

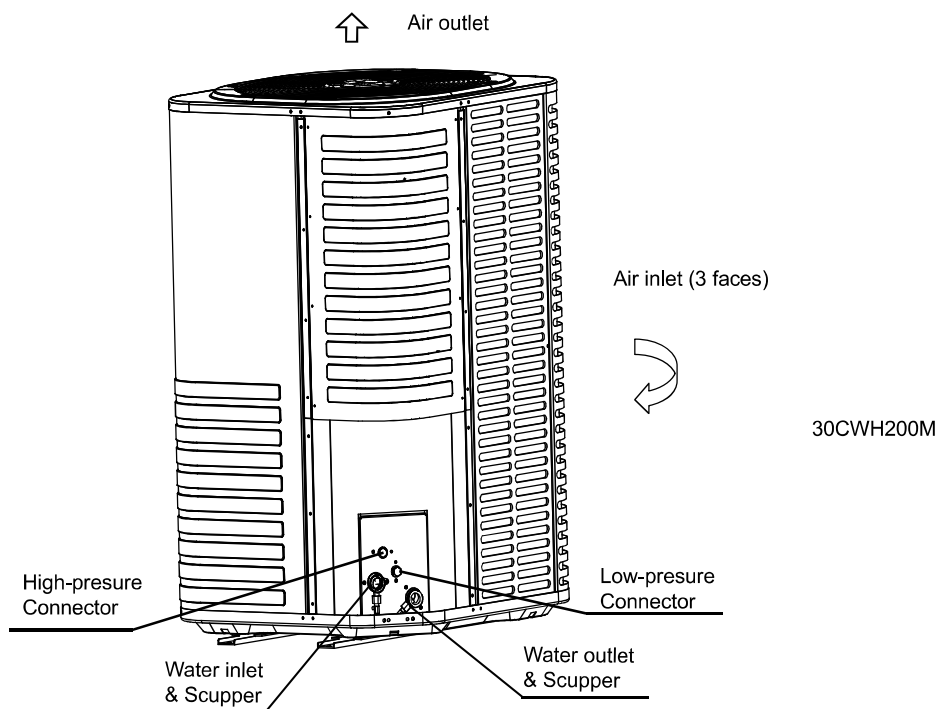


INSTALLATION AND OPERATION MANUAL

Air source heat pump water heater

Thank you very much for purchasing our product,
Before using your unit , please read this manual carefully and keep it for future reference.

The water heater







NOTE

All the picture in this manual are for explanation purpose only. They may be slightly different from the unit you purchased (depend on model).The actual shaped shall prevail.

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1. ACCESSORIES

Table 1-1

Unit	Installation & Operation Manual	Wire control assembly	Water Tank Temperature sensor	Y-shaped filter
Qty.	1	1	1	1
Shape				
Purpose	—	Control units and display units status Model: CA-KJR-51/BMK E-A	Water tank temperature inspection	For pipeline connection

2. IMPORTANT SAFETY INFORMATION

To prevent injury to the user or other people and property damage, the following instructions must be followed. Incorrect operation due to ignoring of instructions may cause harm or damage.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.



WARNING

Failure to observe a warning may result in death.



CAUTION

Failure to observe a caution may result in injury to the equipment.



WARNING

Ask your dealer for installation of the water heater. Incomplete installation performed by yourself may result in a water leakage, electric shock, and fire.

Ask your dealer for improvement, repair, and maintenance. Incomplete improvement, repair, and maintenance may result in water leakage, electric shock, and fire.

In order to avoid electric shock, fire or injury, or if you detect any abnormality such as smell of fire, turn off the power supply and call your dealer for instructions.

Never let the wire control get wet. It may cause electric shock or a fire.

Never press the button of the wire control with a hard, pointed object. The wire control may be damaged.

Never replace a fuse with that of wrong rated current or other wires when a fuse blows out. Use of wrong wire or copper wire may cause the unit to break down or cause a fire.

It is not good for your health to expose your body to the air flow for a long time.

Do not insert fingers, rods or other objects into the air inlet or outlet. When the fan is rotating at high speed, it will cause injury.

Never use a flammable spray such as hair spray, lacquer paint near the unit. It may cause a fire.

Never touch the air outlet while the swing flap is in operation. Fingers may become caught or the unit may break down.

Never put any objects into the air inlet or outlet. Objects touching the fan at high speed can be dangerous.

Never inspect or service the unit by yourself. Ask a qualified service person to perform this work.

Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.



CAUTION

The instruction shall state the substance of the following:

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

Children should be supervised to ensure that they do not play with the appliance. Do not use the water heater for other purposes. In order to avoid any quality deterioration, do not use the unit for cooling precision instruments, food, plants, animals or works of art.

Before cleaning, be sure to stop the operation, turn the breaker off or pull out the supply cord. Otherwise, an electric shock and injury may result. In order to avoid electric shock or fire, make sure that an earth leak detector is installed.

Be sure the water heater is grounded. In order to avoid electric shock, make sure that the unit is grounded and that the earth wire is not connected to gas or water pipe, lightning

conductor or telephone earth wire.

In order to avoid injury, do not remove the fan guard of the outdoor unit.

Do not operate the heater pump with a wet hand. An electric shock may happen.

Do not touch the heat exchanger fins. These fins are sharp and could result in cutting injuries.

After a long use, check the unit stand and fitting for damage. If damaged, the unit may fall and result in injury.

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with burner is used together with the unit.

Arrange the drain hose to ensure smooth drainage. Incomplete drainage may cause wetting of the building, furniture etc.

Never touch the internal parts of the controller. Do not remove the front panel. Some parts inside are dangerous to touch, and a machine trouble may happen.

Never expose little children, plants or animals directly to the air flow. Adverse influence to little children, animals and plants may result.

3. SELECTING THE INSTALLATION LOCATION

Enough space of installation and maintenance is available.

The air inlet and outlet are free from obstacles and strong wind.

The bearing surface is level and can bear weight of the unit, and is suitable for installing the unit horizontally without increasing noise or vibration.

The operation noise and the expelling of air do not affect neighbours.

No flammable gas is leaked.

It is convenient for piping and wiring.



CAUTION

Installing the equipment in any of the following places may lead to faults of the equipment (if that is inevitable, please consult the dealer):

- The site contains mineral oils such as cutting lubricant.
- Seaside where the air contains much salt.
- Hotspring area where corrosive gases exist, e.g., sulfide gas.
- Factories where the supply voltage fluctuates seriously.
- Inside a car or cabin.
- Place like kitchen where oil permeates.
- Place where strong electromagnetic waves exist.
- Place where flammable gases or materials exist.
- Place where acid or alkali gases evaporate.
- Other special environments.

3.1 Precautions before installation:

Decide the correct way of conveying the equipment.

Try to transport this equipment with the original package.

If the unit needs to be installed on a metal part of the building, electric insulation must be performed, and the installation must meet the relevant technical standards of electric devices.

4. IMPORTANT ITEMS FOR INSPECTING INSTALLATION OF THE UNIT

4.1 Installation

Confirm the model, serial number and name to avoid mistaken installation.

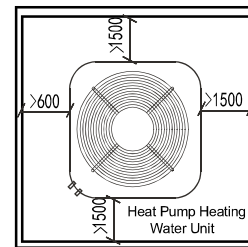
4.2 Electric wiring

- 1) Select the power supply capacity and wire size according to the Design Manual. The size of the power cable of the unit should be greater than that of ordinary motors.
- 2) Check the subscriber grounding is effective.

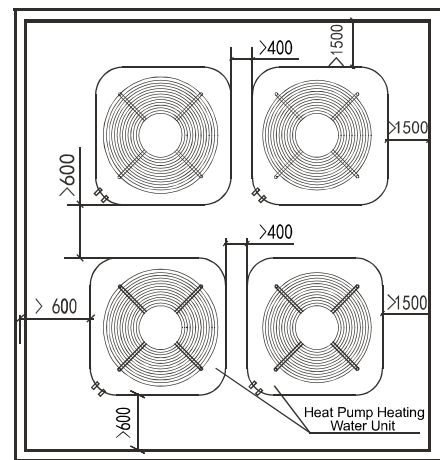
4.3 Installation space

Before installing the unit, reserve the space of maintenance shown in the following figure.

Ensure enough space for installation and maintenance.(unit:mm)



30CWH200M



30CWH200M

Fig.4-1

If the unit installed in a underground chamber, an indoor room or other hermetic place, please pay attention to where surrounding air, as well as which air exhaust and air circulating system.

Table 4-1

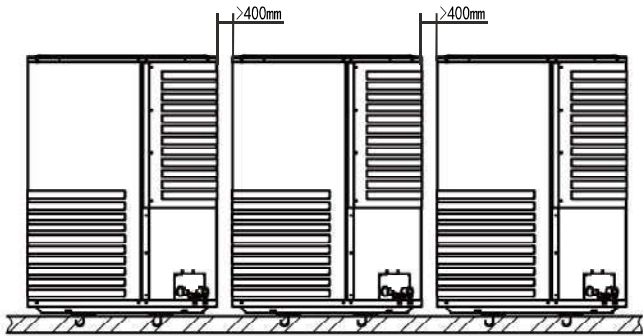
Model	30CWH200M	
Static Pressure (Pa)	High Fan Speed (m³/h)	Low Fan Speed (m³/h)
0	6994	5929
10	6485	5156
20	5994	4357
25	5380	3377

4.4 Carrying the unit onto the installing site

Use 4 steel ropes of F6mm or more to hoist the unit and convey it into the room.
 In order to avoid scratch or deform the unit surface, apply guard boards to the contacting surface.
 After move onto installing site, please confirm the main unit are placed in horizontal.

4.5 Installing multiple units

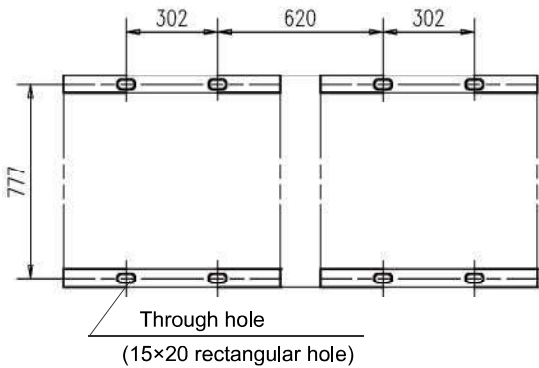
As shown in the figure, leave spacing of at least 400mm between units.



30CWH200M

Fig.4-2

The distance of the foundation bolt is shown in the following figure.



30CWH200M

Fig.4-3

5.PIPES CONNECTION OF THE UNIT

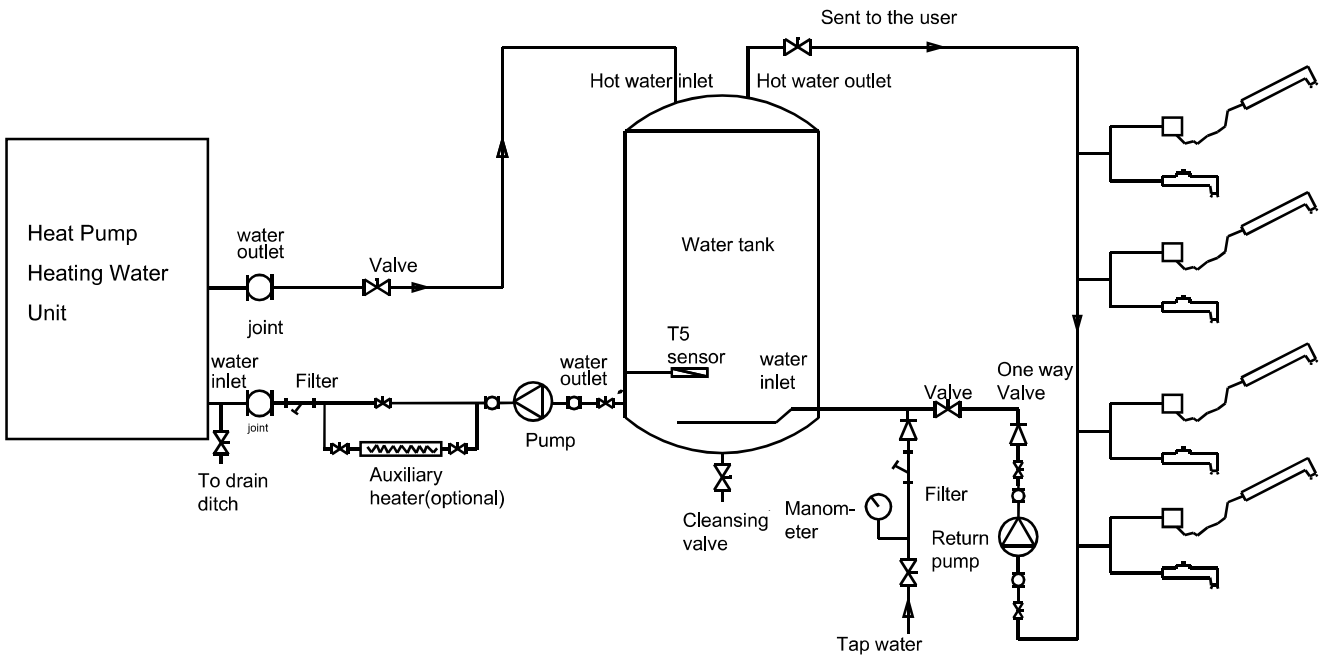
During install connective pipe, you must beware that do not let any dust or other foreign substance intrude into pipe system.

Water inlet and outlet pipes could be installed as long as the water-heater have been fixed.

5.1 Thermal insulation

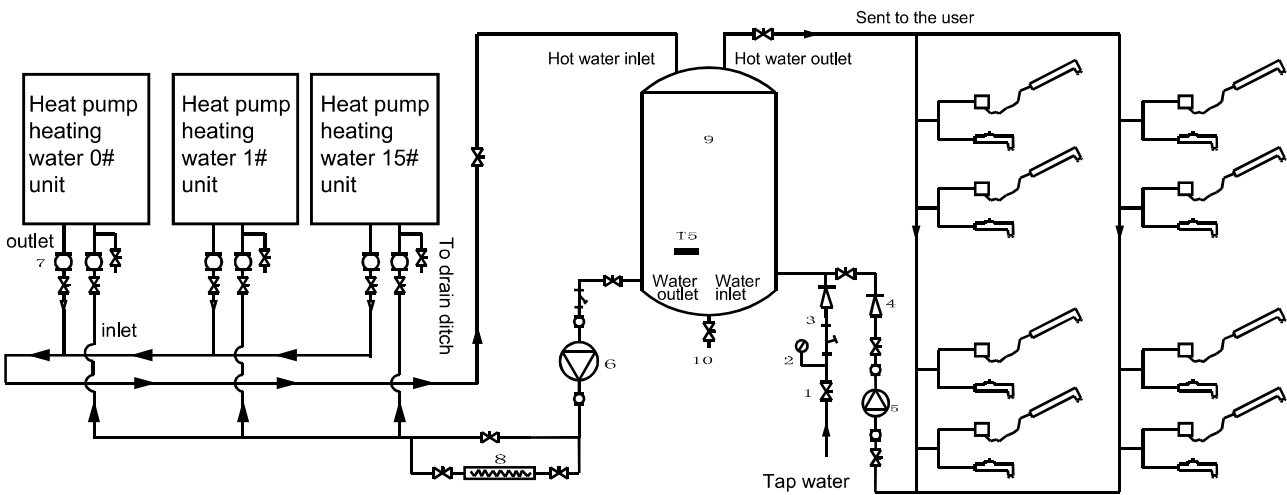
Thermal insulation materials should be employed to seal up water outlet and inlet pipes.

5.2 Schematic diagram of single and multiple connected water heater systems



Single connected for 30CWH200M

Fig.5-1



A maximum of 16 heat pump heating water units can be connected in parallel

Multiple connected for 30CWH200M

Fig.5-2

- | | | | |
|------------|-----------------|--|--------------------------------------|
| 1.Valve | 4.One way valve | 6.Pump | 9.Water Tank |
| 2.Manomete | 5.Return pump | 7.Joint | 10.Cleansing valve of the water tank |
| 3.Filter | T5.Tank sensor | 8.Auxiliary heater(optional to the user) | |

5.3 Selecting the inlet/outlet pipelines of the 30CWH200M model

Table 5-1

Quantity of units connected in parallel	Size of inlet water pipe	Size of outlet water pipe
1	DN25	DN25
2	DN32	DN32
3	DN50	DN50
4~5	DN50	DN50
6~7	DN65	DN65
8	DN65	DN65
9~12	DN65	DN65
13~14	DN80	DN80
15~16	DN80	DN80

6. ELECTRIC CONNECTION OF THE UNIT

6.1 Electric wiring



CAUTION

- Water heater shall have a specialized power supply, which voltage must in compliance with the rated voltage.
- Power supply circuit of water heater with ground wires that must reliably connected with the external ground wire, which shall effective.
- Wiring must be performed by professional technicians according to the circuit diagram.
- Set the residual current-operated circuit breaker (RCCB) according to the relevant electric technical standards of the State.
- Power cable and signal cable shall be laid out orderly and properly. Distinguish heavy current from weak current.
- Without mutual interference, no contact with connective pipes or valves.
- No power cable is attached to this equipment. User could select power cable by reference to power supply specifications. Forbidden joint wires together. Shield wire must be employed for signal wire.
- All wiring are finished, before power on the unit, please confirm all connections are correct.
- The power cord type designation is H07RN-F.

6.2 Specifications of power supply (Table 6-1)

Table 6-1

Model	Power
30CWH200M	380-415V 3N~ 50Hz

6.3 Total horsepower manual switch and fuse capacity (Table 6-2)

Table 6-2

Total horsepower(HP)	Manual switch(A)	Fuse(A)
5	50	30

6.4 Selecting the capacity of the manual switch and fuse of the deconcentrator.

- 1) No power supply device is used, see Table 6-1. The specifications depend on connected units' actual status.
- 2) Power supply device is used, the specifications can be derived from Table 6-2 according the total horsepower of the heater pump.

6.5 When 5-cord shield wire in the accessories pack is not long enough, please refer Table 6-3:

Table 6-3

Name	Quantity	Size
Electric auxiliary heater power wire	2 Cords	2.5 mm ² (Length≤50 m)
Circulating water pump power wire	2 Cords	2.5 mm ² (Length≤50 m)
Communication cable (shieled)	5 Cords	1.0 mm ² (Length≤50 m)



CAUTION

When the power cable is parallel to the control wire, please put these wires into their respective wire tubes, and reserve adequate interval space between them.

6.6 Power cable

The power cable is as follows.

6.6.1 When power delive to a certain wire individually (no power supply device is used)

Table 6-4

Item Model	Power supply	Min. wire size (mm ²) (Metal pipe & synthetic resin pipe wire)		Manual switch(A)		RCCB
		Size (Continuous length: ≤30 m)	Ground wire	Capacity	Fuse	
30CWH200M	380-415V 3N-50Hz	6	4	50	30	30 mA Below 0.1 sec



NOTE

Wire size and continuous wire length in Table 6-4 only available for the case of the voltage decreasing range not exceeds than 2%.

If the continuous wire length value larger than the one of the table, please choose its size in compliance with the relevant rules.

6.6.2 Power supply device application

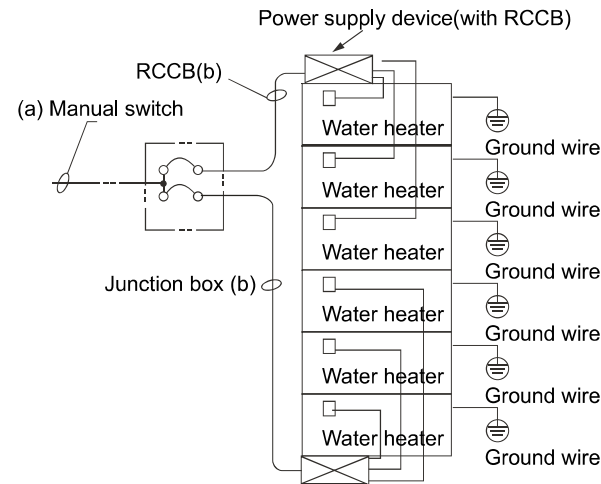


Fig.6-1



NOTE

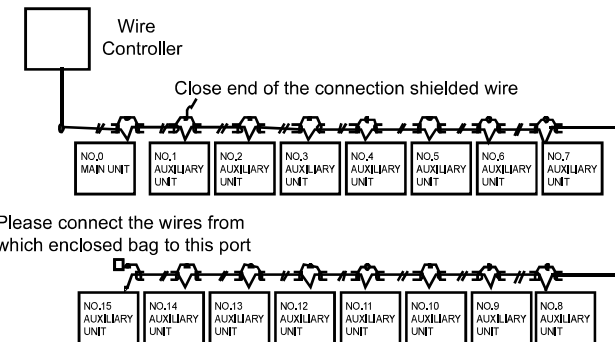
Although an RCCB have already built in the unit, to be on safe side, an additional RCCB is necessary to be installed in the external power supply box. Please refer to Fig.6-1 to arrange it.

6.6.3 Selecting the wire size

Power cable refers to the main wire (a) led to the junction box and the wire led from the junction box to the power supply device (b).Select the wire size according to the following method.

- 1) The size of the trunk line (a) is calculated out through Table 1 according to the sum of horsepower of the heating water unit.
- 2) In case there are less than 5 heating water units combined, the size of the wire (b) between the junction box and the power device is the same as the size of the main wire (a). In case there are 6 or more heating water units combined, there are two electric control boxes of the power device, and the size can be derived from the Table 1 according to the horsepower sum of the heating water units connected to each electric control box.

6.6.4 signal wire wiring



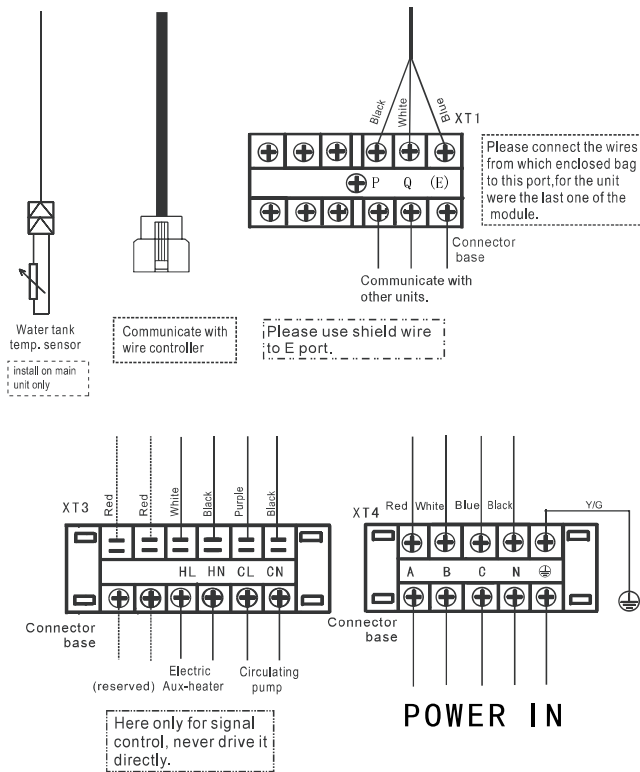
Signal wire is 3-core, polarized wire. Use 3-core shield wire to prevent interference. The grounding method now is grounding the closed end of the shield wire and opening (insulating) at the end. Shield is to be grounded.



CAUTION

- When power cord is parallel with signal wire, please put them into separate wire distribution pipes, and leave a proper distance.
- (Reference distance: It is 300mm when current capacity of power cord is less than 10A, or 500mm when 50A).

6.6.5 Electric wiring diagram



30CWH200M electric wiring diagram

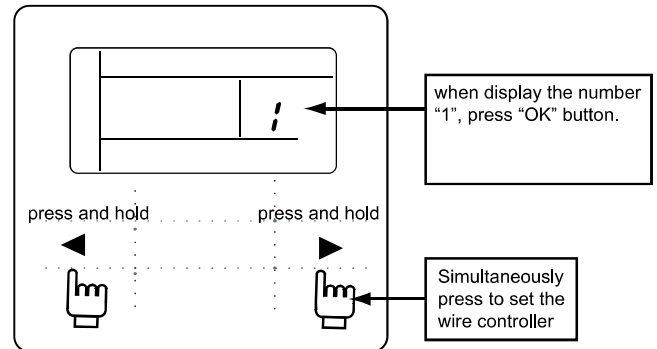


CAUTION

- Pay attention to the phase sequence of the power supply. If the phase sequence is inversed, the compressor will not start, and the electric control board nixietube displays the fault code.
- After replacing the phase sequence, power on the unit until the nixietube does not display the fault and the compressor starts up normally.

6.7 Setting wire controller

- The attached wire controller can be applied to several HPWH models after the controller is properly set.
For this model, the controller need to be set to "1". Since the default setting of the controller is "1", users do not need to set it. The setting method is for reference.
- Setting method:
when the controller is "OFF", simultaneously press and hold "◀" "▶" two buttons, until the setting number (from 1 to 5) is displayed on the screen. Press "▲" or "▼" button to select the number "1", then press "OK" button to confirm.



7. INSTALLING OPTIONAL FITTINGS OF THE UNIT

7.1 Selecting and installing the water pump

Selecting the lift of the pump:

15m + height difference between the water tank and the master unit + sum of local resistances along various pipelines .

Table 7-1

Quantity of units connected in parallel	30CWH200M	
	Flow rate(m ³ /h)	Lift(m)
1	2~3	15~18
2	4~6	15~18
3	6~9	15~18
4	8~12	15~18
5	10~15	15~18
6	12~18	15~18
7	14~21	15~18
8	16~24	15~18
9	18~27	15~18
10	20~30	15~18
11	22~33	15~18
12	24~36	15~18
13	26~39	15~18
14	28~42	15~18
15	30~45	15~18
16	32~48	15~18

7.2 Installing the auxiliary heater

The user can select the auxiliary electric heater, and the master unit provides the control signals of the auxiliary heater (220-240V~ 50Hz). The installation location of the auxiliary heater must strictly comply with the installation schematic diagram.

Table 7-2

Quantity of units connected in parallel	30CWH200M
	Power(kW)
1	5~6
2	10~12
3	15~18
4	20~24
5	25~30
6	30~36
7	35~42
8	40~48
9	45~54
10	50~60
11	55~66
12	60~72
13	65~78
14	70~84
15	75~90
16	80~96

8. SPECIFICATIONS & PARAMETERS OF THE UNIT

Table 8-1

Model		30CWH200M
Heat-water heating volume (kW)		20.4
Consumed power/ current		5.23kW / 9.0 A
Heat water output value (m³/h)		0.45
Max.input power (kW)		7.8
Max.input current (A)		13.0
Power supply		380-415V 3N~ 50 Hz
Operation control		auto start, fauilure alarm ect.
Working substance (Charged volume)		R410A (2800 g)
Water circulate param.	Water outlet temp.	Factory settingtemperature 56 °C(Adjustable range:48~60°C)
	Diam. of water inlet pipe	DN25
	Diam. of water outlet pipe	DN25
	Max./Min. resisting pressure	1.0 MPa/0.12MPa
Air side heat exchanger	Mode	Internal thread hydrophilic aluminium foil
	Motor power (W)	360
	Air outflow mode	Air flow from topway
Outline dime.	L (mm)	750
	W (mm)	750
	H (mm)	1100
N.W (kg)		148
Noise dB (A)		63
<p>Note:</p> <p>Testing conditions: Outdoor ambient temperature is DB/WB 20 C/WB 15°C, inlet water temperature of the units is 15°C , outlet water temperature is 55°C.</p>		

9. OPERATION AND PERFORMANCE OF WATER-HEATER

9.1 About the 3-minute protection

- 1) Restart or open the manual switch at once after the unit shut down.
- 2) Unit will not start immediately until 3 minutes later, because of the self-protect function of the compressor.

9.2 Characteristics of heat water supply operation

During operation, if outdoor temperature in high degree, the air supply motor will runs at low air volume.

9.3 About heat water supply operation and defrosting function

- 1) In case of the unit appear frost during water supply , prevent the heating efficiency from decrease, de-frosting operation will turn on automatically (approx. 2~7 minutes) .
- 2) In the process of defrosting operation, the unit air supply motor will stop running.

9.4 Operating conditions of the water heater

In order to use the heater pump correctly, please ensure that operate it at -15°C~43°C outdoor ambient temperature when you use the water heater unit .

9.5 About protection device

- 1) When protection device in operate, though the unit stops, the operating indicator of wire control still in blinking.
- 2) When protection device in operate, nixie indicator will display malfunction code (units).
- 3) Protection device will act when the following circumstances occur:
 - Air inlet or outlet are blocked.
 - Air in water or refrigerant system exhaust incompletely.
 - Voltage is a little higher or lower compare to the voltage range (Exceeding the range of 230V(400V) $\pm 10\%$).



CAUTION

Please cut off the manual switch power when protection device on service.
Do not restart until problems are solved.

9.6 Start the unit after a long period out of service

Strat-up the unit after out of service for a long period (includes drive up a unit at the first time), you would see rust mix up water in red, flow out from tap. Such that is a normal circumstance, please be calmly and keep draining, after for a while rust will disappear.

9.7 About power failure

- 1) In case power failure during the unit in performing, please stop all operating actions.
- 2) At the next startup after power failure, the RUN indicator of wire controller will blink slowly for several seconds, that is user noted signal.
- 3) Wire control possesses power-fail memory function.
- 4) Misoperation occur during operating:
 - In case misoperation caused by lighting or vehical radio, cut off the manual power switch, and turn it on again, afterward press RUN/STOP key.
 - It is forbidden to switch the power off if ambient temperature below 0 C. In case of power failure or power need be cut because of maintenance, please open the drainage valves at the joints of water inlet and outlet pipes as soon as possible to draining out all water. Otherwise, components inside of the units may be damaged by freeze. Upon drain water, please close the water drainage valves.

9.8 COP & Cap. and temperature curve

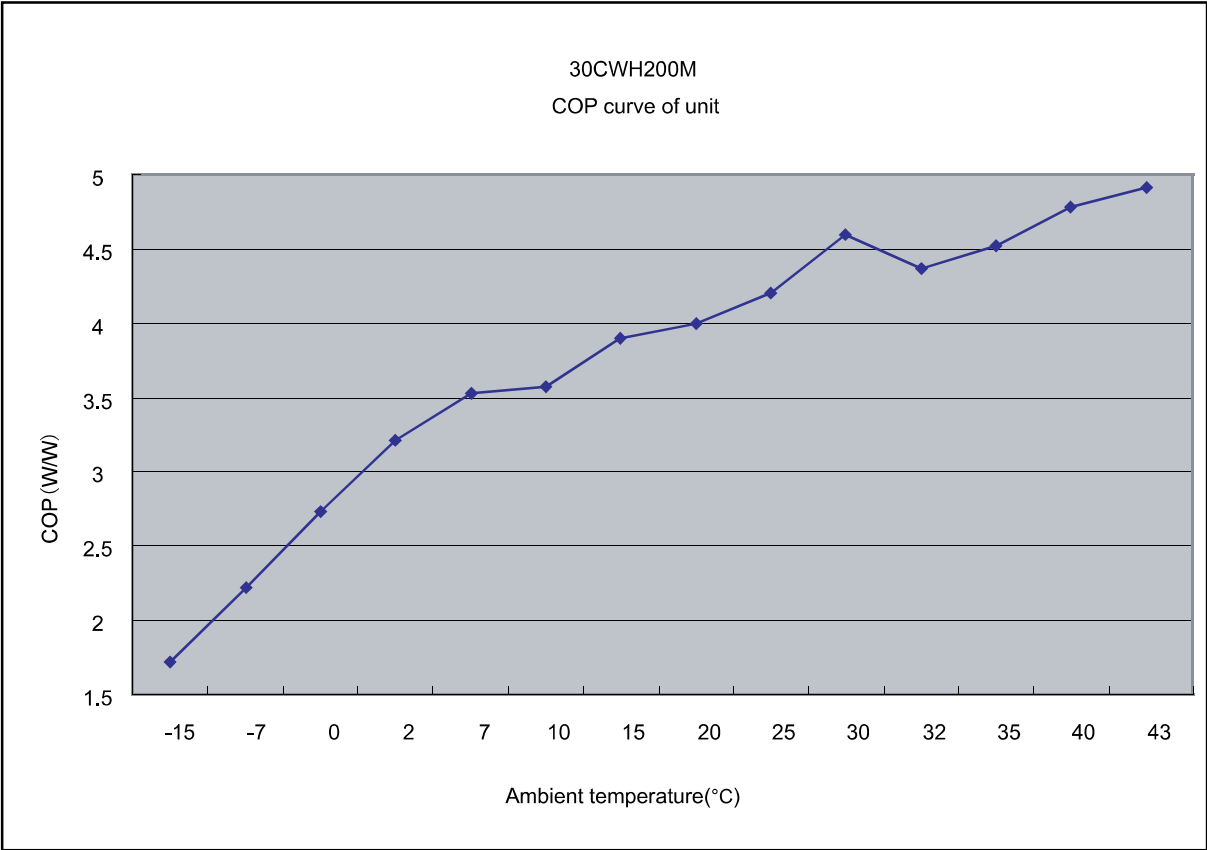


Fig.9-3

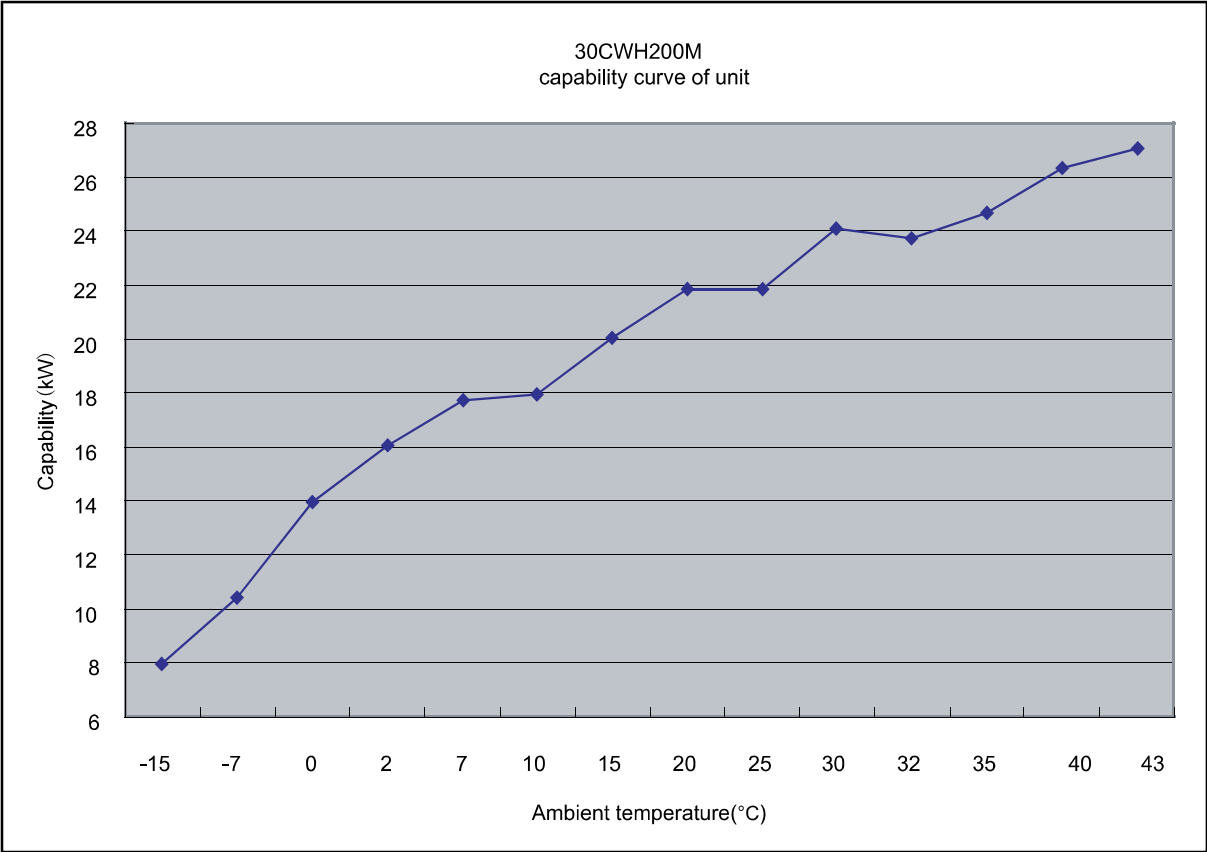


Fig.9-4

9.9 About RCCB

- 1) However this unit with a built-in RCCB, to be on the safe side, please install an additional RCCB between in user power supply and the unit. In case the unit cannot act but not attribute to power failure, please check these two RCCB switches at first. Before operate the RCCB inside of units, please ensure that the user installing switch is break off.
- 2) After the RCCB has serviced for a period of time (Generally once a month), it is necessary to press the test button at close circuit to check whether the performance of RCCB is work normally (Every time you press this button, RCCB would break-off once at a time). In case malfunction occurs, but no causes were found, it is permit to delivering power to RCCB to detect failure. If RCCB did not work when being power, you must check out the cause by feature test if necessary. If which detected and confirmed as its self-malfunction, please consigning a professional personnel to replace a new one or repair it immediately.

9.10 About shut-off memory

Every time when power shut off, wire control will saves the current operate status automatically. Untill power come to the next time, wire control would deliver ON/OFF signal to the unit according to its memory before power failure. This function keep unit always work on the mode which be set in the last time before power failure.



NOTE

Wire control can memories the operation status before power failure, and records the Time Switch-ON signals. Other information are return to default values after power be supplied again. Due to the signal of Time Switch-ON takes wire control clock's signal as reference, so the clock signal is needed to be reset after every time power-failure or reset that for ensure this function will keep on work in normal.

10. TRIAL RUN



CAUTION

- Trial run the unit after being powered on it over 12 hours.
- Check that all valves are opened before trial run.
- Check the electric safety before trial run.
- Do not perform compulsory operation.
(It is very dangerous if the protection device is not active.)

Trial run is perform only after all installations are finished.

10.1 Confirm the following issure before operation and tick box after confirmation

- 1) The water heater is installed correctly. ☐
- 2) The piping and wiring are correct. ☐
- 3) The accessories are installed correctly. ☐
- 4) The drain is smooth. ☐
- 5) The heat insulation is perfect. ☐

- 6) The ground wire is connected correctly. ☐
- 7) The supply voltage is consistent with the rated voltage of the unit. ☐
- 8) The air inlet and outlet of the unit is free from obstacles. ☐
- 9) The RCCB is active. ☐

10.2 Trial run

- 1) Check whether the switch of the wire controll is normal.
- 2) Check whether the functional keys of the wire controll are normal.
- 3) Check whether the indicators illuminate normally.
- 4) Check whether the manual operation buttons are normal.
- 5) Check whether the drain function is normal.
- 6) Check whether the water heating operation is normal.
- 7) Check whether the outlet water temperature is normal.
- 8) Check whether shake and make abnoraml noise during operation.
- 9) Check whether the output air, noise and condensate water disturb your neighbor.
- 10) Check whether refrigerant leakage.

10.3 Error code instruction

Table10-1

E1	Power phase-sequence error
E2	Communication error
E3	Water outlet temp. sensor error(T1 temp.)
E4	Water tank temp. sensor error(T5 temp.)
E5	Condenser pipe temp. sensor error(T3 temp.)
E6	outdoor ambient temp. sensor error(T4 temp.)
E7	Electric heating pipe temp. sensor error(T6 temp.)
Ec	Water inlet temp. sensor error(T7 temp.)
Eb	Exhaust temp. sensor error(TP temp.)
P0	System low-pressure protection
P1	System high-pressure protection
P2	System 2 current protection
P3	System 1 current protection
P4	Manual mode invalidation
P8	Water outlet temp. overheating protection
Pb	Freezing prevention protection



NOTE

The water heater with self-protecting function, when power is supplied. If the unit started or restarted instantly after it just has stopped, compressor of which will delay action until 3 minutes later.

11. TROUBLESHOOT OF ABNORMAL PHENOMENA

Before asking for serving or repairing, check the following points:

Table 11-1

	PHENOMENA	CAUSE
Not distribute to malfunction	White aerosol or globule is give out. Make sound of "hiss" every now and then.	Air supply motor stop automatically to defrost. At the begining and the end of the defrost process, sound is give out in motor valve occur. During the process or just after have stoped, sound like water flow occur, which will be amplified at the first 2~3 minutes, this is caused by process of refrigerant current or water discharge at dehumidifying operation. Slight "hiss" is caused by heat exchanger as temperature changes. The sound give out because of heat expands and cold contracts of heat exchanger. During the beginning or just after have stopped, sound like clock occur, which is caused by electric expanding valve operation.
	Stop operation or drive up automatically	Detect the timer whether be given wrong operation. Detect antifreezing mode is opened.
Please check that again	No operate	Whether the power is cut. Whether the manual power supply switch is off. Whether fuse is broken. Whether the protection device works.(Operation lamp is lightened.) Whether it is the time set.(Operation lamp is lightened.)
	Inefficient heating	Whether the inlet and outlet of bolier units is blocked.

In case of following malfunctions, please cut off the manual power switch and contact with local dealer or aftersale service centre:

- 1) ON/OFF operation is ineffective.
- 2) Fuse or RCCB is frequently broken.

