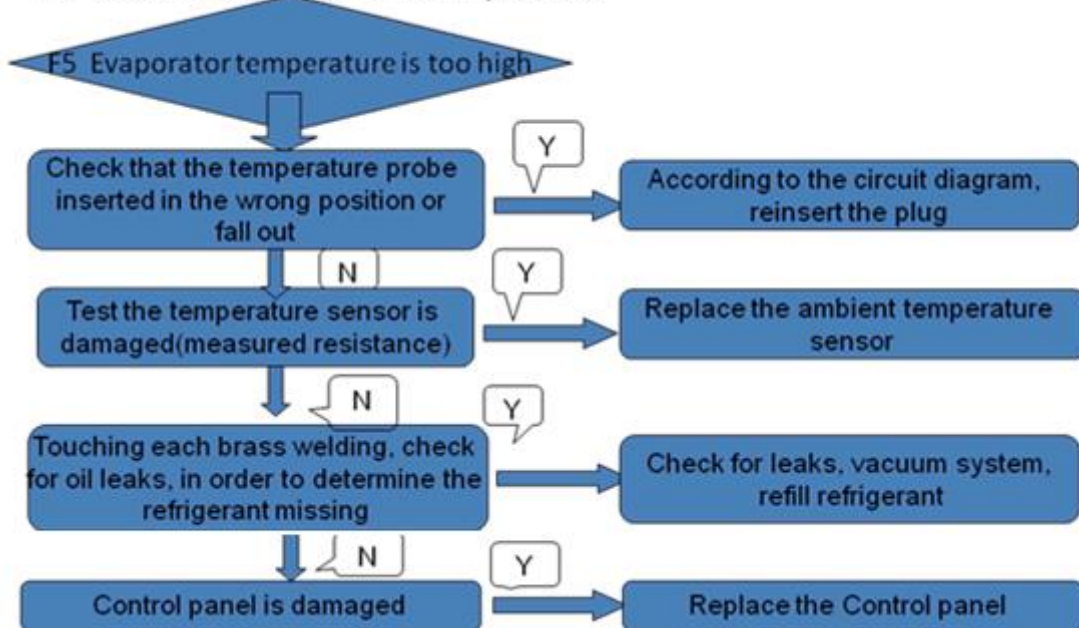
“E9 F2” error code and identification process



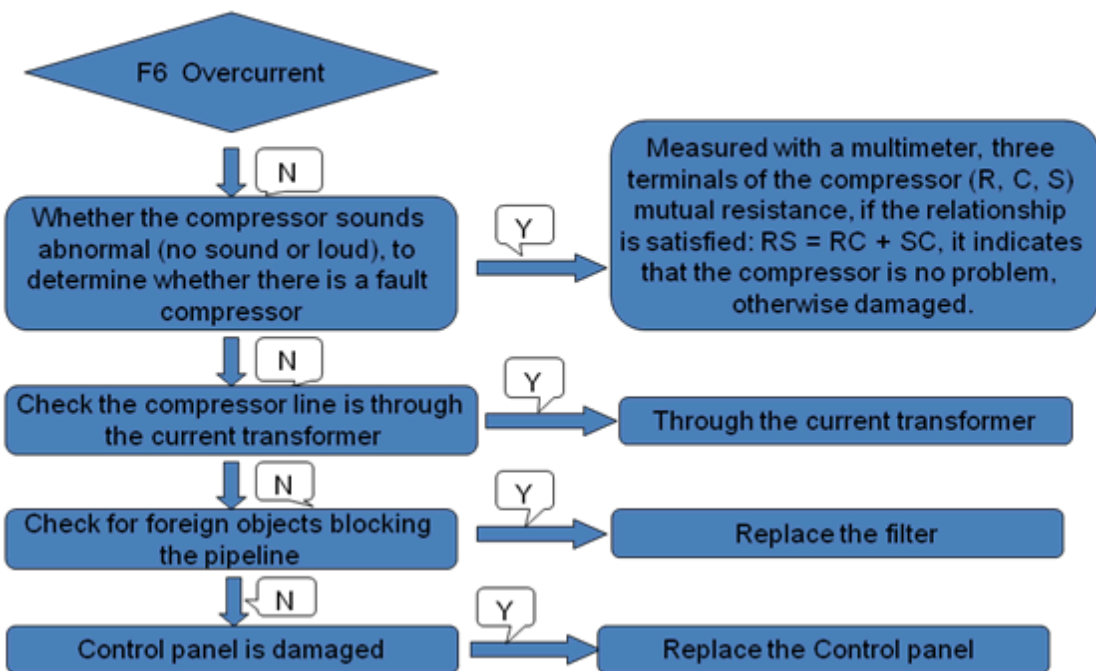
“F3” error code and identification process



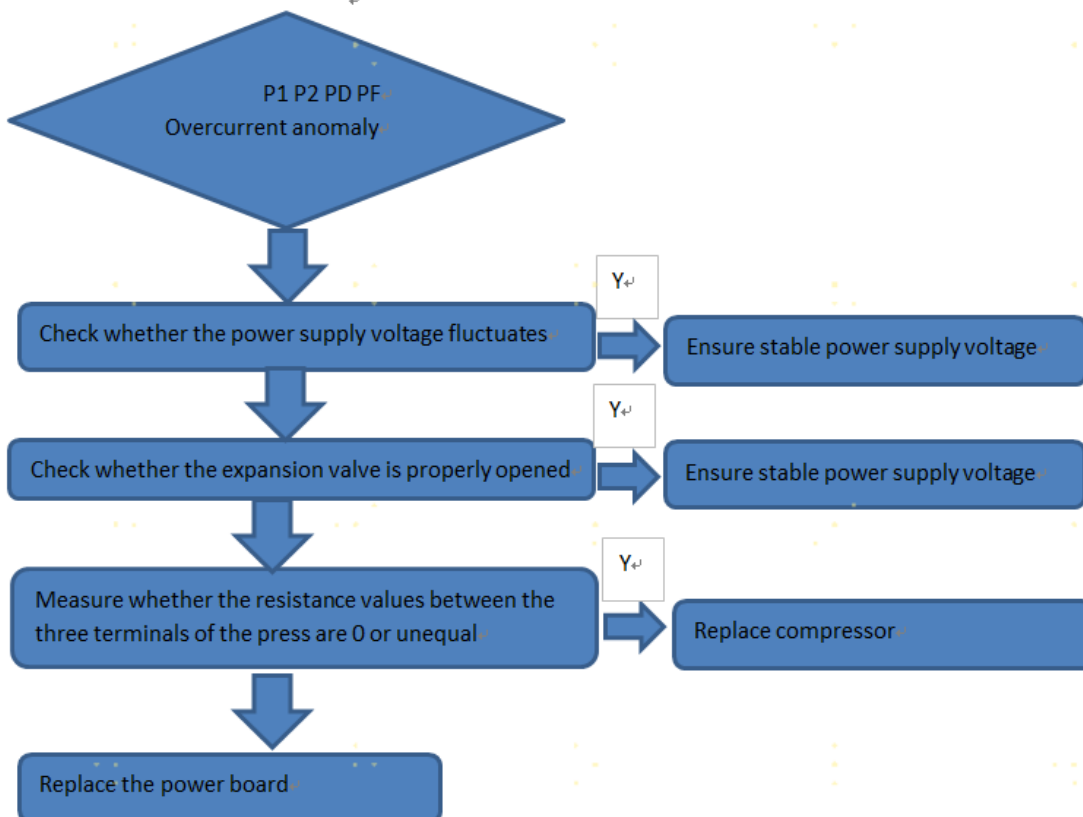
“F5” error code and identification process



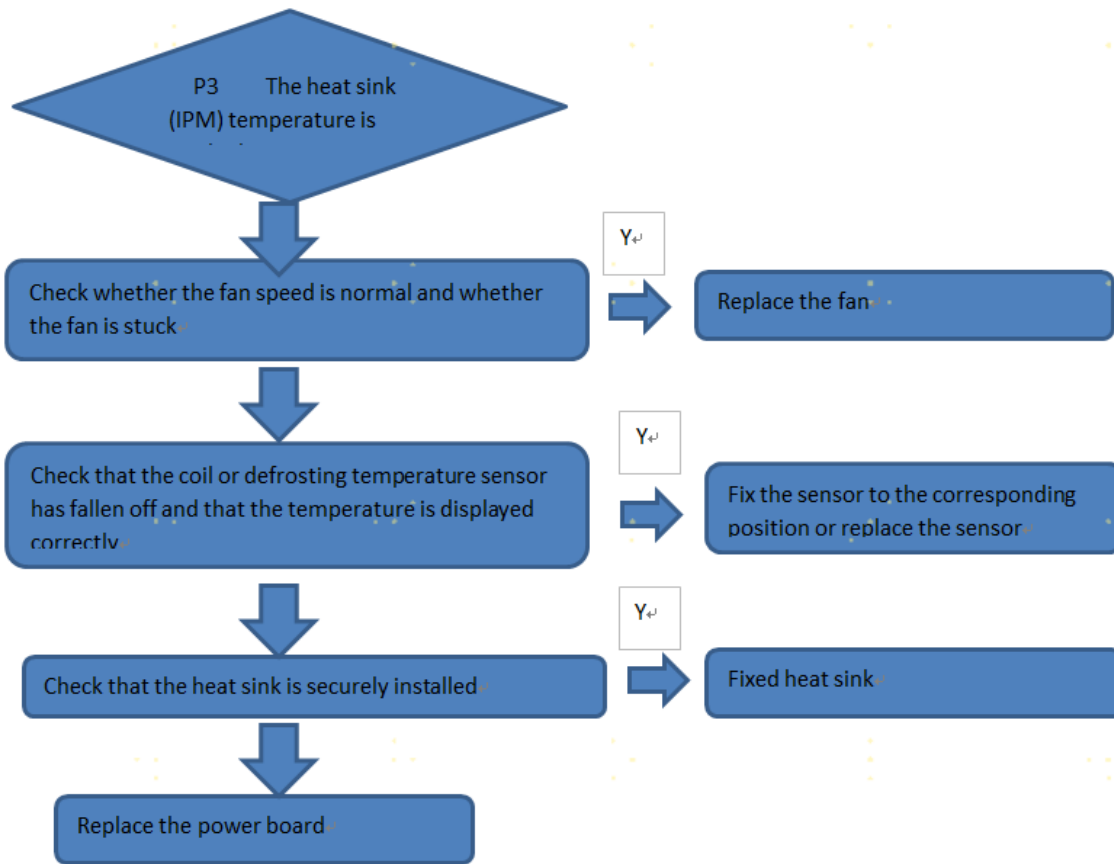
“F6” error code and identification process



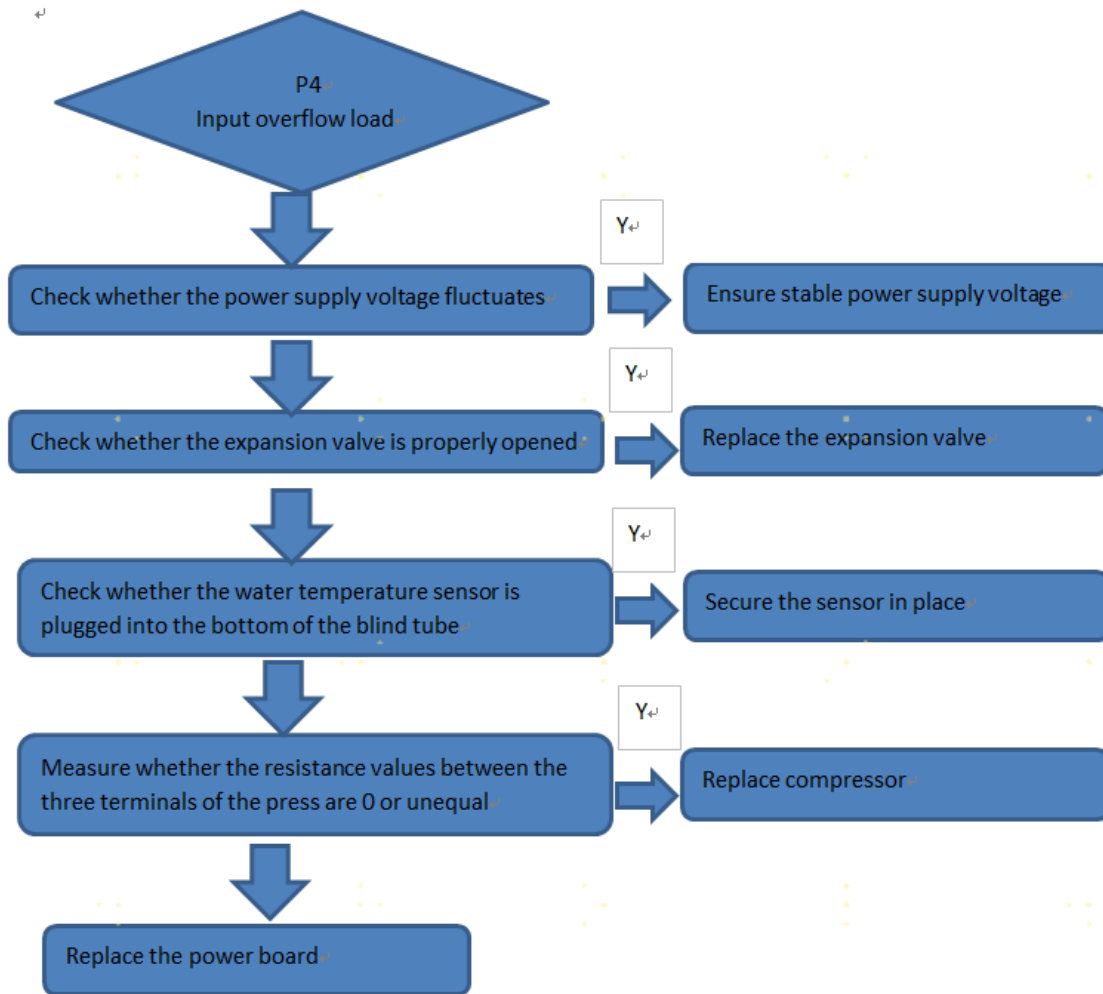
“P1 P2 PD PF” err code and identification process



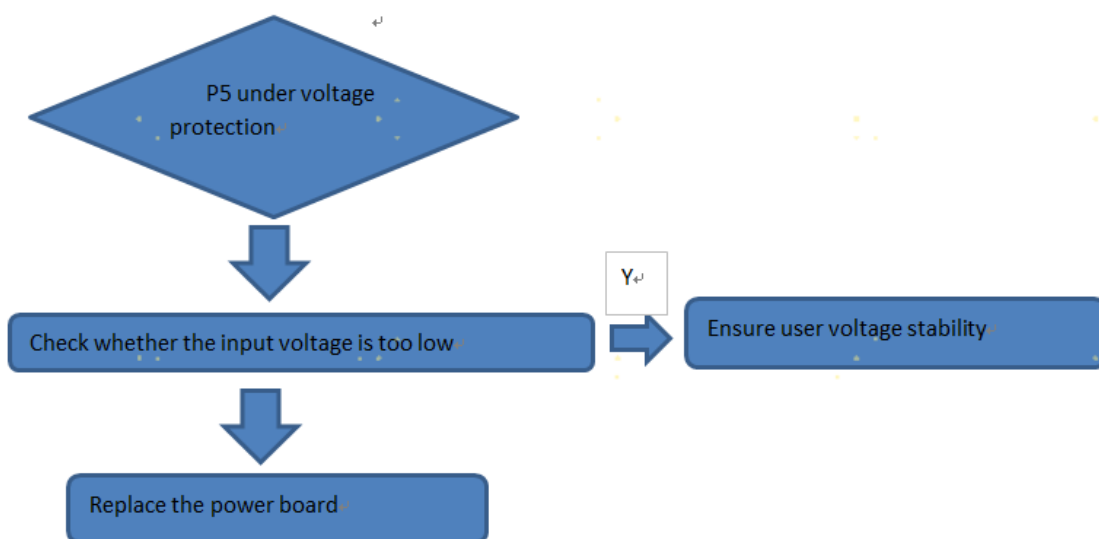
“P3” err code and identification process



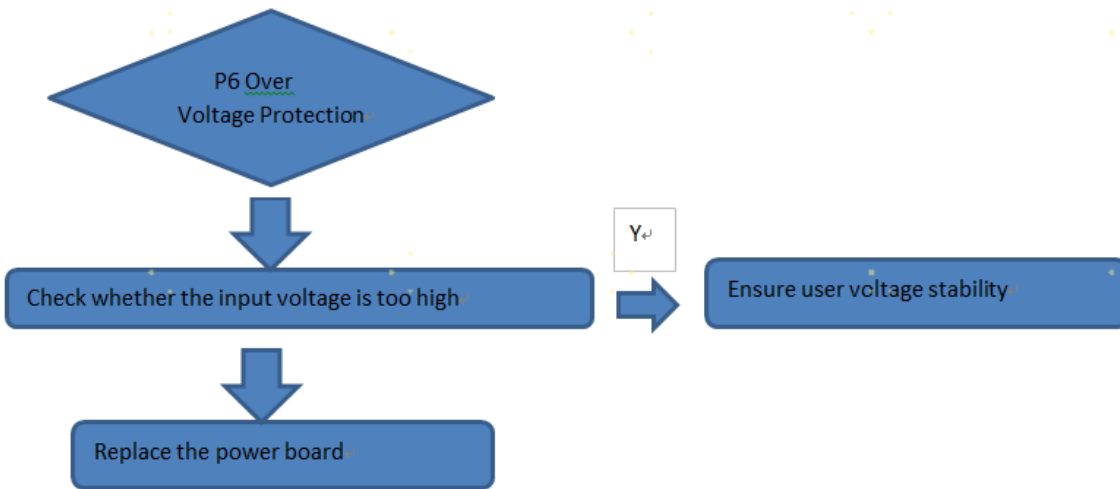
P4³³ err code and identification process



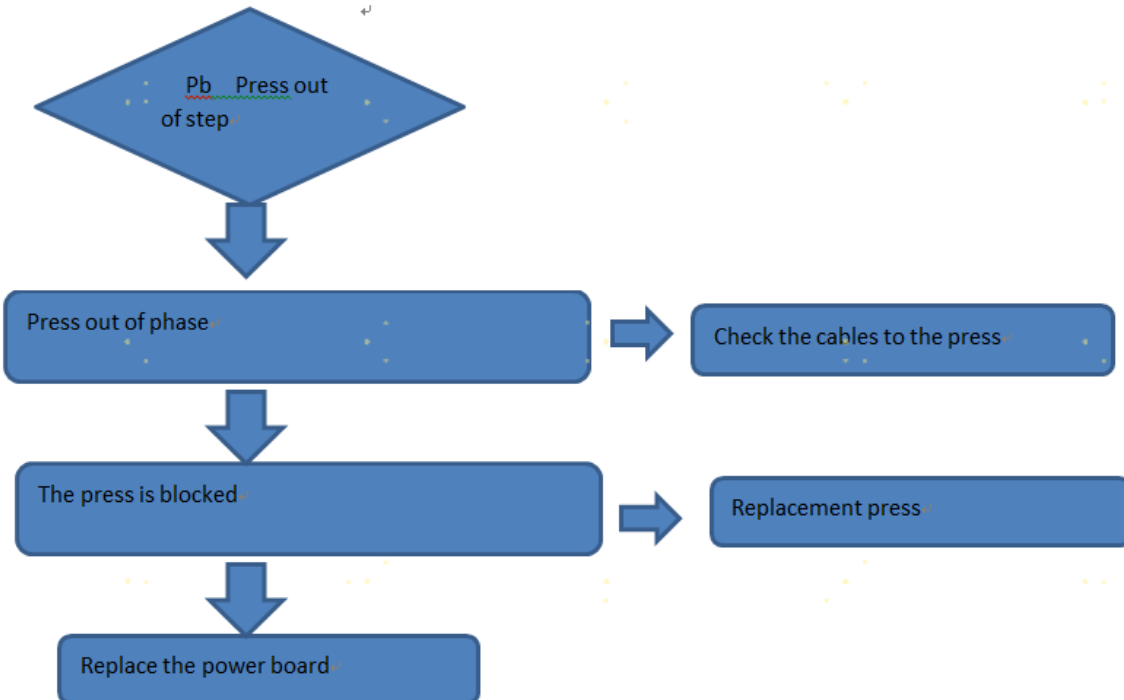
P5 err code and identification process



P6 err code and identification process

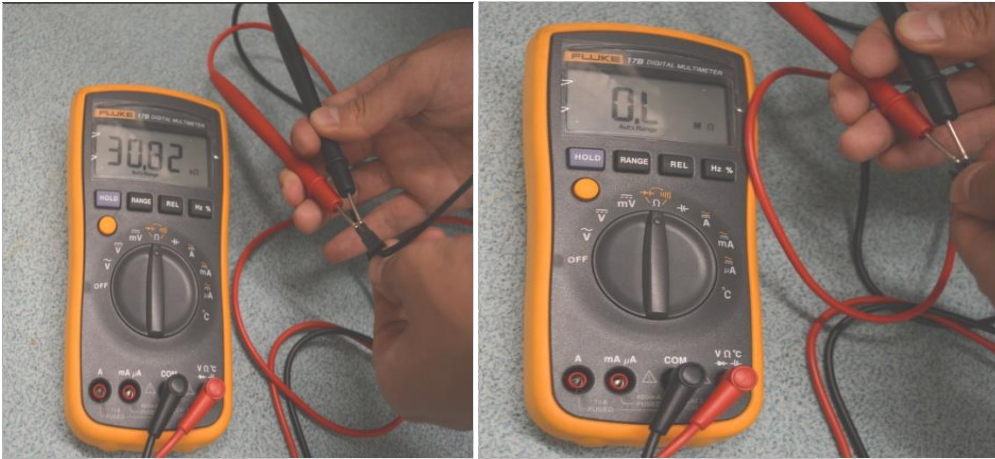


Pb err code and identification process



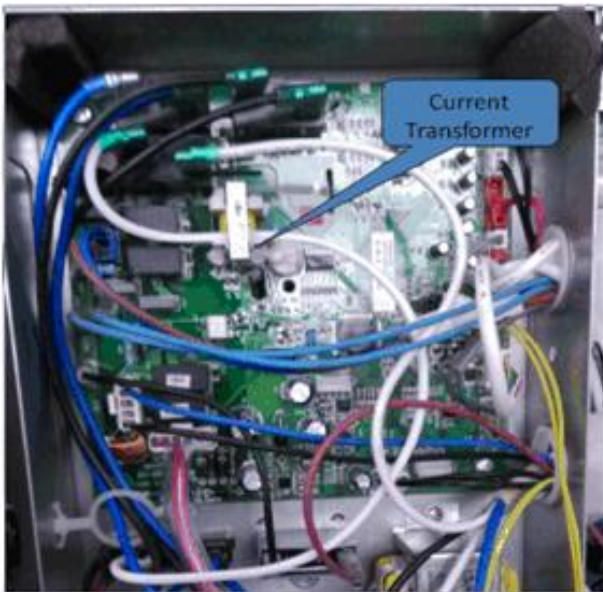
Temperature sensor resistance measurement method

Temperature sensor resistance measurement method (method of measuring the resistance value of the compressor of the same, but is switched to the small resistance of the interface unit).

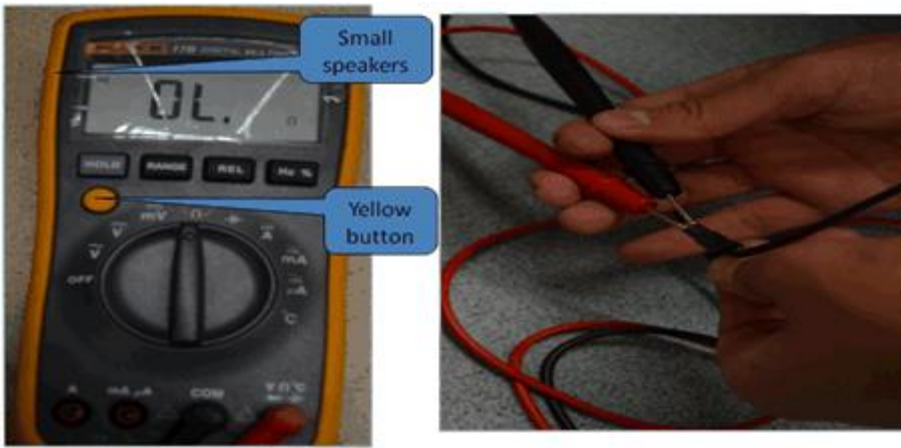


Multimeter set to Ohms, according to the picture of the method of measuring the resistance of the temperature sensor. According to the resistance table, the lower the temperature the smaller the resistance.

Check the compressor line is through the current transformer

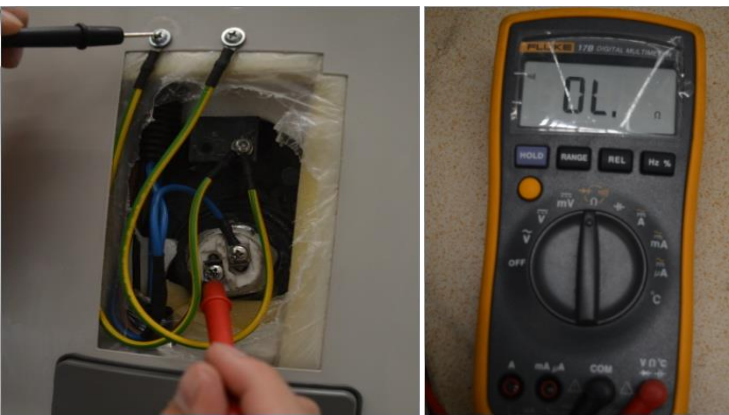


Check the signal cable is short-circuited



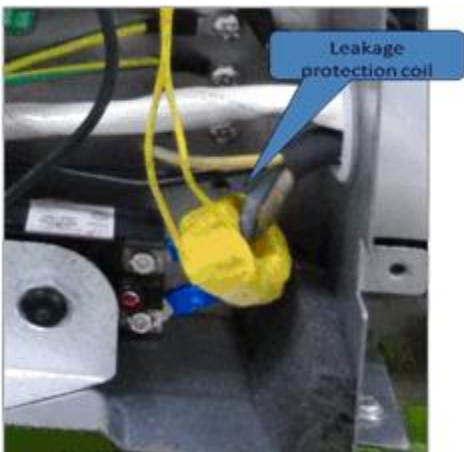
Press the yellow button to switch to the picture, when a short circuit, there is a beep, the resistance is zero.

Check the tank heater for leaks



Press the yellow button to switch to the picture shown, turn the heating power measurements, if leakage resistance is zero, if not leak, show resistance.

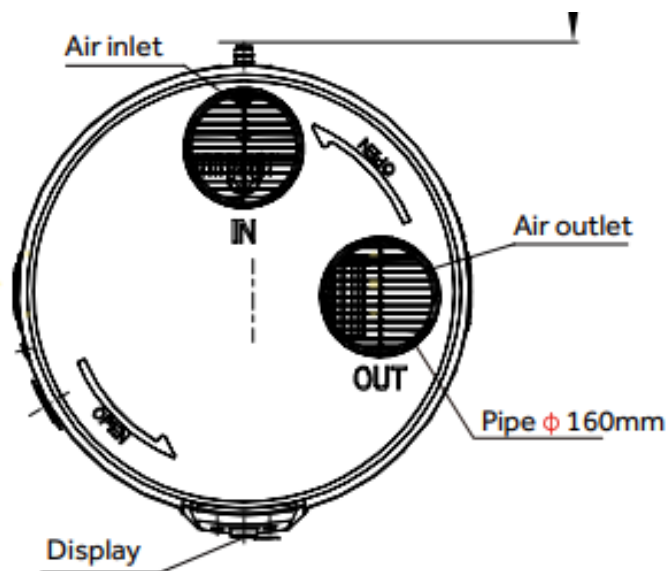
Check that the power cord L, N lines are in the same order into the leakage protection coil



9. The method of dismantling products

Make sure the power cord is disconnected.

1、 Remove the Display



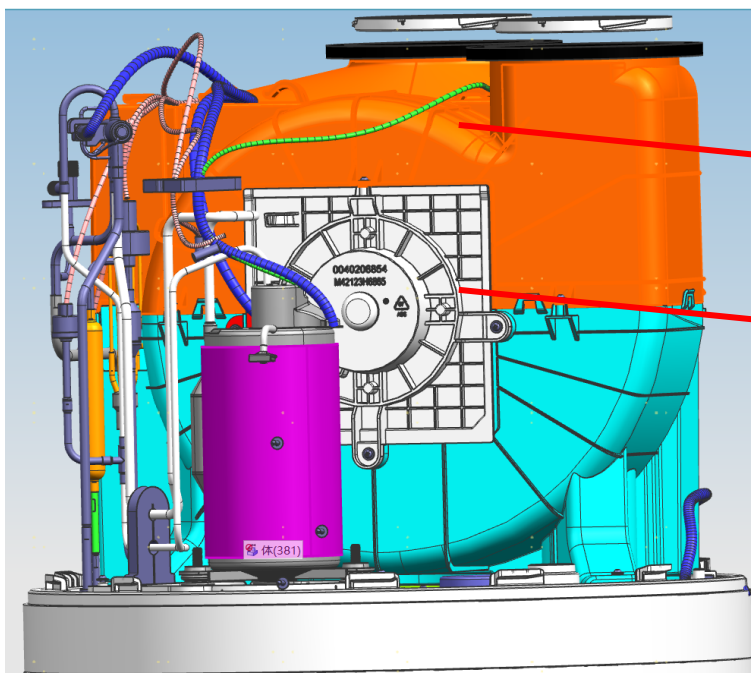
2、 Remove the Cover



1、 Use a screwdriver to remove the one screws

2、 Head cover rotates to the right

3、 Remove the Air channel and fan



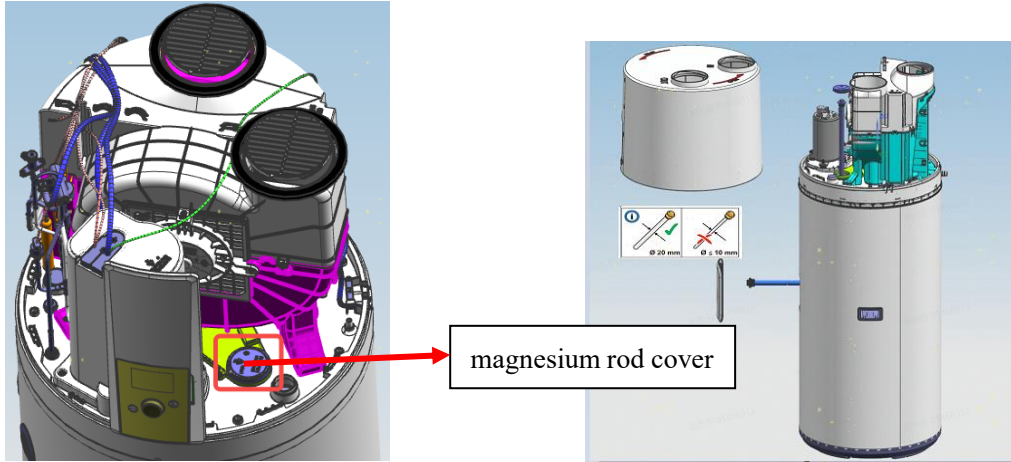
1. remove the Upper air duct

2. remove the fan

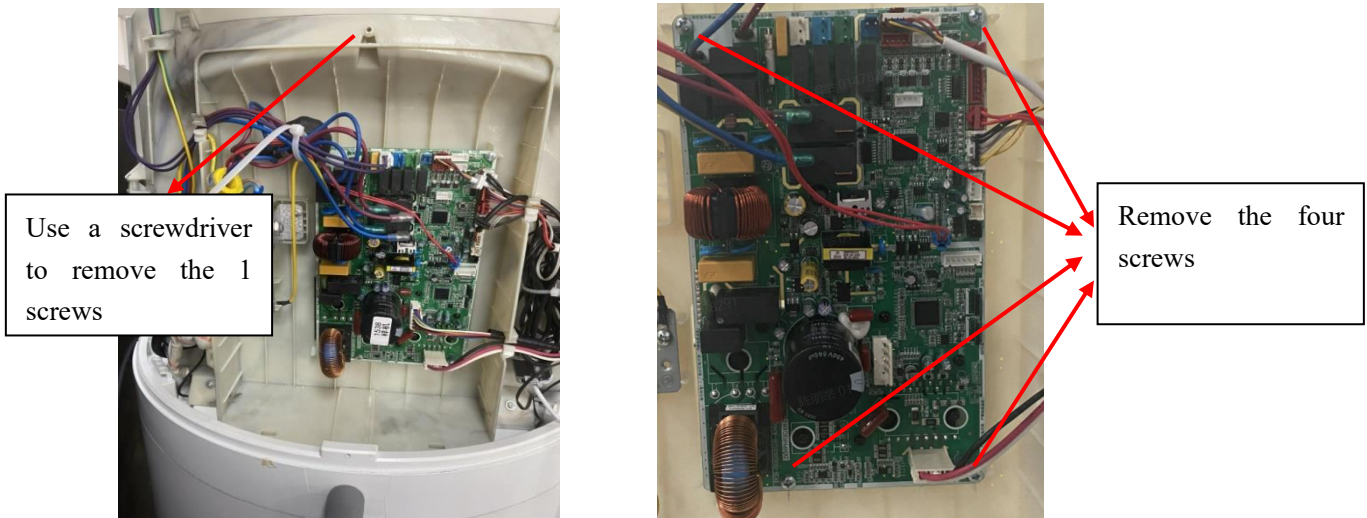
4、 Remove the Magnesium rod

Off the power and close the inlet valve, open any outlet valve, exhaust pressure, when no water flows out of time , turn off all the valves.

- ① Remove the magnesium rod cover;
- ② After remove the magnesium rod, according to the consumption of magnesium rod, determine whether you need to replace.



5、 Open the control box



- 1、 Power off the product
- 2、 Remove screws from the electric control box
- 3、 Remove all wires from the main control board.
- 4、 Remove the four screws from the main control board and remove the main control board.

6. Remove Electric heater

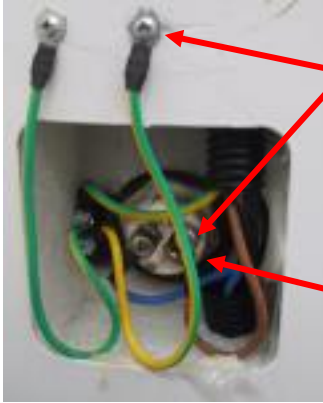
① Remove Electrical cover



After the Cover is removed, use a screwdriver to remove the bottom two screws of the Front cover – down.

Use a screwdriver to remove the 2 screws

② Remove the internal wiring and electric heater



Use a screwdriver to remove the 6 screws.

After the tank has been emptied, with a socket wrench to remove the electric heater.

10. The method of Charge of the refrigerant gas

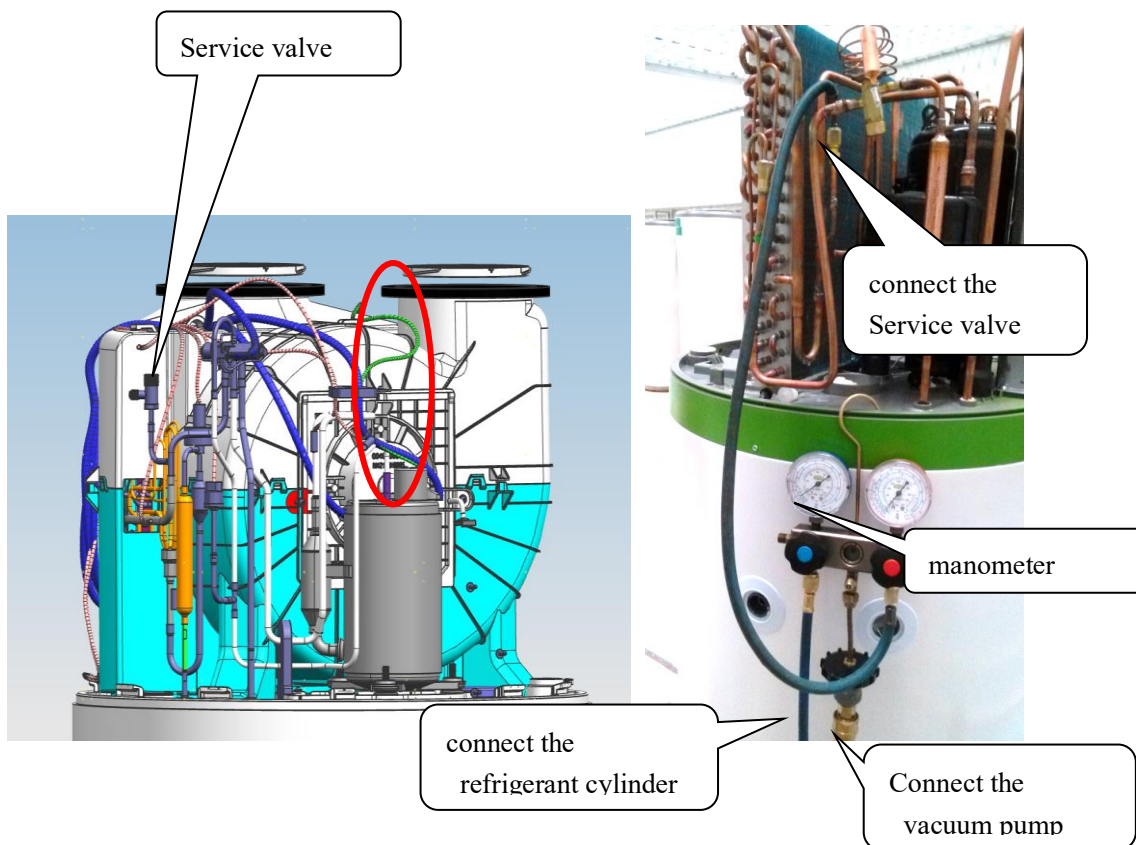
1. Check the heat pump system refrigerant leakage method:

1. In the heating process, heat pump input power has remained unchanged;
2. During heating, the temperature of the water in the tank is constant (ensure that the electric heater is not activated).

2. Leakage check:

If you have confirmed that the system has been leaked, please check it as follows.

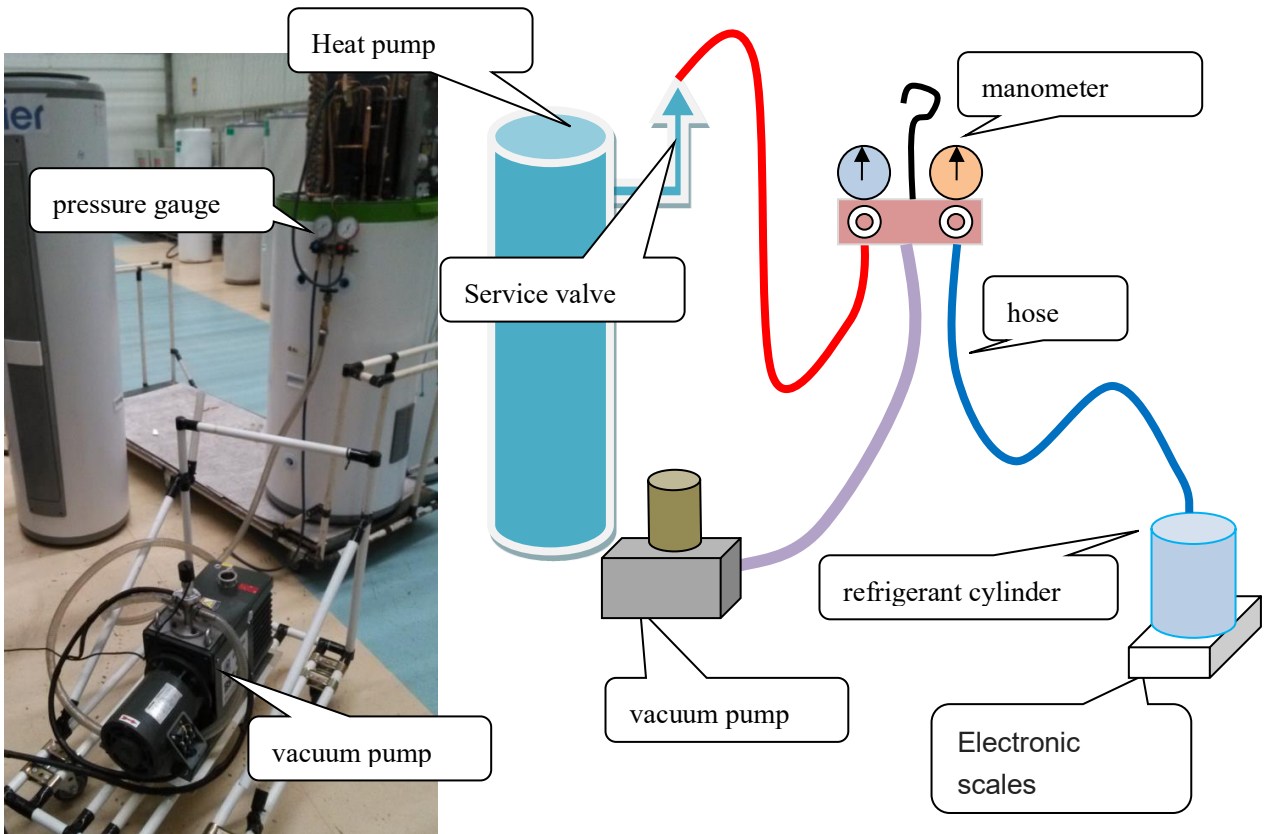
1. Unscrew the maintenance valve nut, access to nitrogen, to maintain pressure 1MPa.
2. Apply soap bubbles evenly over the solder joints of the copper tube. Observe the changes in the status of soap bubbles to determine the location of leakage.
3. After the professionals repair the welding leakage point, check the leakage again with the above method until it is confirmed that the system has no leakage point.













3. Making the vacuum & Gas Charging:

Bleeding from the circuit should take place with a vacuum pump and pressure gauge assembly suitable for R134a. Make sure the vacuum pump is full of oil up to the level indicated by the oil gauge.

1. Connect the manometer on the low pressure service valve of heat pump, and connect the refrigerant cylinder to the other side the manometer.
2. Connect the vacuum pump to the center tap of the manometer.
3. After opened the valves of the vacuum pump, start it and let it run. Create a vacuum for about 20 / 25 minutes;
4. Close the valves of the pump and shut off. Verify that the gauge needle does not move for about 5 minutes.
5. Disconnect the vacuum pump;
6. Open the container of the refrigerant then open the main valve cap pressure gauge and adjust the needle valve until you hear the coolant leak, and release the pin and close the valve of the pipe;
7. Keep under control the weight of the refrigerant tank through the electronic scale;
8. Open the ball valve and to flow the refrigerant gradually;
9. After reaching the mass of gas to be loaded close the tap(0.9kg);
10. Remove the manometer and charging hose from the valve;
11. turn the product in heat pump mode with the detector and check for leaks of refrigerant;
12. Remove the container from the manifold and replace all the equipment.



10. Repairs common tools

Tools Name	Quantity	Illustration
Spanner	1pc	
Torque Spanner	1pc	
Hexagon Spanner	1pc	
Flathead screwdriver	1pc	
Phillips screwdriver	1pc	
Needle-nose pliers	1pc	
Measuring tape	1pc	
Pressure gauge	1pc	
Vacuum pump	1pc	
Electronic scale	1pc	
Bending device	1pc	