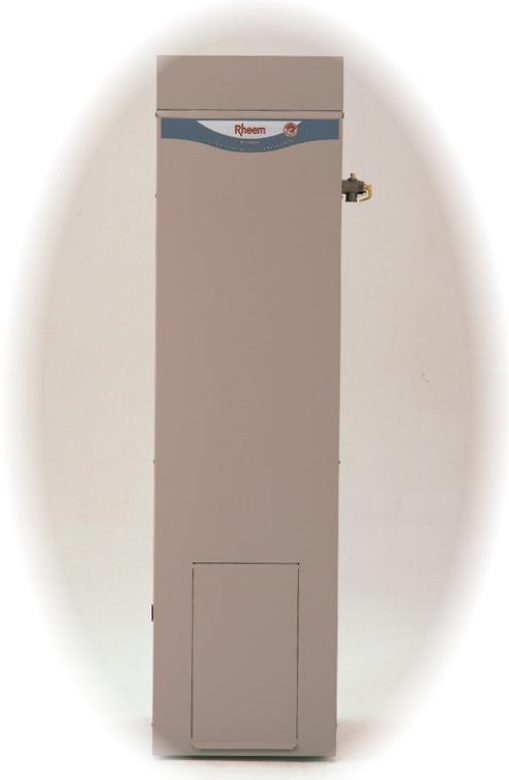
Owner's Guide and Installation Instructions



Gas Domestic Outdoor Water Heater

Install a Rheem

This water heater must be installed and serviced by an authorised person.
Please leave this guide with the householder.

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.

⚠ **Warning:** Upon completion of the installation and commissioning of the water heater, leave this guide with the householder or responsible officer. **DO NOT** leave this guide inside of the cover of the water heater, as it may interfere with the safe operation of the water heater or ignite when the water heater is turned on.

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HOUSEHOLDER – We recommend you read pages 4 to 17.

The other pages are intended for the installer
but may be of interest.

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ABOUT YOUR WATER HEATER

MODEL TYPE

The Rheem® water heater model you have chosen is suitable for outdoor installation only. The model is either a 311 series Rheemglas®, 314 series RheemPlus™ or 811 series Optima™ water heater. Optima models have an extended warranty (refer to the warranty on page 36).

Water is stored in a vitreous enamel lined steel cylinder and heated by a gas burner located under the cylinder. The heat produced by the burner is transferred to the water through the base of the cylinder and through the wall of a flue pipe which passes through the centre of the cylinder. A flue baffle in this flue ensures the efficiency of the water heater is correct. The gas supply to the burner is controlled by the thermostat so the water is heated to a constant temperature.

Automatic safety controls are fitted to the water heater to provide safe and efficient operation.

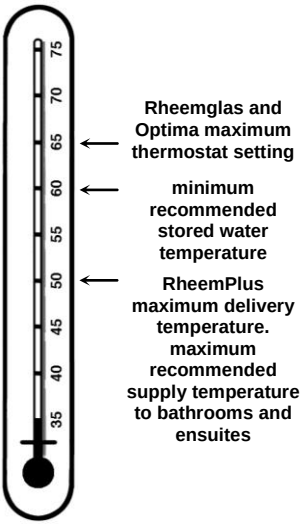
MAINS PRESSURE

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 19, a pressure limiting valve must be fitted. The supply pressure should be greater than 350 kPa for true mains pressure operation to be achieved.

HOW HOT SHOULD THE WATER BE?

The water heater features a user adjustable thermostat, which allows you to personally 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

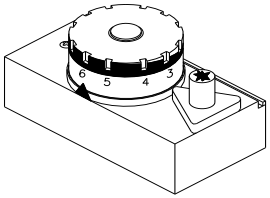
This water heater can deliver water at temperatures which can cause scalding. Check the water temperature before use, such as when entering a shower or filling a bath or basin, to ensure it is suitable for the application and will not cause scald injury.

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 or Optima 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.

TEMPERATURE ADJUSTMENT

The temperature adjusting dial is on the gas valve, located behind the access cover on the lower front of the water heater. A setting of '6' will normally maintain the water temperature at about 60°C. Each number represents a temperature difference of approximately 6°C.

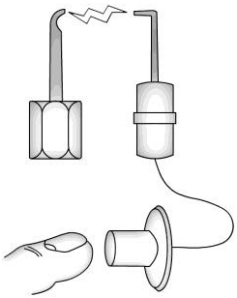


To increase the water temperature to 65°C, turn the gas control knob anticlockwise to a setting of '7'. Refer to "Hotter Water Increases the Risk of Scald Injury" on page 5.

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

PIEZO IGNITION

The "Piezo" push button igniter makes lighting the pilot flame of your water heater very easy. Simply follow the instructions on the label attached to the back of the access door. There is no need for matches to light the water heater.



PILOT IGNITER

A permanent pilot flame burns to ignite the main burner automatically. Heat from the pilot is absorbed by the water.

⚠ WARNING

This water heater is only intended to be operated by persons who have the experience or the knowledge and the 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. Children should be supervised to ensure they do not interfere with the water heater.

SAFETY

This water heater is supplied with a thermostat, an over-temperature cut-out, and a combination temperature pressure relief valve. In addition, a RheemPlus water heater has a temperature limiting valve. These devices must not be tampered with or removed. The water heater must not be operated unless each of these devices is fitted and is in working order.

⚠ **Warning:** For continued safety of this water heater it must be installed, operated and maintained in accordance with the Owner's Guide and Installation Instructions.

The warranty can become void if relief valves or other safety devices are tampered with or if the installation is not in accordance with these instructions.

- Do not store **flammable or combustible materials** near the water heater. Flammable liquids (such as petrol), newspapers and similar articles must be kept well away from the water heater and the flue terminal.
- Do not use **aerosols, stain removers and household chemicals** near the water heater whilst it is working. Gases from some aerosol sprays, stain removers and household chemicals become corrosive when drawn into a flame.

- Do not store **swimming pool chemicals, household cleaners,** etc., near the water heater.
- Do not place anything on top of the water heater or in contact with the flue terminal. Ensure the flue terminal is not obstructed in any way at any time.
- Do not use Propane / Butane gas mixtures in a Propane model. A Propane model is designed to operate on Propane only. The use of Propane / Butane mixture, such as automotive LPG fuel, in a Propane model is unsafe and can cause damage to the water heater.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater:

- Shut down the gas control (refer to "Close Down Procedure" on page 33).
- Close the gas isolation valve at the inlet to the gas control.
- 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 at the inlet to the water heater.
- Open the gas isolation valve fully at the inlet to the gas control.
- Light the water heater (refer to "Lighting the Water Heater" on page 31).

GOING ON HOLIDAYS

If you are going on holiday for more than a few days the thermostat can be set to the "✶" (pilot) position to conserve energy (refer to point 1 of "Close Down Procedure" on page 33). If it is necessary to turn off the water heater, refer to "To Turn Off The Water Heater" on page 7.

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

Installation requirements are shown on page 24. The water heater must be installed by an authorised person and the installation must comply with National Standards AS/NZS 3500.4, AS 5601 and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with the Code of Practice for installation of Gas Appliances NZS 5261 and the New Zealand Building Code.

DOES THE WATER CHEMISTRY AFFECT THE WATER HEATER?

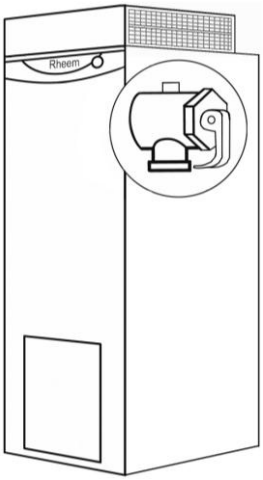
The water heater is suitable for most public water supplies, however some water chemistries may have detrimental effects on the cylinder and fittings. **If you are in a known harsh water area you must read page 10.** If you are not sure, have your water chemistry checked against the conditions described on page 10.

HOW LONG WILL THE WATER HEATER LAST?

There are a number of factors that will affect the length of service the water heater will provide. These include the water chemistry, the water pressure, temperature (inlet and outlet) and the water usage pattern. However, your water heater is supported by a comprehensive warranty (refer to page 36).

TEMPERATURE PRESSURE RELIEF VALVE

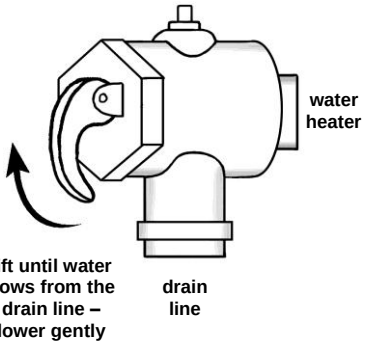
This valve is near the top of the water heater and is essential for its safe operation. It is possible for the valve to release a little water through the drain line during each heating period. This occurs as the water is heated and expands by approximately 1/50 of its volume.



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 15).

⚠ **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.**



⚠ **Warning:** Failure to do this may result in the water heater cylinder failing.

If water does not flow freely from the drain line when the lever is lifted, then the water heater should be checked by the Rheem Service Department or their Accredited Service Agent.

The temperature pressure relief 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 (refer to "Water Supplies" on page 10).

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 a hot tap with a thermometer. If the water is being delivered at a temperature exceeding 50°C, phone your nearest Rheem Service Department or Accredited Service Agent to arrange for an inspection.

The 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 10). 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.

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.

SERVICING

For safe and efficient operation, the water heater should be serviced annually by your nearest Rheem Service Department or their Accredited Service Agent. Only genuine replacement parts should be used on this water heater.

⚠ **Warning**: Servicing of a gas water heater should only be carried out by authorised personnel.

WATER SUPPLIES

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

ANODE

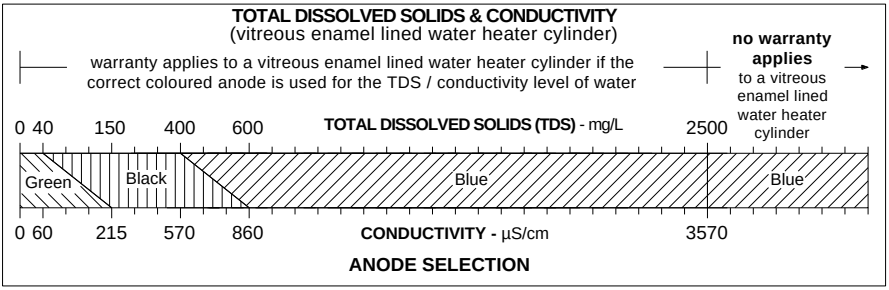
The vitreous enamel lined cylinder of the water heater is covered by warranty when the total dissolved solids (TDS) content in the water is less than 2500 mg/L and when the correct colour coded anode is installed. The use of an incorrect colour coded anode will void the cylinder warranty and may shorten 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 11 for 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 anodes must be carried out by a plumber or authorised service 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 (μS / cm), is directly proportional to the TDS content of the water. TDS, in mg / L, is approximately 70% of the conductivity in μS / cm.



ANODE INSPECTION

The anode(s) installed in a vitreous enamel lined mild steel water heater cylinder will slowly dissipate whilst protecting the cylinder. The life of the cylinder may be extended by arranging for an authorised person to inspect the anode(s) and replace if required.

The suggested time after installation when the anode(s) should be inspected is:

Rheemglas, RheemPlus	8 years
Optima	10 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(s) be inspected 3 years earlier than shown (refer to “Anode” on page 10).

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. In areas where this is likely to occur, the installer should instruct the householder on how to dissipate the gas safely.

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 (SI) is used as a measure of the water's corrosive or scaling properties.

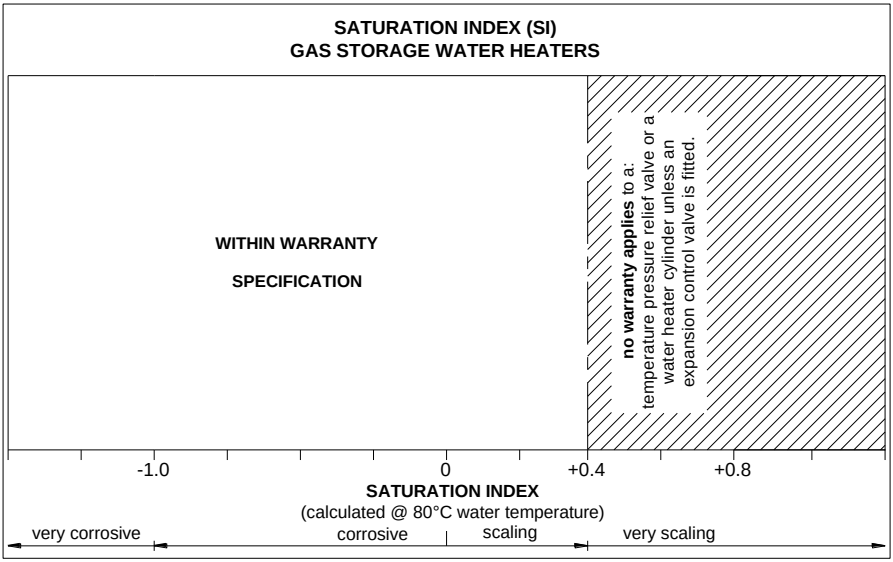
In a corrosive water supply, the water can attack copper parts and cause them to fail.

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 warranty to apply to the temperature pressure relief valve and water heater cylinder.

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 12. Refer to the cold water connection detail on page 26 for the position of the expansion control valve.



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 and a temperature pressure relief valve.

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 warranty to apply.

SUMMARY OF WATER CHEMISTRY ADVICE AFFECTING WARRANTY

The warranty of this water heater does not apply on the components listed below if the water heater is connected at any time to a water supply with water chemistry of:

Water Chemistry	**Component**
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) > +0.4 (if expansion control valve is not fitted)	water heater cylinder temperature pressure relief valve

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 manufacture or failure of a part.

NOT ENOUGH HOT WATER (OR NO HOT WATER)

- **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.

- **Pilot flame alight?**
  Check the pilot flame is burning by removing the access cover. Relight the pilot flame according to the lighting instructions (refer to "Lighting the Water Heater" on page 31).

- **Temperature pressure relief valve running**
  Is the relief valve discharging too much water? (Refer to "Temperature Pressure Relief Valve Running" on page 15).

- **Thermostat setting**
  Ensure the thermostat setting is appropriate. You may choose to adjust the thermostat upwards to gain additional hot water capacity.

  ⚠ **Warning:** Hotter water increases the risk of scald injury.

  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 (www.rheem.com.au) suggests average sizes that may be needed.

WATER NOT HOT ENOUGH

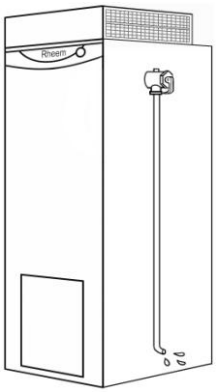
You may find that due to heavy hot water usage the water temperature may be lower than normally expected.

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 your nearest Rheem Service Department or 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 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 8). 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.

  ⚠ **Warning:** Never replace the relief valve with one of a higher pressure rating.

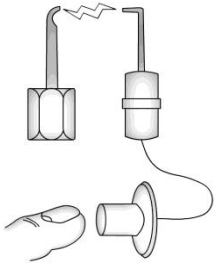
- **Heavy flows of hot water until the water heater is cold - then stops until water reheats**
  The gas control **must** be turned off using the knob on top of the gas control thermostat (refer to "Close Down Procedure" on page 33). Phone your nearest Rheem Service Department or Accredited Service Agent to arrange for inspection.

EXPANSION CONTROL VALVE RUNNING

If an expansion control valve is fitted in the cold water line to the water heater (refer to page 26) 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.

CAN'T LIGHT THE PILOT FLAME

- **Is there gas to the water heater?**
  Check the gas isolation valve on the gas supply line is open.
- **Is there a normal gas supply to the rest of the premises?**
  Try lighting another gas appliance to check. If there is no gas, call the gas supplier.



WATER HEATER APPEARS TO BE LEAKING

When the water heater is first lit, or after a large usage of hot water, condensation may form on the burner of the water heater. This is quite normal, especially in winter months and will dry off as the water is heated.

HIGHER THAN EXPECTED GAS BILLS

Should you at any time, feel your gas 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 15.

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

  Refer to "Not Enough Hot Water" on page 14.

- 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 gas. 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 gas retailer since your previous account?

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

INSTALLATION

THIS WATER HEATER IS FOR OUTDOOR INSTALLATION ONLY.
THIS WATER HEATER IS NOT SUITABLE FOR POOL HEATING.
Check the water heater is suitable for the gas type available.
(refer to the rating label on the water heater)

The installation must comply with the requirements of AS/NZS 3500.4, AS 5601 and all local codes and regulatory authority requirements. In New Zealand, the installation must conform with NZS 5261 Code of Practice for Installation of Gas Burning Appliances and 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 LOCATION

The water heater should be installed close to the most frequently used outlet and its position chosen with safety and service in mind. Make sure people (particularly children) will not touch the flue outlet. The flue terminal must be clear of obstructions and shrubbery.

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 and burner can be removed for service.

If possible leave headroom of one water heater height so the anode can be inspected or replaced. Remember you may have to remove the entire water heater later for servicing.

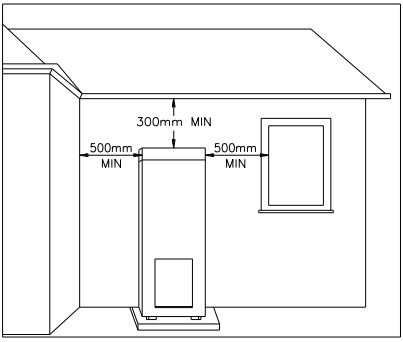
The water heater is to be installed at ground level on a concrete or brick plinth (fire proof base) and must stand vertically upright with the back of the water heater **against an external wall** or alternatively against a fireproof screen extending at least 500 mm above, below and either side the flue terminal. Failure to observe this precaution can cause problems in high wind areas. The water heater must be secured to the wall or screen using the brackets provided. A secondary flue is not required.

Kits are available to enable the water heater to be installed partially recessed into an external wall.

The water heater must not be installed in an area with a corrosive atmosphere where chemicals are stored or where aerosol propellants are released. Remember the air may be safe to breathe, but when it goes through a flame, chemical changes take place which may attack the water heater.

As a guide the following requirements extracted from the Australian Gas Installations Standard AS 5601, must be observed:

- At least 300 mm between the top of the water heater and the eaves.
- At least 500 mm between the water heater and the edge of any opening into the building, measured horizontally and vertically.
- At least 500 mm between the water heater and a return wall or external corner, measured horizontally along the wall.
- At least 500 mm below any openable window.



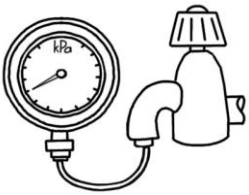
- At least 500 mm clear of any combustibles.

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 26).

Model	090 – 170
Relief valve setting	1400 kPa
Expansion control valve setting *	1200 kPa
Max. mains supply pressure	
With expansion control valve	960 kPa
Without expansion control valve	1120 kPa

* Expansion control valve not supplied with the water heater.



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.

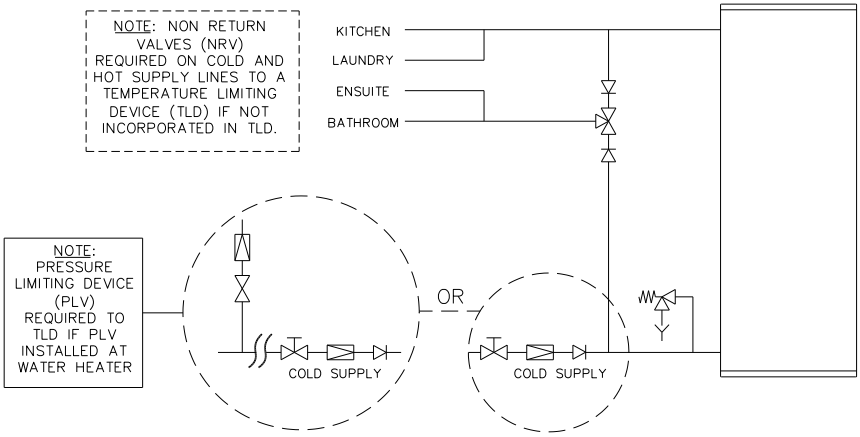
HOT WATER DELIVERY

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 or Optima water heater and hot water outlets in any ablution and public areas such as a bathroom, ensuite or public amenities, 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 or public area.

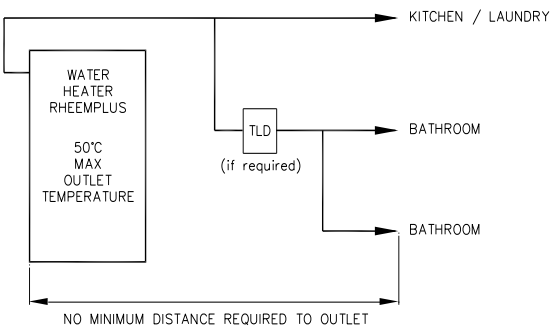
Where a temperature limiting device is installed adjacent to the water heater, the cold water line to the temperature limiting device can be branched off the cold water line either before or after the isolation valve, pressure limiting valve and non return valve to the water heater. If an expansion control 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 22.

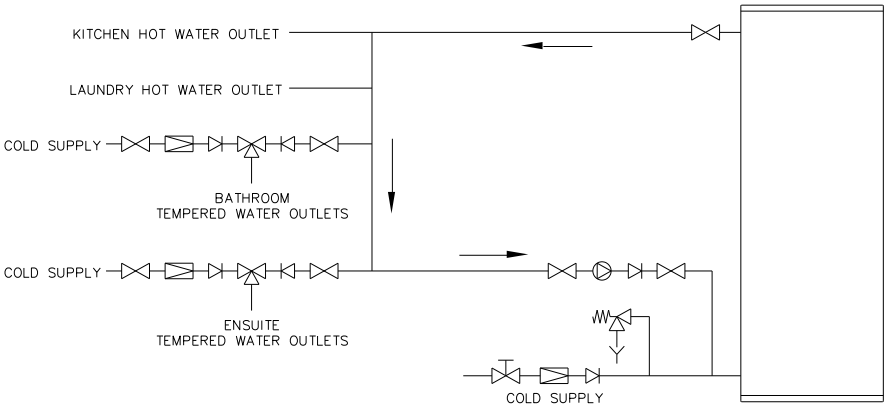
Temperature Limiting Device

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 System – Gas 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.

ANODE

The vitreous enamel lined cylinder of the water heater is covered by 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 installed. The use of an incorrect colour coded anode will void the cylinder warranty and 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 warranty to apply to the water heater cylinder (refer to "Water Supplies" on page 10 and the Anode Selection chart on page 11). 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)

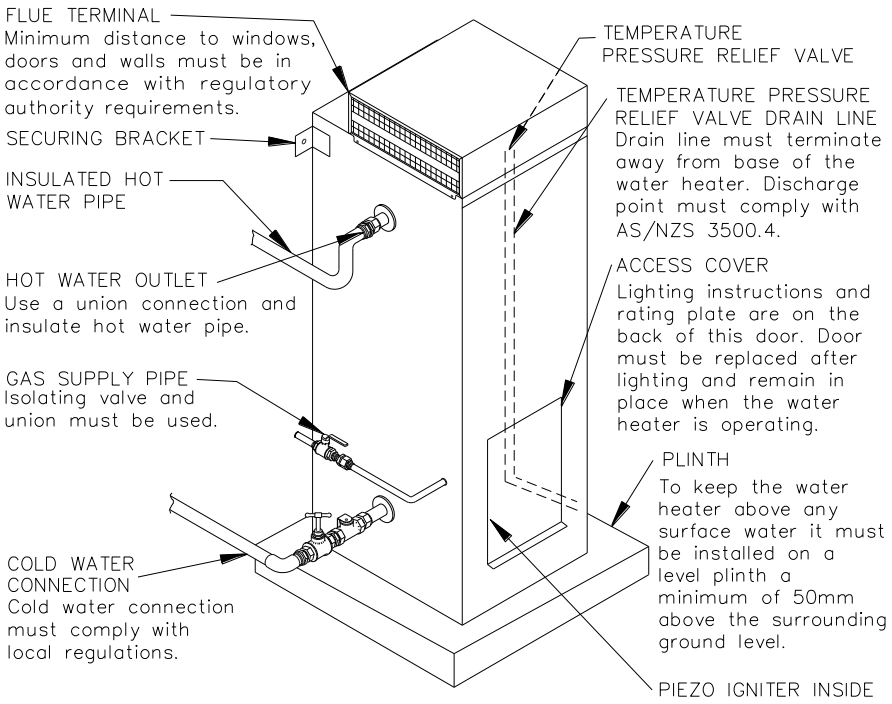
If the water supply has a TDS greater than 150 mg/L and a green anode has not been changed to a black anode, or if the TDS is greater than 600 mg/L and the anode has not been changed to a blue anode, there is the possibility the anode may become overactive and hydrogen gas could accumulate in the top 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 11).

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.

Note: Damage to the cylinder as a result of saddling to the jacket will void the warranty.

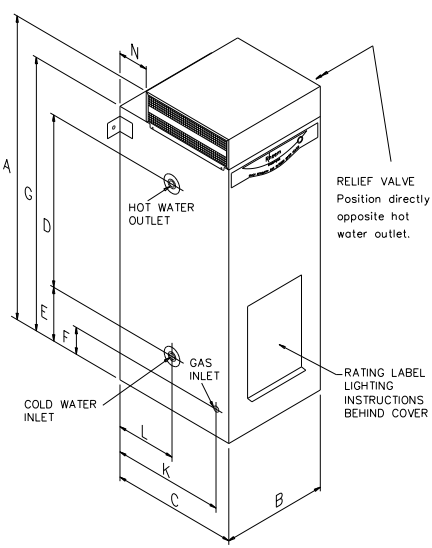
TYPICAL INSTALLATION – OUTDOOR LOCATION



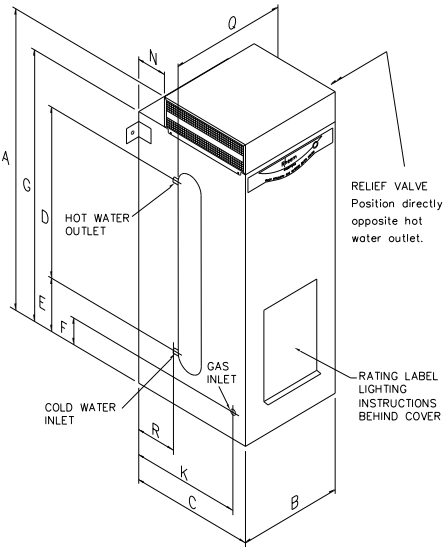
Gas Details	Hourly Gas Consumption (MJ)			Min. Gas Pressure (kPa)	Test Point Gas Pressure (kPa)			Max. Gas Pressure (kPa)
	090	135	170	090 to 170	090	135	170	090 to 170
Natural	30	35	40	1.13	1.00	1.00	1.00	3.50
Propane	30	35	40	2.75	2.70	2.70	2.70	3.50
Butane	30	30	30	2.75	2.70	2.70	2.70	3.50
Town / TLP	27/25	32/30	38/35	0.75	0.45	0.40	0.35	3.50

Model numbers: N = Natural, P = Propane, B = Butane, T = Town / TLP. Letter N, P, B or T is included in the model number, eg 311135N0, to denote gas type.
Technical data is subject to change.

DIMENSIONS AND TECHNICAL DATA



Rheemglas and Optima



RheemPlus

Rheemglas Optima RheemPlus			311 090 -- --	311 135 811 135 314 135	311 170 811 170 314 170
Storage capacity		litres	85	130	160
Dimensions	A	mm	1198	1598	1898
	B	mm	422	422	422
	C	mm	502	502	502
	D	mm	588	988	1213
	E	mm	328	328	403
	F	mm	298	298	298
	G	mm	1078	1478	1778
	K	mm	473	473	473
	L	mm	208	208	208
	N	mm	135	135	135
	Q	mm	-	480	480
	R	mm	-	170	170
Weight	empty	kg	52	68	79
	full	kg	137	198	239

CONNECTIONS – PLUMBING

CONNECTION SIZES

	Rheemglas, Optima	RheemPlus
• Hot water connection:	RP ¾/20	G ¾ B
• Cold water connection:	RP ¾/20	G ¾ B
• Relief valve connection:	RP ½/15	RP ½/15
• Gas inlet:	RP ½/15	RP ½/15

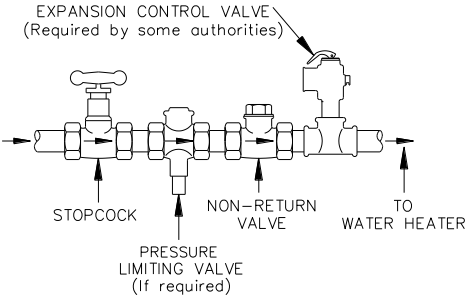
All plumbing work must be carried out by a qualified person and in accordance with the National Plumbing Standard AS/NZS 3500.4 and local authority requirements.

All gas work must be carried out by a qualified person and in accordance with the Australian Gas Installations Standard AS 5601 and local authority requirements.

WATER INLET AND OUTLET

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.

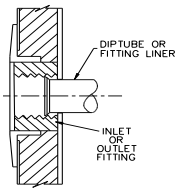
An isolation valve and non return valve must be installed on the cold water line to the water heater. An acceptable arrangement is shown in the diagram.



Refer also to "Hot Water Delivery" on page 20 and to "Mains Water Supply" on page 19.

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.



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 behind the front cover. 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.

Screw the valve into the correct opening (refer to the installation diagram on page 24) leaving the valve drain 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 28).

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.

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 10).

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 26). A copper drain line must be fitted to the expansion control valve (refer to "Relief Valve Drain" on page 28).

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 continuously downward 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.

⚠ **Warning:** As the function of the temperature pressure relief valve on this water heater is to discharge high temperature water under certain conditions, it is strongly recommended the pipe work downstream of the relief valve be capable of carrying water exceeding 93°C. Failure to observe this precaution may result in damage to pipe work and property.

GAS INLET

The gas connection is made through the grommet in the left hand side panel to the gas control. The pipe work must be cleared of foreign matter before connection and purged before attempting to light the water heater. An isolation valve and disconnection union must be installed to allow servicing and removal of the water heater.

Note: Refer to the Gas Installations Standard AS 5601 for the correct method of sizing the gas supply pipe to the water heater. The pipe size selection must take into account the gas input of this water heater (refer to table on page 24) as well as all of the other gas appliances in the premises.

⚠ **Warning:** Always isolate the water heater before pressure testing the gas supply system. Disconnect the water heater after the isolating cock to prevent the risk of serious damage to the gas control. Warranty does not cover damage of any nature resulting from failure to observe this precaution. Refer to rating label for gas types and pressures.

Caution: Care is necessary when tightening fittings into the gas valve. The gas valve casting may crack if the fittings are over tightened. Cracked valve castings are not covered under warranty. Damaged valves must be replaced.

COMMISSIONING

TO FILL AND TURN ON THE WATER HEATER

The gas pilot or burner must not be lit until the water heater is filled with water.

- 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.
  Air will be forced out of the taps.
- Close each tap as water flows freely from it.
- Check the pipe work for leaks.
- Open the gas isolation valve fully.
- Check the gas pipe work for leaks.
- Light the water heater (refer to "Lighting the Water Heater" on page 31).

⚠ **Warning:** Upon completion of the installation and commissioning of the water heater, leave this guide with the householder or a responsible officer. **DO NOT** leave this guide inside of the cover of the water heater, as it may interfere with the safe operation of the water heater or ignite when the water heater is turned on.

Explain to the householder or a responsible officer the functions and operation of the water heater.

GAS INLET PRESSURE

IMPORTANT – CHECK the gas supply pressure at the inlet to the water heater with the water heater and all other gas burning appliances in the premises operating (burners alight). The minimum gas supply pressure is:

Natural Gas	1.13 kPa	Propane	2.75 kPa
Town / TLP	0.75 kPa	Butane	2.75 kPa

If this minimum cannot be achieved, it may indicate the meter or the gas line to the water heater is undersized. It is important to ensure that an adequate gas supply pressure is available to the water heater when other gas burning appliances, on the same gas supply, are operating.

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:

- Shut down the gas control (refer to "Close Down Procedure" on page 33).
- Close the gas isolation valve at the inlet to the gas control.
- Close the cold water isolation valve at the inlet to the water heater.

LIGHTING THE WATER HEATER

FOR YOUR SAFETY READ BEFORE LIGHTING

⚠ **Warning:** This gas water heater is designed to operate reliably and safely as long as the operating instructions are followed **exactly**. You must comply with these lighting instructions at every stage.

Make sure the water heater is filled with water and the water supply is on, otherwise serious damage to the vitreous enamel cylinder lining and plastic components may occur.

The installer must check all gas connections for leaks, gas supply pressure and test point pressure (refer rating label). Remove the access cover at the front of the water heater to access the gas thermostat.

SAFETY INFORMATION

A. This water heater is equipped with an igniter button which lights the pilot. When lighting the pilot follow these instructions exactly.

B. **Before lighting** ensure there is no smell of gas around or in the vicinity of the water heater and the burner opening. Be sure to smell next to ground level as some gases can settle there.

C. What to do if you smell gas.

   Do not try to light the water heater.

   If the gas smell is throughout the area, turn the gas control knob clockwise to the "●" (off) position and then turn off the isolation valve on the gas line to the water heater. Leave the area and call Rheem Service or a qualified service technician.

D. Use only your hand to turn the gas control knob, never use tools. If the control knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may cause a fire or explosion.

E. Do not attempt to operate this water heater if it has been damaged. Call a qualified service technician.

LIGHTING INSTRUCTIONS

Using the gas control light the water heater as follows:

1. **Stop**, read the safety information on page 31.
2. Turn the gas control knob fully clockwise to the "●" (off) position.
3. Wait five (5) minutes so any build up of unburnt gas can escape. If you then smell gas, stop and follow "C" in the safety information. If you do not smell gas, proceed to step 4.
4. Turn the knob to the "✶" (pilot) position.
5. Depress the knob fully (until star disappears below housing) and after 30 seconds, whilst keeping the knob depressed, repeatedly press the igniter button (for up to 40 seconds) until the pilot flame ignites.

   ⚠ **Warning:** Keep your face clear of the combustion chamber opening while pressing the igniter.

   Note: It is not possible to depress the knob fully if the gas control has activated its safety shut-off feature. In this case, wait 60 seconds for the gas control to reset.
6. Keep the knob depressed for 20 seconds after the pilot flame lights. The pilot can be checked by looking through the large opening below the gas control.
7. Release the knob and check the pilot is still alight.
8. If the pilot has failed to light or has not remained alight, turn the gas control knob to the "●" (off) position. Wait five (5) minutes for any unburnt gas to escape and then begin again at step 3.

   ⚠ **Warning:** Failure to wait five (5) minutes may result in a fire or explosion.
9. When the pilot flame remains alight with the gas control knob released, turn the knob anticlockwise to the setting of '6'. This will give a water temperature of about 60°C.
10. Refer to "Temperature Adjustment" on page 5, if further temperature adjustment is required.
11. Replace the access cover.

The main burner will now automatically ignite when heating is required and extinguish when the water has been heated to the set temperature. If the main burner does not light at the selected setting, the water may already be at the selected temperature.

Note: Never press the igniter button while the top knob is in a numbered position.

TEST THE WATER HEATER AFTER INSTALLATION

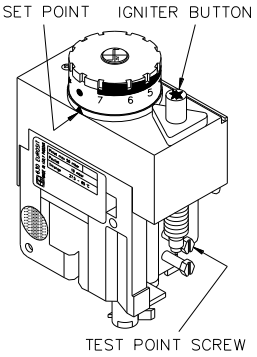
- The operation of the water heater must be thoroughly checked by the installer.
- The burner flame must light smoothly and quickly from the pilot flame, and must go out quietly and completely.
- The main burner flame must be stable, although slight lifting at the front edge of the burner is acceptable when the burner is cold.
- The main burner flame should be blue, with a clearly defined inner cone - luminous yellow or "floating" flames are not acceptable, and must be corrected by opening the air shutter (refer to “Air Shutter” on page 33).
- Check the test point pressure and compare with the rating label. The pressure regulator is not adjustable and if the test point pressure is not within 5% of the specified value, refer to Rheem or their Accredited Service Agent.
- If unable to get the water heater working properly, contact the nearest Rheem Service Department or their Accredited Service Agent.
- When satisfied everything is working properly instruct the user in the correct method of operation.

AIR SHUTTER

The air shutter is a hinged flap in the burner aeration tube. It may require adjustment on installation.

- For a Propane and Butane model, the air shutter should be fully open.
- For a Town and TLP model, the air shutter should be within 10 mm of the top of the burner aeration tube.
- The shutter is held in place by a screw on the side of the burner aeration tube.

Note: A Natural gas model does not have an air shutter.



CLOSE DOWN PROCEDURE

1. Turn the gas control knob to the “✶” position (pilot). This setting will leave the pilot flame alight however the main burner will not be able to light.
2. Turn the gas control knob to the "●" (off) position. This setting shuts the gas control down completely.

DRAINING THE WATER HEATER

To drain the water heater:

- Turn off the water heater (refer to “To Turn Off The Water Heater” on page 30).
- 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.

RHEEM GAS DOMESTIC MAINS PRESSURE WATER HEATER WARRANTY - AUSTRALIA ONLY

GAS WATER HEATER 311, 314, 811 SERIES 090, 135, 170 MODELS
WARRANTY CONDITIONS

1. This warranty is applicable only to water heaters manufactured from 1st April 2010.
2. The water heater must be installed in accordance with the water heater installation instructions, supplied with the water heater, and in accordance with all relevant statutory and local requirements of the State in which the water heater is installed.
3. Where a failed component or water heater is replaced under warranty, the balance of the original warranty period will remain effective. The replaced part or water heater does not carry a new warranty.
4. Where the water heater is installed outside the boundaries of a metropolitan area as defined by Rheem or further than 25 km from a regional Rheem branch office, or an Accredited Service Agent, the cost of transport, insurance and travelling costs between the nearest Rheem Accredited Service Agent's premises and the installed site shall be the owner's responsibility.
5. Where the water heater is installed in a position that does not allow safe, ready access, the cost of accessing the site safely, including the cost of additional materials handling and / or safety equipment, shall be the owner's responsibility.
6. The warranty only applies to the water heater and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the water heater, e.g. pressure limiting valve; isolation valves; non-return valves; electrical switches; pumps or fuse.
7. The water heater must be sized to supply the hot water demand in accordance with the guidelines in the water heater literature.

WARRANTY EXCLUSIONS

1. REPAIR AND REPLACEMENT WORK WILL BE CARRIED OUT AS SET OUT IN THE WATER HEATER WARRANTY, HOWEVER THE FOLLOWING EXCLUSIONS MAY CAUSE THE WATER HEATER WARRANTY TO BECOME VOID AND MAY INCUR A SERVICE CHARGE AND / OR COST OF PARTS.

a) Accidental damage to the water heater or any component, including: Acts of God; failure due to misuse; incorrect installation; attempts to repair the water heater other than by a Rheem Accredited Service Agent or Rheem Service.
b) Where it is found there is nothing wrong with the water heater; where the complaint is related to excessive discharge from the temperature and / or pressure relief valve due to high water pressure; where there is no flow of hot water due to faulty plumbing; where water leaks are related to plumbing and not the water heater or water heater components; where there is a failure of gas or water supplies; where the supply of gas or water does not comply with relevant codes or acts.
c) Where the water heater or water heater component has failed directly or indirectly as a result of: excessive water pressure; excessive temperature and / or thermal input; blocked overflow / vent drain; corrosive atmosphere; ice formation in the pipe work to or from the water heater.
d) Where the water heater is located in a position that does not comply with the 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.
e) Where the water heater has been connected 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.

2. SUBJECT TO ANY STATUTORY PROVISIONS TO THE CONTRARY, THIS WARRANTY EXCLUDES ANY AND ALL CLAIMS FOR DAMAGE TO FURNITURE, CARPETS, 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.

RHEEM GAS DOMESTIC MAINS PRESSURE WATER HEATER WARRANTY - AUSTRALIA ONLY

WARRANTY – GAS WATER HEATER
311, 314, 811 SERIES 090, 135, 170 MODELS

Rheem will repair or replace, at Rheem's sole discretion and subject to the warranty conditions and exclusions, any component or the water heater if it fails within the warranty period below.

Installation	Model	Period	Warranty
All Components (from date of installation)			
All installations	All models	Year 1	New component or water heater, free of charge, including labour.*
Cylinder (from date of installation)			
Water heater installed in a "single-family domestic dwelling"	Rheemglas RheemPlus	Years 2 & 3	New water heater, free of charge, including labour.*
		Years 4 & 5	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.
	Optima	Years 2 to 5	New water heater, free of charge, including labour.*
		Years 6 to 10	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.
Water heater installed in any other than a "single-family domestic dwelling"	Rheemglas RheemPlus	Years 2 & 3	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.
	Optima	Years 2 to 5	New water heater, free of charge, with installation and labour costs being the responsibility of the owner.

Note
* Refer to items 4 and 5 of warranty conditions.

Rheem reserves the right to transfer fully functional components from the defective water heater to the replacement water heater if required.

In addition to this warranty, the Trade Practices Act 1974 and similar laws in each state and territory provide the owner under certain circumstances with certain minimum statutory rights in relation to your Rheem water heater. This warranty must be read subject to that legislation and nothing in this warranty has the effect of excluding, restricting or modifying those rights.

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0800 657 335 NEW ZEALAND
or refer local Yellow Pages

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