

ABOUT YOUR WATER HEATER

WATER HEATER APPLICATION

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.

MODEL TYPE

The Rheem® water heater you have chosen will be either a Rheemglas® or RheemPlus™ model.

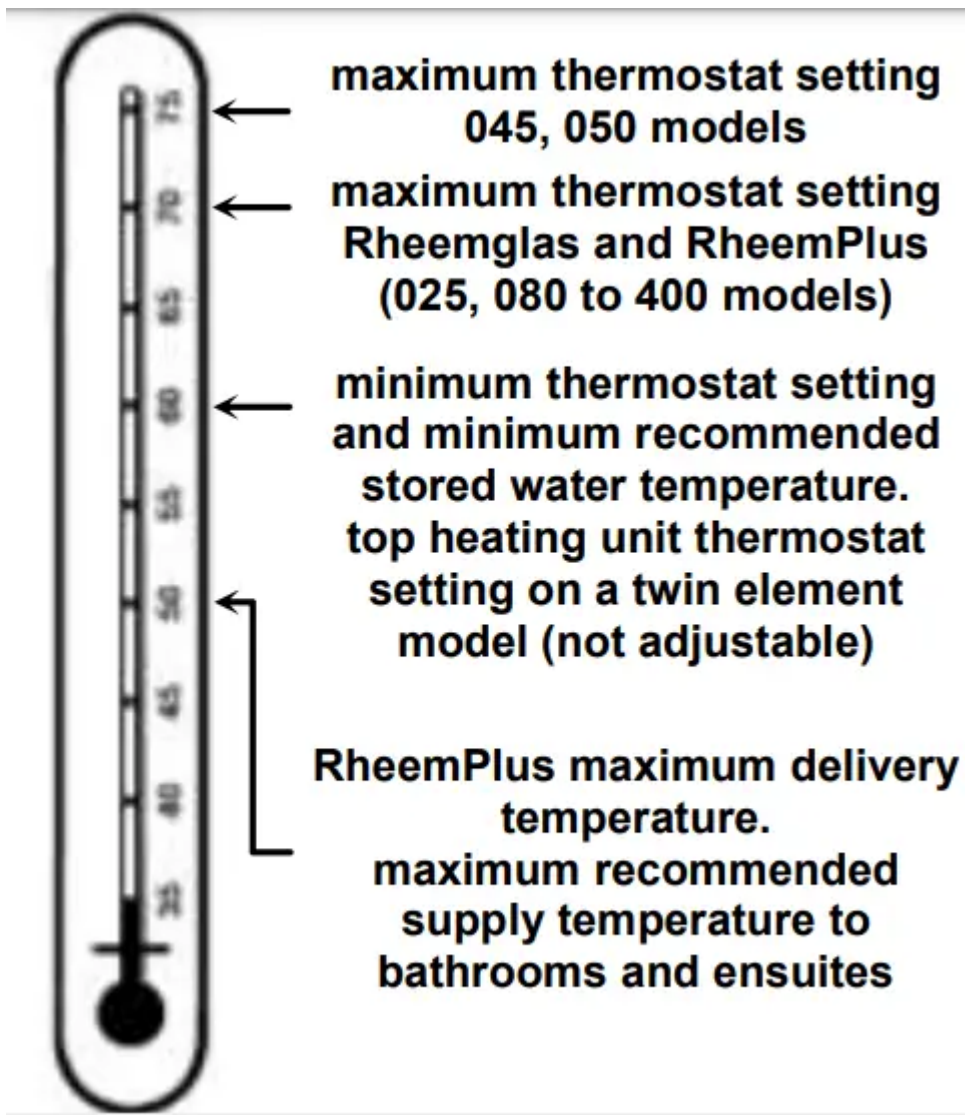
Rheemglas models are available with either a single heating unit or with twin heating units and the RheemPlus models are available with a single heating unit only (refer to “Single Element Model” on page 7 and “Twin Element Model” on page 7). A water heater with a supply cord and plug is suitable for indoor installation only. All other water heaters can be installed indoor or outdoor.

Water is stored in a vitreous enamel lined steel cylinder and heated by the electric immersion heating unit. The thermostat controls the temperature. Automatic safety controls are fitted to the water heater to provide safe and efficient operation.

Depending on the model of water heater, it may have caps or brass plugs on one side of the tank. The plugs and caps block off alternative connection points and are not to be tampered with or removed.

HOW HOT SHOULD THE WATER BE?

The water heater features an adjustable thermostat, which allows you to choose the most suitable temperature for your hot water needs. Refer to “Temperature Adjustment” on page 5. A RheemPlus water heater is temperature limited to deliver water not exceeding 50°C. To meet the requirements of the National Plumbing Standard the temperature of the stored water must not be below 60°C.



HOTTER WATER INCREASES THE RISK OF SCALD INJURY

This water heater can deliver water at temperatures which can cause scalding. 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 scald injury.

We recommend and it may also be required by regulations that an approved temperature limiting device be fitted into the hot water pipe work to the bathroom and ensuite when a Rheemglas water heater is installed. This will keep the water temperature below 50°C at the bathroom and ensuite. The risk of scald injury will be reduced and still allow hotter water to the kitchen and laundry.

A RheemPlus water heater will not deliver temperatures exceeding 50°C, in accordance with AS 3498. There is no statutory requirement to fit a temperature limiting device if this water heater is installed in other than an early childhood centre, school, nursing home or a facility for young, aged, sick or disabled people.

THERMOSTAT

The thermostat automatically controls the electricity supply to the heating unit so a constant temperature is maintained. The thermostat and its protective over temperature cut out is mounted inside the front cover of the water heater. There is no need to switch the water heater off when it is not in use, except when you are on an extended holiday. The thermostat is fully automatic and power is only used when heating is required.

TEMPERATURE ADJUSTMENT

A Rheemglas or RheemPlus water heater features a tradesperson adjustable thermostat. This requires a licensed tradesperson to make any temperature adjustments. The thermostat has a maximum temperature setting of 70°C (75°C for 045, 050 models) and a minimum temperature setting is 60°C.

We advise you have your electrician adjust the thermostat to the lowest temperature setting that meets your needs, especially if there are young children or elderly people in your home. Refer to “Hotter Water Increases The Risk of Scald Injury” on page 5.

A RheemPlus water heater is temperature limited to 50°C at the hot water outlet. The minimum thermostat setting should be 65°C to assist in the specified operation of the temperature limiting valve. Increasing the thermostat setting will not increase the outlet temperature but will provide more hot water capacity

SINGLE ELEMENT MODEL

This type of water heater has one heating unit with its own thermostat. The heating unit is at the base of the water heater.

- Continuous electricity supply This type of connection is suited to where the storage capacity is less than the normal daily usage.
- Off-Peak electricity supply This type of connection will only allow heating to occur during set hours. A volume of water sufficient for the day's total use is heated and stored. This type of heating will be more economical due to reduced tariffs by the electricity authority



TWIN ELEMENT MODEL

This type of water heater has two heating units, each with its own thermostat. One heating unit is at the base of the water heater and the other near the top.

- Bottom heating unit : During normal operation this heating unit supplies all the hot water.
- Top heating unit (Booster) : This heating unit only operates during periods of high demand to provide an additional supply of heated water.
- Electrical connection : The two heating units are wired for nonsimultaneous operation, so that only one heating unit can operate at a time. The bottom heating unit is usually connected to an Off-Peak (overnight) or time controlled electricity supply and the top heating unit to a continuous supply. Some electricity suppliers allow both heating units to be metered at the OffPeak or controlled tariff.



MAINS PRESSURE

The water heater is designed to operate at mains pressure by connecting directly to the mains water supply. If the mains supply pressure in your area exceeds that shown on page 23, a pressure limiting valve must be fitted. The supply pressure should be greater than 350 kPa for true mains pressure operation to be achieved.

PRECAUTIONS

Where damage to property can occur in the event of the water heater leaking, the water heater must be installed in a safe tray. Construction, installation and draining of a safe tray must comply with AS/NZS 3500.4 and all local codes and regulatory authority requirements.

The water heater must be maintained in accordance with the Owner's Guide and Installation Instructions. Refer to "Regular Care" on page 10 and to "Anode Inspection and Replacement" on page 15.

If this water heater is to be used where an uninterrupted hot water supply is necessary for your application or business you should ensure that you have back up redundancy within the hot water system design. This should ensure the continuity of hot water supply in the event that this water heater were to become inoperable for any reason.

We recommend you seek advice from your plumber or specifier about your needs and building back up redundancy into your hot water supply system.

TO TURN OFF THE WATER HEATER

If you plan to be away from home for only a few nights, we suggest you leave the water heater switched on.

If it is necessary to turn off the water heater:

- Switch off the electrical supply at the isolating switch to the water heater.
- Unplug the power supply cord from the power outlet (power supply cord model only).
- Close the cold water isolation valve at the inlet to the water heater.

TO TURN ON THE WATER HEATER

- Open the cold water isolation valve fully on the cold water line to the water heater.
- Plug in the power supply cord at the power outlet (power supply cord model only).
- Switch on the electrical supply at the isolating switch to the water heater.

GOING ON HOLIDAY?

If you plan to be away from home for one or two nights, we suggest you leave the water heater switched on. However, if you plan to stay away more than a few nights, conserve energy by switching the water heater off at either the switchboard or isolating switch.

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

Installation requirements are shown on pages 21 to 28. The water heater must be installed:

- by a qualified person, and
- in accordance with the installation instructions, and
- in compliance with Standards AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements.

In New Zealand the installation must also conform with the New Zealand Building Code.

VICTORIAN CUSTOMERS

Notice to Victorian Customers from the Victorian Plumbing Industry Commission. This water heater must be installed by a licensed person as required by the Victorian Building Act 1993.

Only a licensed person will give you a Compliance Certificate, showing that the work complies with all the relevant Standards. Only a licensed person will have insurance

protecting their workmanship for 6 years. Make sure you use a licensed person to install this water heater and ask for your Compliance Certificate.

DOES THE WATER CHEMISTRY AFFECT THE WATER HEATER?

The water heater is suitable for most public water supplies, however some water chemistries may have detrimental effects on the water heater, its components and fittings. Refer to “Water Supplies” on page 14.

If you are in a known harsh water area or you are not sure of your water chemistry, have your water checked against the conditions described on pages 14 to 17.

HOW LONG WILL THE WATER HEATER LAST?

The water heater is supported by a manufacturer’s warranty (refer to page 45). There are a number of factors that will affect the length of service the water heater will provide. These include but are not limited to the water chemistry, the water pressure, the water temperature (inlet and outlet) and the water usage pattern. Refer to “Precautions” on page 8.

REGULAR CARE

MAJOR FIVE YEAR SERVICE

It is recommended a major five year service be conducted on the water heater.

The major service includes the following actions:

- Replace the temperature limiting valve (RheemPlus model).
- Replace the temperature pressure relief valve.
- Inspect and flush the expansion control valve (if fitted). If required, replace the valve.
- Inspect and if required, replace the anode. If the anode is not replaced, it should be replaced within three years of this service (refer to “Anode Inspection and Replacement” on page 15).
- Check the electric heating unit for excessive calcium build up or corrosion and replace if necessary.
- Visually check the unit for any potential problems.
- Inspect all connections.
- Check the drain line from the safe tray (if one is installed) is not blocked.

MINOR SIX MONTH MAINTENANCE

It is recommended minor maintenance be performed every six months by the dwelling occupant.

The minor maintenance includes:

- Operate the easing lever on the temperature pressure relief valve. It is very important you raise and lower the lever gently. Refer to “Temperature Pressure Relief Valve” on page 12.
- Operate the easing lever on the expansion control valve (if fitted). It is very important you raise and lower the lever gently. Refer to “Expansion Control Valve” on page 11.
- Check the performance of the temperature limiting valve (RheemPlus model). Measure the water temperature from the hot tap nearest to the water heater with a thermometer. If the water temperature exceeds 50°C, phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection. Refer to “Temperature Limiting Valve” on page 13.
- Check the drain line from the safe tray (if one is installed) is not blocked.

EXPANSION CONTROL VALVE

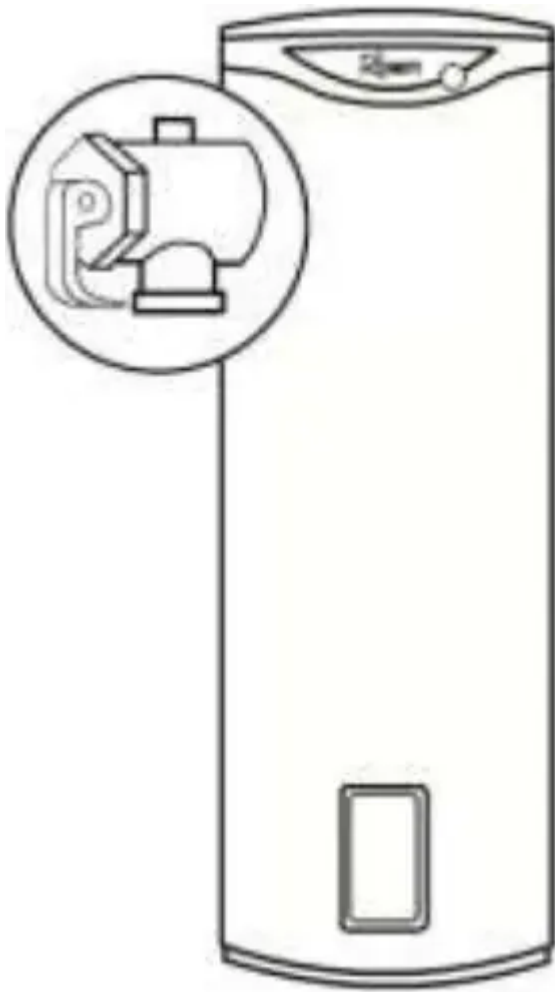
In many areas, including South Australia, Western Australia and scaling water areas, an expansion control valve is fitted to the cold water line to the water heater. The expansion control valve may discharge a small quantity of water from its drain line during the heating period instead of the temperature pressure relief valve on the water heater.

Operate the easing lever on the expansion control valve once every six months. It is very important you raise and lower the lever gently. The expansion control valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits.

TEMPERATURE PRESSURE RELIEF VALVE

This valve is near the top of the water heater and is essential for its safe operation. It is possible for the valve to release a little water through the drain line during each heating period. This occurs as the water is heated and expands by approximately 1/50 of its volume. Continuous leakage of water from the valve and its drain line may indicate a problem with the water heater (refer to “Temperature Pressure Relief Valve Running” on page 19).

Operate the easing lever on the temperature pressure relief valve once every six months. It is very important you raise and lower the lever gently.

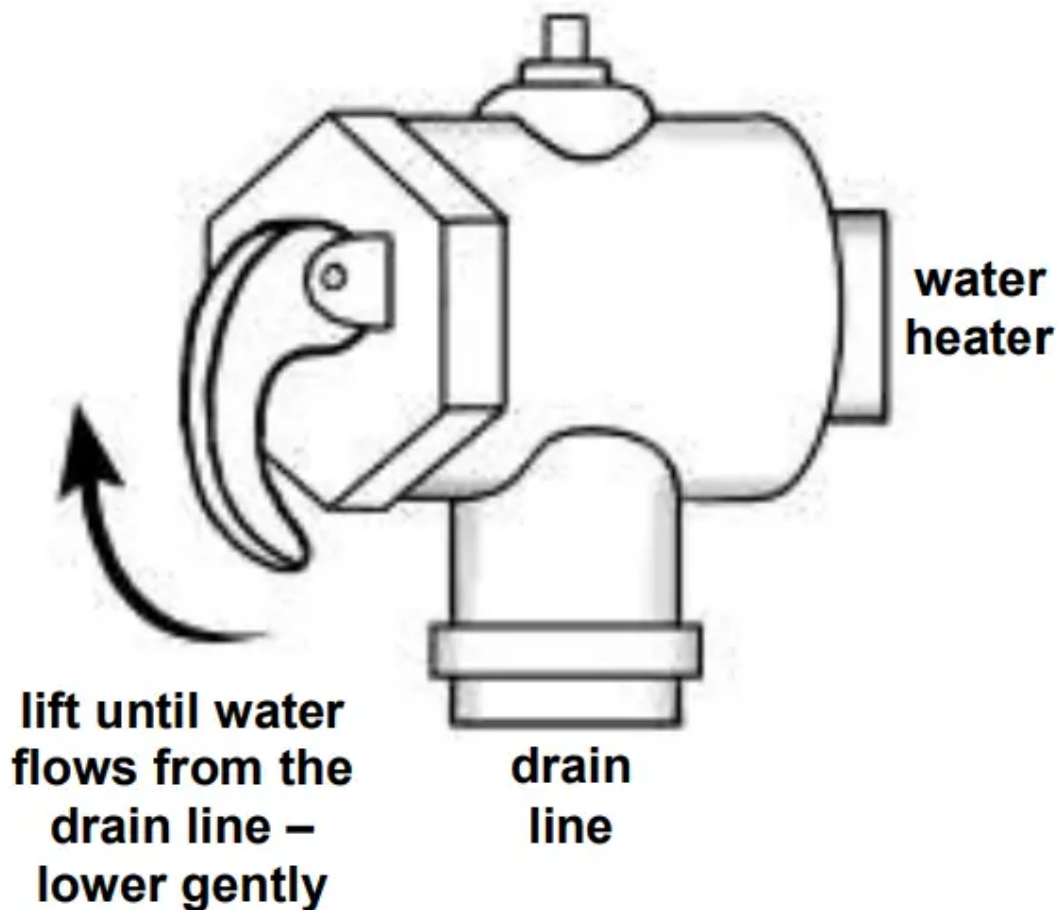


Warning: Never block the outlet of this valve or its drain line for any reason.

Operate the easing lever on the temperature pressure relief valve once every six months. It is very important you raise and lower the lever gently.

DANGER: Failure to do this may result in the water heater cylinder failing, or under certain circumstances, exploding.

Warning: Exercise care to avoid any splashing of water, as water discharged from the drain line will be hot. Stand clear of the drain line's point of discharge when operating the valve's lever.



If water does not flow freely from the drain line when the lever is lifted, then the water heater must be checked. Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

The temperature pressure relief valve should be replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits (refer to “Water Supplies” on page 14).

TEMPERATURE LIMITING VALVE

A RheemPlus water heater is fitted with a temperature limiting valve at the hot water outlet. The valve is set to deliver water not exceeding 50°C.

The valve should be checked for performance every twelve months. This can be performed by measuring the water temperature from the hot tap nearest to the water heater with a thermometer. If the water being delivered is at a temperature exceeding 50°C, phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.

The valve must be replaced at intervals not exceeding 5 years, or more frequently in areas where there is a high incidence of water deposits (refer to “Water Supplies” on page 14). Failure to do this may result in water at a temperature up to 70°C being delivered at the hot tap, increasing the risk of scald injury

WATER SUPPLIES

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

This water heater is manufactured to suit the water conditions of most public reticulated water supplies. However, there are some known water chemistries which can have detrimental effects on the water heater and its operation and / or life expectancy. If you are unsure of your water chemistry, you may be able to obtain information from your local water supply authority. This water heater should only be connected to a water supply which complies with these guidelines for the Rheem warranty to apply.

ANODE

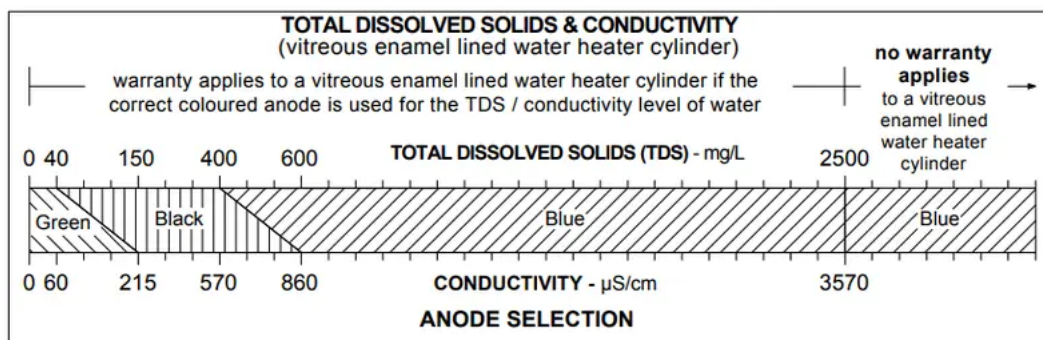
The vitreous enamel lined cylinder of the water heater is only covered by the Rheem warranty when the total dissolved solids (TDS) content in the water is less than 2500 mg/L and when the correct colour coded anode is used. If an incorrect colour coded anode is used in the water heater, any resultant faults will not be covered by the Rheem warranty. In addition, the use of an incorrect colour coded anode may shorten the life of the water heater cylinder.

The correct colour coded anode must be selected and fitted to the water heater in accordance with the following advice and the Anode Selection chart on page 15 for the Rheem warranty to apply to the water heater cylinder.

Total Dissolved Solids	Anode colour code
0 – 40 mg/L	Green
40 – 150 mg/L	Green or Black
150 – 400 mg/L	Black
400 – 600 mg/L	Black or Blue
600 – 2500 mg/L	Blue
2500 mg/L +	Blue (no cylinder warranty)

The changing of an anode must be carried out by a qualified person.

Note: Some water analysis reports may state the conductivity of the water rather than the level of total dissolved solids. Conductivity, measured in microsiemens per centimetre ($\mu\text{S} / \text{cm}$), is directly proportional to the TDS content of the water. TDS, in mg / L, is approximately 70% of the conductivity in $\mu\text{S} / \text{cm}$.



ANODE INSPECTION AND REPLACEMENT

The anode installed in your water heater will slowly dissipate whilst protecting the cylinder. The life of the cylinder may be extended by replacing the anode. If the anode is not replaced during a five year service (refer to “Major Five Year Service” on page 10) then the maximum time after installation when the anode should be replaced for this electric water heater is 8 years. For water supplies which are either softened, desalinated or where the water supply may alternate between a water tank and a reticulated public supply or another supply, it is recommended the anode be replaced within 5 years of installation.

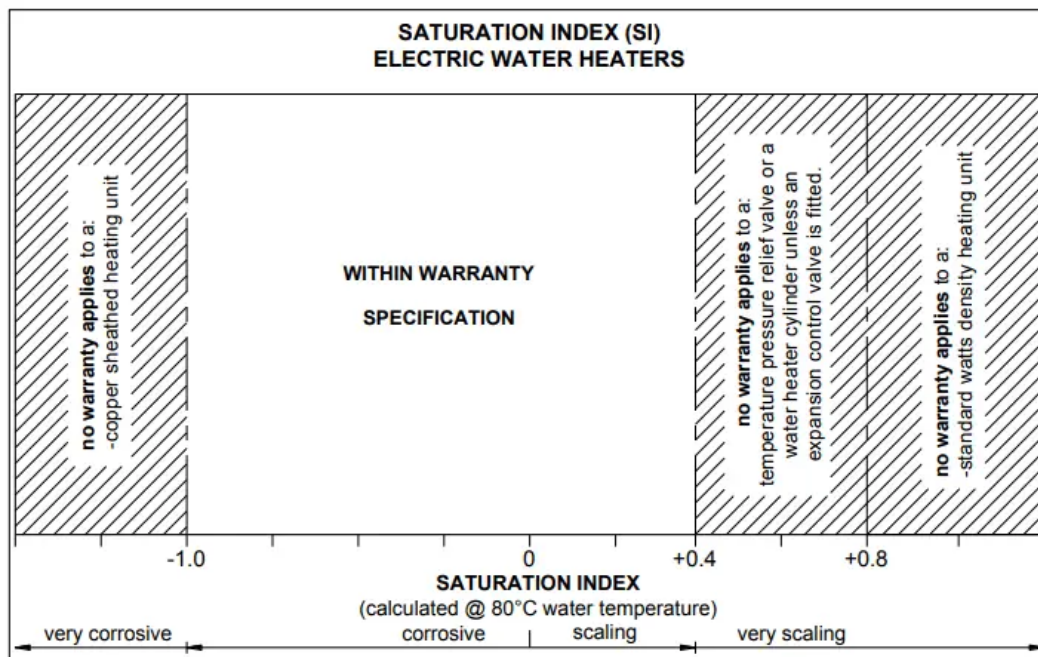
CAUTION

If the water supply has a TDS greater than 150 mg/L and a green anode has not been changed to a black anode, or if the TDS is greater than 600 mg/L and the anode has not been changed to a blue anode, there is the possibility the anode may become overactive and hydrogen gas could accumulate in the top of the water heater during long periods of no use. If, under these conditions, the water heater has not been used for two or more weeks the following procedure should be carried out before using any electrical appliances (automatic washing machines and dishwashers) which are connected to the hot water supply. The hydrogen, which is highly flammable, should be vented safely by opening a hot tap and allowing the water to flow. There should be no smoking or naked flame near the tap whilst it is turned on. Any hydrogen gas will be dissipated. This is indicated by an unusual spurting of the water from the tap. Once the water runs freely, any hydrogen in the system will have been released.

SATURATION INDEX

The saturation index is used as a measure of the water's corrosive or scaling properties. In a corrosive water supply, the water can attack copper parts and cause them to fail. Where the saturation index is less than -1.0 , the water is very corrosive and the Rheem warranty does not apply to a copper sheathed heating unit. A corrosion resistant heating unit must be used for the Rheem warranty to apply to the heating unit. In a scaling water supply calcium carbonate is deposited out of the water onto any hot metallic surface. Where the saturation index exceeds $+0.40$, the water is very scaling. An expansion control valve must be fitted on the cold water line after the

non-return valve to protect and for the Rheem warranty to apply to the temperature pressure relief valve and water heater cylinder. Where the saturation index exceeds +0.80, the Rheem warranty does not apply to a standard watts density heating unit. A low watts density heating unit must be used for the Rheem warranty to apply to the heating unit. Water which is scaling may be treated with a water softening device to reduce the saturation index of the water. Refer to the Saturation Index chart on page 16. Refer to the cold water connection detail on page 32 for the position of the expansion control valve. Contact Rheem Service or their nearest Accredited Service Agent if a replacement heating unit is required.



CHANGE OF WATER SUPPLY

The changing or alternating from one water supply to another can have a detrimental effect on the operation and / or life expectation of a water heater cylinder, a temperature pressure relief valve and a heating unit. Where there is a changeover from one water supply to another, e.g. a rainwater tank supply, bore water supply, desalinated water supply, public reticulated water supply or water brought in from another supply, then water chemistry information should be sought from the supplier or it should be tested to ensure the water supply meets the requirements given in these guidelines for the Rheem warranty to apply.

SUMMARY OF WATER CHEMISTRY ADVICE AFFECTING WARRANTY

The water heater and its components are not suitable for certain water chemistries. Those chemistries are listed below. If the water heater is connected at any time to a water supply with the following water chemistry, the Rheem warranty will not cover any resultant faults on the components listed below:

Total Dissolved Solids (TDS) > 2500 mg/L : water heater cylinder

Total Dissolved Solids (TDS) not suitable for anode type : water heater cylinder

Saturation Index (SI) < -1.0 : copper sheathed heating unit

Saturation Index (SI) > +0.4 (if expansion control valve is not fitted) : water heater cylinder temperature pressure relief valve

Saturation Index (SI) > +0.8 : standard watts density heating unit

SAVE A SERVICE CALL

Check the items below before making a service call. You will be charged for attending to any condition or fault that is not related to the manufacture or failure of a part.

NOT ENOUGH HOT WATER (OR NO HOT WATER)

- **Is the electricity switched on?**

Inspect the isolating switch marked "HOT WATER" or "WATER HEATER" at the switchboard and the isolating switch (if one is installed) near the water heater and ensure they are turned on.

Note: Check the electricity supply to which the water heater is connected. If on an OffPeak or time controlled electricity supply, remember heating hours are restricted (refer to "Off-Peak Electricity Supply" on page 7).

Check the fuse marked "HOT WATER" or "WATER HEATER" at the switchboard.



- **Twin element water heaters**

A twin element non-simultaneous model must have power available to the top heating unit circuit at all times for the water heater to operate as designed

- **Are you using more hot water than you think?**

Is one outlet (especially the shower) using more hot water than you think? Very often it is not realised the amount of hot water used, particularly when showering. Carefully review the family's hot water usage. Have your plumber fit a flow control valve to each shower outlet to reduce water usage.

- **Temperature pressure relief valve running**

Is the relief valve discharging too much water? (Refer to "Temperature Pressure Relief Valve Running" on page 19).

- **Thermostat setting**

Ensure the thermostat setting is appropriate. You may choose to have your electrician (Rheemglas and RheemPlus models) adjust the thermostat upwards to gain additional hot water capacity. Refer to "Temperature Adjustment" on page 5.

A RheemPlus water heater is temperature limited to 50°C at the hot water outlet. Increasing the thermostat setting will not increase the outlet temperature but will provide more hot water capacity.

- **Water heater size**

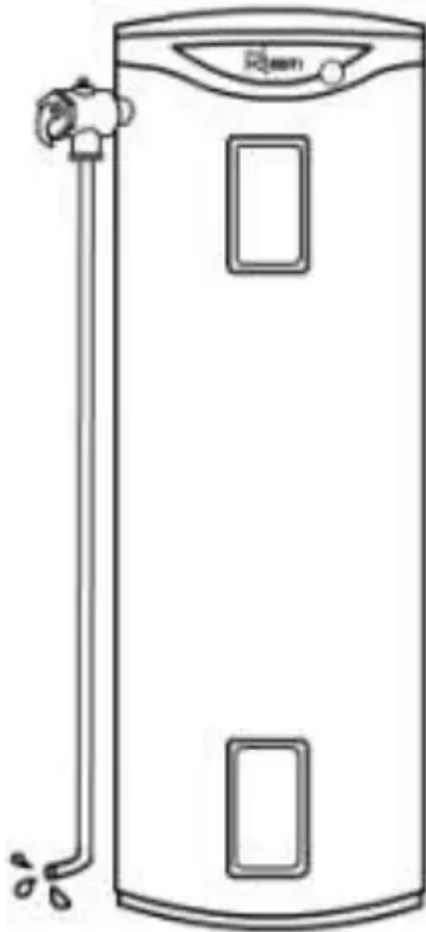
Do you have the correct size water heater for your requirements? The sizing guide in the Rheem sales literature and on the Rheem website suggests average sizes that may be needed.

WATER TEMPERATURE TOO HIGH

A RheemPlus water heater is fitted with a temperature limiting valve set to deliver water not exceeding 50°C. If the water is being delivered at a temperature exceeding 50°C, phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection. Care must be taken by all householders when using hot water until the valve is serviced or replaced.

TEMPERATURE PRESSURE RELIEF VALVE RUNNING

- **Normal Operation** : It is normal and desirable that this valve allows a small quantity of water to escape during the heating cycle. However, if it discharges more than a bucket full of water in 24 hours, there may be another problem.
- **Continuous dribble** : Try gently raising the easing lever on the relief valve for a few seconds (refer to “Temperature Pressure Relief Valve” on page 12). This may dislodge a small particle of foreign matter and clear the fault. Release the lever gently.
- **Steady flows for long period (often at night)** : This may indicate the mains water pressure sometimes rises above the designed pressure of the water heater. Ask your installing plumber to fit a pressure limiting valve.
- **Heavy flows of hot water until water heater is cold - then stops until water reheats** : The water heater must be switched off at the switchboard. Phone Rheem Service or their nearest Accredited Service Agent to arrange for an inspection.



EXPANSION CONTROL VALVE RUNNING

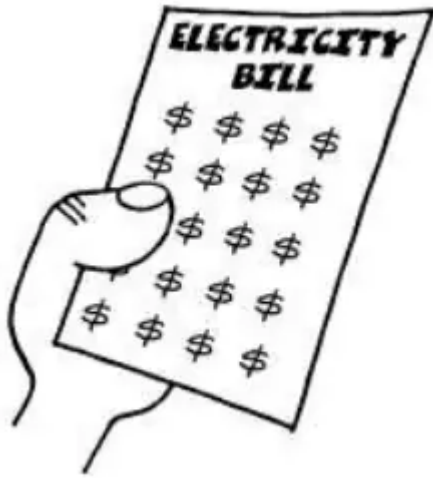
If an expansion control valve is fitted in the cold water line to the water heater (refer to page 32) it may discharge a small quantity of water instead of the temperature pressure relief valve on the water heater. The benefit is that energy is conserved as the discharged water is cooler.

HIGHER THAN EXPECTED ELECTRICITY BILLS

Should you at any time, feel your electricity account is higher than expected, we suggest you check the following points:

- Is the relief valve running excessively? Refer to “Temperature Pressure Relief Valve Running” on page 19.
- Is one outlet (especially the shower) using more hot water than you think? Refer to “Not Enough Hot Water” on page 18.
- Is there a leaking hot water pipe, dripping hot water tap, etc? Even a small leak will waste a surprising quantity of hot water and electricity. Replace faulty tap washers, and have your plumber rectify any leaking pipe work
- Has there been an increase in hot water usage? An increase in hot water usage will result in an increase in water heater operation.

- Has your water heating tariff rate been increased by your electricity retailer since your previous account?



ELECTRICITY TARIFFS

The electricity tariff to which your water heater is connected will determine the overall operating cost of the system. It is important you are aware of this tariff, i.e. Off-Peak (overnight) or time controlled supply, Extended Off-Peak (overnight and day) or Extended time controlled supply, Domestic / Continuous. For types of tariffs, refer to “Single Element Model” on page 7 and “Twin Element Model” on page 7.

IF YOU HAVE CHECKED ALL THE FOREGOING AND STILL BELIEVE YOU NEED ASSISTANCE, PHONE RHEEM SERVICE OR THEIR NEAREST ACCREDITED SERVICE AGENT.

INSTALLATION

INSTALLATION STANDARDS

The water heater must be installed:

- by a qualified person, and
- in accordance with the installation instructions, and
- in compliance with Standards AS/NZS 3500.4, AS/NZS 3000 and all local codes and regulatory authority requirements.

In New Zealand the installation must also conform with the New Zealand Building Code.

All packaging materials must be removed from the water heater prior to its installation. This includes the removal of the cardboard base of the carton from the underside of the water heater.

WATER HEATER APPLICATION

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.

If this water heater is to be used where an uninterrupted hot water supply is necessary for the application or business, then there should be redundancy within the hot water system design. This should ensure the continuity of hot water supply in the event that this water heater was to become inoperable for any reason. We recommend you provide advice to the system owner about their needs and building backup redundancy into the hot water supply system.

WATER HEATER LOCATION

The water heater is suitable for either indoor or outdoor installation. Whether located outdoor or indoor, the water heater should be installed close to the most frequently used outlet and its position chosen with safety and service in mind.

Clearance must be allowed for servicing of the water heater. The water heater must be accessible without the use of a ladder or scaffold.

Make sure the temperature pressure relief valve lever is accessible and the front cover, thermostat, heating unit and if fitted, the side cover and temperature limiting valve can be removed for service.

You must be able to read the information on the rating plate. If possible leave headroom of one water heater height so the anode can be inspected or replaced. Remember you may have to take the entire water heater out later for servicing.

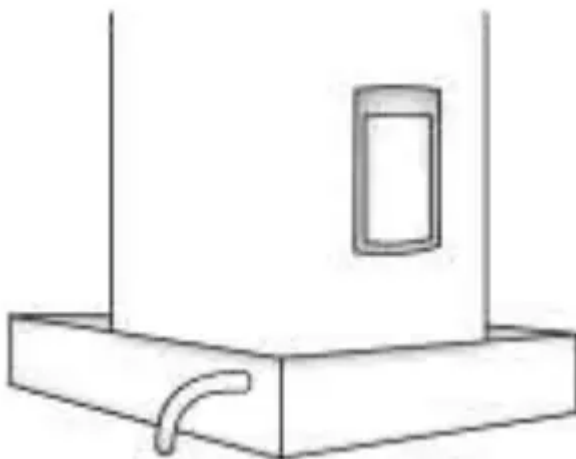
The water heater is to be installed at ground or floor level and must stand vertically upright on a stable base as acceptable to local authorities. The base of the water heater is made of corrosion resistant material, and it may be placed directly in contact with the supporting surface. It is not necessary to allow for free air circulation under the base of the water heater.

Note: The water heater should not be placed in direct contact with a concrete surface that is less than two months old and not fully cured as this may attack the metal coating of the water heater base. A moisture barrier should be used between the two surfaces in this instance. Alternatively, an 025 to 080 model may be hung on a wall capable of taking the weight of the filled water heater. A bracket kit is available from Rheem. Refer to the instructions supplied with the kit. Remember all local authorities have regulations about putting water heaters into roof spaces.



SAFE TRAY

Where damage to property can occur in the event of the water heater leaking, the water heater must be installed in a safe tray. Construction, installation and draining of a safe tray must comply with AS/NZS 3500.4 and all local codes and regulatory authority requirements. AS/NZS 3500.4 also has particular requirements when a safe tray must be installed.



MAINS WATER SUPPLY

Where the mains water supply pressure exceeds that shown in the table below, an approved pressure limiting valve is required and should be fitted as shown in the installation diagram (refer to diagram on page 32).

Model	Refer to data tables on pages 29, 30, 31	
Relief valve setting	1400 kPa	1000 kPa
Expansion control valve setting*	1200 kPa	850 kPa
Max. mains supply pressure		
With expansion control valve	960 kPa	680 kPa
Without expansion control valve	1120 kPa	800 kPa



TANK WATER SUPPLY

If the water heater is supplied with water from a tank supply and a pressure pump system is not installed, then the bottom of the supply tank must be at least 1 m above the highest point of the hot water plumbing system, including the water heater. Care must be taken to avoid air locks. The cold water line to the water heater should be adequately sized and fitted with a full flow gate valve or ball valve.

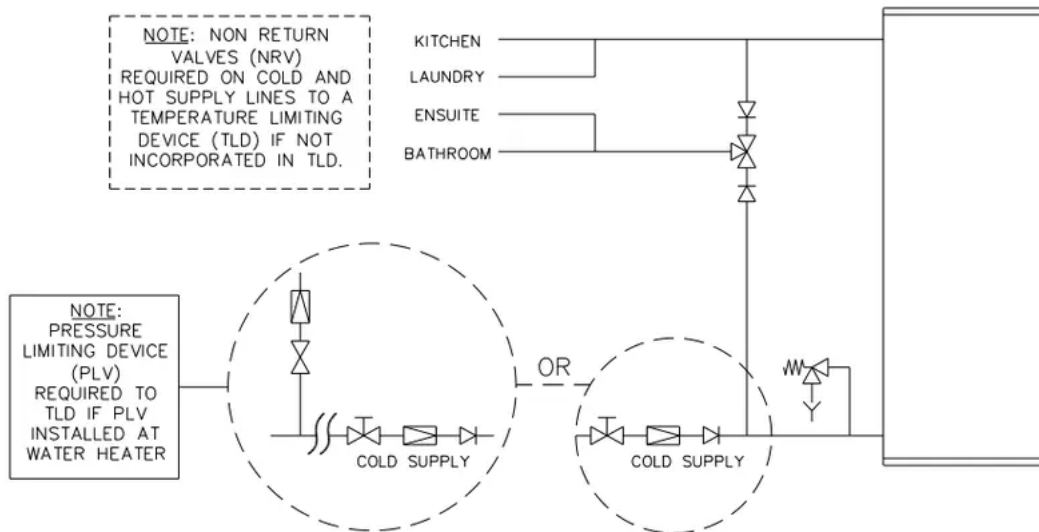
HOT WATER DELIVERY

This water heater can deliver water at temperatures which can cause scalding.

It is necessary and we recommend that a temperature limiting device be fitted between a Rheemglas water heater and the hot water outlets in any ablution area such as a bathroom or ensuite, to reduce the risk of scalding. The installing plumber may have a legal obligation to ensure the installation of this water heater meets the delivery water temperature requirements of AS/NZS 3500.4 so that scalding water temperatures are not delivered to a bathroom, ensuite or other ablution area.

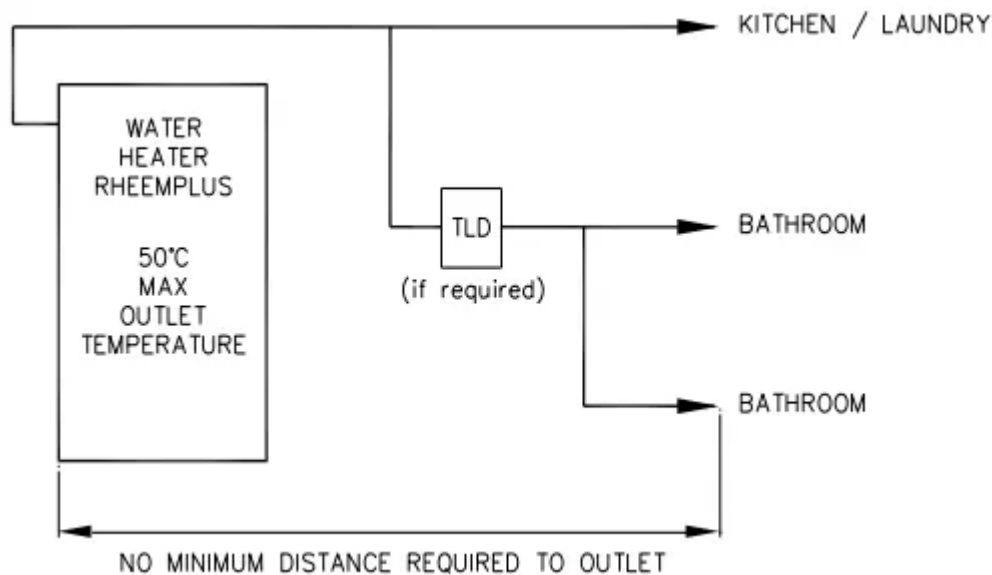
Where a temperature limiting device is installed adjacent to the water heater, the cold water line to the temperature limiting device can be branched off the cold water line either before or after the isolation valve, pressure limiting valve and non return valve to the water heater. If an expansion control valve is required, it must always be installed after the non return valve and be the last valve prior to the water heater.

If a pressure limiting valve is installed on the cold water line to the water heater and the cold water line to a temperature limiting device branches off before this valve or from another cold water line in the premises, then a pressure limiting valve of an equal pressure setting may be required prior to the temperature limiting device.



Two Temperature Zones Using a Temperature Limiting Device

A RheemPlus water heater will not deliver temperatures exceeding 50°C, in accordance with AS 3498. There is no statutory requirement to fit a temperature limiting device if this water heater is installed in other than an early childhood centre, school, nursing home or a facility for young, aged, sick or disabled people.



CIRCULATED HOT WATER FLOW AND RETURN SYSTEM

A RheemPlus water heater cannot be installed as part of a circulated hot water flow and return system in a building.

If a Rheem water heater is to be installed as part of a circulated hot water flow and return system, a storage water heater able to provide a hot water outlet temperature of at least 60°C must be used. Note: The thermostat must always be set to at least 60°C. Refer to the diagram on page 25.

Temperature Limiting Device

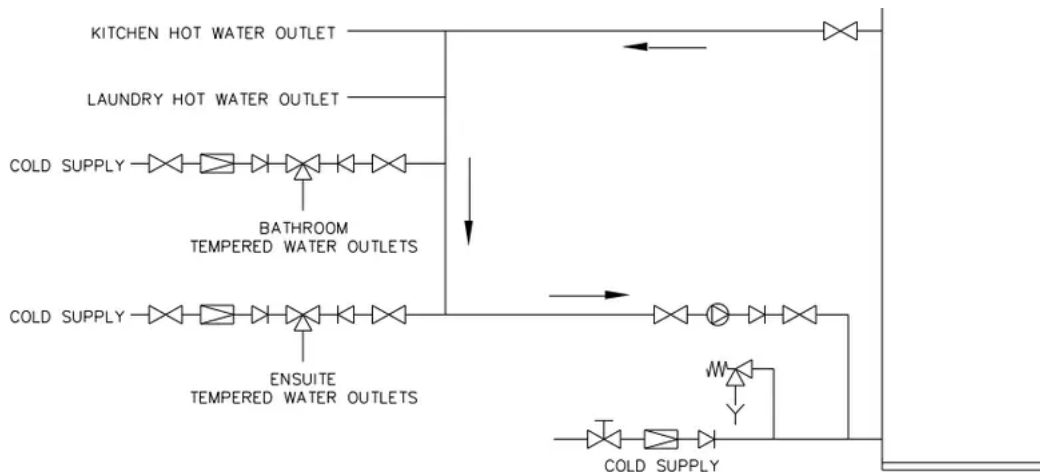
A temperature limiting device cannot be installed in circulated hot water flow and return pipe work. The tempered water from a temperature limiting device cannot be circulated. Where a circulated hot water flow and return system is required in a building, a temperature limiting device can only be installed on a dead leg, branching off the circulated hot water flow and return pipe.

If circulated tempered water were to be returned back to the water heater, depending on the location of the return line connection on the water supply line to the water heater, then either:

- water will be supplied to the cold water inlet of the temperature limiting device at a temperature exceeding the maximum recommended water supply temperature, or
- when the hot taps are closed no water will be supplied to the cold water inlet of the temperature limiting device whilst hot water will continue to be supplied to the hot water inlet of the temperature limiting device.

These conditions may result in either water at a temperature exceeding the requirements of AS/NZS 3500.4 being delivered to the hot water outlets in the ablution areas, or the device closing completely and not delivering water at all, or the device

failing. Under either condition, the operation and performance of the device cannot be guaranteed.

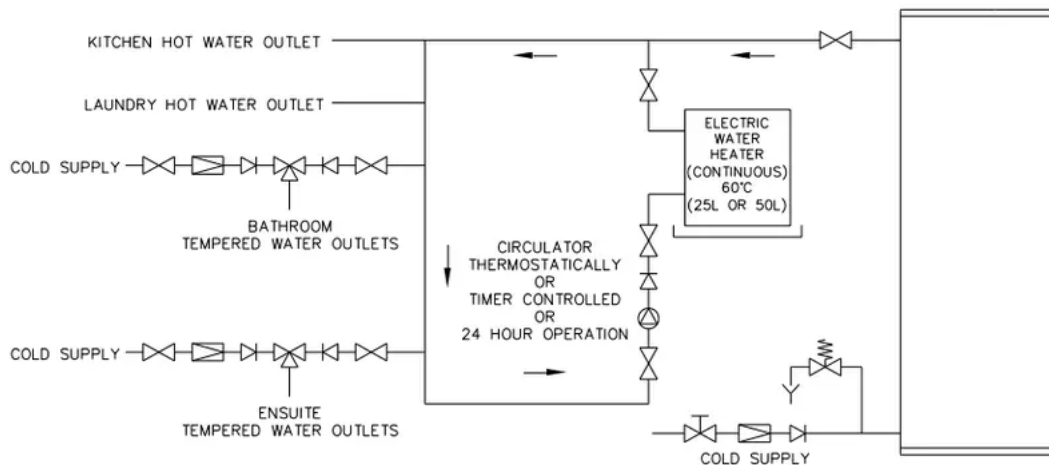


Circulated Hot Water Flow and Return – Continuous Electric Water Heater

Off-Peak or Time Controlled Electricity Supply

A single or twin element electric water heater connected to an Off-Peak electricity supply should not be installed as part of a circulated hot water flow and return system in a building. The benefits of the Off-Peak electricity supply will be significantly reduced.

If a circulated flow and return system is required, it is necessary to bypass the Off-Peak electric water heater and install a secondary water heater connected to the hot water flow and return line and supplied from the Off-Peak electric water heater. Refer to the diagram on page 26.



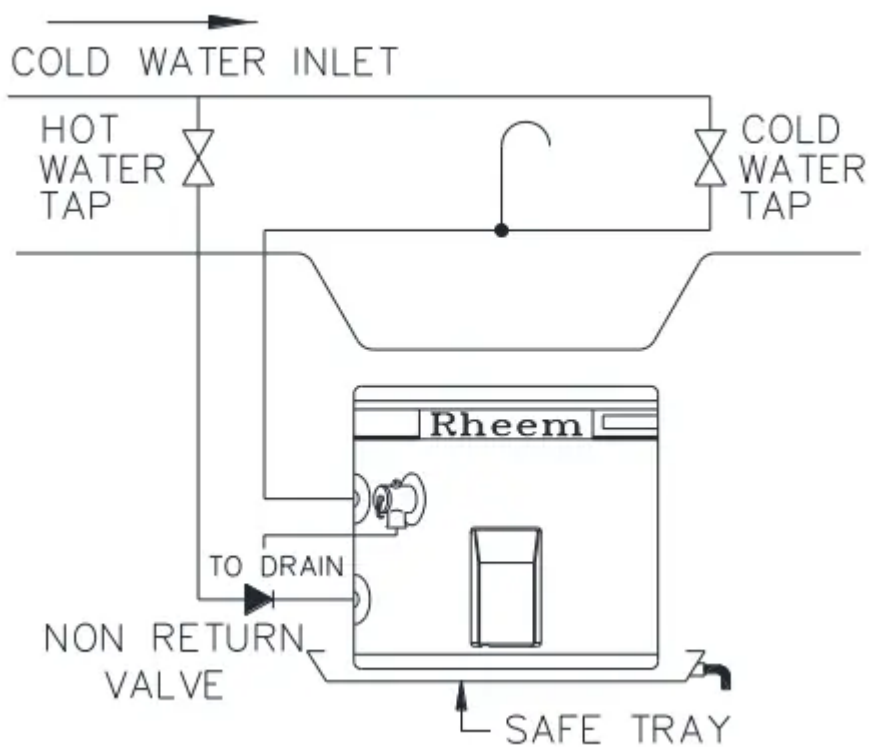
Circulated Hot Water Flow and Return System Off-Peak Electric Water Heater

REDUCING HEAT LOSSES

The cold water line to and the hot water line from the water heater must be insulated in accordance with the requirements of AS/NZS 3500.4. The insulation must be weatherproof and UV resistant if exposed.

PUSH THROUGH (FREE OUTLET) INSTALLATION

It can be advantageous to plumb the water heater as a Push Through water heater in some cases. These installations can supply a single point only and normally an 025, 045 or 050 model electric water heater. The temperature pressure relief valve supplied with this model must be fitted to the water heater.



ANODE

The vitreous enamel lined cylinder of the water heater is only covered by the Rheem warranty when the total dissolved solids (TDS) content in the water is less than 2500 mg/L and when the correct colour coded anode is used. If an incorrect colour coded anode is used in the water heater, any resultant faults will not be covered by the Rheem warranty. In addition, the use of an incorrect colour coded anode may shorten the life of the water heater cylinder.

The correct colour coded anode for the water supply being used must be selected and fitted to the water heater for the Rheem warranty to apply to the water heater cylinder (refer to "Water Supplies" on page 14 and the Anode Selection chart on page 15). The black anode is typically fitted as standard.

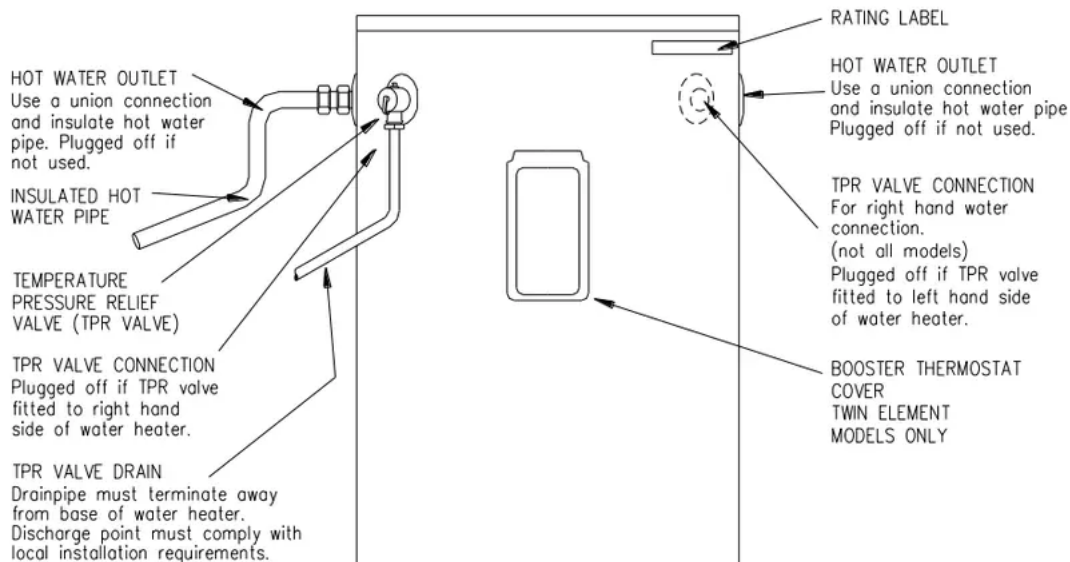
Total Dissolved Solids	Anode colour code
0 – 40 mg/L	Green
40 – 150 mg/L	Green or Black
150 – 400 mg/L	Black
400 – 600 mg/L	Black or Blue
600 – 2500 mg/L	Blue
2500 mg/L +	Blue (no cylinder warranty)

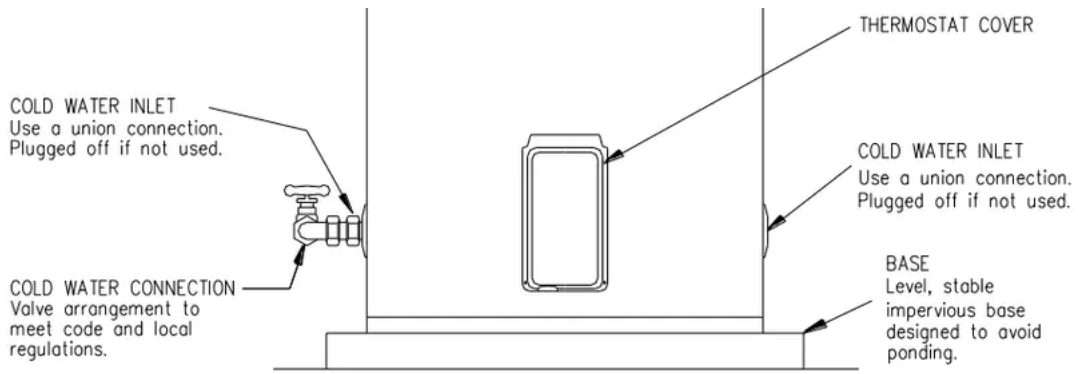
If the water supply has a TDS greater than 150 mg/L and a green anode has not been changed to a black anode, or if the TDS is greater than 600 mg/L and the anode has not been changed to a blue anode, there is the possibility the anode may become overactive and hydrogen gas could accumulate in the top of the water heater during long periods of no use. In areas where this is likely to occur, the installer should instruct the householder on how to dissipate the gas safely (refer to “Caution” on page 15).

SADDLING PIPE WORK

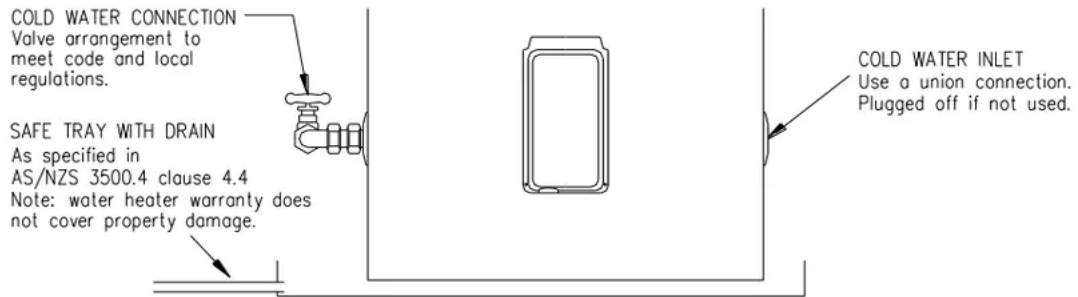
To prevent damage to the cylinder when attaching pipe clips or saddles to the water heater jacket, we recommend the use of self drilling screws with a maximum length of 13 mm. Should pre drilling be required, extreme caution must be observed when penetrating the jacket of the water heater.

TYPICAL INSTALLATION – OUTDOOR LOCATION

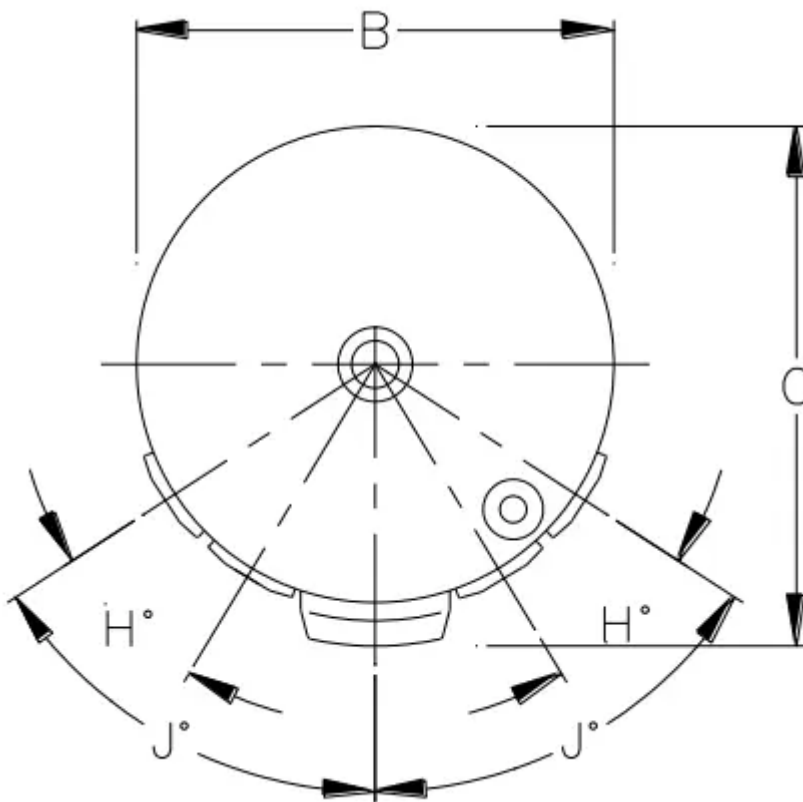


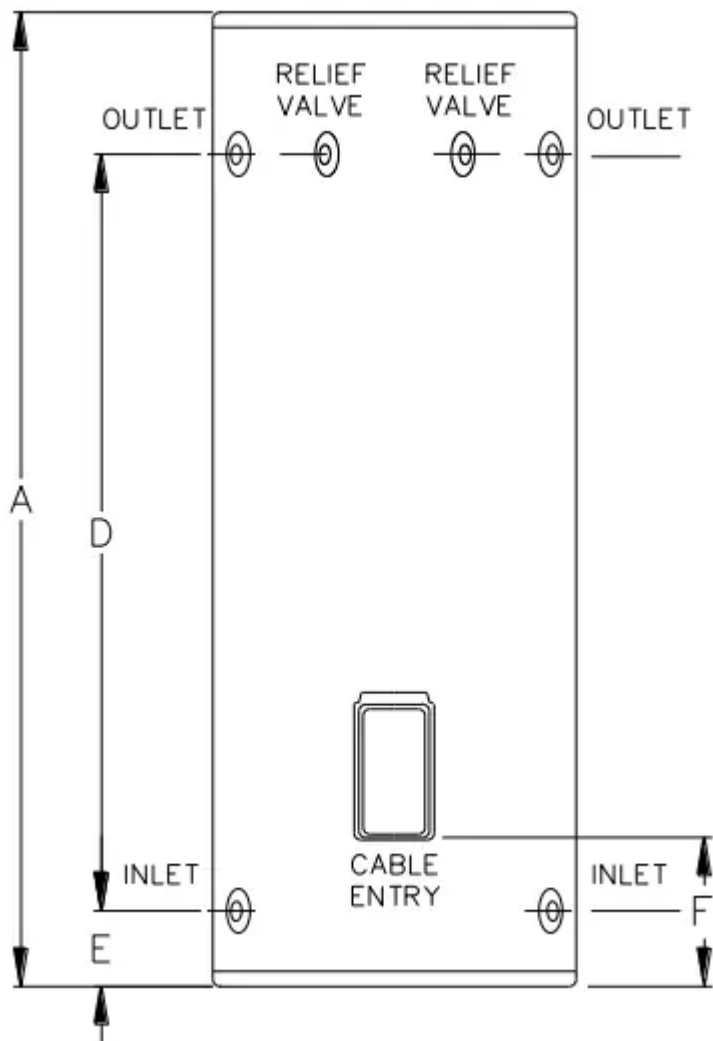


TYPICAL INSTALLATION – INDOOR LOCATION



DIMENSIONS AND TECHNICAL DATA – RHEEMGLAS 025 TO 125 MODELS





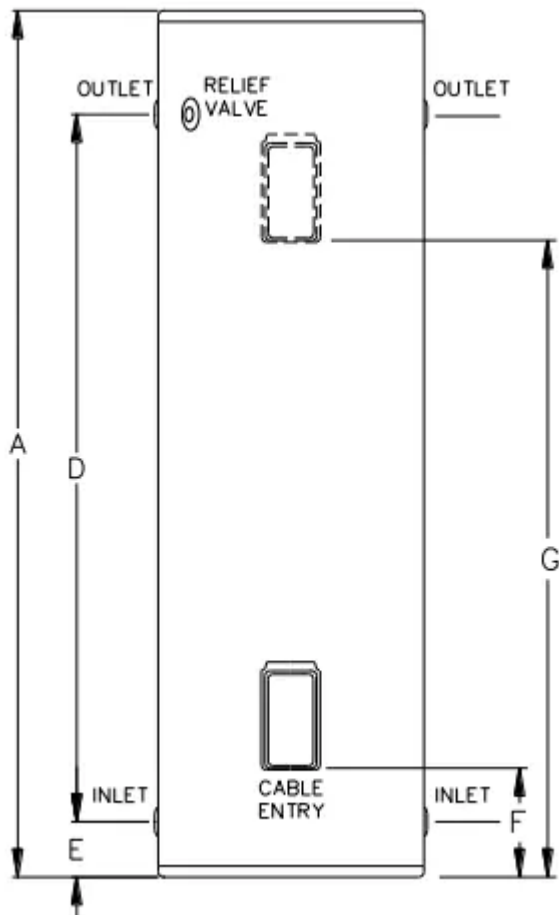
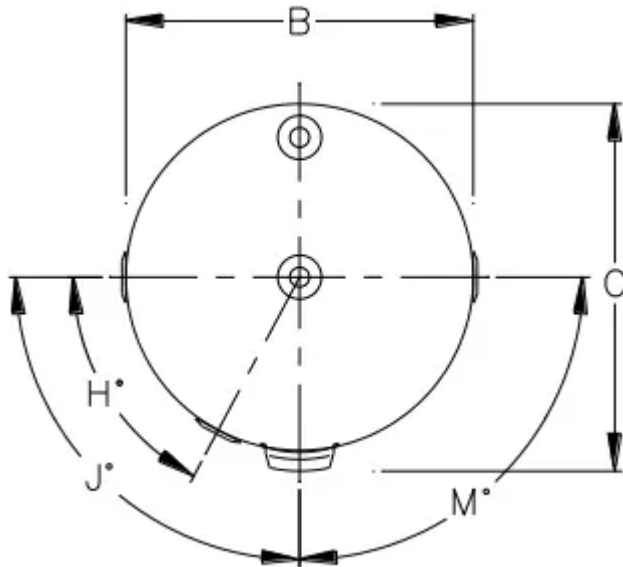
Rheemglas Single Element	LH	111025	-	-	-	-	
Rheemglas Single Element	DH	-	191045	191050	191080	191125	
Hot Water Delivery	Litres	18	40	50	80	125	
Dimensions	A	mm	390	668	695	945	1340
	B	mm	385	393	400	480	480
	C	mm	420	429	436	515	515
	D	mm	130	346	397	702	1102
	E	mm	116	142	142	64	64
	F	mm	75	80	80	66	66
	H	deg	26	26	26	24	24
	J	deg	65	59	59	60	60
TPR Valve Setting	kPa	1400	1400	1400	1400	1400	
Approx. Weight empty	kg	18	22	29	36	49	

All models are suitable for indoor or outdoor installation, including 025, 045, 050 models having a 'P' suffix and supplied with a power supply cord and plug. 111 series models have left hand (LH) water and TPR valve connections only. 191 series 045 to

125 models have left and right hand (dual handed - DH) water and TPR valve connections.

Technical data is subject to change.

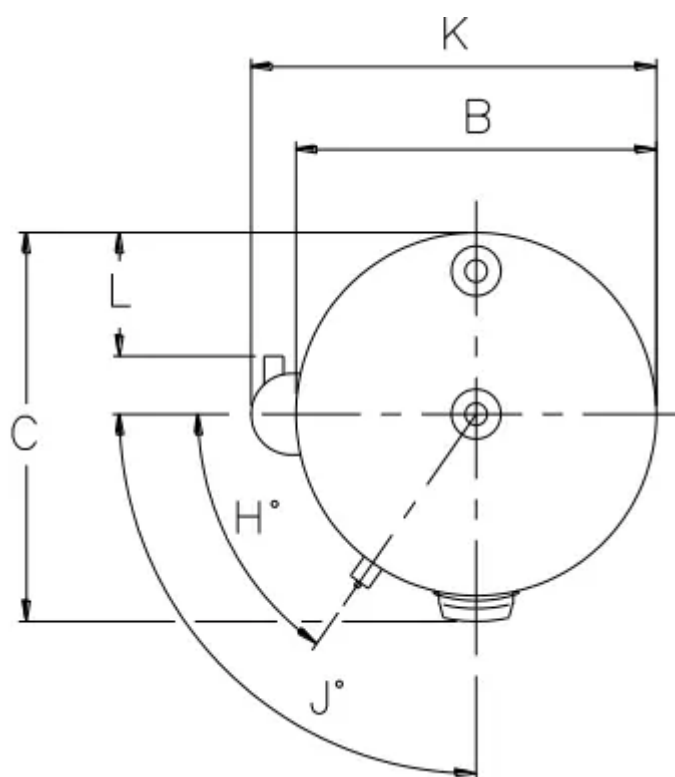
DIMENSIONS AND TECHNICAL DATA – RHEEMGLAS 160 TO 400

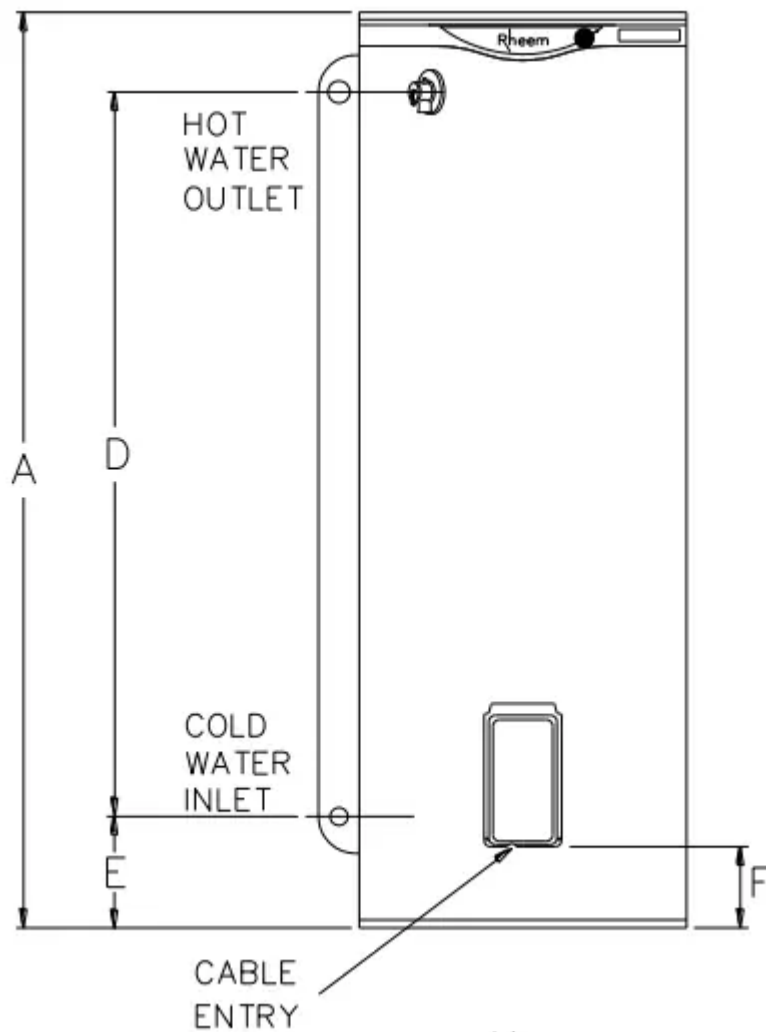


Rheemglas Single Element Rheemglas Twin Element	DH DH	191160 192160	191250 192250	191315 192315	191400 192400	
Hot Water Delivery	Litres	160	250	315	400	
Boost Capacity	Litres	45	50	50	90	
Dimensions	A	mm	1610	1395	1640	1840
	B	mm	480	640	640	690
	C	mm	515	680	680	735
	D	mm	1332	1117	1317	1479
	E	mm	104	73	113	121
	F	mm	66	103	103	105
	G	mm	1081	988	1228	1323
	H	deg	23	32	32	30
	J	deg	58	88	88	83
M	deg	58	92	92	97	
TPR Valve Setting	kPa	1400	1000	1000	1000	
Approx. Weight empty	kg	55	76	97	118	

All models are suitable for indoor or outdoor installation. 191, 192 series 160 to 400 models have left and right hand (dual handed - DH) water connections and a TPR valve fitting on the left hand side only. Technical data is subject to change.

DIMENSIONS AND TECHNICAL DATA – RHEEMPLUS 125 TO 315 MODELS





RheemPlus Single Element	LH	121125	121160	121250	121315	
Hot Water Delivery	Litres	125	160	250	315	
Dimensions	A	mm	1340	1610	1395	1640
	B	mm	480	480	640	640
	C	mm	515	515	680	680
	D	mm	1102	1332	1117	1317
	E	mm	64	104	73	113
	F	mm	84	84	128	128
	H	deg	23	23	32	32
	J	deg	58	58	88	88
K	mm	545	545	705	705	
L	mm	183	183	262	262	
TPR Valve Setting	kPa	1400	1400	1000	1000	
Approx. Weight empty	kg	49	57	74	99	

All models are suitable for indoor or outdoor installation. 121 series models have left hand (LH) water and TPR valve connections only. Technical data is subject to change.

CONNECTIONS – PLUMBING

All plumbing work must be carried out by a qualified person and in accordance with the Standard AS/NZS 3500.4 and all local codes and regulatory authority requirements. In New Zealand the installation must also conform with the New Zealand Building Code.

CONNECTION SIZES

- **Hot water connection: Rp 3/4-G 3/4 B**
- **Cold water connection: Rp 3/4-G 3/4 B**
- **Relief valve connection: Rp 1/2-Rp 1/2**

WATER INLET AND OUTLET

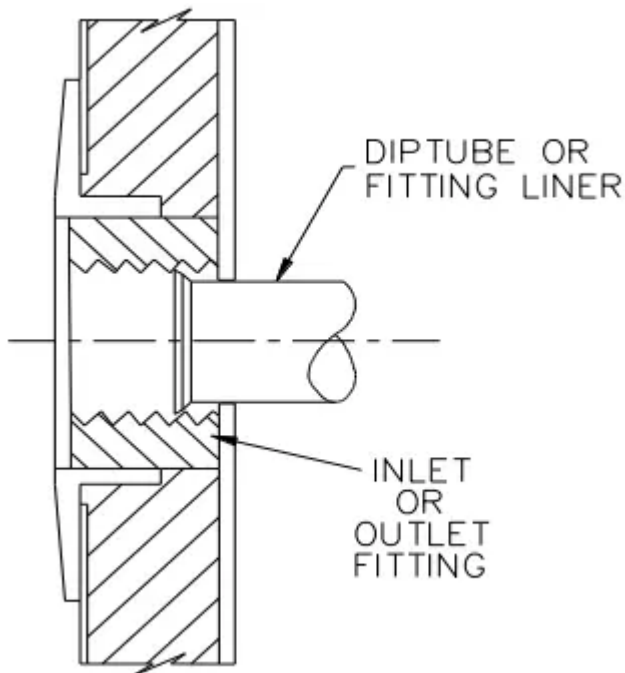
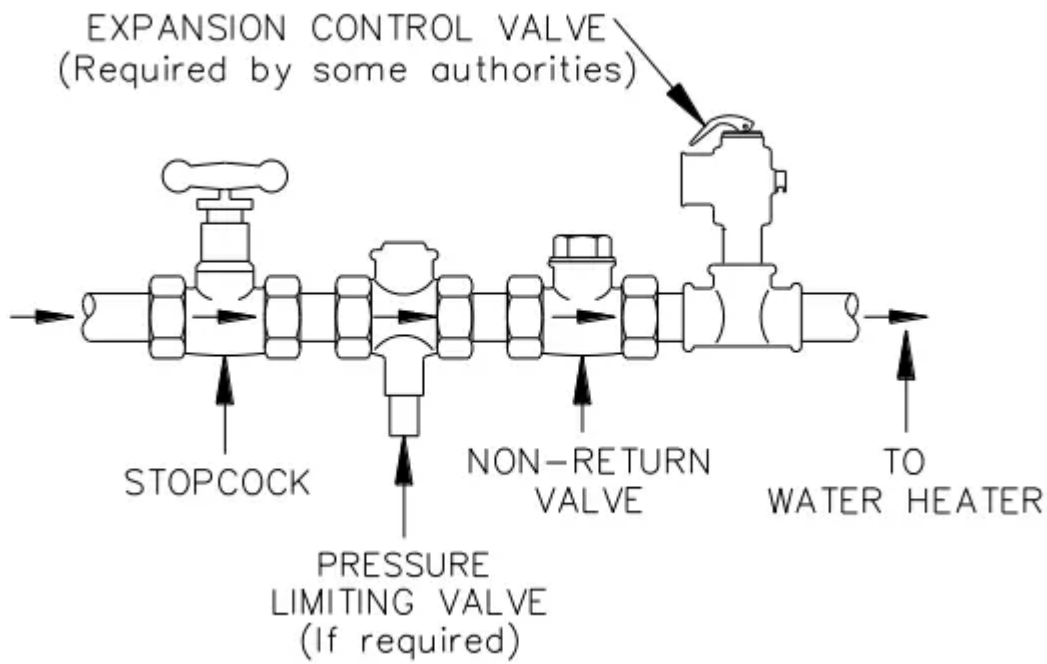
Rheemglas 045 to 400 models have dual handed cold and hot water connections. The water connections can be made to either side.

All pipe work must be cleared of foreign matter before connection and purged before attempting to operate the water heater. All olive compression fittings must use brass or copper olives. Use thread sealing tape or approved thread sealant on all fittings.

An isolation valve and non-return valve must be installed on the cold water line to the water heater. An acceptable arrangement is shown in the diagram. Refer also to “Hot Water Delivery” on page 23 and to “Mains Water Supply” on page 23.

A disconnection union must always be provided at the cold water inlet and hot water outlet on the water heater to allow for disconnection of the water heater.

This water heater has either a plastic dip tube or fitting liner in the inlet and outlet fittings (see diagram). These must be in place for the water heater to function properly. Do not remove or damage them by using heat nearby. They will be pushed into the correct position as the fitting is screwed in.



LEFT AND RIGHT HAND SIDE WATER CONNECTIONS

The cold and hot water supplies (045 to 400 models) and temperature pressure relief valve (045 to 125 models) can be connected to either side of a water heater with both left and right hand side connections. A kit is supplied with the water heater to plug off the unused cold water and hot water fittings, and where applicable the unused temperature pressure relief valve fitting.

The kit contains:

Models 045 to 125

2 x ¾" brass plugs

1 x ½" brass plug

3 x plastic caps (excl. 045 models)

3 x insulation rubber discs, pre-fitted into plastic caps (excl. 045 models)

1 x allen key

Models 160 to 400

2 x ¾" brass plugs

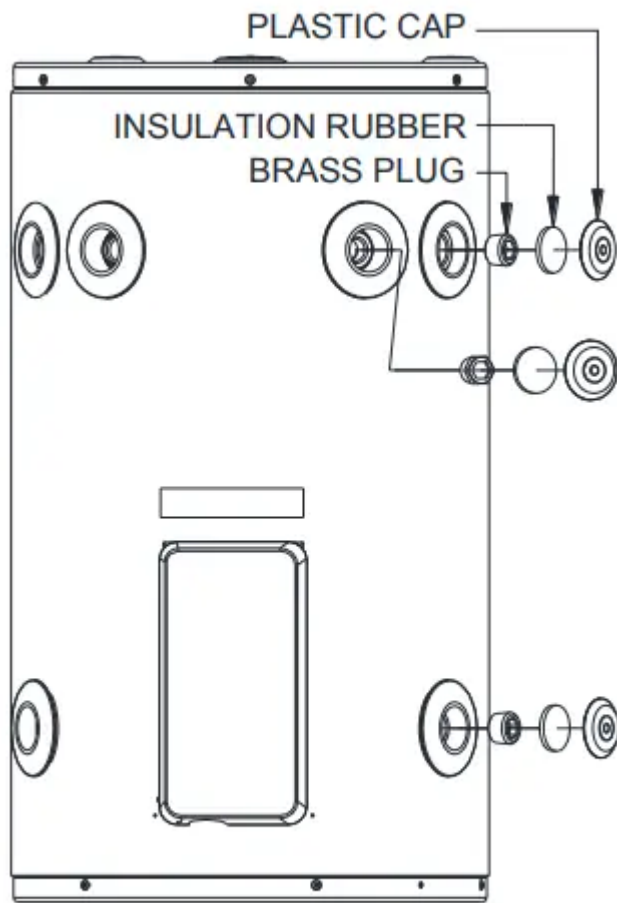
2 x plastic caps

2 x insulation rubber discs, pre-fitted into plastic caps

1 x allen key

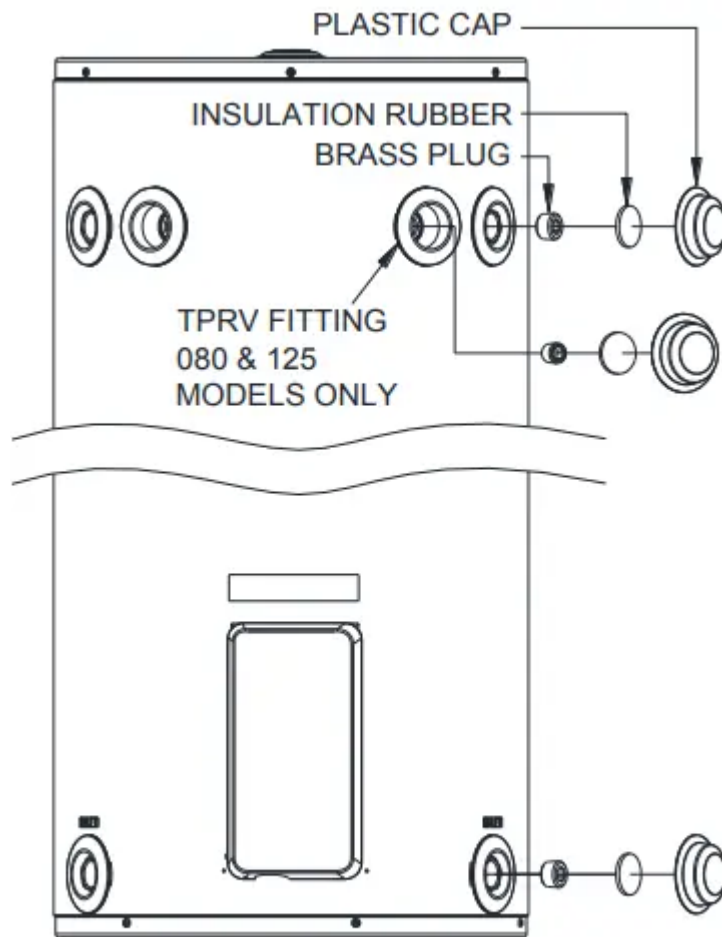
Plugging Off Unused Connections

- Apply approved sealing tape or compound to the thread of each plug.
- Fit the ¾" plugs to the unused cold water fitting and unused hot water fitting. Tighten the plugs with the allen key supplied.
- Fit the ½" plug to the unused TPR valve fitting (045 to 125 models). Tighten the plug with the allen key supplied.
- Fit a plastic cap (except 045 models) with its insulation rubber disc over each plug.



045, 050 models





080 to 400 models

PIPE SIZES

To achieve true mains pressure operation, the cold water line to the water heater should be the same size or bigger than the hot water line from the water heater.

The pipe sizing for hot water supply systems should be carried out by persons competent to do so, choosing the most suitable pipe size for each individual application. Reference to the technical specifications of the water heater and local regulatory authority requirements must be made.

TEMPERATURE PRESSURE RELIEF VALVE

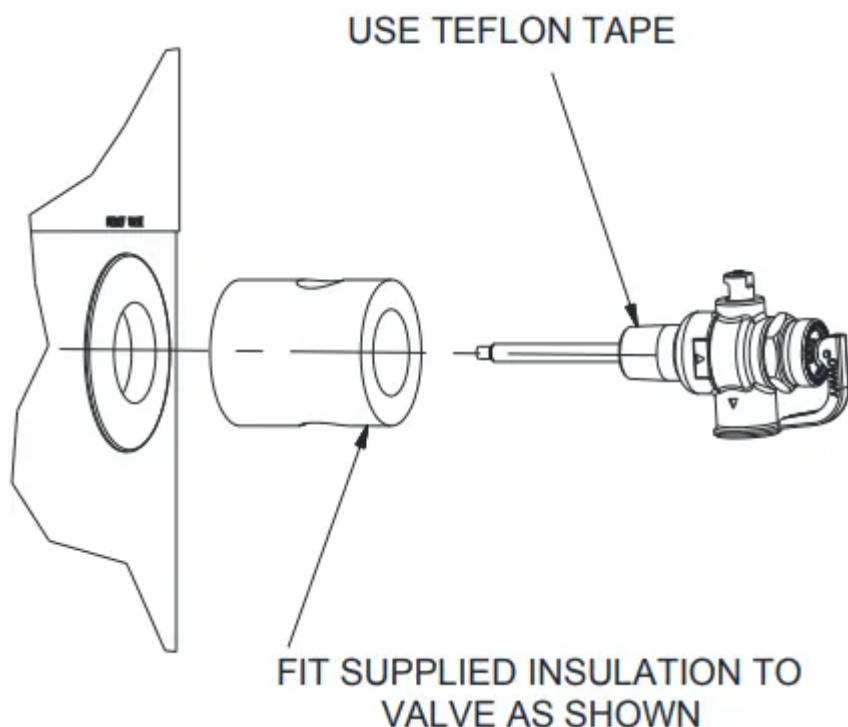
The temperature pressure relief valve is shipped either under the top flap of the water heater carton or behind the front cover or in a plastic bag attached to the water heater. The temperature pressure relief valve must be fitted before the water heater is operated. Before fitting the relief valve, make sure the probe has not been bent. Seal the thread with Teflon tape - never hemp. Make sure the tape does not hang over the end of the thread.

The water heater has a temperature pressure relief valve connection on its left hand side. Rheemglas 045 to 125 models have a second temperature pressure relief valve connection on the right hand side.

Screw the valve into the selected opening labelled “Relief Valve” (refer to the installation diagram on page 28) leaving the valve outlet pointing downwards. Do not use a wrench on the valve body - use the spanner flats provided. A copper drain line must be fitted to the temperature pressure relief valve (refer to "Relief Valve Drain" on page 35). If the water heater has a second relief valve fitting, refer to “Left and Right Hand Side Water Connections” on page 33.

The valve must be insulated with closed cell polymer insulation or similar (minimum thickness 9 mm) and the insulation installed so as not to impede the operation of the valve. The insulation must be weatherproof and UV resistant if exposed.

Where an insulation collar is supplied with the temperature pressure relief valve, this must be placed over the body of the valve, prior to fitting the valve to the water heater (refer to the diagram on page 34).



EXPANSION CONTROL VALVE

Local regulations may make it mandatory to install an expansion control valve (ECV) in the cold water line to the water heater. In other areas, an ECV is required if the saturation index is greater than +0.4 (refer to “Water Supplies” on page 14).

The expansion control valve must always be installed after the non return valve and be the last valve installed prior to the water heater (refer to diagram on page 32). A

copper drain line must be fitted to the expansion control valve (refer to "Relief Valve Drain" on page 35).

The valve must be insulated with closed cell polymer insulation or similar (minimum thickness 9 mm) and the insulation installed so as not to impede the operation of the valve. The insulation must be weatherproof and UV resistant if exposed.

RELIEF VALVE DRAIN

DN15 copper drain lines must be fitted to the temperature pressure relief valve and expansion control valve (if one is installed) to carry the discharge clear of the water heater. Connect the drain lines to the valves using disconnection unions. The drain line from the valve to the point of discharge should be as short as possible, have a continuous fall all the way from the water heater to the discharge outlet and have no tap, valves or other restrictions in the pipe work. A drain line from a relief valve must comply with the requirements of AS/NZS 3500.4.

A drain line must be no longer than 9 metres with no more than three bends greater than 45° before discharging at an outlet or air break. The maximum length of 9 metres for a drain line is reduced by 1 metre for each additional bend required of greater than 45°, up to a maximum of three additional bends. Where the distance to the point of final discharge exceeds this length, the drain line can discharge into a tundish.

Subject to local regulatory authority approval, the drain lines from the temperature pressure relief valve and expansion control valve from an individual water heater may be interconnected.

The outlet of a drain line must be in such a position that flow out of the pipe can be easily seen, but arranged so discharge will not cause injury, damage or nuisance. The termination point of a drain line must comply with the requirements of AS/NZS 3500.4. Drain lines must not discharge into a safe tray.

In locations where water pipes are prone to freezing, drain lines must be insulated, must not exceed 300 mm in length and are to discharge into a tundish through an air gap of between 75 mm and 150 mm.

If a drain line discharges into a tundish, the drain line from the tundish must be not less than DN20. The drain line from a tundish must meet the same requirements as for a drain line from a relief valve.

CONNECTIONS – ELECTRICAL

The power supply to the water heater must not be switched on until the water heater is filled with water and a satisfactory megger reading is obtained.

All electrical work and permanent wiring must be carried out by a qualified person and in accordance with the Wiring Rules AS/NZS 3000 and all local codes and regulatory authority requirements.

WATER HEATER

A water heater not fitted with a supply cord and plug must be directly connected to a 240 V AC, 50 Hz mains power supply with an isolating switch installed at the switchboard.

The power supply to a twin element model should be Off-Peak (overnight) to the bottom heating unit and continuous to the top heating unit. The power supply to a single element model can be either an Off-Peak (overnight), Extended Off-Peak (overnight and day) or continuous electricity supply, depending upon the size of the water heater. Check with the local electricity supply authority as to their requirements. An Off-Peak (overnight) power supply will provide the maximum financial savings. Discuss the power supply requirements with the householder.

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 terminator. 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. The temperature rating of the power supply wires insulation must suit this application.

A water heater fitted with a supply cord and plug must be plugged into a switched 240 V AC, 50 Hz mains power outlet rated at 10 A. The GPO is required to be weatherproof if installed outdoors.

THERMOSTAT SETTING

The thermostat on a Rheemglas and RheemPlus model is adjustable from 60°C to 70°C (60°C to 75°C on a 045, 050 model). The thermostat is adjusted by turning the adjuster (Rheemglas / RheemPlus model) anticlockwise to decrease the temperature setting and clockwise to increase the temperature setting. Only adjust the thermostat setting on a Rheemglas and RheemPlus model when the isolating switch is switched off at the switchboard. The top thermostat on a twin element model is fixed at 60°C.

The thermostat of a RheemPlus model should not be set to less than 65°C. This is to assist in the specified operation of the temperature limiting valve.

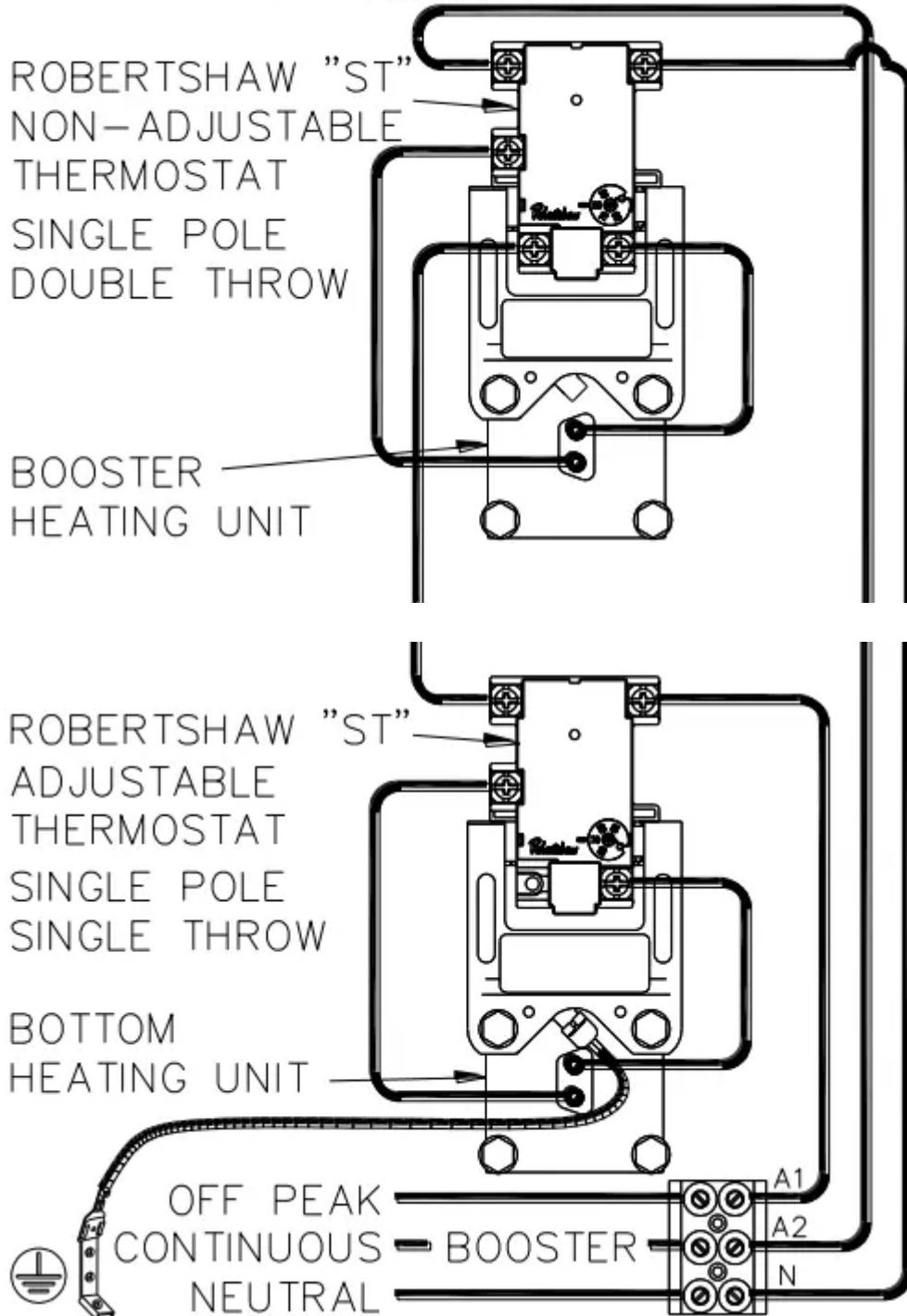
For reasons of safety and economy, we advise the thermostat be set at the lowest temperature that will provide sufficient hot water. Dishwasher running costs can be adversely affected if the thermostat is set below 65°C. Discuss the thermostat setting requirements with the householder.

If this water heater is installed as part of a solar water heating system:

- the solar control system must be of a design to limit solar contribution so the water temperature in the tank does not exceed 80°C. This is necessary to ensure the solar input does not cause the thermostat's over-temperature cut-out to operate.
- we recommend the water heater thermostat is set at 60°C to maximise solar contribution.

WIRING DIAGRAM TWIN ELEMENT ELECTRIC WATER HEATERS NON-SIMULTANEOUS OPERATION OFF-PEAK CONNECTION

THIS DIAGRAM IS FOR ROBERTSHAW
"ST" THERMOSTATS



Electrical Circuit for Twin Element Models – Robertshaw "ST" Thermostats

The active from the continuous supply must be connected to the top heating unit circuit and the active from the Off-Peak or time controlled supply must be connected to the bottom heating unit circuit.

DRAINING THE WATER HEATER

To drain the water heater:

- Turn off the water heater (refer to “To Turn Off The Water Heater” on page 40).
- Close all hot water taps
- Operate the relief valve release lever - do not let the lever snap back or you will damage the valve seat. Operating the lever will release the pressure in the water heater
- Undo the union at the cold water inlet to the water heater and attach a hose to the water heater side of the union. Let the other end of the hose go to a drain.
- Operate the relief valve again. This will let air into the water heater and allow the water to drain through the hose.

Warning

This content is compiled from multiple sources and is provided for reference purposes only. It may not be complete or fully applicable to all situations. If you are unable to resolve your issue, please contact the product manufacturer or an authorized service provider for official support.