GREE
Change for life

Owner's Manual

Original Instructions

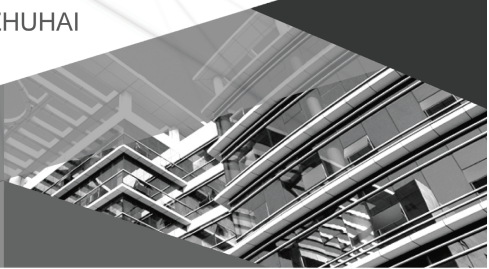
Air Source Heat Pump Water Heater

Models:
GRS-1.5/TD150ANbA-K
GRS-1.5/TD200ANbA-K

Thank you for choosing this product.Please read this Owner's Manual carefully before operation and retain it for future reference.

If you have lost the Owner's Manual,please contact the local agent or visit www.gree.com or send an email to global@gree.com.cn for the electronic version.

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI



To Users

Thank you for selecting Gree's product. Please read this instruction manual carefully before installing and using the product, so as to master and correctly use the product. In order to guide you to correctly install and use our product and achieve expected operating effect, we hereby instruct as below:

(1) 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 responsibility for their safety. Children should be supervised to ensure that they do not play with the appliance.

(2) In order to ensure reliability of product, the product may consume some power under stand-by status for maintaining normal communication of system and preheating refrigerant and lubricant. If the product is not to be used for long, cut off the power supply; please energize and preheat the unit in advance before reusing it.

(3) Please properly select the model according to actual the using environment, otherwise it may impact the using convenience.

(4) This product has gone through strict inspection and operational test before leaving the factory. In order to avoid damage due to improper disassembly and inspection, which may impact the normal operation of unit, please do not disassemble the unit by yourself. You can contact with the special maintenance center of our company if necessary.

(5) When the product is faulted and cannot be operated, please contact with our maintenance center as soon as possible by providing the following information.

1) Contents of nameplate of product (model, cooling/heating capacity, product No., ex-factory date).

2) Malfunction status (Specify the situations before and after the error occurs).

(6) All the illustrations and information in the instruction manual are only for reference. In order to make the product better, we will continuously conduct improvement and innovation. We have the right to make

necessary revision to the product from time to time due to the reason of sales or production, and reserve the right to revise the contents without further notice.

(7) The final right to interpret for this instruction manual belongs to Gree Electric Appliances Inc. of Zhuhai.

Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons:

(1) Damage the product due to improper use or misuse of the product;

(2) Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer;

(3) After verification, the defect of product is directly caused by corrosive gas;

(4) After verification, defects are due to improper operation during transportation of product;

(5) Operate, repair, maintain the unit without abiding by instruction manual or related regulations;

(6) After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers;

(7) The damage is caused by natural calamities, bad using environment or force majeure.

Contents

1 Safety Notices (Please be sure to abide)

WARNING: If not abide strictly, it may cause severe damage to the unit or the people.

NOTICE: If not abide strictly, it may cause slight or medium damage to the unit or the people.

This sign indicates that the operation must be prohibited. Improper operation may cause severe damage or death to people.

This sign indicates that the items must be observed. Improper operation may cause damage to people or property.

WARNING!

This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for the special places above, please adopt special product with anti-corrosive or anti-explosion function.

Air source water heater is a thermal storage water heater. The user shall open the cold water valve first, then adjusting cold and hot water flow to proper water temperature gradually to avoid scald injury. If not using the unit in winter in short time, please ensure that it is energized for the whole 24h, if not unit using the unit for a long period, discharge water in water tank and pipeline in case the system is frosted. If you think the discharge operation is inconvenient, please directly contact our local distributors or authorized service branch, we will appoint special staff to provide inspection, debug, cleaning and maintenance services.

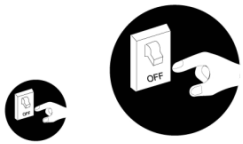
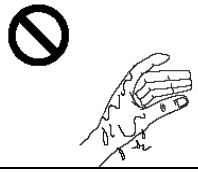
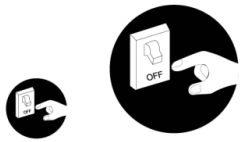
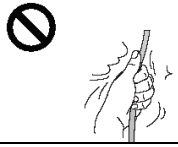
This manual is the usage and installation manual for unitary air source water heater. Usage method for displayer shall refer to the attached Displayer Manual.

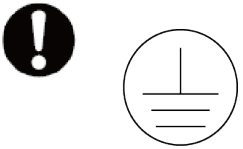
Water inlet of water tank must install safety valve as required;

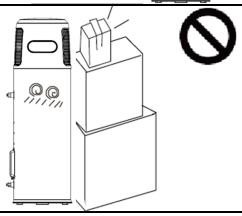
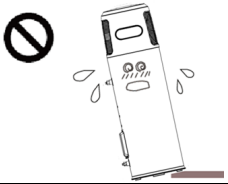
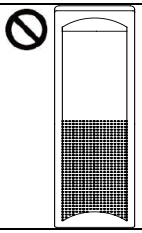
Try to use tap water, avoid not using well water or river water;

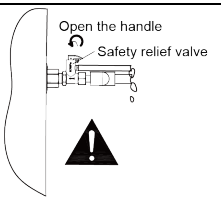
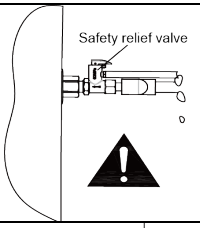
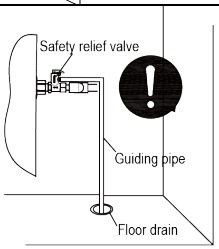
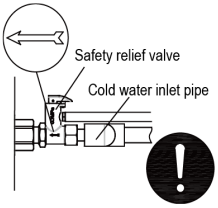
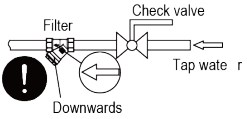
To guarantee water quality, clean the water tank periodically as required;

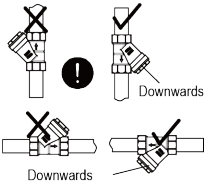
Water tank shall be installed in places without rainwater. If not, take rain-proof measures.

NO.	Safety Notices	Graphic symbol
1	★ Once abnormality like burning smell occurs, please cut off the power supply immediately and then contact with service center. If the abnormality still exists, the unit may be damaged and electric shock or fire may result.	
2	★ Don't operate water heater with wet hand. Otherwise, it may cause electric shock.	
3	★ Before installation, please see if the voltage of local place accords with that on nameplate of unit and capacity of power supply, power cord or socket is suitable for input power of this unit.	
4	★ Special circuit must be adopted for power supply to prevent fire. Do not use octopus multipurpose plug or mobile terminal board for wire connection.	
5	★ Be sure to pull out the power plug and drain the main unit and water tank when water heater is not in use for a long time. Otherwise, the accumulated dust may cause overheating, fire or freeze of water tank or coaxial heater exchanger in winter.	
6	★ Never damage the electric wire or use the one which is not specified. Otherwise, it may cause overheating or fire.	

NO.	Safety Notices	Graphic symbol
7	★ Before to clean, please cut off the power supply. Otherwise, an electric shock hazard may be caused.	
8	★ The power supply must adopt special circuit with leakage switch and enough capacity.	
9	★ 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.	
10	★ Earthing: the unit must be earthed reliably! The earthing wire should connect with special device of buildings. If not, please ask the qualified personnel to install. Furthermore, don't connect earth wire to gas pipe, water pipe, drainage pipe or any other improper places which professional does not recognize.	
11	★ Do not put any foreign matter into the unit, otherwise it would cause the unit being damaged or result in danger. Never put your hands at the air outlet of the unit.	
12	★ Do not repair the unit by yourself, in case of electric shocks or fire hazards. Please contact the GREE appointed service center.	

NO.	Safety Notices	Graphic symbol
13	★ Do not step or place objects on the unit, as they would be injured or damaged when falling off.	
14	★ Do not block the air inlet of the unit, otherwise it would reduce the efficiency of the unit, stop it, or even result in fire hazards.	
15	★ Keep the unit upright and do not tilt it during transport, handling and installation, otherwise it would be damaged.	
16	★ Keep the chemical spray, gas tank or others similar at least 1m away from the unit, otherwise it would lead to fire hazards or explosion.	
17	★ This series adopts electronic anode for corrosion prevention, energize it to allow water tank to assist anode weak current, thus protecting inner tank. Therefore, do not cut off the power of the unit, otherwise, electronic anode will not protect water tank.	
18	★ If thermal water tank has no water or water is not full, please do not energize the unit for startup, otherwise, it might damage the unit or result in fire hazard.	

NO.	Safety Notices	Graphic symbol
19	★ It is highly recommended to place the unit where good ventilation is available.	
20	★ Check the safety relief valve for blockage periodically (about one month) by removing the hand grip and operate it periodically (about one year).	
21	★ It is a normal phenomenon that the safety relief valve drips.	
22	★ The safety relief valve shall be got through to the floor drain through a flexible tube.	
23	★ The safety relief valve shall be installed properly with the direction arrow indicated the same direction as the cold water flow.	
24	★ It is recommended to install horizontally the filter downstream of the main cut-off valve of the user's water pipe. Please note that the direction arrow on the filter shall indicate the direction the same as the water flow. When it is required to remove impurity inside the water circuit, open the end cover of this filter.	

NO.	Safety Notices	Graphic symbol
25	★ When the filter is installed vertically, the direction arrow can not be upward and the end cover shall be placed slantwise downwards.	
26	★ This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it possibly to promote the sustainable reuse of material resources. To return you used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.	
27	★ This unit contains fluorinated gas with greenhouse effect covered by the Kyoto Protocol. Maintenance and disposal must be carried out by qualified persons only. Refrigerant gas R134a, GWP=1430.	
28	★ The fuse model and rated value are in accordance with the corresponding controller or the silk screen attached on the protective tube.	

2 Technical Description

2.1 General Description

(1) High Efficiency

Under the self-adjustable control of the electronic expansion valve, the air source heat pump water heater heats water with heat energy in the air. Its rated working condition efficiency ratio is 3.5 W/W.

(2) Safe and Environment Friendly

Separation of water and electricity gets rids of the potential risks of electric shocks and there is no worry for carbon monoxide poisoning. Safety is guaranteed for the user. During operation, it releases no pollutant and does no harm to the environment.

(3) Durable

Adopt special compressor for water heater, high temperature and high pressure resistible; thermal insulation water tank adopts enamel inner tank with advanced technology, at the same time electronic anode is also equipped. Through the self-adjustable control of the weak current in inner tank, it provides stable and overall protection for the inner tank, which is corrosion resistant efficiently with service life up to 10 years. No replacement is needed, which is zero consumption; multiple protection for the whole unit to ensure durable use of the system.

(4) Easy installation

Without restrictions of the installation location, it is available to be located in the kitchen, garage, storage room, basement etc., requiring no attendance and widely applicable to residential houses and villas. No circulated waterway system, installation and maintenance convenient.

(5) Simple operation

The water temperature set point can be freely adjusted by the user and the user is allowed to time the water heater for when to start or stop it, which will help the user avoid the peak hours of electricity consumption and reduce the electricity cost.

(6) Intelligent defrosting

Antifreeze protection and automatic defrosting both are available for the heat exchanger vulnerable to frosting and incomplete defrosting.

(7) All-weather operation

It is able to operate all year around whatever the weather is like.

(8) Corrosion prevention design of electronic anode

Model of this unit adopts advanced electronic anode corrosion prevention design. Unlike traditional principle of sacrificing anode (active metal magnesium) for corrosion prevention, it adopts insoluble Ti as auxiliary anode, and connects auxiliary anode and inner tank to the weak direct current. After power is on, the electron will flow to inner tank forcibly and form an electron oxidation on the surface, thus avoiding metal oxidation in inner tank and protecting the effect.

Corrosion prevention of electron anode has the advantages of long service life, no pollution and good self-adaptation.

2.2 Main parts

This air source water heater product and water system pipeline constitute the whole structure, providing domestic hot water for the use.

Product outline diagram is as follows. Due to reasons like product upgrade, practical product might be inconsistent with the diagram without further notice, please subject to the actual objects.

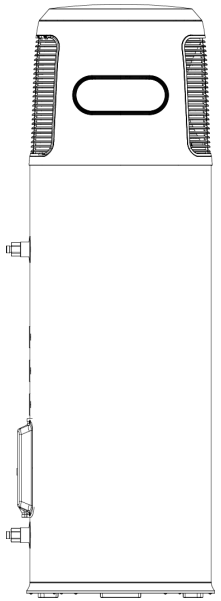


Figure 2-1 Product outline diagram

2.3 Operating Principle

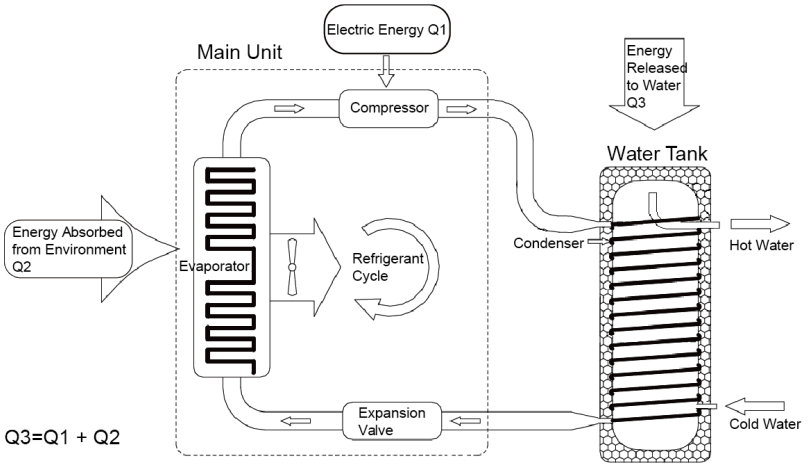


Figure 2-2 Air source water heater operating principle

The air source water heater is driving the compressor by some part of electricity by using the heat pump principle. Through the thermal circuit, absorb the heat from the low-grade energy (air) in the surrounding environment, transmit it to the heat exchanger of water tank and then release it to the water inside the water tank for heating water.

The heating principle for air source water heater and heat pump air conditioner is the same. Heat pump air conditioner supplies the absorbed heat from natural environment to indoor air, while air source will use that heat to heat domestic water. Air source water heater is a kind of new, high-efficiency, energy-saving and eco-friendly water heater.

2.4 Technical Specifications

Model			GRS-1.5/TD150ANbA-K	GRS-1.5/TD200ANbA-K
Rated Heating Capacity(*)		W	1500	1500
Rated Input Power(*)		W	429	429
COP(*)		W/W	3.50	3.50
Capacity		L	150	190
Load Profile		-	L	L
COP_{DHW}(**)		W/W	2.47	2.24
Energy Efficiency Class(**)		-	A	A
Water Heating Energy Efficiency(**)		-	104%	95%
Annual electricity consumption (average climate conditions)		kWh	985	1075
Maximum Input Power		W	650+1500W (Electric Heater)	
Outlet Water Temperature		-	Default: 55°C, 35°C~70°C	
Power Supply		-	220V-240V ~ 50Hz	
Insulation Level		-	Ⅰ	Ⅰ
Protection of Ingression		-	ⅠPX4	ⅠPX4
Refrigerant	Name		R134a	R134a
	Charge	kg	0.8	0.8
Outline Dimensions	W×D×H	mm	621×561×1760	621×561×2030
Package Dimensions	W×D×H	mm	731×717×1845	731×717×2110
Gross/Net Weight		kg	112.0/92.0	122.5/102.5
Sound Power Level(***)		dB(A)	62	62
Operating Range		°C	0~45	0~45

NOTES:

① (*) Value obtained with the following conditions: Outdoor temperature: 20°CDB/15°C WB; Water tank temperature (start/end): 15°C /55°C.

② (**) Value obtained with an air temperature of 7°C and a water inlet at 10°C, as per EN16147, (EU) No 814/2013.

③ (***) Value obtained as per EN 12102-2008.

④ Under Rapid function, electric heater helps to heating water.

⑤ Please always see the nameplate for the exact data as this table is subject to change.

3 Installation Notice

3.1 Important Prompt

(1) It shall be installed by the skilled personnel in accordance with the national wiring rules and instructions covered in this manual.

(2) Please contact the GREE appointed service center prior to installation, otherwise, faults due to installation by the non-appointed service center would be handled difficultly. For any air source heat pump water heaters which are not installed by our franchised entrusted party, if malfunctions occur or resulting in other problems, Gree shall not be liable.

(3) To install and remove air source heat pump water heater, please contact local Gree authorized maintenance center. If the user use self-prepared materials to install our air source heat pump water heater, all losses resulted in pipeline leakage, falling off and improper installation, which might affect normal operation and usage of air source heat pump water heater, Gree shall not be liable.

(4) The heat pump can operate when the ambient temperature is above 0°C，the water heater can only be put indoors and must be installed at the places where the ambient temperature is above 0°C. If the ambient air temperature falls lower than 0°C, the condensate water drainage may be freezing.

(5) The nozzle with the rated flow of 6~7L/min is preferred.

(6) If water supply is of high salinity or inferior quality, proper filtering or depuration is necessary.

(7) The water quality for the air source water heater should comply with the local sanitation standard for the domestic drinking water.

3.2 Basic Requirement on Installaion Location

The unit will go into faults when installed in the locations listed below. If inevitable, please contact the GREE appointed service center for further service.

(1) Where there are intense heat sources, steam, inflammable or explosive gas or volatile substances.
(2) Where there are high-frequency devices, like welding machines, medical equipments, etc.
(3) Where the environmental PH is high, voltage fluctuation is high, located in vehicle or ship.
(4) Where there is oil (mechanical oil) in air.
(5) Where there is sulphide gas.
(6) Other special environments.

4 Water Heater Installation

4.1 Selection for Water Heater Installation Location

(1) Suggest installing the unit indoors. But do not make the wind blowing to the living room.
(2) The noise and air flow generated at the air outlet will not influence your neighbors, animals and plants.
(3) Good ventilation is available.
(4) It is able to withstand the weight and vibration of the unit and it is available for safe installation.
(5) It is dry but not subject to direct sunlight or strong wind.
(6) Don't install it in places with electromagnetic interference.
(7) It agrees with the installation dimensions of the unit and is accessible for inspection and maintenance.
(8) It is out of touch of the children.
(9) It will not affect the public passages and the city layout.

NOTES：

①As unit operation will generate cold air, certain noise will occur, do not install it in places with frequent activity by the user. Any harmful effect due to improper installation location, Gree shall not be liable.

②Due to installation location limit, if this model cannot meet installation demand, please choose other water heaters of Gree models.

4.2 Installation Space Requirement and Installation Diagram

4.2.1 Main Size

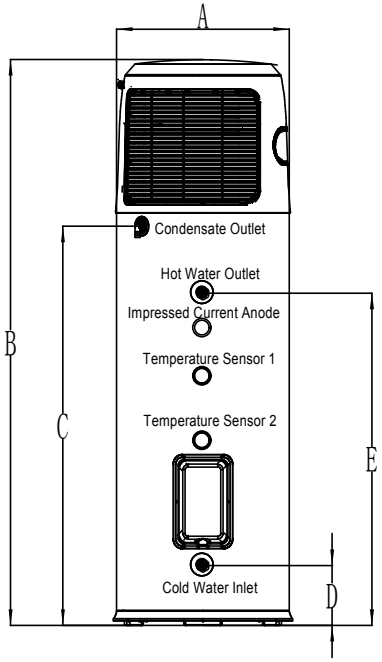


Figure 4-1 Unit struture size chart

Parameter \ Model	GRS-1.5/TD150ANbA-K	GRS-1.5/TD200ANbA-K
A(mm)	Φ540	Φ540
B(mm)	1760	2030
C(mm)	1206	1476
D(mm)	186	186
E(mm)	1032	1302

4.2.2 Installation requirement

(1) The unit shall be installed upright on the strong enough balcony or floor. Do not point the air outlet of water heater at the upwind direction.

(2) The unit shall be installed in places with the temperature of above 0°C. Hot water outlet shall not be too far from hot water use site. Arrange the

pipeline together, and conduct thermal insulation treatment to hot water pipeline to decrease heat capacity loss. If the unit is installed in places with the temperature of below 0°C, conduct thermal insulation treatment to water inlet/outlet to prevent water pipe and safety valve getting frozen under low temperature, thus resulting in malfunction of water tank.

(3) The distance between water heater and surrounding wall or other shelter objects can't be too close. The installation space should satisfy the installation space requirement.

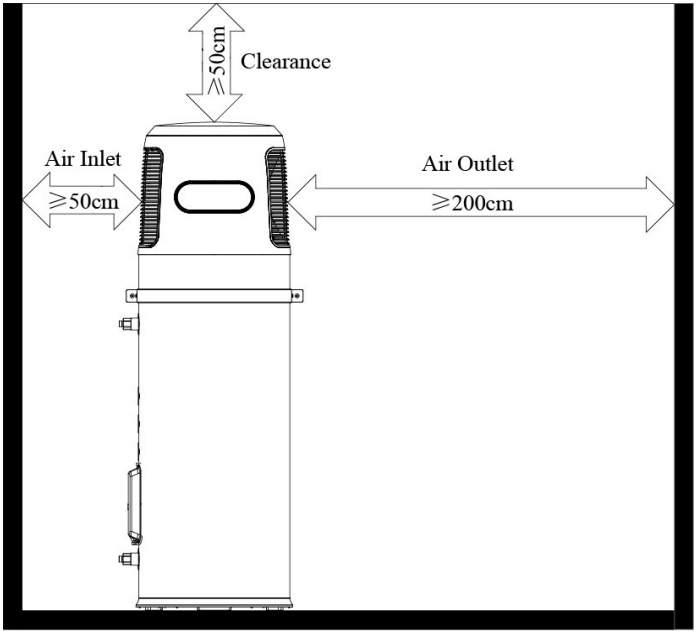


Figure 4-2 Installation space requirement

(4) When a weather shed is set up to protect the unit, be sure heat release and heat absorption by the heat exchange will not be affected.

(5) The unit shall be located upright with its feet down to earth. The installation location shall be strong. Water tank installation shall consider bearing capacity of installation location.

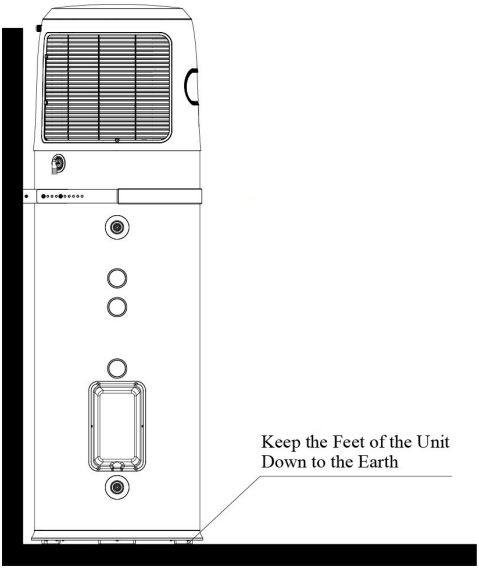


Figure 4-3 Unit installation diagram

NOTICE!

The unit also shall be fixed to wall with clamping bands in case of tilt in some unusual occasions.

(6) There should be cold and hot water sources and floor drain near the unit so that it will be easy to add water for the water tank and drain it.

(7) Be sure the condensate pipe and the condensate outlet are reliably and tightly connected and then led to the floor drain.

1) The water may drip from the discharge pipe of the pressure-relief device and this pipe must be left open to the atmosphere;

2) The pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked;

3) How the water heater can be drained;

4) The type or characteristics of the pressure-relief device and how to connect it, unless it is incorporated in the appliance;

5) A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment.

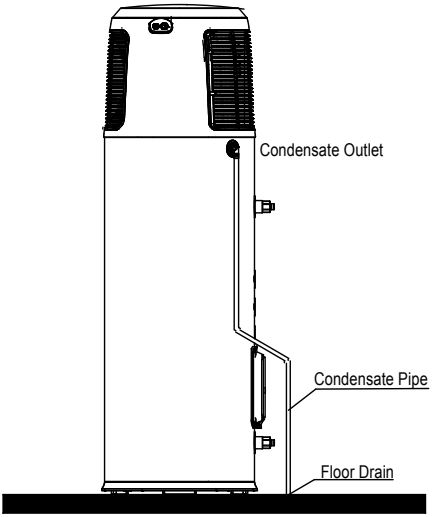


Figure 4-4 Connection diagram of condensate outlet

(8) When installed in small room, corresponding measures must be taken to prevent refrigerant concentration in the room exceeding limit value due to refrigerant leakage, resulting in anoxia or suffocation.

4.3 Water Pipe Connection

(1) Pipe preparation

The hot water outlet shall select hot water pipe, PPR pipe is recommended, with fast heat dissipation, e.g. aluminum plastic tube is not suggested.

(2) Water inlet and outlet pipe installation

Water inlet pipe shall install safety valve, filter and cut off valve; installation sequence shall accord with unit installation diagram. Water outlet pipe shall have at least one cut off valve.

To drain or clean the water tank, add a 3-way and a cut off valve in water outlet of water tank; If the water tank is far away from user water use site (hot water pipe is ＞20m), or water use site of all hot water is lower than water inlet of the water tank, installation is needed.

(3) Drainage pipe installation

As Figure 4-6 is shown, add a 3-way valve in cold water inlet pipe, then connect the 3-way connector and floor drain with pipeline, meanwhile the connection side of

drainage pipeline and floor drain shall be lower than water tank bottom, otherwise, water cannot be discharged completely. A cut off valve must be installed in drainage pipeline, and the cut off valve must be installed in places where the user is accessible.

(4) Safety valve installation

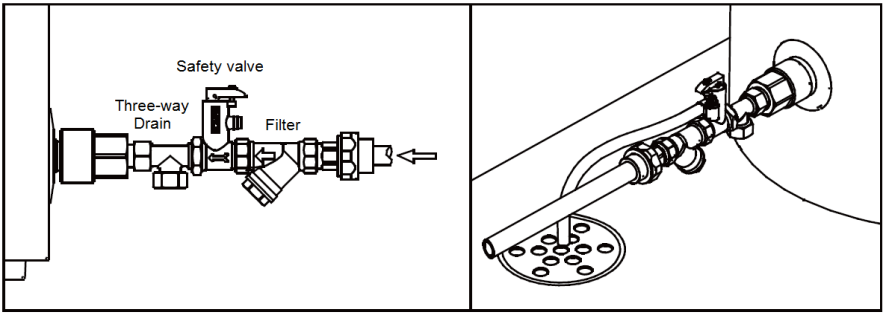
The safety valve ("→" indicates the direction to the water tank) supplied with the unit shall be connected to the inlet of the water tank via a stub of PPR as Figure 4-5 is shown. The other end of the safety valve is connected with running water pipe. To ensure usage safety, sequence in Figure 4-5 shall be strictly obeyed.

Cut off valve or check valve (one-way valve) shall not be installed between safety valve and the water tank, otherwise, safety valve shall not work normally, water tank error might occur.

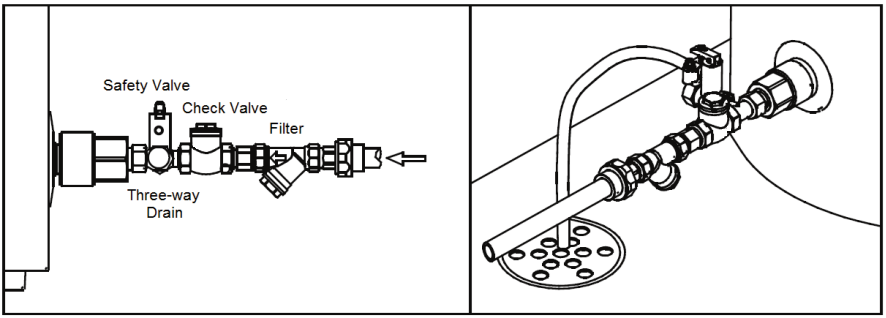
During heating operation process, safety valve dripping water is a normal phenomenon of pressure relief. Under standby status, if the safety valve keeps dripping water, please check if water pressure is too high (not over 0.7MPa). If water pressure is higher than 0.7MPa, install stabilizing valve correctly according to "(6) Stabilizing valve installation"; if water pressure is below 0.7MPa, please check and replace safety valve.

Safety valve must install diversion tube and be reliably fixed to prevent falling off; lead the drainage hose to floor drain downward naturally and properly without bending or any twine. After that, the surplus hose must be cut to avoid water in drainage hose getting frozen due to blocking of drainage or low temperature.

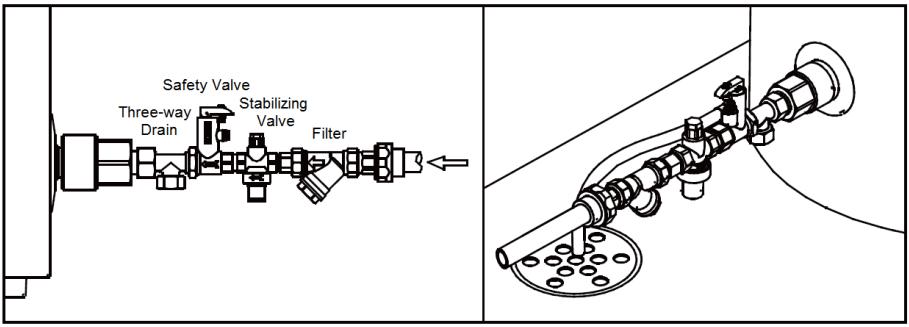
To avoid any inconveniences or property losses due to water leakage or safety valve discharging water which is resulted from improper connection of water pipe, water tank and safety valve shall not be installed inside the room or balcony which is without discharge floor drain.



(a) Installation method 1



(b) Installation method 2



(c) Installation method 3

Figure 4-5 Safety valve installation diagram of water inlet pipe in water tank

Material code	Name	Specification	pressure	Quantity
07382801	Safety valve	G1/2	0.7MPa	1

(5) Antifreezing tracing belt installation

If the water tank shall inevitably be installed in places with temperature below 0°C, to avoid the pipeline getting frozen due to bad insulation of water system pipeline, antifreezing tracing belt for pipeline shall be installed in water inlet pipe of water tank, our pipeline antifreezing tracing belt and its accessories is recommended, detailed list is as follows:

Material code	Name	Quantity
76612816	Selflimiting temperature tracing belt	1
01802894	frame	1
8600800101	aluminum-foil paper	1
64132820	Pipeline antifreezing tracing belt installation statement sheet	1

(6) Stabilizing valve installation

Before connecting water pipe, measure water supply pressure of running water first, if water pressure is over 0.7MPa, add stabilizing valve in waterway, otherwise, pressure relief on safety valve might occur when the unit is not heated. Stabilizing valve ("→" direction shall accord with the water tank direction) shall be installed between safety valve and filter.

NOTICE!

① To ensure water safety, the PPR pipe length at the water inlet and outlet is determined as per the formula: $L \geqslant 70 \times R^2$, wherein L indicate the pipe length, and R indicates the inner diameter of the pipe (unit: cm). The pipe should be insulated properly. No metal pipe is allowed.

② To ensure safety and reliability, special accessory equipped with this unit must be adopted (PPR water pipe joint, safety valve and filter etc.). Don't use the accessory of any third party and replace the accessory by yourself, any losses thereof for normal operation and usage of heat pump water heater result from personal injury and improper installation, Gree shall not be liable.

4.4 Unit Installation Diagram

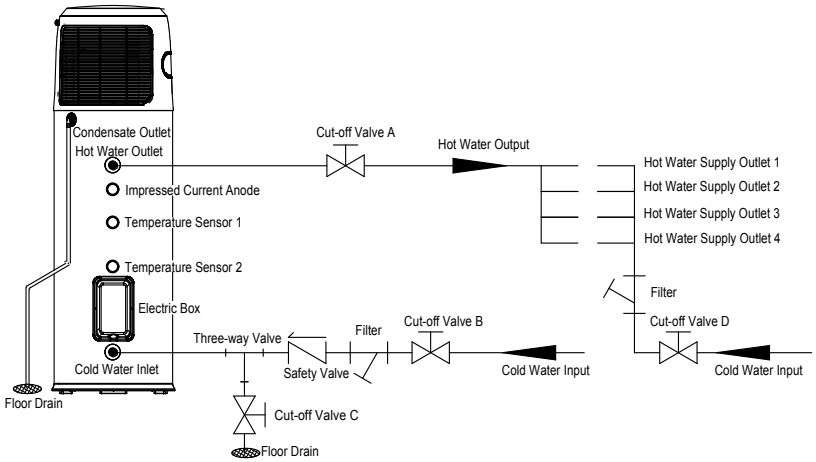


Fig 4-6 Unit installation diagram

Table 4-1 Connector size specification

Name	Joint pipe thread
Hot water outlet of water tank	G1/2
Cold water inlet of water tank	G1/2

NOTICE!

①Dimensions and material for the water inlet and outlet shall be in accordance with the above table. The hot water pipe shall be S2.5 (wall thickness: 2.7mm) DN15 (outer diameter) PPR pipe. All used PPR pipes shall comply with GB/T18742. When other similar pipes are taken as alternatives, refer to the outer diameter and wall thickness stated above. When the check valve is used outdoor, it should be made of PPR to prevent from being damaged by frostbite under the low temperature environment.

②Water pipes are allowed to be routed only after the unit has been installed properly. Note that do not let dust or other foreign matters enter the pipe system.

③When all pipes have been in place, take a leak test and then insulate all pipes. Special attention shall be drawn to the valves and joints. The insulation material shall be at least 15mm thick.

④ The water tank is only able to offer hot water by virtue of the tap water pressure.

⑤ The cut-off valve in cold water inlet shall be kept open during operation.

⑥ Water supply for insulation pressure-bearing water tank relies on pressure of tap water or other water sources. Water input pressure for the water tank must between 0.1MPa~0.7MPa. The water tank offers hot water if water input pressure is not below 0.1MPa. If water input pressure of tap water is higher than 0.7MPa, pressure reduction device (stabilizing valve) shall be added in water inlet pipeline of the water tank to allow water input pressure of water tank within the required ranges.

Our products are subject to change with technical improvement and please always see the corresponding product's manual for latest installation and operation instructions and see the wiring diagram covered in the manual or attached to the unit for how to perform electric wiring.

5 Electrical Wiring

5.1 Electrical Wire Layout

(1) This unit is the Class Ⅰ equipment and shall be grounded reliably to the special ground device by the skilled personnel.

(2) Ensure that a switch for all-pole disconnection is available for the fixed lines and is directly connected to wiring terminals of the power supply. Ensure that contactor opening distance on all poles meets the disconnection requirements under overvoltage category III conditions.

(3) The enough sized leakage circuit breaker and air switch shall be used in the fixed circuit.

(4) Please take reliable grounding measures. Grounding shall be set in special grounding devices of architecture.

(5) The power supply shall comply with the nameplate and only special power circuit for air-to-water heat pump water heater is allowed.

(6) The power lines shall be sized properly. See the table below for reference.

(7) Wiring shall be performed in accordance with the national rules.

(8) Do not pull the power lines by force.

(9) If the power cord is damaged, to avoid danger, it shall be replaced by professional staff of manufacturer, its maintenance or similar department.

Model	Power Supply	Min. Sectional Area (mm^2)			Air Switch (A)
		Live Wire	Neutral Wire	Ground Wire	
GRS-1.5/TD150ANbA-K	220-240V ~50Hz	1.5	1.5	1.5	16
GRS-1.5/TD200ANbA-K					

(10) To be in compliance with EN 61000-3-11, impedance value of power-supply system connected to product must be less than or equal to the allowable maximum value of ｜Zsys｜in the following sheet:

models	max｜Zsys｜ unit: ohms
GRS-1.5/TD150ANbA-K	0.281
GRS-1.5/TD200ANbA-K	0.281

Before connecting the product to public power network, please consult your local power supply authority to ensure that power network has met the above requirements. No requirement for the unlisted product's impedance value of power-supply system.

NOTICE!

① Only copper power cable is allowed and the working temperature shall not exceed the specified set point.

② When the power cable is longer than 15m, its sectional area shall be enlarged in case of accidents caused by overload.

③ The specifications of the power cable listed above is for the BV single-wire (2~4 pieces) cable used at 40°C. The specification of the air switch listed above is for the type D air switch used at 40°C.

④ When the actual working condition changes, please reselect the proper power cable and air switch in accordance with their user's manuals.

5.2 Electrical Wiring and Connection

(1) Refer to the principle diagram of the unit.

(2) If the unit is equipped with earth wire, please connect one end of earth wire to earthing screw of water tank, and the other end to the earthing screw of the wiring box for the right side plate of main unit.

(3) Please select the proper power cord according to the power configuration table and then connect it to the main power.

(4) Fix the heavy-current wire with wire-fixing clamp and reinstall the wiring box cover.

(5) 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.

NOTICE!

This drawing is just for reference. Please see the wiring diagram attached to the unit for exact details. A power cable rated for 220-240V power supply and equipped with a leakage circuit breaker is supplied with the unit. It is not allowed to be installed in the bathroom, kitchen, balcony and other damp places.

6 Debugging for the complete unit

After installing waterway system and electrical wiring, conduct inspection to the unit according to the following table.

Table 6-1 Unit installation checklist

Check items	Situations might occur due to improper installation
Is installation firm?	The unit might fall off, vibrate or give out noise.
Any obstacles in air outlet and inlet of water heater?	Abnormal operation.
Is insulated pipeline of certain length ensured in water tank piping?	Safety danger might occur.
Is thermal insulation measure in all waterway pipes done?	Affect unit performance, pipeline might be frozen.
Is power voltage consistent with product nameplate?	Malfunction might occur, or component is burned.

Check items	Situations might occur due to improper installation
Does electric wire model meet specification?	Malfunction might occur, or component is burned.
Is safety valve installed in water inlet pipeline?	Water tank operation pressure is high with safety hazard; water will flow back when pouring.
If water input pressure of tap water is too high?	Water tank operation pressure is high, safety valve keep leaving water and occur abnormal noise.
When water input pressure is high, is stabilizing valve installed in water inlet pipeline?	Water tank operation pressure is high, safety valve keep leaving water and occur abnormal noise.
Is the water tank ground wire with auxiliary electrical heating reliable?	Safety danger might occur.

Conduct debug after all the above items are qualified, the debug step is as follows:

(1) Water tank water input

Conduct water input operation for the water tank according to 10.1 or the installation tips label on water tank, and check if there is water leakage in pipeline and joint. For initial installation, the installation debug personnel shall conduct this operation, if the user reuse it after discharging water, water input operation is also required for operation.

(2) Unit energization

When the unit is energized, you will hear a sound from the buzzer of displayer. Observe if the displayer is normal without any error code. The displayer has memory function when power off. For the first energization, the displayer might display power off or standby. Please note that water must be supplemented fully in water tank before energizing the unit. Do not energize it in advance.

(3) Engineer parameter setting on displayer

System clock time setting, etc.

(4) Unit operation

After water is full in water tank, check waterway system to ensure faucet or sprinkler of user end is off, startup the unit for operation after turning on cut-off valve of water inlet/outlet pipe of water tank, when the displayer displays heating icon, check if the unit is operating normally. Standard criteria: the fan is operating normally and the unit is operating stably, no obvious sway, no abnormal sound. Deliver the unit to the user after normally operating for at least 20min.

7 Method to Supplement or Discharge Refrigerant

7.1 Supplement Refrigerant

Refrigerant supplementary method for unitary air source water heater is to supplement directly under hot water mode.

Firstly, connect the hose in refrigerant pressure gauge to the refrigerant bottle, and connect one side of blue hose in low pressure gauge to fluorine filling nozzle of air valve (not tight up), then open the valve of refrigerant bottle, reopen the valve near the low pressure gauge, relief air for 5s then shut down, immediately tight up the hose connector of fluorine filling nozzle. When pointer of low pressure gauge declines slowly, unscrew the valve near low pressure gauge for replenishment (refrigerant supplementary diagram is as Figure 7-1 shows).

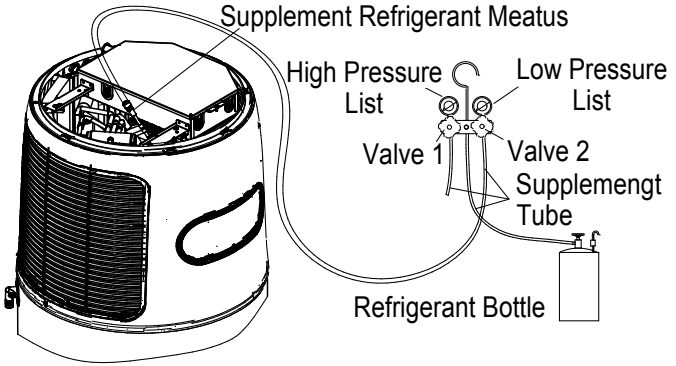


Figure 7-1 Supplement refrigerant diagram

7.2 Discharge Refrigerant

Unscrew the upper valve cover of fluorine filling nozzle, remove the valve core of fluorine filling nozzle to discharge refrigerant and have vacuum supply operation.

NOTICE!

This operation can only be conducted by professional staff, never do it on your own to avoid any damages. While charging refrigerant, please take the nominated refrigerant volume on the nameplate as reference.

8 Unit Performance

8.1 Water Heating Capacity

During heating, the unit absorbs heating capacity in the air from outdoor, then release it to the water to heat up water on the water tank. Once outdoor temperature decreases, heating capacity might have certain decay.

If pressing the “Rapid” button on displayer, it will startup the auxiliary electrical heater of 1,500W to heat with heat pump, at this time, water production capacity will increase 32L/h.

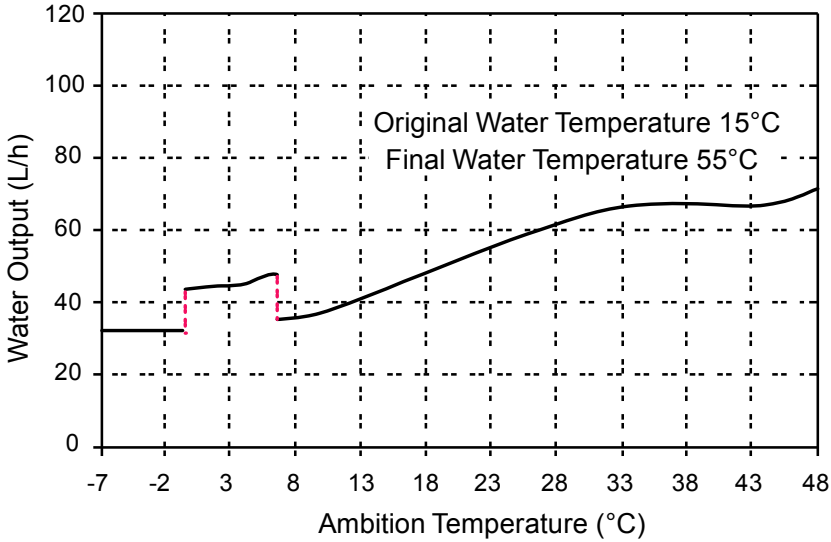


Figure 8-1 Water Heater capacity correction diagram

8.2 Operation Performance

(1) Defrost

1) When frosting occurs, the unit will automatically perform defrosting to improve the heating efficiency.

2) During defrosting, the motor of the supply fan will stop.

3) Under high temperature(>10°C), if defrosting occur and the unit is abnormal, please submit for reparation.

(2) Startup again after long-term shut down

When the unit which has not been used for a long period is started (including the first startup), dirty water will flow out from tap faucet, it is a normal phenomenon and will disappear a while later.

(3) Power failure

1) When power failure occurs during operation, the unit will stop.

2) The displayer has memory function.

3) Please switch off the power switch when the unit malfunctions occur because of the thunder and automobile radio. Then turn on the unit again.

(4) Memory function

Before the unit is power off, the displayer will automatically memorize ON/OFF status of the unit; when it is re-energized, wired controller will send ON/OFF signal to the unit according to the status memorized before power off, to ensure it keeps the original status set by the user.

9 Operation Notices in Winter

(1) Before starting the unit which has not been used for a long period or in quite low temperature in winter, energize it at least 8h ahead.

(2) Do not disconnect the power supply when the outdoor temperature is quite low in winter, otherwise the automatic antifreeze protection will fail to work. Under low ambient temperature, anti-freezing operation function of the unit will conduct heating for anti-freezing before water temperature of the water tank come near to freezing point, and it stops if water temperature of the water tank rises to safe temperature. But the auto anti-freezing operation function of the water tank is invalid for water inlet/outlet pipe of the water tank. If ambient temperature of unit

installation location is below 0°C, pipeline anti-freezing tracing belt must be installed and ensure the aforementioned belt is energized. If the water tank is installed outdoor inevitably, shorten outdoor piping length as much as possible, including refrigerant connection pipe and water inlet pipe of the water tank, otherwise, heat dissipation loss of the unit is big, power consumptive and water system is easy to be frozen. Special attention shall be paid to thermal insulation blind spot on local valve connection location and water pipe curve, strengthen the thermal insulation, otherwise, local pipe will be frozen.

(3) When the unit is not to be used for a long period, drain the water tank and pipe according to discharge operation, otherwise, water system will be damaged. After draining water and to reuse the unit again, pours water to the water tank fully before starting up. Please refer to water input and drainage operation of the water tank.

Warm hint:

If it's not convenient for operation or there's hazard, please contact the local appointed dealer or appointed service center directly. We will appoint profession persons to check, debug and clean the unit, and discharge water and fill the water tank with water for you.

10 Maintenance

10.1 Water Input and Drainage of Water Tank

(1) Operation process for water input on the water tank

1) Cut off the power supply and open the cut-off valve at the water inlet of the tap faucet;

2) Open the cut-off valve at the hot water outlet and valve in user water use site;

3) Close the valve in user water use site when water is flowing out from user water use site;

4) Complete water input operation and reenergize the unit.

(2) Operation process for drainage on the water tank

1) Cut off the power supply and close the cut-off valve at the water outlet of the tap faucet;

2) Open the cut-off valve at the hot water outlet and valve in user water use site;
3) Open the cut-off valve on the joint (3-way) pipe;
4) Close the drainage cut-off valve after draining water on the water tank to complete drainage operation.

10.2 Periodic Cleaning for Water Tank

Please clean the water tank periodically to get good-quality water according to the following steps:

(1) Cut off the power supply.
(2) Close the cut-off valve at the water inlet of the water tank.
(3) Open the cut-off valve at the hot outlet and valve in user water use site.
(4) Open the cut-off valve in joint (3-way) connector, and wait for drainage of water inside water tank.
(5) Close the cut-off valve in joint (3-way) connector, open the cut-off valve at the water inlet of the water tank, close the cut-off valve at the water inlet when water flows from user water use site, then reopen the cut-off valve in joint (3-way) connector, repeat the drainage operation, close the cut-off valve in joint (3-way) connector when water discharged is clean.
(6) Conduct water input for the water tank according to water input operation.
(7) Water tank cleaning completed and energize it.

10.3 Maintenance of Safety Valve

During heating, if pressure of inner tank of the water tank is too high, it will discharge little water to release pressure through safety valve, which is a normal phenomenon. However, if water of big outflow occur in safety valve obviously, even result in vibration of pipeline and give out abnormal noise, please contact with our authorized maintenance center for inspection. There are mainly two reasons for this phenomenon:

(1) Safety valve is damaged;
(2) Water input pressure of the tap water is higher than the max.

Working pressure (0.7MPa) of water tank will generally occur if no effective pressure relief treatment for the tap water. Under normal situation, pressure of tap water is around 0.3MPa, if supplement tap water with booster pump, water input

pressure might exceed 0.7MPa. To control water pressure not exceeding 0.7MPa, stabilizing valve shall be added in water input pipe of tap water to decrease water input pressure.

Open the handle of safety valve periodically (one month or so) to see if there's any blockage, if so, please contact the authorized maintenance center for replacement. Clean it according to the specification periodically (one year or so).

If need replacing safety valve, Gree safety valve with material code of 0738280101 shall be adopted, its pressure relief value is 0.7MPa±0.05MPa.

10.4 Maintenance of the Unit

(1) Check the water inlet and outlet for blockage periodically. If so, eliminate it.

(2) Check the water circuits, pipe connectors and valves for blockage, damage or leakage, and if the filter has been blocked by impurities.

10.5 Periodic Check for Electricity Leakage Protection Switch

(1) For the unit whose power cord is self-equipped with electricity leakage, be sure the electricity leakage protection switch before starting up is kept "open".

(2) After the electricity leakage protection switch is operating for a period (normally one month), press "TEST" button under closed and energized status to check if the protection switch performance is reliable (electricity leakage protection switch shall cut off when pressing the TEST button every time). If malfunction occur in the electricity leakage protection switch, please replace or repair timely.

10.6 Safety Notices While Moving the Unit

(1) Before starting the compressor, make sure water pipe is connected safely and water input of the water tank is completed, otherwise, malfunction might occur.

(2) Unit wiring connection shall use the specified electric wire with correct connection; wiring terminal shall not be directly affected by external force and be reliably fixed. Improper connection or fixing might generate fire hazard.

No connection in intermediate electric wire. If the length of electric wire is not enough, please contact the authorized service branch to equip a specialized electric wire with enough length.

11 Precautions for Safety Usage

(1) For comfort usage, it's suggested to use shower head with flow rate of 6~7L/min.

(2) User should have regular check and maintenance for heat pump water heater, if there is abnormal condition, please immediately contact Gree after-sales service for help so as to guarantee normal, safe and reliable unit operation.

(3) Cut off the power supply prior to any maintenance or services. A unprofessional personnel is not allowed to adjust or service the heat pump water heater.

(4) Improper operation might cause scald due to hot water. Water heating without enough water might produce high-temperature steam or hot water, which might cause serious scald. Hence, guarantee the water tank is filled with water.

(5) The water heater is equipped with safe relief valve for reliable operation, please don't change its location and never block its outlet. The pipe should be directly connected to floor drain.

(6) Never drink the water inside the water tank.

(7) Children bath should be supervised by adults.

(8) In order to prevent the hazard due to the invalidation if electric heating of water tank, the electric heating circuit is equipped with thermostat. If the water temperature is higher than 95°C, the thermostat will be activated to cut off the electric heating power. However, if the electric heating is abnormal, it needs to contact Gree service man to maintain or replace it.

(9) The water inlet pressure for the water tank is 0.1MPa~0.7MPa. Before installation, please confirm the water pressure range. And the hose-sets should not be reused.

12 Malfunction Analysis

WARNING!

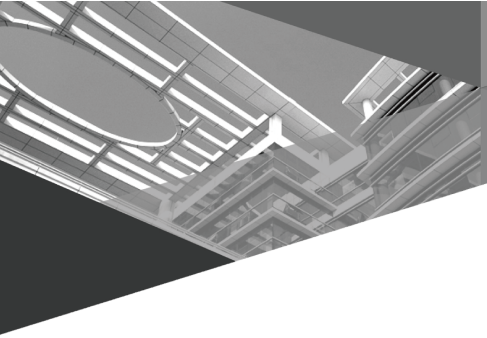
Do not repair the unit by yourself, otherwise it would lead to electric shocks or fire hazards. Instead, please contact the GREE appointed service center and it is better to check the items listed in the table below at first.

Table 12-1

Malfunction phenomena	Troubleshooting
The unit won't operate immediately once immediate re-startup of the unit after stop.	In order to protect the unit, the control of the unit will delay the turn-on command for five minutes.
There is water flowing sound during operation of the unit.	During operation of unit, there will be swoosh or fizzle, which is flowing sound of refrigerant and is normal.
There is condensate drained from main unit.	It is normal. Do not worry about it. Please refer to Figure 4-4, connect to suitable discharge location with discharge pipe.
There is water drained from safety valve.	During heating, if pressure of inner tank of the water tank is too high, it will discharge little water to release pressure through safety valve, which is a normal phenomenon. However, if water of big outflow occur in safety valve obviously, even result in vibration of pipeline and give out abnormal noise, please contact with our authorized maintenance center for inspection.
The controller tells that the unit is under antifreeze protection.	The unit will automatically activate the antifreeze function in winter, which is normal.
The nozzle provides water flow for quite a short period.	It is because the nozzle is oversized. Please replace it. The nozzle with the flow rate of 6~7L/min is preferred.
Wired controller displays L6 and water temperature alternately.	Ambient temperature is too bad, which exceeds operation range of main unit.

Table 12-2

When the following situations occur, please contact with Gree authorized maintenance center	
Error phenomenon	Error analysis
The unit is shut down and E1 is displayed on the controller	System high pressure protection
The unit is shut down and E4 is displayed on the controller	Discharge protection
The unit is shut down and E6 is displayed on the controller	Communication error
The unit is shut down and F3 is displayed on the controller	Outdoor temperature sensor error
The unit is shut down and F4 is displayed on the controller	Discharge temperature sensor error
The unit is shut down and F6 is displayed on the controller	Outdoor heat exchanger tube sensor error
The unit is shut down and Fd is displayed on the controller	Suction temperature sensor error
The unit is shut down and FE is displayed on the controller	Upper temperature sensor error on water tank
The unit is shut down and FL is displayed on the controller	Lower temperature sensor error on water tank
The unit is shut down and L6 is displayed on the controller	Unit capacity is insufficient
The unit is shut down and anti-freeze icon is displayed on the controller *The controller displays anti-freeze icon and the unit keeps operating, which is normal anti-freeze operation, not error	4-way reversing valve is abnormal
Harsh voice Disagreeable smell Air switch or circuit breaker tripping frequently	There is probably the potential security hazard and it is high recommended to stop and unplug the unit
After-sales service	
If there is any quality or other problem, please also contact the GREE appointed service center	



GREE

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Add: West Jinji Rd, Qianshan, Zhuhai,Guangdong, China, 519070
Tel: (+86-756) 8522218
Fax: (+86-756) 8669426
E-mail: gree@gree.com.cn www.gree.com

600005000763