

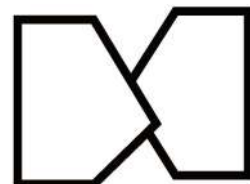
# HYUNDAI

## USER'S MANUAL

### DOMESTIC HOT WATER HEAT PUMP

#### All In One

Please keep this instruction manual properly and read it carefully before  
Installation and use.



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GENUINE PRODUCT OF  
HYUNDAI CORPORATION



## Preface

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Thank you to choose our product for air source heat pump water heaters

\*This manual is to provide relevant important safety, installation, operation and maintenance information for you. Please read this manual carefully before you open or maintain the unit.

\*This unit should be installed by authorized professional personnel. If the users install the water heater on their own, wrong operation maybe result in fire, electric shock, injury, water leakage, etc.;

\*This unit should be repaired by authorized professional personnel, Please contact local distributor or our professional repaired personnel if need. If the users repair the water heater on their own, wrong operation maybe result in fire, electric shock, injury, water leakage, etc.;

\*The installer should explain to the user how to operate and maintain the unit according to the manual when the unit is installed. And ask the user to read the manual carefully, keep the manual and do the operation in strict accordance with the Manual.

\*It is vital that the below instruction are adhered to at all times to keep the warranty.

-----Maintenance and operation must be carried out according to the recommended time and frequency, as stated in this manual.

-----Failure to comply with these recommendations will invalidate the warranty.

\* The manual will be changed if there is any improvement on the unit, there will not be advance notice.

\* The water should be purified treated, if the water source is from ground water, well water, river water, sea water, industrial water, all untreated water. Water quality request as follows:

PH Value	Total Hardness (Calculating with $\text{CaCO}_3$ )	Al	Fe	Mn
6.5~8.5	450ppm	0.2mg/L	0.3mg/L	0.1mg/L
Cu	chloride	Sulphate	Oxygen consumption (CODMn method, Calculating with $\text{O}_2$ )	Volatilized Phenol (Calculating with phenol)
1.0mg/L	250mg/L	250mg/L	3mg/L	0.002mg/L

Note: The machine should use city water. The content in the above mentional tablet are the general indicators of city water.

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# 1. Safety Precaution

## Safety Precaution

To prevent the users and others from the harm of the unit, and avoid damage on the unit or other property, please use the heat pump properly, please read this manual carefully and understand the following information correctly.

Mark	Meaning
 WARNING	A wrong operation may lead to death or heavy injury on people.
 WARNING	A wrong operation may lead to harm on people or lose of material.



Icon	Meaning
	Prohibition. What is prohibited will be nearby this icon.
	Compulsory implement. The listed action need to be taken.
	ATTENTION(include WARNING) Please pay attention to what is indicated.







1.The hurt means no need to be in hospital and cure for a long time, it's injury, burn and get an electric shock.

2.The material lost means property and datum lost.





### Installation Warning




 Professional installer is required	The heat pump must be installed by qualified personals, to avoid improper installation which can lead to water leakage, electrical shock or fire.
 Grounding is required	Please make sure that the unit and power connection have good grounding,A wrong operation may lead to harm on people or lose of material.

 Concentration limits	When install the unit in a small room, please take some measures to prevent the asphyxia caused by the leakage of refrigerant. Please consult the dealer for concrete measures.
 Installation place	The unit cannot be installed near the flammable gas. Once there is any leakage of the gas. Fire can be occurred.
 Fix the unit	Make sure the basement of the heat pump is strong enough. To avoid any decline of fall down of the unit.
 Need circuit breaker	Make sure that there is circuit for the unit. Lack of circuit breaker can lead to electrical shock of fire.
 Wiring Connection	The appliance shall be installed in accordance with national wiring regulations.
 Leakage Protection device	Make sure that there is leakage protection device. Lack of leakage protection device can lead to electrical shock, and cause the electrical appliances to burn out or cause a short circuit.
 Keep label	Make sure that the label with permanent description cannot remove on the unit shell.





### Operation Warning

 Prohibition	Do not put fingers or others into the fans. Children should be supervised to ensure that they do not play with the appliance.
 Shut off the power	When there is something wrong or strange smell, the power supply need to be shut off to stop the unit.




### Move and Repair

 Entrust	When the heat pump needs to be moved or installed again, please entrust dealer or qualified person to carry it out. Improper installation will lead to water leakage, electrical shock, injury or fire.
 Prohibition	It is prohibited to repair the unit by the user himself, otherwise electrical shock or fire may be occurred.
 Entrust	When the heat pump needs to be repaired, please entrust dealer or qualified person to carry it out. Improper movement or repair on the unit will lead to water leakage, electrical shock, injury or fire.

### Operation Attention

 Check the install placement	The unit must be installed on the indoor side, if do not use the unit for a long time and the environment temperature is below 0℃, please drain the water in the tank to prevent the freezing.
 Shut off the power	When do the clean, must stop the unit and shut off the power, if do not stop the unit, it will cause hurt by the high speed running fan.
 Prohibition	Please use the suitable fuse. If use copper or iron, it will cause failure, even the fire.
 Prohibition	Forbid spraying the flammable aerosols to the unit, otherwise it will cause the fire.

## Usage Warning

 Usage warning	<p>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.</p>
 Supply cord replace	<p>If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.</p>
 Disconnection device	<p>For fixed wiring products. An all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device (RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.</p>



## WEEE Warning



Meaning of crossed out wheeled dustbin:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposals at least free of charge.



## 2. Product Instruction

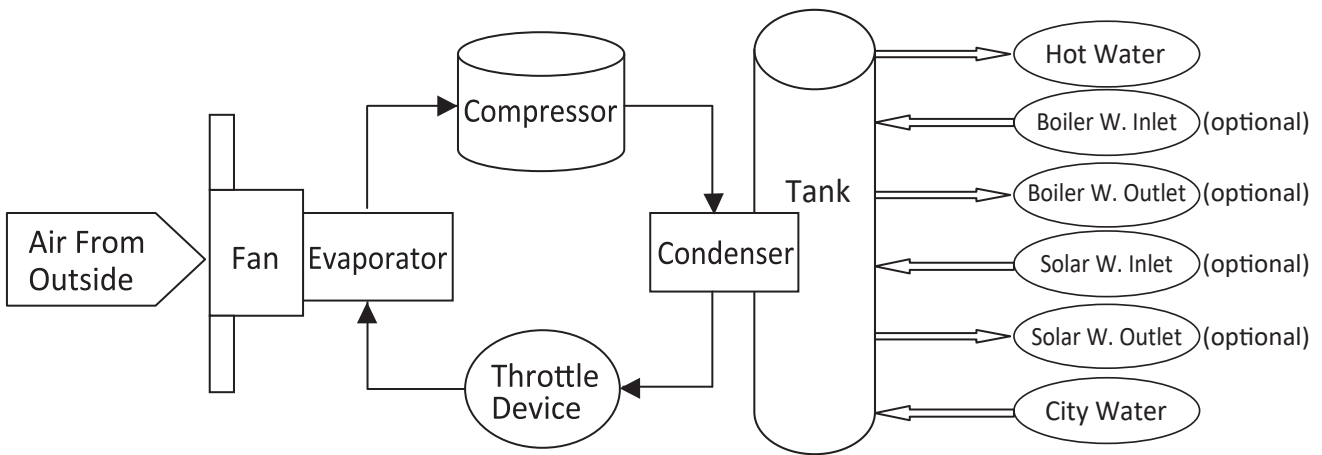
### 2.1 Product introduction

Air source heat pump water heater is one of the latest environmental friendly and energy saving water heaters. It's a trend to replace solar heater and boiler in many markets.

### 2.2 Working principle

According to the principle of Reverse Rankine Circulation Principle, the unit, driven by electricity, heats water by the heat transfer medium, which absorbs heat effectively from the air or the unusable low-grade heat from other low-temperature heat source, are compressed to the usable high-grade heat and then released the heat into water, In this way, the unit will supply user with sufficient hot water and space heating.

This system consists of top kits and water tank. The top kits main parts include compressor, heat exchanger, throttling device, fan etc.



### 3. Product Instruction

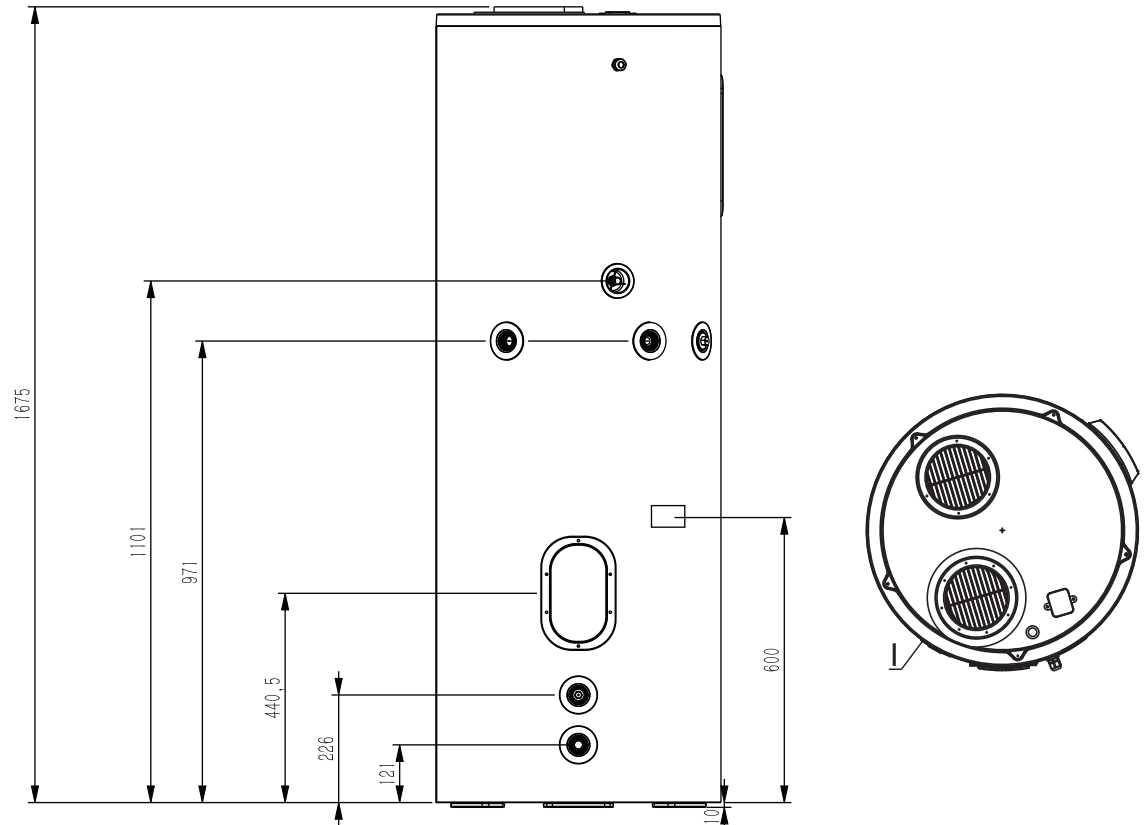
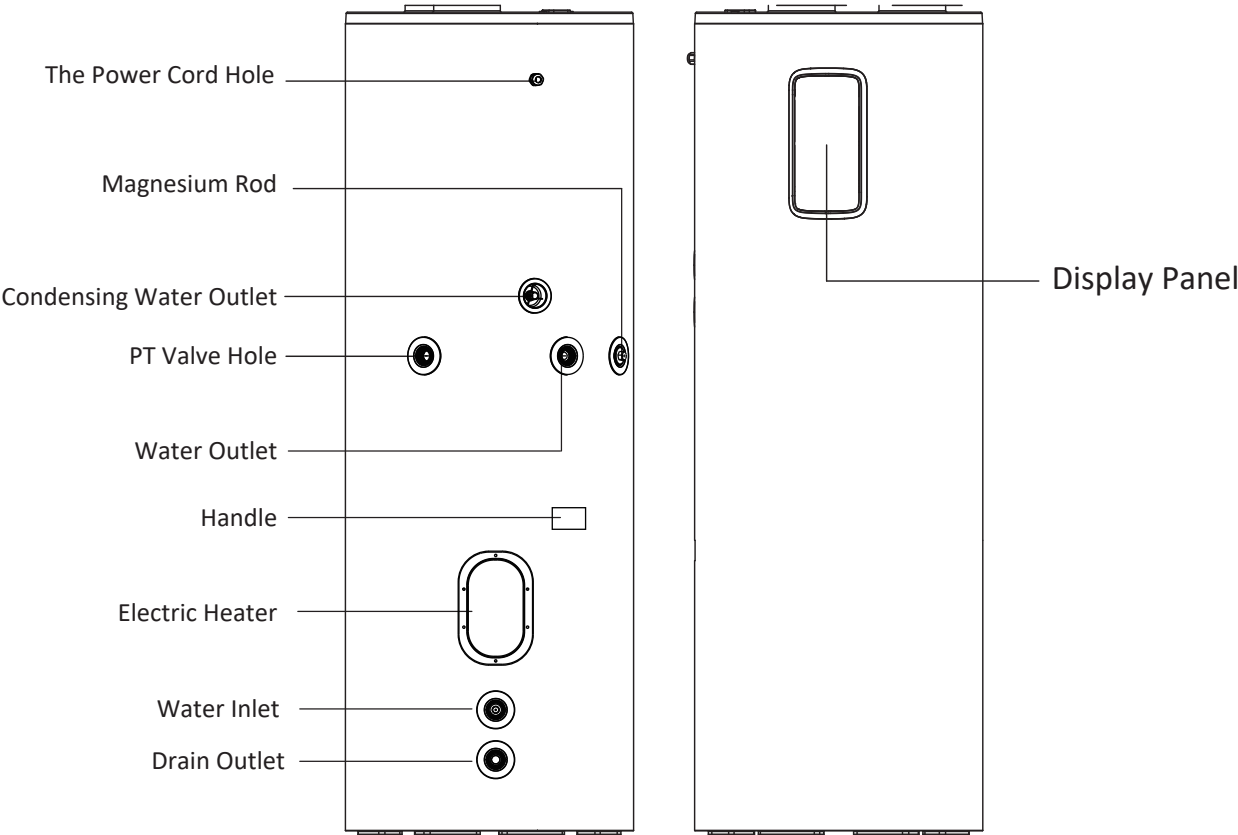
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#### 3.1 Appearance

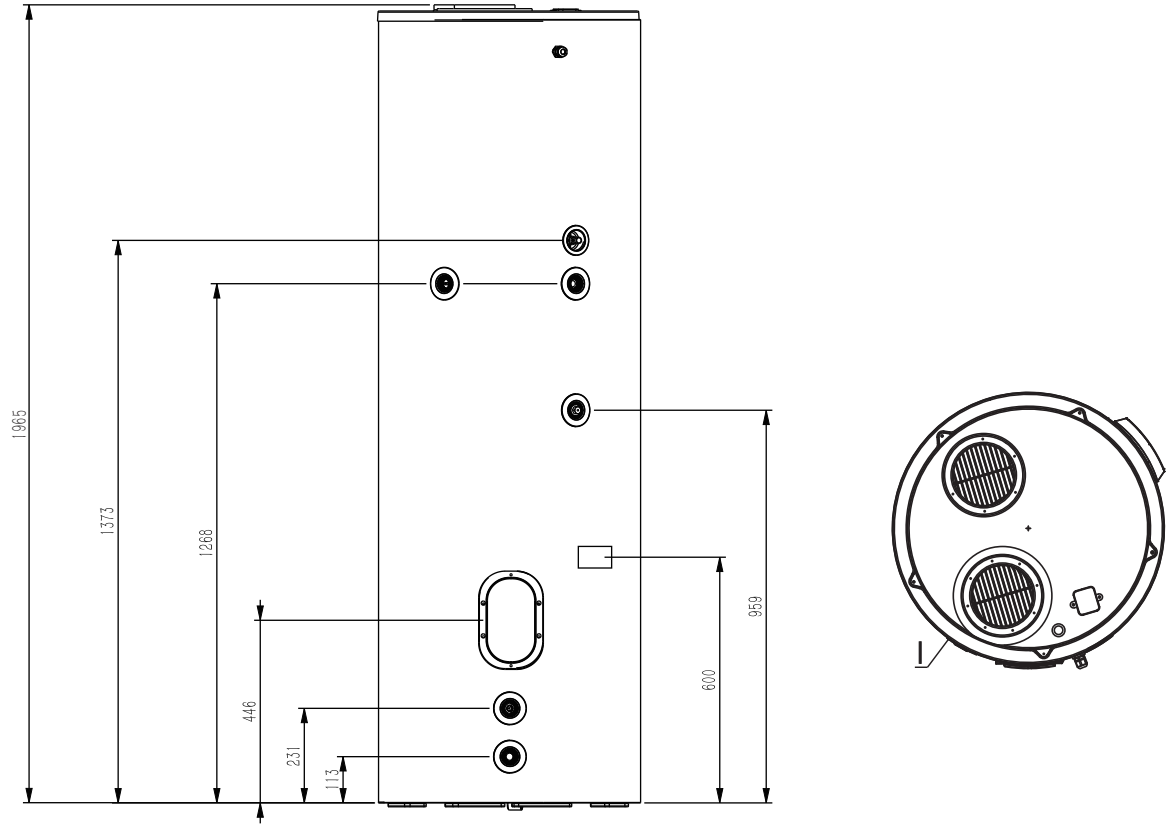
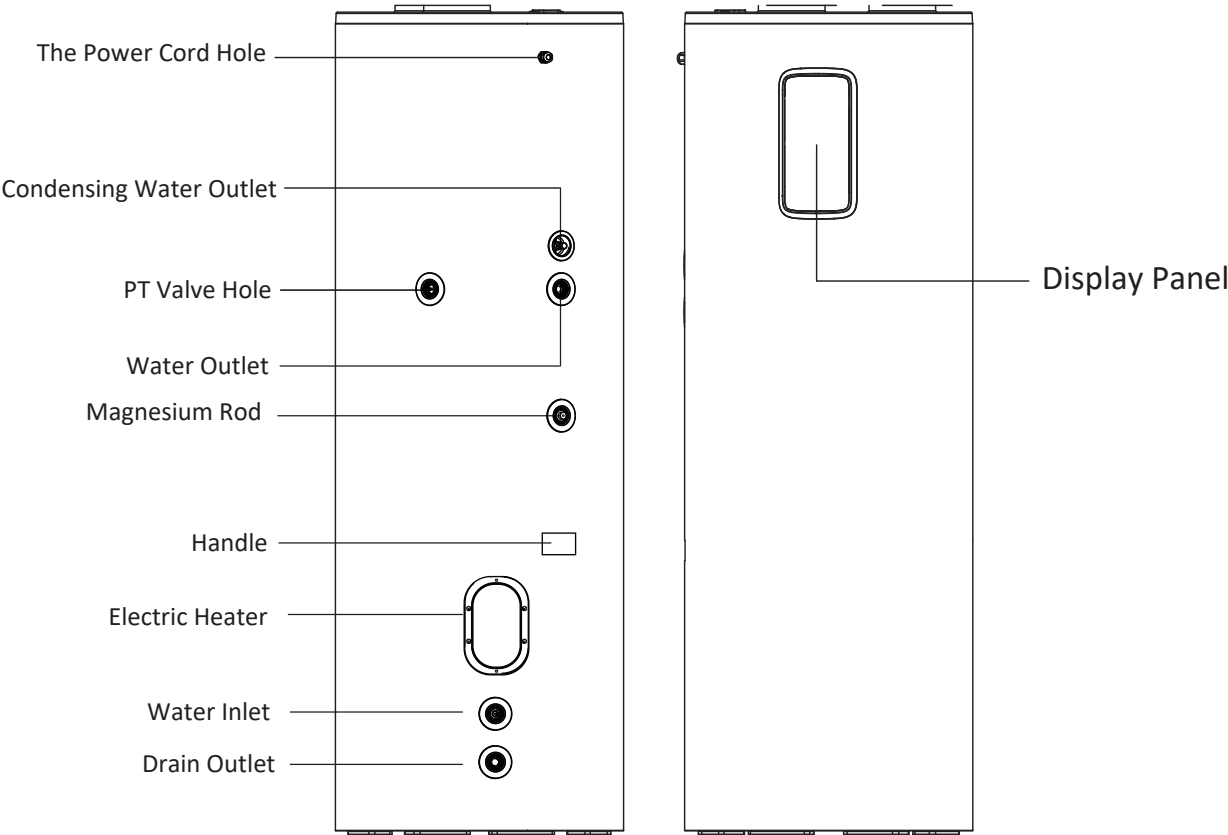


3.2 Dimension

3.2.1 Drawing for heat pump without coil  
HYWH-21R1/200E

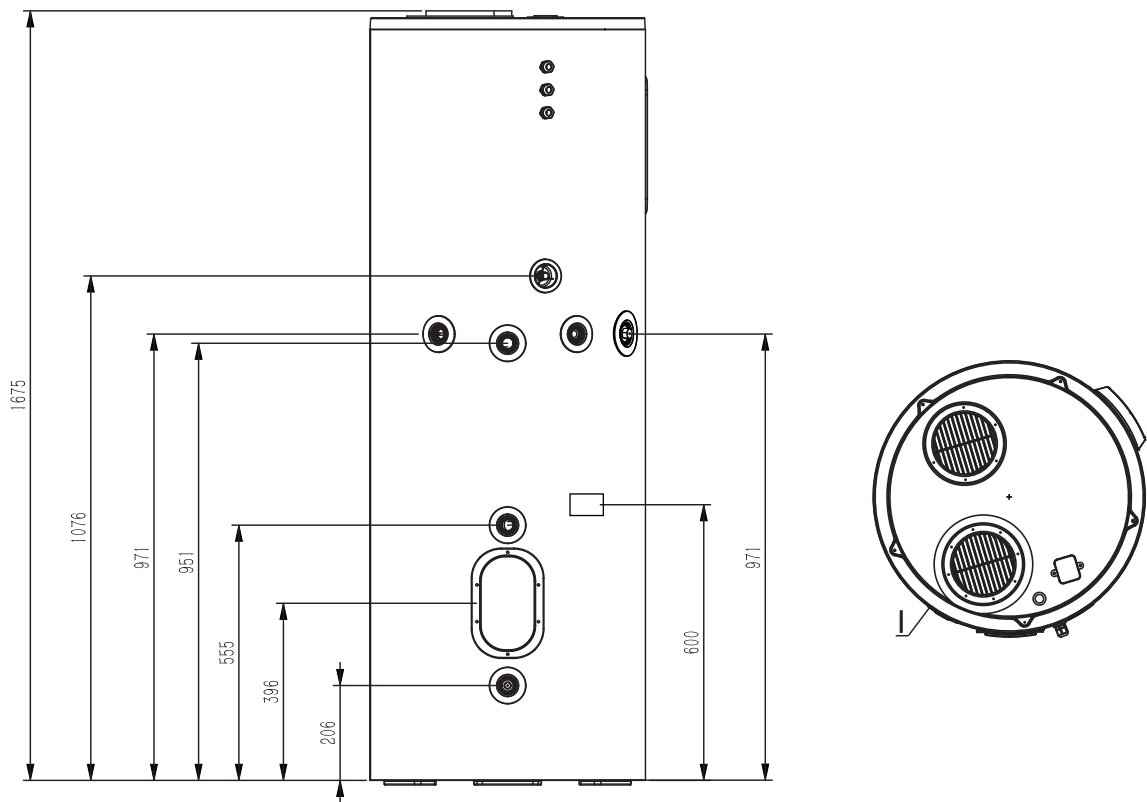
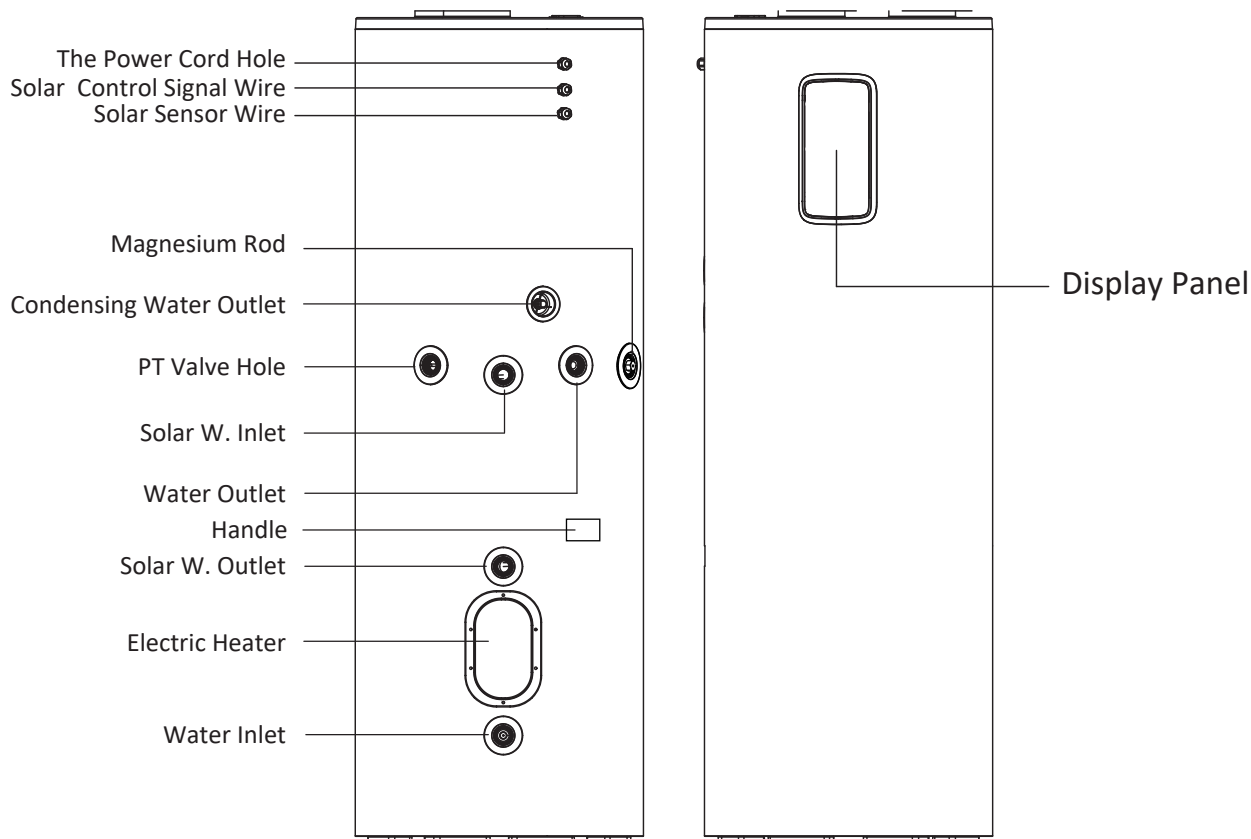


HYWH-21R1/300E

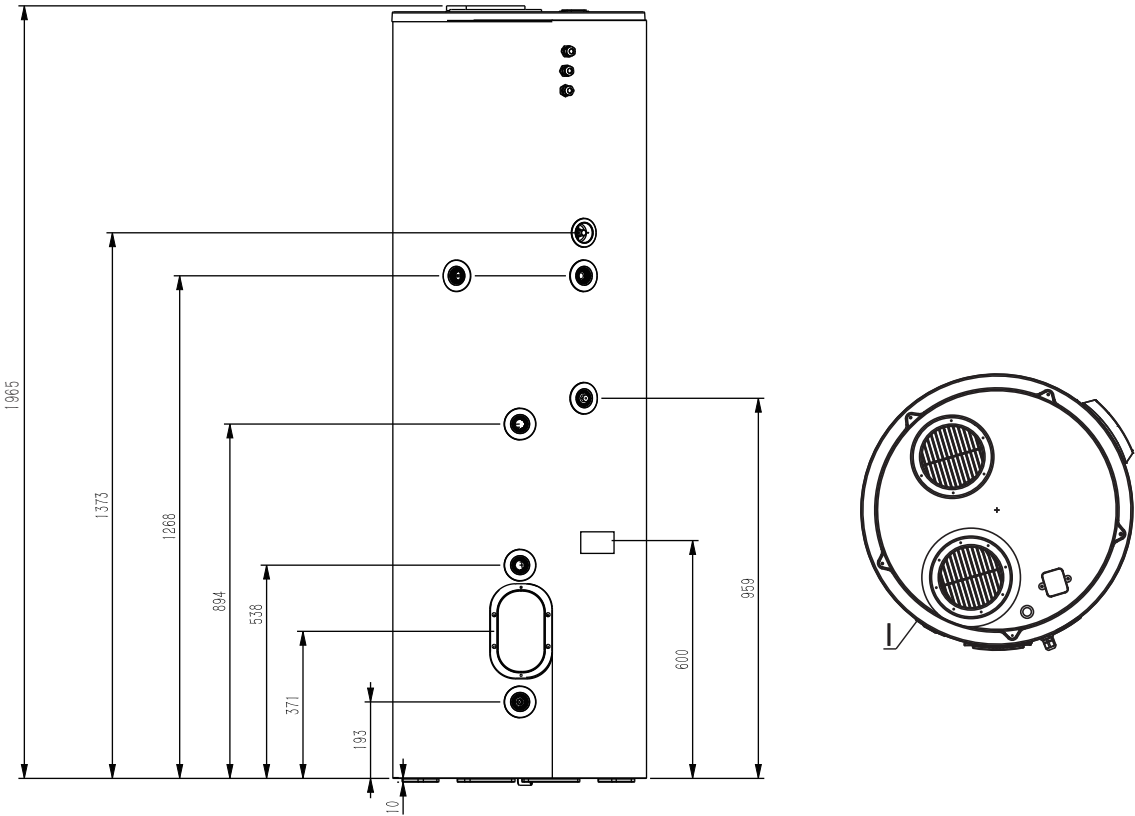
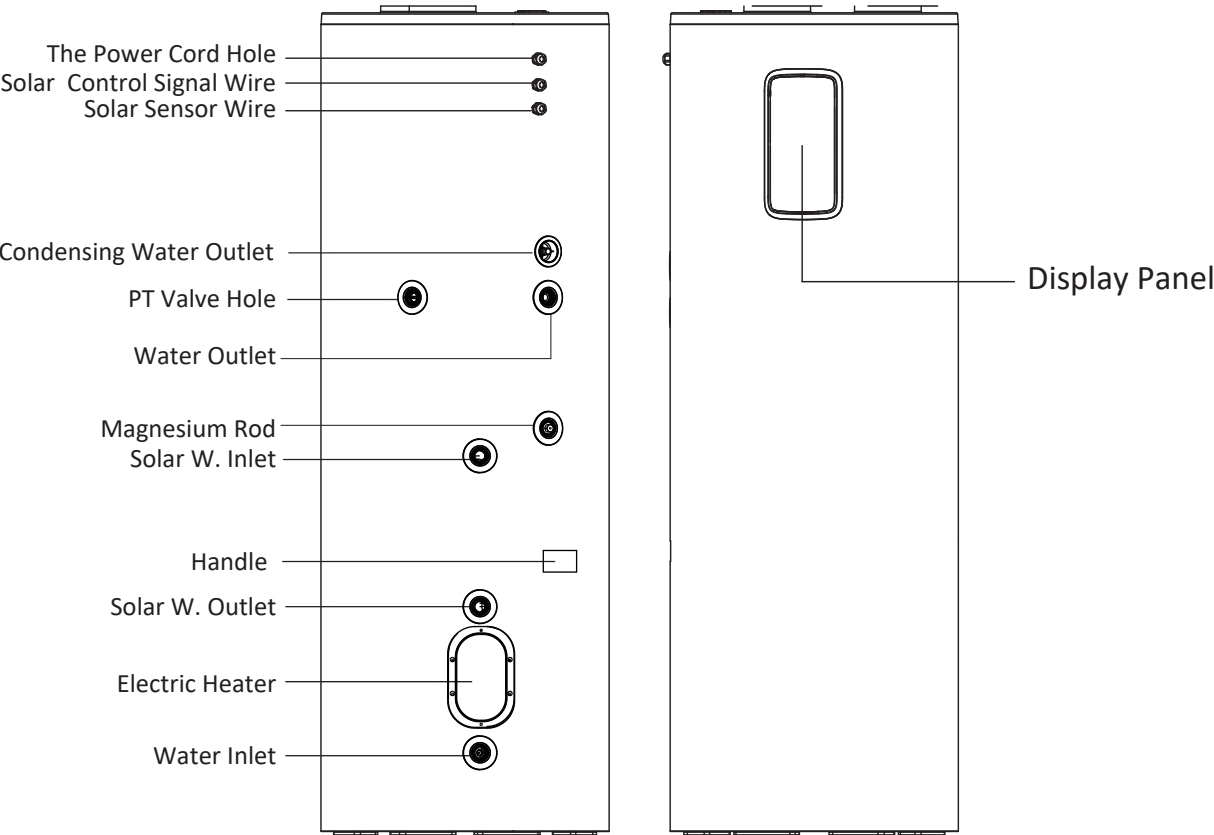


3.2.2 Drawing for heat pump solar coil

HYWH-21R1/200ES (Solar)

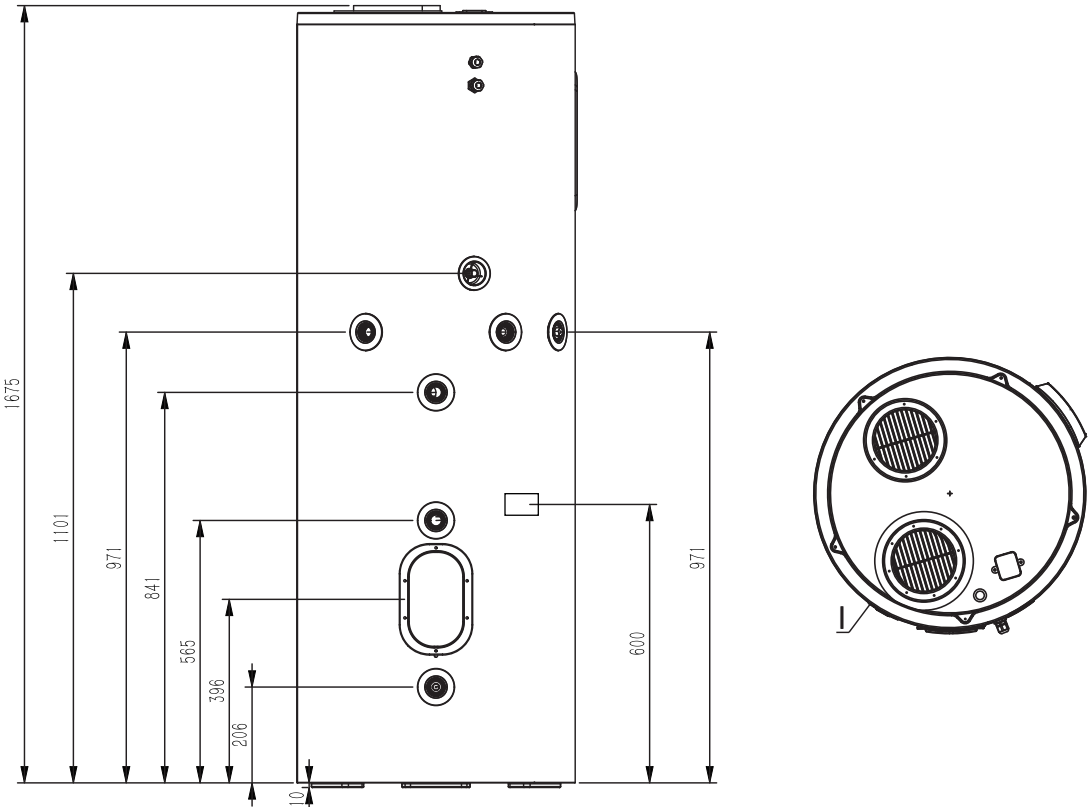
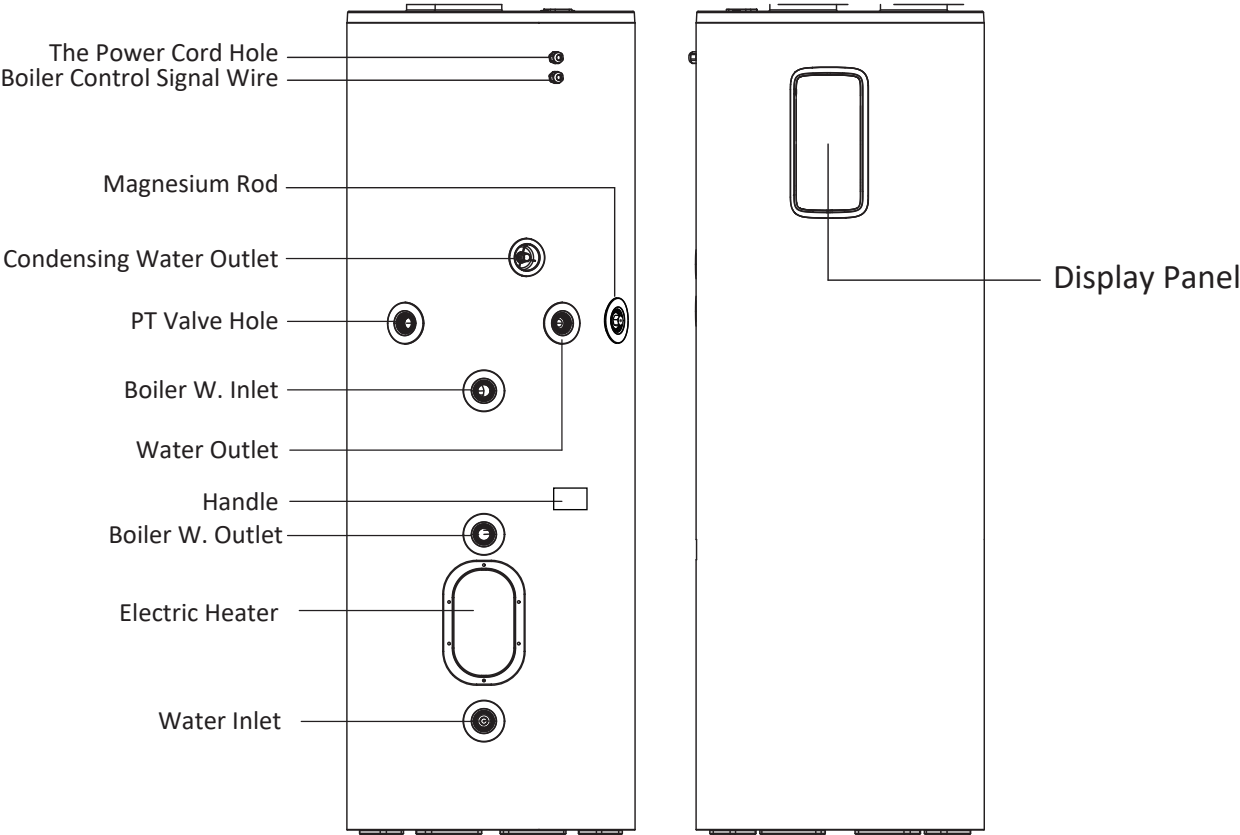


HYWH-21R1/300ES (Solar)

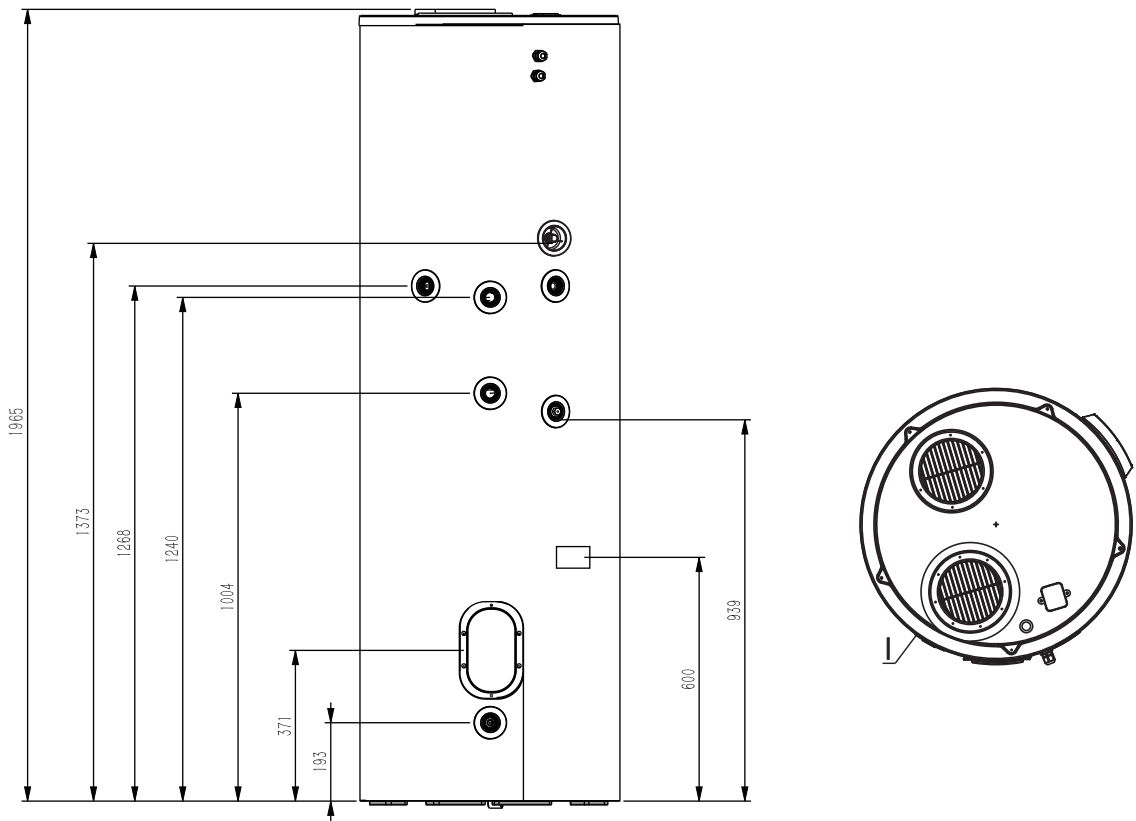
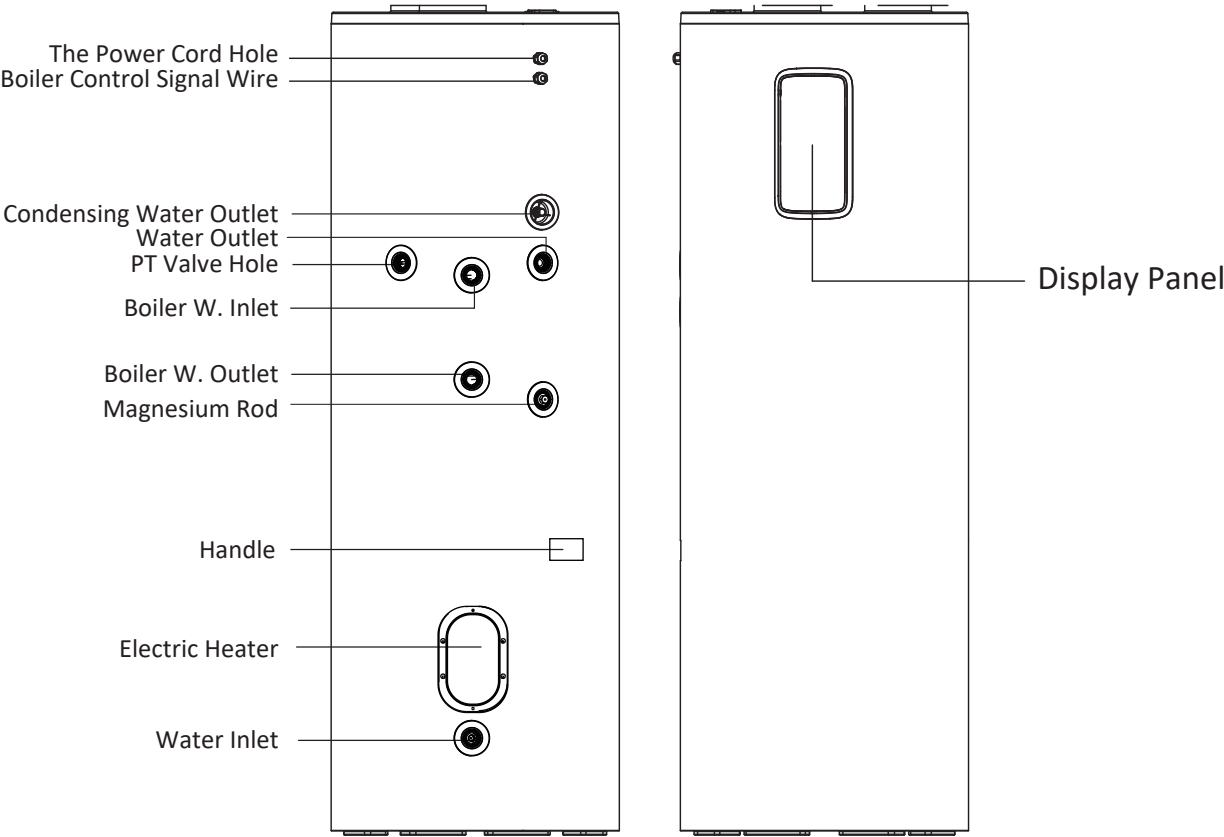


3.2.3 Drawing for heat pump boil coil

HYWH-21R1/200EB (Boiler)



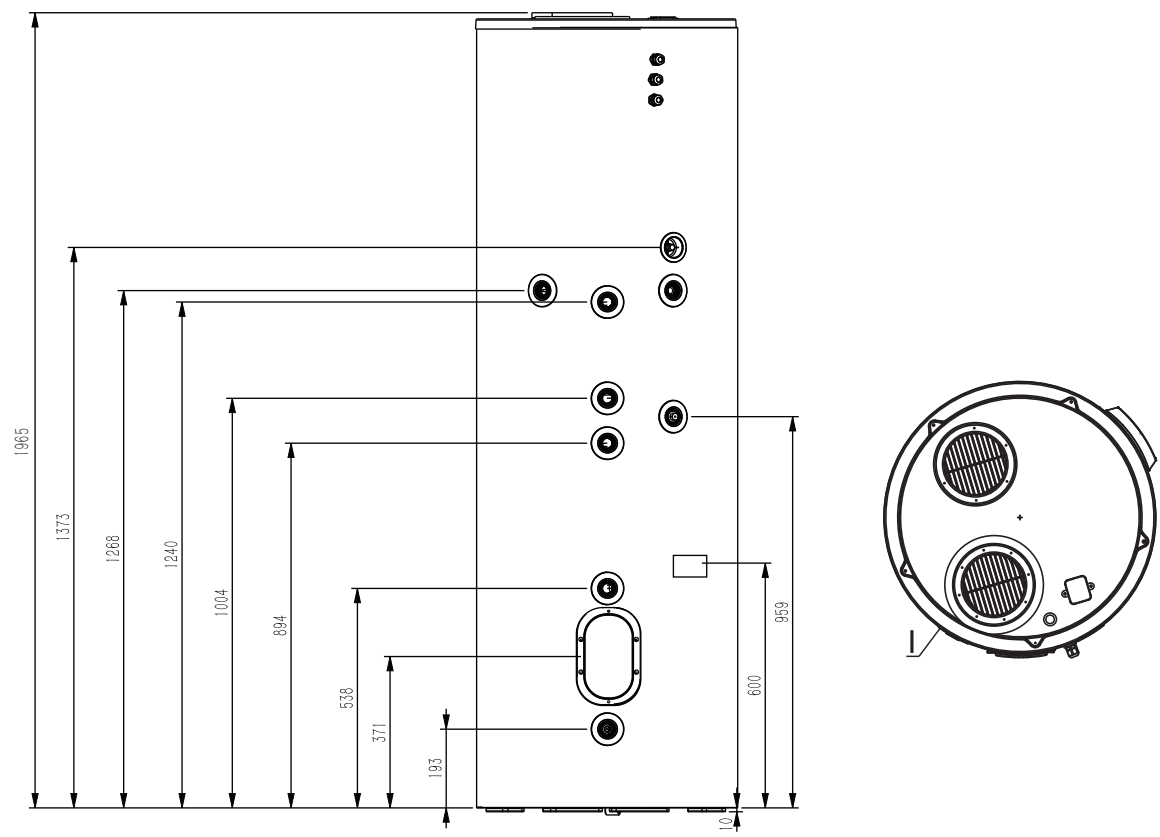
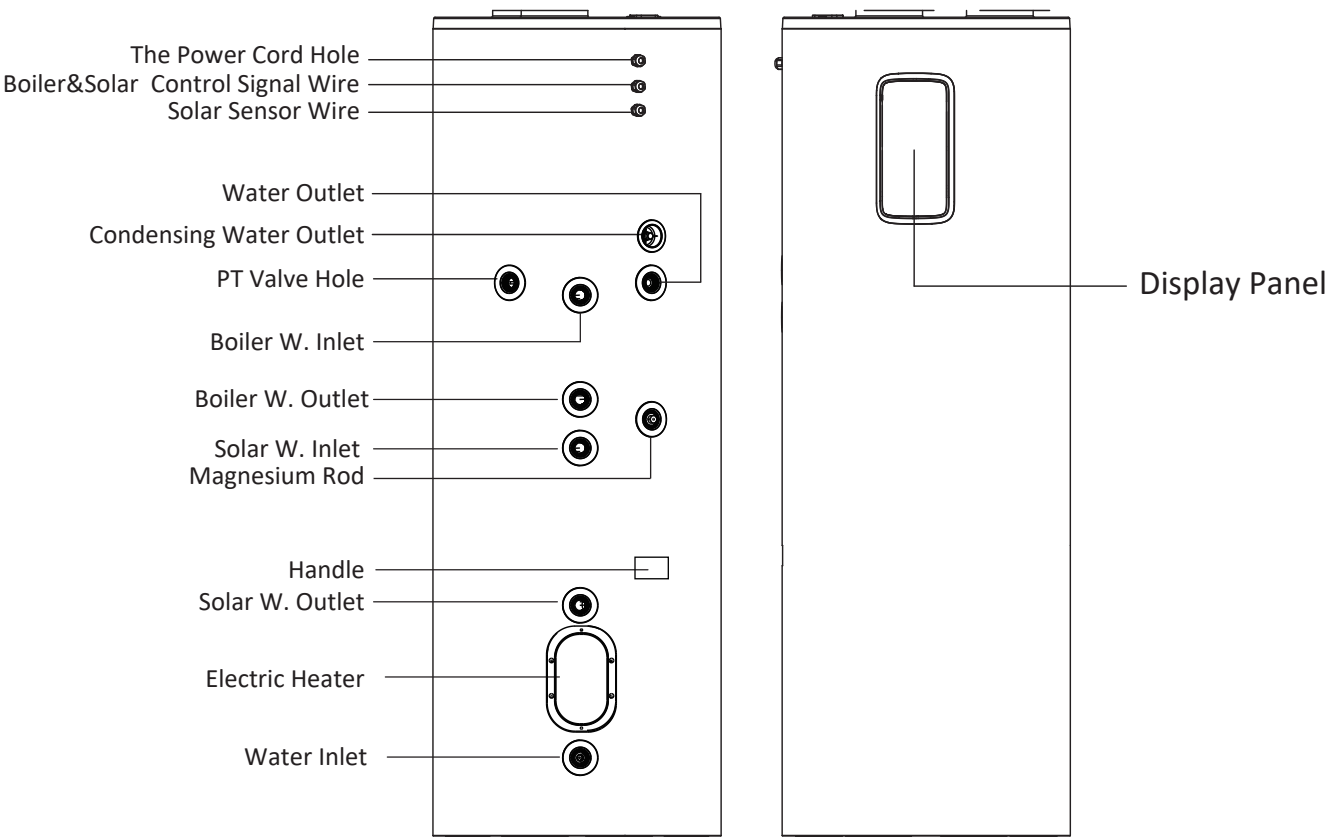
HYWH-21R1/300EB (Boiler)





3.2.4 Drawing for heat pump solar&boil coils

HYWH-21R1/300EC1 (Boiler&Solar)



### 3.3 Performance parameter

#### Product specification

Model	HYWH-21R1/200E	HYWH-21R1/300E	HYWH-21R1/200ES	HYWH-21R1/300ES
Power Supply	220V~240V/50Hz	220V~240V/50Hz	220V~240V/50Hz	220V~240V/50Hz
Electric Shock Proof Grade	I	I	I	I
Waterproof Level	IPX4	IPX4	IPX4	IPX4
Rated Input Power	3 kW	3 kW	3 kW	3 kW
Rated Input Current	13.8 A	13.8 A	13.8 A	13.8 A
Rated Heating Capacity	2.1 kW	2.1 kW	2.1 kW	2.1 kW
Heating Input Power	0.535 kW	0.535 kW	0.535 kW	0.535 kW
Heating Input Current	3 A	3 A	3 A	3 A
Type	RSG electric heating tube			
Electric Heater	2 kW	2 kW	2 kW	2 kW
Electric Input Current	9.1 A	9.1 A	9.1 A	9.1 A
Water Yield	46 L/h	46 L/h	46 L/h	46 L/h
Rated and Max. Water Outlet Temperature	55℃/75℃	55℃/75℃	55℃/75℃	55℃/75℃
Water Tank Working Pressure	0.8 MPa	0.8 MPa	0.8 MPa	0.8 MPa
Water Tank Max. Pressure	1.0 MPa	1.0 MPa	1.0 MPa	1.0 MPa
Max. High Pressure	2.6 MPa	2.6 MPa	2.6 MPa	2.6 MPa
Max. Low Pressure	1.3 Mpa	1.3 Mpa	1.3 Mpa	1.3 Mpa
Water Pipe Connection	3/4 inch	3/4 inch	3/4 inch	3/4 inch
Noise	≤40 dB(A)	≤40 dB(A)	≤40 dB(A)	≤40 dB(A)
Refrigerant/Weight	R134a/850g	R134a/850g	R134a/850g	R134a/850g
Net Weight	107kg	126 kg	138 kg	159 kg
Packing Weight	121 kg	143 kg	152 kg	173 kg
Heat Pump Working Condition With Electric Heater	-20~46℃	-20~46℃	-20~46℃	-20~46℃
Compressor Working Condition	-7~46℃	-7~46℃	-7~46℃	-7~46℃
Water Tank Volume	200 L	300 L	200 L	300 L
Machine Dimension(mm)	Φ600*1685	Φ640*1975	Φ600*1685	Φ640*1975
Packing Dimension(mm)	730*730*1835	730*730*2125	730*730*1835	730*730*2125

## Product specification

Model	HYWH-21R1/200EB	HYWH-21R1/300EB	HYWH-21R1/300EC1
Power Supply	220V~240V/50Hz	220V~240V/50Hz	220V~240V/50Hz
Electric Shock Proof Grade	I	I	I
Waterproof Level	IPX4	IPX4	IPX4
Rated Input Power	3 kW	3 kW	3 kW
Rated Input Current	13.8 A	13.8 A	13.8 A
Rated Heating Capacity	2.1 kW	2.1 kW	2.1 kW
Heating Input Power	0.535 kW	0.535 kW	0.535 kW
Heating Input Current	3 A	3 A	3 A
Type	RSG electric heating tube		
Electric Heater	2 kW	2kW	2 kW
Electric Input Current	9.1 A	9.1 A	9.1 A
Water Yield	46 L/h	46 L/h	46 L/h
Rated and Max. Water Outlet Temperature	55℃/75℃	55℃/75℃	55℃/75℃
Water Tank Working Pressure	0.8 MPa	0.8 MPa	0.8 MPa
Water Tank Max. Pressure	1.0 MPa	1.0 MPa	1.0 MPa
Max. High Pressure	2.6 MPa	2.6 MPa	2.6 MPa
Max. Low Pressure	1.3 Mpa	1.3 Mpa	1.3 Mpa
Water Pipe Connection	3/4 inch	3/4 inch	3/4 inch
Noise	≤40 dB(A)	≤40 dB(A)	≤40 dB(A)
Refrigerant/Weight	R134a/850g	R134a/850g	R134a/850g
Net Weight	132 kg	152 kg	196 kg
Packing Weight	147 kg	167 kg	213 kg
Heat Pump Working Condition With Electric Heater	-20~46℃	-20~46℃	-20~46℃
Compressor Working Condition	-7~46℃	-7~46℃	-7~46℃
Water Tank Volume	200 L	300 L	300 L
Machine Dimension(mm)	Φ600*1685	Φ640*1975	Φ640*1975
Packing Dimension(mm)	730*730*1835	730*730*2125	730*730*2125

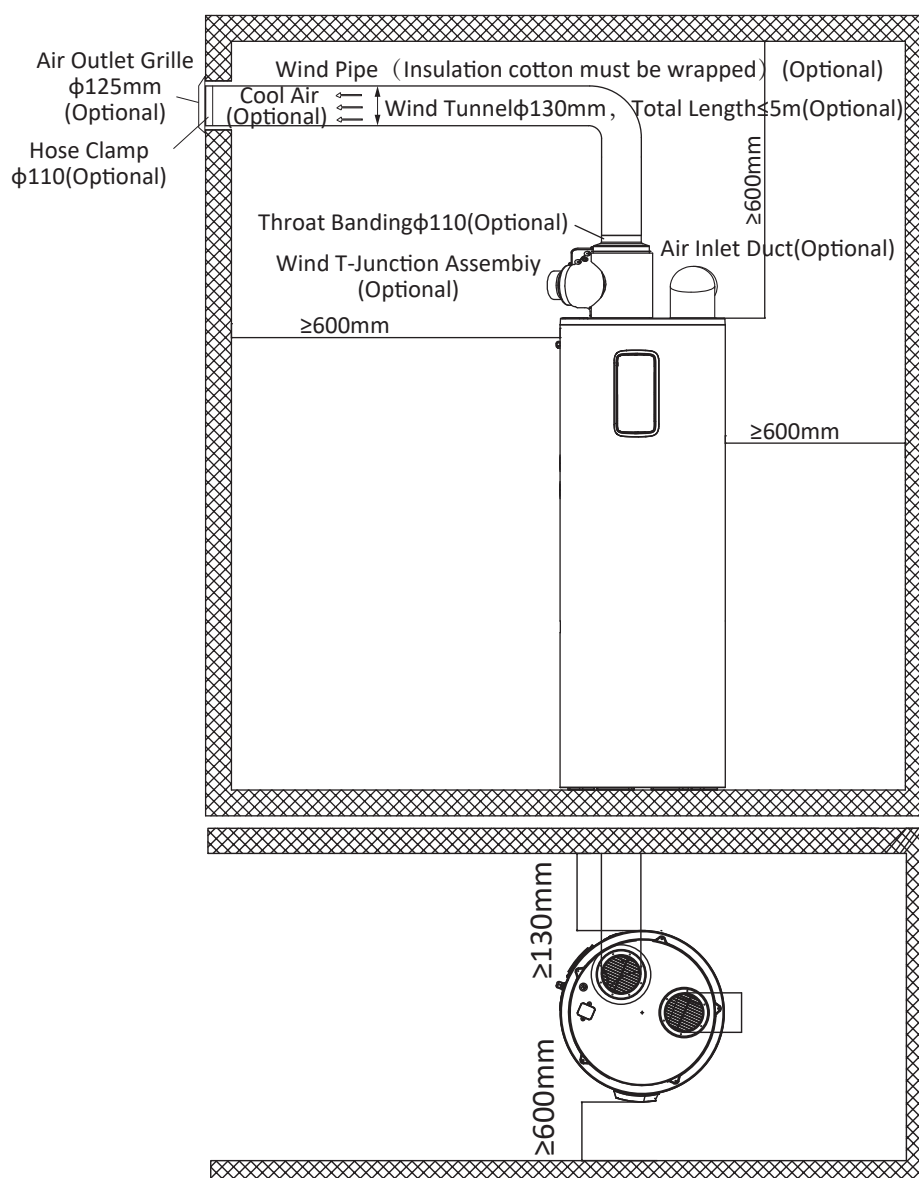
Remark:

1. Test conditions: Ambient Temp.(DB/WB):20℃/15℃ , Water Temp.(In/Out):15℃/55℃ ;
2. Water Outlet Temperature: 10~75℃ .
- 3.The data above is only for reference, designs and specifications might be changed without prior notice.

## 4. Installation Instruction

### 4.1 Installation place choose

- 1.This unit can be installed indoors or in the closed balcony, but shall not be subjected to the rain.
- 2.LCD panel shall not be subjected to long-term exposure to the sun.
- 3.There must be adequate space for installation and maintenance.
- 4.There is no obstruction in the air outlet, and keep dry ventilation.
- 5.There should be convenient for pipe installation, condensate water drainage and electrical connection.
- 6.If this water heater is installed on the metal parts of building, electrical insulation work must be properly carried out. Also, the relevant technical standards of electrical equipment shall be fulfilled.
- 7.Please refer to 4.5 if the machine installs in the outdoor.



Unit failure may be caused if the water heater is installed in the following place. Please consult with local authorized service center if the water heater has to be installed in the following places.

- 1.Places with relatively abundant salt in the air like places by the sea;
- 2.Places with existence of corrosive gases;
- 3.Places like factories with serious fluctuation of supply voltage;
- 4.Places with big vibration and swing like car or cabin;
- 5.Places with existence of strong electromagnetic wave;
- 6.Places with mineral oils, such as cutting oil;
- 7.Places with flammable gas or subjects;
- 8.Places with acidic or alkaline gas evaporation;
- 9.Other places with special environmental conditions.

## **4.2 Installation instruction**

### **4.2.1 Installation attention**

- \* Please ask for professional installation from authorized installers who have relevant professional knowledge. If the users install the water heater on their own, wrong operation will result in electric shock, injury, water leakage, fire etc.;
- \* Please fix the unit to prevent noises and vibration, you must fixed the unit on the floor or fixed the unit lean on wall.
- \* A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment.
- \* PT valve is a safety valve installed at the water inlet; Unit must be installed, and pay attention to the direction when installing. PT valve unloading prepressure 1.0MPa.
- \* If the inlet water pressure is less than 0.15MPa, a water pump should be installed at the water inlet.
- \* For guarantee the safety usage of tank at the condition of water supply pressure higher than 0.65MPa, a reducing valve should be installed at the water inlet pipe.

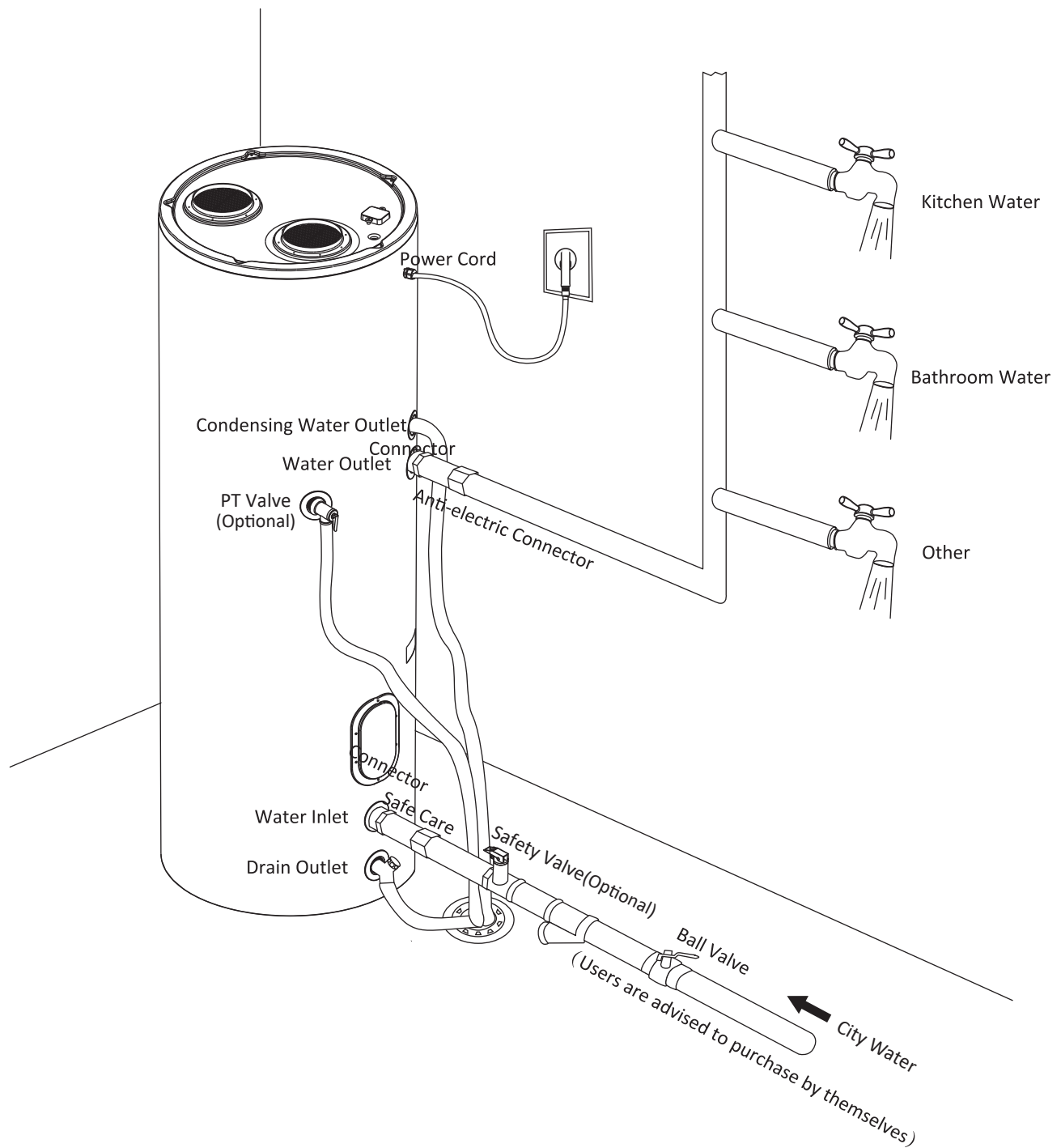
### **4.2.2 Product transport**

- \* Since this unit is heavy, more than personnel are required to handle and install it.
- \*When going upstairs and downstairs or transporting for long distance please keep original package to prevent from damaging the unit;
- \*In order to avoid surface bruise and deformation on the surface of the unit, please add a protective plate on the surface of the unit contacting with hard object;
- \*Please do not touch the fan blade by hand or other object;
- \*Do not handle the unit with a dip angle above 15°. Do not place it horizontally.

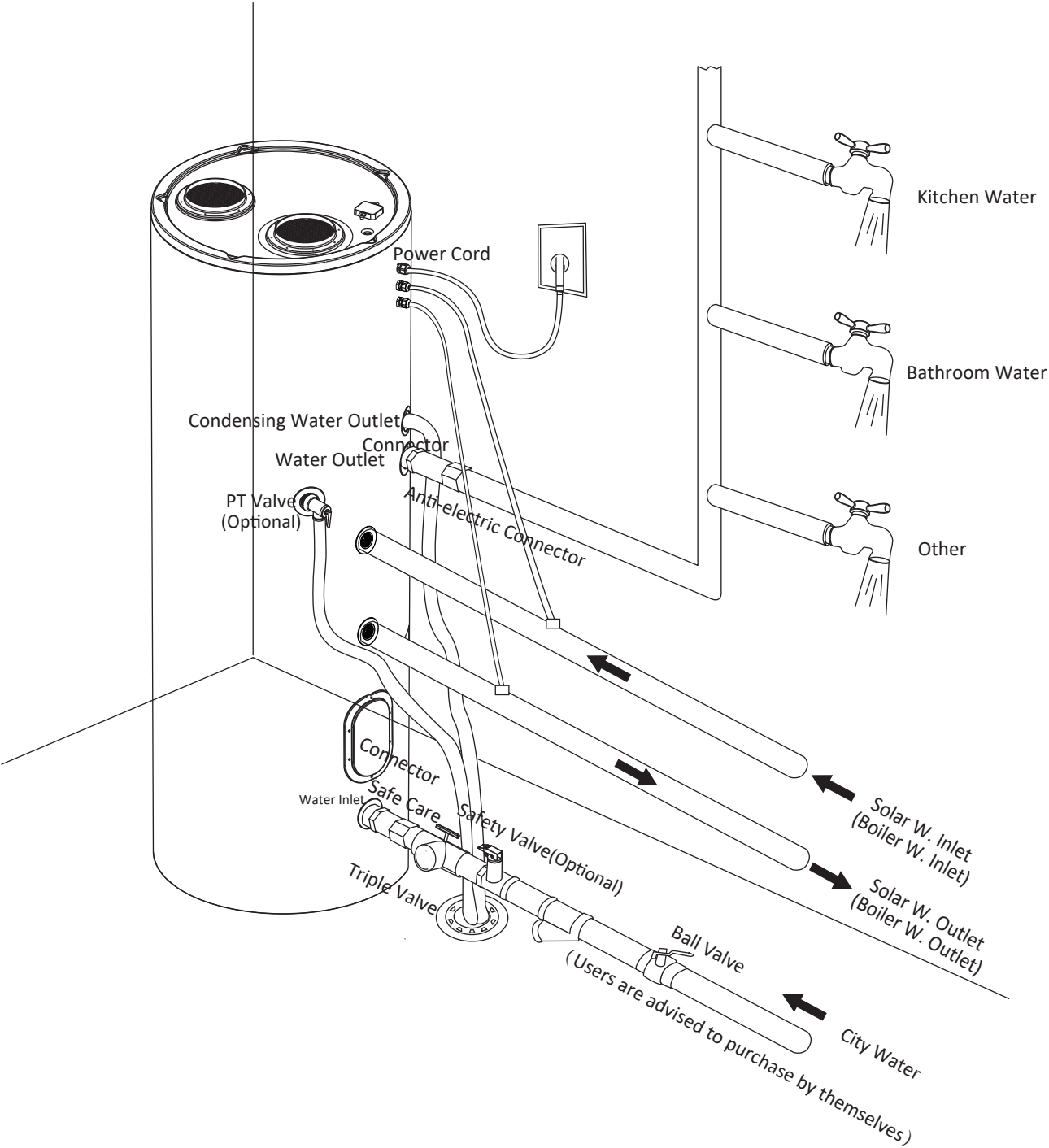
## 4.3 Pipe connection

### 4.3.1 Water pipe connection diagram

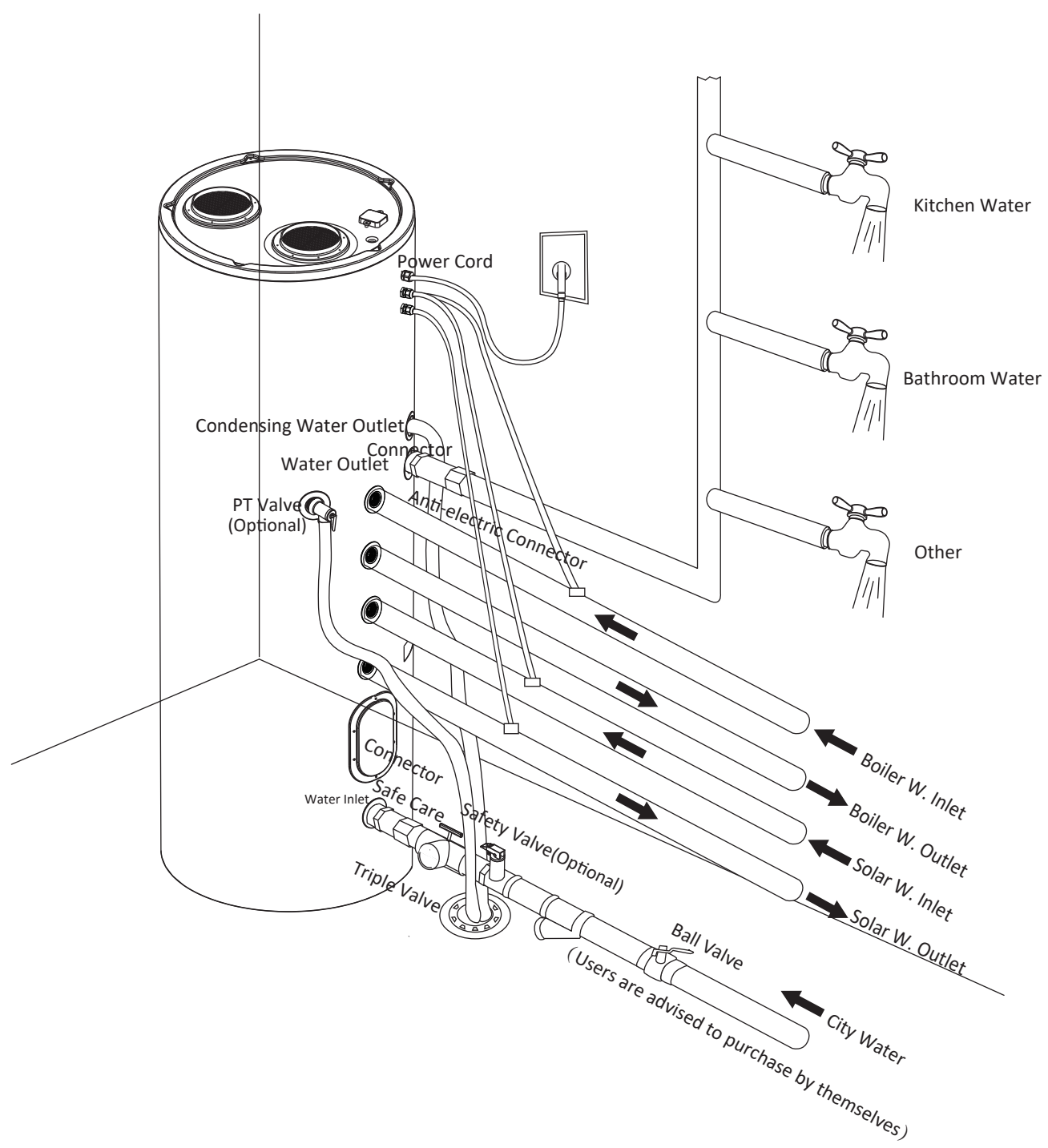
#### 4.3.1.1



4.3.1.2



4.3.1.3





### 4.3.2 Water pipe connecting instruction

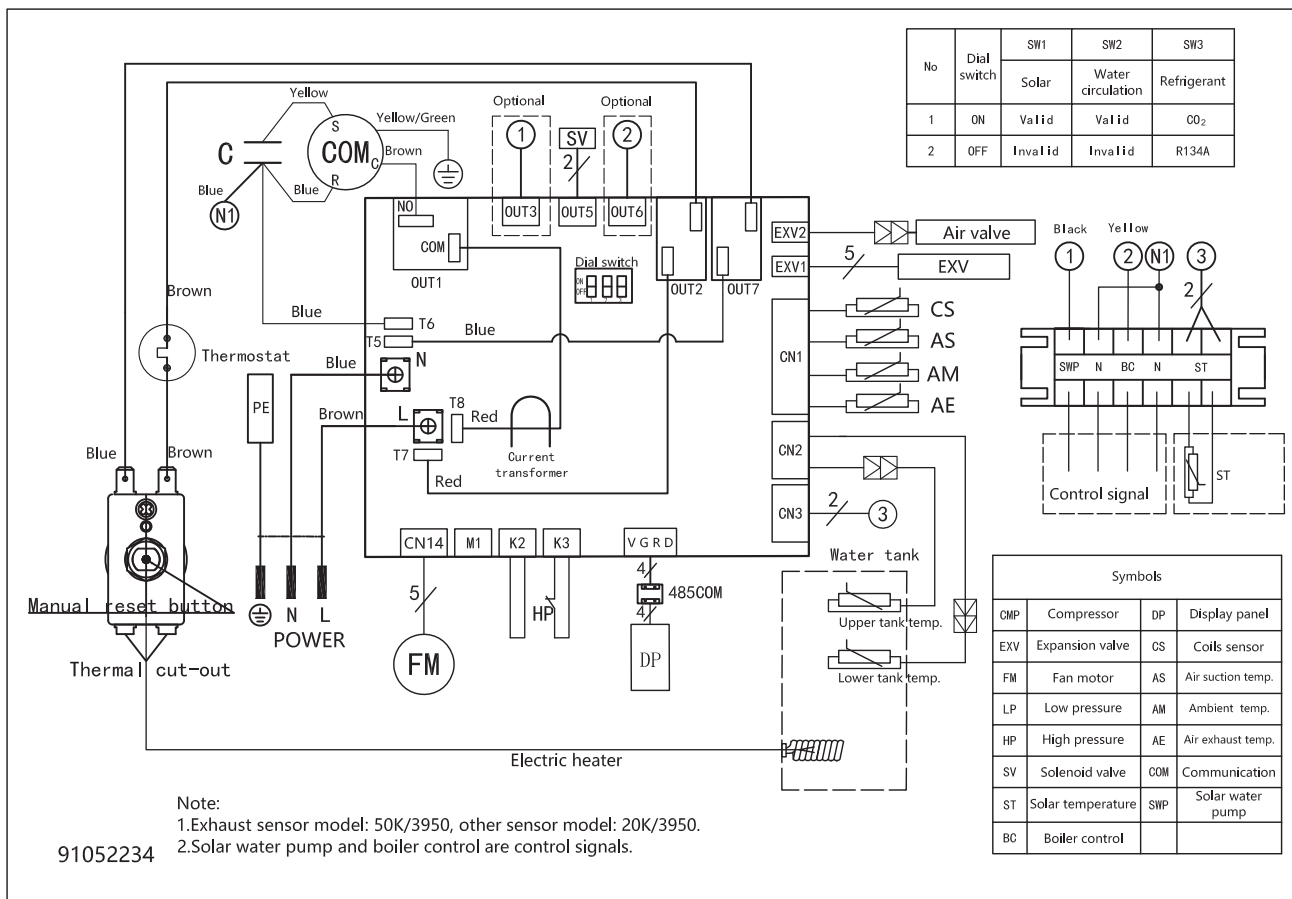
- \* Please fix the unit on the level ground first, then to install the inlet and outlet pipe.
- \* Please connect the pipes and parts as above request. If ambient temperature for working and installation is below 0℃, all the pipes must be heat preservation treated.
- \* In the process of piping connection, the dust or other debris should be prevented from entering the unit.
- \* Do not use iron pipe to install water heater. The water system shall use brand-new pipelines with heat-resistant and anti-corrosion and complying with drinking water standard. Do not adopt PVC water pipe with peculiar smell.
- \* After installation, should check the water leakage for all the pipe connection.

### 4.3.3 Air duct installation instruction

Air duct is optional part. You can choose to install it or not. If you choose to install the air duct, you should choose the air duct as short as possible.

## 4.4 Electrical schematic and circuit connection

### 4.4.1 Electrical schematic

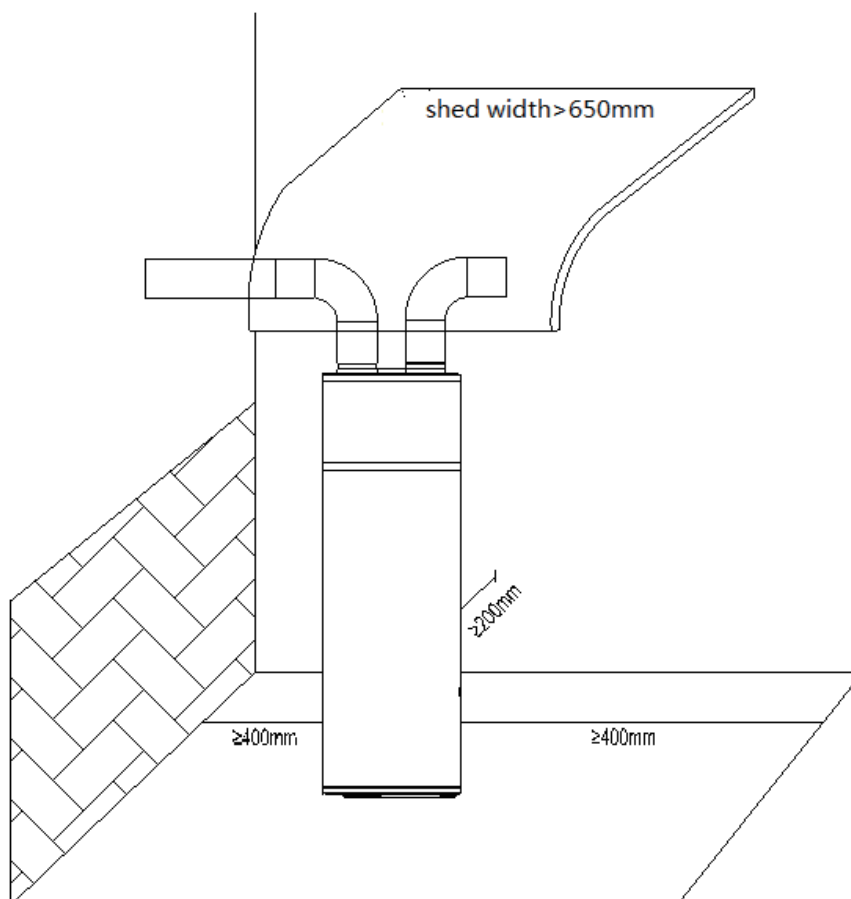


#### 4.4.2 Electrical schematic

- \*Dedicated power supply shall be used for water heater. The supply voltage shall comply with the rated voltage required in the nameplate;
  - \*The power supply circuit of the water heater must be reliably grounded;
  - \*Wiring construction must be carried out by professional installation technical personnel according to wiring diagram;
  - \*Electric leakage protector shall be properly set according to the requirements of technical standards of relevant electrical equipment of the state;
- After all wiring tasks are completed and no mistake is found after careful inspection, the power supply can be connected.

#### 4.5 Installation location

1. Indoor installation is recommended ;
2. The rain shelter is needed on the top of unit when the machine installs in the outdoor. The picture as below :



3.If the machine is installed in outdoor, An air inlet flexible pipe(Optional) should be added during installation. Please purchase by yourself(air outlet flexible pipe attached itself). This pipe and clamp diagram is  $\varnothing 180\text{mm}$ .

4.If the machine is installed in outdoor, and the region of winter temperature is lower than  $0^{\circ}\text{C}$ , please be sure to keep the water pipes warm to prevent freezing; If necessary, add piping heating device to avoid pipe freezing. If the heat pump is not used in winter, it is recommended to put the water in the water tank and water pipes clean to avoid freezing.

### Warning:

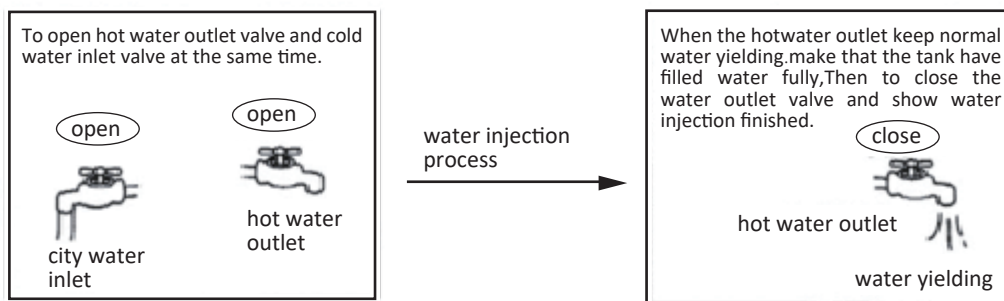
If installed outdoors, damp environment in winter, when the winter air temperature is lower than  $0^{\circ}\text{C}$ , pipe water may freeze, the ice will drain plug, this kind of situation will eventually affect the use.

## 5. Operating Instruction

### 5.1 Usage

Operate in the following order:

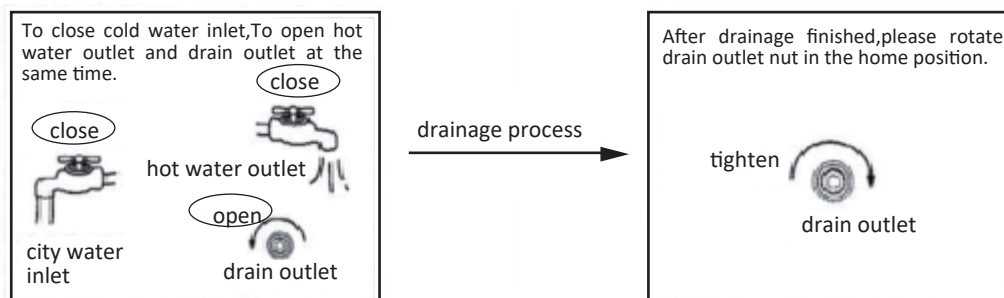
1. Water injection: Do not turn on electrical current until tank has been completely filled with water when the unit is first time used or re-use after water tank emptied.



2.The display panel is working when it is plug in,which shows that the unit has been powered on.Different buttons on the display panel represent different modes.Refer to 5.2.1 for detailed operation instructions.

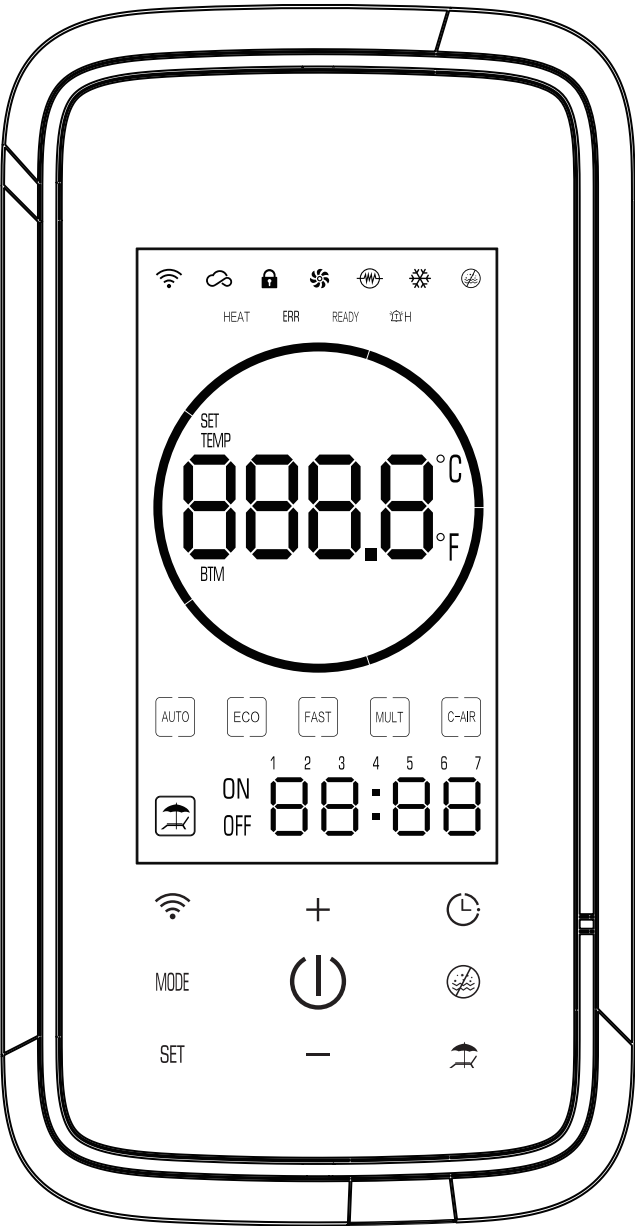
3.Drainage: Drain the water heater before cleaning,moving as well as any other operations on it.










Drainage method:



## 5.2. Operating guideline





### 5.2.1 Operating panel instructions



- |   |                    |   |                    |   |           |
|---|--------------------|---|--------------------|---|-----------|
|  | ———— ON/OFF        |  | ———— STERILIZATION |  | ———— DOWN |
|  | ———— CLOCK         |  | ———— UP            |  | ———— SET  |
|  | ———— VACATION MODE |  | ———— MODE          |  | ———— WIFI |

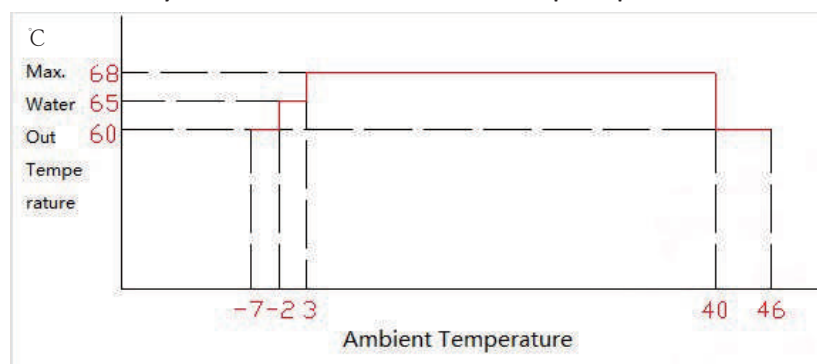
The unit has four operating modes: AUTO mode, ECO mode, FAST mode and MULT mode. There are four ways to make hot water in the unit: heat pump, auxiliary electrical heater, solar energy and boiler. Under different mode, hot water is heated by different way, as shown in the following table:

No.	Operating Mode	Hot Water Heating Way			
		Heat Pump	E-Heater	Solar Energy	Boiler
1	AUTO	●	●	●	
2	ECO	●		●	
3	FAST	●	●	●	●
4	MULT	●	●	●	●

When first time power on at initial status, the controller is default with off status. Press the  button one time to switch on the unit, the current working mode is AUTO mode, initial set temperature is 55 °C (parameters F9), press the  or  button to adjust the temperature, press the  button to change the mode. The controller can record the current setting, and work according to memory when power on again after power off.

The controller panel shows the temperature of the upper part of the tank, that is, the actual water outlet temperature.

For auto mode , It work with heat pump and with/without E-heater based on condition. If the ambient temperature and Max.water out temperature is at continuos line, then unit work with eco mode, with only heat pump, the E-heater not work; if not in continuos line, E-heater work automatically, unit work with both heat pump and E-heater.




For Eco mode, It works with only heat pump.


For Fast mode , it work with both heat pump and E-heater under any condition.

By controller, user can select Max.75 °C temperature(This is default limitation). With heat pump only, max. water outlet temperature is 68 °C . With both heat pump+ E-heater, it can reach the selected max. temperature.






## 5.2.2 Panel's operating guideline

### 5.2.2.1. Switch on/off operation


Switch on: When the unit in off state, if the user presses the  button, the unit will switch on.

Switch off: When the unit in on state, if the user presses the  button, the unit will switch off.

















### 5.2.2.2. Checking and setting temperature

Under the main interface, the user can press the  or  button to see the set temperature, the set temperature will display and flash. The set temperature can be adjusted by pressing the  or  button and automatically saved. It will back to the main interface if 5 seconds without any operation. Or press the  button to exit from the temperature setting.





### 5.2.2.3. Working mode setting

The user can switch the modes between AUTO, ECO, FAST, and MULT by pressing the  button.

### 5.2.2.4. Time setting







Press the  button to enter the time setting, hour and minute will flash, Press the  or  button to adjust the corresponding year (the initial value is 2000) setting; then press the  button to set the month, hour will flash, press the  or  button to set the month (the initial value is 00); Then press the  button to set the date, and the minute will flash. Press the  or  button to set the date (the initial value is 00); Then press the  button to set the hour, the hour will flash, press the / button to set the hour (the initial value is 00); Then press the  button to set the minute, and the minute will flash. Press the  and  button to set the minute (the initial value is 00). After setting, press the  button to exit the setting.


Remarks:

- (1) If no operation for 30 seconds, the setting will automatically exit with failure;
- (2) Press the  button to complete the setup and exit;
- (3) If the error is found in the previous setting, the user can press the  button before completing the setting to switch the hour and minute setting.
- (4) After the date is completely set, the system automatically determine the current date is what day in a week.
- (5) Press the  and  button at the same time, and query the date. First the year is displayed, and the month and day are displayed after 2 seconds.

### 5.2.2.5. Timing setting

Press and hold the  button 3S to enter the timer setting, the specific method is as follows:

Timing 1: When "1" light is on, enter into "timing 1 opening" setting. The "hour" light will flash, the user can press  or  button to adjust the hour. After adjusting, press the  button, the "minute" light will flash, the user can press  or  button to adjust the minute. If pressing the  button again, it will enter into "timing 1 closing" setting, the setting way is the same " timing 1 opening".



Timing 2: The user press the  button again, the light "1" is out, and light "2" is on, it will enter into "timing 2 opening" state, the setting way is the same "timing1".

Timing 3: The setting way is the same as "timing 1" and "timing 2".

If no any button pressed in 30 seconds, then automatically quit from the setting. The settings are invalid.

During the setting process, hold and press the  button for 3 seconds, then the setting is done and quit from the time setting.

#### 5.2.2.6. Timing cancelling




Method 1: After timing setting successful, the user can hold and press the  and  buttons at the same time for 3 seconds, the timing setting is cancelled. The light that represent the timing setting successful will be out.

Method 2: The user can set the timing on and off of the corresponding time period to the same time according to the timing setting method.










#### 5.2.2.7. Weekly timing setting




This timing function is circulated timing. After successful setting, the unit will run at the set time every day. The user can set up the time of starting and closing on a daily basis according to need, and can also determine the switch time of the specific day in a week according to need.

#### 5.2.2.8. Special date timing

Press and hold the  button for more than 3 seconds. The digital light will be light from number 1 to 7 cyclically every one second, and the 7 numbers correspond to the 7 days of the week. When the  button is released, when the  button is released, the corresponding date time setting can be started. The setting method is the same as weekly timing setting.





#### 5.2.2.9. Vacation setting

Press  button to enter into the vacation start date setting, at this moment 1~3 is bright, hour and minute blink with display 20:18, press  and  to adjust year. After adjustment completed, press  to  enter into month setting, at this moment hour blink, press  and  to adjust month. After adjustment completed, press  to enter into date setting, press and to adjust date. After adjustment completed, press  to enter into vacation close date setting, at his moment 4~7 is bright, hour and minute blink with display 20:17, the setting method is same with vacation start date setting.

After the vacation close date setting completed, "temperature" blink to set temperature, initial is "-.-" which means the unit is off when vacation start. If user press  button to set temperature, then unit work with set temperature when vacation start. After temperature is setted, press  button to exit the setting. If the vacation setting is successfully, then  is bright.

This function is one time timing, after setting successful, the unit will work according to the set requirements: The unit will execute the shutdown command at 23:00 on the vacation start date. And the unit will execute the switch on command at 01:00 on the vacation finish date (according to the parameters before shutdown).

#### 5.2.2.10. Vacation setting cancelling

After timing setting successful, press and hold the  button at the same time for 3 seconds (if without the  button, press the  and  buttons at the same time). The time setting is cancelled.

#### 5.2.2.11. The priority of vacation mode and weekly timer




The vacation setting priority is higher than the weekly time setting. When the vacation starts and the shutdown command is executed, the weekly timing setting is no longer executed as well. When the vacation ends, the switch on command will be executed firstly, then the weekly timing function is executed.

Vacation mode is prior to weekly timer mode. When the machine power off according to the vacation setting, the weekly timer settings are invalid. After vacation period and machine is power on, it would works according to the weekly timer settings.

#### 5.2.2.12. Sterilization function

Sterilization function is divided into manual and automatic. The wired controller for domestic market is a manual one, automatic invalid (parameter F25, 1). The one for oversea market has manual and automatic (parameter F25, 0). During sterilization operation, the sterilization sign is light on, and when sterilization is completed, the sterilization sign will light off.



#### 5.2.2.13. Manual sterilization

Press the  button on panel or press  and  hold the and buttons simultaneously for 1 second, the machine would run sterilization function according to the pre-set sterilization water temperature (default 60℃, ranges 60~80) and sterilization hot water preservation time (default, ranges 0~60), the sterilization symbol would displayed on the screen.

#### 5.2.2.14. Automatic sterilization




When the machine power on, the controller would record the automatic sterilization period. If time interval is greater than the sterilization period, it would start sterilization since the time interval bigger than the sterilization starting time (default 7 days, ranges 5~10 days; default 1:00, setting ranges 0~24 hours) . And the sterilization operates according to the set sterilization water temperature (default 60℃, setting ranges 60-80℃) and default sterilization hot water preservation time (10minutes, setting ranges 5~60 minutes) .

#### 5.2.2.15. Parameter inquiry


Press and hold Reset button for 5 seconds, enter into parameter inquiry. Code Fxx would be displayed on time area, xx is two digital numbers which represents parameter code. The specific value of the parameter would be displayed on the temperature zone area. Press the button  or  to select and display the parameter.





### 5.2.2.16. Parameter recovery

Under none set state, press and hold the  and  buttons simultaneously for 1 second, word dEF would be displayed on the panel. Press the  button, all the parameters would be recovered to factory default settings. (Note: please check the factory default parameter in factory parameter settings).

### 5.2.2.17. Manual compulsive defrost

Press and hold the  button for 10 seconds, then system would be forced to defrost. When the coil temperature is higher than the exit defrosting temperature, it will not enter defrosting.

### 5.2.2.18. Safety lock function

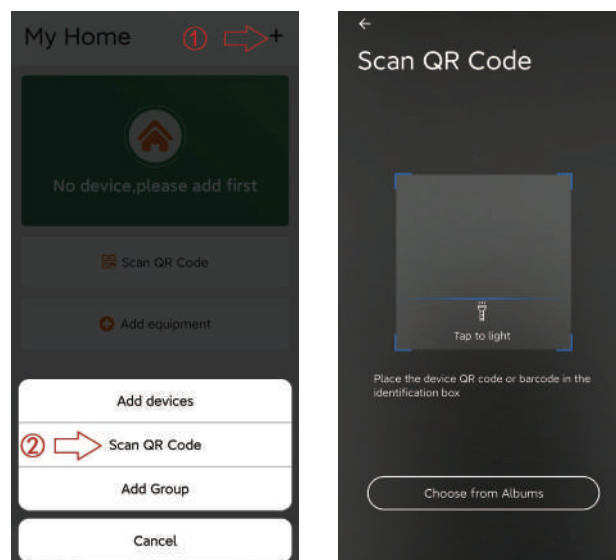
If there is no any operation in 2 minutes, system would automatically lock all the buttons. Then all the buttons are invalid. Press and hold the  and  buttons at the same time for 3 seconds to release the lock.

### 5.2.2.19. Check the water tank bottom water temperature

Press button  and  simultaneously to check it.

### 5.2.2.20. WIFI setting

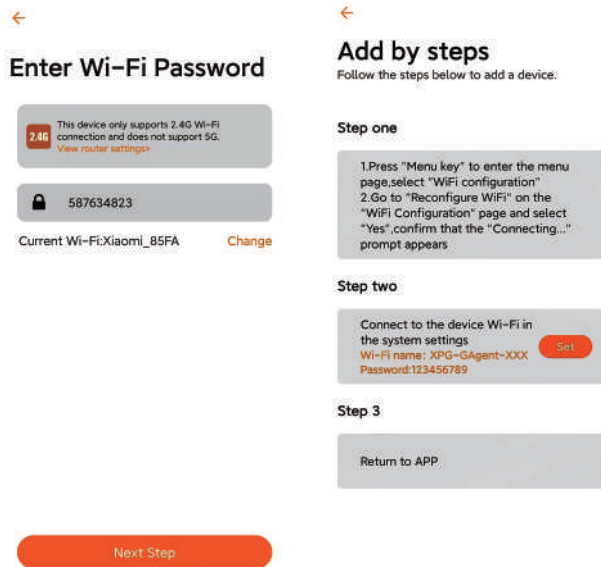
1. For Android mobile phone users, please go to the Google Play app store to search for " eHome Master " to download and install the APP; for Apple mobile phone users, please go to the app store that comes with the mobile phone and search for " eHome Master " to download and install the APP.
2. Opening the "eHome Master " APP, first register with your mobile phone number and then log in.
3. Logging in the " eHome Master " APP, click Add Device, and the APP pops up a code scanning interface to scan the scan code on the nameplate of the internal unit.



4.The home network connection interface appears, and the mobile phone will automatically obtain the connected home WiFi name after opening the location, then enter the home WiFi password, and click "Next".

5.A network configuration prompt on the APP.

6.According to the prompt of the APP, press and hold the "WiFi" button on the wired controller for 5 seconds, and confirm that the "WiFi" icon on the water heater display is flashing. Click "Set" in the 2nd step on the APP.



7.Click "Set", connect to the WiFi network starting characters with XPG as required, and then return to the "eHome Master" APP.



8.Automatically start networking.



Adding your device into the system.  
Initializing the device

### 5.2.2.21 Smart Grid Features:

Outdoor unit input switch: EVU ( expensive) and SG ( free)

When there is a signal, it is 1, and when there is no signal, it is 0. There are four signal combinations, as follows:

Signal Name	Status 1	Status 1	Status 1	Status 1
EVU	1	1	1	1
SG	0	0	0	0

Add setting parameters in user setting parameters:

Parameter	Parameter Name	Setting Range	Factory Setting
F 46	Whether the SG function is enabled	0/1	0
F 47	When electricity is free, T <sub>max</sub> set as maximum temperature of hot water	60~80 ℃	75 ℃
F 48	When electricity is expensive, ΔT <sub>e</sub> will restart temperature difference when it meets the temperature	5 ~10 ℃	8 ℃

When the unit is powered and on the status of power-on, if SG-Ready is 0 , the EVU and SG port signal detection will be shielded. If SG-Ready is 1 , the EVU and SG port signals will be detected, and according to the detected signal , The following rules are in control:

1. When the status is 1 ( EVU=1 , SG=0), status 1 lasts more than 1 second, the unit will perform the following actions:

- (1) Electric heater is forced to shut down, and it is forbidden to start;
- (2) The wired controller displays EU
- (3) Adjust unit's start/stop temperature difference to ΔT<sub>e</sub>.
- (4) The rest are controlled according to the settings of the wire controller.
- (5) Heat pump unit shall be executed according to 7.1 .


other instructions:




- (1) After entering status 1, status 1 will last at least 10 minutes;
  - (2) Status 1 will be allowed to re-enter after exiting status 1 10 minutes;
  - (3) Status 1 control accumulative time does not exceed 2 hours within a day;
2. When status is 2 (EVU = 0 , SG=0), and status 2 lasts more than 1 second, the unit will be controlled regularly according to the setting of the wire controller;
3. When status is 3 ( EVU=1 , SG=1) or status 4 ( EVU=0 , SG=1), and status 3 or status 4 lasts more than 1 second , the unit will carry out the following control according to the current operating mode of the unit:
- (1) The wired controller displays FE.
  - (2) Adjust the set temperature of the unit: the set temperature is automatically switched to T<sub>max</sub> .
  - (3) Electric heater is allowed to start and is controlled in accordance with 7.2 "Fast Heating ( FAST)" .
  - (4) The rest are controlled according to the settings of the wire controller.
  - (5) Heat pump unit shall be controlled according to 7.1.

Other instructions:

- (1) After entering status 3 or status 4, status 3 or status 4 will last at least 10 minutes;
- (2) Status 3 or status 4 will be allowed to re-enter after exiting status 3 or status 4 10 minutes;

## Parameter codes are show as below:

You can inquiry or modify it through pressing  button. You have to input password if you want to modify it. Parameter F8 is used to save the history fault.

Type	Code	Parameter name	Setting ranges	Default settings	Unit	Note
	F0	Solar water outlet temperature display	-	-	℃	This item will be displayed when the solar dial switch is valid
Display series	F1	Ambient temperature display	-	-	℃	Password unnecessary, cannot be revised
	F2	Return air temperature display	-	-	℃	
	F3	Coil temperature display	-	-	℃	
	F4	Exhaust air temperature display	-	-	℃	
	F5	Water tank bottom water temperature display	-	-	℃	
	F6	Compressor current display	-	-	A	
	F7	Current opening degree of EEV	0 - 480	-	-	
	F8	Faults history	Press button  or  to display fault list after press the  button			
Temperature control series	F9	Default setting temperature	10 – 80	55	℃	Do not set the value higher than the max. set temperature
	F10	Start and stop temperature difference	2-15	3	℃	
	F11	Max. set temperature	0 – 100	75	℃	To control the max. hot water temperature which set by user
	F12	Max. sterilization temperature	60-80	70	℃	To control the sterilization temperature by user
Test series	F33	Display model and software version number	Display the panel and PCB board model and software version number			

## 6. Maintenance and Faults Handling

### 6.1 Common problems

Warning: The controller is warning if any of the following exceptional cases happens; Parameter codes are show as below (Code description  $\text{F12} = \text{A12}$ ):

Malfunction	Code	Failure performance	Recovery Way	Remark
Low Pressure Failure	A12	Stop heating	Automatically recovery for 3 times, manually recovery after 3 times	
High Pressure Failure	A13	Stop heating	Automatically recovery for 3 times, manually recovery after 3 times	
Water Tank top sensor failure	A20	Stop heating	Automatically recovery	
Water Tank Bottom Sensor Failure	A21	Stop heating	Automatically recovery	
Coil Temp. Sensor Failure	A22	Stop heating	Automatically recovery	
Exhaust Air Sensor Failure	A23	-	Automatically recovery	
Ambient Air Sensor Failure	A25	-	Automatically recovery	
Suction Air Sensor Failure	A26	Stop heating	Automatically recovery	
Solar Water Outlet Sensor Failure	A27	-	Automatically recovery	
DC Fan Motor Failure	A28	Stop heating	Manually recovery	
Compressor Overcurrent Protection	A41	Stop heating	Automatically recovery for 3 times, manually recovery after 3 times	
Communication Failure	A51	Stop heating	Automatically recovery	
Exhausted Air Temp. Overhigh	A61	Stop heating	Automatically recovery for 3 times when exhausted air temperature reduce, manually recovery after 3 times	

## 6.2 Unit Maintenance

The unit is only open and repaired by assigned agency or maintenance agency. Any damages caused by unauthorized dismantling will end the warranty.

1. Our household Air-Source Heat Pump Water Heater can work well in a range of  $-7^{\circ}\text{C} \sim 46^{\circ}\text{C}$ .
2. Standard components have to be used according to instructions and not replaceable.
3. For better and reasonable usage, the recommended outlet-water temperature is  $50^{\circ}\text{C}$  in winters and  $43^{\circ}\text{C}$  in summers.
4. Regularly cleaning dust on evaporator and filter by professional mechanics ensures efficient operation.
5. While maintaining, make sure the safe use of electricity. The heater is turned on only after the faults have been eliminated.
6. Check the power supply frequently to ensure that the power plug and socket are in good and reliable contact, well grounded and no overheating;

## 6.3 FAQ (Frequently Asked Question)

### 6.3.1 Unit operates; the water temperature remains

1. Fan runs but compressor does not---Check the wires connect compressor.
2. Refrigerant leaks—Check the connecting lines and add refrigerant after repair.
3. Thick frosting on evaporators in winter—Check defrosting system, the outlet blockage and leaking possibilities.

### 6.3.2 Blank screen of Controlling Panel

1. Check the power supply.
2. Transformer breaks down-Replace it.
3. The signal line breaks down—Check the line.

### 6.3.3 Safety valve leaks

1. Inlet and outlet leaks—tighten the screws on the inlet or outlet.
2. External drainpipe leaks—Check the water pressure of tap water, install a pressure-reducing valve if necessary.

### 6.3.4 P/T valve



- Don't dismantle
- Don't press on the handle
- Don't block the outlet
- The valve has to be pulled out half a year in case of blocking.  
Avoid scalding by the hot water from the outlet.
- Drainpipe should be lead to an open area.

### 6.3.5 Magnesium anode

1. Replace the magnesium anode regularly according to the local water quality.
2. Make sure checking and replacing the magnesium anode at least every two years.

## 6.4 Fuse model

If need change fuse, the fuse model is 5\*20\_3.15A/250VA.



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