

Haier

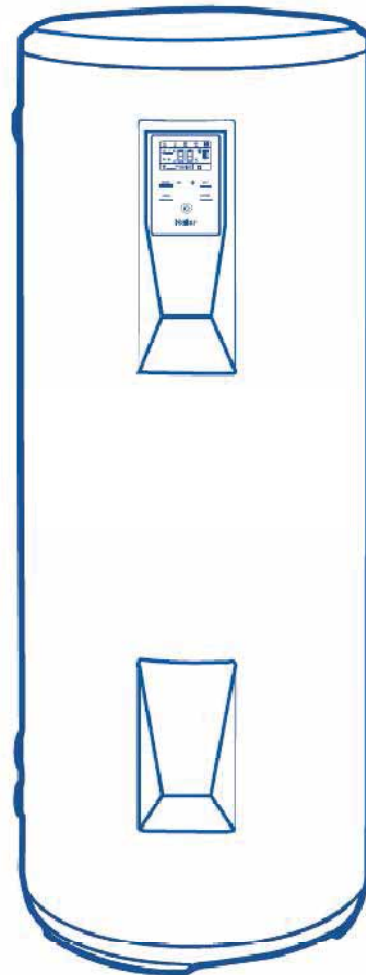
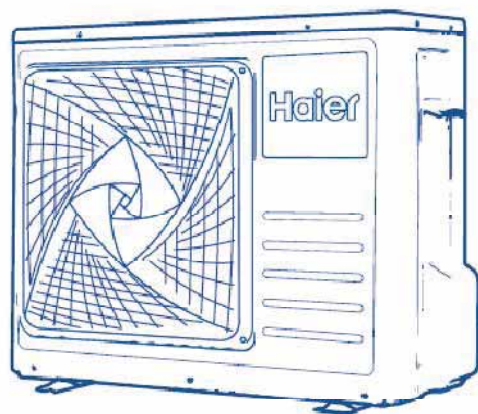
Heat Pump Water Heater

Installation and Service Manual

Model

HP200S1

HP300S1



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

1. Product safety statement.....	3
2. Functionings & principles	4
3. Technical parameters	5
4. Description of parts and components	6
5. Installation introduction	11
6. Operating and settings.....	24
7. Faults and protection	27
8. Faults and protection	29
9. The method of dismantling products	36
10. Repairs common tools	41

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.

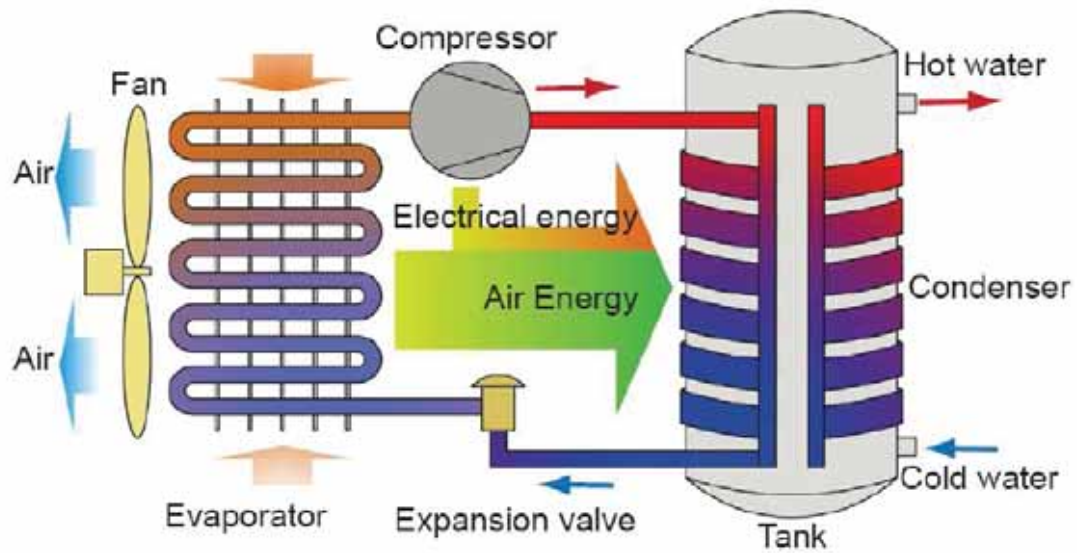
Safety instructions (to be followed at any time)

Refrigerant: R134a; 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.

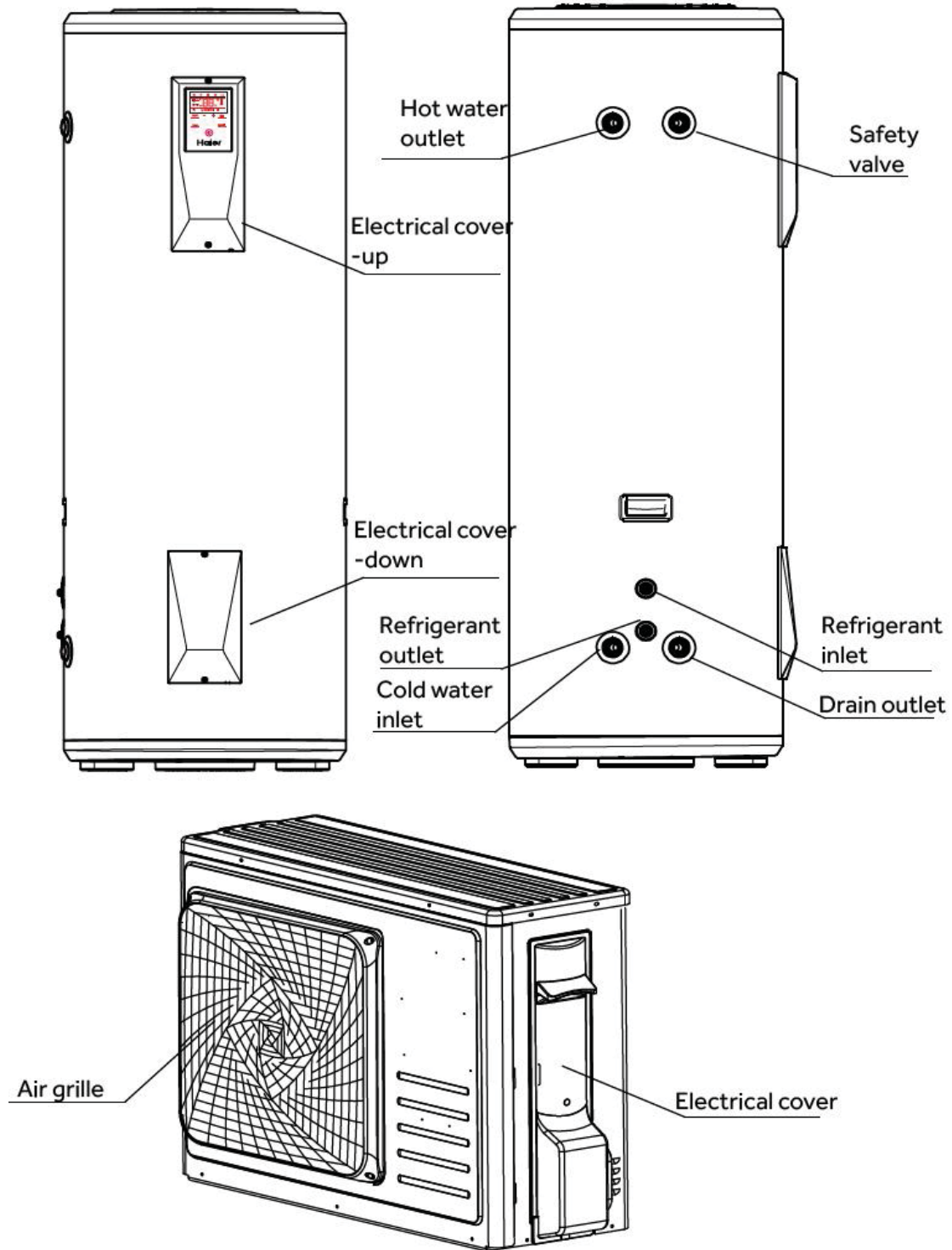


3. Technical parameters

Model (system)	HP200S1	HP300S1
Model (tank unit)	TS200HE-S1	TS300HE-S1
Model (external unit)	UE1.0-S1	UE1.5-S1
Tank volume	200L	300L
Rated voltage/ frequency	230V/50Hz	230V/50Hz
Tank rated pressure	0.85MPa	0.85MPa
Corrosion protection	Magnesium rod	Magnesium rod
Water proof grade	IPX4	IPX4
Performances		
Type of extraction	Exterior	Exterior
COP@7 °C / EN16147	2.8	3.26
COP@15 °C / EN16147	3.7	4.3
Tapping cycle	L	XL
Power input by electric backup	2150W	2150W
Rated power input by heat pump	665W	885W
Maximum power input by heat pump	1000W	1350W
Maximum power input	3150W	3500W
Standby power input@15 °C/ Pes	25W	29W
Max volume of usable hot water at 40°C setting at 55°C	240L	396L
Heating up time (7°C)	4h08	4h48
Heating up time (15°C)	3h26	3h58
Default temperature setting	55°C	55°C
Temperature setting range- with heater	35°C-75°C	35°C-75°C
Maximum length of refrigerant pipe	20m	20m
Max working pressure of refrigerant	0.8/2.8MPa	0.8/2.8MPa
Refrigerant type / weight	R134a/1.3kg	R134a/1.5kg
Sound power level	64dB	64dB
Ambient temperature for use of product	-7~45°C	-7~45°C
Operating temperature of heat pump	-7~45°C	-7~45°C
Dimension and connections		
Water inlet and outlet connection	G3/4"F	G3/4"F
Safety valve connection	G3/4"F	G3/4"F
Drain & Water inlet connection	G3/4"F	G3/4"F
Product dimension (tank unit)	544*512*1765 mm	632*600*1795 mm
Product dimension (external unit)	899*352*681 mm	899*352*681 mm
Packing dimension (tank unit)	676*636*1927 mm	737*696*1958 mm
Packing dimension (external unit)	960*425*735mm	960*425*735 mm
Net/Gross weight (tank unit)	77/89kg	98/112kg
Net/Gross weight (external unit)	41/44kg	44/48kg
* The COP and noise level data was tested in Haier lab		

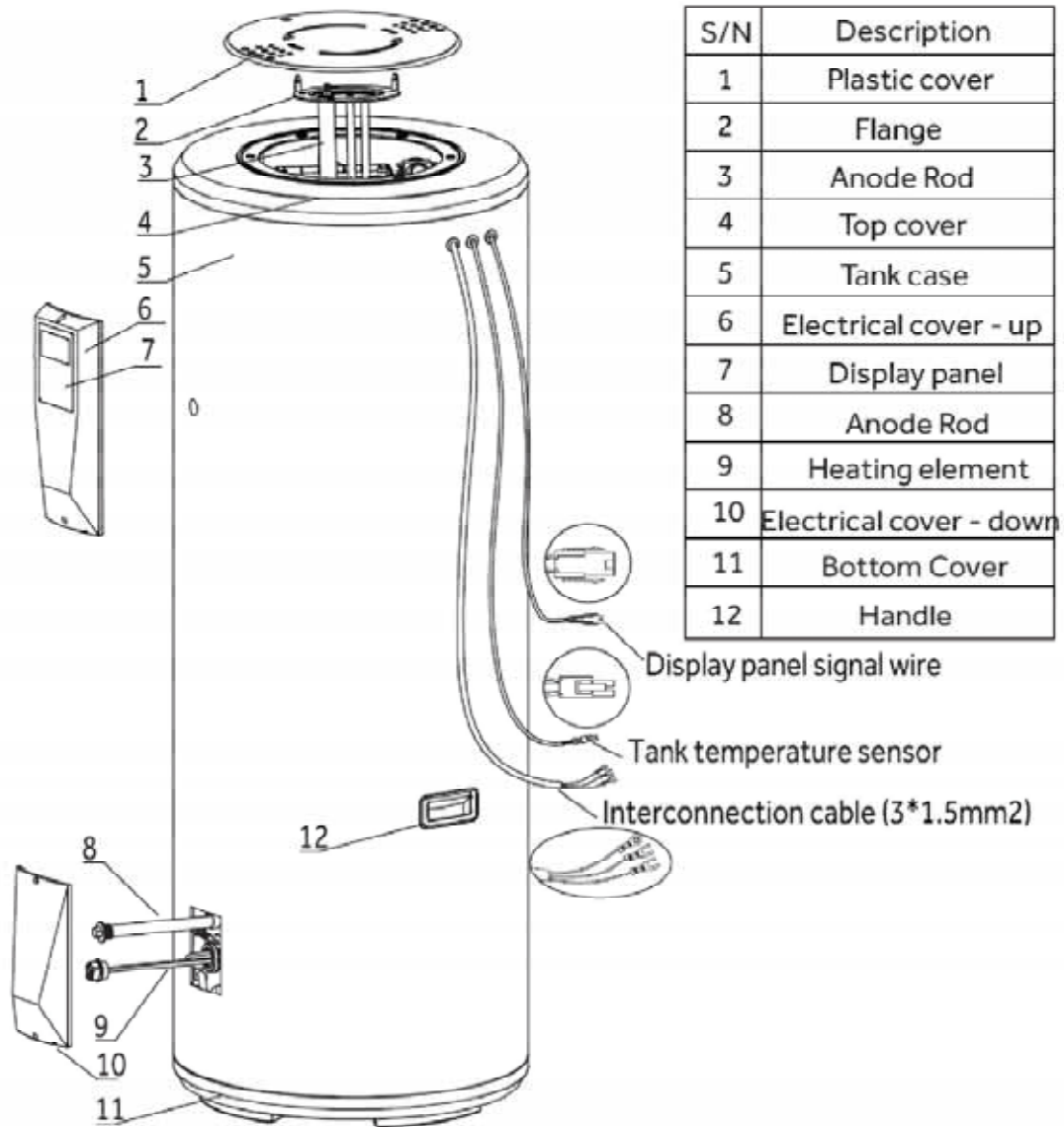
4. Description of parts and components

4.1 Heat pump structure (HP200/300S1)

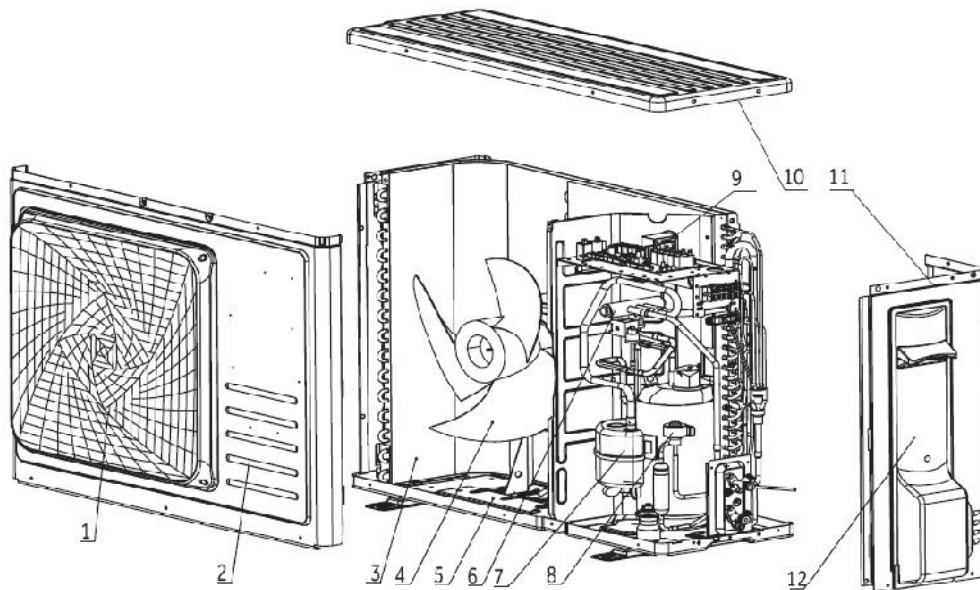


4.2 Exploded view

4.2.1 Exploded view (tank unit)



4.2.2 Exploded view (external unit)

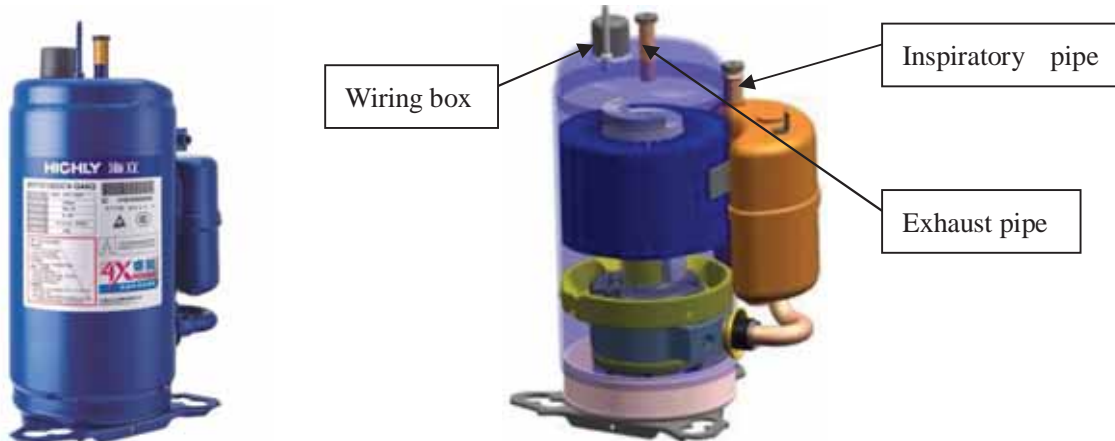


S/N	Description	S/N	Description
1	Air grille	7	Compressor
2	Front cover	8	Expansion valve
3	Evaporator	9	Controller panel
4	Fan	10	Top Cover
5	Bottom Cover	11	Right Cover
6	Four-way valve	12	Electrical cover

4.2.3 Heat pump system components

1. Compressor

The compressor is to effect a low-temperature low-pressure evaporator refrigerant vapor sucked and compressed 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 absorb 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. Thermal expansion valve:

The refrigerant passes through the thermal 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.



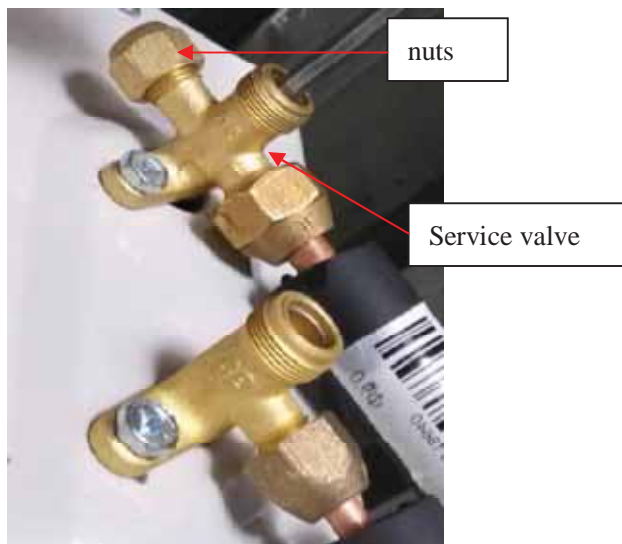
6. High Voltage Switchgear

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.



7. Service valve

Service valve is mainly used for filling refrigerant, after removing the nuts, it contains a valve needle, sales staff can vacuum infusion refrigerant from here.



8. 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 R134a, ODP value is 0, no damage to the ozone layer. R134a refrigerant cans appearance is as follows:

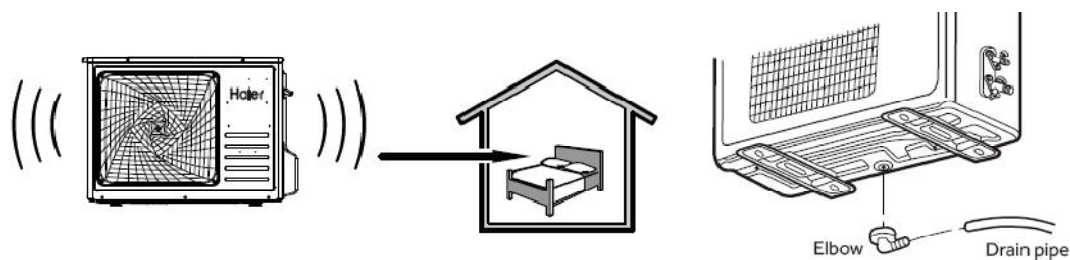


5. Installation introduction

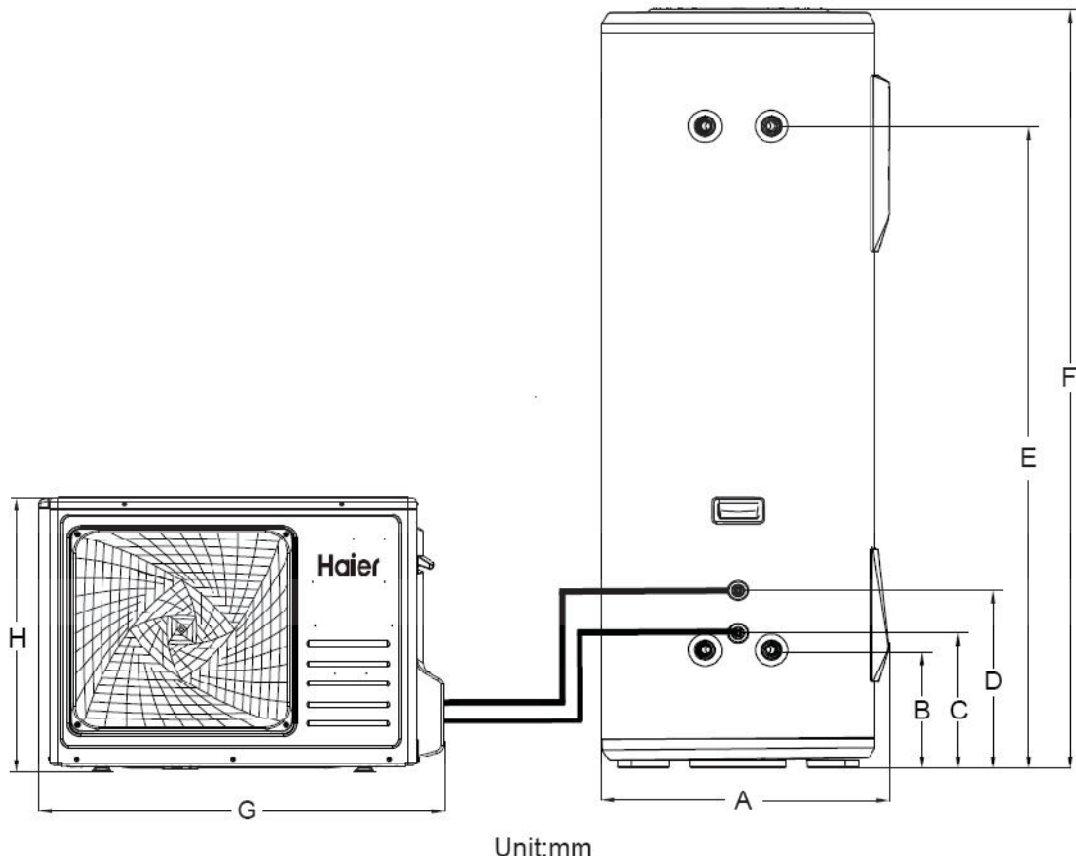
5.1 Installation precaution

- Do not install the water heater in the position where exposed to gas, vapours or dust.
- Install the tank unit and external unit 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.

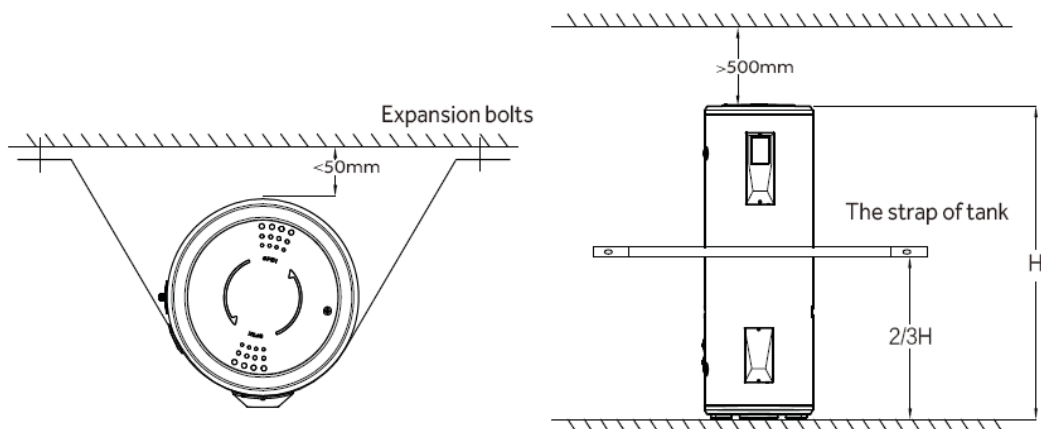
- There is no sulfur gas or mineral oil existing at the installation place, which may cause corrosion of the machine and the fittings.
- The water pipe for the water heater used at temperatures below 0°C shall not freeze.
- It shall not be set in rooms where a heating system is used so that heating supply 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 internal unit 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.
- Discharge of condensate: The condensate or water, which is formed in the outdoor unit during heating operation, must be eliminated, freely or through the drain. Fix the drain connection into the hole which is located on the bottom of the unit and connect the plastic tube with the connector. Ensure that the condensate water runs out in a suitable drain and make sure the discharge is made without hindrance.
- Keep an adequate distance between the working heat pump and the resting places.

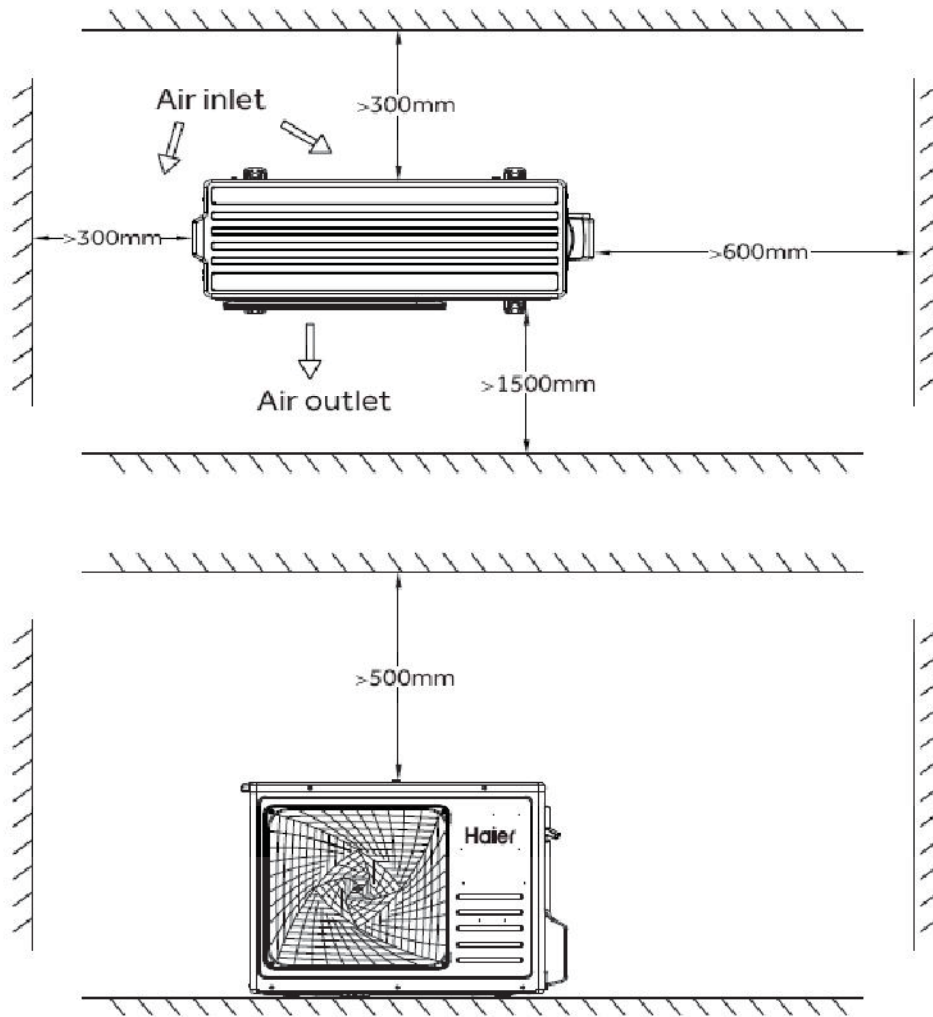


5.2 Installation dimensions (mm)



Model	A	B	C	D	E	F	G	H
HP200S1	542	272	311	411	1530	1765	899	681
HP300S1	630	281	320	420	1519	1795	899	681





5.3 Tools for the connection of refrigerant lines

- a) Group manometer suitable for use with R134a, with charge and vacuum tubes;
- b) Vacuum pump;
- c) Torque wrenches for nominal diameter of 1/4 “and 3/8” sizes on both sides to respond to the measures of the pipe unions;
- d) Flaring clamp \varnothing nominal 1/4 “and 3/8”, equipped with a terminal receiving opening so that the projection of the copper tube can be adjusted from 0 to 0.5 mm in the working folder ;
- e) Pipe cutter;
- f) Pipe reamer;
- g) Leak Detector for R134a, a leak detector is used exclusively for HFC refrigerants. It must have a high detection sensitivity.

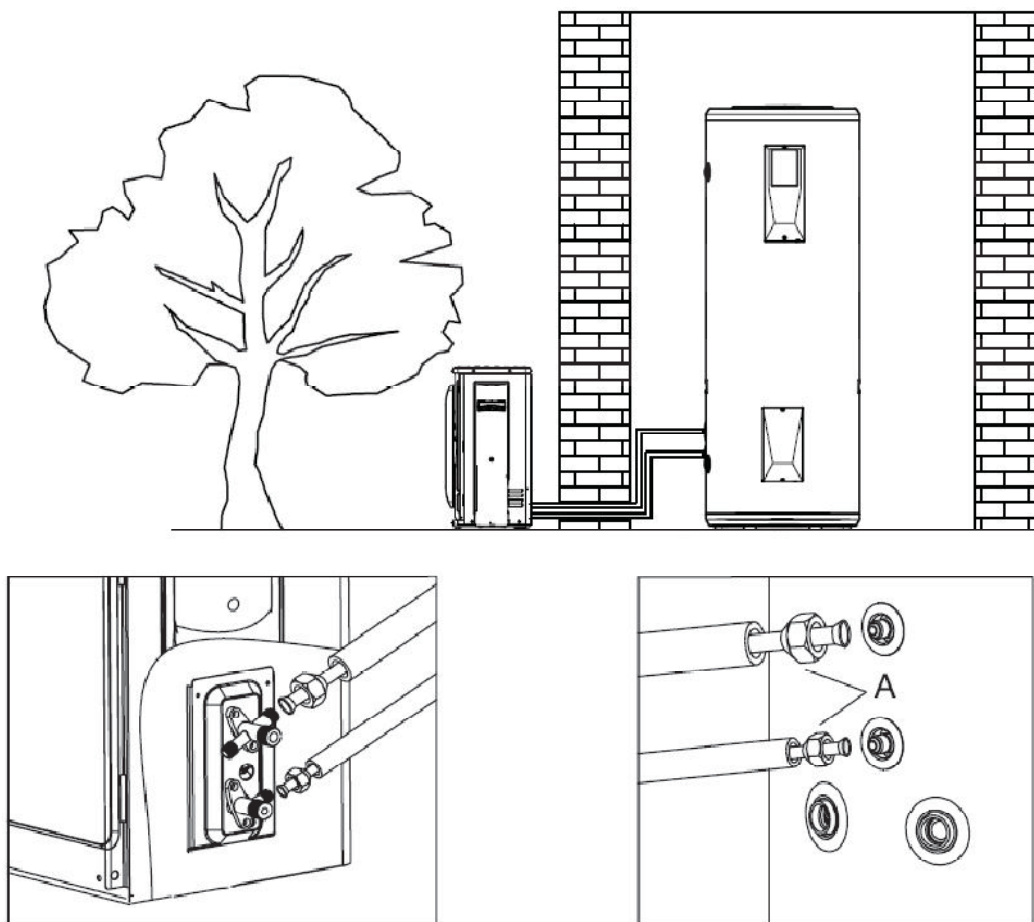
5.4 Preparing of the refrigerating pipes

WARNING! Before carrying out any installation check the following:

- a) Use only copper tubes for air conditioners type (copper tubing for the refrigeration and the conditioning) or copper pipes with proper insulation (at least 6 mm thick), suitable for use with R134a;
- b) Never use piping with a thickness less than 0.8 mm;
- c) Provide a path of the pipes as short and simple as possible (maximum length 20 m with 5 m of fall). Do not provide a path that may obstruct the access to the cap and the removal of flange.
- d) Protect the pipes and cables to avoid damage;

WARNING! The refrigerant lines, and fittings for connection must be insulated to avoid dangerous burns, loss of performance and product malfunction. Ensure the insulating sheath of the tubes through fastening clamps to prevent it from moving.

5.5 Connecting the tank unit



- a) Shape the pipes according to the path;
- b) Remove the threaded brass flare nuts(A) on the tank unit and store them (check that no impurities are left);
- c) Cut the pipe to the fixed length, with a pipe cutter, avoiding any deformation;
- d) Remove burrs with pipe reamer avoiding to get impurities inside (keep down

the tube);

e) Insert the threaded brass flare nuts(A) on the pipes in the correct direction;

f) Insert the tube into the flaring tool and make the flange at the end of the connecting pipe, as indicated in the table.

After confirming that there are no wrinkles or tears on the flare, connect the pipes using two spanners, being careful not to damage the pipes. If the force is insufficient, then there will be leaks. Although the force is excessive, there may be losses because it is easy to damage the flange. The safest method is to tighten the connection by using a spanner and a torque wrench.

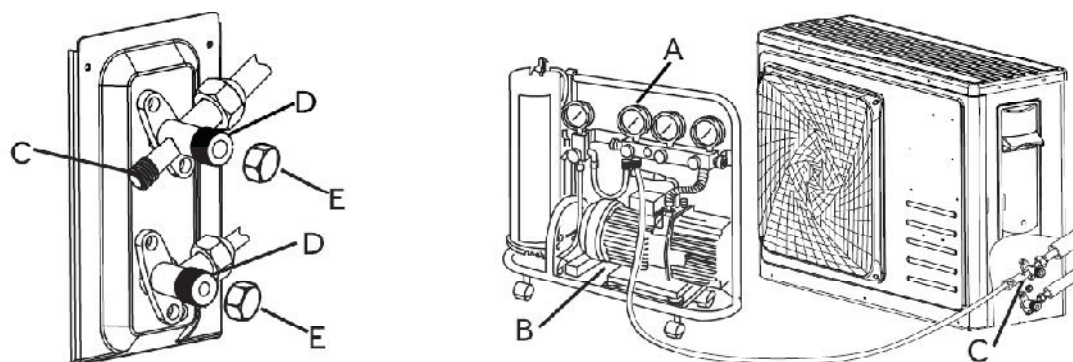
Pipe(not supplied)	Specification	Thickness	Tightening torque [Nm]
Inlet refrigerant pipe	$\varnothing 6.35 \text{ mm (1/4")}$	0.8mm	15~20
Outlet refrigerant pipe	$\varnothing 9.5 \text{ mm (3/8")}$	0.8mm	29~34

5.6 Connecting the external unit

Remove the flare nuts from 2 and 3 way valves, Insert the flare nuts on the pipes, screw the flare nuts to connect the external unit with the same method described for the tank unit.

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

5.7 Making the vacuum



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.

a) loose the caps of the taps of the 2 and 3 way valves, and of the service valve; verify that the two valves on the outdoor unit are closed (D);

b) connect the vacuum pump (B) to the service valve (C) by the attack of low pressure gauge (A);

c) After opened the valves of the vacuum pump (B), start it and let it run. Create a vacuum for about 20 / 25 minutes;

d) verify that the low pressure gauge (A) indicates a pressure of 1 bar-(or -76 cm Hg);

e) close the valves of the pump and shut off (B). Verify that the gauge needle does not move for about 5 minutes.

If the needle moves, there are air leaks in the system, then you must check all the tightening and execution of flare at this point repeat the procedure from step c;

f) Disconnect the vacuum pump, (if you want to add refrigerant gas see the next paragraph);

g) completely open the taps on 2 and 3 way valves (D);

h) Screw in the cap on the service outlet and valves (E);

i) after having tightened the plugs, make sure there are no gas leaks with the appropriate detector.

Always protect hoses and cables to prevent their being damaged, as once damaged can cause gas leaks (personal injury from frostbite).

5.8 Charge of the refrigerant gas

The product can be installed with refrigerant connection between internal and external unit up to 20 m. The declared performances are referred to refrigerant connection pipes of 5 m; different types of installation may lead to different values of performance.

In case you are adding R134a gas in the circuit, will be needed:

- R134a refrigerant tank. In this case it is necessary a charge attack 1/2 UNF 20 threads per inch and corresponding seal;

- Electronic scale for refrigerant charging with sensitivity 10g.

- Connection pipes over 10 m need to increase the refrigerant (30g / m).

During installation:

a) Carry out the procedure of passage “a” to the passage “f” ;

b) Connect the manometer on the low pressure service valve, and connect the refrigerant cylinder to the center tap of the the manometer. 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 the pipe;

c) Keep under control the weight of the refrigerant tank through the electronic scale;

d) Open the ball valve and to flow the refrigerant gradually;

e) After reaching the mass of gas to be loaded close the tap;

f) Remove the manometer and charging hose from the valve;

g) Fully open taps 2 and 3 way valves (D), turn the product in heat pump mode with the detector and check for leaks of refrigerant;

h) Remove the container from the manifold and replace all the plugs (E).

Already installed:

a) Connect the manometer on the low pressure service valve, and connect the refrigerant cylinder to the center tap of the the manometer. 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 the pipe;
- b) Keep under control the weight of the refrigerant tank through the electronic scale;
- c) Open the ball valve and to flow the refrigerant gradually;
- d) After reaching the mass of gas to be loaded close the tap;
- e) Remove the manometer and charging hose from the valve;
- f) with the detector and check for leaks of refrigerant;
- g) Remove the container from the manifold and replace all the plugs (E).
- h) Once finished the time for the “Charge” , verify proper product functioning.

5.9 Installation caution

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

- Select copper pipes for pipeline connection.
- The inlet water pressure is between 0.1~0.6MPa. If lower than 0.1 MPa, a booster pump shall be added at the water inlet; if higher than 0.6 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(8.5bar,99° C,G3/4M) must be installed on the tank.For France, we recommend hydraulic safety units fitted with a membrane with the NF marking.

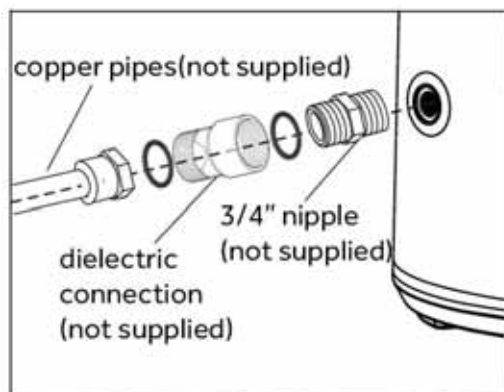
Integrate the safety valve in the cold water circuit.Install the safety valve close to the tank in a place which is easy to access.

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

- Never block the outlet of the safety valve or its drain line for any reason.
- The diameter of the safety unit and its connection must be atleast equal to the diameter of the domestic cold water inlet.
- If the mains pressure exceeds 80% of safety valve, a pressure reducer must be installed upstream of the appliance.

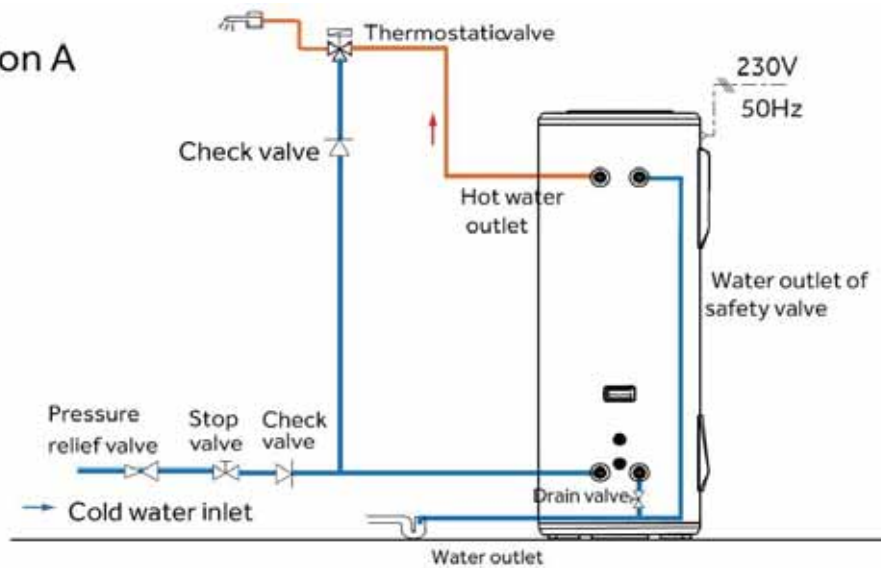
Do not connect the cold water inlet and hot water outlet directly to the copper pipes in order to avoid iron/copper galvanic couples (risk of corrosion).

The cold water inlet and hot water outlet must be fitted with a dielectric connection (not supplied).

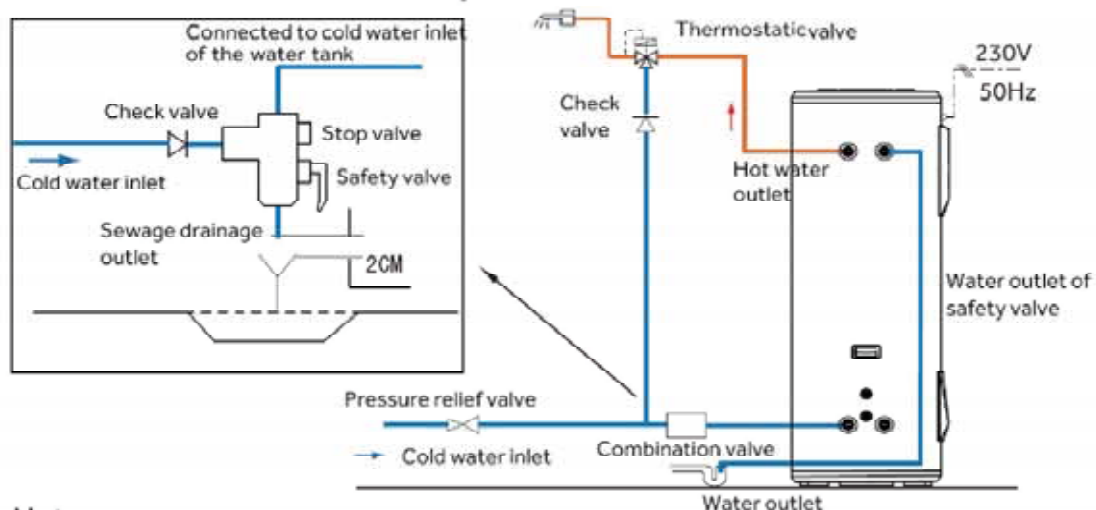


Pipeline installation diagram

Installation A



Installation B (for France only)



- Pressure relief valve, thermostatic valve, stop valve, check 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

5.10 Electrical connections precautions

WARNING

- Only qualified professionals may carry out electrical connections, always with the power off.
- The earthing shall comply with local standards.
- The heat pump water heater requires a single phase 16A(HP200S1)/20A(HP300S1) supply requiring a licensed electrician for connecting.

- Water heaters shall be equipped with a dedicated power line and residual current circuit breakers. The action current shall not exceed 30 mA;
- The earth wire and the neutral wire of the power supply shall be separated entirely. Connecting the neutral wire to the earth wire is not allowed.
- Parameter of the alimentation cable: $3 \times 2.5 \text{ mm}^2$ 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 live wire, neutral wire and earth wire 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.

Attention!

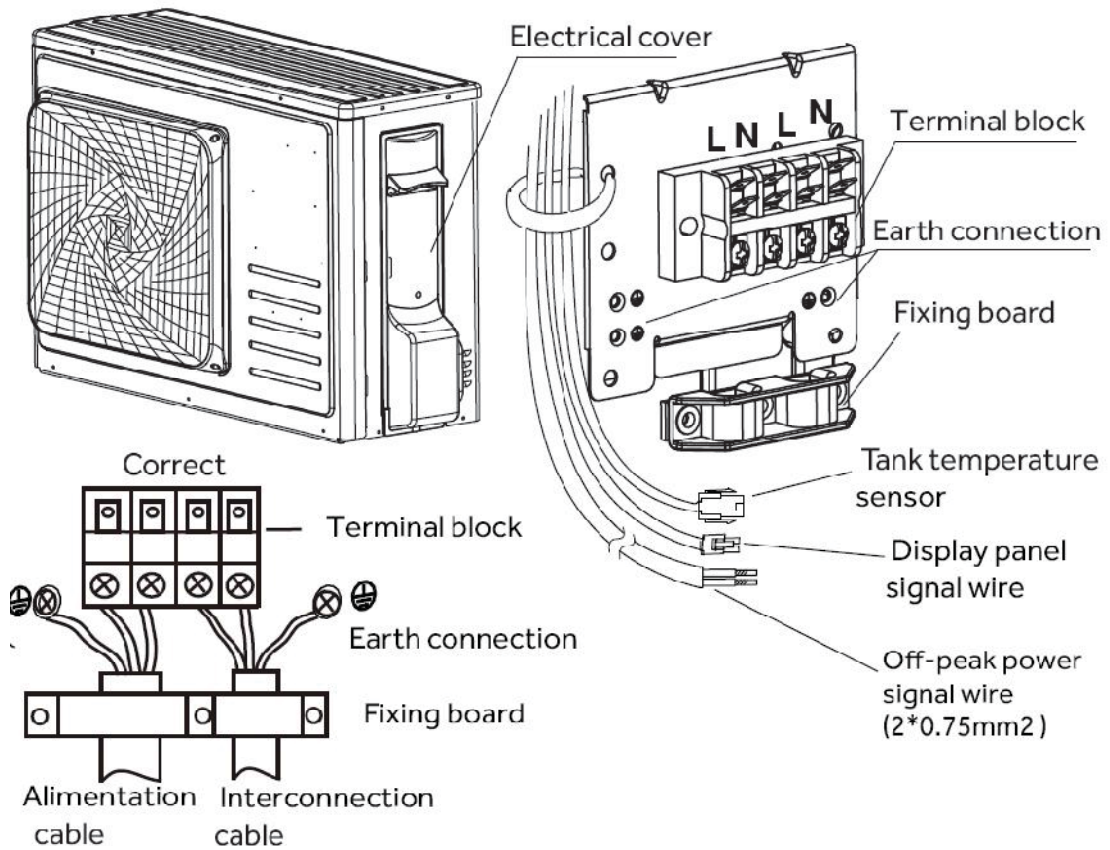
Through poor conditions of the electrical MAINS, shortly voltage drops can appear when starting the EQUIPMENT. This can influence other equipment (eg. blinking of a lamp). If the MAINS-IMPEDANCE $Z_{\text{max}} < 0.304 \text{ OHM(HP200S1)}$ $Z_{\text{max}} < 0.289 \text{ OHM(HP300S1)}$, such disturbances are not expected. (In case of need, you may contact your local supply authority for further information).

5.11 Electrical connections

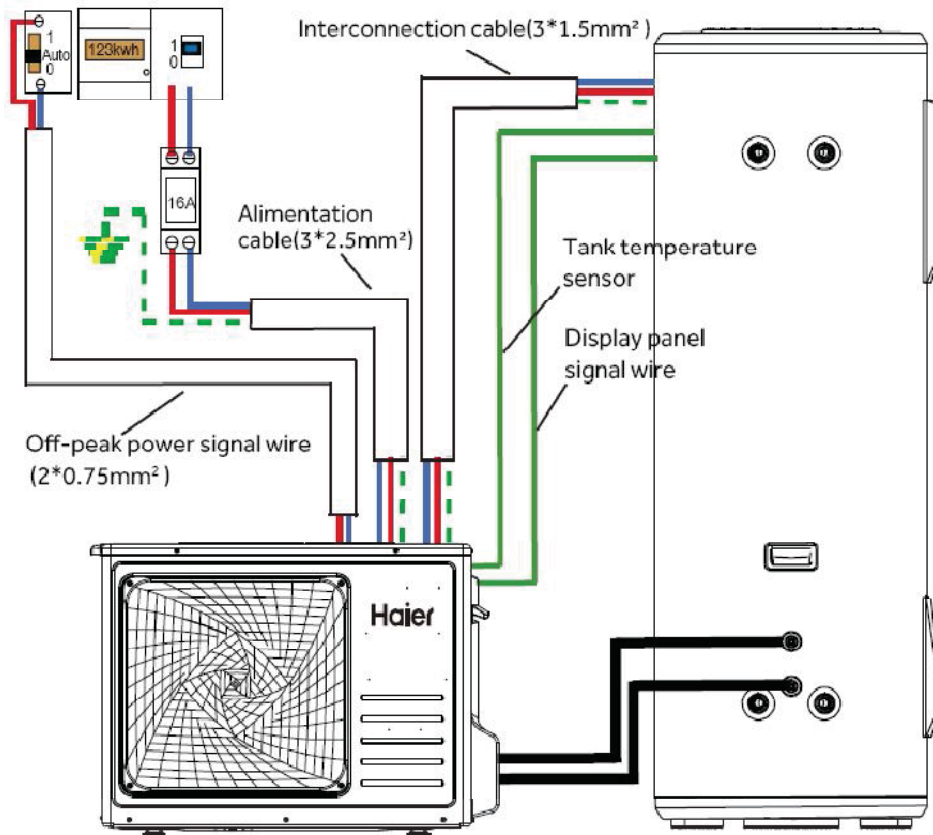
Connecting the external unit cables:

- a) Remove the electric cover.
- b) Connect the external unit cables, according to the wiring diagrams .
- c) Connect the display panel signal wire, the tank temperature sensor and Off-peak power signal wire .
- d) After connection, you must use the fixing board to press the cable. Fixing board should be pressed against the outer sheath of the cable.
- e) Install the electric cover.

Description	Availability	Cable	Type
Alimentation cable	not supplied	3*2.5mm ²	H05RN-F
Interconnection cable	supplied	3*1.5mm ²	H05RN-F
Off-peak power signal wire	supplied	2*0.75mm ²	H03VVH2-F
Tank temperature sensor	supplied	4*0.2mm ²	shielded – UL2464
Display panel signal wire	supplied	4*0.2mm ²	shielded – UL2464

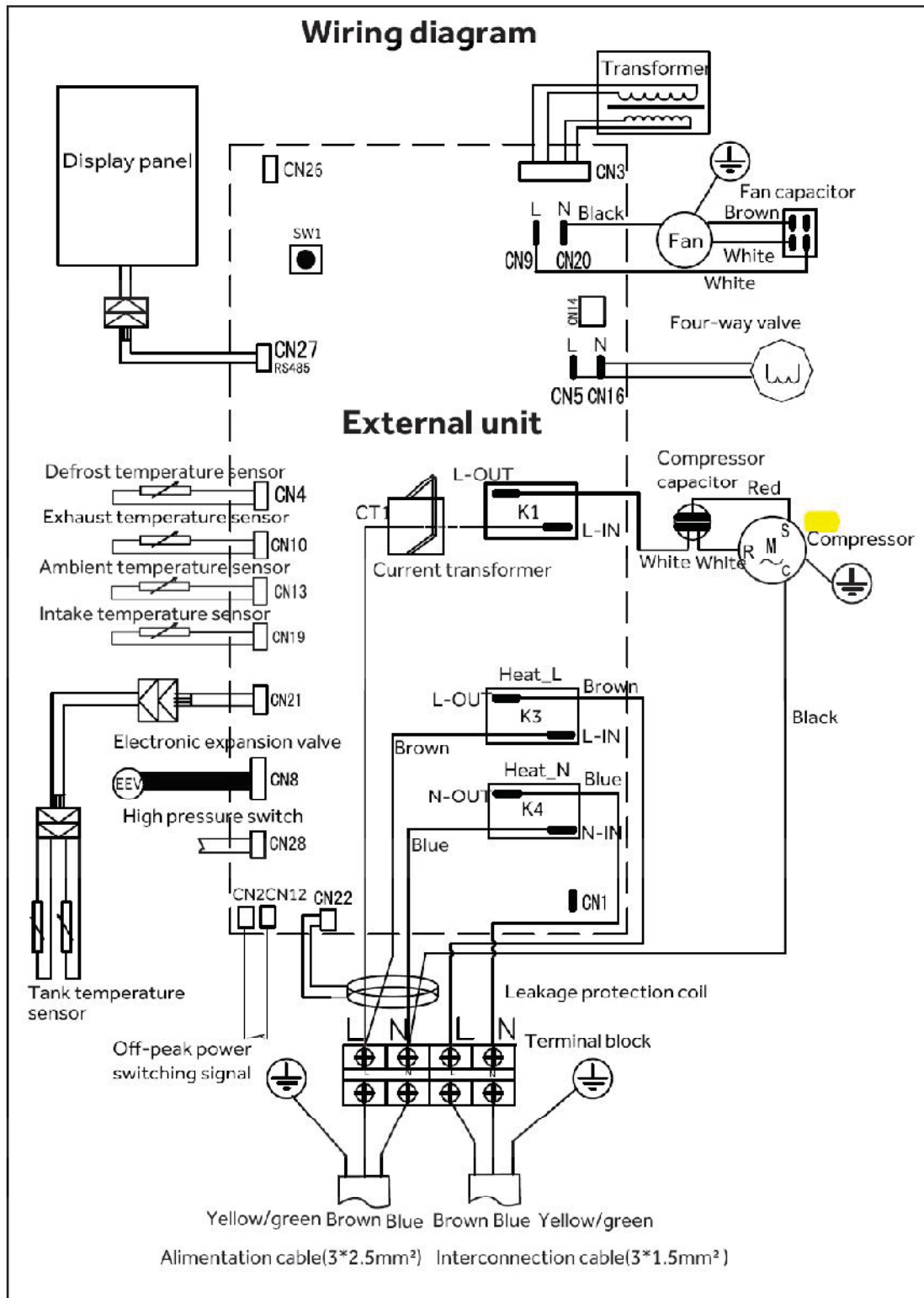


5.12 Off-peak power signal wire connection



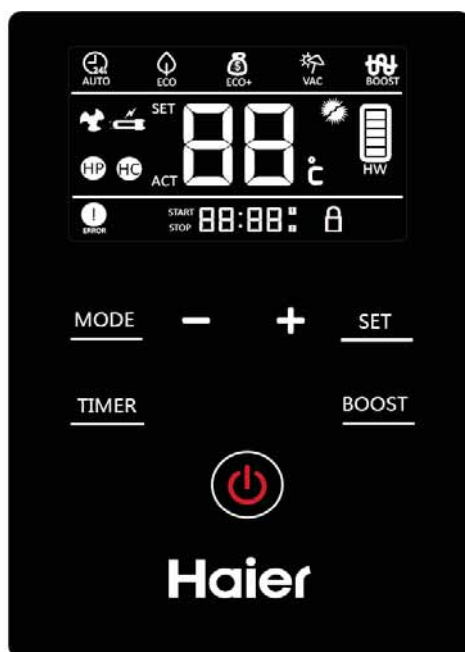
The heat pump water heater requires a single phase 16A(HP200S1)/20A(HP300S1) supply requiring a licensed electrician for connecting.

5.13 Wiring diagram








6. Operation and functions








Display



6.1 Description of the pictograms:






Symbol	Description
	Power ON/OFF switch When turned off, the display shows the time and the actual water temperature. When turned on, the display shows the working mode. The default temperature setting is 55°C in the factory. It can be adjusted simply by pressing + & - directly on the default display.
MODE	Working mode selection: Press the key, the AUTO mode, ECO mode, ECO+ mode, VAC mode is displayed in turn. Press SET or wait 6 seconds the mode is selected.
SET	Confirm button
TIMER	Timer adjust: press this key, then Press the + and - to adjust the time.
BOOST	Turn on or off fast heating function: Heat pump and Auxiliary electrical heater are activated at same time.

Symbol	Description
	<p><u>Auto mode</u></p> <ul style="list-style-type: none"> - Optimised management of the heat pump and the electrics for guaranteed comfort; - Prior using heat pump; - If compressor works more than the default 8 hours , start the auxiliary power; - The compressor maximum continuous working time(AA) can be adjust in the installer settings.
	<p><u>ECO (off-peak) mode</u></p> <ul style="list-style-type: none"> - In this mode ,priority using heat pump,start the Auxiliary electrical heater only in off-peak time; - In two ways using heat pump,should set in the installer settings in advance ; <ul style="list-style-type: none"> 01- timer refer to LP parameter; 02-switch signals by power companies. - In 01 mode, Press SET, press + and - to set Start time of first Low price L1. Than,set Colsed time of L1. And than, press SET, to defined for L2. - In 02 mode, HC light up in Time of use hours, HP light up in Peak hours.
	<p><u>ECO+ (off-peak) mode</u></p> <ul style="list-style-type: none"> - In this mode ,priority using heat pump, heat pump and Auxiliary electrical heater are activated only in off-peak time; - In two ways using heat pump,should set in the installer settings; <ul style="list-style-type: none"> 01- timer refer to LP parameter; 02-switch signals by power companies. - In 01 mode, The Start time and Colsed time settings as the ECO (off-peak) mode .
	<p><u>Holiday mode</u></p> <ul style="list-style-type: none"> - According to the vacation dates in advance to prepare hot water; - For example, you leave home for vacation on January 1st and return home on January 5th. The date shall be set as (5-1) =4 days, and corresponding temperature shall also be set. The heat pump will start heating on 00:00 o'clock of January 5th automatically.

Symbol	Description
	Boost mode. Heat pump and Auxiliary electrical heater are activated at the same time.
	Heat pump working icon.
	Auxiliary electrical heater working icon.
	Time of peak/off-peak hours. In Time of peak/off-peak hours mode, the symbol corresponding to the mode is displayed.
	Alarm display icon.
	<u>Anti-legionella</u> - Anti-legionella function will be activated every 7 days to heat the tank to 65°C automatically.
	Hot water volume display.

Note: Under certain conditions, ECO mode and ECO+ mode may result in shortages of hot water (mainly due to air temperatures outside the operating range).

6.2 Installer settings

- To open the installer settings, press  switch off the system, then press  and **SET** at the same time for 10 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
LL NO, NC	<u>Off-peak signal type</u> When you use off-peak time clock control, first determine the type of signals, Only allow professional installers to operate. - NO corresponds to Normally Open Signal. - NC corresponds to Normally Close Signal.	NO	NO, NC
LP 01, 02	<u>Off-peak logic type</u> - In two ways using heat pump, should set in the installer settings -01 manually set off-peak time; -02 switch signals by power companies.	01	01, 02
AL ON, OF	<u>Avoid Legionella</u> - This parameter is used to activate the legionella protection mode. - Once every 7 days, all domestic hot water is heated to 65°C.	ON	ON, OF
AA 5-10	<u>Compressor maximum continuous working time</u> - If the maximum continuous working time of the compressor more than Set Time, start auxiliary power.	8h	5-10h
EH ON, OF	<u>Auxiliary Heating in off-peak time</u> - ON corresponds to turned on uxiliary Heating. - OF corresponds to turned off uxiliary Heating.	ON	ON, OF

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.

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 .In poor water areas need to shorten the time.

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.

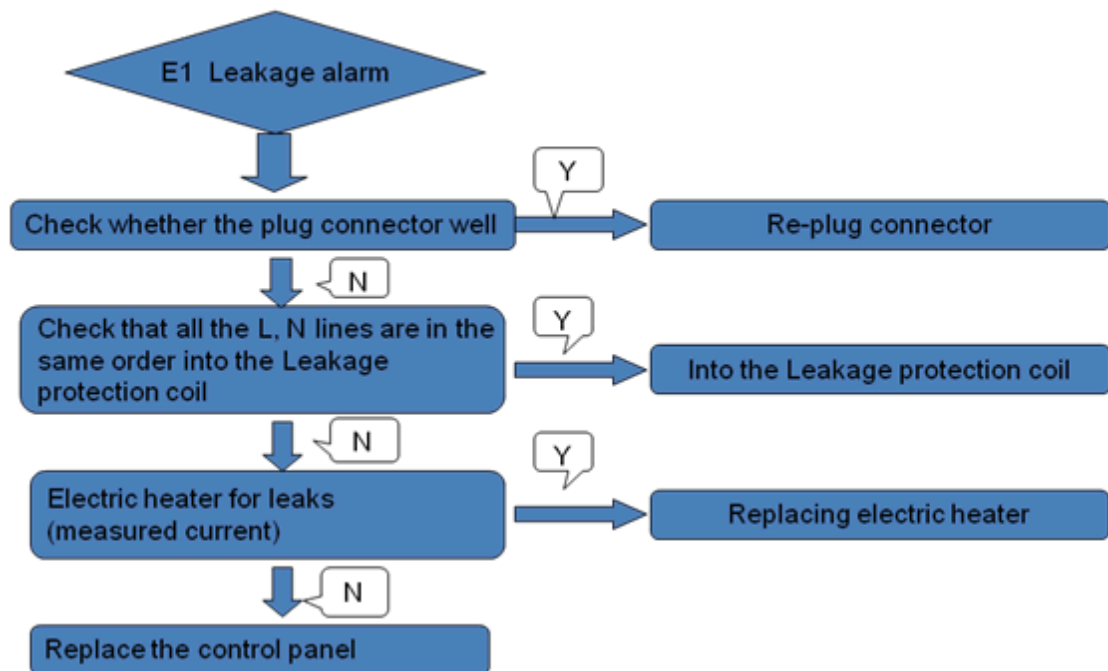
8. Faults and protection

8.1 Fault type

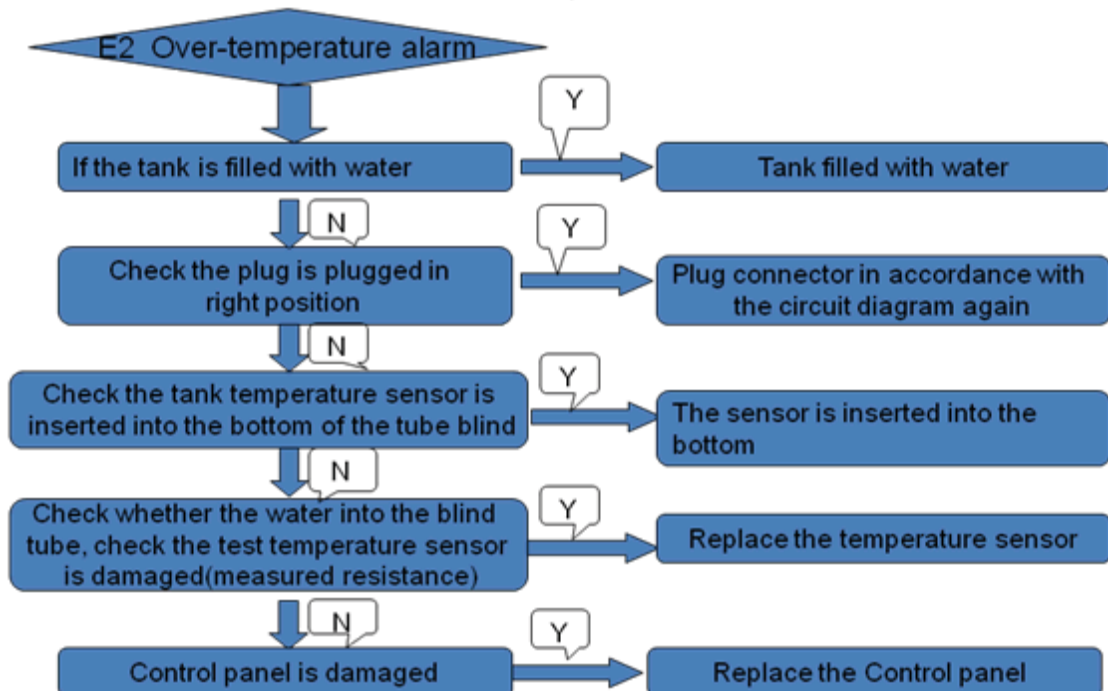
Fault type	Action	Digital indication	Release
Compressor protection	Operating temperature protection	F2	After fault is solved, switch on power supply for release
	Air exhaust temperature protection	F3	
	Evaporation high temperature protection	F5	
Compressor over-current protection	Over-current protection	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 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 Off-peak power switching signal	If not received the Off-peak signal when selecting switch signals by power companies	EF	

8.2 Fault code identification method:

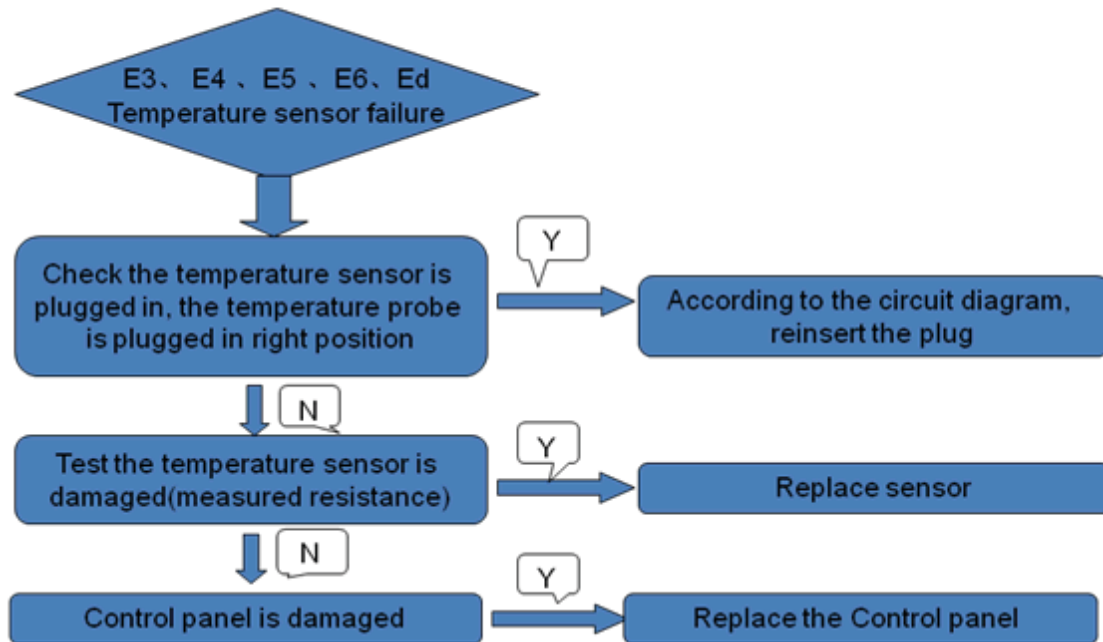
" E1 "error code and identification process



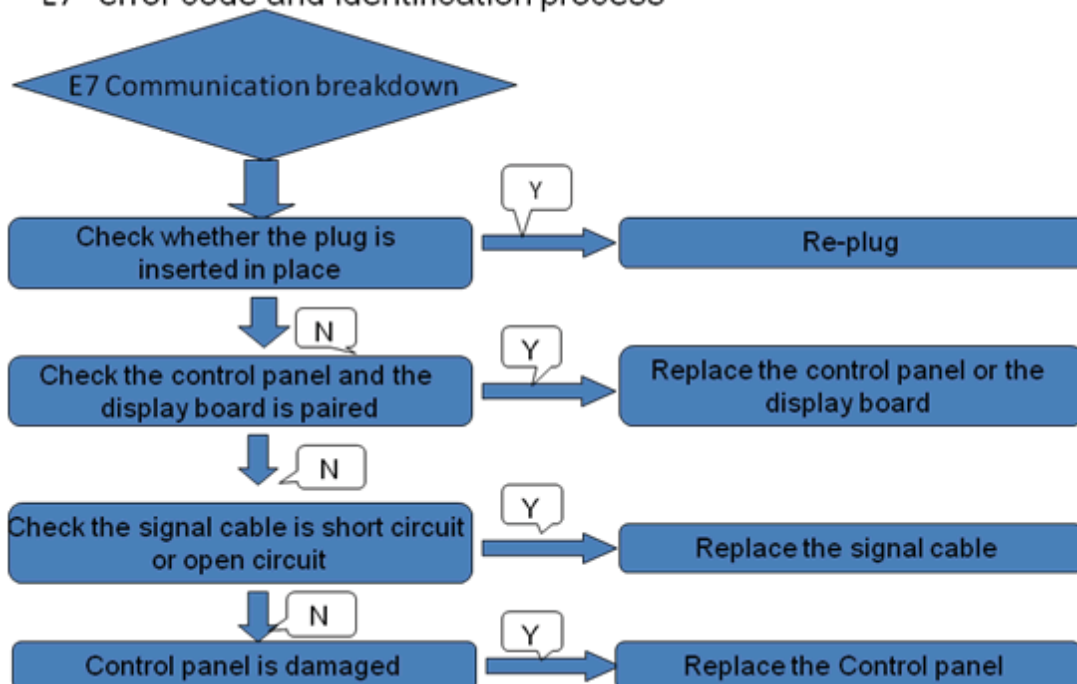
"E2" error code and identification process



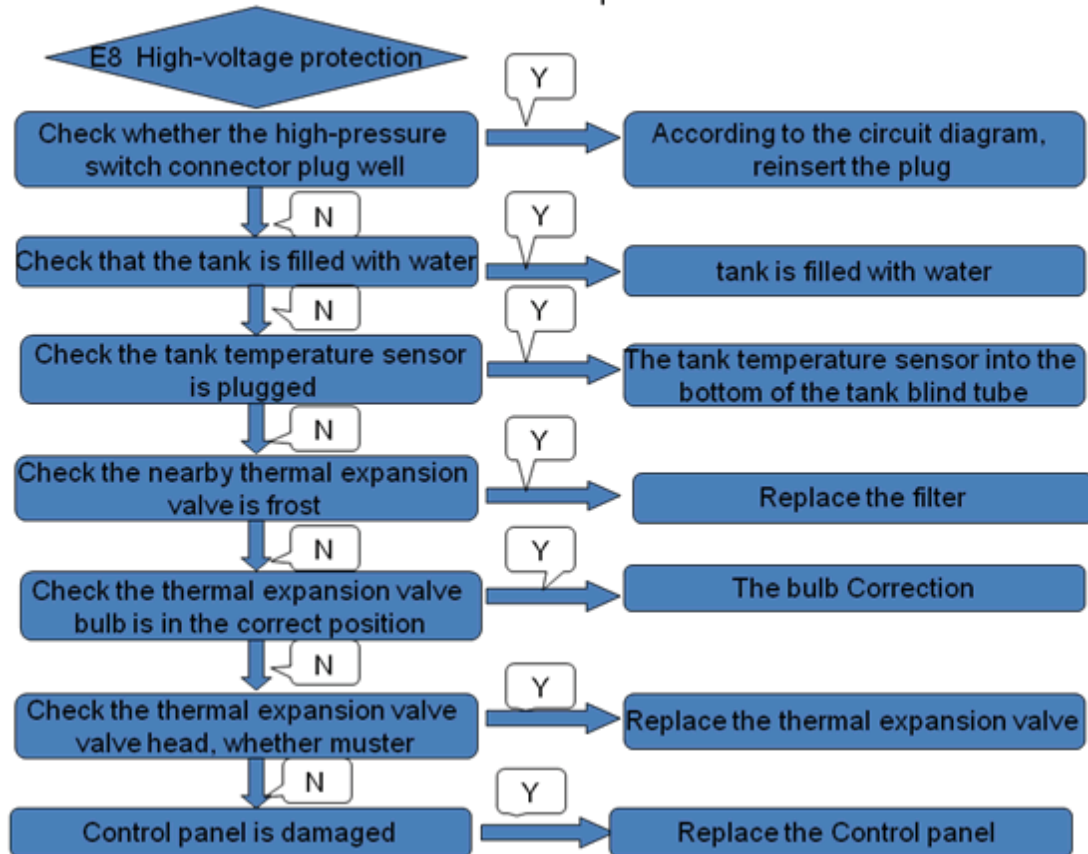
“E3、 E4 、 E5 、 E6、 Ed” error code and identification process



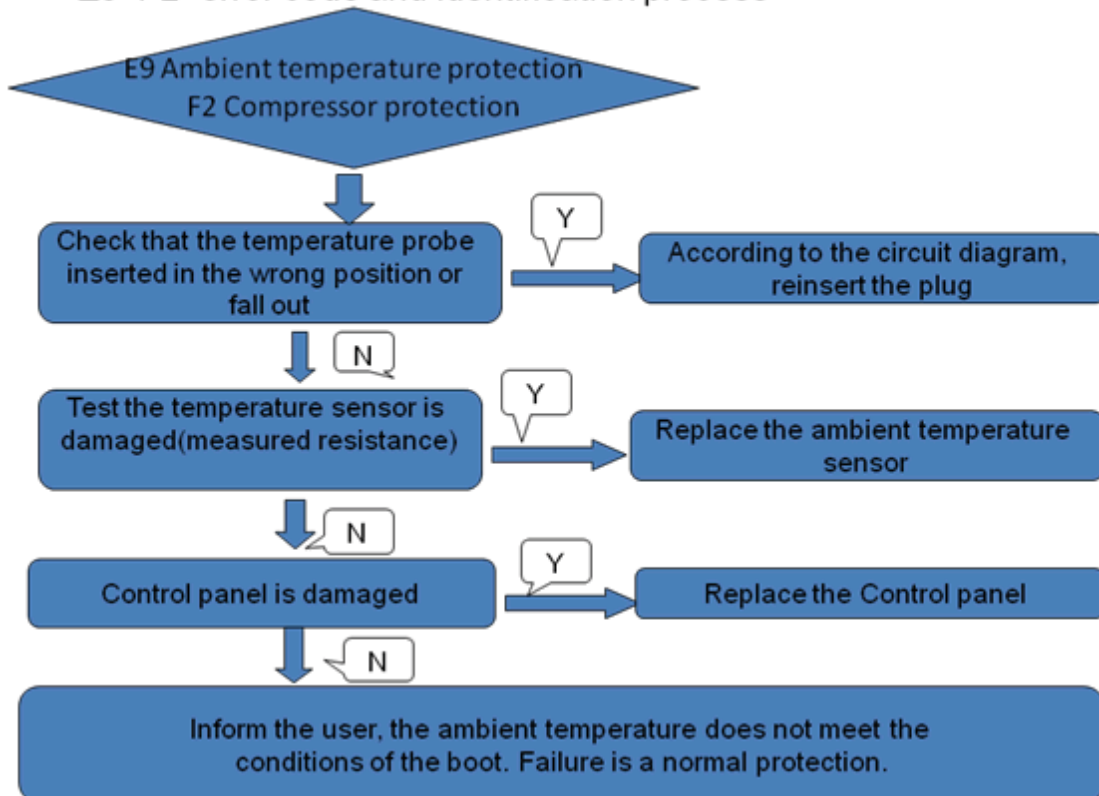
“E7” error code and identification process



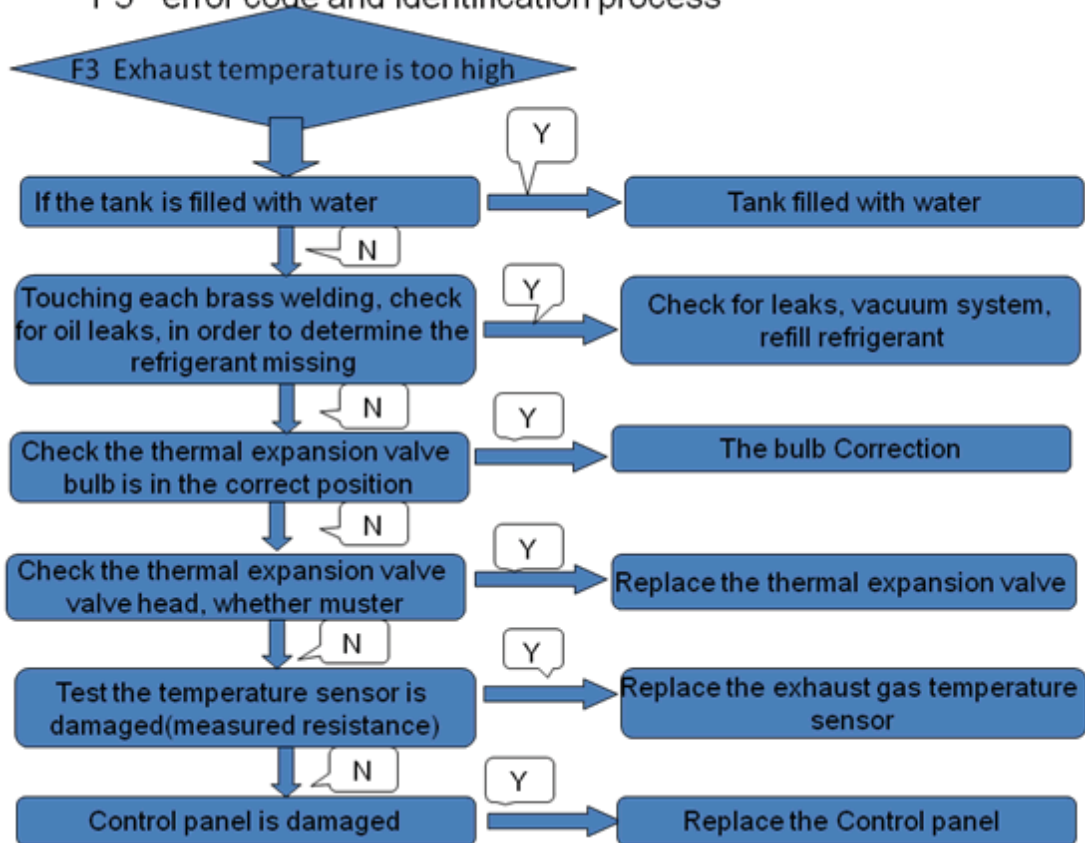
“E8” error code and identification process



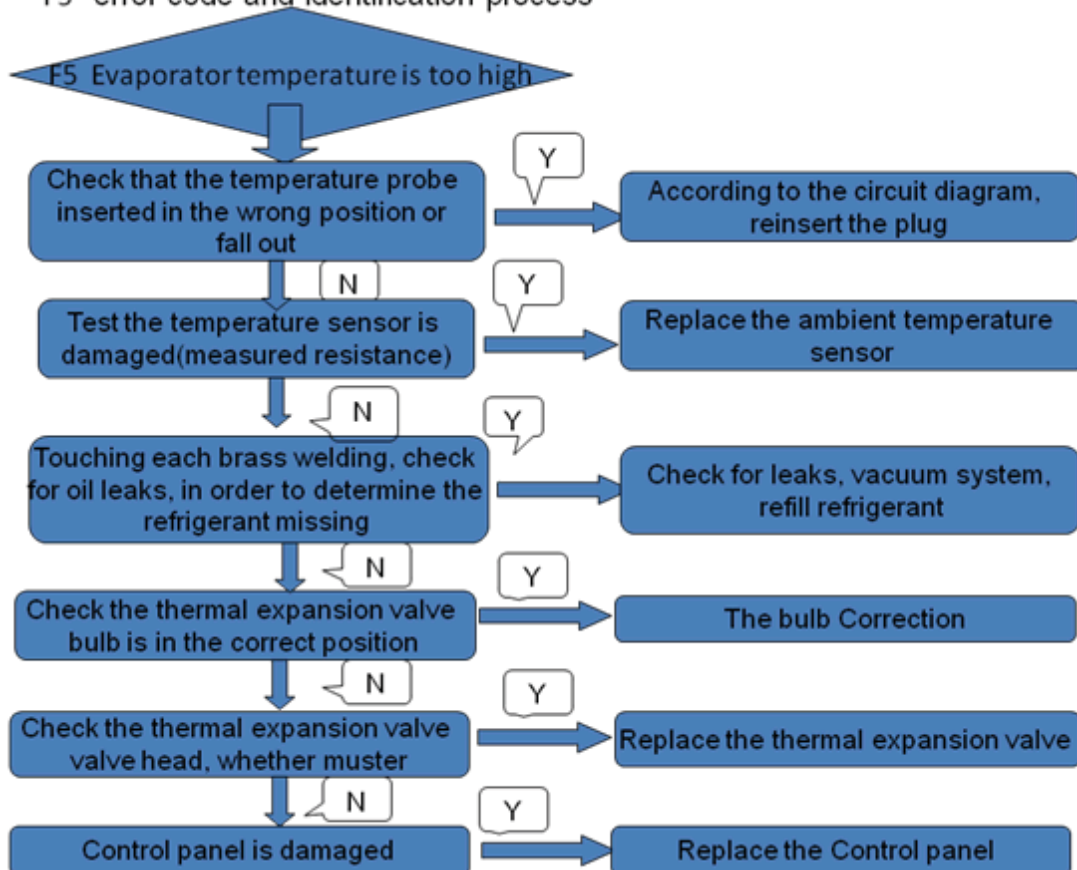
“E9 F2” error code and identification process



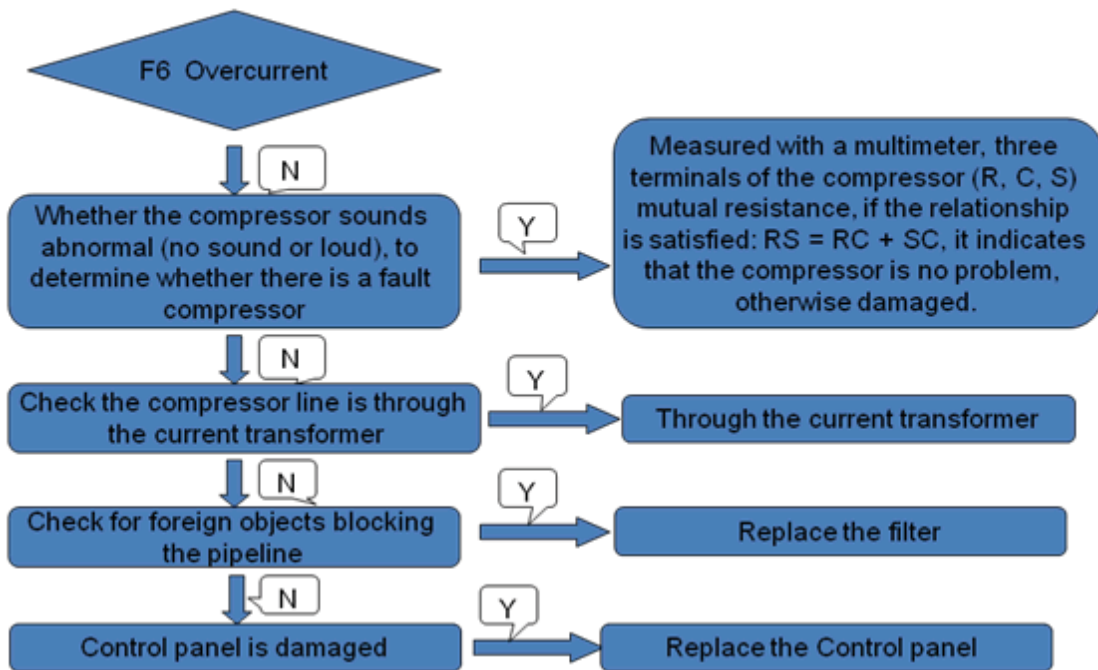
“F3” error code and identification process



“F5” error code and identification process

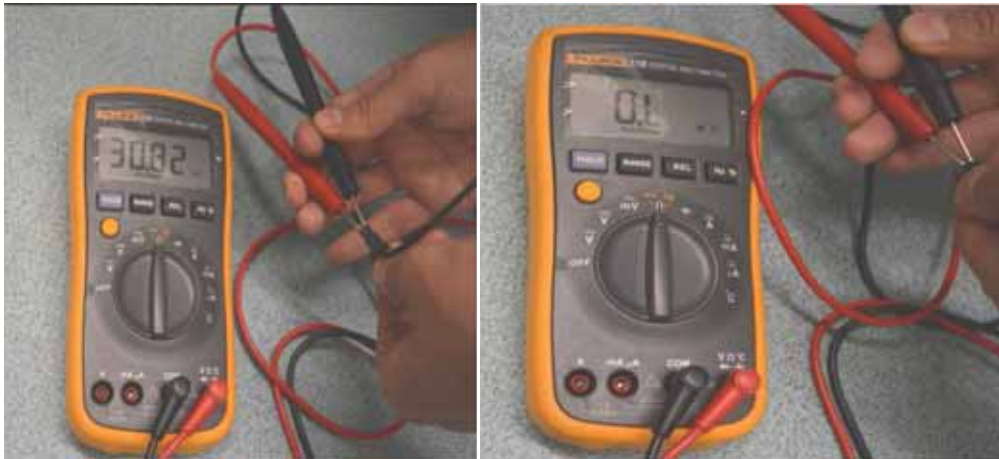


“F6” error code and identification process



8.3 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).

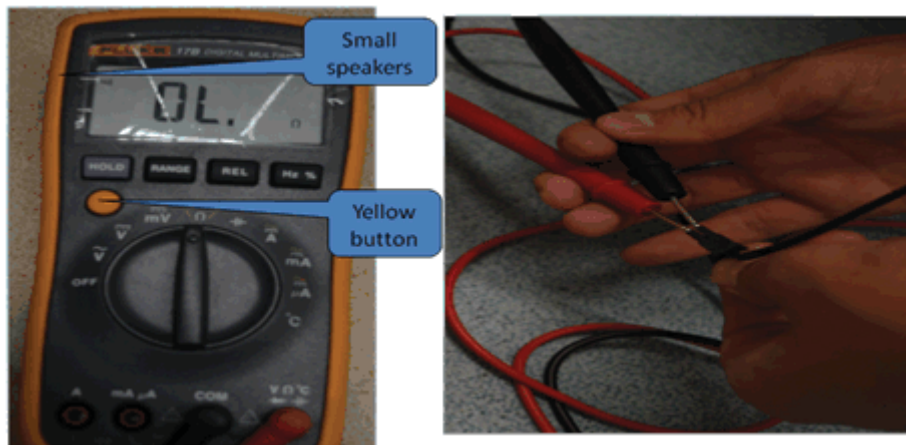


Multimeter set to Ohms, according to the picture of the method of measuring the resistance of the temperature sensor. According to the resistance table, the lower the temperature the smaller the resistance.

8.4 Check the compressor line is through the current transformer

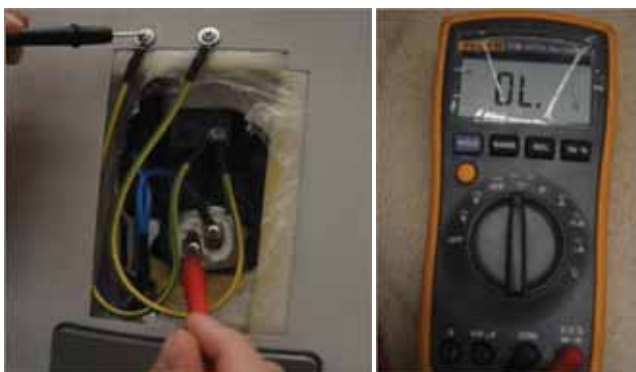


8.5 Check the signal cable is short-circuited



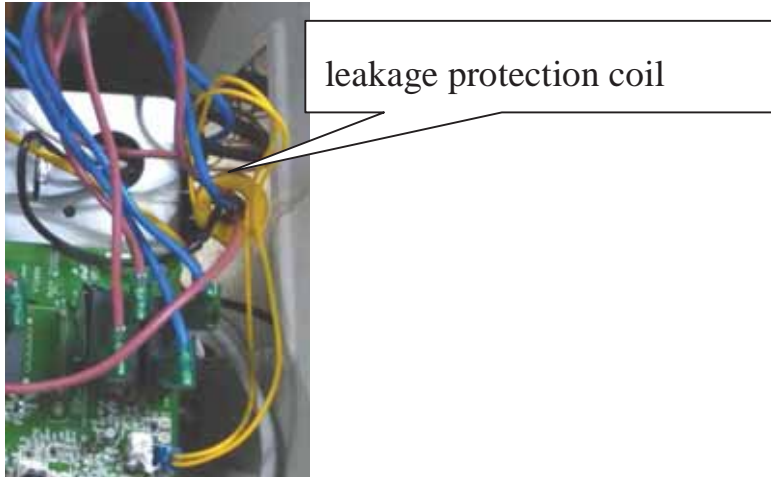
Press the yellow button to switch to the picture, when a short circuit, there is a beep, the resistance is zero.

8.6 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.

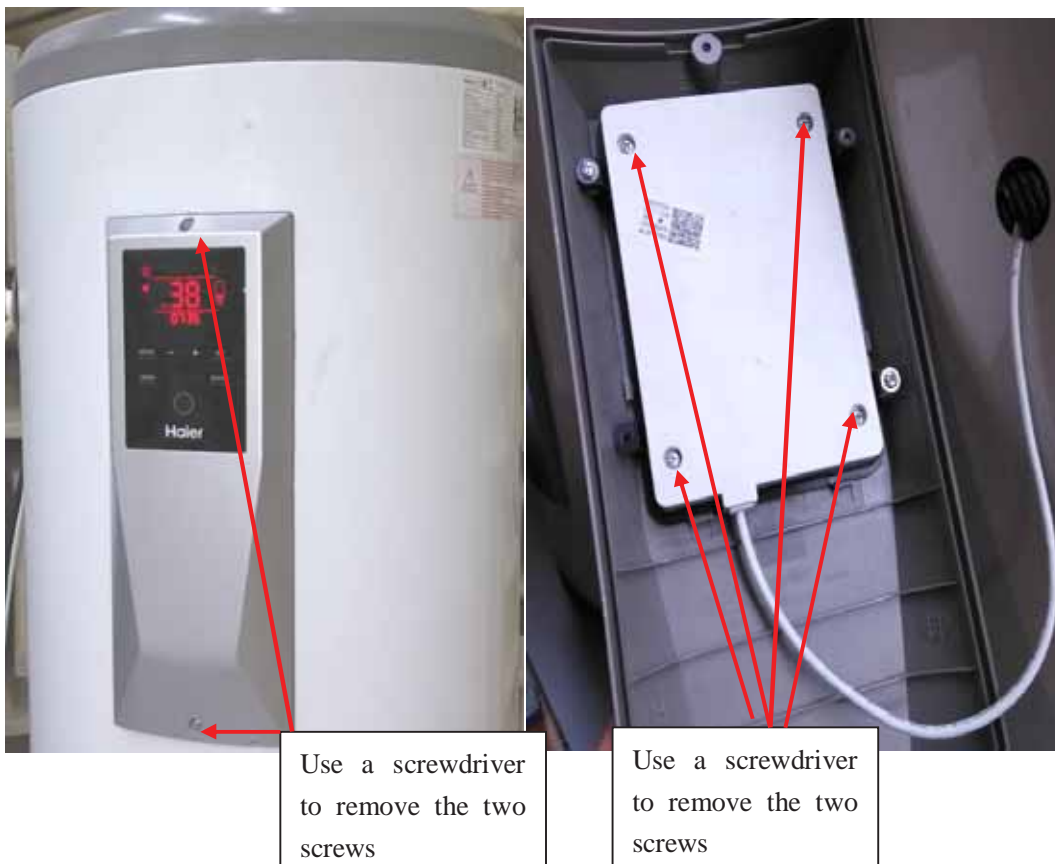
8.7 Check that the power cord L, N lines are in the same order into the leakage protection coil



9. The method of dismantling products

Make sure the power cord is disconnected.

9.1 Remove the Display



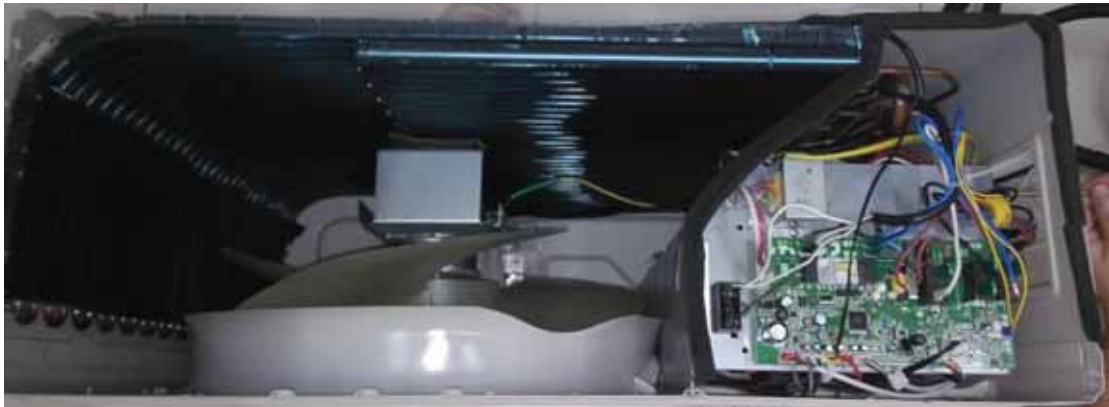


Remove it

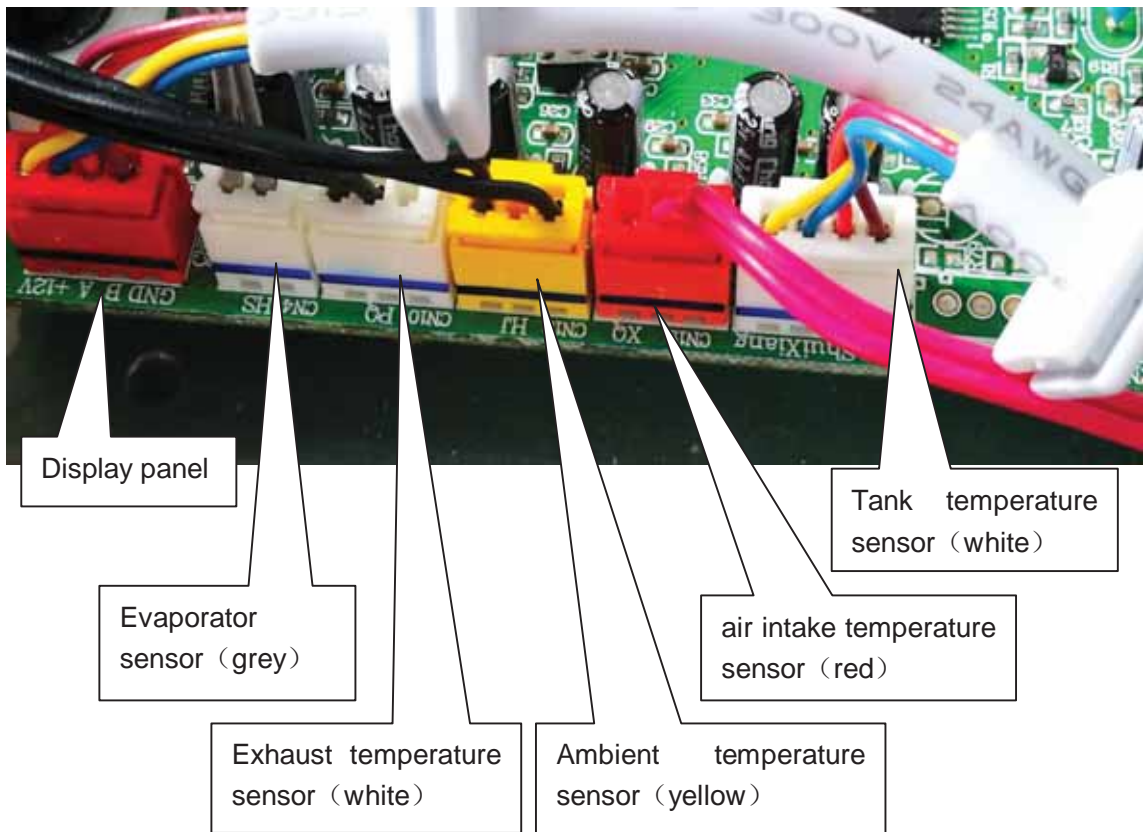
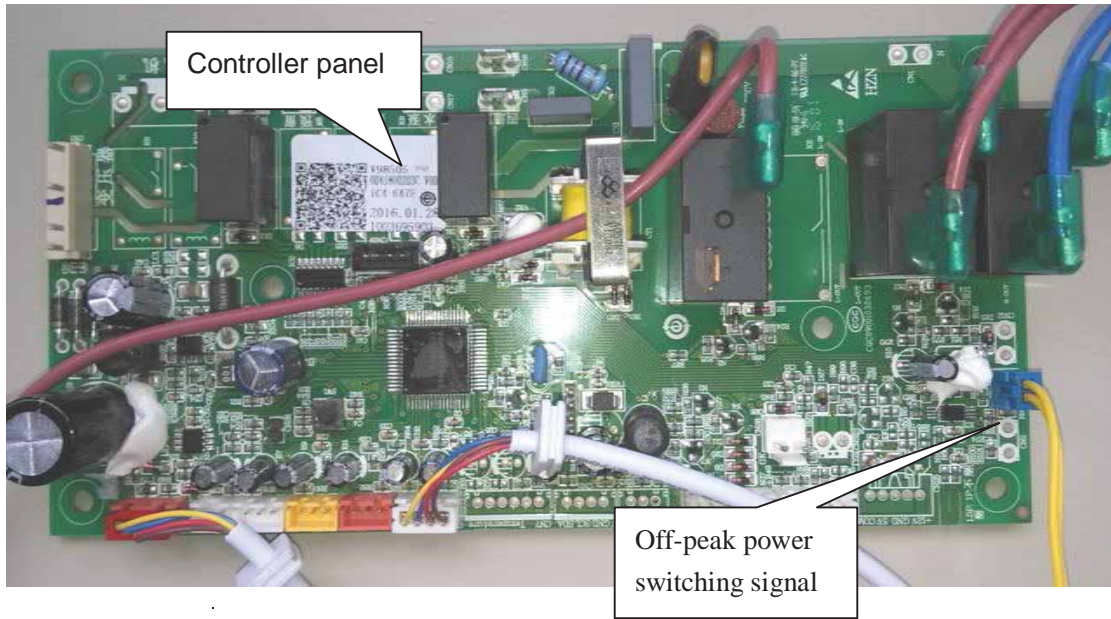
9.2 Remove the Control panel



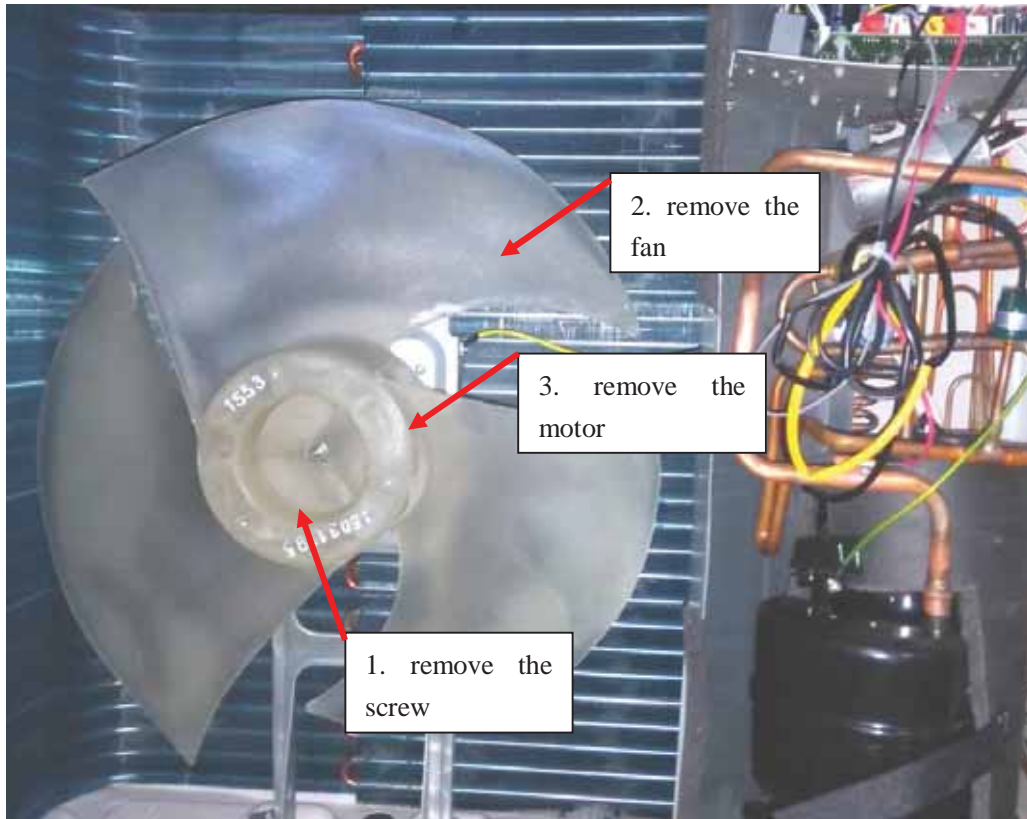
Use a screwdriver to remove the screws



Remove it



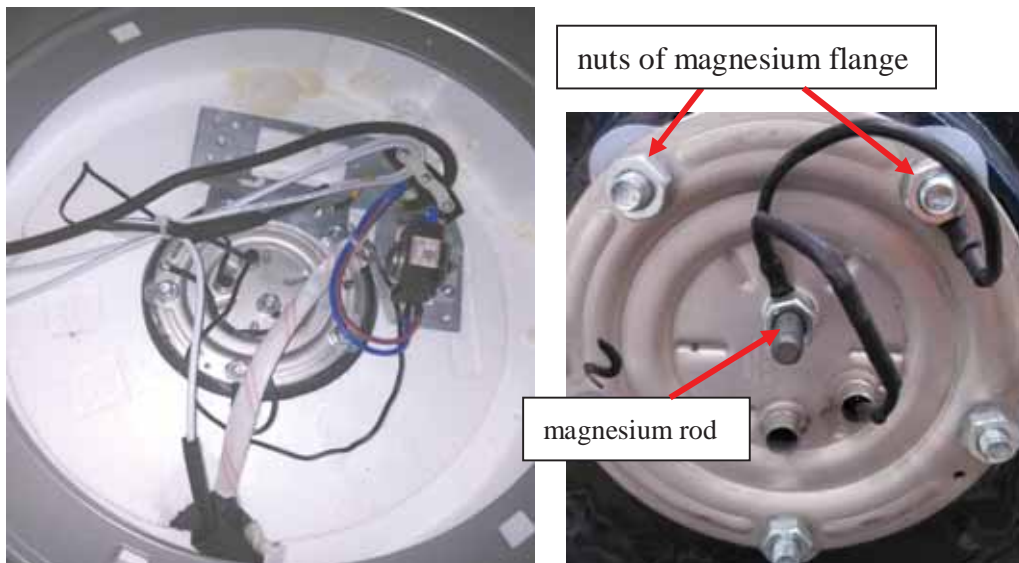
9.3 Remove the motor and fan



9.4 Remove the Magnesium rod

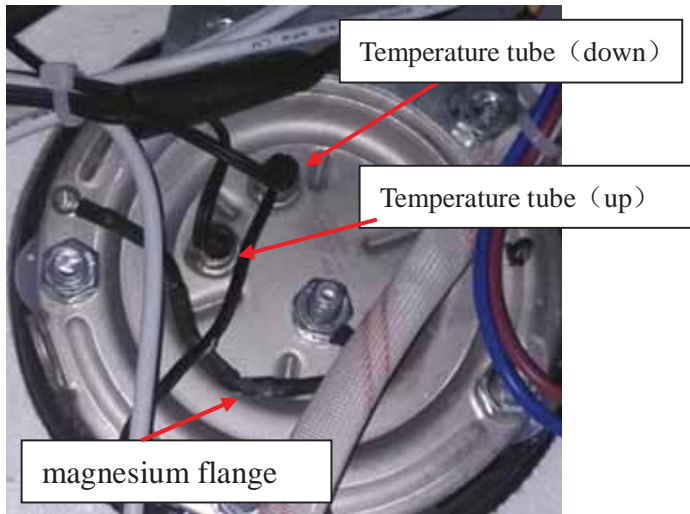
Off the power and close the inlet valve, open any outlet valve, exhaust pressure, when no water flows out of time, turn off all the valves.

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



9.5 Remove the temperature sensor

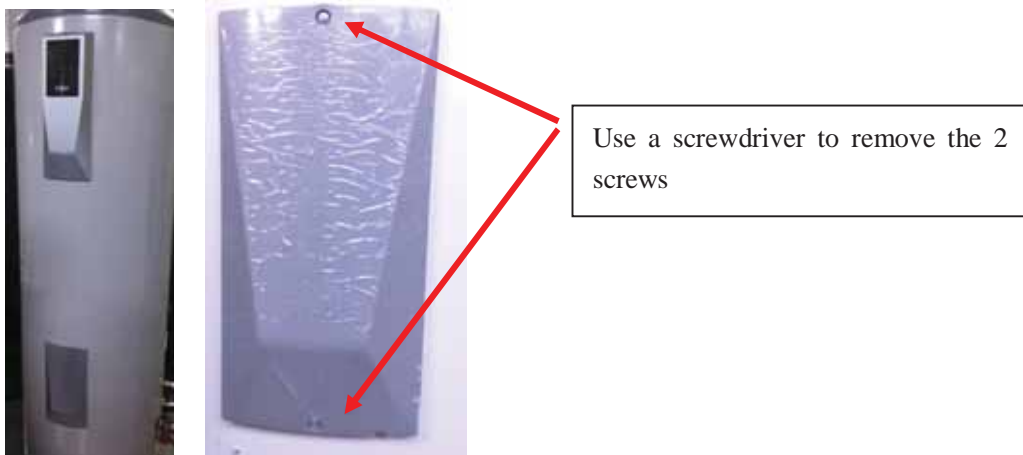
Remove the fixing screws, remove the water tank flange cover;
Remove the temperature sensors and thermostat temperature sensor.



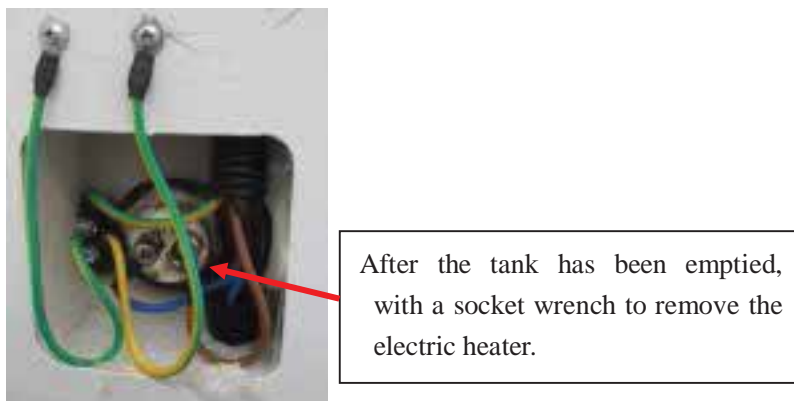
First insert the temperature sensor, and then insert the thermostat temperature sensor. Temperature sensor must be inserted into the bottom of the tube.

9.6 Remove Electric heater












9.6.1 Remove Electrical cover



9.6.2 Remove the internal wiring and electric heater



10. Repairs common tools

Tools Name	Quantity	Illustration
Spanner	2pc	
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	
Pipe cutter	1pc	
Flaring device	1pc	