



# INSTALLATION INSTRUCTIONS & OWNER'S GUIDE

## RHEEM LOW PRESSURE (COPPER) ELECTRIC HOT WATER HEATERS

### **Congratulations for choosing a Rheem Water Heater**

It is important that you take a few minutes to read this booklet as this will help you get a long, safe and trouble-free life from your water heater.

If you require any further information or your water heater needs to be serviced, please contact Rheem Service on 0800 657 335 or your local plumber.

### **Important to the Installer**

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

Do not leave this booklet inside the element cover after installation. Please leave the booklet with the householder or owner.

[www.rheem.co.nz](http://www.rheem.co.nz)

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# IMPORTANT INFORMATION

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## GENERAL

The information contained in this guide, and all other information or advice given at any time by Rheem New Zealand Limited in connection with the purchase, installation or use of a Rheem water heater, is given in good faith. Subject to any rights the owner may have under the "Consumer Guarantees Act 1993", Rheem New Zealand Limited will not be liable to any person for any inaccuracy or omission in the information or advice arising through the fault or negligence of Rheem New Zealand Limited or any other person or through any other cause whatsoever.

This water heater is designed for use in a single family domestic dwelling for the purpose of heating potable water. Its use in an application other than this may shorten its life.

 **Warning:** *This water heater is only intended to be operated by persons who have the experience or knowledge and capabilities to do so. This water heater is not intended to be operated by persons with reduced physical, sensory or mental capabilities i.e. the infirm, or by children.*

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## ABOUT YOUR WATER HEATER

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### DOES THE WATER QUALITY AFFECT THE WATER HEATER?


Your water heater is suitable for most public water supplies, however, some water qualities may have a detrimental effect on it. **If you are in a known harsh water area please read pages 8 and 9.**

### HOW HOT SHOULD THE WATER BE?

For reasons of safety and economy, we recommend the thermostat is adjusted to the lowest setting that meets your needs. Some models require an authorised person to make any temperature adjustments. The New Zealand Building Code requires a temperature setting of not less than 60°C within the tank to protect against Legionella.

Regulations require an approved temperature limiting device (tempering valve) be fitted into the hot water pipe work to the bathroom(s) and ensuite(s) to provide safety protection from potential scalding. This will keep the hot water supply temperature to the bathroom(s) and ensuite(s) below 55°C which will reduce the risk of scald injury whilst still allowing hotter water (60°C+) to the kitchen and laundry.

To minimise scalding, especially for those people in high scald risk categories i.e. young children, people with potentially incapacitating medical conditions, elderly people etc, this water heater must be installed in accordance with AS/NZS 3500.4.

 **Warning:** *This water heater can deliver water at temperatures which can cause scalding. Always check the water temperature before use, such as when entering a shower or filling a bath or basin, to ensure it is suitable for the application and will not cause a scald injury.*

### HOW DO I KNOW IF THE WATER HEATER IS INSTALLED CORRECTLY?

Refer to the installation requirements on page 4.

### HOW LONG WILL THE WATER HEATER LAST?

There are a number of factors that affect the life of the water heater. These include; the water quality, water pressure, water temperature and the usage pattern, however, your Rheem water heater is supported by a comprehensive warranty (refer to page 10).

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# HOW THE WATER HEATER WORKS


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## **SINGLE AND TWIN ELEMENT MODELS**


Water stored within the water heater is heated by the electric heating element. The thermostat controls the electricity supply to the heating element so that a constant water temperature is maintained. As the cold water is heated it expands approximately 1/50 of its volume and as a result, a small amount of water is discharged from the cold water expansion valve.

## **TWIN ELEMENT SIMULTANEOUS MODELS**

The two heating elements are wired for simultaneous operation to reduce the re-heating time. Each element should be supplied with wiring suitable for its power rating.

 **Warning:** *Connection to this water heater of any external heating source must be designed and installed by qualified and authorised persons in accordance with relevant regulations and standards. Failure to comply may cause a dangerous situation and void the warranty.*

 **Warning:** *The operation of the thermal cut-out indicates a possible dangerous situation. Do not reset the thermal cut-out until the water heater has been serviced by an authorised service person.*

 **Warning:** *These safety devices must not be tampered with, or removed, and under no circumstances operate the water heater unless both devices are fitted.*

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## REGULAR CARE

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### **GOING ON HOLIDAYS:**

If you plan to be away from home for one or two nights, we suggest that you leave the water heater switched on. However, if you plan to stay away more than a few nights, you can conserve energy by switching the water heater off at the isolating switch, or at the main switchboard. In locations where freezing could occur, you should leave the water heater turned on.

Where alternative energy sources are in use, consult the user manual for the energy source for instructions to switch off the system when going on vacation.

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## SAVE A SERVICE CALL

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**Check the items below before making a service call. You may be charged for service if the fault is not related to the water heater manufacture or parts supplied with the water heater by Rheem.**

### **WATER DISCHARGING FROM CONTROL VALVES**

It is normal for the cold water expansion valve to discharge a small quantity of cold water during the heating cycle. However if either of these valves discharges more than a bucket full of water in 24 hours it may indicate that a valve needs service or replacement. Contact a Rheem Service Centre.

- **Heavy flow of hot water discharging from valve, vent or drain line**

Immediately turn off the electricity supply to the water heater. Call Rheem Service or your local plumber to arrange an inspection.

- **A steady flow of water (often at night) from vent or drain line.**

This may indicate that your cold water pressure sometimes rises above the design pressure of your water heating system. A Pressure Limiting valve should be installed, or if one is installed, it may need replacing.

## **NOT ENOUGH HOT WATER (or no hot water)**

- **Is the electricity turned on?**

Check the switch marked 'water heater' at the switchboard and the water heater isolating switch. Check the fuse or circuit breaker marked 'water heater'.

- Where the water heater is connected to an off peak (night rate) electrical tariff, the supply may not be available at certain times of the day.

- **Do you have the correct size heater for your requirements?**

Refer to the sizing guide in the Rheem sales literature or the Rheem website.

- **Is one outlet (especially the shower) using more hot water than you think?**

Carefully review the family's hot water usage and if necessary check the shower flow rate.

For optimum hot water usage we recommend the shower flow rate is between 8 to 10 litres per minute. This can be achieved by either a flow restrictor or a flow control valve.

## **HIGH ELECTRICITY BILLS**

- **Is one outlet (especially the shower) using more hot water than you think?** (see above)

- **Is there a leaking hot water pipe, dripping hot water tap, etc?**

Even a small leak will waste a surprisingly large quantity of hot water and energy. Service dripping taps, and have your plumber rectify any leaking pipe-work.

- **Are either of the expansion valves discharging too much water?** (see above)

- **Consider recent changes to your hot water usage pattern and check if there has been an increase in energy tariffs since your previous account.**

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# **INSTALLATION**

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Please take careful notice of the advice given as Rheem New Zealand Limited will not be liable for any loss or damage suffered as a result of the incorrect installation of the water heater, or any failure to check the capability of the electrical supply and wiring to the water heater.

This water heater is supplied with blanking plug(s) for spare inlets or outlets (if any) and as such vary in quantity for each model.

The water heater must be installed and serviced by a certified person or registered plumber and the installation must comply with the New Zealand Building Code, Rheem Installation Instructions, AS/NZS 3000 Electrical Installations and all local codes and regulatory authority requirements. Please note also that no warranty costs will be payable where the water heater is located in a position that does not comply with the Rheem water heater installation instructions or relevant statutory requirements, causing the need for major dismantling or removal of cupboards, doors or walls, or use of special equipment to bring the water heater to floor or ground level or to a serviceable position.

- **WATER HEATER LOCATION**

Rheem electric water heaters with a galvanised outer casing are only suitable for indoor installations, whereas water heaters with a factory painted casing are suitable for both indoor and outdoor installations. Outdoor models must be installed on a hard, level base and the supplied feet must be used between the bottom of the water heater and the base.

Clearance must be allowed for servicing and removal of the water heater and it must be accessible without the use of a ladder or scaffold. Adequate clearance must be provided for: PR valve removal, element cover and element removal and replacement. Also, the information on the rating label must remain readable once installed.

If the base of the water heater is higher than the lowest hot water outlet by 2.0m or more, the tank may be subject to a negative pressure (partial vacuum) which can cause damage to the water heaters storage cylinder. In this instance, an approved vacuum break valve (RMC #AV50A or equivalent) must be installed at the highest point in the hot water line. Damage to the cylinder caused by incorrect installation is not covered by the Rheem warranty.

## ▪ WATER SUPPLY PRESSURE

- Maximum permitted mains water pressure - refer product label and Table 5.2 AS/NZS 3500.4  
Note: Inlet pressure-control valve is required where the maximum permitted pressure is likely to be exceeded.
- Minimum inlet water pressure: 60 kPa

## ▪ CONNECTION SIZES

- Hot, cold source connections: RP ¾" / 20mm
- Wetback / alternative energy source connections: RP 1" / 25mm

## ▪ INLET/OUTLET CONNECTIONS

Unions must always be provided at the cold water inlet, hot water outlet and at any additional connections to allow for removal of the water heater should it be required. All connection sockets on the water heater are parallel threaded and therefore tapered brass nipples must be used to ensure watertight connections. Parallel brass nipples must not be used and could invalidate warranty.

## ▪ NON RETURN VALVE

A non return valve must be installed on the cold water line to the water heater.

## ▪ PIPE SIZES


The cold water line to the water heater should be the same size or bigger than the hot water line from the water heater. For best results, choose the most suitable pipe size for each individual application.

## ▪ COLD WATER EXPANSION VALVE

A cold water expansion valve must be fitted to the cold water line to the water heater in a 'Valve Vented' installation or where water is deemed to have High Saturated Index (Hard Water) levels, or areas prone to frost.

## ▪ PRESSURE RELIEF VALVE

When fitting the pressure relief valve, ensure the drain runs downward to a visible point outside the house, and must comply with the NZ Building Code. In locations where the pipe exceeds 3 metres unbroken length, or freezing could occur, an air break must be provided within 300 mm of the PR valve.

 **Warning:** *The drain line from the PR valve must be in copper. Under no circumstances block the outlet of this valve or its drain pipe.*

## ▪ PRESSURE LIMITING VALVE


If the water supply pressure exceeds the rated pressure, a pressure reducing valve is to be fitted in the installation.

## ▪ SAFE TRAY

The water heater must be installed with a properly drained safe tray where there is the possibility of water damage to furniture, carpets or building. Failure to do so may jeopardise any warranty claim.

## ▪ EARTHQUAKE RESTRAINTS

All water heaters must be restrained to protect against seismic forces. Refer to the Zealand Building Code for acceptable solutions.

 **Warning:** *For closed 'Valve Vented' installations a pressure relief valve must be fitted in the installation. Relief valve rating 7kW min. Refer main label for pressure rating. The valve or drain valve outlet pipe must not be sealed or blocked. The first metre of drain line from the relief valve must be in copper.*

*For 'Open Vented' installations the vent pipe must not be sealed or blocked.*

*For 'Push Through' (Open Outlet) installations the outlet acts as a vent and must only be connected to a fitting recommended by the manufacturer. It must not be connected to a tap.*

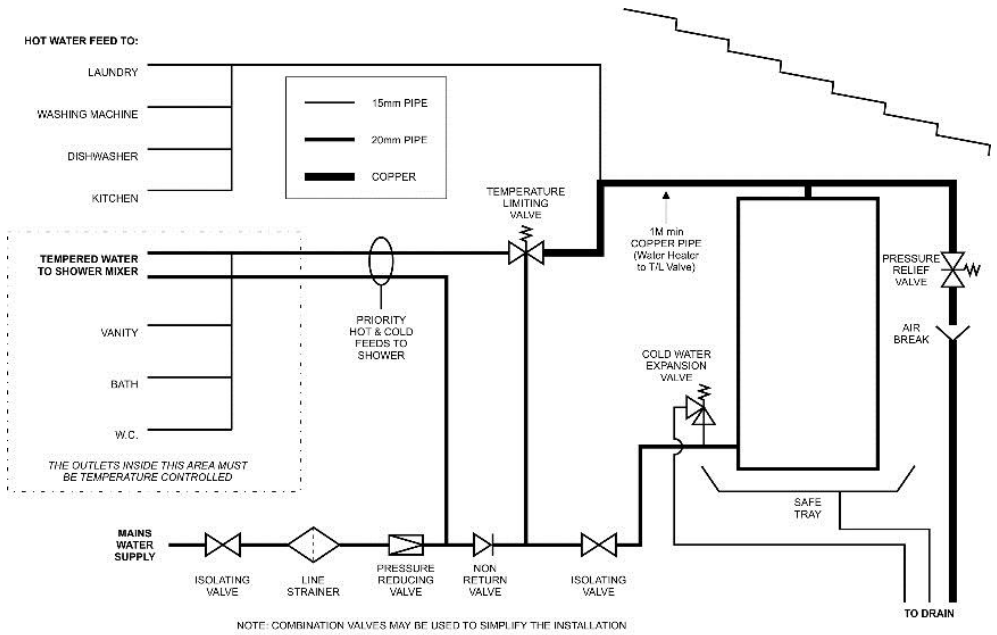


DIAGRAM 1 - Typical 'Valve Vented' Installation

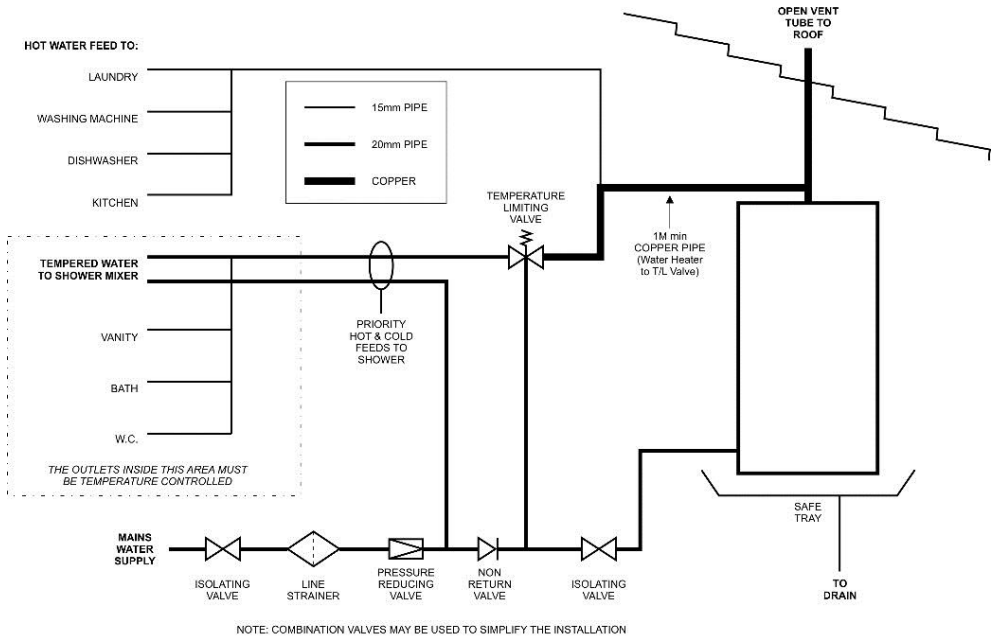


DIAGRAM 2 - Typical 'Open Vented' Installation

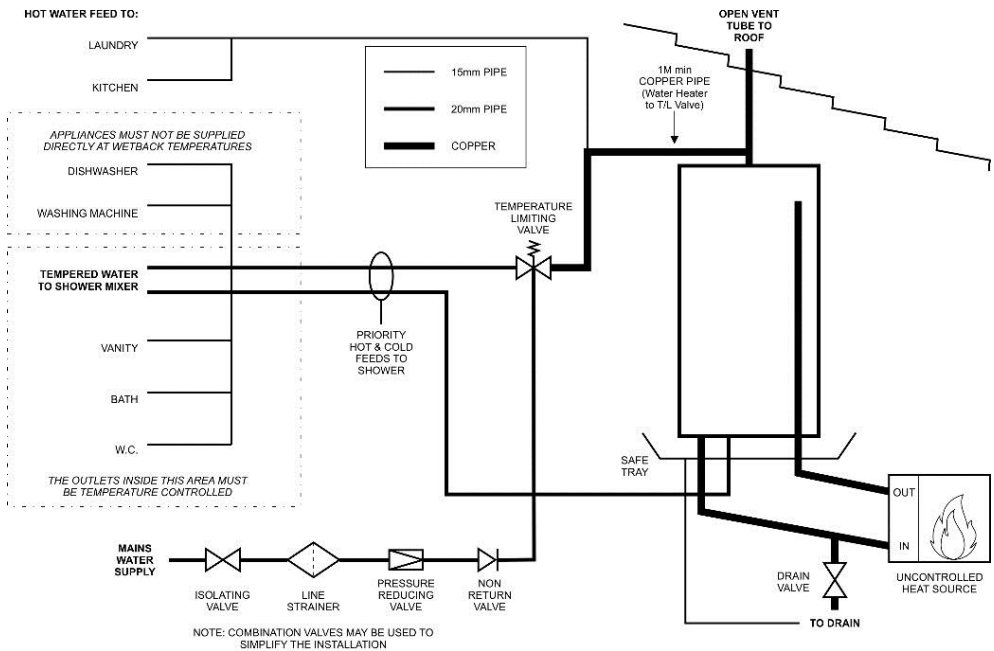


DIAGRAM 3 - Typical 'Wetback' Installation

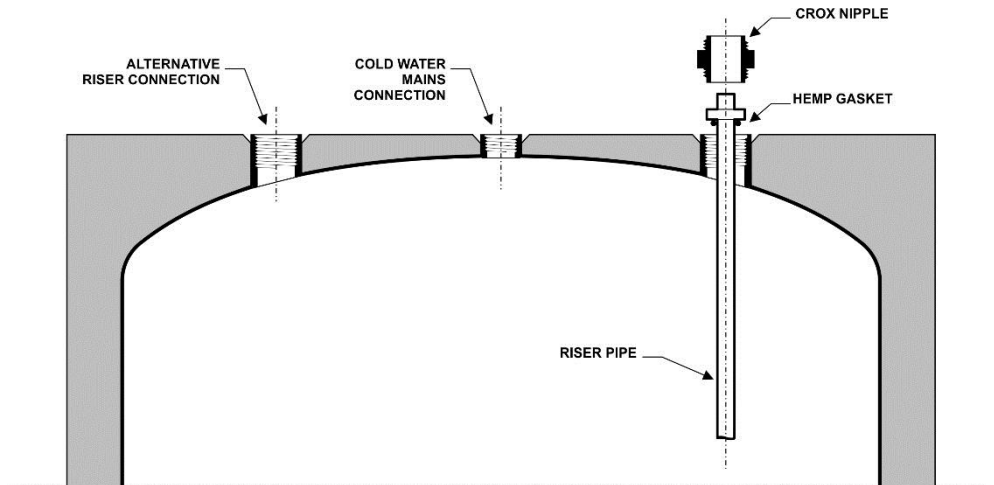


DIAGRAM 4 - 'Wetback' bottom entry cylinder 'Riser' installation

▪ **TO FIT THE 'RISER TUBE', FOLLOW THESE INSTUCTIONS**

- Turn cylinder upside down
- Drop riser tube down through socket: Left of Right side to suit installation
- Put thread seal on hex nipple and screw into socket. This will seat croxed end of riser tube against shoulder in socket.

**⚠ Warning:** Do not use hemp on 'croxed end' of the riser tube.

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# CONNECTIONS - ELECTRICAL

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The electrical installation must be completed in accordance with AS/NZS 3000. All water heaters are designed for 230 VAC, 50 Hz mains operation and a means of disconnection from the power supply must be incorporated in the fixed wiring during installation.

A flexible 20 mm conduit is required for the electrical cable to the water heater. The conduit is to be connected to the unit with a 20 mm plain to screw adaptor. Connect the power supply wires directly to the terminal block and earth tab connection, ensuring there are no excess wire loops inside the front cover. For details, refer to the wiring diagram on the inside of the element cover. **A separate heating element earth wire is not required because the element earths by the flange being in contact with the element socket.**

## ELEMENT WIRING


All Low Pressure 'Copper' water heaters are pre-wired for standard installations where the bottom element only is connected to the mains supply. For alternative energy configurations that require a smaller hot water boost volume, the upper element may be connected instead.

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# COMMISSIONING

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## TO FILL AND TURN ON THE WATER HEATER

 **Warning:** *The power supply to the water heater must not be switched on until the water heater is filled with water and an "Earth Continuity Test", as outlined in Annex A of AS/NZS 60335.1, has been carried out. Failure to do so will damage the element and shorten its life and may create a dangerous situation.*

- Open all of the hot water taps in the house (don't forget the shower). Open the cold water isolation valve fully to the water heater to force the air out of the taps. As water flows freely from each tap, close it. Check the pipe-work for leaks.
- Switch on the electrical supply at the isolating switch to the water heater.

## TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises is vacant, then;

- Switch off the electrical supply at the isolating switch to the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

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# DRAINING THE WATER HEATER

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- Switch off the electrical supply at the isolation switch to the water heater.
- Close the cold water isolation valve.
- Operate the relief valve easing lever to release the pressure in the water heater.
- Drain the water heater through the drain valve or plug.
- Undo the top outlet union or operate the relief valve easing lever again to let air into the water heater and allow the water to drain.




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# WHAT YOU NEED TO KNOW ABOUT WATER QUALITY

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## **WATER SUPPLY CHEMISTRY**

This water heater is manufactured to suit the water conditions of most public reticulated water supplies. Your Rheem water heater is manufactured to suit the water condition of most local authority water supplies. However, some water supplies can have a detrimental effect on the water heater and its operation and/or life expectancy. If you are unsure of your water quality, you can obtain information from your local water supply authority.

 **Warning:** *This water heater must be installed in accordance with this advice to be covered by the Rheem warranty.*

## **WATER pH**

pH is used as a measure of the water's alkalinity or acidity. pH should be between 6.5 and 7.5 for the proper life of the water heater. For low pH a corrosive resistant element can improve the life of the element. For high pH Low watts density elements and a low temperature setting (60°C) should be used to reduce scale build up on the element and in the tank

## **SATURATION INDEX (SI)**

The saturation index is based on pH and is used as a measure of the water's scaling properties. With positive SI calcium carbonate is deposited out of the water onto any hot metallic surface. Where SI is greater than +0.4 the water is very scaling. An expansion control valve must be fitted on the cold water line after the non-return valve. Low watts density elements and a low temperature setting (60°C) should be used to reduce scale build up on the element and in the tank. Where the saturation index exceeds +0.8 warranty will not apply to the copper tank or heating element. Water with an SI greater than +0.8 may be treated with a water softening device to reduce the SI of the water. For extreme water conditions a coated element may be available.

## **PLASTIC TANKS**

Rain water held in plastic tanks should be regularly checked for pH and adjusted to between 6.5 and 7.5. pH below this can cause corrosion in the water heater.

**WATER HEATERS NOT INSTALLED IN ACCORDANCE WITH THE ABOVE ADVICE WILL NOT BE COVERED BY THE RHEEM WARRANTY.**

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# RHEEM WARRANTY

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## Mains Pressure Electric Water Heater Product Warranty --- New Zealand ONLY ---

In addition to your legal rights, in New Zealand, Rheem New Zealand Limited makes the following promise to the owner. We will repair or, if necessary, replace a defective water heater or part of it, which has failed due to faulty manufacture on the following terms and conditions:

### 1. THE RHEEM WARRANTY – GENERAL

- 1.1 This warranty is given in respect of sales in New Zealand by Rheem New Zealand Ltd, Company number 1175771, 475 Rosebank Road, Avondale, Auckland.
- 1.2 Rheem offer a trained and qualified national service network that will repair or replace components at the address where the water heater is installed subject to the terms of the Rheem warranty. In New Zealand contact your Rheem Service Centre on 0800 657 335.
- 1.3 For details about this warranty, you can contact us in New Zealand at rheem@rheem.co.nz or phone your Rheem Service Centre on 0800 657 335.
- 1.4 The terms of this warranty are set out in Section 2 and apply to water heaters manufactured after 1<sup>st</sup> July 2016.
- 1.5 If a subsequent version of this warranty is published, the terms of that warranty will apply to water heaters manufactured after the date specified in the subsequent version.

### 2. TERMS OF THE RHEEM WARRANTY AND EXCLUSIONS TO IT

- 2.1 The decision of whether to repair or replace a faulty component is at Rheem New Zealand's sole discretion.
- 2.2 Where a failed component or cylinder is replaced under this warranty, the balance of the original warranty period will remain effective. The replacement does not carry a new Rheem New Zealand Limited warranty.
- 2.3 Where the water heater is installed outside the boundaries of a metropolitan area as defined by Rheem New Zealand Limited or further than 25 km from an Rheem New Zealand Limited Accredited Service Centre's office, the cost of transport, insurance and travelling between the Rheem New Zealand Limited Accredited Service Centre's office and the installed site shall be the owner's responsibility.
- 2.4 Where the water heater is installed in a position that does not allow safe or ready access, the cost of that access, including the cost of additional materials handling and/or safety equipment, shall be the owner's responsibility. In other words, the cost of dismantling or removing cupboards, doors or walls and the cost of any special equipment to bring the water heater to floor or ground level, or to a serviceable position is not covered by this warranty.
- 2.5 This warranty only applies to the original and genuine Rheem New Zealand Limited's water heater in its original installed location and any genuine Rheem replacement parts.
- 2.6 The Rheem New Zealand Limited warranty does not cover faults that are a result of:
  - a) 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).
  - b) Misuse or abnormal use of the water heater.
  - c) Installation or use not in accordance with the Owner's Guide and Installation Instructions or with relevant statutory and local requirements (including failure to install a properly drained safe tray where required by the Owner's Guide and Installation Instructions).
  - d) Connection at any time to a water supply that does not comply with the water supply guidelines as outlined in the Owner's Guide and Installation Instructions, or poor water quality outside the limits specified in the Owner's Guide and Installation Instructions.

- e) Service or repair work, attempts to repair or modifications to the water heater by a person other than Rheem Service or a Rheem Accredited Service Centre.
  - f) Faulty plumbing or faulty power supply.
  - g) Failure to maintain the water heater in accordance with the Owner's Guide and Installation Instructions.
  - h) Transport damage.
  - i) Fair wear and tear from adverse conditions (for example, corrosion).
  - j) Cosmetic defects.
- 2.7 If you require a call out and we find that the fault is not covered by the Rheem warranty, you are responsible for the Rheem Service Centre's call out cost. If you wish to have the relevant component repaired or replaced by Rheem, that service will be at your cost.
- 2.8 Subject to any statutory provisions to the contrary, this warranty excludes any and all claims however arising, including under contract or tort, for damage to furniture, carpet, walls, foundations or any other consequential loss or incidental expenses either directly or indirectly due to leakage from the Rheem 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 that were not reasonably foreseeable as liable to result from the failure.
- 2.9 This warranty excludes to the extent permissible all implied warranties set out in the Sale of Goods Act 1908 (New Zealand) and all guarantees set out in the Consumer Guarantees Act 1993 (New Zealand) to the extent that the goods are acquired for the purpose of resupply in trade, consumption in the course of a process of production or manufacture or repairing or treating in trade other goods or fixtures on land.

### 3. WHAT IS COVERED BY THE RHEEM WARRANTY FOR THE WATER HEATERS DETAILED IN THIS DOCUMENT

- 3.1 Rheem will repair or replace a faulty component of your water heater if it fails to operate in accordance with its specifications as follows:

Warranty Cover	The period from date of installation, in which the fault must appear, in order to be covered		*Domestic use is defined as; when the appliance is installed in a single family domestic dwelling.
	Domestic use*	Non-domestic use*	
What components are covered			What coverage you receive
All components	1	1	Repair or replacement of failed component, or if necessary, replacement of the complete water heater, free of charge, including labour.
Cylinder only	5	1	Repair or replacement of the complete water heater, free of charge. Installation and labour cost are the responsibility of the owner.

### 4. ENTITLEMENT TO MAKE A CLAIM UNDER THIS WARRANTY

- 4.1 To be entitled to make a claim under this warranty you need to:
- a) Be the owner of the water heater or have consent of the owner to act on their behalf
  - b) Contact Rheem Service without undue delay after detection of the defect and, in any event, within the applicable Rheem warranty period.
- 4.2 You are **not** entitled to make a claim under this Rheem warranty if your water heater:
- a) Does not have its original serial numbers or rating labels.

b) Is not installed in New Zealand.

## **5. HOW TO MAKE A CLAIM UNDER THIS WARRANTY**

5.1 If you wish to make a claim under this warranty, you need to:

- a) Contact Rheem on 0800 657 335 and provide owner's details, address of the water heater, a contact number and date of installation of the water heater or if that's unavailable, the date of manufacture and serial number (from the rating label on the water heater)
- b) Rheem will arrange for the water heater to be assessed on-site and may require the unit to be removed and returned to the factory for further testing.
- c) If Rheem determines that you have a valid warranty claim, Rheem will repair or replace the water heater in accordance with this warranty

5.2 Any expenses incurred in the making of a claim under this warranty will be borne by you.

## **6. THE CONSUMER GUARANTEES ACT 1993 (NEW ZEALAND)**

- 6.1 Our goods come with guarantees that cannot be excluded under the Consumer Guarantees Act 1993 (New Zealand). If the goods fail to comply with the applicable guarantees set out under the Consumer Guarantees Act 1993 (New Zealand) being the guarantee as to acceptable quality, the guarantee as to correspondence with description or the guarantee as to repair and parts, or if the goods fail to comply with any express guarantee given by Rheem, then you are entitled to a replacement or refund and for compensation for any other reasonably foreseeable loss or damage.
- 6.2 The Rheem warranty (set out above) is in addition to any rights and remedies that you may have under the Consumer Guarantees Act 1993 (New Zealand)

**RHEEM NEW ZEALAND LTD**

**[www.rheem.co.nz](http://www.rheem.co.nz)**

**FOR SERVICE TELEPHONE**

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Note: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences, which may arise as a result of its application.