



# ELECTRIC STORAGE WATER HEATERS

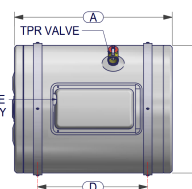
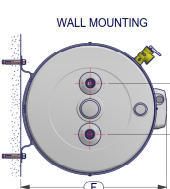
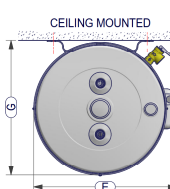
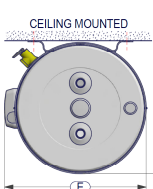
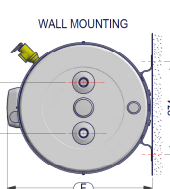
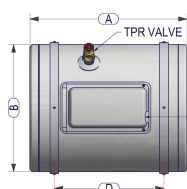
## INSTALLATION, OPERATING INSTRUCTIONS AND WARRANTY CONDITIONS

### WARNING

- Please read this Installation and Warranty Manual carefully before installation and use of the appliance. In particular, please pay special attention to the Safety Instruction and Warnings. These instructions must be read in conjunction with other instructions affixed to the appliance.
- This appliance must only be installed by persons authorised for the installation of electric water heaters in accordance with all Local and Government Regulations.
- For Safe Performance, this Storage Water Heater is supplied with a Thermostat, Thermal Energy Cutout, and Temperature & Pressure Relief Valve. These devices must be installed and not tampered with or removed. The water heater must not be operated unless each of these devices is fitted and is in working order.
- Please leave this manual with the homeowner upon completion of installation.

### TECHNICAL DATA AND PRODUCT DIMENSIONS

RIGHT HAND CONNECTION SHOWN



Model Number			86H-25	86H-40	86H-55	86H-75	86H-100
Actual Capacity		Litres	25	40	55	75	100
Rated Power		kW	2.7-3.3 kW, 220-240 V a.c. 50-60Hz				
Approx. ☉ Heat Up Time to 60°C		min.	20	33	45	61	81
Length	A	mm	460	664	868	1140	973
Diameter	B	mm	377				461
Inlet & Outlet Spacing	C	mm	150				240
Mount Hole Spacing	D	mm	320	340	478	812	632
Overall Width Heater Unit	E	mm	418				502
Total Distance from Wall	F	mm	426				510
Total Height from Ceiling	G	mm	396				480
Temperature Setting		°C	Factory Set 60 (Max 70)				
Rated Pressure		kPa	1000				
Max. Inlet Water Pressure (w/o ☉ ECV)		kPa	800				
Thread Sizes for Water Inlet & Outlet			Rp 20 (3/4" x 14)				
Thread Size for Safety Valve			Rp 20 (3/4" x 14)				
Shipping Weight		kg	16	23	28	34	38

☉ Heat up time is calculated based on incoming temperature of 25°C

☉ ECV is Expansion Control Valve

Diagram 1

### FEATURES

- Mains pressure storage water heater ensures stable hot water supply.
- Various tank capacities available – allowing simultaneous multi point hot water usage.
- The adjustable thermostat automatically controls the electricity supply to the heating unit so constant temperature is maintained.
- Safety devices such as over temperature cut out and Temperature and Pressure Relief (TPR) valve are standard features.
- The temperature is preset at 60°C for safety and is economical to operate. The temperature thermostat comes complete with built in reset switch.
- The life span of the tank is greatly extended by Rheem's exclusive "Rheemglas" vitreous enamel lining and sacrificial anode rod, ensuring years of trouble free performance.
- Thick Polyurethane foam is environmentally friendly, free of CFC enabling the water heater to be more energy efficient by retaining heat and reduce operating costs.
- Heater jacket is protected by industrial strength prepainted steel – a thick gauge pre-coated zinc steel having exceptional strength and corrosion resistance.

## SAFETY

- 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 the safe 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.
  - CAUTION:** In order to avoid a hazard due to inadvertent resetting of the thermal cutout, 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 an appliance or utility.
  - The water heater must have provision for drainage in the event that the water heater leaks or connection pipes break.
  - The water heater is rated 220-240V/50-60Hz AC, single phase.
  - The installation of the Electrical power supply cable must be correctly sized to safely carry the maximum current draw of the appliance. Ensure all earth wires and connections are separated from the neutral circuit.
  - Ensure that the electrical connections are undertaken by a qualified electrician complying with Local Code of Practice.
  - Power must not be turned on until the water heater is filled with water. Open all hot water taps/faucets to release trapped air until only water is discharged.
  - Temperature over 50°C may cause scalding. Please mix cold water with hot water to obtain the right bathing temperature.
  - Please operate the Temperature and Pressure Relief Valve (TPR) manually at least once every 6 months to remove lime deposits and verify that the drain pipe from the valve is not blocked.
  - Power must be turned off before any service and maintenance work can commence. All work must be performed by a qualified technician.
  - For replacement of parts, please use original parts from manufacturer. Use of non-approved parts will result in a void the manufacturer's warranty.
  - Water may drip from the discharge pipe of the TPR valve during normal expansion. The discharge pipe should be left open to the atmosphere preferably 150 mm above the nearest floor trap. On no accounts must the drain pipe be plugged. Blockage of the TPR discharge pipe may cause serious damage and will void the manufacturer's warranty.
- Warning – Scalds Minimisation.** To minimise scalding, especially for those people in high risk categories ie. Young children, people with incapacitating medical conditions, elderly people, etc, this unit must be installed in accordance with all local and government regulations, and the use of secondary devices such as a suitable tempering valve or anti-scald water shut-off valve. (If a tempering valve is used, refer to its servicing instructions for periodic maintenance.)
- Hot water must be stored at a minimum of 60°C to inhibit the growth of Legionella bacteria.
  - All sanitary outlets used primarily for personal hygiene shall deliver hot water not exceeding: a). 45°C for early childhood centres, primary and secondary schools and nursing homes or similar facilities for young, aged, sick or disabled persons; and b). 50°C in all other buildings.

## INSTALLATION AND CONNECTION

### CHOOSING WHERE TO INSTALL

- The water heater must be installed indoors.
- The wall must be strong enough to support the water heater filled with water using the universal mounting brackets and masonry anchors provided.
- The heater should be installed as near to the point of use as possible.
- Ensure that sufficient and safe space is available for servicing of the water heater to both adjacent wall and/or ceiling for access to the element, sacrificial anode and Temperature and Pressure Relief Valve.
- Leave adequate clearance beside the appliance (preferably the length of the water heater), for inspection or service of the anode through the case lid. If inadequate room is

available then the appliance may have to be disconnected and removed for service.

- There must be a floor trap near installation point for safe discharge of the Temperature and Pressure Relief Valve.
- The water heater, electrical connections, and electric leakage protector should be protected against any contact or splashing water.

### INSTALLATION OF THE WATER HEATER

- Mark the drilling position for locating expansion bolts on the wall or ceiling as shown in Diagram 2. The two upper holes of the universal mounting brackets must be in the same horizontal line.
- Drill holes on the wall using a Ø12mm masonry drill (do not damage the electric cable and pipe work inside the wall). Insert the four (4x) masonry anchor bolts provided complete with nut and washer and tighten until the anchor is permanently affixed to the wall. Loosen off the anchor nuts and washers.
- Hang up the water heater on the wall and tighten the anchor bolts (with washers) to the universal mounting bracket as shown in Diagram 3. The mounted heater must be installed horizontal.
- Use the quantity six (6) self-tap screws to secure the water heater to the holes in the universal mounting brackets.

MODEL	HOLE SPACE 'A'	
86H-25	320	
86H-40	340	
86H-55	478	
86H-75	812	
86H-100	632	

Diagram 2. Mounting Hole Dimension by Model

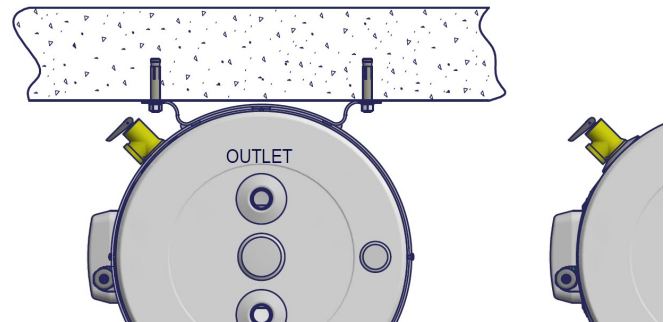


Diagram 3. Installation Options

### CONNECTION – PLUMBING

- Pipe Material :**  
The pipes connecting to the inlet and outlet of the water heater must be strong enough to withstand water pressure up to 1.40 MPa. The storage water heater must be permanently connected to the water mains, hose set is not recommended to be used.
- Pipe Size :**  
¾" (20mm) OD copper pipes are to be used for cold water inlet and hot water outlet – refer to Diagram 5.  
It is the responsibility of the installer to ensure all pipework & fittings are correctly lagged and do not leak.
- Connection :**  
Water connections are located at the side of the heater. Heat must not be applied at these connections as it can damage the internal water tubes of the appliance – refer to Diagram 4.

Both the inlet and outlet water connections are located at the end of the water heater, with the upper connection being outlet and lower connection being inlet. The cold water tap is fitted to the inlet as shown in Diagram 5. As the temperature is high at the outlet, a mixing valve which mixes hot water with cold water is suggested to be fitted. If the outlet tap is not close to the water heater, thermal insulation material is recommended to insulate the hot water pipe.

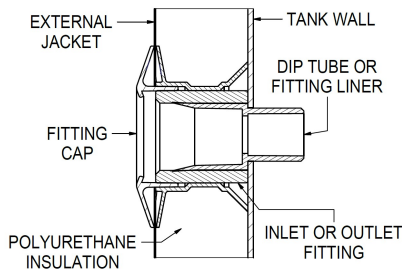


Diagram 4. Internal Water Pipework

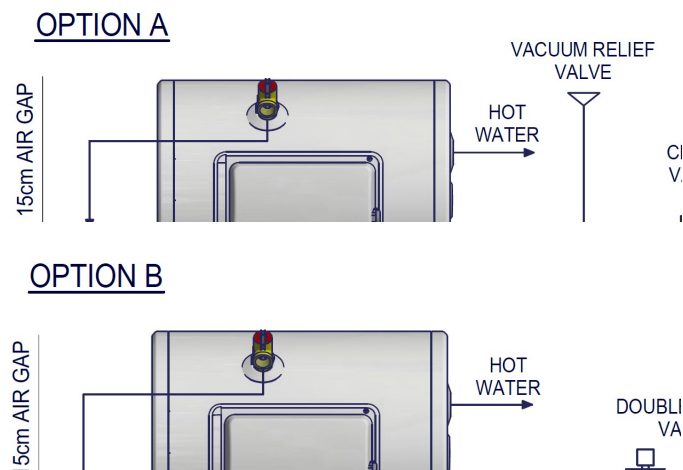


Diagram 5. Plumbing Connection

### INSTALLATION OF THE TPR VALVE

- The TPR valve is supplied with the water heater. This is to protect the heater from excessive pressure and temperature.
- Seal the thread with the Teflon tape – never use hemp.
- Make certain the edge of the Teflon tape does not protrude past the end of the thread. Screw the valve into the fitting marked TPR and leave the valve outlet pointing down. Tighten the valve using the spanner flats – not the valve body.
- To minimise potential for scalding (particularly concerning young children), a copper drain pipe must be fitted to the TPR to carry the discharge away from the heater so that the hot water discharged will not cause injury, damage or nuisance. A drainpipe must be fitted for water discharge to a floor waste trap (drain). The pipework from the TPR valve to the floor waste trap should be as short as possible with no restrictions.
- ½" (15mm) OD copper pipe is recommended. The pipework should have no more than three (3) right angle bends, in a continuous downward direction, and installed in a frost-free environment.
- DO NOT RESTRICT OR BLOCK THE OUTLET OF THE DISCHARGE PIPE.**
- It is normal for water to drip from the TPR discharge pipe during a heat up cycle.
- Do not drill holes in the sides of this appliance. Any damage caused by drilling will void the warranty.
- This pipe must be left open to the atmosphere. The valve or drain valve outlet pipe must not be sealed or blocked.

### FILLING THE WATER HEATER (by authorised person only)

- Open all hot water taps in the house, including the shower to release air in the pipelines.

- Open the cold water inlet to the water heater.
- When water flows from each hot water tap without any presence of air, it means that the heater is completely filled with water. Close all hot water taps.
- Check all plumbing connections for leaks.

### CONNECTION - ELECTRICAL (by authorised person only)

**Warning! DO NOT turn on the electrical power supply to the water heater until the water heater is completely filled with water. There will be NO WARRANTY for dry firing of the appliance.**

- All electrical work and permanent wiring must be carried out by a qualified person and in accordance with the wiring rules, all local codes and regulatory authority requirements.
- The storage water heater must be permanently connected to the electricity supply through a double poles linked switch having a contact separation of at least 3mm in all poles incorporated in the circuit and out of reach from the person using the shower.
- The water heater shall be connected to single phase AC supply and its rated power is 220-240V 50-60Hz. Refer to rating label for input in wattage.
- Do not install this appliance near any possible contact with water.
- DO NOT CONNECT THE WATER HEATER WITH A PLUG AND SOCKET.**
- The appliance must be earthed.
- All wiring must conform to local requirements. Ensure the household connecting wire rating is capable of withstanding the appliance load. If in doubt, please consult a qualified electrician.
- For entry to the element cover remove ie two fixing screws. Connect all ACTIVE and NEUTRAL wires as per the wiring diagram provided on the inside of the element access cover. Ensure the incoming EARTH wire is securely fixed to the earth post provided in the heater case. Inspect and ensure that all wiring links are secure prior to fixing the access cover and turning the POWER on.
- The water heater must be completely filled with water prior to connection with power.
- To ensure the Over-temperature and Energy Cutout is set, press the Reset Button on the thermostat.

### OPERATION

#### USING THE APPLIANCE

- It is recommended that the cold water tap always be turned on first when there is water demand. Likewise, the hot water tap always be closed first to avoid scalding.
- Mix the hot water with cold water by adjusting the taps to your satisfactory requirement.
- When the electrical thermostat cuts off, the stored hot water can still be drawn for use in the household. The water heater will automatically cut in when the stored water reaches a minimum set temperature.
- When the inlet water supply is interrupted, the main power supply to the heater should be switched off to avoid dry firing. Do not draw off hot water from the appliance to avoid dry firing of an empty water heater.

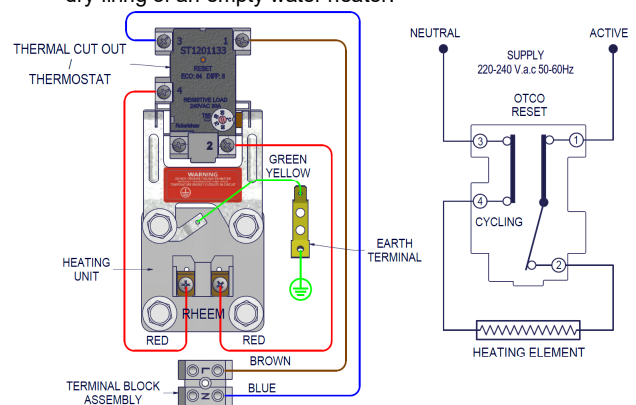


Diagram 6.

Electrical Connection of the Robertshaw "ST" Thermostat/Thermal Cut-out

## MAINTENANCE (by authorised person only)

Rheem recommends annual inspections and if required servicing by a qualified person to ensure safety, peak performance, longevity and avoid potential loss of warranty of this appliance.

## ISOLATION OF THE WATER HEATER

The water heater should be switched off for servicing or if it is not used for long periods of time (eg. vacation).

Isolate the water heater according to following steps:

- Isolate/switch off the electrical power supply to the appliance.
- Close the cold water supply stopcock valve at the inlet of heater – refer Diagram 5.

## TEMPERATURE AND PRESSURE RELIEF (TPR) VALVE

- It is recommended that routine preventative maintenance is carried out at least once every 6 months to remove lime deposits and verify that the valve is operating correctly and the discharge line is not blocked. Failure of routine inspection may result in the water heater exploding.
- Continuous leakage of water from the valve may indicate a problem with the water heater.
- To manually operate, carefully lift and release the lever handle on the TPR valve to ensure the valve operates freely and allow several litres of water to flush through the discharge line. Ensure the discharge water is directed to the floor drain. Avoid any contact with the discharge water to avoid scalding.
- If there is no water flowing out, please contact a serviceman.
- Damage to the water heater due to blockage/restriction at the overflow outlet will void the manufacturer's warranty.
- TPR valve should be replaced at intervals not exceeding (5) years.

## WARRANTY CONDITIONS

RHEEM MANUFACTURING COMPANY (SINGAPORE) PTE LTD, representing Rheem Water Heating Appliances will guarantee the heater for a period of twelve months from the date of original installation and operation against defect through faulty materials and workmanship.

RHEEM MANUFACTURING COMPANY (SINGAPORE) PTE LTD will warrant replacement of any part or parts which prove to have been defective and which have not been misused or carelessly handled. Rheem reserve the right to decline responsibility where installation has been incorrectly carried out and not in accordance with the manufacturer's instructions which accompany each appliance. Where a failed component is replaced under warranty, the balance of the original heater warranty will remain effective. The warranty only applies to the water heater and does not cover any plumbing connected to the heater, eg. pressure limiting valve, stop cock, non return valve, etc. The decision of whether to repair, replace or rework a faulty component is at the manufacturer's sole discretion. The replacement does not carry a new Warranty. Labour for removal and installation of parts or heater is not included in warranty. This Warranty excludes any and all claims for damage to furniture, carpet, walls, foundations or any other consequential loss either directly or indirectly due to leakage from the water heater, or due to leakage from fittings and/ or pipe work of metal, plastic or other materials caused by water temperature, workmanship or other modes of failure. Warranty does not cover faults that are a result of: Accidental damage to the water heater or any component (for example: (i) Acts of God such as floods, storms, fires, lightning strikes and the like; and (ii) third party acts or omissions); Misuse or abnormal use of the water heater; Connection at any time to a water supply that does not comply with the water quality guidelines; Repairs, attempts to repair or modifications to the water heater by a person other than a Rheem Accredited Service Agent; Faulty plumbing or faulty power supply; Failure to maintain the water heater in accordance with the Owner's Guide and Installation Instructions; Transport damage; Fair wear and tear from adverse conditions (for example, corrosion); Cosmetic defects. Dated proof of purchase is required prior to commencement of warranty work.

## DRAINING THE HEATER AND T&PR REPLACEMENT

### Warning! Beware of high temperature water.

- First, disconnect all power to the water heater.
- Turn off the cold water supply to the heater.
- Release the pressure in the heater by carefully operating the TPR valve release lever/knob.
- Undo the cold water inlet union. Attach a hose to the heater side of the union. Drain the hose to waste.
- Operate the TPR valve release lever/knob allowing air into the heater and water to drain via the hose.
- Remove and replace the TPR valve – beware of hot water.
- To fill heater refer to instruction "Filling the Water Heater".

## WATER QUALITY

- The vitreous enamel lined cylinder of the water heater is only covered by the warranty when the total dissolved solids (TDS) content in the water is less than 600 mg/L and black colour coded magnesium anode (supplied with this heater) is used.
- The use of an incorrect anode may shorten the life of the water heater cylinder.
- The anode installed in this water heater will slowly dissipate whilst protecting the cylinder. The life of the cylinder may be extended by replacing the anode. For all water supplies, if the anode is not replaced during a major 5 year service then the maximum time after installation when the anode should be replaced for this water heater is 8 years.
- No warranty applies to the corrosion resistant heating unit, supplied with this heater, when the chloride concentration of the water supply exceeds 200ppm.

## COMMON FAULTS AND REMEDIES

Fault	Possible Causes	Remedies
No hot water flowing out	1) Cold water inlet supply to heater is closed. 2) Pipes are blocked 3) Water supply is cut off by Utility	1) Turn on the inlet tap 2) Dredge the pipe by plumbers
Water temperature is not hot	1) Terminal block is damaged 2) Earth Leakage Circuit Breaker (ELCB) has operated. 3) Element has failed 4) ECO has activated (Hi Limit) 5) Set temperature is too low 6) Thermostat is damaged 7) Water Heater is working	1) Call electrician 2) Call electrician 3) Call electrician 4) Call electrician 5) Raise the set temperature 6) Call electrician 7) Please wait for a while
Abnormal noise is coming from the water heater and pipelines	1) Heating up noise 2) Abnormal sound in pipeline when mains pressure is not stable 3) Scaling on heater element 4) Water Hammer	1) Normal 2) Normal. Close the cold water inlet tap for a while. 3) Contact a serviceman 4) Contact a serviceman
TPR Temperature and Pressure Relief Valve is discharging water	1) Expansion of water during heating up 2) Valve is blocked by foreign materials 3) Excessive cold water pressure	1) Normal 2) Operate valve lever to remove dirt deposit 3) Reduce incoming water pressure