Pressurized Enamel Water Tank

Installation and Operating Manual

Version 2.0

Pressurized Enamel Water Tank

Thanks for choosing pressurized Enamel Water Tank (hereinafter to be referred as water tank). Please carefully read this Installation and Operating Manual prior to installation and operation of water tank. The Installation and operation should be strictly confirmed to the Manual.
Keep this Installation and Operating Manual for future reference.

Content:

The manufacturer has been approved by quality control system ISO9001: 2008.
The product is certified by the CE standard.

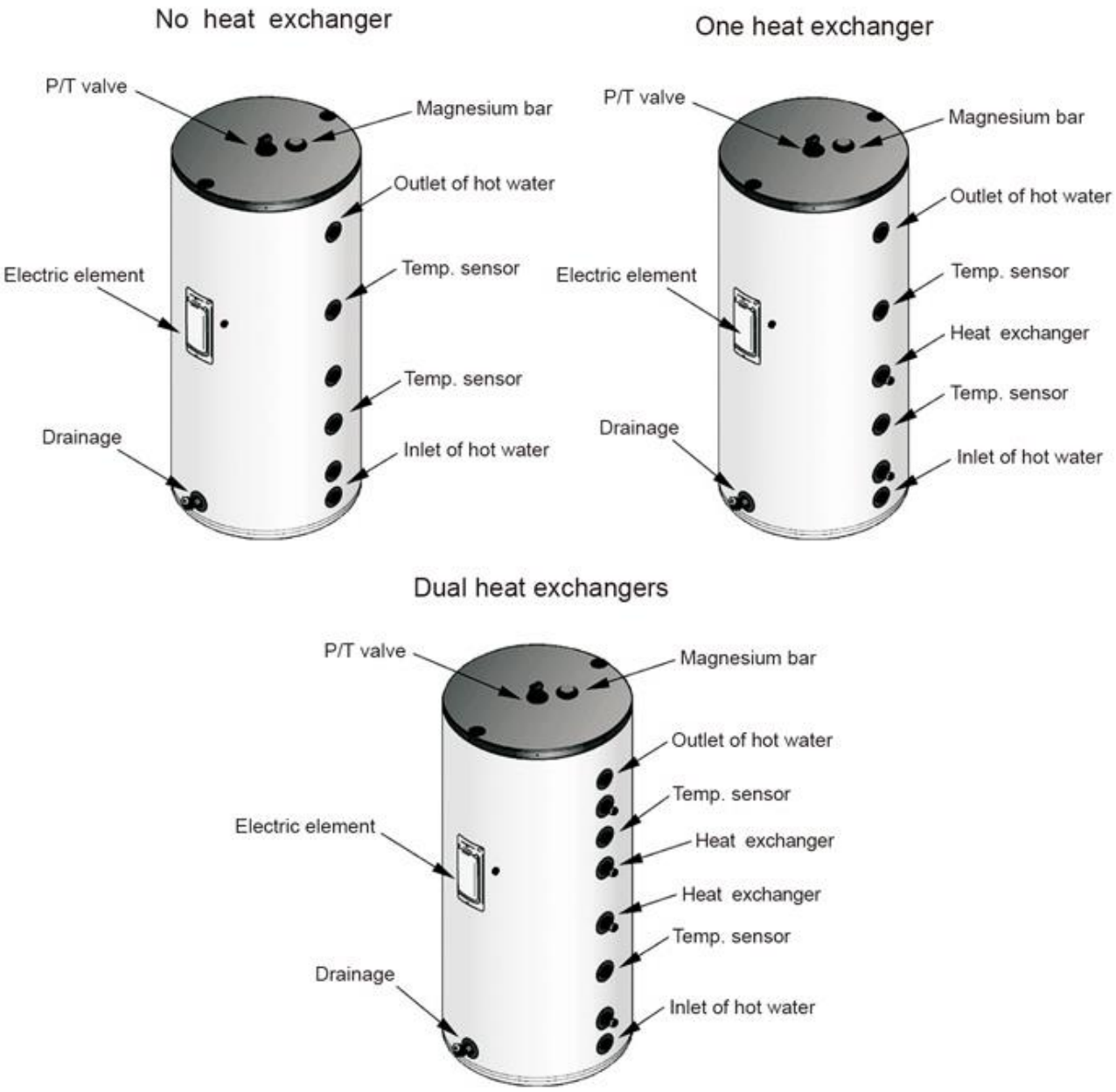
1. User Attention

⚠ Attention!

- Company is not liable for any damage if user does not conform to installation requirements in the Installation and Operating Manual and water tank is installed wrong. Installation shall be done by professional personnel.
- Connect the wire in accordance with requirements in corresponding sections.
- Water tank shall be equipped with pressure-temperature relief valves (hereinafter referred as "P/T" valve). For normal operation of valve please do not willfully change the mounting position of valve. Blocking valve port is forbidden. High temperature at the discharge port can cause scalding injury.
- Installation shall be done by approved professional personnel.
- P/T valve with delivery shall be intact and not substituted by other similar parts.
- Provide the smooth floor drain in order to prevent damage of other facilities from leakage of product or piping.
- Place electric elements in the dry place away from water spraying.
- Check the grounding in accordance with applicable national standards. Equip the receptacle of power supply with grounding wire. Ensure good grounding and separate grounding wire and zero wire.
- Select and install any electric wiring and distribution device in accordance with requirements for current and related safety regulations.
- Forbid switching on the power supply before water tank is full.
- Please drain the cold water and adjust the water mixing valve for water at the required temperature in order to ensure your safety and prevent scalding.
- Water tank is equipped with drain valve. Please remove the scale in the water tank periodically, Empty the water tank completely if it is not used for long term in winter, Otherwise water tank may be subject to frozen damage.
- Under normal circumstance, please turn the handle of P/T valve periodically to drain the water for several seconds, Outlet of P/T valve or piping shall not be blocked for any reason.
- Please do not disassemble any electric elements in the product, Carry out the installation and maintenance by professional personnel, Shut off the power supply before maintenance.
- Change the magnesium bar at the timely basis to extend the life of water tank according to water quality.
- Change the joint of heat exchanger in the product in accordance with requirements.
- Please do not change the structure of product at your own will.

2. System Instruction

2.1 General view



2.2 Utilities and features

Pressurized enamel water tank is the supplementary system to supply of hot water or heating system in home, enterprises, institutes and service industries.

Features:

- "Jing Ian" Inner Tank: Special silicone coated to the inner tank evenly by advanced anti-corrosive techniques shall be integrated with the inner wall after the treatment at high temperature to form a blue steel container. This is one of the best inner containers for anti-rust and scale resistance with good capacity of compression resistance, corrosion proof to bear the impact of large water flow without any failing and crushing. The safe service life of inner tank lasts many years.

- Outlet is enclosed and inlet connects to the piping of running water directly. Water pressure is sufficient as hot water is supplied under pressure of running water.

- Several automatic control and protection devices, like thermostatic control, over-temperature protector, pressure protection device (P/T valve) and one-way valve, are equipped.

- The supplementary electrical heating is equipped for safety and convenience.

- Use the extended powerful anode rod to resist corrosion and scaling for longer life of water tank.

- Water tank with heat exchanger is optional upon user's request. This type can provide the greatly large heat-exchanging area and short heating time.

- Casing is made of zinc-galvanized board with static power coating and banking finish that can resist the rust, ultraviolet radiation and de coloration after long term use.

- Several products can be installed in parallel, which can distribute streams equally, to meet the requirement for move water.

3. Technical Data

3. 1 Technical Data

Model	100 L	150 L	200 L	250 L	300 L	400 L	500 L
Inner tank	Steel BTC340R	Steel BTC340R	Steel BTC340R	Steel BTC340R	Steel BTC340R	Steel BTC340R	Steel BTC340R
Outer tank	Galvanized steel	Galvanized steel	Galvanized steel	Galvanized steel	Galvanized steel	Galvanized steel	Galvanized steel
Insulation	Polyurethane 45mm	Polyurethane 45mm	Polyurethane 45mm	Polyurethane 54mm	Polyurethane 54mm	Polyurethane 50mm	Polyurethane 50mm
Inlet/Outlet size	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″
Dimension (mm)	Ø458×1140	Ø528×1165	Ø528×1485	Ø650×1280	Ø650×1510	Ø718×1560	Ø718×1700
Packing dimension (mm)	595×595×1240	625×625×1315	625×625×1640	730×730×1400	730×730×1620	820×820×1640	820×820×1810

3.2 Wiring diagram and electricity principle drawing

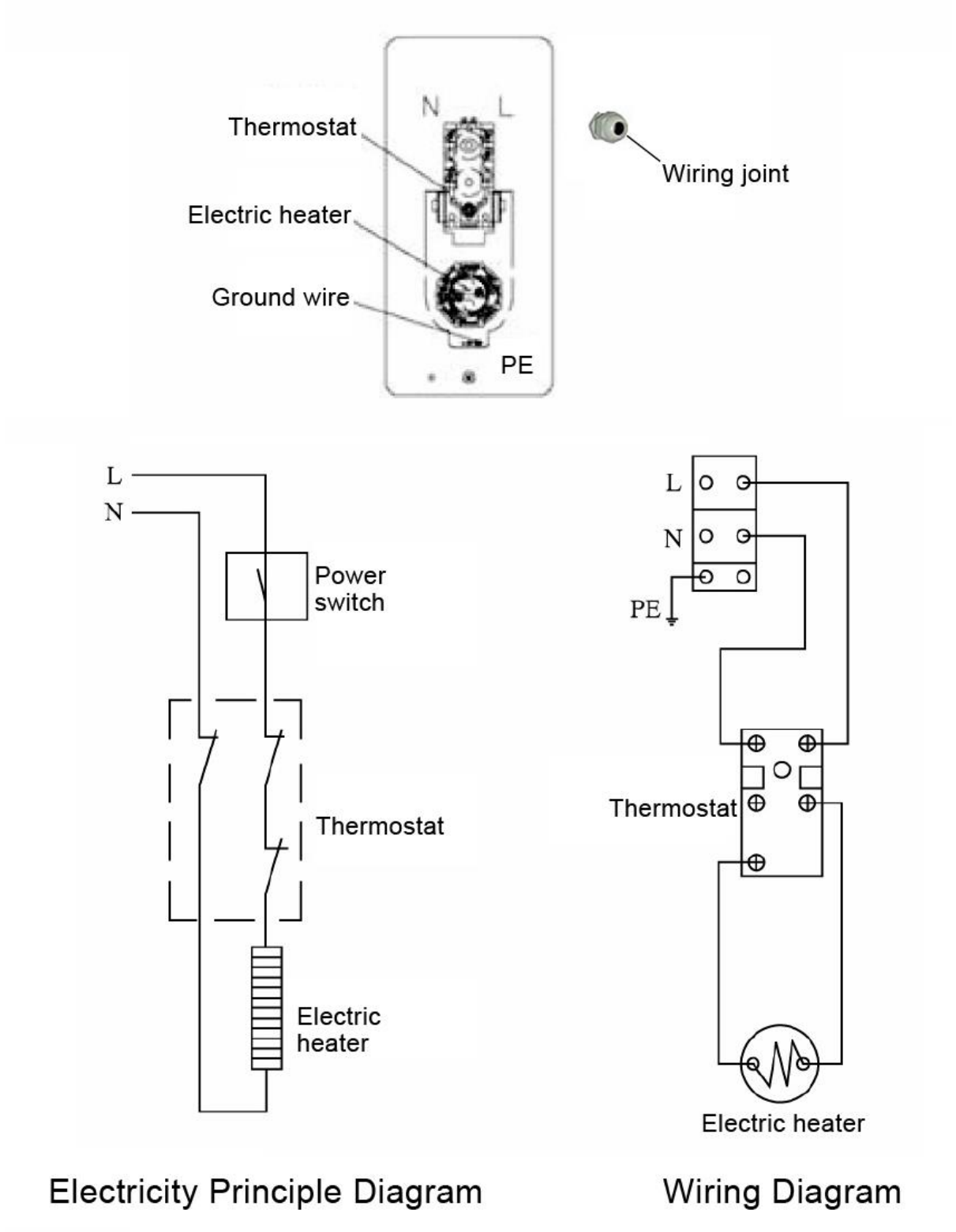
Connect the phase wire L, neutral wire N and grounding wire PE with temperature-control terminal and grounding system reliably. Separate the grounding wire and zero wire clearly. Ensure the reliable grounding!

Fasten the power supply cord via lead-in hole to prevent the cable from frequent damage, disconnection and metal edge. Otherwise accident may be caused. Use the cold-press terminal for wire stub. Connect the wire stub with connection terminal tightly to avoid the heated terminal from bad contact.

⚠ Attention!

Connect the power supply by professional personnel! Select and install any electrical wiring and distribution device in accordance with requirements for current and pertinent safety regulations.

Wiring / Electricity Principle Diagram



4. Method of Installation

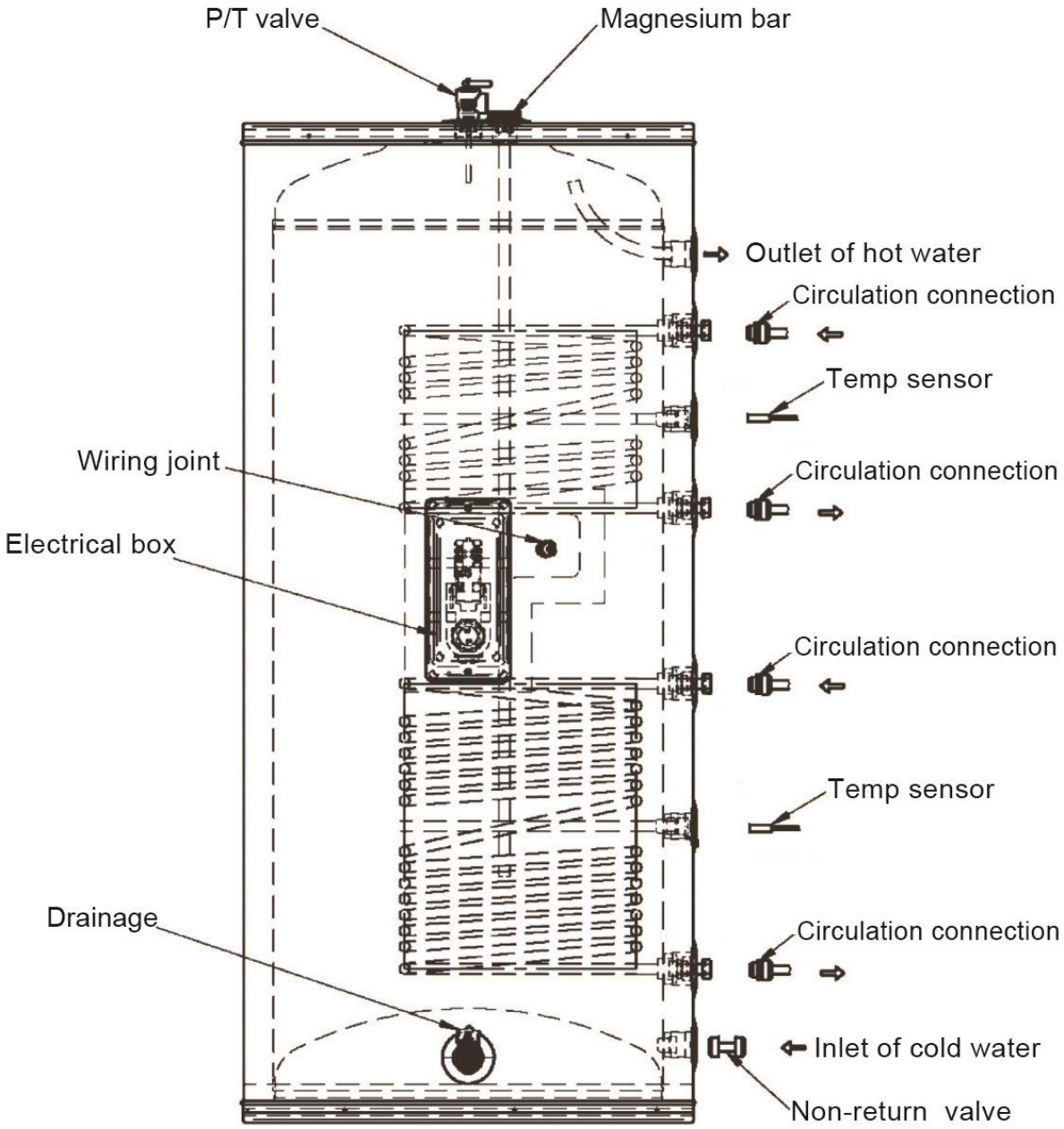
4.1 Installation attentions

⚠ Attention!

- Install the product in the dry place free of water spray. Forbid choosing the position possibly subject to frozen.
- Install the product near the point where hot water is required frequently.
- Junction box and P/T valve shall be directed for easy maintenance.
- The product must be located in an area with enough room for installation and maintenance.
- Stand the product. Construction must bear the total weight of full water tank.
- Place the product on the fire-fighting base higher than 50mm. Prepare the smooth high-temperature floor drain around the base to avoid damage of other facilities from leakage of product or piping.
- Connect the solar product or system with ports of water tank. Fit the pump station, expansion tank, circulating pump and other system elements in accordance with system requirements. Confirm the circulation direction and installation position during the connecting in order to ensure the safe running of system.
- Torque to connect the pipe is not more than 8 kg.
- After unloading the tank is prohibited to place upside down, and it is prohibited to be horizontally placed and stacked.
- Do not use sharp tools to operate on the parts of water tank.
- After tank is fitted with hooks on the wall, then remove the protective film to prevent scratches during installation.
- Add the medium according to the type of water tank and flow direction of the medium pipe, and ensure that there is no air in the circuit (the circuit is full of medium), block with a plug after the finish.
- Tank is prohibited to be from side to side when handling and installation.

4.2 System connection

4.2.1 Connection Diagram



4.2.2 Connecting water pipe

- Diameter of cold/hot-water main pipe shall conform to connection of water tank as shown in the diagram. Piping shall endure the pressure not lower than 0.7MPa and temperature up to 90 ℃.
- As temperature of hot water is high, mount the cold/hot-water adjustment valve at the point where hot water is required. If the point is far away from the product, insulate the hot-water pipe with proper insulation to avoid heat loss.

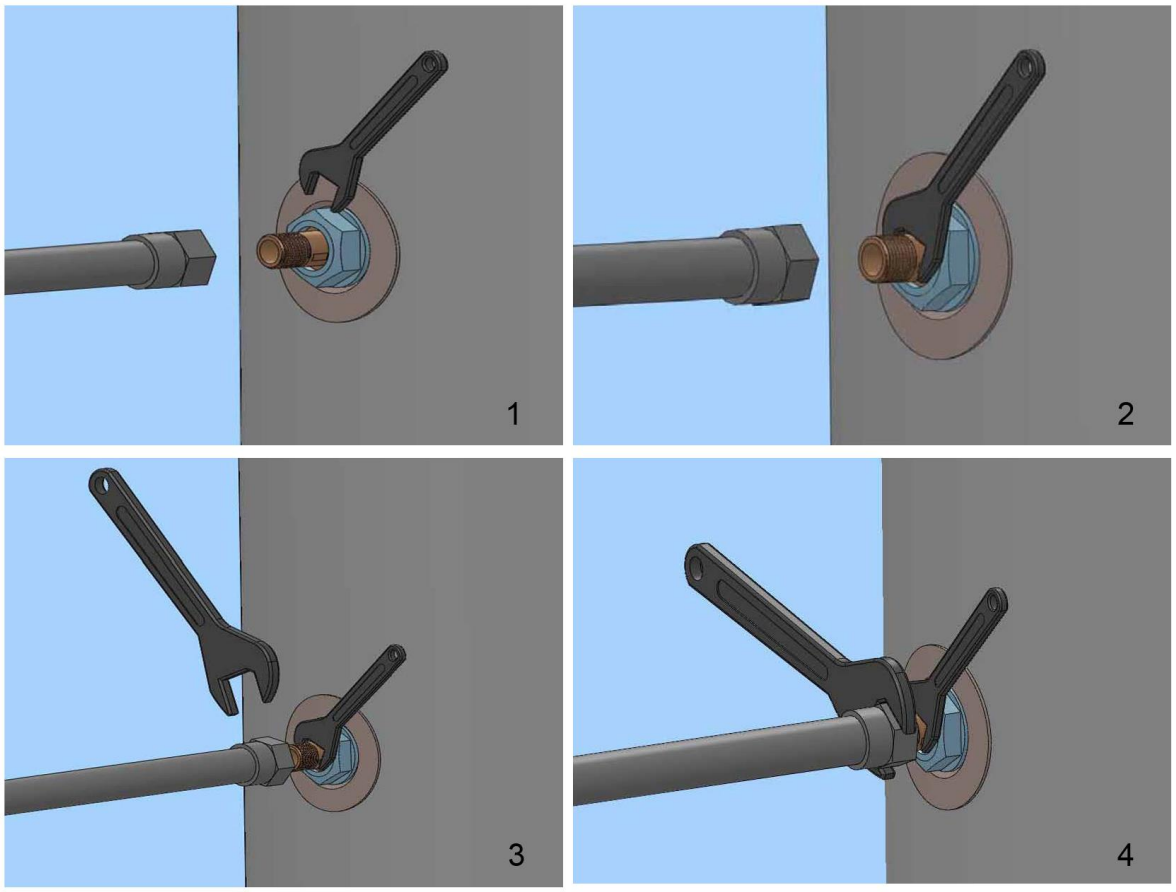
- Mount the one-way valve at the inlet of cold water. If pressure of cold water is too low, manifold supply will be affected. Mount the booster in the supply pipe of cold water. If pressure of cold water is higher than maximum supply pressure of 0.68MPa, mount one pressure-relief valve at the inlet.
- Keep the check valve in the supply pipe normal open in normal conditions.

⚠ Attention!

While connecting pipes, do not use very big force with wrench tools.

Special Attention !

Please use wrenches to prevent tank from twisting when joint installation.



4.2.3 Connect the solar system

- Connect the circulation inlet, outlet and solar equipment as shown m the diagram. Mount the automatic air-exhaust or expansion device m the connection system in accordance with connecting requirements.
- As product is integrated with the solar system, inside heat exchanger shall be made of copper or

enamel lined coil for the hygiene of water. All pipes shall be made of composite materials resisting high temperature and pressure. Pump stations and valves in the system shall endure the pressure not lower than 0.8MPa and temperature up to 99'C.

- There is one or two Φ8mm hole for detecting temperature in the water tank to check water temperature in the tank. Apply the heat-conductive resin on the temperature sensor to avoid inaccurate measurement value. Fix the wire-type temperature sensor tightly to avoid disconnection.

⚠ Attention!

Forbid disassembling the hole for detecting temperature for any reason. Otherwise there is possibly inaccurate measurement value or leakage.

- Product can be equipped with single heat exchanger, dual heat exchanger or no heat exchanger according to the system. Please choose other circulating medium or extend the heat-exchanging time if heat-exchanging effect is low.

4.2.4 Mount the P /T valve

- Check if probe of temperature/ pressure safety valve is bent and handle can be operated flexibly.
- Twist the PTFE around the thread. Caution: PTFE shall not be longer than the end of thread. Turn the P/T valve into the mounting hole as shown in the diagram.
- Keep the drainage pipe of P/T valve downward. Mount the drainage pipe in the frost-free place that is connected to the atmosphere and floor drain.

⚠ Attention!

- **Please carefully refer to separate P/T valve instruction manual for operating.**
- **Drainage pipe of P/T valve shall not be blocked for any reason. Outlet of pipe shall be connected to the atmosphere. Ensure hot water from the outlet not endangering personal or property damage.**
- **Following installation, the P/T valve lever MUST be operated AT LEAST ONCE A YEAR by the user to ensure that waterways are clear.**
- **The P/T valve should be inspected AT LEASE ONCE EVERY THREE YEARS, and replaced, if necessary.**

5. Operation and Handling

5.1 Feed water

Feed the water in accordance with model of system and user's requirements. Feed the water into product and hot-water pipe in the following order.

- Open all hot-water faucet and shower faucet.
- Open the isolation valve of cold water into the water heater.
- Turn off feeding till there is water from the hot-water faucet and shower faucet.
- Check the leakage of piping.

⚠ Attention!

Forbid switching on the power supply before water tank is full. Otherwise machine may be damaged.

5.2 Use of functions

- Switch on the power supply after water tank is full. Built-in thermostatic control controls the product so that product runs automatically and no duty-man is required.
- In normal conditions, keep the cold-water isolation valve normal open. Cold water will be supplied automatically when hot water is drained.
- During the heating, it is normal that P/T valve drains less hot water.
- Adjust water to proper temperature before use to avoid scalding. Hot water over 50℃ will result in scalding injury.
- Hot water can be stored when power supply is shut off.
- Cold-water isolation valve is preferred to be close when water supply stops. Otherwise water in the tank may return the water-supply piping if one-way valve fails. Re-open the isolation valve after water supply recovers.

5.3 System control

- Thermostat will start the electric heating automatically when water in the tank is below the temperature setting and stop the heating after temperature setting is reached.
- If the product is used in the heat-supply system, connect the power supply of circulating pump with timer or room-temperature control. Adjust the time or room temperature to control heat-supply automatically.
- Heat-supply will be affected if hot water is required frequently or great amount is required during the heat-supply. If great amount of water is required, please terminate the heat-supply first.

5.4 Close water tank

It is no need to close the water tank normally. If the demand for hot water falls, close several water tanks in the set. Close all water tanks for maintenance in the following order.

- Shut off power supply to the water tank.
- Turn off the cold-water isolation valve in the tank.

⚠ Attention!

Please empty the water tank if it is closed in the cold are in winter. Otherwise the cylinder may be frozen and damaged.

5.5 Empty water tank

It is necessary to empty the water tank only if water heater shall be maintained or idle for long time in the cold area in winter. Empty the water tank in the following order:

- First shut off the power supply.
- Close the cold-water inlet valve.
- Open any of hot-water faucets.
- Open the drain cock.

⚠ Attention!

Fill the water tank before power supply is switched on for restart.

6. Maintenance

6.1 Check on safety

Check PIT valve once every month. Trigger the small handle on the relief valve. If water flows out, it means that relief valve works normally. If no water please contact the local customer service department.

⚠ Attention!

Water temperature at this valve is very high, so please prevent scalding injury during the examination.

6.2 Outside cleaning

- Disconnect the power supply before cleaning.
- Avoid water into electric water heater during cleaning.
- Wash the heater with soft cloth with warm water or mild detergent. Acid, chemical solvent or abrasive detergent is not allowed.
- Wipe the product with dry cloth to keep it dry.

6.3 Inside cleaning

Clean the cylinder once annually in the area where water quality is good. Clean the cylinder once every 6months in the area where water quality is bad. Cleaning steps are described in the section, Empty water tank.

6.4 Heating element cleaning

- Heating element must be cleaned once every two years.
- Replace the magnesium bar once every two years.
- User can clean the outside and inner tank while cleaning of heating pipe must be done by professional personnel.

7. Common Failures and Troubleshooting

Assembly, maintenance and repair shall be carried out only by qualified technicians. The following table gives solutions to possible problems, if the problems fail to be solved, please contact the local distributors/installers.

Failures	Causes	Solutions
Leakage	Bad seal at connections.	Fasten seals
	Leakage of water supply line and other devices	Check joint of hot pipe and other devices
No or insufficient hot water	Power disconnection	Power on
	Hot water is required for long time or successively or large amount is required	Terminate the hot water and wait for heating.
	Abnormally serious drainage from P/T Valve.	Please refer to error list of P/T Valve Drainage.
	Damage of heating element or insufficient heating power	Contact the professional personnel.
	Faulty operation of system or insufficient medium.	
System does not work	The power supply of circulation pump is not connected	Switch on the power supply of circulation pump.
	Air exists in the system, affecting the circulation of hot water	Exhaust air by professional personnel.
	Wrong system connection and damage of temperature sensor	Contact the professional personnel.
	Excessively large heat-supply	Repair of pipeline
	Damage of heating element and wrong wiring	Contact the professional personnel.

Failures	Causes	Solutions
Drainage from P/T valve	It is normal that small amount of hot water/steam is exhausted every heating	Normal
	If there is continuous drop, P/T valve may be blocked by foreign matters.	Raise the handle and drain some water for several seconds. Return the handle mildly. Repeat the mentioned actions several times.
	If there is continuous leakage, supply pressure may be too high	Add the pressure-relief valve on the plumber
	If there is big amount of water drainage intermittently, thermostatic control may fail.	Contact the professional personnel.
Abnormal noise from water tank or piping	Light sound is normal during the heating	Normal
	Vibration of water pipe produces the sound due to fluctuation of water pressure	It is normal and close the cold water check valve temporarily
	If there is noise during the heating, sediment may exist at the bottom of water tank	Remove the sediment as described in the section of Scale Removal
	If noise is loud during the heating, scale may exist in the heating element	Remove the scale by the professional personnel.