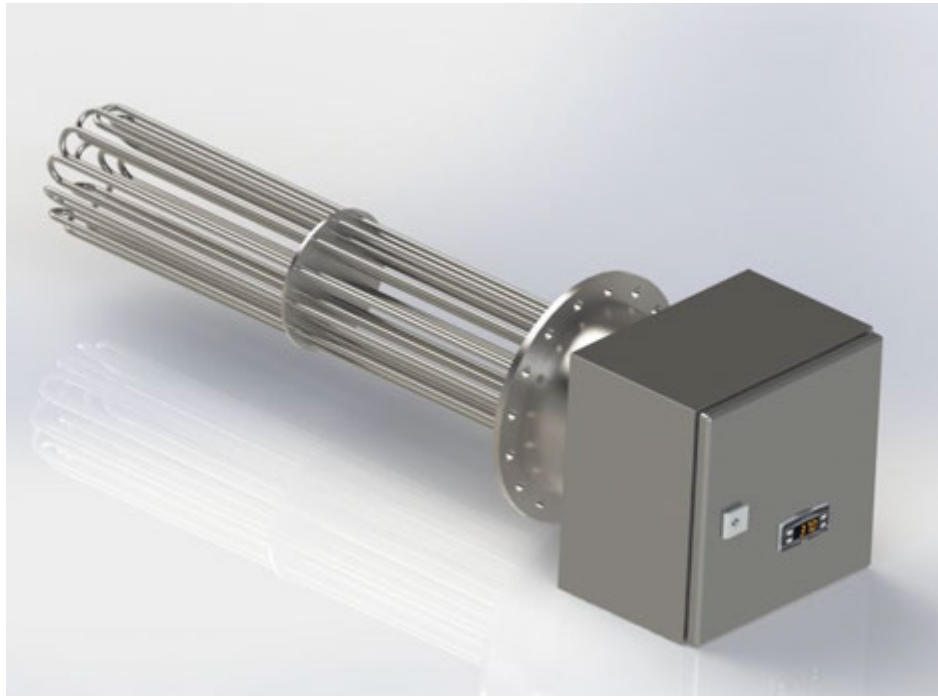


# *Owner's Guide and Installation Instructions*



## *Commercial Electric Heating Unit*



*This heating unit must be installed and serviced by a qualified person.  
Please leave this guide with a responsible officer.*

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**PATENTS**

This heating unit may be protected by one or more patents or registered designs.

**TRADEMARKS**

® Registered trademark of Rheem Australia Pty Ltd.  
™ Trademark of Rheem Australia Pty Ltd.

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

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# CONTENTS

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**RESPONSIBLE OFFICER – We recommend you read pages 4 to 11.**  
The other pages are intended for the installer but may be of interest.

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## ABOUT YOUR HEATING UNIT

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### HEATING UNIT APPLICATION

This heating unit is designed for the purpose of heating potable water and heat transfer fluids approved by Rheem Australia Pty Ltd. Its use in an application other than this may shorten its life.

### MODEL TYPE

The commercial electric heating unit can be installed indoor or outdoor and has a power rating of 15, 30, 45, 60, 75, 100, 125, 150 or 180kW. It has an ingress protection rating of IP65. The temperature is controlled by an electronic thermostat. An over-temperature cut-out device is also fitted to provide safe and efficient operation.

If the heating unit is being used in an un-vented application, a temperature and pressure relief valve, with a kW rating equal to or greater than the heating unit rating must be fitted before the water heater is operated. Refer to the installation instructions supplied with the storage tank for further details.

### HOW HOT SHOULD THE WATER BE?

The thermostat is factory supplied at 70°C. We advise the thermostat be adjusted to the lowest temperature setting that meets your needs, especially if there are young children or elderly people in the premises. Refer to “Hotter Water Increases the Risk of Scald Injury” on page 4.

To meet the requirements of the National Plumbing Standard the temperature of any stored water must not be below 60°C.

If this heating unit is fitted to a water heater that is installed as an in-series booster water heater as part of a solar water heating system, to maximise solar contribution it is recommended the thermostats are set at 60°C, unless installed as part of a heat exchange delivery system or sanitising temperatures are required.

**Note:** AS 3498 requires that a water heater provides the means to inhibit the growth of Legionella bacteria in potable water. A water heater can satisfy this AS 3498 requirement provided it is energised and the thermostat setting is 60°C or higher, including when it is used as an in-series booster water heater for a solar water heater.

### HOTTER WATER INCREASES THE RISK OF SCALD INJURY

A water heater fitted with this heating unit 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 bathing and public areas. This will keep the water temperature below the maximum permitted by AS/NZS 3500.4 to these areas. The risk of scald injury will be reduced and still allow hotter water to the kitchen, laundry and other areas requiring sanitising temperatures.

### ELECTRONIC THERMOSTAT

The thermostat automatically controls the electricity supply to the heating elements so a constant temperature is maintained. The thermostat is accessible on the outside of the control cabinet and the protective over-temperature cut-out is mounted inside the front cover of the control cabinet. There is no need to switch the water heater off when it is not in use. The heating unit is fully automatic and power is only used when heating is required. To adjust the thermostat settings refer to “[Thermostat Setting](#)” on page 17.

It is possible to time control the operation of the heating unit. Refer to “[Time Control of Heating Unit](#)” on page 19.

### WARNING

This heating unit is only intended to be operated by persons who have the experience or the knowledge and the capabilities to do so. This heating unit 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 heating unit.

This heating unit uses 415V AC power for the electrically operated components. The removal of the front cover will expose 415V wiring. It must only be removed by a qualified person.

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**SAFETY**

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

The operation of the over-temperature cut-out indicates a possibly dangerous situation. If the over-temperature cut-out operates, it must not be reset by the user and the water heater must be serviced by a qualified person.

If the electrical cabling to the heating unit is damaged, it must be replaced by a qualified person in order to avoid a hazard.

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

**The Rheem warranty may not cover faults if relief valves or other safety devices are tampered with or if the installation is not in accordance with these instructions.**

The heating unit and water heater must be maintained in accordance with the Owner's Guide and Installation Instructions. Refer to "**Maintenance Requirements**" on page 7.

**PRECAUTIONS**

If this heating unit 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 heating unit 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 HEATING UNIT**

If it is necessary to turn off the water heater:

- Switch off the electrical supply at the isolating switch to the heating unit(s).
- Close the cold water isolation valve on the cold water line to the water heater(s) to shut down the entire system, or;
- Close the isolation valves on the cold and hot water branches to shut down an individual water heater in a bank.

**TO TURN ON THE HEATING UNIT**

- Ensure the water heater is full of water
- Switch on the electrical supply at the isolating switch to the heating unit(s).

### **HOW DO I KNOW IF THE HEATING UNIT IS INSTALLED CORRECTLY?**

Installation requirements are shown on [pages 12 to 15](#). The heating unit 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 to the New Zealand Building Code.

### **DOES THE WATER CHEMISTRY AFFECT THE HEATING UNIT?**

The heating unit is suitable for most public water supplies, however some water chemistries may have detrimental effects on the heating unit. Refer to [“Water Supplies”](#) on page 8.

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 8 to 9](#).

### **HOW LONG WILL THE HEATING UNIT LAST?**

The heating unit is supported by a manufacturer’s warranty ([refer to page 23](#)). There are a number of factors that will affect the length of service the heating unit will provide. These include but are not limited to the water chemistry, the water temperature (inlet and outlet) and the water usage pattern. Refer to [“Precautions”](#) on page 5.

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# MAINTENANCE REQUIREMENTS

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## MINOR MAINTENANCE EVERY SIX MONTHS

It is recommended minor maintenance be performed every six months by a responsible officer.

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 instructions supplied with the storage tank.  
**⚠ 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.
- Operate the easing lever on the expansion control valve (if fitted). It is very important you raise and lower the lever gently. Refer to instructions supplied with the storage tank.
- Check the drain line from the safe tray (if one is installed) is not blocked.
- Check contactor contacts for possible wear.

## MAJOR SERVICE EVERY FIVE YEARS

It is recommended a major service be conducted on the water heater every five years. The service must be conducted by a qualified person. Phone Rheem Service or their nearest Accredited Service Agent.

**Note:** The major service and routine replacement of any components, such as relief valve(s), are not included in the Rheem warranty. A charge will be made for this work. Only genuine replacement parts should be used.

The major service includes the following actions:

- Replace the temperature pressure relief valve on the water heater.
- Inspect and flush the expansion control valve (if fitted). If required, replace the valve.
- Check the electric heating units for excessive calcium build up or corrosion and clean if necessary.
- Drain and flush the water heater if required.

In commercial applications where large volumes of hot water are used, sediment may build up on the bottom of the cylinder. In extreme cases, particularly in areas of high water sediment, draining and flushing out may be necessary.

- Visually check the unit for any potential problems.
- Check contactor contacts for possible wear.
- Inspect all electrical connections.
- Check the drain line from the safe tray (if one is installed) is not blocked.

**Note:** The water heater may need to be drained during this service. After the completion of the service, the water heater will take some time to reheat the water. Depending upon the power supply connection, hot water may not be available until the next day.

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## **WATER SUPPLIES**

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**This heating unit must be installed in accordance with this advice to be covered by the Rheem warranty.**

This heating unit 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 heating unit 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 heating unit should only be connected to a water supply which complies with these guidelines for the Rheem warranty to apply.

### **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 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.

### **CHLORIDE AND PH**

In a high chloride water supply, the water can corrode stainless steel parts and cause them to fail.

Where the chloride level exceeds 100mg / L the Rheem warranty does not apply to the heating unit.

pH is a measure of whether the water is alkaline or acid. In an acidic or very alkaline water supply, the water can attack stainless steel parts and cause them to fail.

Where the pH is less than 6.0 or greater than 9.5, the Rheem warranty does not apply to the heating unit. Water with a pH less than 6.0 may be treated to raise the pH.

The water supply from a rainwater tank in a metropolitan area is likely to be corrosive due to the dissolution of atmospheric contaminants. This may result in pH of less than 6.0. It is recommended an analysis on the water from a rainwater tank be conducted prior to connecting this type of water supply to a water heater with this heating unit.

### **SATURATION INDEX**

The saturation index (SI) is used as a measure of the water's corrosive or scaling properties. The saturation index figures stated are calculated using a water temperature of 80°C.

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. Where the saturation index exceeds +0.80, the Rheem warranty does not 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.

### **TOTAL DISSOLVED SOLIDS**

The heating unit is not covered by the Rheem warranty when the total dissolved solids (TDS) content in the water is greater than 600 mg / L.

Contact Rheem Service or their nearest Accredited Service Agent if a replacement heating unit is required.



**SUMMARY OF WATER CHEMISTRY ADVICE AFFECTING WARRANTY**

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

**EXPLANATIONS:** + Good resistance under normal conditions  
 0 Corrosion problems may occur especially when more factors are valued 0  
 - Use is not recommended

WATER CONTENT	CONCENTRATION (mg/l or ppm)	TIME LIMITS Analyze before	AISI 316	INcoloy 800	COPPER
Alkalinity (HCO <sup>-</sup> )	< 70	Within 24 h	+	+	0
	70-300		+	+	+
	> 300		+	+	0/+
Sulphate <sup>[1]</sup> (SO <sub>4</sub> <sup>2-</sup> )	< 70	No limit	+	+	+
	70-300		+	+	0/+
	> 300		+	+	-
HCO <sub>3</sub> <sup>-</sup> / SO <sub>4</sub> <sup>2-</sup>	> 1.0	No limit	+	+	+
	< 1.0		+	+	0/-
Electrical conductivity	< 10 µS/cm	No limit	+	+	0
	10-500 µS/cm		+	+	+
	> 500 µS/cm		+	+	0
pH [2]	< 6.0	Within 24 h	0	0	0
	6.0-7.5		+	+	0
	7.5-9.0		+	+	+
	>9.0		+	+	0
Ammonium (NH <sub>4</sub> <sup>+</sup> )	< 2	Within 24 h	+	+	+
	2-20		+	+	0
	>20		+	+	-
Chlorides (Cl <sup>-</sup> ) <i>Please also see table below</i>	<100		+	+	+
	100 - 200		+	-	+
	200 – 300		+	-	+
	>300		-	-	0/+
Free chlorine (Cl <sub>2</sub> )	<1	Within 5 h	+	+	+
	1 – 5		-	-	0
	>5		-	-	0/-
Hydrogen sulphide (H <sub>2</sub> S)	<0.05	No limit	+	+	+
	>0.05		+	+	0/-
Free (aggressive) carbon dioxide (CO <sub>2</sub> )	<5	No limit	+	+	+
	5 – 20		+	+	0
	>20		+	+	-
Total hardness (°dH)	4.0 – 8.5	No limit	+	+	+
Nitrate <sup>[1]</sup> (NO <sub>3</sub> <sup>-</sup> )	<100	No limit	+	+	+
	>100		+	+	0
Iron <sup>[3]</sup> (Fe)	<0.2	No limit	+	+	+
	>0.2		+	+	0
Aluminium (Al)	<0.2	No limit	+	+	+
	>0.2		+	+	0
Manganese <sup>[3]</sup> (Mn)	<0.1	No limit	+	+	+
	>0.1		+	+	0

[1] Sulphates and nitrates work as inhibitors for pitting corrosion caused by chlorides in pH neutral environments

[2] In general low pH (below 6) increase corrosion risk and high pH (above 7.5) decrease the corrosion risk

[3] Fe<sup>+</sup> and Mn<sup>+</sup> are strong oxidants and may increase the risk for localised corrosion on stainless steels. SiO<sub>2</sub> above 150ppm increase the risk of scaling

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## SAVE A SERVICE CALL

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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)

- **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 heating unit is connected. If on a time controlled electricity supply, remember heating hours are restricted.

Check the circuit breaker marked "HOT WATER" or "WATER HEATER" at the switchboard.



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

Are outlets (especially the showers) 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 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 10).

- **Thermostat setting**

Ensure the thermostat setting is appropriate. You may need to adjust the thermostat upwards to gain additional hot water capacity.

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

- **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](http://www.rheem.com.au)) suggests average sizes that may be needed.

### TEMPERATURE PRESSURE RELIEF VALVE RUNNING

- **Normal Operation**

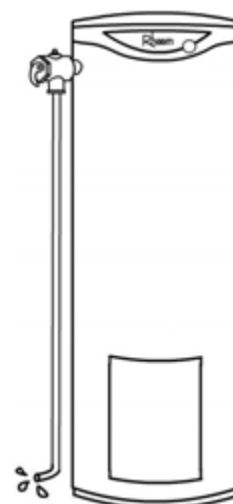
It is normal and desirable that this valve allows a small quantity of water to escape during the heating cycle. However, if the discharge is deemed excessive (more than 2% of hot water used), there may be another problem.

- **Continuous dribble**

Try gently raising the easing lever on the relief valve for a few seconds (refer to "**Temperature Pressure Relief Valve**" on page 7). 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 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 inspection.

#### EXPANSION CONTROL VALVE RUNNING

If an expansion control valve is fitted in the cold water line to the water heater 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 10.

- Are outlets (especially the showers) using more hot water than you think?

Refer to **“Not Enough Hot Water”** on page 10.

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

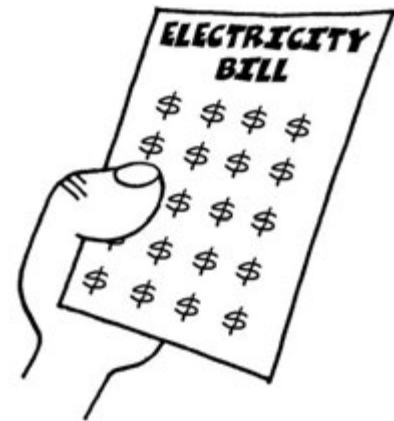
Even a small leak will waste a surprising quantity of hot water and electricity. Replace faulty tap washers, and have your plumber rectify any leaking pipe work.

- 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?
- The electricity tariff to which your heating unit is connected will determine the overall operating cost of the system.

It is important you are aware of this tariff, i.e. continuous or time controlled supply.



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

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# INSTALLATION

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## THIS HEATING UNIT IS NOT SUITABLE FOR POOL HEATING

### INSTALLATION STANDARDS

The heating unit 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 to the New Zealand Building Code.

All packaging materials must be removed from the heating unit prior to its installation.

If the heating unit is being used in an un-vented application, a temperature and pressure relief valve, with a kW rating equal to or greater than the heating unit rating must be fitted before the water heater is operated. Refer to the installation instructions supplied with the storage tank for further details.

### WATER HEATER APPLICATION

This heating unit is designed for the purpose of heating potable water and heat transfer fluids approved by Rheem Australia Pty Ltd. Its use in an application other than this may shorten its life.

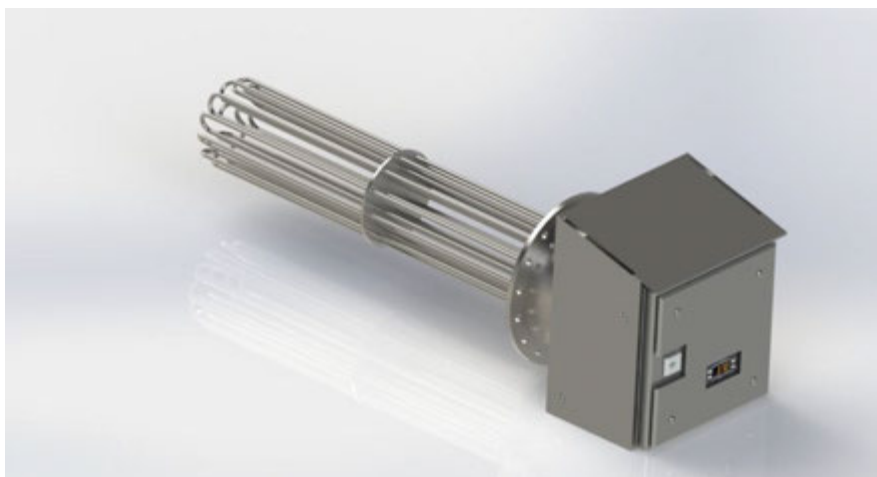
If this heating unit is to be used where an uninterrupted hot water supply is necessary for the application or business, then there should be redundancy within the hot water system design. This should ensure the continuity of hot water supply in the event that this heating unit was to become inoperable 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.

**Note:** AS 3498 requires that a water heater provides the means to inhibit the growth of Legionella bacteria in potable water. A water heater can satisfy this AS 3498 requirement provided it is energised and the thermostat setting is 60°C or higher, including when it is used as an in-series booster water heater for a solar water heater.

### WATER HEATER LOCATION

This heating unit has an ingress protection rating of IP65 and is suitable for either outdoor or indoor installation. Whether located outdoor or indoor, the heating unit's position should be chosen with safety and service in mind.

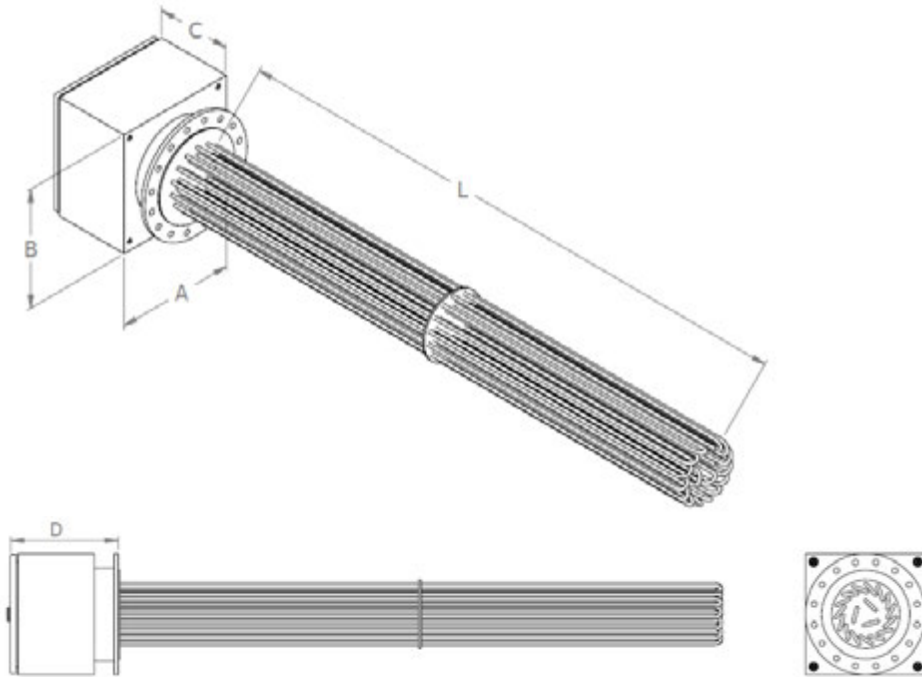
If installed outdoors where ambient temperatures of 35°C or more are expected on a regular basis, it is strongly recommended that heating units with sunshields are installed or the heating unit is shielded from direct sunlight by other means.



**Sun Shield Model Shown**

Clearance must be allowed for servicing of the heating unit. Make sure the heating unit can be removed for service. You must be able to read the information on the rating plate. Remember you may have to take the entire heating unit out later for servicing.

**DIMENSIONS AND TECHNICAL DATA**



Model		050340 050350	050341 050351	050342 050352	050343 050353	050344 050354	050345 050355	050346 050356	050347 050357	050348 050358	
Nominal Rating	kW	15	30	45	60	75	100	125	150	180	
No x hairpins	No.	3	6	9	12	15	12	15	15	18	
Electrical Rating		380 - 415 V AC 50/60Hz Star Connected					380 - 415 V AC 50/60Hz Delta Connected				
Current per Phase	Amps	21	42	63	83	104	139	174	208	250	
Watts Density	W/cm <sup>2</sup>	10.62	10.62	10.62	10.62	10.62	10.33	10.33	10.26	10.26	
Thermostat Setting - Factory	°C	70	70	70	70	70	70	70	70	70	
Thermostat Setting - Maximum	°C	90	90	90	90	90	90	90	90	90	
ECO Setting	°C	95	95	95	95	95	95	95	95	95	
Cabinet Width (A)	mm	300	300	300	300	400	400	600	600	600	
Cabinet Height (B)	mm	300	300	300	300	400	400	400	400	400	
Cabinet Depth (C)	mm	218	218	218	218	248	248	322	322	322	
Exposed Length (D)	mm	316	316	316	316	346	346	420	420	420	
Immersed Length (L)	mm	750	750	750	750	750	1250	1250	1500	1500	
Weight (packaged)	kg	47.5	48.2	49	49.8	50.7	53.6	55	56.6	58.2	
Element Sheath Material		Incoloy 800									
Flange Material		316 stainless steel									
Gasket Material		EPDM									
Cabinet Material		304 stainless steel									

Technical data is subject to change.

**ELEMENT RATINGS AND SUITABLE RT AND ST SERIES TANK CAPACITIES**

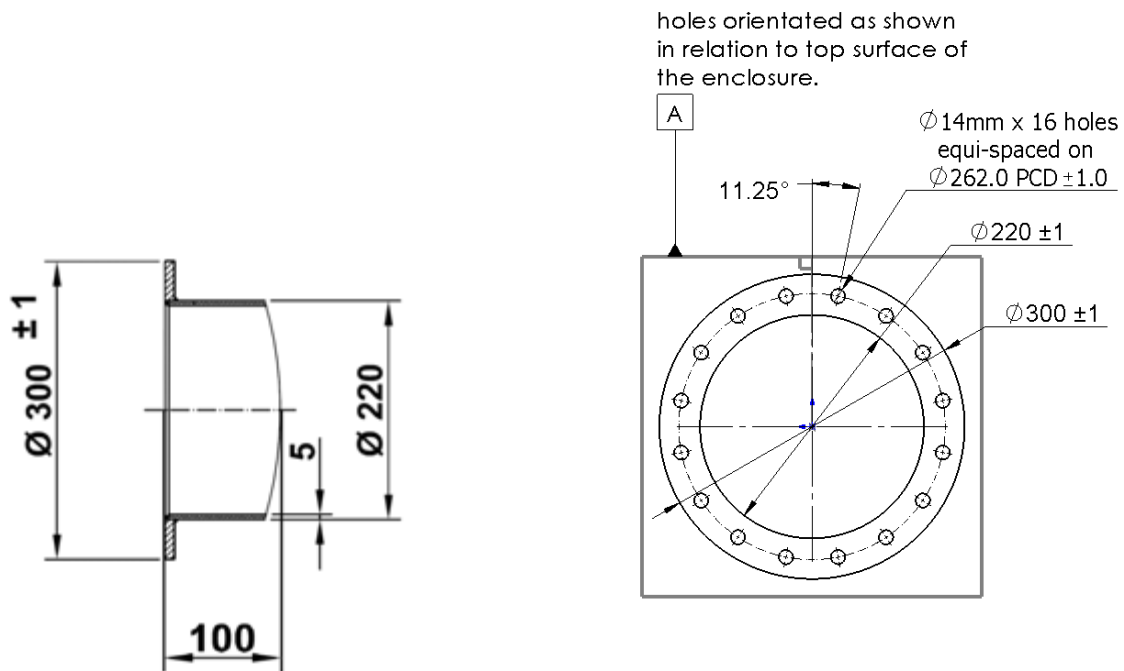
Tank Model			1000	2000	3000	4000	5000					
Tank Capacity		L	920	2055	2960	3820	5180					
Boost Capacity		L	304	678	977	1261	1709					
Available Heating Unit Rating		kW	15, 30, 45, 60, 75	15, 30, 45, 60, 75	45, 60, 75, 100, 125	60, 75, 100, 125	60, 75, 100, 125, 150, 180					
Recovery Rate @ 50°C Rise		Max Current per phase*	Heat Up Time (Hrs) at 50°C Rise									
			Whole Tank	Boost	Whole Tank	Boost	Whole Tank	Boost	Whole Tank	Boost	Whole Tank	Boost
kW	L/hr	Amps										
15	258	21	3.6	1.2	8.0	2.6	-	-	-	-	-	-
30	516	42	1.8	0.6	4.0	1.3	-	-	-	-	-	-
45	774	63	1.2	0.4	2.7	0.9	3.8	1.3	-	-	-	-
60	1032	83	0.9	0.3	2.0	0.7	2.9	0.9	3.7	1.2	5.0	1.7
75	1290	104	0.7	0.2	1.6	0.5	2.3	0.8	3.0	1.0	4.0	1.3
100	1720	139	-	-	-	-	1.7	0.6	2.2	0.9	3.0	1.0
125	2150	174	-	-	-	-	1.4	0.5	1.8	0.7	2.4	0.8
150	2580	208	-	-	-	-	-	-	-	-	2.0	0.7
180	3096	250	-	-	-	-	-	-	-	-	1.7	0.6

Technical data is subject to change.

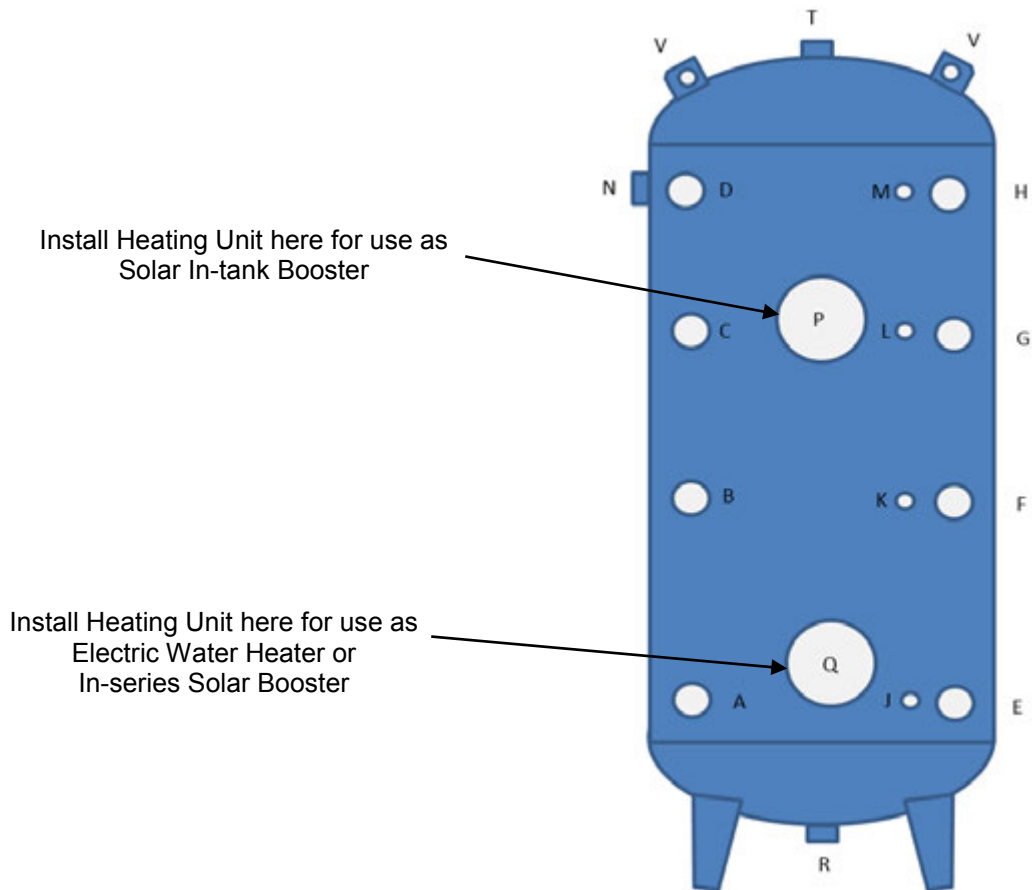
**FLANGE DETAILS**

Rheem Australia Pty Ltd supplies a range of large capacity storage tanks designed to suit the heating unit.

The storage tank flange consists of 16 x M12 threaded holes equi-spaced with holes orientated symmetrical to the centre line. This orientation matches with the heating unit flange such that the top of the control cabinet is horizontal when fitted correctly.



**TANK FLANGE DETAILS**



**TYPICAL INSTALLATION RT AND ST SERIES TANKS**

**HOT WATER DELIVERY**

This heating unit can deliver water at temperatures which can cause scalding.

It is necessary and we recommend that a temperature limiting device be fitted between the water heater and the hot water outlets in any ablution and public areas such as bathrooms, ensuites or public amenities, to reduce the risk of scalding. The installing plumber may have a legal obligation to ensure the installation 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.

**SADDLING CABLING**

Cabling must not be saddled to the tank.

**Note: If the cylinder or insulation is damaged as a result of attaching saddles to the jacket, any resultant faults will not be covered by the Rheem warranty.**

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## CONNECTIONS – PLUMBING

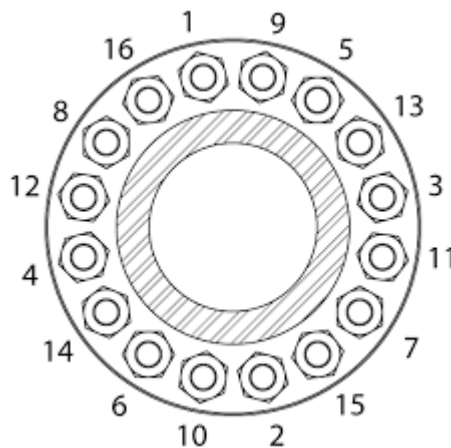
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All plumbing work must be carried out by a qualified person and in accordance with the Standard AS/NZS 3500.4 and all local codes and regulatory authority requirements. In New Zealand the installation must also conform to the New Zealand Building Code.

### FITTING THE HEATING UNIT

**⚠ Caution:** It is recommended to sling the heating unit around the neck between the control cabinet and flange and lift using appropriate hoisting equipment.

- If replacing an existing heating unit, first isolate and drain the tank to a level below the position of the heating unit.
- Remove the plastic flange cover from the selected flange on the storage tank.
- Remove the blanking plate and gasket by undoing the 16 x bolts.
- Re-fit the gasket to the heating unit flange.
- Insert the heating unit into the water heater ensuring the electrical cabinet top is horizontal and the electrical connections are at the bottom.
- Refit the 16 x bolts and washers in the order shown in the **diagram on page 16** and tighten to a torque of 30Nm.
- Fill and pressure test the water heater at the rated working pressure and ensure no leaks.



**BOLT TIGHTENING SEQUENCE**

### TEMPERATURE PRESSURE RELIEF VALVE

If the heating unit is being used in an unvented application, a temperature and pressure relief valve, with a kW rating equal to or greater than the heating unit power rating must be fitted before the water heater is operated. Refer to the installation instructions supplied with the storage tank for further details.

### EXPANSION CONTROL VALVE

If the heating unit is being used in an unvented application, local regulations may make it mandatory to install an expansion control valve (ECV) or expansion vessel 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 8). Refer to the installation instructions supplied with the storage tank for further details.



## CONNECTIONS – ELECTRICAL

**The power supply to the heating unit 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. This heating unit must be installed with over current protection and in accordance with the Wiring Rules AS/NZS 3000, in Australia and New Zealand, all local codes and regulatory authority requirements.

### HEATING UNIT

Heating units up to and including 75kW are 240V rated and must be directly connected to a 3 phase, 380 - 415 Volt AC, star connected supply. Heating units greater than 75kW are 415V rated and must be directly connected to a 3 phase, 380 - 415V AC, delta connected supply.

**Note:** for delta connected models a neutral connection is required for the control circuitry of the heating unit.

The power rating of the heating units is shown on the rating label of the heating unit control cabinet. An isolating switch must be installed at the switchboard.

Remove the cable entry plate, located at the underside of the cabinet and make appropriate holes in the plate to accept the number and size of power supply cables. The holes must be aligned with the termination points within the cabinet. Seal cables with appropriate glands. Refer to local authority regulations with regards to appropriate cable size and configuration.

Connect the power supply, neutral and earth wires to the terminal block, ensuring there are no excess wire loops inside the front cover. The temperature rating of the power supply wires insulation must be suitable for this application.

Refer to local authority regulations regarding the need for equipotential earth bonding.

### THERMOSTAT SETTING

The heating unit is supplied with the thermostat preset at 70°C. It will be necessary to adjust the thermostat temperature setting if another temperature is required. The thermostat is adjustable up to 90°C.

**Note:** AS 3498 requires that a water heater provides the means to inhibit the growth of Legionella bacteria in potable water. This water heater can satisfy this AS 3498 requirement provided it is energised and the thermostat setting is 60°C or higher, including when it is used as an in-series booster water heater for a solar water heater.

### MODIFYING THERMOSTAT SETTINGS

Note: if no buttons are pressed for 15 seconds, settings are not saved and display will revert to show the previous page.

#### Set Point:

Press and release **set** key. 'SET' will be displayed.

Press **set** key again to display the pre-programmed value.

Use ▲ and ▼ arrows to modify set point to the desired temperature.

Press **set** key again to confirm selection.

Press **fn** key to return to normal operating mode. The current sensed temperature will be displayed.



#### Differential:

Press and hold **set** key for 5 seconds. 'CP' will be displayed.

Press the **set** key, 'diF' will be displayed.

Press **set** key again to display the current differential setting (default 5°C)

Use ▲ and ▼ arrows to adjust the value to the desired differential.

Press **set** key again to confirm selection. **'diF'** will be displayed.

Press **'fnc'** key **twice** to return to normal operating mode. The current sensed temperature will be displayed.

#### **Heat/Cool Mode:**

The thermostat should be factory set to heating mode, to check;

Press and hold **set** key for 5 seconds. **'CP'** will be displayed.

Press the **set** key, **'diF'** will be displayed.

Press and release **▲** arrow **3** times. **'HC'** will be displayed.

Press and release **set** button. **'H'** should be displayed to denote that the thermostat is in heat mode.

If **'C'** is displayed, press and release the **▲** arrow to modify setting to **'H'**.

Press **set** key to confirm selection. **'HC'** will be displayed.

Press **'fnc'** key **twice** to return to normal operating mode. The current sensed temperature will be displayed.

When used with a heat exchange system such as in HS Series or Crossflow™, the thermostat setting should be 10 degrees higher than the desired potable water outlet temperature from the delivery skid and the differential should be no more than 5 degrees.

#### **OVER-TEMPERATURE CUT-OUT**

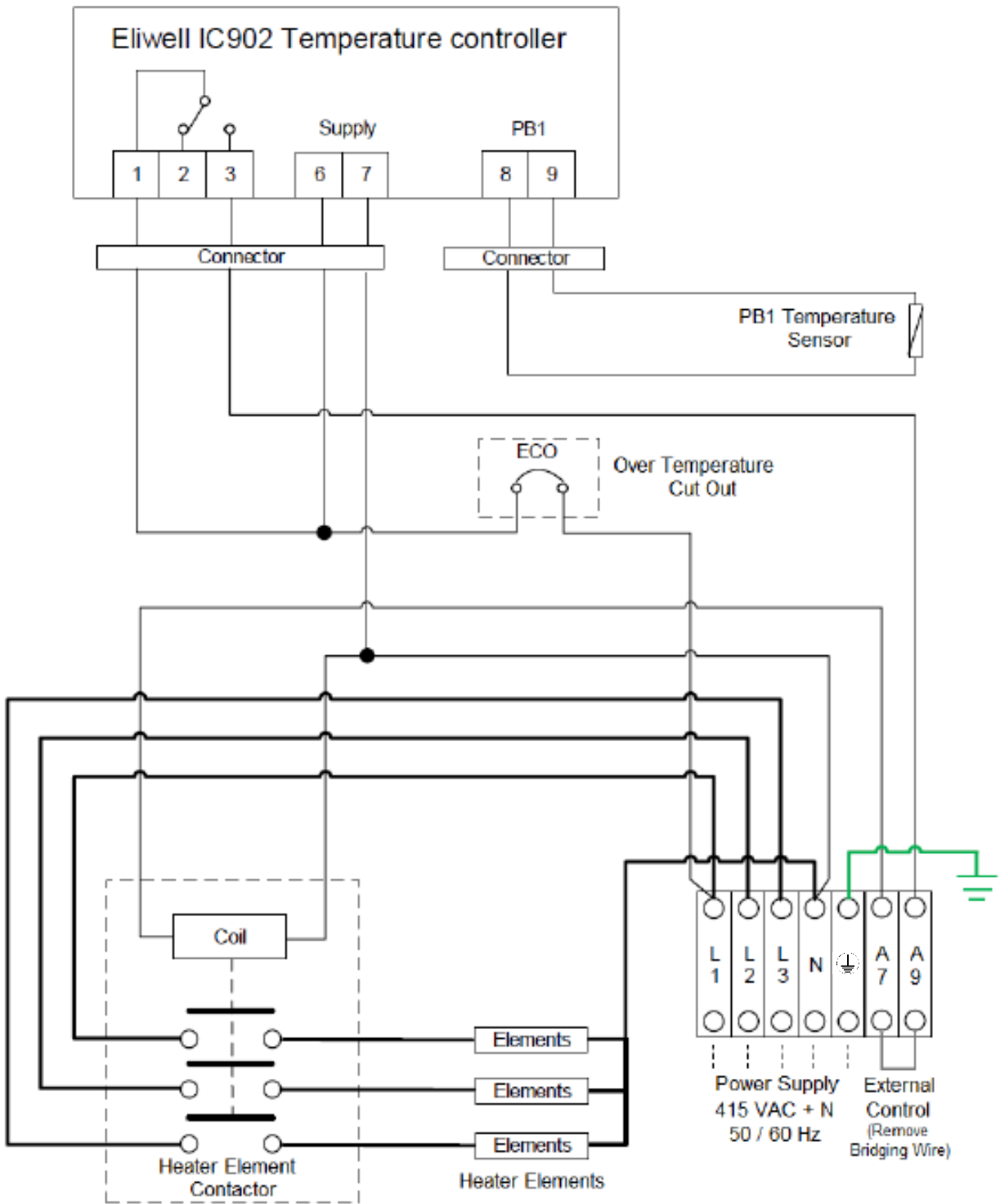
The heating unit is equipped with manual reset over-temperature cut-out with a fixed temperature setting of 95°C. If this heating unit is fitted to a water heater that is installed as a booster water heater as part of a commercial solar water heating system:

- the solar control system must be of a design to limit solar contribution so the water temperature in the solar preheat tank(s) does not exceed 90°C. This is necessary to ensure the solar input does not cause the thermostat's over-temperature cut-out to operate.
- we recommend the thermostats are set at 60°C to maximise solar contribution, unless being used with a heat exchange delivery system or sanitising temperatures are required.

For reasons of safety and economy, we advise the thermostat is set at the lowest temperature that will provide sufficient hot water. We do not recommend setting below 60°C to inhibit the growth of Legionella bacteria. Discuss the thermostat setting requirements with a responsible officer.

#### **TIME CONTROL OF HEATING UNIT**

It is possible to time control the operation of the heating unit. Remove the bridging wire and connect to the terminals marked 'External Control' in the heating unit control cabinet. Refer to the [wiring diagram on page 19](#). The heating unit thermostat should be adjusted to a temperature higher than the setting on a remote thermostat.



Note: Some models are star connected and others delta connected. Refer to the “Dimensions and Technical Data” table on page 13 for details

**TYPICAL WIRING DIAGRAM**

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## COMMISSIONING

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

- Refer to the instructions supplied with the storage tank for filling procedures.
- Check the water heater for leaks, particularly around the element flange.
- Switch on the electrical supply at the isolating switch to the heating unit(s).
- When the system has reached its working temperature, check the pipe work again for leaks.

Explain to a responsible officer the functions and operation of the heating unit. Upon completion of the installation and commissioning of the water heater, leave this guide with a responsible officer.

### **TO TURN OFF THE HEATING UNIT**

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

- Switch off the electrical supply at the isolating switch to the heating unit(s).
- Close the cold water isolation valve on the cold water line to the water heater(s) to shut down the entire system, or;
- Close the isolation valves on the cold and hot water branches to shut down an individual water heater in a bank.

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# COMMERCIAL ELECTRIC HEATING UNIT WARRANTY

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## ELECTRIC HEATING UNIT MODELS 050340 TO 050358

### 1. THE RHEEM WARRANTY – GENERAL

- 1.1 This warranty is given by Rheem Australia Pty Limited ABN 21 098 823 511 of 1 Alan Street, Rydalmere New South Wales.
- 1.2 Rheem offer a trained and qualified national service network who will repair or replace components at the address of the water heater subject to the terms of the Rheem warranty. Rheem Service, in addition can provide preventative maintenance and advice on the operation of your water heater. The Rheem Service contact number is available 7 days a week on 131031 with Service personnel available to take your call from 8am to 8pm daily (hours subject to change).
- 1.3 For details about this warranty, you can contact us on 131031 or by email at [warrantyenquiry@rheem.com.au](mailto:warrantyenquiry@rheem.com.au) (not for service bookings).
- 1.4 The terms of this warranty and what is covered by it are set out in sections 2 and 3 and apply to water heaters manufactured after 1<sup>st</sup> December 2015.
- 1.5 If a subsequent version of this warranty is published, the terms of that warranty and what is covered by it will apply to water heaters manufactured after the date specified in the subsequent version.

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

- 2.1 The decision of whether to repair or replace a faulty component is at Rheem's sole discretion.
  - 2.2 If you require a call out and we find that the fault is not covered by the Rheem warranty, you are responsible for our standard call out charge. If you wish to have the relevant component repaired or replaced by Rheem, that service will be at your cost.
  - 2.3 Where a failed component or cylinder is replaced under this warranty, the balance of the original warranty period will remain effective. The replacement does not carry a new Rheem warranty.
  - 2.4 Where the water heater is installed outside the boundaries of a metropolitan area as defined by Rheem or further than 25 km from either a regional Rheem branch office or an Accredited Rheem Service Agent's office, the cost of transport, insurance and travelling between the nearest branch office or Rheem Accredited Service Agent's office and the installed site shall be the owner's responsibility.
  - 2.5 Where the water heater is installed in a position that does not allow safe or ready access, the cost of that access, including the cost of additional materials handling and/or safety equipment, shall be the owner's responsibility. In other words, the cost of dismantling or removing cupboards, doors or walls and the cost of any special equipment to bring the water heater to floor or ground level or to a serviceable position is not covered by this warranty.
  - 2.6 This warranty only applies to the original and genuine Rheem water heater in its original installed location and any genuine Rheem replacement parts.
  - 2.7 The Rheem warranty does not cover faults that are a result of:
    - a) Accidental damage to the water heater or any component (for example: (i) Acts of God such as floods, storms, fires, lightning strikes and the like; and (ii) third party acts or omissions).
    - b) Misuse or abnormal use of the water heater.
    - c) Installation not in accordance with the Owner's Guide and Installation Instructions or with relevant statutory and local requirements in the State or Territory in which the water heater is installed.
    - d) Connection at any time to a water supply that does not comply with the water supply guidelines as outlined in the Owner's Guide and Installation Instructions.
    - e) Repairs, attempts to repair or modifications to the water heater by a person other than Rheem Service or a Rheem Accredited Service Agent.
    - f) Faulty plumbing or faulty power supply.
    - g) Failure to maintain the water heater in accordance with the Owner's Guide and Installation Instructions.
    - h) Transport damage.
    - i) Fair wear and tear from adverse conditions (for example, corrosion).
    - j) Cosmetic defects.
  - 2.8 Subject to any statutory provisions to the contrary, this warranty excludes any and all claims for damage to furniture, carpet, walls, foundations or any other consequential loss either directly or indirectly due to leakage from the water heater, or due to leakage from fittings and/ or pipe work of metal, plastic or other materials caused by water temperature, workmanship or other modes of failure.
  - 2.9 If the water heater is not sized to supply the hot water demand in accordance with the guidelines in the Rheem water heater literature, any resultant fault will not be covered by the Rheem warranty.
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# COMMERCIAL ELECTRIC HEATING UNIT WARRANTY

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## ELECTRIC HEATING UNIT MODELS 050340 TO 050358

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

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

What components are covered	The period from the date of installation in which the fault must appear in order to be covered	What coverage you receive
All components	Year 1	Repair and/or replacement of the faulty component, free of charge, including labour.
The Element Bundle (all installations)	Year 2	Replacement heating unit, free of charge. Installation and repair labour costs are the responsibility of the owner.

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

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

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

- 5.1 If you wish to make a claim under this warranty, you need to:
- Contact Rheem on 131031 and provide owner's details, address of the water heater, a contact number and date of installation of the water heater or if that's unavailable, the date of manufacture and serial number (from the rating label on the water heater).
  - Rheem will arrange for the water heater to be tested and assessed on-site.
  - If Rheem determines that you have a valid warranty claim, Rheem will repair or replace the water heater in accordance with this warranty.
- 5.2 Any expenses incurred in the making of a claim under this warranty will be borne by you.

### 6. THE AUSTRALIAN CONSUMER LAW

- 6.1 Our goods come with guarantees that cannot be excluded under the *Australian Consumer Law*. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
- 6.2 The Rheem warranty (set out above) is in addition to any rights and remedies that you may have under the *Australian Consumer Law*.

**RHEEM AUSTRALIA PTY LTD, A.B.N. 21 098 823 511**

[www.rheem.com.au](http://www.rheem.com.au)

For Service Telephone 131 031 AUSTRALIA or 0800 657 335 NEW ZEALAND

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[www.solahart.com.au](http://www.solahart.com.au)

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telephone your nearest Solahart dealer**