

***Owner's Guide  
and  
Installation Instructions***



***Air Sourced Heat Pump Water Heater***

***RHP-2805 Series***



*This water heater must be installed and serviced by a qualified person.*

*Please leave this guide with the householder.*

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# Contents

Packing List.....	2
General Precautions.....	3
Technical Specifications.....	5
Installation Instruction.....	6
Pipe Connection.....	9
Wiring Diagram.....	13
Operation and Usage.....	14
Maintenance.....	20
Common Faults and Solutions.....	22
Replacement Parts.....	24
Warranty Policy.....	25

## Packing List

No.	Name	Qty.
1	Heat pump water heater	1
2	T&P relief valve	1
3	Non-return valve	1
4	Drain valve	1
5	Water outlet connection	1
6	Condensation drainpipe	1
7	Instruction manual	1

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# General Precautions

**Please read this instruction manual carefully before taking any installation or operation action and keep this manual in a safe place for future reference.**

- Rheem Manufacturing Company group of companies (hereinafter referred to as “Rheem”).
- The water heater is intended to be installed by a qualified technician. Rheem shall not be liable for any loss or consequences caused by improper operation and performance faults, like pipe leakage, machine malfunction or any other damages due to the installation of personnel not approved by Rheem or using unauthorized installation materials.
- The water heater is suitable for domestic usage. Commercial purpose will shorten its life cycle.
- A suitable floor drain that enables water to be drained away to a safe location must be installed near the water heater to prevent damage to other facilities.
- The working voltage of water heater is 220-240V~, violation of the range will cause operation failure.
- The water heater must be installed as per national wiring standards.
- Neither unqualified and damaged cables nor unqualified, aging socket can be used, otherwise, electric shock, short circuit, fire and other accidents may easily occur.
- A special circuit and circuit breaker protection must be provided for the electrical connections. The compliance of meter, circuit breaker, wire diameter and socket shall be inspected by those skilled in this art.
- The power supply to the water heater must not be switched on until the water heater is filled with water.
- In case of abnormal conditions of grounding system of other equipment, user should immediately stop using the water heater, unplug the power supply or cut off all connections with power supply circuit, and contact the maintenance people of the manufacturer to solve the problem.
- If the power cable is damaged, it can only be replaced by qualified personnel approved by the company.
- A non-return valve must be installed for the cold water inlet pipe of the water heater.
- Water temperature exceeding 50°C may cause scald to human body. Please use before mixed with cold water.
- When you don't use water heater for a long-time in winter, please switch off and discharge your

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water heater to prevent freezing damage.

- Pressure relief device must be installed. For safety reason, DO NOT change installation position of the relief device or block its exit. A drain tube must be connected to the relief valve and kept going down. Water flowing out from the tube shall be discharged to suitable floor drain.
- Do not attempt to install, repair or remove the water heater, all work must be carried out by a qualified technician.
- Do not insert any foreign objects into air inlet or outlet to avoid injury.
- If the water heater begins to operate abnormally (i.e., excessive noise, emit smoke, peculiar smell, etc.), stop operation of the equipment, isolate power supply promptly and contact the Service Department. Do not attempt to repair the unit by yourself.
- Max. water supply pressure is 0.68MPa.

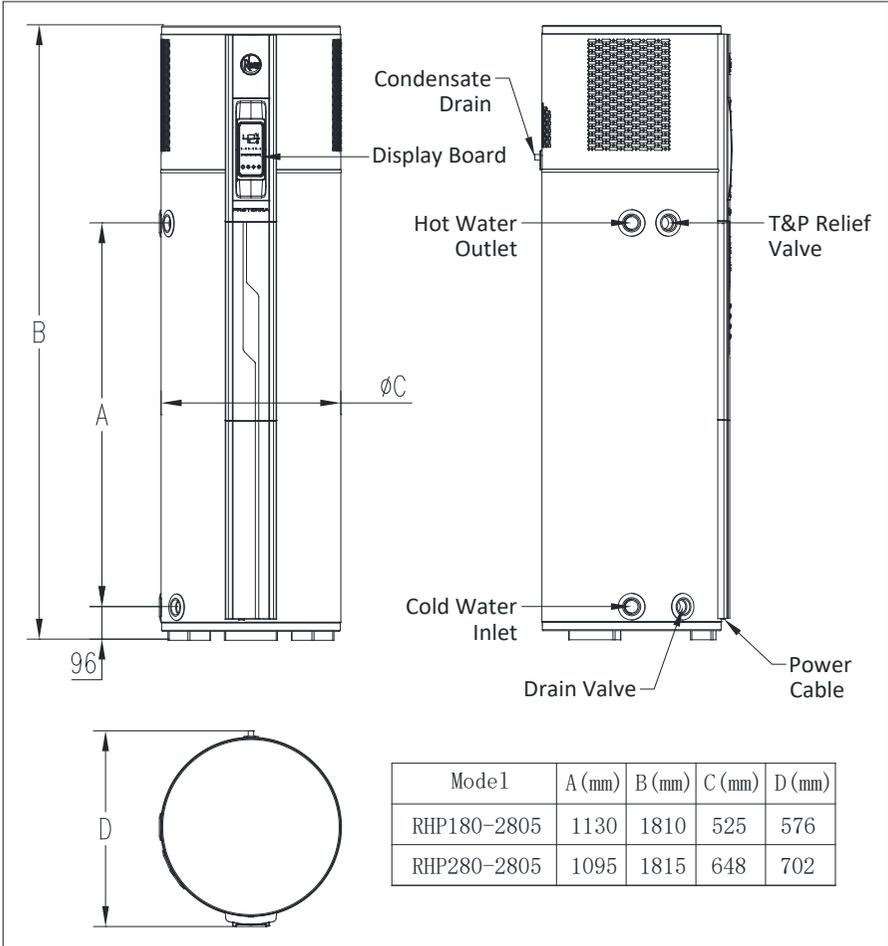
**Warning: The power socket must be grounded reliably. It is strictly forbidden to use the water heater without a reliable grounding measure!**

**If the requirements in this instruction are not strictly followed, a fire accident may occur, causing property damage, personal injury, or death!**

# Technical Specifications

Model	RHP180-2805	RHP280-2805	
Power supply	220-240V~ 50Hz		
Circuit fuse - model number	T3.15AL250V		
Circuit fuse - parameters	3.15A 250V		
IP rating	IP24		
Heat pump heating capacity*	2800W		
Heat pump power input/current*	666W/3A		
Coefficient of Performance (COP)*	4.2		
Heat pump heating water capacity*	60L/h		
Refrigerant (charging amount)	R134a (0.9 kg)		
Element rating/current	2500-3000W/11.4-12.5A (@220-240V)		
Max. power input/current	4000W/16.7A		
Operation ambient temperature range	-7 ~ 43°C		
Water temperature adjustment range	35 ~ 75°C		
Rated water temperature	65°C		
Max. water temperature of heat pump	70°C		
Water side	Heat exchanger type	Microchannel	
	Tank capacity	180L	280L
	Maximum Pressure	850 kPa	
	Inlet/outlet connection	RP3/4" / DN20	
	Relief/drain valve connection	RP3/4" / DN20	
Air side	Heat exchanger type	Internal thread tube with hydrophilic aluminum foil	
	Air outlet	Back exhaust	
Dimension	Diameter	525 mm	648 mm
	Height	1810 mm	1815 mm
Heater weight - Empty	96 kg	120 kg	
Heater weight - Full	276 kg	400 kg	
*Testing conditions: power supply 220V~ 50Hz, ambient temperature 20°C/15°C (dry bulb/wet bulb), and water temperature from 15°C to 55°C for water heater operation.			

## Dimensions



## Installation Instruction

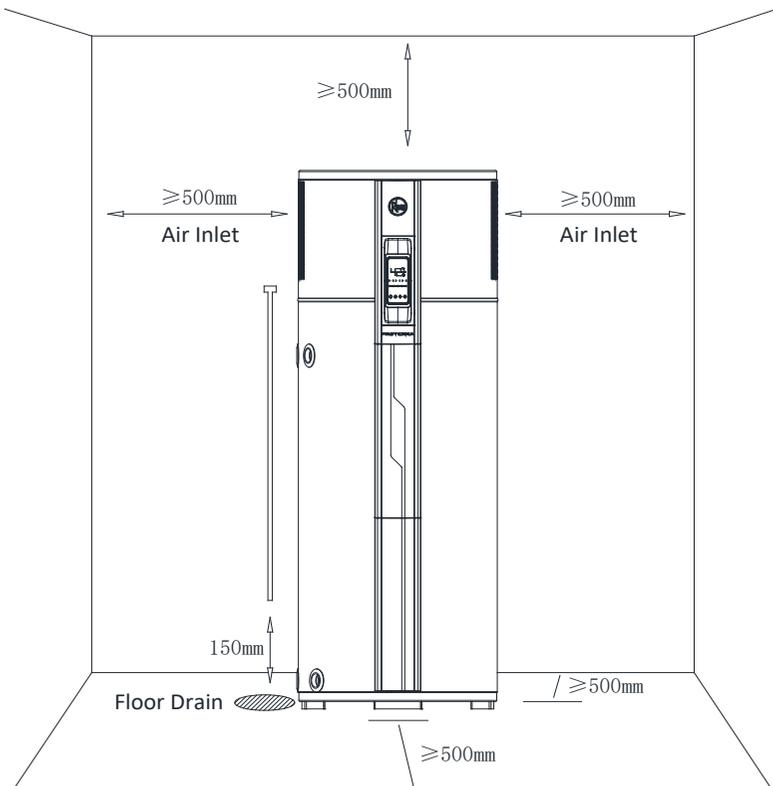
### Installation Location

- Do not install this water heater in a place where freezing may occur.
- The water heater should be installed as close as possible to the hot water point with the highest frequency of use.
- There should be enough clearance around the water heater so that the entire unit can be

removed for repair or replacement if necessary. The electrical junction box and T&P relief valve should be oriented for easy maintenance, and the nameplate should be easy to read.

- The water heater should be installed on the floor to ensure that it is placed vertically and avoid tilting. The building must be able to withstand the total weight of the water heater after being filled with water without severe vibration.
- The water heater should be placed on a refractory base with a height of not less than 50mm, and there should be a high temperature resistant floor drain with unobstructed drainage near the base to prevent damage to other facilities in case the water heater or pipeline leaks.
- The installation location should be well ventilated, no obstacles that hinder the wind in and out, and should not be exposed to rain and direct sunlight.
- The water heater should be installed at location where its running noise and exhaust will not affect the neighbors.
- Make sure there is no leakage of flammable and corrosive gas at the installation location; no oily smoke and dust; no or only small fluctuations of power supply voltage.

### **Installation Clearance**



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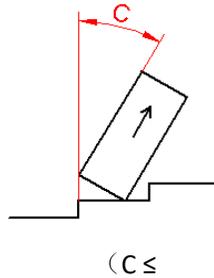
## **Installation Precautions**

Wiring work must be done by a qualified electrician and must meet electrical safety requirements. When the user needs to install and move, please contact the company's after-sales service center for professional help. DO NOT install and move by yourself. Otherwise, the company will not be responsible for any damage and failure caused and warranty of water heater will be invalid.

**Warning: If the water heater is installed on the roof of a building that is vulnerable to lightning strikes, the water heater must be protected by lightning protection facilities!**

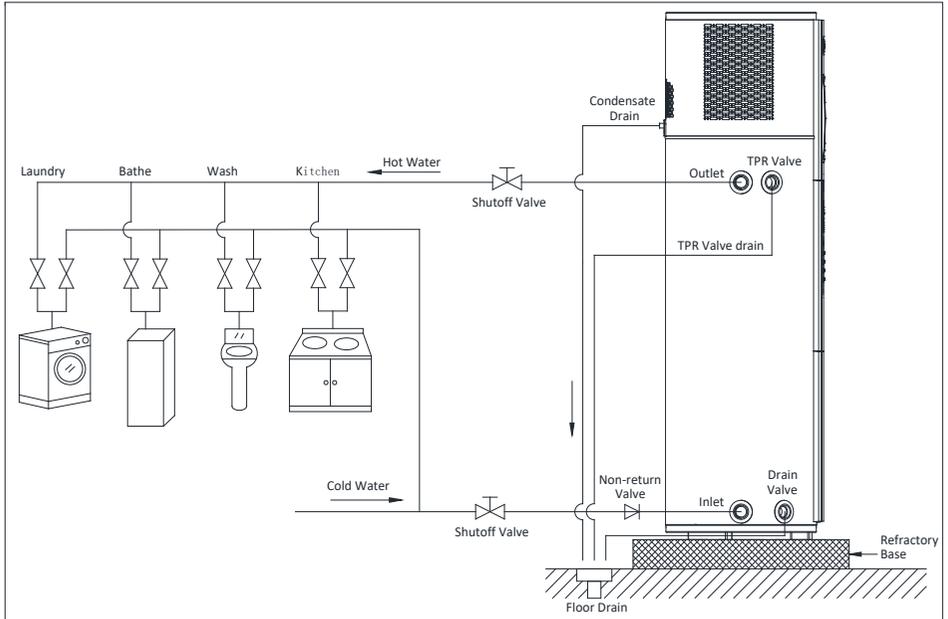
**Note: After the machine is in place, be sure to let the water heater stand for more than 30 minutes before turning on the power!**

**Note: Please transport the water heater according to the state when it leaves the factory. Do not move the water heater at an angle of more than 30°, let alone place the machine vertically, and do not disassemble or assemble it yourself!**



# Pipe Connection

## Pipe Connection Diagram



## Connection Instruction

### **Material Requirements**

Because the water heater and its piping system will bear pressure from tap water, all water-side pipes must be made of temperature-resistant, pressure-resistant, and corrosion-resistant metal or new-type plastic material. Pressure resistance performance of the pipes must not be lower than the relief pressure of the T&P valve, while the temperature resistance must not be lower than 99°C.

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## Cold/Hot Water Pipe Connection

### 1. Connection size

Rp 3/4"

**Note: The water heater has a hot water pipe for the outlet connector and a joint bushing on the inlet connector. These devices are installed when the water heater leaves the factory and must not be removed or damaged during installation. When the threaded joint is screwed in, these devices will naturally be installed to the correct depth.**

### 2. Pipeline Size

To ensure the best performance, the pipe size should be selected according to the specific installation needs. The following are the recommended pipe sizes.

Hot water pipe: Main pipe - 20mm (3/4") ; Branch pipe  $\geq$  15mm (1/2") .

Cold water pipe: The size of the cold-water pipe should be the same or larger than the size of the hot water pipe used.

### 3. Cold Water Connection

The cold-water inlet is at lower part of the water heater and should be directly connected with tap water. As shown in the figure, first connect a shut-off valve, then connect a non-return valve on the side close to the heater, and finally connect a union.

If supply water pressure exceeds the rated max. pressure (680 kPa), a pressure limiting valve shall be connected behind the non-return valve. If supply water quality does not meet the specific water quality requirements, an expansion control valve shall be used.

### 4. Hot water connection

The hot water supplied by the water heater has a relatively high temperature and cannot be used directly for washing. It must be mixed with cold water. Therefore, the cold and hot water mixing valve should be installed at the hot water use point, as shown in the figure.

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If the hot water outlet of the water heater is too far away from the hot water use point (more than 12 meters), it is recommended that the hot water pipe be insulated with heat insulating materials to reduce the waste of hot water and electricity.

#### 5. Water Supplied by Domestic Tank

If cold water to the heat pump water heater is supplied by the domestic tank on the top floor, be noted that cold water connection should meet the following requirements:

The domestic tank shall be at least 1m higher than the highest hot water outlet. If the distance between the bottom of the domestic tank and the highest hot water outlet is less than 5 meters, care must be taken to avoid air locks in the hot water pipe, the shut-off valve in cold water pipeline shall be changed to gate valve, which shall be fully open to ensure the full flow of cold water inlet.

**Warning: Regardless of the water supply method, the non-return valve on the cold-water inlet pipe must be installed correctly, otherwise the water heater or its parts might be damaged.**

#### **Condensation Drain Pipe Connection**

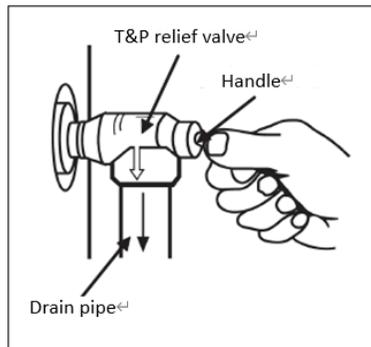
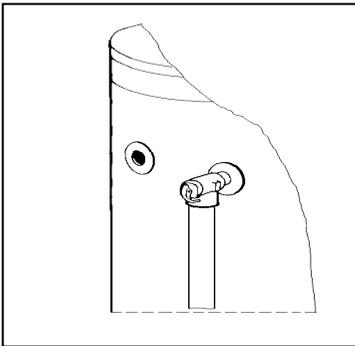
The water heater is equipped with a condensation drain hose, one end of which is connected to the condensation drain and another to the floor drain. To keep the water pipe drainage unobstructed, there should be no bends or distortion.

#### **Installation of T&P Relief Valve**

The temperature and pressure relief (TPR) valve is a safety device, which can keep system pressure at a safe level by discharging hot water to reduce pressure and cool down system temperature when detecting system pressure exceeds rated value (850 kPa). If water temperature is heated up to 93°C, the temperature sensing device will open the TPR valve for hot water discharging and cold water entering to cool the system down and reduce pressure. The discharge pipe connected to the relief valve should be installed in a frost-free environment in a continuous downward manner, making sure

water can flow out freely; and the discharge pipe should be kept open to the atmosphere. Specification of the TPR valve is 3/4" × 125PSI (850 kPa).

- Take out the T&P relief valve, make sure that the probe is not bent. Inspect the operation lever and the flexibility of the handle.
- Wrap the thread with PTFE, do not let the PTFE go beyond the end of the thread; screw the T&P valve into the installation hole, and make sure the valve drain outlet is facing down.
- Connect a DN20 drainpipe from the drain outlet of the TPR valve to suitable floor drain. It is strictly forbidden to install a valve on the drainpipe, and the total length of the pipe shall not exceed 9 meters while the right-angle bend shall not exceed 3.
- If the drainpipe is too long, to facilitate disassembly, a live connection can be connected near the outlet of the TPR valve.

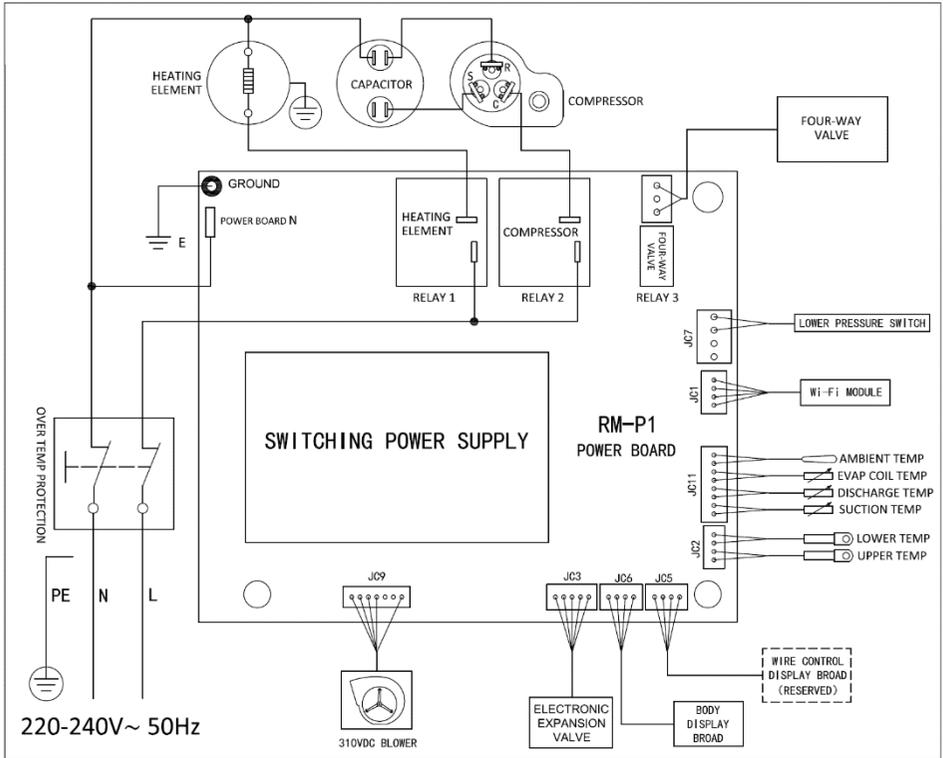


**Warning:** Drainpipe of the T&P relief valve shall be installed in forest-free environment and kept inclined downwards. The outlet of the drainpipe should not be blocked at any time, and it should be kept in contact with the atmosphere, and make sure the discharged hot water will not endanger people's safety or cause property damage.

**Warning:** drainpipe of the T&P relief valve shall be protected with insulation material from freezing in winter that may cause safety accidents; and the handle should be operated regularly to remove calcium carbonate deposits and verify if the device is blocked.

# Wiring Diagram

- Rated power supply of this water heater is 220-240V~ 50Hz. Wiring diagram is as below:



- A specific power cable equipped with all-pole disconnecting device with at least 3mm contact interval shall be provided for water heater. The ground and zero lines of the power supply must be strictly separated, and do not connect the zero lines with the ground line.
- The water heater is equipped with a power cable when it leaves factory. The cable at the user end shall be directly connected to the distribution box to connect the 30A air switch with leakage protection function. The operation shall be carried out by those designated by factory rather than users themselves.

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**Warning: The power supply must be grounded properly! DO NOT use the water heater if without proper grounding.**

**Note: If the power cord is damaged, for your safety, it must be replaced by professionals from the manufacturer, its maintenance department, or similar departments!**

## Operation and Usage

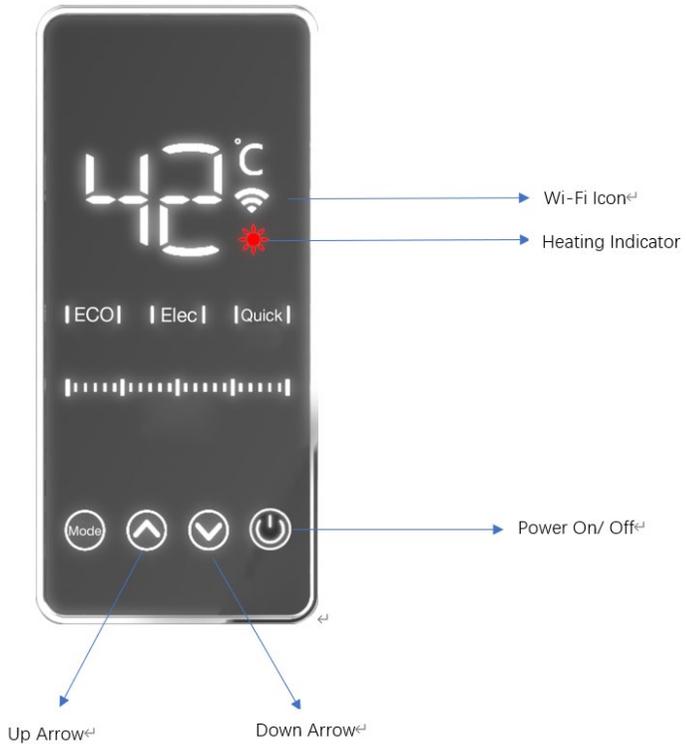
### Filling the Water Heater

1. Cut off power supply of the water heater.
2. Turn on the nearest hot water tap to empty air in the system
3. Turn on cold water valve completely to fill the tank and pipes
4. When there is water flowing out from the hot water faucet, it indicates the tank is full, turn off the hot water faucet and check if there is any water leakage

**Warning: please fill the water heater before power it on! Otherwise, any damage caused by dry heating will not be covered by the Rheem warranty.**

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## Controller Display (built-in on water heater)



### Button Description

- “ON/OFF” button: power “ON” and “OFF” the water heater.
- “UP” and “DOWN” button: adjust the set temperature point.
- “Mode” button: switch between “ECO” – Energy Conservation (heat pump only), “Elec” - Electric Heating (heating element only) and “Quick” - Heating (heat pump + heating element) modes.

### Function Description

- ON/OFF  
Switch on and off the water heater by pressing “ON/OFF” button.  
When the water heater is powered on, the controller switches on and starts self-check, following by a “beep” sound and the display screen illuminating for 2 secs.

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- Setting the Water Temperature

In switch-on status, press "UP" or "DOWN" arrow button to adjust water temperature within the range of 35-75°C. The default set point is 65°C.

- Mode Selection

- ECO mode (default mode)

- Press "Mode" button and select "ECO" mode, the ECO icon will light up.

- Under this mode, only heat pump to be started for heating purpose when operation conditions are satisfied; if operation conditions are not satisfied, the electric heating will only operate.

- When water temperature reaches setting point, the water heater enters heat preservation status. Under heating status, the "heating indicator" icon will light up.

- Electric Heating Mode

- Press "Mode" button to enter electric heating mode. In this mode, only heating element will be operate for heating.

- When water temperature reaches setting point, the water heater enters heat preservation status. Under heating status, the "heating indicator" icon will light up.

- Quick Heating Mode

- Press "Mode" button to enter quick heating mode. In this mode, compressor and heating element will operate simultaneously. Heat pump will only heat up to heat pump maximum temperature, heating element continue to operate to setting temperature if higher setting temperature is set. When water temperature reaches setting point, the water heater enters heat preservation status.

Note: In the "ECO" (energy saving) and "Quick" heating modes, when the heat pump fails, it automatically switches to electric heating operation, and the displayed mode remains unchanged. When the system detects that the heat pump or heating element is working, the "heating indicator light" icon will be on, otherwise it will be off.

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- Wi-Fi Function

See “APP Manual”.

- Anti-Freeze Function (“On” by default)

Under the premise that the water heater is powered on, no matter it is in switch-on or off status, the anti-freeze function will activate heating element and heating icon will be lightened up when lower tank sensor detecting that the temperature is below 5°C (the heating icon will be lightened up even if the water heater is in switch off status). Heating is to be suspended until the water temperature of lower tank reaches 10°C and will be restarted repeatedly when temperature descends below 5°C. Priority will be given to normal heating operation in case of anti-freeze function and heating function co-exists.

**Note: DO NOT disconnect power supply of the water heater when it is to be operated in environment where ambient temperature will be below 2°C. If the power must be disconnected, please discharge all the water in the tank in advance and make sure it is empty. Otherwise, Rheem will not be responsible for any water heater failure and property loss caused.**

- Memory for Power-Failure

In the case of power-failure (power-outage or disconnection), the unit has a smart auto-memory recall function. After power is back on, all the settings, including temperature, mode and status will be restored to prior settings before power-failure.

- Sterilization

To activate the one-time high-temperature sterilization function, ensure the water heater is powered on. Press both “UP” and “Mode” button simultaneously for 5 seconds to enable the sterilization function. The heating icon will be lightened constantly after flashing for 5 seconds indicating sterilization function is turned on. Once the water temperature is reaches  $\geq 80^{\circ}\text{C}$ , the water heater will exit sterilization mode and automatically return to the set mode. To manually

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exit the sterilization process at any time, simultaneously press both “UP” and “Mode” button for 5 seconds. The sterilization function will be disabled, and the display will return back to normal status.

- Hot Water Volume Display

When the heat pump is operating (heating water in progress), the 25 bars will fluctuate back and forth left to right. The amount of hot water volume available is represented by the static length of the 25 bars on the display (the more the bars displayed, the more hot water available in the tank).

### Hot Water Usage

- Under normal circumstances, the cold-water inlet shut-off valve should always be open, and cold water will be automatically replenished when hot water is discharged.
- During the heating process of the water heater, it is normal for the T&P relief valve to discharge a small amount of hot water.
- In the event of a power failure, the stored hot water can still be used.
- When the water supply is cut off, it is recommended to close the cold water shut-off valve of the water heater to prevent water flowing back and emptying the tank due to failure of the non-return valve, which can be reopened when the water supply is restored.

**Warning: To prevent scald and burns, never let children use the hot water faucet or take a bath by themselves; never leave children or disabled people alone in the bathtub or under the shower head without care.**

### Turning Off the Water Heater

If the water heater needs to be turned off for maintenance or long-time shutoff, please follow the instructions below:

- Cut off power supply of the water heater.
- Turn off cold water and hot water shut-off valve.

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**Note: If you do not need to use the water heater in winter in cold areas, please empty the water in the tank in case freezing damage.**

### **Emptying the Water Heater**

If the water heater needs to be turned off for maintenance or long-time shutoff in winter or cold area, please empty it by following the instructions below:

1. Cut off power supply of the water heater;
2. Close cold water inlet valve;
3. Open drain valve;
4. Lift up the handle on the T&P relief valve, water will flow out from the drain valve.

**Warning: When reusing, the water heater must be filled with water before powered on.**

### **About Water Quality**

Poor water quality will have a detrimental effect on the water heater and its operation and /or life expectancy. If you are unsure of your water quality, information can be obtained from your local water supply authority.

- This water heater can be used in areas where the total dissolved solid content (TDS) in water is less than 1000mg/L, but when TDS is more than 600 mg/L, it will accelerate the consumption of power anode rod and shorten service life of the water heater.
- Saturation index of water that is prone to scaling:  
The calcium carbonate in the water can deposit on the surfaces of hot metal, which can cause scaling. When the saturation index of water is greater than 0.4, the scaling will be obvious. The higher the water temperature and water consumption, the more serious the scaling will be. In this case, it is required to install an expansion control valve after the non-return valve on the cold-water pipeline of the water heater.

When the saturation index of water is less than -1.0, its corrosiveness will be very strong and it can dissolve copper pipes, but it will not have any effect on the water heater itself.

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Reducing the temperature setting of the water heater can alleviate the scale deposition to the inner surface of the tank cylinder, and so increase the life expectancy of water heater.

Water which is easy to scale may be treated with a water softening device to reduce the saturation index of the water.

## Maintenance

**Note: This water heater should be repaired and maintained only by qualified service personnel. Incorrect maintenance methods may cause serious injury to human body or property losses.**

**Warning: Before disassembling the unit or taking any repairing/maintenance action, be sure to disconnect the power supply of the water heater.**

### Safety Inspection

Check the performance of the safety valve every two weeks. Inspection method: Lift up the handle of the safety valve and observe whether there is water flowing out of the drain pipe. If no water is flowing out, please contact service provider for repairing.

**Note: When checking the TPR valve, please be careful that water flowing out from the valve may cause scalding.**

### Jacket Cleaning

To maintain the good appearance of the water heater, the surface of the jacket can be cleaned regularly. Proceed as follows:

- Cut off power supply of the water heater.
- Use a damp cloth to take a small amount of soap or detergent and lightly wipe the jacket.
- Do not use gasoline or other corrosive chemicals.
- Restart the water heater.

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### **Water Tank Maintenance**

It is recommended to clean the water tank once a year in places with good water quality, and once every six months in places with poor water quality.

Steps are as follows:

1. Cut off power supply of the water heater and drain all the water in the tank.
2. Connect outlet pipe joint of the water heater to tap water and let water flows into the tank; open the drain valve and connect drainpipe to the floor drain, and water is discharged from this end.
3. Turn on the tap to maximum flow and flush the water tank until the water discharged from the water tank is clean.
4. Close the drain valve, reconnect the water pipe, and check if there is any leakage.

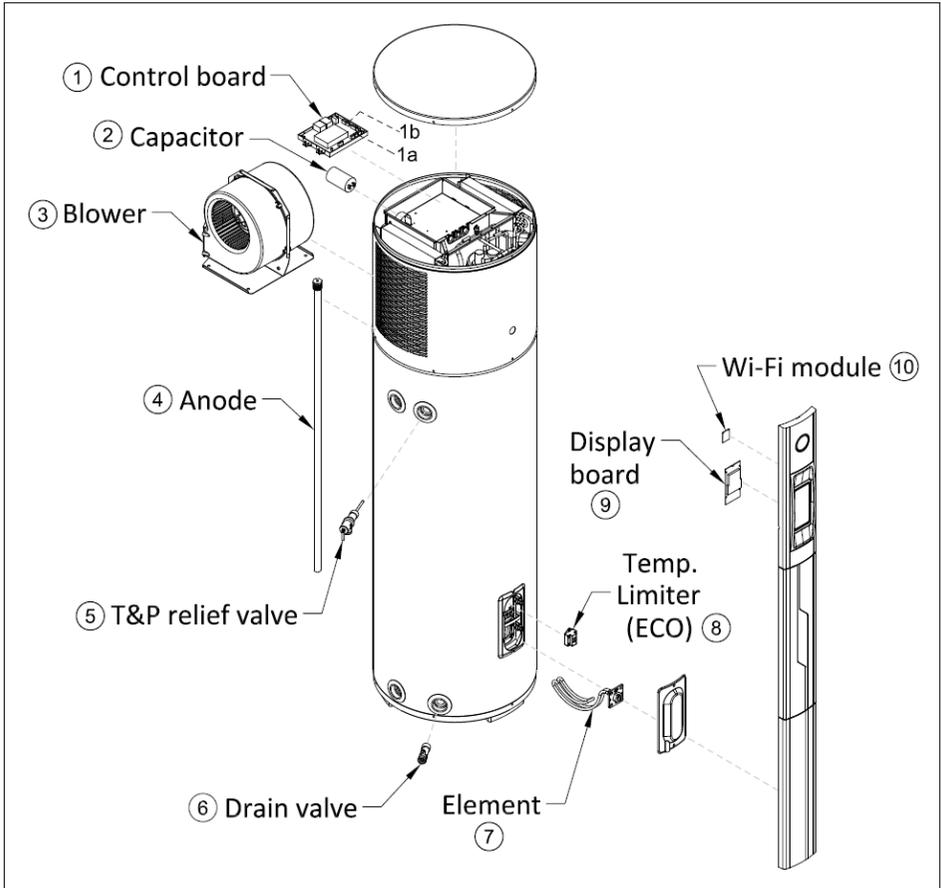
**Suggestion: In the case of sufficient hot water, users are recommended to lower the set temperature, which can reduce heat loss and scale accumulation, to save energy and prolong the service life of the water heater.**

# Common Faults and Solutions

	<b>Fault</b>	<b>Possible reason</b>	<b>Solution</b>
<b>Control Display</b>	No display and buttons fail	No power supply	Connect power supply Please call Rheem or authorized distributor
		Loose connection between the control board and the display board	Please call Rheem or authorized distributor
	No display but buttons are OK	The PCB is dusty or damp	Please call Rheem or authorized distributor
	Fault code "E0"	Communication between control board and display board is interrupted	Please call Rheem or authorized distributor
	Fault code "E1"	No refrigerant or the evaporator coil temperature sensor is off	Please call Rheem or authorized distributor
	Fault code "E2"	The compressor exhaust temperature is too high	Please call Rheem or authorized distributor
	Fault code "E3"	Compressor exhaust temperature sensor short circuit or open circuit	Please call Rheem or authorized distributor
	Fault code "E4"	Evaporator coil temperature sensor short circuit or open circuit	Please call Rheem or authorized distributor
	Fault code "E5"	Ambient temperature sensor short circuit or open circuit	Please call Rheem or authorized distributor
	Fault code "E6"	Compressor suction temperature sensor short circuit or open circuit	Please call Rheem or authorized distributor
	Fault code "E8"	Low pressure switch is disconnected	Please call Rheem or authorized distributor
	Fault code "EA"	Lower temperature sensor short circuit or open circuit	Please call Rheem or authorized distributor
	Fault code "EC"	Over temperature protector disconnected	Please call Rheem or authorized distributor
	Fault code "EF"	Abnormal blower RPM	Please call Rheem or authorized distributor

	<b>Fault</b>	<b>Possible reason</b>	<b>Solution</b>
<b>Hot Water Usage</b>	No hot water or insufficient hot water	No power supply	Connect power supply Please call Rheem or authorized distributor
		The continuous water use time is too long, and the water consumption is too large	Stop using hot water and wait for heating
		The inlet water temperature is low, and it takes a long time to heat to the set point	Stop using hot water and wait for heating
		There is water leakage from the water heater or hot water outlet pipe	Find out where is the leakage point
	No water from the hot water outlet	No water supply	Check water supply source, open water inlet valve
		Water pressure is too low	Check water supply source, wait for water pressure rises
		Stop using hot water and wait for heating	Check water supply source, open water inlet valve
	Water from T&P relief valve	It is normal to discharge a small amount of hot water for each heating	Normal
		If there is continuous dripping, there may be impurities stuck in the safety valve	Lift the valve lever, drain the water for a few seconds, and repeat several times
		If the water continues to flow at night, the pressure of the water supply may be too high	Install pressure reducing valve
	Noise from water heater or pipeline	Slight noise during heating is normal	Normal
		If there is a loud noise during heating, there may be deposits on the bottom of the tank	Sewage discharge is needed, see "Maintenance" chapter
		Sometimes the pipeline vibrates and sounds due to water pressure fluctuations	Normal

# Replacement Parts



No.	Part description	Diagrammatic drawing
1a	Data transmission cable	
1b	Wi-Fi module data cable	

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**Warning: For your safety, DO NOT attempt to repair the water heater without authorization. Please call the service line when you need service.**

## Warranty Policy

The standard warranty applicable for this Rheem product and the term of the warranty may differ based on the country of purchase. Depending on your country of purchase, the warranty may be provided by a member of the Rheem Manufacturing Company group of companies (hereinafter referred to as “Rheem”) or by Rheem’s authorized partners. Where the warranty is provided by Rheem’s authorized partners, these partners shall be exclusively responsible for all warranty related services, including the term of the warranty. Please contact your local Rheem retailer to enquire about the steps necessary to qualify for the applicable warranty and ensure that you complete those steps. Please ensure you retain a copy of your proof of purchase. For more information on the applicable warranty on your Rheem product, please contact your local Rheem retailer.