



POWERBAY

INSTALLATION AND OWNER'S MANUAL

POWERBAY Gen III
Heat Pump Hot Water System

PBG3-220RE-HYBRID

PBG3-270RE-HYBRID

PBG3-320RE-HYBRID



IMPORTANT NOTE:

CONTENTS

- 1. Safety Precautions 1
- 2. Parts and Functions 10
- 3. Installation Instructions 11
 - 3.1 Selection of Installation Site..... 11
 - 3.2 Handling..... 12
 - 3.3 Installation 12
 - 3.4 Space Required for Installation and Maintenance 13
- 4. Pipeline Connection 14
 - 4.1 Pipeline Connection Diagram..... 14
 - 4.2 Pipeline Connection Instructions..... 14
 - 4.3 Electrical Wiring 17
 - 4.4 Recommended Power Supply Specifications 17
 - 4.5 Wiring diagram 17
- 5. Usage Methods 18
- 6. Operating Instructions 19
 - 6.1 Appearance 19
 - 6.2 Display Screen and Operation Panel 19
 - 6.3 Button Description 20
 - 6.4 Operation 21
- 7. Commissioning 28
- 8. Maintenance and Troubleshooting 29
 - 8.1 Maintenance 29
 - 8.2 Troubleshooting 31
 - 8.3 Replace Magnesium Rod..... 33
 - 8.4 Power Cord Installation 35
- 9. APP Connection 35
- 10. Technical Specifications..... 36

1. Safety Precautions

To ensure your safety, please read this manual carefully before using this product.



WARNING

- The household electrical supply must be reliably earthed.
- Residual current devices (RCDs) must be installed on the household electrical supply.
- Do not remove any permanent instructions, labels or rating plates from the product casing or internal panels.
- Only qualified persons should perform the installation of this unit in accordance with local national regulations and this manual. Improper installation may result in water leakage, electric shock or fire.



WARNING

- Installation must be carried out by authorised dealers or qualified professionals. Installers must possess the relevant professional qualifications. Improper installation may cause fire, electric shock, personal injury, water leakage, etc.
- Use only manufacturer-approved accessories where required.
- Please abide by the regulations of the local electric company when connecting the power supply.
- If the water heater requires relocation or reinstallation, this must be performed by authorised dealers or qualified professionals.
- Never modify or repair it by yourself. Improper repair may cause fire, electric shock, personal injury, water leakage and other accidents. Be sure to entrust dealers or professionals to repair it.



WARNING

- The socket must be reliably grounded. The socket and power plug shall be kept dry to prevent electricity leakage. Always check whether the plug and socket fit well. The inspection method is as follows: Insert the power plug into the socket, start the machine for about half an hour, turn off and unplug, and check whether the pins of the plug are hot. If hot (above 50 °C), please replace the socket with a qualified one with good contact, to prevent plug overheating, burning, or fire and personal injury caused by poor contact.
- In areas where water may splash, power sockets must not be installed below 1.8 m from the floor, and ensure that water will not splash on the socket, and it shall be installed in places out of reach of children.
- At any cold water inlet, temperature and pressure safety valves must be installed. If the lowest water point is more than 3m below the hot water outlet of the water tank, a vacuum breaking valve must be installed at the highest point of the water outlet of the water tank.
- During the heating process, water drops may drip from the pressure relief hole of the temperature and pressure safety valve, which is a normal phenomenon. If there is a large amount of water leakage, please ask for professionals to repair it in time. Never block the pressure relief hole, otherwise it may cause damage to the unit and lead to safety accidents. The drain pipe connected to the pressure relief hole shall be kept inclined downward and installed in a frost-free environment.
- Water in the tank may exceed 50 °C, which can cause serious burns. When using water initially, do not spray the water directly to the human body. Adjust the water temperature first to avoid scalding.
- If the power cord is damaged, replace it with a manufacturer-supplied replacement cord. The replacement shall be done by the manufacturer, the service agencies of the manufacturer, or qualified professional maintenance personnel.
- If the parts of this unit are damaged, please send them to the professionals for maintenance and use the special maintenance parts provided by our company.

- If the unit is not used for a long time (more than 2 weeks), hydrogen, which is extremely flammable, may be generated in the hot water piping system. In this case, in order to reduce the danger, it is recommended to turn on the hot water tap for a few minutes before using any electrical appliances connected to the hot water system. If hydrogen is present, you may hear an unusual sound like air escaping when water flows. Do not smoke or use open flames near the tap during this procedure.
- 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.
- This appliance incorporates an earth connection for functional purposes.
- For appliances with type Y attachment, the instructions shall contain the substance of the following: 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.
- **CAUTION:** In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.
- Maximum inlet water pressure: 0.5 MPa. Minimum inlet water pressure: 0.15 MPa. A pressure limiting valve must be installed if the inlet supply pressure exceeds 0.5 MPa.
- **DANGER:** Thermal cut-out activation indicates a potentially hazardous condition. Do not reset the thermal cut-out until the unit has been serviced by a qualified person.
- **DANGER:** Failure to operate the relief valve easing gear at least once every six months may result in the unit exploding. Continuous leakage of water from the valve may indicate a problem with the unit.
- The water may drip from the discharge pipe of the pressure-relief device and that this pipe must be left open to the atmosphere; the pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked; how the unit can be drained.



Caution: Risk of fire/
flammable material



WARNING

- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

Special Requirements for R290



WARNING

- Do not allow refrigerant leaks near open flames.
- Be aware that the R290 refrigerant does NOT contain an odour.
- The ducts connected to an appliance shall not contain a potential ignition source. Keep any required ventilation openings clear of obstruction.

! WARNING

- The appliance shall be stored so as to prevent mechanical damage and in a well-ventilated room without continuously operating ignition sources (example: Open flames, an operating gas appliance) and have a room size as specified below.

! WARNING

- Make sure installation, servicing, maintenance and repair comply with instruction and with applicable legislation (for example national gas regulation) and are executed only by authorized persons.

💡 NOTES

- Pipework should be protected from physical damage.
- Installation of pipework shall be kept to a minimum length.

Explanation of Symbols Displayed on the Monobloc

	WARNING	This symbol shows that this appliance used a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that service personnel should handle this equipment with reference to the installation manual.
	CAUTION	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.
	CAUTION	This symbol shows that information is available such as the operating manual or installation manual.

! WARNING

1 Information in Manual

1.1 General

- Information for spaces where refrigerant pipes are allowed, including statements :
 - That the installation of pipe-work shall be kept to a minimum;
 - That pipe-work shall be protected from physical damage and, in the case of flammable refrigerants, shall not be installed in an unventilated space. In case of field charge, the effect on refrigerant charge caused by the different pipe length has to be quantified;
 - That compliance with national gas regulations shall be observed;
 - That mechanical connections made in accordance with 22.118 shall be accessible for maintenance purposes;
 - That, for appliances containing flammable refrigerants, the minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula;
- The maximum refrigerant charge (m_{max});
- Instructions how to determine the additional refrigerant charge and how to complete the refrigerant charge on the label provided by the manufacturer considering the requirements in 7.107;
- The minimum rated airflow, if required by annex GG;

- Information for handling, installation, cleaning, servicing and disposal of refrigerant;
- For appliances using flammable refrigerants, instructions shall include the minimum installed height h_{inst} (when required to calculate A_{min}), refrigerant charge m_c and minimum room area of the space A_{min} or a minimum room area of conditioned space TA_{min} where applicable.

Additional minimum room area data may be provided based on other installed heights and/or charge levels.

- Detailed instructions on how to install the appliance to ensure that the release height h_0 as determined in clause GG.2 of the installed. Appliance is not lower than h_0 used for the calculation of A_{min} ;
- A warning to keep any required ventilation openings clear of obstruction;
- A notice that servicing shall be performed only as recommended by the manufacturer;
- A warning that ducts connected to an appliance shall not contain a potential ignition source;
- Instructions for wiring to external zoning dampers and/or mechanical ventilation, if required to comply with clause GG.9, to ensure that upon detection of a leak, the zoning dampers are driven fully open and additional mechanical ventilation is activated;
- For appliances relying on safety measures according to GG.8.3 Instructions for wiring to external ventilation;
- When a remote located refrigerant sensor is specified by the manufacturer, the instructions shall state when it is required and how to install and connect the sensor.

1.2 Unventilated Areas

For appliances containing more than m1 for any refrigerating circuit, the manual shall include a statement advising that an unventilated area where the appliance using flammable refrigerants is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard. This shall include:

- A warning that the non-fixed appliance shall be stored in an area where the room size corresponds to the room area as specified for operation.
- A warning that the non-fixed appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces).

The manufacturer should specify other potential continuously operating sources known to cause ignition of the refrigerant used.

The appliance shall be stored so as to prevent mechanical damage from occurring.

1.3 Qualification of Workers

The manual shall contain specific information about the required qualification of the working personnel for maintenance, service and repair operations. Every working procedure that affects safety means shall only be carried out by competent persons according to Annex HH.

Examples for such working procedures are:

- Breaking into the refrigerating circuit;
- Opening of sealed components;
- Opening of ventilated enclosures.

2 Information on Servicing

2.1 General

The manual shall contain specific information for service personnel according to DD.4.2 to DD.4.10.

2.2 Checks to the Area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, DD.4.3 to DD.4.7 shall be completed prior to conducting work on the system.

2.3 Work Procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

2.4 General Work Area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

2.5 Checking for Presence of Refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe

2.6 Presence of Fire Extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

2.7 No Ignition Sources

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

2.8 Ventilated Area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

2.9 Checks to the Refrigerating Equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

2.10 Checks to Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- That capacitors are discharged: This shall be done in a safe manner to avoid possibility of sparking;
- That no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

3 Repairs to Sealed Components

3.1 During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation

3.2 Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

4 Repair to Intrinsically Safe Components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

NOTE:

The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment.
Intrinsically safe components do not have to be isolated prior to working on them.

5 Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

6 Detection of Flammable Refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE: Examples of leak detection fluids are:

- Bubble method.
- Fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas.

The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

7 Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure, ensure that:
 - Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - All personal protective equipment is available and being used correctly;
 - The recovery process is supervised at all times by a competent person;
 - Recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery unit and operate in accordance with instructions.
- h) Do not overfill cylinders (no more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

8 Labeling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

9 Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery unit, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt. The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

If the hot water system is unused for two weeks or more, highly flammable hydrogen gas may accumulate. To safely dissipate this gas, run a hot tap for several minutes or until gas discharge ceases.. Use a sink, basin, or bath outlet, but not a dishwasher, clothes washer, or other appliance. During this procedure, there must be no smoking, open flame, or any electrical appliance operating nearby. If hydrogen is discharged through the tap, it will probably make an unusual sound as with air escaping.

Any limitations on the water quality and supply pressure.

Details of the methods of connection and installation, which shall include the following:

A statement to the effect that the unit will have to be installed in accordance with the requirements of AS/NZS 3500.4 or, in New Zealand, NZBC G12, and including a statement of acceptable piping materials and the insulation requirements for pipes between the collector and the container.

An outline of the practices that must be followed to provide for the draining of the container, the expansion of water during heating, and the relief of partial vacuum.

A statement as to the level of frost protection the system is designed for:

Information necessary for adequate structural design of the mounting system, including, for example, the mass of the system or its major component parts, when filled with water and, for roof-mounted units, appropriate mounting details for cyclonic areas if the unit is suitable for installation in such areas.

The procedure to be followed to place the unit system in service and to ensure that it is adequately filled with water.

Advice regarding the need for tempering valves.

The manufacturer shall supply with each unit details of any operating and maintenance procedures to be followed by the householder.

Instructions for the operation of any supplementary heating, if supplied as part of the system.

Instructions for draining and flushing the container and direct solar water heater collectors, and the appropriate interval at which this has to be carried out.

Instructions for operating the valve easing gear of the active expansion relief valve.

Details regarding replacement of the protective anode, if recommended by the manufacturer, at suitable intervals (dependent on the nature of the water supply) and a recommendation that the manufacturer be consulted regarding suitable replacement anodes.



ATTENTION

- The instructions shall state that the fixed wiring insulation must be protected, for example, by insulating sleeving having an appropriate temperature rating.
- If the water supply pressure exceeds the rated pressure, a pressure reducing valve is to be fitted in the installation.
- The type or characteristics of the pressure-relief device and how to connect it, unless it is incorporated in the appliance. A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment. The instructions for closed units incorporating a heat exchanger shall give details on the installation of control devices and the temperature settings that are necessary to prevent operation of the thermal cut-out caused by the heat from the exchanger.
- Unit is permanently connected to water mains.
- The maximum recommended level for Total Dissolved Solids (TDS) is 600 mg/L. Water hardness (measured as CaCO₃) should not exceed 200 mg/L.



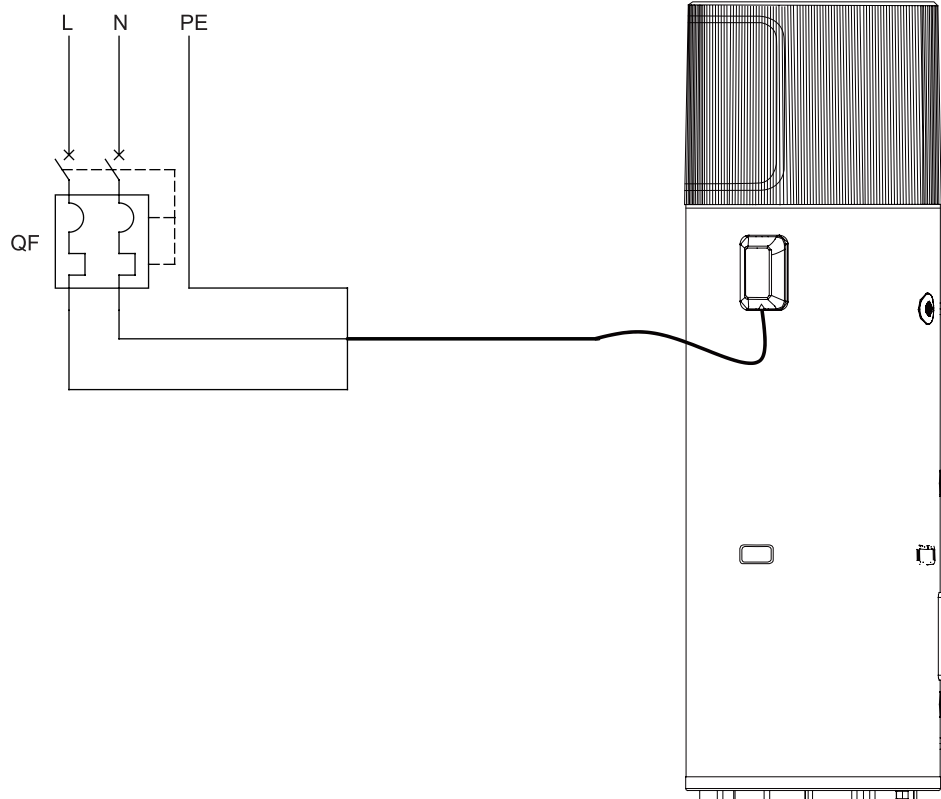
WARNING

- Warning for continued safety of this appliance it must be installed, operated and maintained in accordance with the manufacturer's instructions.
- Warning this appliance may deliver water at high temperature. Refer to the plumbing code of Australia (pca), local requirements and installation instructions to determine if additional delivery. Temperature control is required.
- If hot water system isn't used for 2 weeks or more, a quantity of highly flammable hydrogen gas may accumulate in the unit. To dissipate this gas safely, it is recommended that a hot tap be turned on for several minutes or until discharge of gas ceases. Use a sink, basin, or bath outlet, but not a dishwasher, clothes washer or other appliance. During this procedure, there must be no smoking, open flame or any electrical appliance operating nearby. If hydrogen is discharged.



ATTENTION

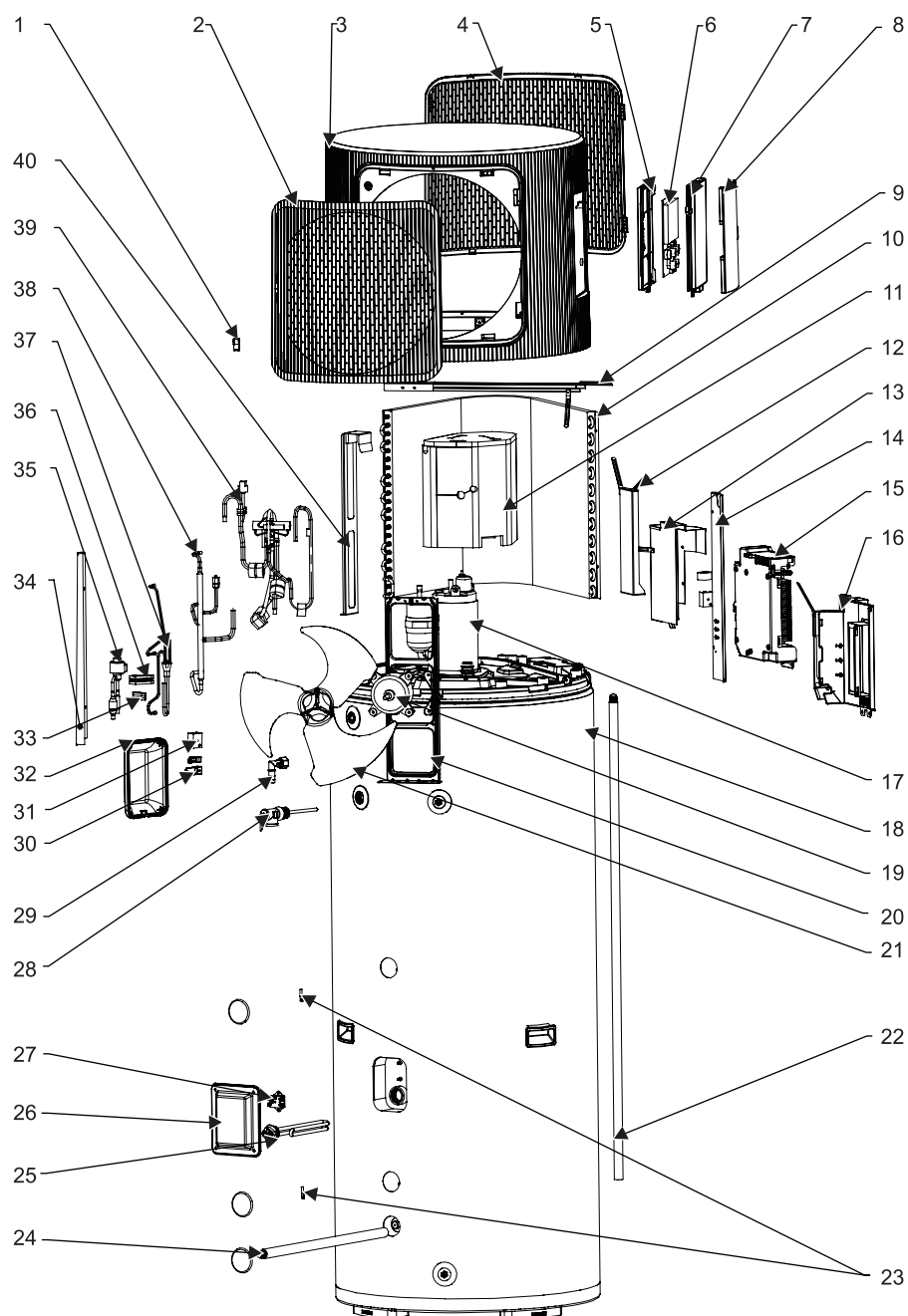
- Hose-set should not be used.
- Appliance shall be installed in accordance with national wiring regulations.
- Instruction concerning disconnection incorporated in the fixed wiring is in accordance with AS/NZS 3000.
- Installed in compliance with Australian plumbing standard AS3500.4.
- The external power box of the unit must be equipped with a circuit breaker with leakage protection according to the requirements of the following figure. The unit can be used only after the earthing is confirmed to be reliable.



ATTENTION

- If the water temperature exceeds 95 °C, the TCO will automatically shut off power to the electric heater. It must be reset by an authorised service technician.
- Water operating temperatures between 30 °C and 70 °C.
- Water operating pressures between 0.15 MPa and 0.85 MPa.
- Refrigerant filling:
 - 1) Refrigerant filling needs professional operation.
 - 2) It is recommended to fill according to the type and weight of refrigerant marked on the nameplate of the unit.
 - 3) Fill at the check valve of the suction pipe of the unit.
- This product complies with the Lead-Free requirements of the National Construction Code Volume Three.

2. Parts and Functions



SN	Name	Quantity	SN	Name	Quantity
1	Decorative screw cap	3	10	Evaporator assembly	1
2	Outlet grille	1	11	Soundproof cotton	1
3	Outer cover	1	12	Electric control box fixing plate assembly	2
4	Intake grille	1	13	Socket cover	1
5	Display box cover	1	14	Evaporator right bracket assembly	1
6	Display panel	1	15	Electrical component	1
7	Display box panel	1	16	Electronic control box cover component	1
8	Display shield	1	17	Compressor	1
9	Evaporator upper connecting plate assembly	1	18	Cistern	1

SN	Name	Quantity	SN	Name	Quantity
19	Brushless DC motor	1	30	Clamp assembly	1
20	Motor bracket group	1	31	Terminal	1
21	Axial fan	1	32	Junction box	1
22	Magnesium rod 1	1	33	Pipe fixing block 1	1
23	Thermistor	2	34	Evaporator left support	1
24	Magnesium rod 2	1	35	Electronic expansion valve assembly	1
25	Electric heating tube	1	36	Pipe fixing block 2	1
26	Electric control box	1	37	Evaporator input tube assembly	1
27	Temperature limiter	1	38	Evaporator output tube assembly	1
28	PT safety valve	1	39	Four-way valve assembly	1
29	Drain nozzle	1	40	Fixed plate after evaporator	1

NOTE

This diagram is for reference only. The actual product appearance may differ. Refer to the actual unit.

3. Installation Instructions

3.1 Selection of Installation Site

- Enough space for installation and maintenance should be preserved. The operation noise and air flow expelled should not affect neighbors.
- Adequate installation and maintenance space shall be available.
- No barrier at the inlet and outlet and no strong wind blowing.
- Dry and ventilated place.
- The supporting surface shall be flat (the horizontal inclination angle shall not be greater than 2°), which can bear the weight of the unit, and the unit can be placed vertically without increasing noise and vibration.
- Running noise and exhaust air shall not affect neighbours.
- No combustible gas leakage.
- Convenient for pipe connection and electrical connection.
- If the unit is installed on the metal part of the building, the electrical insulation must be done well, and it must conform to the relevant technical specifications of electrical equipment.
- It should be convenient for piping and wiring.

ATTENTION

- If the temperature is below 0 °C, the unit shall be installed in a suitable location where it will not freeze, so as to prevent the water pipes from cracking and prevent freezing and damage.
- When the temperature is below 0 °C and the unit is installed outdoors, please take corresponding heat preservation measures for the water pipes according to the local minimum temperature, and the unit must be powered on to prevent pipe freezing and cracking, which will bring inconvenience to your life.
- Do not install in high temperature or in direct sunlight for a long time, otherwise the service life of products will be shortened.

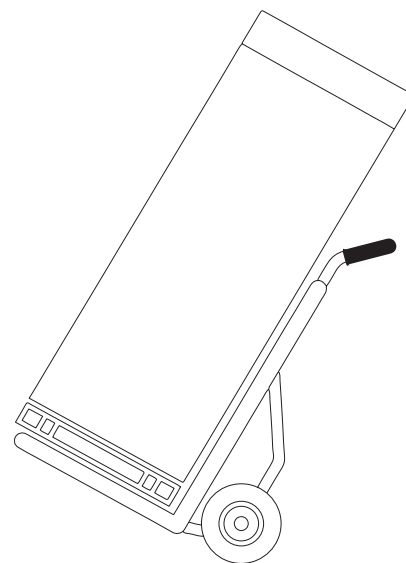
NOTES

Installation in the following places may lead to unit failure. If unavoidable, please ask the local authorized service shop.

- In places where there are mineral oils such as cutting oil.
- In places where the air contains more salt, such as the sea.
- In hot spring areas and other places where corrosive gases such as sulfur gas exit.
- In the factories and other places where there are serious voltage fluctuations.
- In the cars or cabins and other places with large vibration and shaking.
- In places where there are strong electromagnetic waves.
- In the kitchen and other places full of oil and gas.
- In the place where acid or alkali gas evaporates.
- In other special environments.

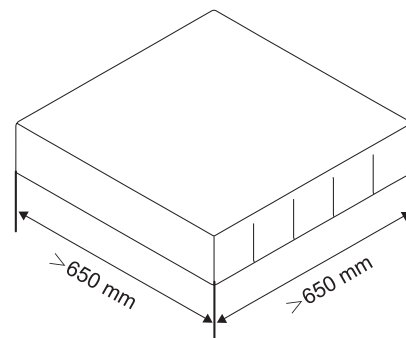
3.2 Handling

- This unit is heavy and needs more than two personnel to handle and install.
- Please handle the unit by maintaining its factory-supplied condition, and do not disassemble and assemble it by yourself.
- In order to avoid abrasion and deformation on the surface of the unit, please put a guard plate on the surface of the unit in contact with hard objects.
- Please be careful not to make your hands or other objects come into contact with the fan blades.
- The best short-distance transportation method for the unit is to use a hand pallet truck. If there is no hand-pushed forklift available, the transportation method shown in the following figure can be used.
- The heat pump must be always stored and transported in a near vertical position with a angle of tilt of no more than 30°. Transporting or storing the unit in a horizontal position will void the warranty.
- The system should always be transported in its packaging.
- Any marks caused by inappropriate handling are not deemed as defects and are not covered under warranty.

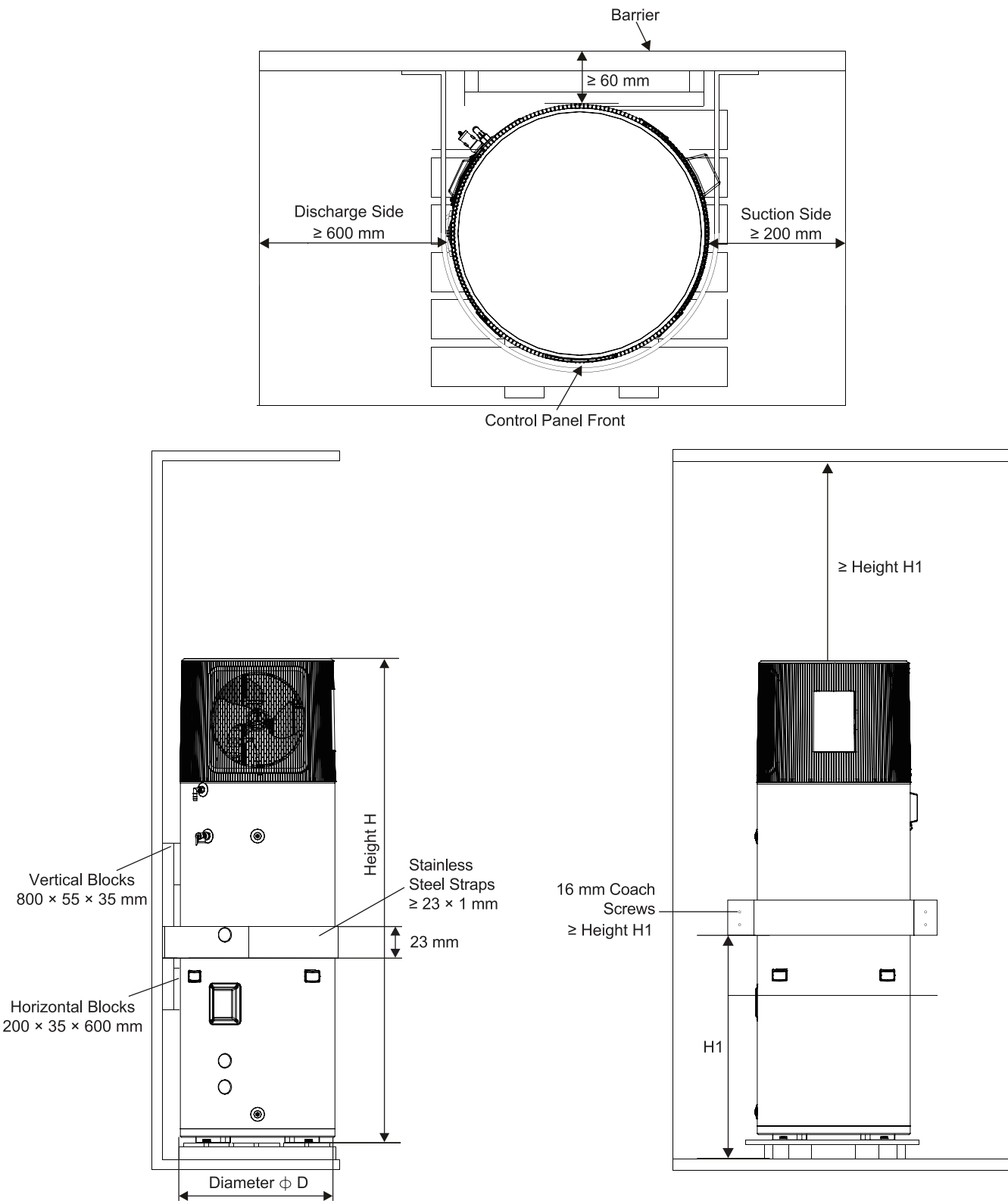


3.3 Installation

- If the unit is installed in basement or other confined spaces, pay attention to the circulation of exhaust and intake of air around the unit, and ensure proper ventilation.
- Please ensure the sufficient space for installation and maintenance.
- Installation to confirm with AS/NZS 3500.4.
- The unit should be installed on a concrete base or a stable structure capable of bearing a weight of over 450 kg. The base is shown in the figure.



3.4 Space Required for Installation and Maintenance

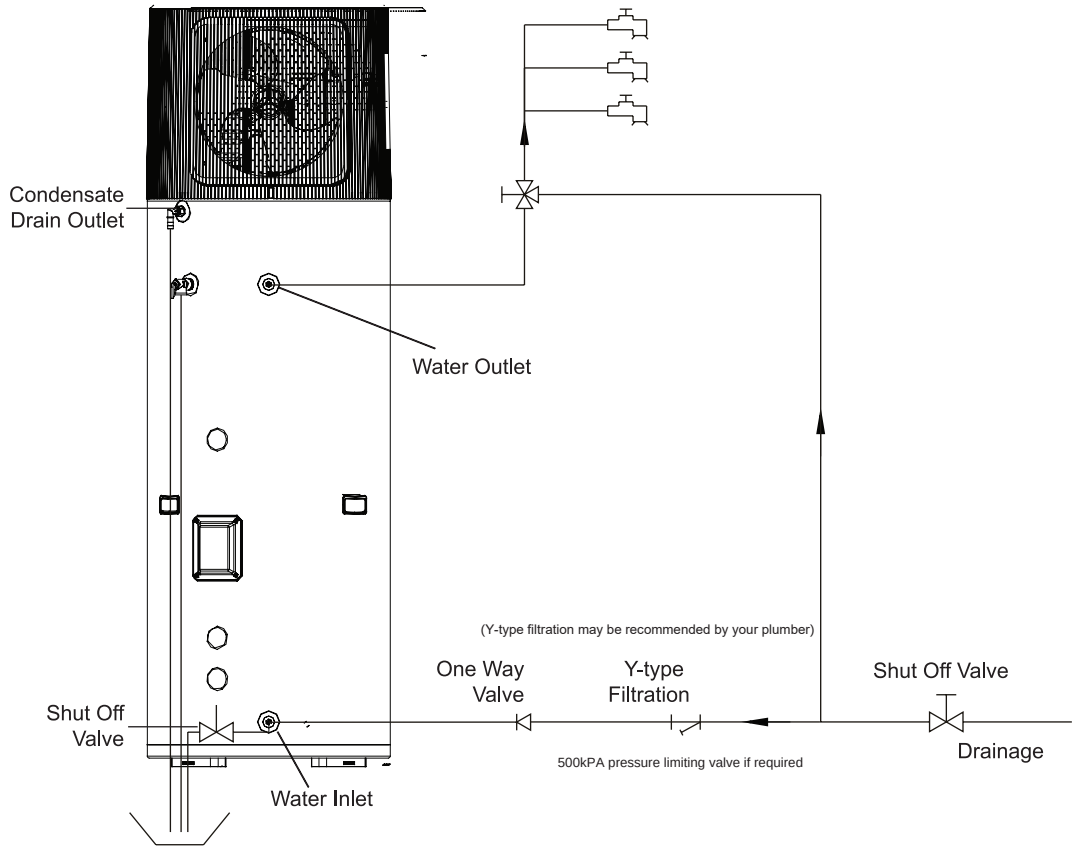


Unit: mm

Dimension Parameters			
Model	220 L (With electric heating)	270 L (With electric heating)	320 L (With electric heating)
Parameter			
Diameter ϕ D	650	650	650
Height H	1940	1852	2049
Height H1	800	800	800

4. Pipeline Connection

4.1 Pipeline Connection Diagram



NOTES

- Screw the drain port stainless steel cover, then unit can be drained.
- Operating temperatures range: 1 ~ 95 °C.
- Pressure of water system: 0.05 ~ 1.0 MPa.
- Pressure relief valve rated pressure: 0.85 MPa.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- Pressure relief valve rated pressure : 850 kPa. (Supplier: Zhuhai Edison Smart Home Co., Ltd)

4.2 Pipeline Connection Instructions

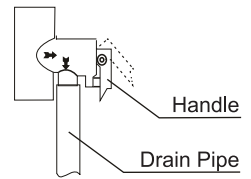
ATTENTION

- Do not install the unit with iron pipes. Water systems shall only use new pipes that meet drinking water standards, such as CPVC, PPR pipes or polybutene pipes. Do not use PVC pipes with an unusual odour.
- Water pipes and fittings shall be installed according to the above figure. If the installation and use environment is below 0 °C, all water pipes must be insulated.
- Installation of water inlet and outlet connecting pipe: The thread specification of water inlet and outlet of this unit is G3/4" (internal thread). Pipes and fittings must have a service life at least equal to that of the unit, and sufficient high-temperature resistance.
- Installation of temperature and pressure safety valve: The specification of temperature and pressure installation valve is Rc3/4" (internal thread), 0.85 MPa. After installation according to the pipeline connection diagram, remove the bolts for fixing the safety valve handle and ensure that the outlet of the connected drain pipe is led to the air.



ATTENTION

- After installing the PTR valve, fill the water tank to full and pull the valve handle. Check for water discharge from the relief port to confirm proper pressure relief.
- The temperature and pressure safety valve handle shall be pulled once every six months to remove calcium carbonate deposits. And make sure the device is not blocked. The water temperature at outlet may be very high, so pay attention to avoid scalding.
- The drain pipe shall be insulated to avoid being frozen in winter and causing safety accidents.



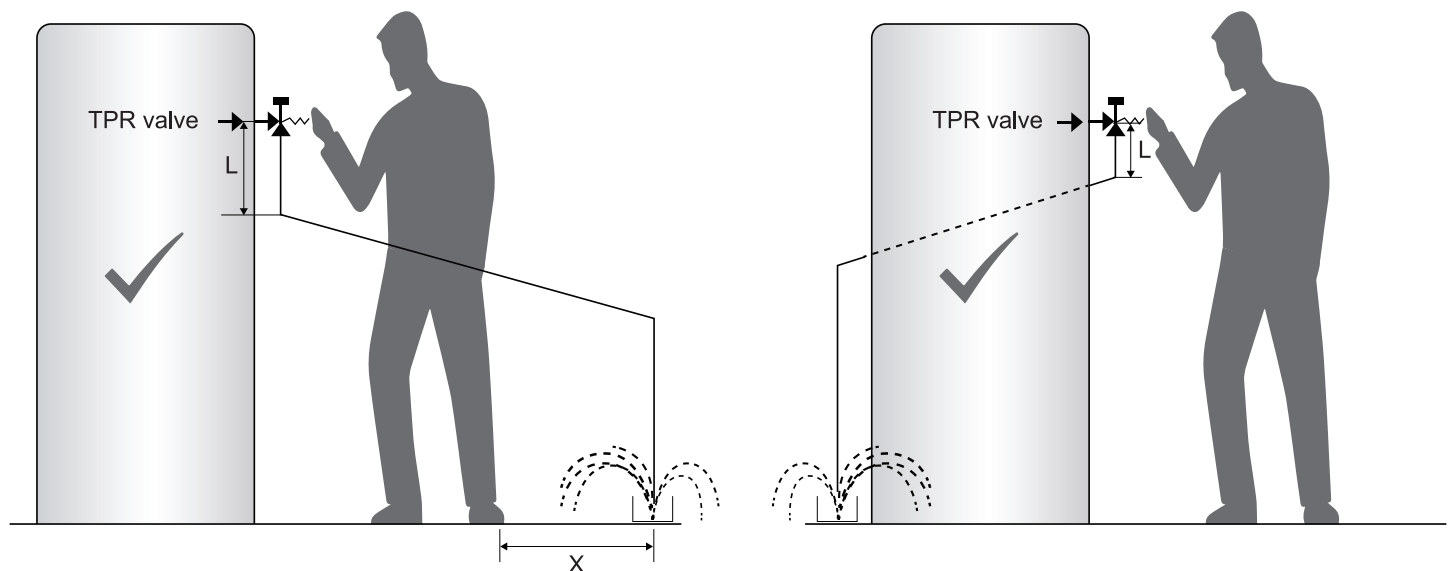
Temperature Pressure Relief (PTR) Valve Drain

PTR Valve Drain Line General Installation Requirements

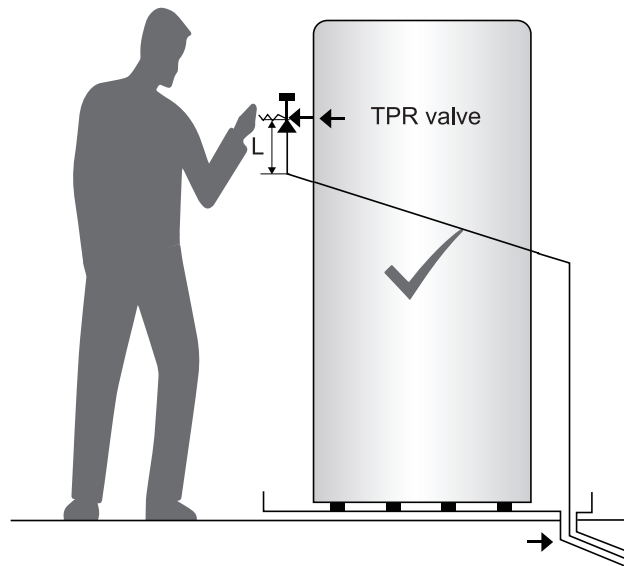
1. Material
 - Must be copper or other suitable material
2. Size
 - Must be the same size as the PTR valve outlet for the length of the drain.
3. Length
 - Must comply with Table.

Maximum Relief Drain Length

Maximum Relief Drain Length	Maximum Number of Bends > 45°
9 m	3
8 m	4
7 m	5
6 m	6



Distance 'x' not prescribed in the standard but is taken as the distance required to avoid a hazard.



NOTES

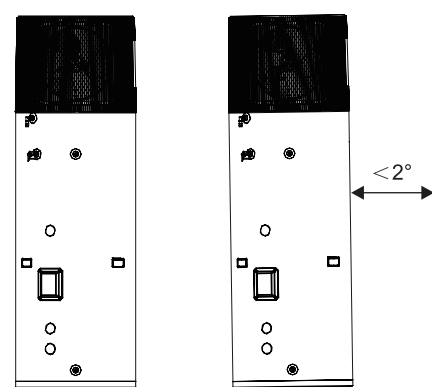
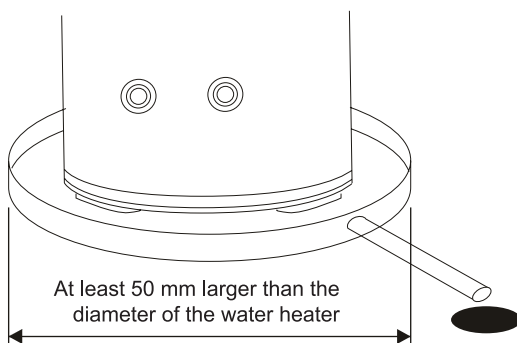
- A gravel pit may only be used subject to the above and must be minimum 100 mm diameter in a paved surface. The PTR drain must discharge 75 mm minimum, 300 mm maximum above the gravel pit.
- Where discharge is to an overflow relief gully (ORG) it must be 75 mm minimum or 300 mm maximum above the ORG and must not obstruct the operation of the ORG grate.
- The vertical drop length (marked L) from the PTR valve outlet shall be a minimum of 500 mm. Ensure PTR drain line runs continuously to termination with no bends over 45°.

! DANGER

- Do not press down the safety valve handle.
- Never remove the safety valve.
- Never block the drain port.
- The drain pipe shall be led to an open drain outlet.



- After all pipelines are installed, open the cold water inlet valve and the hot water outlet valve, and begin filling the tank. When the water outlet is normally discharged, it indicates that the water in the water tank has been filled. Close the outlet valve and check whether there is water leakage at the joints of all pipelines. If there is water leakage, it shall be repaired and then injected for inspection.
- If the inlet water pressure is less than 0.15 MPa, in order to get a larger water flow, please install a booster pump at the inlet pipe to ensure the inlet water pressure not less than 0.15 MPa. If the water supply pressure is greater than 0.5 MPa, in order to ensure the long-term safe use of your water tank, please install the pressure reducing valve at the water inlet pipe.
- During unit working, condensed water droplets may occur at the air outlet, and the water outlet may be accidentally blocked. In such cases, water droplets will come out from the surface of the unit. To prevent damage to property, use a drain pan to collect condensate, it is recommended to use a water pan to collect the condensed water. Please refer to the following figure.
- To smoothly drain condensate from unit, please install the main unit is on a horizontal floor. Otherwise, please ensure the drain vent is at the lowest place. Recommended inclination angle of unit to the ground should be no more than 2°.



⚠ ATTENTION

If the unit is installed at outdoor places where the temperature is below 0 °C, please take corresponding heat preservation measures for water pipes according to the local minimum temperature to prevent freezing and cracking water pipes, which will bring convenience to your life!

4.3 Electrical Wiring

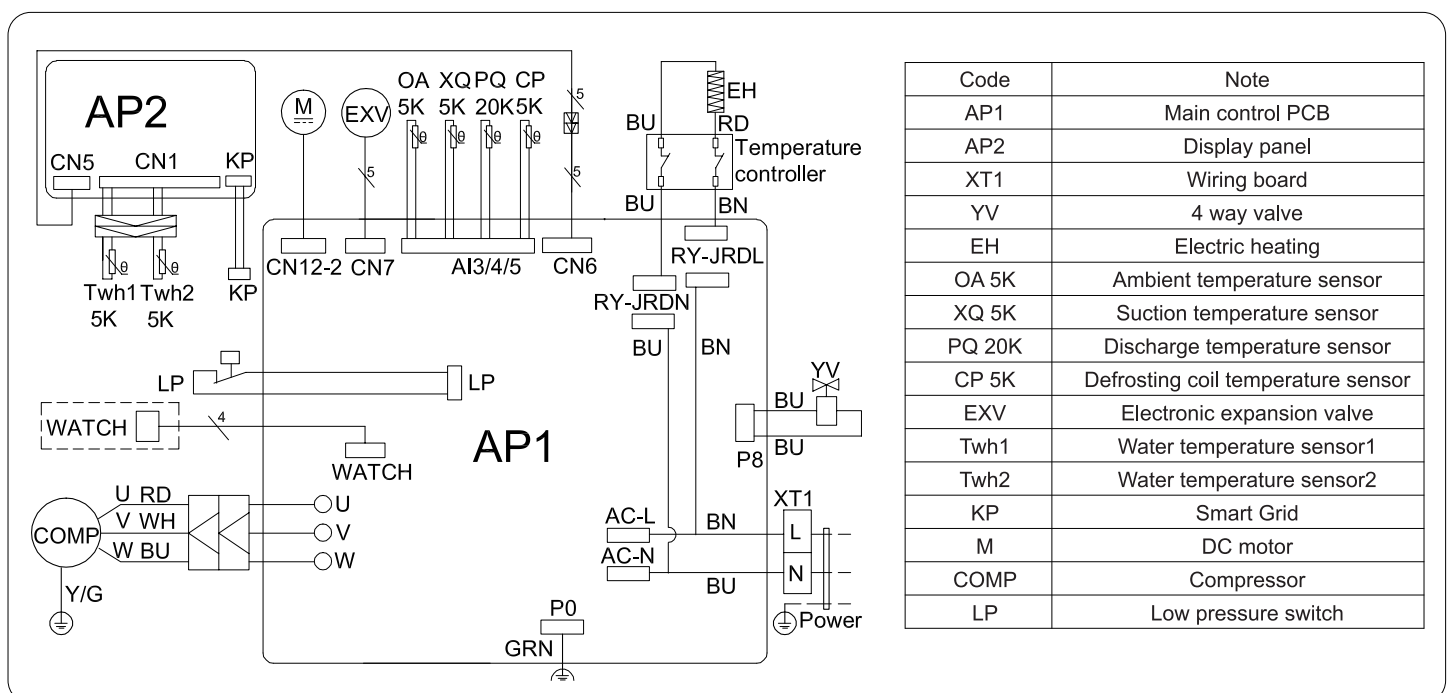
⚠ ATTENTION

- The unit shall use a special power supply, and the power supply voltage shall conform to the rated voltage.
- The power supply circuit of the unit must be well grounded, and the earthing wire of the power supply shall be reliably connected with the external earthing wire, and the external earthing wire shall be effective.
- Wiring construction must be carried out by professional installation technicians according to the circuit diagram.
- Set up leakage protection devices according to the requirements of relevant national technical standards for electrical equipment.
- After all wiring work is completed, check carefully before switching on the power.

4.4 Recommended Power Supply Specifications

Model	Power Supply	Wire Diameter (mm)		Circuit Breaker (A)	Leakage Protector (RCD)
		Dimensions (Continuous Length ≤ 30 m)	earthing Wire	Capacity	
220 L (With electric heating)	220 - 240 V ~ 50 Hz	≥ 1.0	≥ 1.0	16	30 mA Below 0.1 sec
270 L (With electric heating)	220 - 240 V ~ 50 Hz	≥ 1.0	≥ 1.0	16	30 mA Below 0.1 sec
320 L (With electric heating)	220 - 240 V ~ 50 Hz	≥ 1.0	≥ 1.0	16	30 mA Below 0.1 sec

4.5 Wiring diagram

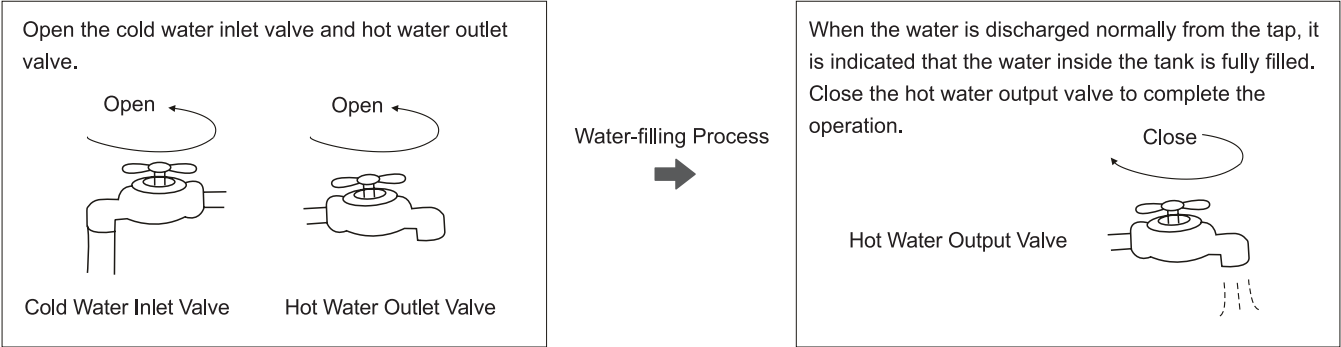


5. Usage Methods

When using, please operate by the following order.

Filling the water tank and air purging the system:

Before initial power-up (after tank drainage for maintenance), the water tank must be fully filled and all trapped air purged from the water circuit. Follow the steps below for water filling and air purging (refer to the schematic diagram):



- 1. Complete all pipework installation and fit all associated valves. Open the cold water inlet valve and the hot water outlet valve as shown in the figure to start filling the tank. Leave at least one indoor hot water tap fully open.
- 2. Air trapped inside the tank and pipelines will discharge from the open hot water tap during water injection — this process is air purging, which eliminates air pockets to avoid abnormal running noise or pump damage.
- 3. When continuous, steady water flows out from the hot water tap, it indicates the tank is fully filled and all air has been vented. Close the hot water outlet valve/tap to finish the filling procedure.

SAFETY NOTE

Never switch on the power supply until the tank is completely full of water.

WARNING

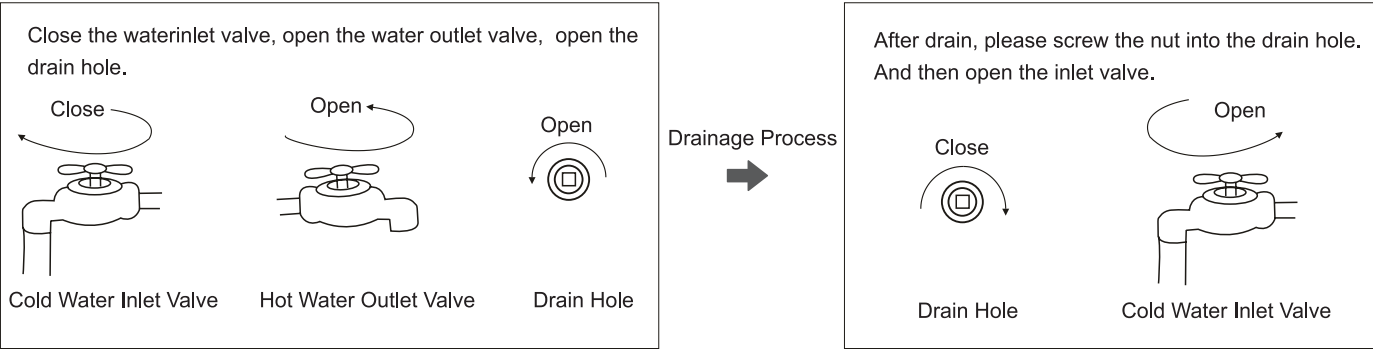
If an electric auxiliary heating unit is turned on when there is no water in the water tank, it will cause damage to the electric heating device.

Turn on the power, the display screen lights up, indicating that the unit has been powered on. Users can switch different modes by pressing relevant keys on the display screen (see the next page for details).

WARNING

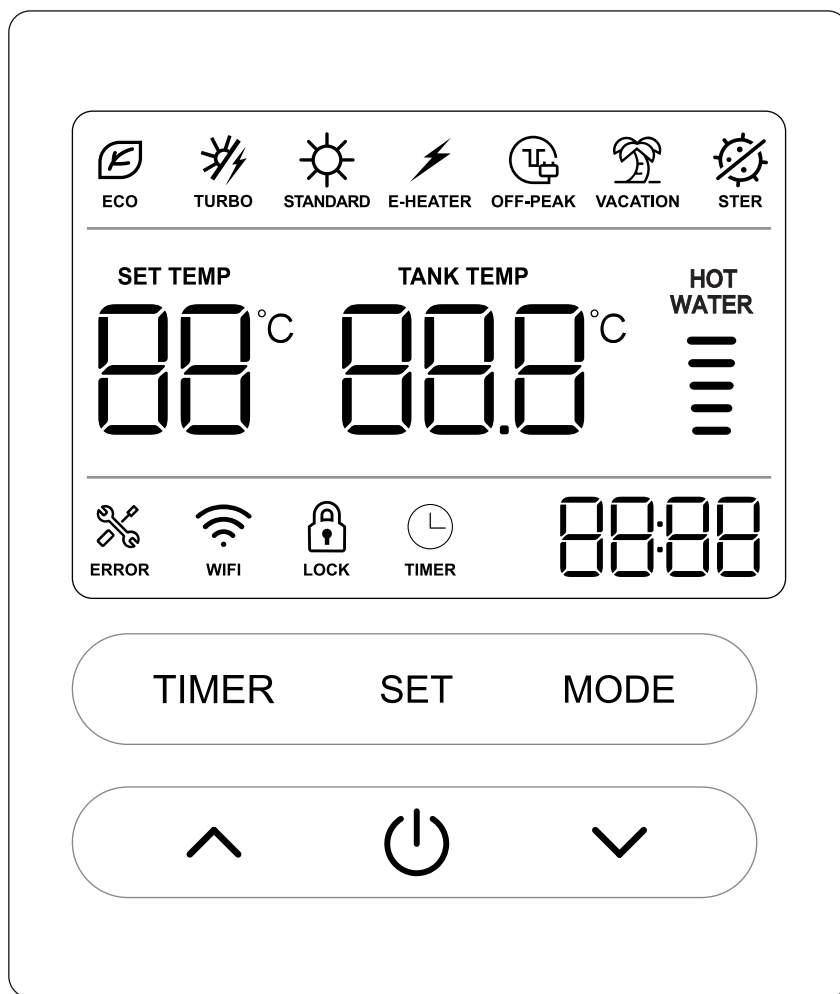
- If the water temperature exceeds 50 °C, it may cause severe burns and even death.
- Children, the disabled and the elderly are at the highest risk of scalding.
- Please adjust to the proper water temperature first before bathing or using.

Water drainage: When cleaning and moving the unit, drain the unit. Effusion method (see figure below).



6. Operating Instructions

6.1 Appearance



6.2 Display Screen and Operation Panel

No.	Symbol	Content	Description
1	 ECO	ECO mode	This icon will be shown when ECO mode is activated. The range of setting temperature is 30 ~ 60 °C.
2	 TURBO	Turbo mode	This icon will be shown when Turbo mode is activated. The range of setting temperature is 30 ~ 70 °C.
3	 STANDARD	Standard mode	This icon will be shown when Standard mode is activated. The range of setting temperature is 30 ~ 70 °C.
4	 SET TEMP	Set temperature	This icon shows the set temperature of water tank.
5	 ERROR	Error	This icon will be shown when there is an error.
6	 TIMER	Timer	This icon will be shown when the timer is activated.
7	 OFF PEAK	Off-peak mode	This icon will be shown when Off-peak mode is activated.
8	 HOT WATER	Hot Water volume	This icon shows the water volume of the set water temperature. The more lines on the screen, the greater the volume of hot water.

No.	Symbol	Content	Description
9	 VACATION	Vacation mode	This icon will be shown when Vacation mode is activated.
10	 STER	Sterilization mode	This icon will be shown when Sterilization mode is activated.
11	 LOCK	Child Lock	This icon will be shown when Child lock mode is activated.
12	 TANK TEMP 888°C	Tank Temperature	This icon shows the current temperature of the sensor in the middle of the tank.
13	 WIFI	Wi-Fi	This icon will be shown when you have connected the Wi-Fi.
14		Clock	This icon shows the real time clock.
15	 E-HEATER	Electric heater	This icon will be shown when the electric heater is activated.

6.3 Button Description

No.	Symbol	Content	Description
1	SET	Function settings	Parameter changes and value saving during timer setup.
2	TIMER	Timer	After waking up the screen, press and hold the TIMER button for at least 3 seconds to enter the current time of day (24-hour clock). Press TIMER and SET button at the same time for 3 seconds to enter the timer setting.
3	MODE	Mode setting	Change the running mode of unit between Eco mode, Turbo mode and Standard mode.
4		On/Off	To turn the unit On/Off.
5		Increase/Up	Increase the set temperature. Increase the set time of timer/clock. Page up of parameters display and error display.
6		Decrease/Down	Decrease the set temperature. Decrease the set time of timer/clock. Page down of parameters display and error display.
7	SET + 	Set+Up	Press Set and Up button at the same time for 3 seconds to enter parameters query interface.
8	MODE + 	Mode+Up	Press Mode and Up button at the same time for 3 seconds to connect Wi-Fi.
9	 + 	Up+Down	Press Up and Down button at the same time for 3 seconds to turn on/off the Child lock function.

6.4 Operation

The heat pump uses electricity to transfer heat from the ambient air into the water (just like an air conditioner that heats (or cools) air in a room). The heat pump is the most energy efficient means of heating the water. The electric heater will also heat the water but the electricity required will be around 3 or 4 times as much as using the heat pump. Thus, the ECO mode is the most economical mode.

6.4.1 Mode Set

Press any key once to wake up the screen. Then press the MODE button as required to rotate through the circular sequence shown in Figure 6.4-1 below.



Figure 6.4-1 Mode Selection

Model	Default Mode	Heat Pump			Electric Heater			Note
		Default Value	Dead Band	Sensor	Default Value	Dead Band	Sensor	
220 L (With electric heating)	STANDARD	60	14	Middle	60	14	Middle	1. Heat pump: When [Middle sensor] $\leq$ [Target temperature] - [Dead band] heat pump will turn on automatically. When the sensor reach the target, it will stop. 2. Electric heater: When [Middle sensor] $\leq$ [Target temperature] - [Dead band] electric heater will turn on automatically. 3. When the ambient temperature exceeds the limit range ($T \leq -7^{\circ}\text{C}$ or $T \geq 45^{\circ}\text{C}$) or a unit fault occurs, the electric heater will activate.
270 L (With electric heating)	STANDARD	60	11	Middle	60	11	Middle	
320 L (With electric heating)	STANDARD	60	9	Middle	60	9	Middle	

NOTE

The set temperature of the heat pump can be increased from the default value up to a maximum of 70°C by pressing the $\wedge$ key. The unit is equipped with a function that automatically resets to factory default parameters (operating mode, set temperature, and temperature differential) after 24 hours, so any increased temperature setting will only be retained for a maximum of 24 hours. To maintain continuous operation at 70°C , the set temperature must be increased again every 24 hours.

- The STANDARD mode is the default mode when the unit is first installed and started. It offers the most efficient use of energy. Water temperature setting range: $30 \sim 70^{\circ}\text{C}$.
- In ECO mode, only the heat pump will turn on, water temperature setting range: $30 \sim 60^{\circ}\text{C}$.
- In Turbo mode, the heat pump and the electric heater will typically turn on together. When the ambient temperature is very low (less than minus 7°C) then only the electric heater will operate. If the ambient temperature is above 37°C and the water tank temperature is between 65 and 70°C , only the electric heater will operate. Water temperature setting range: $30 \sim 70^{\circ}\text{C}$.
- In STANDARD mode, the heat pump will turn on until the water reaches the set temperature. If the ambient temperature is above 37°C and the water tank temperature is between 65 and 70°C , the heat pump will switch off and the electric heater will heat the water to the set temperature (refer to the Figure 6.4-2).
- The operation range of the heat pump and electric heater are as shown as below.
- The heat pump will automatically reset to the STANDARD mode if it has run in ECO mode or in Turbo mode for 24 hours.

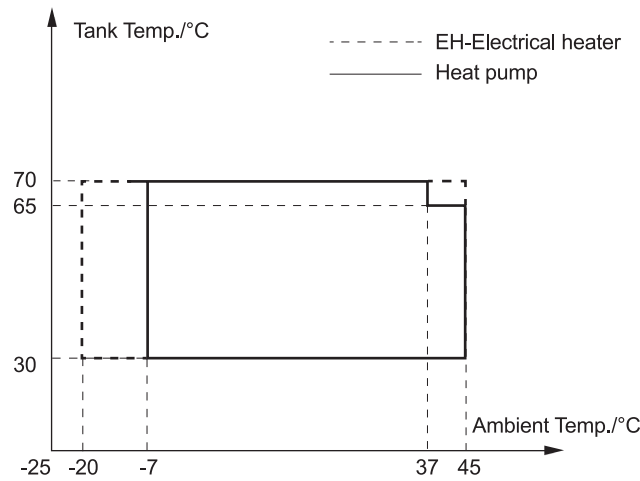


Figure 6.4-2 Operating Limits of the Unit

6.4.2 Temperature Set

- Press any button to wake up the screen then press the $\wedge$ or $\vee$ button to increase or decrease the target water tank temperature.
- When you are adjusting the temperature setting, the MODE icon will flash once every second.
- Each time you press $\wedge$ or $\vee$ button, the target temperature will be changed by 1 °C.
- If you hold the $\wedge$ or $\vee$ button for 3 seconds or more, the target temperature will increase or decrease 10 °C in each 2 seconds.
- If the set temperature is above the allowable limit, the buzzer will remind you and the tank water temperature will only increase to the limited value.
- If no buttons are pressed for a period of 5 seconds, the display will go back to the main display.

6.4.3 Turn On/Off

After confirming the mode and target temperature, you could press $\odot$ button to control the status of unit.

- When the unit is off, if you press the $\odot$ button, the unit will turn on. Once there is no interaction with the screen for a period of 30 seconds, the screen will automatically go to sleep.
- When the unit is on, if you press the $\odot$ button, the unit will turn off.

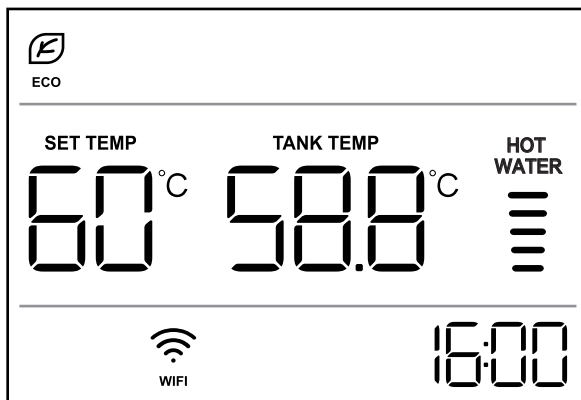
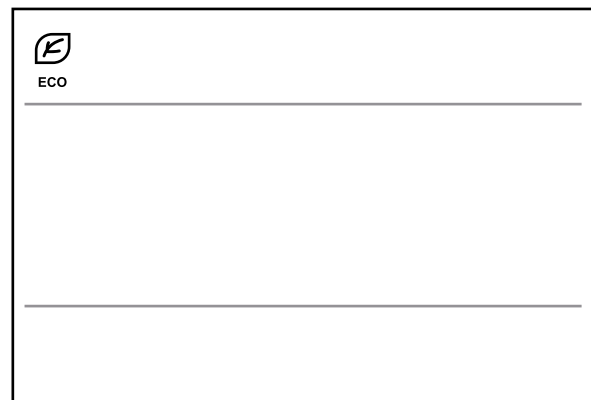


Figure 6.4-3 Turn On



Turn On (Screen-off state, press any key to wake up)

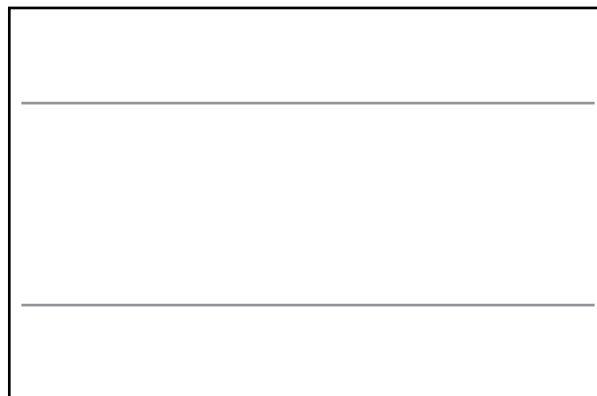


Figure 6.4-4 Turn Off

The mode and set temperature icons will show up when the unit turns on.

6.4.4 Time Set

Press and hold the TIMER button for at least 3 seconds to enter the current time of day (24-hour clock). The hour digits will flash, briefly press the $\wedge$ or $\vee$ button to increase or decrease the hour value. Press the SET button to save the hour setting. Then the minute digits will start to flash. Briefly press the $\wedge$ or $\vee$ button again to adjust the minute setting. Press the SET button once more to lock the current hour and minute settings. Note that the screen is not available unless the unit is switched on.

NOTE

If the unit is connected to the network, it will automatically synchronize with the local time.

To activate the timer function, you need to set the start and end time of the timer. The unit will run automatically based on the timer set.

6.4.4.1 Start Time Set

Press any button to wake up the screen. Then press the "SET" + "TIMER" buttons simultaneously for 3 seconds to activate the timer, the display screen will show the Figure 6.4-5.

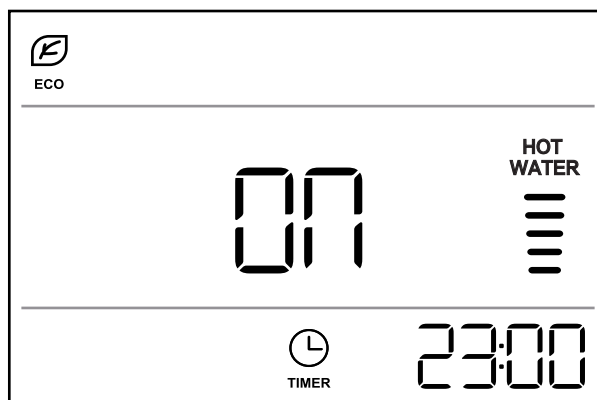


Figure 6.4-5 Start Time Set

- ON will be displayed which means that you are setting the start time of timer.
- The clock icon will appear with the hour value flashing.
- Press $\wedge$ or $\vee$ button to change the hour value.
- Press SET button to confirm the hour set and the minute value will flash.
- Press the SET button again to confirm the hours and minutes of the start time, then proceed to Section 6.4.4.2.
- The timer icon will be displayed on the screen.

6.4.4.2 End Time Set

After confirming the start time as per Section 6.4.4.1 above, the display will show up like Figure 6.4-6.

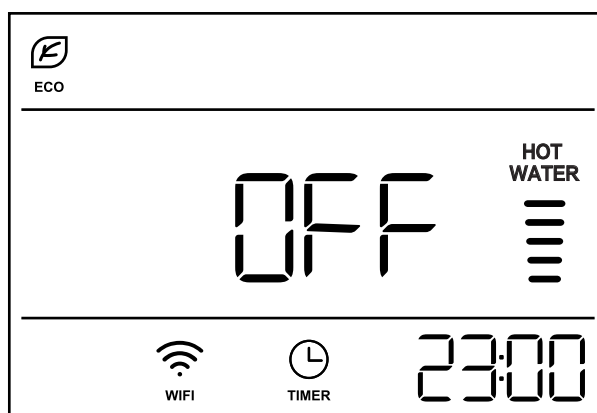


Figure 6.4-6 End Time Set

- OFF will be displayed which means that you are setting the end time of timer.
- The clock icon will keep appearing with the hour value flashing.
- Press $\wedge$ or $\vee$ button to change the hour value.
- Press SET button to confirm the hour set and the minute value will flash.

- Press ^ or v button to change the minute value.
- Press the SET button to confirm the hours and minutes of the timer end time.
- After finishing all these steps, the display will show up like Figure 6.4-7. And the timer icon will be displayed all the time.

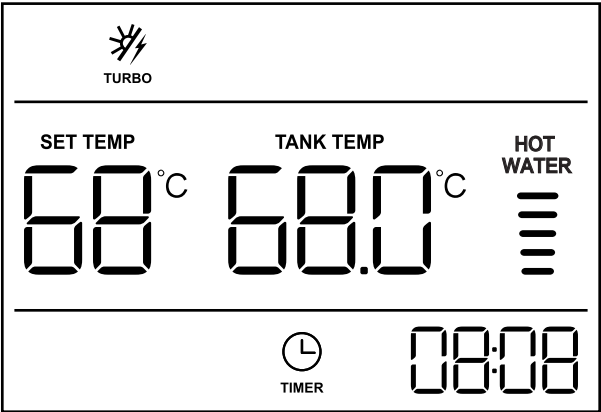


Figure 6.4-7 Main Interface With Timer

- When the start time is the same as the end time and the unit is running, it will shut down.
- When the start time is the same as the end time and the unit is off, it will turn on.
- Press (U) button could exit the timer setting which won't be saved.
- If there is no operation for 15 seconds, the unit will exit the timer setting and won't save the settings.

6.4.4.3 Cancel the Timer

To cancel the timer function, you need to press the button.

- The Timer icon will not be displayed.
- The start time and end time will be saved as default time.
- After finishing all these steps, the display will show up like Figure 6.4-8.
- Timed on - off operation in the APP: Click "Timer" on the main APP page, turn on the timing button, click and set the on - time and off - time, and then click "Save" to complete the timing setting. To cancel, click "Timer" on the main APP page and turn off the timing button.

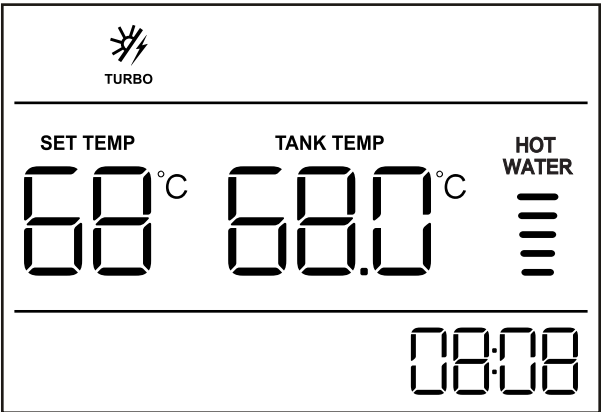


Figure 6.4-8 Main Interface Without Timer

NOTE

The timing is in 24-hour format.

6.4.5 Sterilization Function

- The unit with a factory default set water temperature of 60 °C achieves sterilization by heating 45 % of the water volume to above 60 °C.
- Set the sterilization function in the APP: Click "Sterilization" on the main APP page. Turn on the "ON" button for the sterilization time, set the sterilization time, select the weekly timed sterilization cycle, choose the sterilization temperature, and then click the save button. This will initiate manual sterilization, and the unit will carry out the manual sterilization settings in the APP, while the automatic sterilization will not be executed. If you need to turn off manual sterilization, click "Sterilization" on the main APP page, turn on the

"OFF" button for the sterilization time, and click save. Then the unit will resume the default automatic sterilization function.

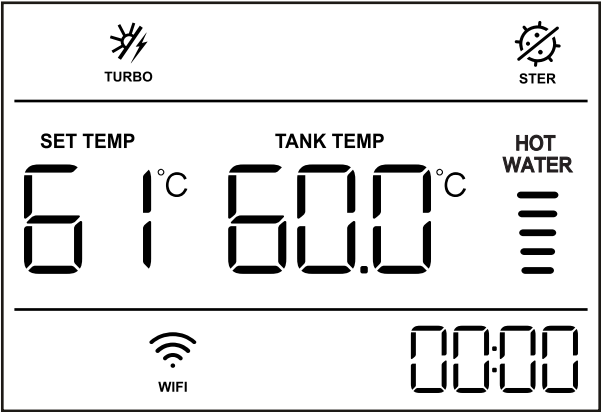


Figure 6.4-9 Sterilization Interface

NOTE

AS 3498 Clause 7.2 (b) Legionella control compliance: This unit meets the standard requirement that a minimum of 45 % of tank water volume is heated to 60 °C daily. The heating cycle stops when the temperature hits 60 °C, and the water volume above the detection point accounts for over 45% of the total tank capacity.

For sterilization temperature selection, 62 °C is recommended (this value here refers to water temperature 2); the factory default setting is also acceptable.

6.4.6 Wi-Fi Function

- Press Mode and ^ button simultaneously for 3 seconds to connect Wi-Fi.
- The Wi-Fi icon will keep flashing when you are connecting the unit.
- If the connection is successful, the Wi-Fi icon will stop flashing and be displayed. Otherwise the icon won't be displayed 3 minutes later.

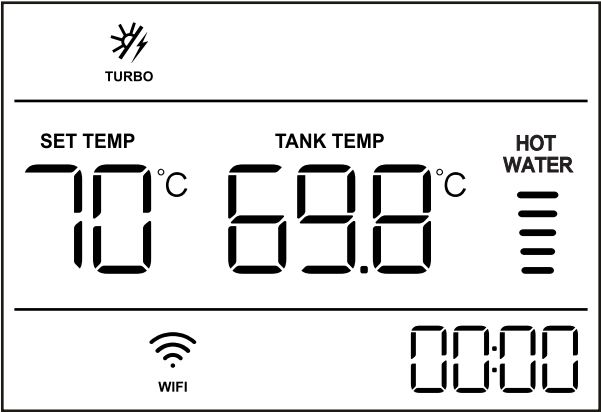


Figure 6.4-10 Wi-Fi Connection

6.4.7 Remote Control

You could control the unit through the Wi-Fi including set the target temperature/running mode/timer, etc.

- You need to connect the Wi-Fi first.

6.4.8 Off-peak Mode

- If you want to turn on Off-peak mode, you need to connect the Wi-Fi first.
- The Off-peak mode icon will be displayed when this function is on.
- Set Off-peak mode in the APP: Click "Off peak" on the main page of the APP, then click "add". Select the start-time and end-time, the weekly sterilization cycle, the electricity price stage, and the operation mode of the unit, and then press the save button. Use the same method to set other off-peak time periods of the day.

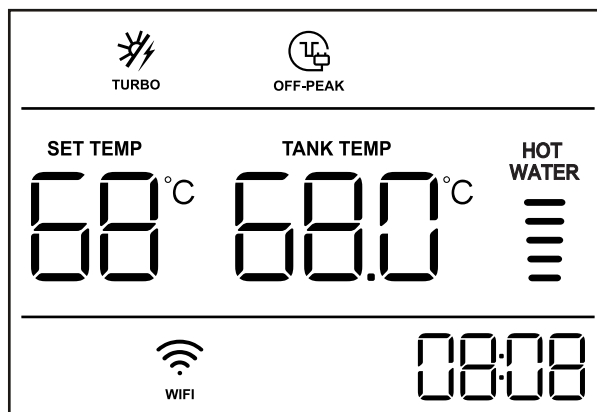


Figure 6.4-11 Off-peak Mode

NOTE

When selecting the off-peak time, only the time from 0 to 24 hours can be used, and the time selection cannot cross 24 hours. Otherwise, there will be a time - selection error. If the unit encounters the 24-hour recovery mode function, the unit will automatically restore the certified and registered temperature and mode.

6.4.9 Vacation Mode

- If you want to turn on Vacation mode, you need to connect the Wi-Fi first.
- The Vacation mode icon will be displayed when this function is on.
- Operation of the Vacation mode switch in the APP: Click "Vacation" on the main APP page, then enter the selection of "Vacation ON" or "Vacation OFF". If you select "Vacation ON", set the start and end time of the vacation, and click "Save". Vacation mode will be activated. During the period from the start to the end of the vacation, the unit will shut down. After reaching the end time of the vacation, the unit will start up and operate according to the parameters set before the vacation. If you need to cancel the Vacation mode, click "Vacation" on the main APP page, select "Vacation OFF", and click "Save".

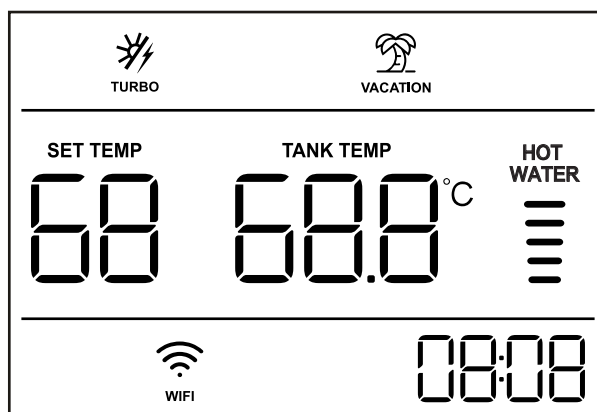


Figure 6.4-12 Vacation Mode

NOTE

When the vacation mode is activated, the unit will be in a shutdown state. After the vacation mode ends, the unit will automatically start up and heat up to the factory - set temperature 60 °C.

6.4.10 OTA Function

OTA enables remote Wi-Fi firmware upgrades without technician site visits. If any display-related software issue is found on the unit, you may report it to supplier. R&D will optimize and archive the improved firmware, then push it to users. You will receive a notification on the APP and must manually confirm the upgrade in the "Firmware Update" interface. The device then automatically downloads and installs the package and reboots to complete the process.



PRECAUTIONS

Keep Wi-Fi stable throughout to avoid program damage.

Do not disconnect power or operate the unit during upgrade.

If upgrade fails, the device retains the previous firmware; retry after network recovery.

6.4.11 Anti-freezing Function

- Smart anti freezing control is provided to prevent freezing in the unit.
- The unit will turn on when anti-freezing function is activated. Please keep the unit powered on.

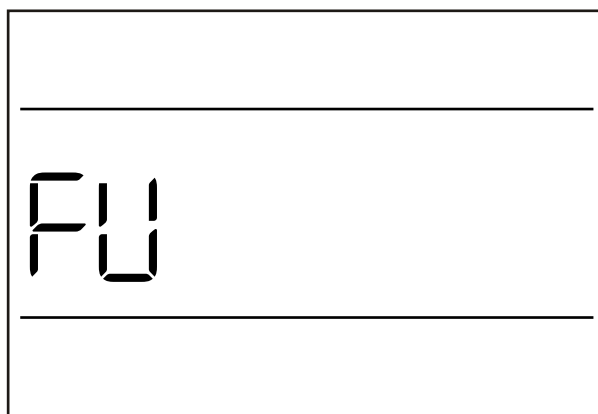


Figure 6.4-13 Anti-freezing On

6.4.12 Parameter Query

- Press SET and ^ button at the same time and hold for 3 seconds, you could check the parameters of unit.
- The clock zone will display qUE to remind you are in parameter query interface.

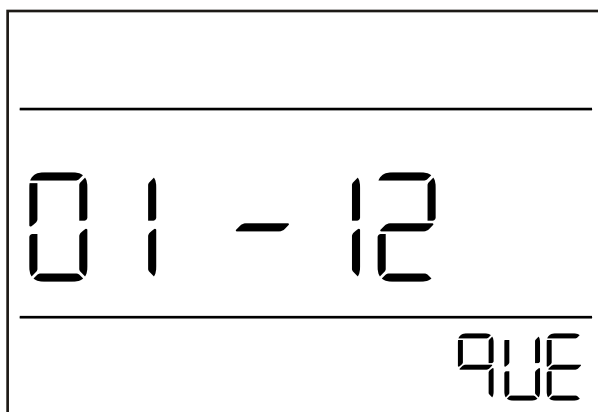


Figure 6.4-15 Parameter Query Interface

- The number of parameters will be displayed in Set Temperature zone which will keep flashing once each second.
- The value of parameter will be displayed in Tank Temperature zone and keep lighting up.

Code Name	Number	Note
Tank Temperature 1 (Thw 1)	01	°C
Tank Temperature 2 (Thw 2)	02	°C
Ambient Temperature (Ten)	03	°C
Coil Temperature (Tfr)	04	°C
Discharge Temperature (Tcomp)	05	°C
Suction Temperature (Tba)	06	°C
4-Way Valve	07	00: OFF; 01: ON
Electronic Expansion Valve	08	Step
Mode	09	00: ECO; 01: Turbo; 03: Standard
Set Temperature (Ts)	10	°C
PCB Software Version	11	
Display Software Version	12	
Error Code	13	The last error code
Error Code	14	The second last error code
Error Code	15	The third last error code
Error Code	16	The fourth last error code

7. Commissioning

Please confirm the following matters before trial operation:

- Whether the unit is installed correctly.
- Whether the piping and wiring are correct.
- Whether the drainage is smooth.
- Whether the insulation is well done.
- Whether the earthing wires are correctly connected.
- Whether the power supply voltage is equal to the rated voltage of the unit.
- Whether there are obstacles at the air inlet and outlet.
- Whether the air in the water pipeline is emptied, and all valves opened.

8. Maintenance and Troubleshooting

8.1 Maintenance

The unit has high level degree of automation, it is necessary to check the unit regularly. If the unit can be effectively maintained for a long time, the operating reliability and service life of the unit will be significantly improved.

- During use and maintenance the unit, the users shall make sure that all safety protection devices in the unit have been properly set before leaving the factory. Do not adjust the unit by yourself.
- Always check whether the water supply solenoid valve of the water system, the safety valve of the water tank, the liquid level controller and the exhaust device work normally, so as to avoid the reduction of water circulation caused by air entering the system, thus affecting the heating capacity of the unit and the reliability of the unit operation.
- Always check whether the wiring of the power supply and electrical system is firmly connected, and whether the electrical components have abnormal actions. If so, they shall be repaired and replaced in time.
- Check whether the water pump and waterway valves work normally, and whether the water pipeline and joints leak.
- The surroundings of the unit shall be kept clean, dry and well ventilated. Clean the air-side heat exchanger regularly (usually from January to February) to maintain good heat transfer effect.
- If the unit is unused for a long time, the water in the pipeline of the unit shall be drained, the power supply shall be switched off, and the protective cover shall be set. Comprehensive inspection of the system shall be done before next start-up.
- When the unit has failed and the user can't solve the problem, please call the local authorized service shop of our company to repair it in time.
- Cleaning of main engine condenser. It is recommended to clean the condenser with hot phosphoric acid solution at 50 °C - 60 °C and concentration of 15 %. When installing the pipeline, it is recommended to reserve a three-way interface and seal one interface with a plug for connecting additional pipe during cleaning. It is forbidden to clean the condenser with corrosive cleaning solution.
- After the water tank is used for a period of time (generally one month, depending on the local water quality), it is necessary to remove the scale and discharge the sewage regularly.
- Check and make sure that the power plug and socket are well fit, well grounded and free from overheating.
- If it is unused for a long time, especially in areas with low temperature (lower than 0 °C), in order to prevent the water in the inner tank from freezing and causing damage to the water tank, the water in the water tank shall be discharged.
- In order to ensure the long-term efficient operation of the unit, it is recommended to thoroughly drain and flush the water tank every six months to remove the sediment that may accumulate during operation.
- The water tank is equipped with a magnesium rod to protect the inner container from corrosion and prolong the service life of the water tank. In this process, the magnesium rod is also slowly consumed. In some water environments, magnesium rods react with water. Once magnesium rods are consumed, the tank liner begins to corrode and eventually causes leakage. It is recommended to check the magnesium rod every year or so. If it is consumed, please replace it with a new magnesium rod. For details, please consult the local air conditioning customer service center or the authorized service shop.
- If hot water is sufficient, it is recommended that users lower the set temperature, which can reduce heat loss and scale generation, save electric energy and prolong the service life of the unit.
- When the ambient temperature is lower than 0 °C and the water tank is installed outdoors, please take insulation measures for the water inlet and outlet pipes. If necessary, please install pipeline heating devices to avoid freezing the pipelines.
- Checking the PTR. The home owner should operate the PTR at least once every six months to ensure it functions correctly. Lift the lever on the PTR. It should release water for 5 seconds. Gently lower the lever until the water stops. Do not let the lever go, as this could damage the valve. If water is not released, contact supplier or a qualified plumbing tradesperson to resolve the issue.
- Excessive discharge from the PTR. A small quantity of water is expected to be released from the PTR during each heating cycle of a storage water heater. If the volume is greater than a bucket of water every 24 hours or there is continuous running or dripping of water from the valve, there may be an issue with the valve.
- If there is a continuous run from the valve, gently activate the valve lever for a few seconds. If the discharge stops, foreign matter may have been dislodged from the valve. If the PTR continues to run at a high rate, the water pressure exceeds the design pressure of the water heater. This issue can be resolved by a plumber fitting a Pressure Limiting Valve (PLV). Alternatively, the valve might be faulty and need replacing.

Six Month Service:

This service may be carried out by the owner.

- 1. Stand clear of the Pressure & Temperature Relief (PTR drain pipe outlet).
- 2. Open the PTR for approximately 10 seconds by lifting the easing lever on the valve. Confirm water discharges to waste through the drain pipe.
- 3. Lower the easing lever gently and check it closes correctly.
- 4. Repeat the above process for the expansion control valve (if installed).
- 5. Check that the grill on top of the water heater and the louvres are free of debris or other obstructions. Other than this, personally inspecting or servicing any part of the water heater is not recommended.

This service should include the following:

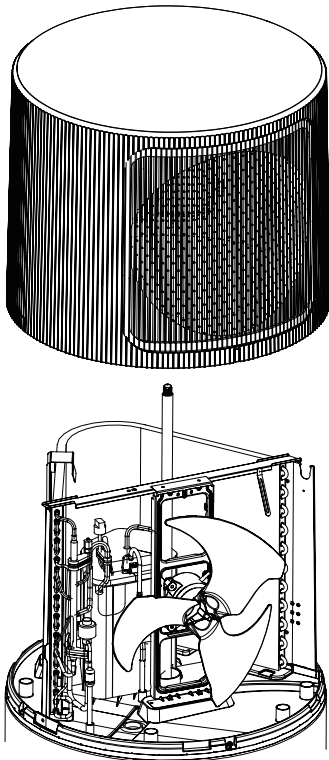
- Replace the PTR.
- Replace both anodes.
- Inspect and flush the expansion control valve (if installed).
- Clean any debris or residue from the condensate gutter and confirm that the condensate drain line is clear.
- Clean any dust or build up from the evaporator and louvres.
- Clean the fan blades and grill. Drain and flush the water heater.

Replacement parts are available from your local plumbing merchant.

 ATTENTION

Guidelines for replacing anode protection rods.

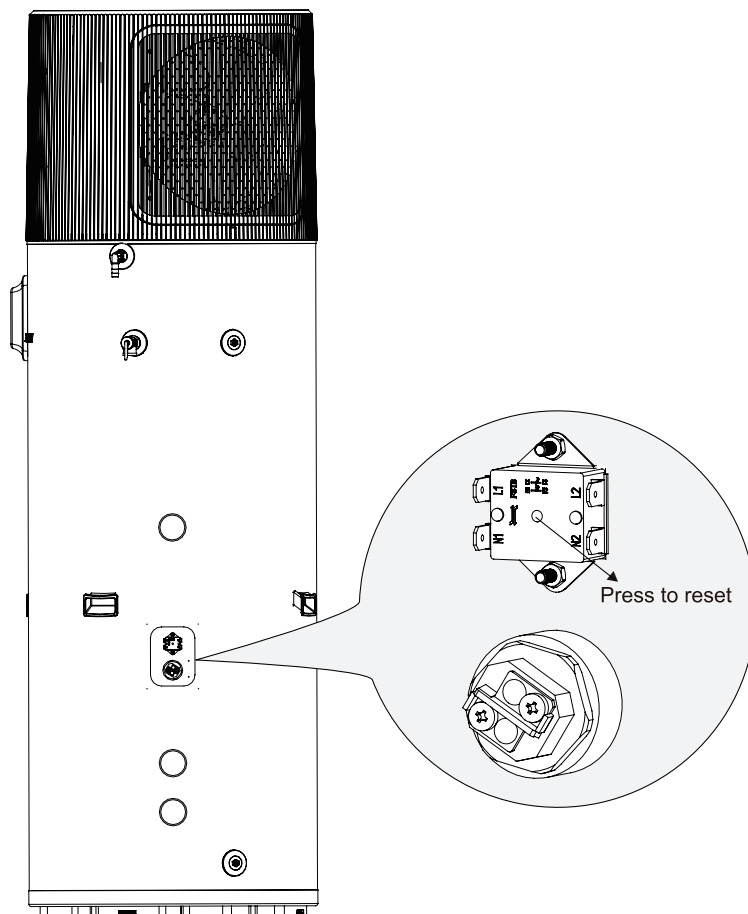
- Turn off the power supply of the unit and the cold water inlet valve.
- Open a hot water tap to reduce tank pressure.
- Replace with a new anode protection rod and tighten it to ensure reliable sealing, please find the Magnesium Rod replacement instructions in chapter 8.3 for detailed steps to remove the magnesium rod.
- Open the cold water inlet valve until water flows out of the hot water tap, and close the hot water tap.
- Turn on the power supply for normal operation.





ATTENTION

- If the electric heater cannot be turned on for some reason, check whether the Manual temperature controller above the electric heater is turned off. (The button has been pressed.)



8.2 Troubleshooting

When an abnormality occurs in the unit, it will display the error codes shown in the following table.

- Hardware codes and software codes will be displayed in the set temperature zone and flash once per second.
- The remind code will be displayed in the water tank temperature zone and flash once per second.
- When multiple errors occur at the same time, the error code is updated every 5 seconds.

Error Code	Content	Type	Solution
C8	Defrosting	R	/
d1	DEM1 Status Of DRED	R	/
d2	DEM2 Status Of DRED	R	/
d3	DEM3 Status Of DRED	R	/
E0	Communication Error	H	Check the main control board and display panel connection cable
E1	Tank Temperature 1 Sensor Error	H	Check unit outlet temperature sensor 1
E3	Coil Temperature Sensor Error	H	Check coil temperature sensor
E4	Ambient Temperature Sensor Error	H	Check the ambient temperature sensor
E6	Discharge Temperature Sensor Error	H	Check the discharge temperature sensor

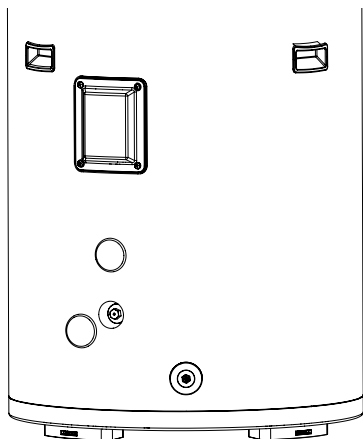
Error Code	Content	Type	Solution
E8	Tank Temperature 2 Sensor Error	H	Check the unit outlet temperature sensor 2
EE	EEPROM Error	H	Needs to update EE program
EF	Fan Motor Error	H	Check whether the fan motor is normal
EH	Suction Temperature Sensor Error	H	Check the suction temperature sensor
EL	Tank Temperature 3 Sensor Error	H	Check the unit outlet temperature sensor 3
F5	PFC Protection	S	Compressor overload, emergency protection
F6	Phase Protection	S	PCB chip temperature too high, emergency protection
F7	Module Temperature Protection	S	Abnormal phase current
F9	Module Temperature Circuit Error	S	Compressor Protection (frequency limit/frequency reduction)
FA	Phase Current Detection Error	H	Compressor Current Protection (frequency limit/frequency reduction)
Fb	Over-load Limitation	S	PCB chip temperature protection (frequency limit/frequency reduction)
FE	Phase Current Limitation	H	Compressor protection (frequency limit/frequency reduction)
FF	Module Temperature Limitation	S	Frequency limit/frequency reduction
FH	Inverter Limitation	S	Main board current (frequency limit/frequency reduction)
Fj	Discharge Temperature Limitation	S	Compressor overload, emergency protection
Fn	Current Limitation	S	PCB chip temperature too high, emergency protection
FU	Anti-freezing Protection	R	/
H1	High Pressure Switch Error	H	System high pressure protection
H2	Low Pressure Switch Error	H	System low pressure protection
P0	IPM Protection	S	The unit has protection such as frequency limit/frequency reduction check whether the ambient temperature exceeds the limit
P1	Over-voltage Protection	S	Check whether the voltage is normal
P2	Over-current Protection	S	Unit current is too high
P4	Discharge Temperature Protection	S	Discharge temperature is too high
P7	Over-heating Protection	S	Water tank temperature is too high
P8	Over-range Protection	S	Outdoor ambient temperature exceeds the limit
SF	Refrigerant Recycle	R	/
SP	SG On	R	/

H-Hardware code S-Software code R-Reminding code.

8.3 Replacing Magnesium Rod

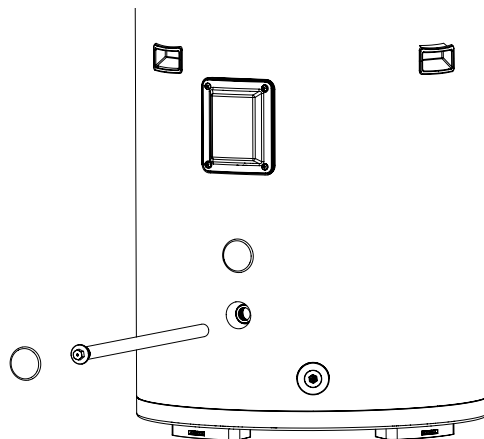
The magnesium rods of this unit are located at the top and side of the water tank. For ease of operation, priority should be given to replacing the side-mounted magnesium rod. If some units are not designed with a side-mounted anode rod, the top-mounted anode rod shall be considered to be replaced. The operation instructions for replacing the side and top magnesium rods are as follows.

- Replacing the Side Magnesium Rod



1) Drain Water and Remove Cover: Turn off the unit's power supply and water inlet valve, drain all water from the tank, and remove the plastic protective cover of the side magnesium anode rod.

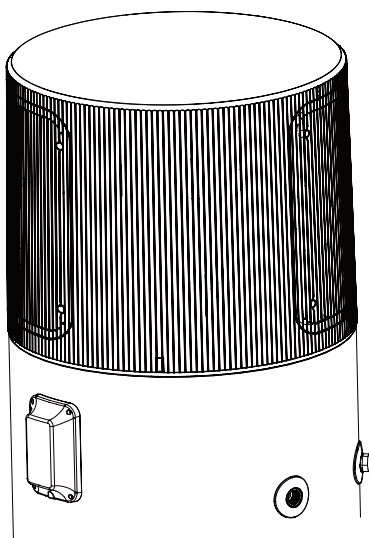
2) Remove the Old Magnesium Rod: Use a socket wrench to turn counterclockwise to remove the old side magnesium rod.



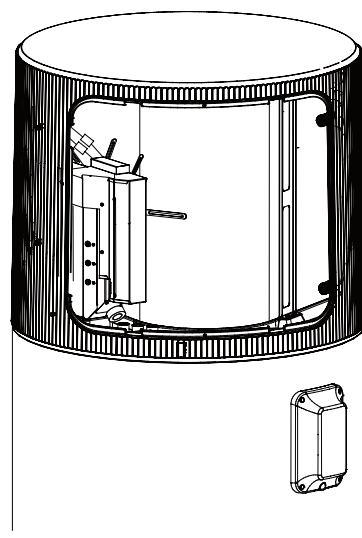
3) Install the New Magnesium Rod: Tighten the new magnesium rod with a socket wrench. To ensure that there is no water leakage after replacing the magnesium rod, carefully check whether the magnesium rod washer is in good condition.

4) Reassemble and Refill: Reinstall the plastic protective cover of the magnesium rod, open the water inlet valve, and after the tank is fully filled with water, restore the unit's power supply.

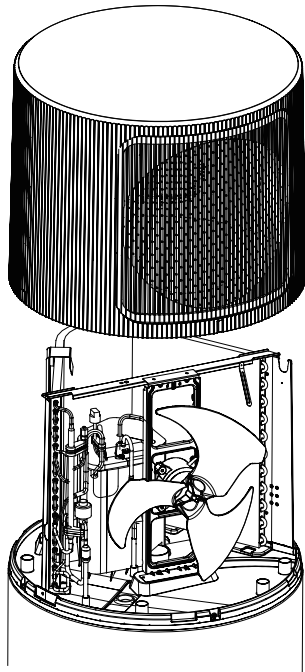
- Replacing the Top Magnesium Rod



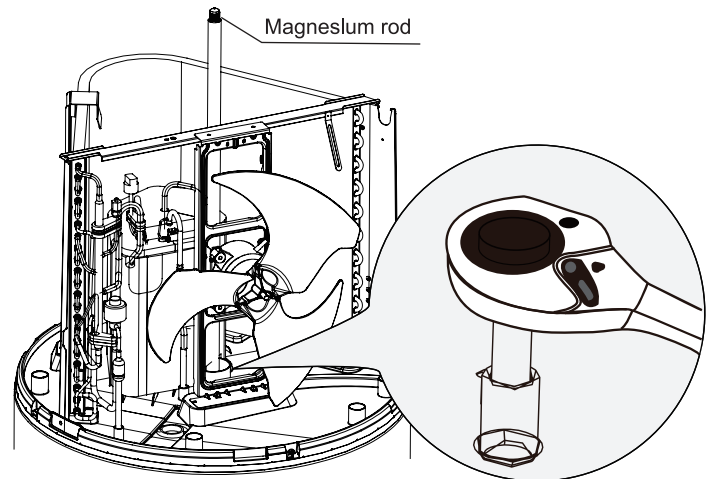
1) Open the three screw hole covers on the bottom of the top cover, and use cross screwdriver to unscrew those 3 screws.



2) Use cross screwdriver to unscrew 2 screws on the rear grilles, and remove the grilles from the side near the screw holes.



3) Separate the connection cable of the display panel from the buckle, and lift the top cover straight upward.



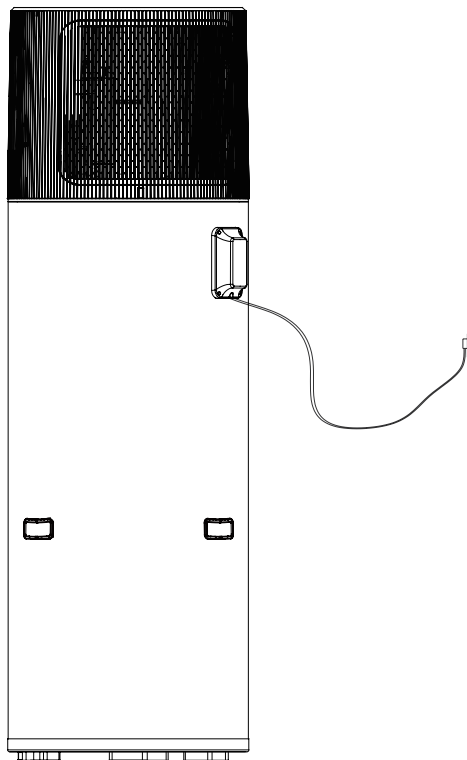
4) The diagram of complete disassembly is as shown in the figure.

WARNING

Before replacing the magnesium rod, please confirm the following safety matters!

- The power supply to the unit is completely cut off.
- Cut off the water supply to the water tank to prevent water from overflowing.
- There is enough operating space on the top of the unit.
- Remove screws: There are 4 screws that need to be removed, 2 on the inlet grille, 2 on the outlet grill.
- Disconnect the wiring: Standing on the side of the air inlet grille, you can see that there are 2 terminal blocks connected to the plugs above the electric control box, and disconnect the 2 connectors.
- Remove the cover: In the connection area between the cover and the water tank, remove 3 screws and slowly lift up the cover until it is removed.
- Replace magnesium rod: Magnesium rod is installed in the center of water tray. You need to use a No. 17 sleeve to turn it counterclockwise. After loosening the screw, you can take out the magnesium rod directly upwards.

8.4 Power Cord Installation



- The height of the power socket must be higher than the line outlet of the power line, otherwise a specific length of the power line must be allocated to prevent pooling. (As shown in figure.)
- If the unit is not operating correctly, immediately shut down and disconnect power, then contact the local technical service department.
- The power plug used for the unit must be with RCD.

9. APP Connection

Please scan the QR code below for instructions on how to connect the app.



10. Technical Specifications

Power Supply (V/Ph/Hz)	220-240/1/50	220-240/1/50	220-240/1/50
Rated Input Power & Current (Heat Pump)	560 W/2.5 A	560 W/2.5 A	560 W/2.5 A
Rated Heating Capacity (Heat Pump) ¹	2700 W	2700 W	2700 W
Rated Input Power & Current (Heating Element)	1000 W/4.4 A	1000 W/4.4 A	1000 W/4.4 A
Max Input Power	2200 W	2200 W	2200 W
Max Current (HP&Heating Element)	9.8 A	9.8 A	9.8 A
Refrigerant/Quantity	R290/390 g	R290/390 g	R290/390 g
STC-Zone 4	36	35	35
Water Tank Capacity	220 L	270 L	320 L
Heat Exchanger (Tank)	Microchannel	Microchannel	Microchannel
Inner Tank Material	Enamel	Enamel	Enamel
Water Inlet/Outlet Pipe	DN20	DN20	DN20
Water Tank Max Water Pressure	1 MPa	1 MPa	1 MPa
Relief Valve Pressure	0.85 MPa	0.85 MPa	0.85 MPa
IP Class	IPX4	IPX4	IPX4
Net Dimension	Φ 650 × 1940 mm	Φ 650 × 1852 mm	Φ 650 × 2049 mm
Packed Dimension (W × H × D) mm	735 × 2100 × 735 mm	735 × 2010 × 735 mm	735 × 2195 × 735 mm
Net/Gross Weight	110/130 kg	112/132 kg	122/142 kg
Noise (1 m) ²	46 dB (A)	46 dB (A)	46 dB (A)
Rated Outlet Water Temperature	60 °C	60 °C	60 °C
Max Outlet Water Temperature	70 °C	70 °C	70 °C
Working Range With Electric Heater	-20 ~ 45 °C	-20 ~ 45 °C	-20 ~ 45 °C
Working Range Without Electric Heater	-7 ~ 45 °C	-7 ~ 45 °C	-7 ~ 45 °C



**Scan the QR code to access the
latest version of this User Manual.**

The online version may be updated from time to time to include product improvements, safety information, and regulatory updates.

Power Bay Pty Ltd
Address: 90 Southlink Street
Parkinson QLD 4115
Email: service@powerbay.com.au
Website: www.powerbay.com.au