

Models:

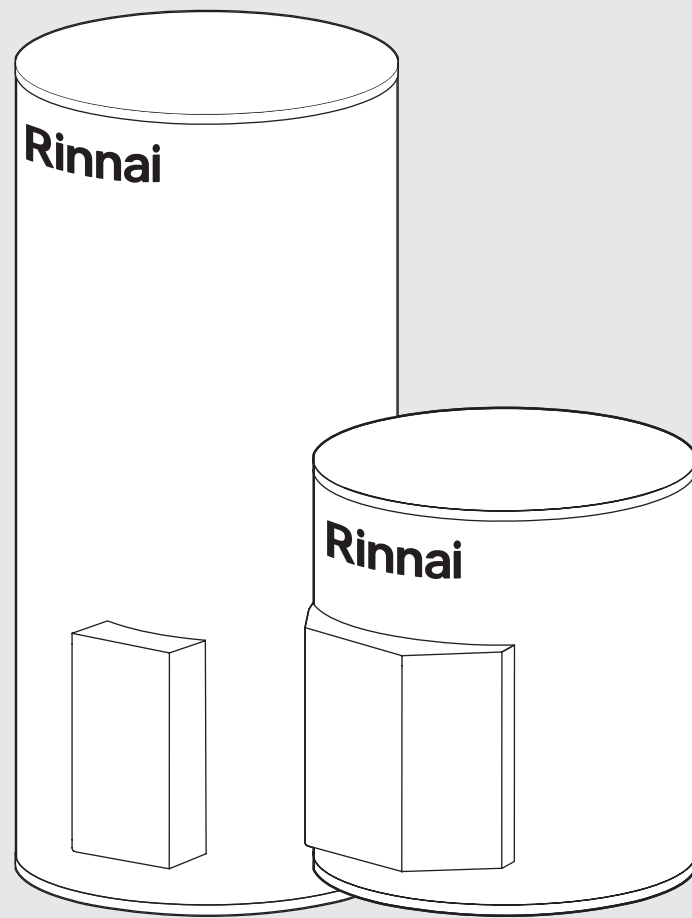
**QRESS80L336**

**QRESS80L348**

**QRESS315L336**

**QRESS315L348**

**QRESS315L360**



## **Quick Recovery Electric (QRE)**

Operation & Installation Manual

# **Rinnai**

This appliance must be installed in accordance with:

- Manufacturer's Installation Instructions
- Current AS/NZS 3000, AS/NZS 3500.4
- Local Regulations and Municipal Building Codes including local OH&S requirements

This appliance must be installed, maintained and removed by an Authorised Person.

For continued safety of this appliance it must be installed and maintained in accordance with the manufacturer's instructions.

Certified  
Product



WaterMark

AS3498 Lic WMKA 00169



# TABLE OF CONTENTS



**APPLIANCE USER:** It is strongly recommended that you read Pages 5 to 9 as these contain important information relating to safety, operation, faults, care and maintenance of your water heater. Subsequent pages are intended for the installer but you may find these of interest.

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Scan QR to register your warranty

# WARNINGS & SAFETY

## REGULATORY INFORMATION



The Rinnai Quick Recovery Electric, Mains Pressure Stainless Steel Commercial Electric Storage Water Heater has been certified by relevant plumbing and electrical authorities and the details are shown on the data plate.

## GENERAL SAFETY INFORMATION

This appliance must be installed, commissioned and serviced only by a authorised person.

For continued safety this appliance must be installed, operated and maintained in accordance with these instructions.

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.

The removal of access covers will expose 230/240V wiring and the risk of electrocution. Access covers must only be removed by a qualified person.

The thermostat must be adjusted only by an authorised person.

## WARNINGS



Care should be taken not to touch pipe work as it may be **HOT!**

**DO NOT** place articles on or against this appliance.

**DO NOT** store chemicals or flammable materials near this appliance.

This appliance is **NOT** suitable for use as a spa pool or swimming pool heater.



### NOTICE TO VICTORIAN CONSUMERS

This appliance **MUST BE** installed by a person licensed with the Victorian Building Authority.

**ONLY** a licensed person will have insurance protecting their workmanship.

So make sure you use a licensed person to install this appliance and ask for your Compliance Certificate.

For further information contact the Victorian Building Authority.



### MANDATORY INSPECTION PRIOR TO INSTALLATION

Immediately report any damage or discrepancies to your appliance supplier. This appliance has been inspected and tested at the time of manufacture and packaging, and was released for transportation without known damage. Upon receipt, inspect the exterior for evidence of rough handling in shipment.

Ensure that the appliance is labelled correctly for the gas, electrical supply, or other services it is intended to be connected to.

For safety and warranty purposes, appliances that may be damaged or incorrect **MUST NOT** be installed or operated under any circumstances. No responsibility will be accepted for installation or operation of damaged or incorrect appliances. Installation of damaged or incorrect appliances may also contravene local regulations.

## WARNINGS & SAFETY

### WATER TEMPERATURE

The thermostat on your water heater is factory pre-set to 70°C which is suitable for the vast majority of commercial applications. The thermostat setting can be adjusted between 60°C and 80°C.



The thermostat setting **MUST ONLY** be adjusted only by a authorised person.

### SCALD HAZARDS



**Hot Water can cause scalds.**

**Children, disabled, and the elderly are at the highest risk of being scalded.**

**Feel water temperature before bathing or showering.**

**Scalds from hot water taps can result in severe injuries to young children.**

**Scalds can occur when children are exposed directly to hot water when they are placed into a bath which is too hot.**

#### **Always.....**

Test the temperature of the water with your elbow before placing your child in the bath, also carefully feel water before bathing or showering yourself.

Supervise children whenever they are in the bathroom.

Make sure that the hot water tap is turned off tightly.

#### **Consider.....**

Installing child proof tap covers or child resistant taps (both approaches will prevent a small hand being able to turn on the tap).

Installing tempering valves or thermostatic mixing valves which reduce the hot water temperature delivered to the taps. Your local regulatory authority may already require that these be fitted. Contact your installer or local regulatory authority if in doubt.

#### **Never....**

Leave a toddler in the care of another child. They may not understand the need to have the water temperature set at a safe level.

## SAFETY DEVICES

For safe operation this water heater is fitted with a combination Pressure & Temperature Relief Valve, a thermostat and an over-temperature cut out for each heating element.



**DO NOT** tamper with or remove safety devices.

**DO NOT** operate this water heater unless all safety devices are fitted and in working order.

The operation of the thermal cut out indicates a possibly dangerous situation. **DO NOT** reset the thermal cut out until the water heater has been serviced by a authorised person.

### Pressure & Temperature Relief (PTR) Valve

This valve is located near the top of the water heater and is essential for safe operation.



**DO NOT** seal or block the outlet of the PTR valve or its drain pipe.

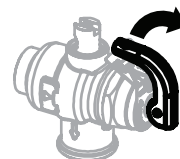
**DO NOT** replace the PTR valve with one that has a higher pressure rating than is specified for the water heater.

The PTR valve should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas with a high incidence of water deposits by a qualified person. The easing gear must be operated at least once every six months or more frequently in areas with a high incidence of water deposits.



**Failure to do this may result in the water heater cylinder failing or under certain circumstances, exploding. Water discharged will be very hot. Exercise care to avoid scald injury. If the valve does not seal again when the easing gear is closed, contact Rinnai to arrange inspection by a authorised person.**

It is important you raise and lower the easing gear gently. If the valve does not discharge water when the easing gear lever is lifted, there may be a serious problem and the power supply in the meter box (the switch marked 'Water heater' or 'hot water') or the isolating switch installed near the water heater must be switched off immediately. Contact Rinnai to arrange inspection by a qualified person.



**Gently lift lever until water flows from drain line, lower lever gently to close**

It is normal for the PTR valve to release a small quantity of water through the drain pipe during heating. If the valve dribbles or leaks continuously, try easing the valve gear for a few seconds. This may dislodge any foreign matter and stop leakage. If leakage does not stop there may be a problem as detailed below:

- If there are heavy flows of water until the water heater is cold which then stops until the water reheats there may be a serious problem and the power supply in the meter box (the switch marked 'Water heater' or 'hot water') or the isolating switch installed near the water heater must be switched off immediately. Contact Rinnai to arrange inspection by a qualified person.
- If there is a steady flow for long periods, often at night, it may be as a result of the water pressure exceeding the design pressure of the water heater. Contact your installing plumber as a Pressure Limiting Valve (PLV) may be required.

### Expansion Control Valve (ECV)

An ECV is recommended in all geographical areas where the water supply has a tendency to cause scaling, including South Australia and Western Australia. Local regulatory authorities may require that an ECV be fitted. The ECV is to be supplied and fitted by the installer. Refer to the section Water Quality for more information on scaling water.

If an ECV is fitted, operate the easing gear at least once every six months to remove any deposits and to verify that it is not blocked.

The ECV should be checked for performance or replaced at intervals not exceeding 5 years, or more frequently in areas with a high incidence of water deposits by a qualified person.

It is normal and desirable that the ECV allows a small quantity of water to be discharged through the drain pipe during the heating cycle. If the valve dribbles or leaks continuously, operate the easing gear for a few seconds. This may dislodge any foreign matter and stop leakage. If leakage does not stop Contact Rinnai to arrange inspection by a qualified person.

# IMPORTANT INFORMATION

## WATER QUALITY

The water quality of most public supplies is suitable for the water heating system. The water quality from bore wells is generally unsuitable for the water heating system. Refer to the 'Warranty Conditions' for water quality parameters and how they affect the warranty conditions. If in doubt about the water quality, have it checked against the parameters listed in the warranty conditions.

If sludge or foreign matter is present in the water supply, a suitable strainer filter should be incorporated in the water supply to the system.

## OPERATIONAL OVERVIEW

### How the hot water system works

This model has three electric heating elements with their own thermostat. A stainless steel cylinder stores water which is heated by three heating elements located at the base of the cylinder. The automatic thermostat controls the water temperature. The water heater connects directly to the mains water supply.

The heating elements can be connected to a Continuous or Off-Peak electricity supply. The continuous supply is appropriate when the water heater capacity is less than the daily usage of hot water. The Off- Peak supply is appropriate when the water heater capacity exceeds the daily usage of hot water. The Off-Peak supply allows heating only for set periods and a volume of water sufficient for daily usage is heated during the set period and stored. The Off-Peak supply is usually cheaper. Electricity supply types and tariffs vary according to the local electricity authority.

### Turning Water Heating System 'OFF'

If the water heater is not going to be used for only a few days, we suggest you leave it switched on. If it is necessary to switch off the water heater, the switch is usually marked and located in the electricity meter box of the building.

### Turning Water Heating System 'ON'

Switch on the electric supply to the heating elements. The switch is usually marked and located in the electricity meter box of the building. Water heating will now occur as required. It may take a number of hours before hot water is available.

## DRAINING



**Draining MUST BE carried out only by a authorised person.**

**Water may be HOT during draining.**

Drain the water heater as follows:

1. Isolate or turn 'OFF' the water heater at the electricity supply.
2. Close the cold water isolation valve at the inlet to the water heater.
3. Close all hot water taps.
4. Operate the PTR valve easing gear - gently. Operating the PTR valve easing gear will relieve the pressure in the water heater.
5. Undo the cold water inlet union. Attach a hose to the water heater side of the union. Let the other end of the hose go to a drain.
6. Operate the PTR valve easing gear again. This allows air into the water heater and will result in water draining through the hose.

# CARE & MAINTENANCE

## SAVE A SERVICE CALL

Check the items below before contacting Rinnai for service. Service and parts charges may be incurred where it is found that there is no fault with the water heater and the issue is related to the plumbing installation or is due to the failure of water or electric supplies.

| Insufficient or no hot water                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Is the electricity supply connected?             | Check that the isolating switch marked "HOT WATER" or "WATER HEATER" at the meter box is switched on. Check also that any isolating switches installed near the water heater are switched on.                                                                                                                                                                                                                                                                                                                     |
|                                                  | Check the fuse or circuit breaker marked "HOT WATER" or "WATER HEATER" at the meter box. Repeated failure of fuse or tripping of circuit breaker indicates a fault which must be investigated by an authorised trades person.                                                                                                                                                                                                                                                                                     |
| Are you using more hot water than you think?     | Often it is not realised how much hot water is actually used. This applies especially to showering. Review hot water usage, especially the time taken for showering, and investigate the use of flow control valves or water saving shower roses.                                                                                                                                                                                                                                                                 |
| Are water heater valves discharging excessively? | Refer to the section "Safety Devices" on page 7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Thermostat settings?                             | Check the temperature of hot water delivered with a thermometer placed under the closest outlet (usually the kitchen sink) on a non-tempered hot water line.<br>This test should be done early in the morning after overnight electrical boosting before any hot water is used. The temperature of the water delivered should be at least 55°C (allowing for heat losses in pipe work).<br>If this is not the case, the temperature may need to be increased. Contact Rinnai to discuss adjusting the thermostat. |
| No water from the hot tap?                       | Restriction in the hot tap or failure of the cold water supply to the heater.<br>Check for water flow at the other hot taps and that the cold water isolation valve is fully open.                                                                                                                                                                                                                                                                                                                                |

| High electricity bills                                                                                                                                                 |                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If you think your electricity bill is too high, check for these possibilities.<br><br><i>If, after investigating, and you still require assistance contact Rinnai.</i> | You may be using more hot water than you think. This applies especially to showering. Review hot water usage, especially the time taken for showering, and investigate the use of flow control valves or 'water saving' shower roses. Investigate recent changes to hot water usage patterns. |
|                                                                                                                                                                        | Water heater valves may be discharging excessively. Refer to the section "Safety Devices" on page 7.                                                                                                                                                                                          |
|                                                                                                                                                                        | There may be hot water leakages in hot water pipes or taps. Have these checked and rectified by a qualified person.                                                                                                                                                                           |
|                                                                                                                                                                        | There may have been changes in electricity tariffs since your last bill.                                                                                                                                                                                                                      |

## PERIODIC MAINTENANCE & SERVICING

If overflow tray and drain are fitted, it is the users responsibility to have these checked periodically to ensure there are no blockages.

The user should operate the easing gear of the ECV and PTR valve (if fitted) every 6 months as described under "Safety Devices" on page 7.

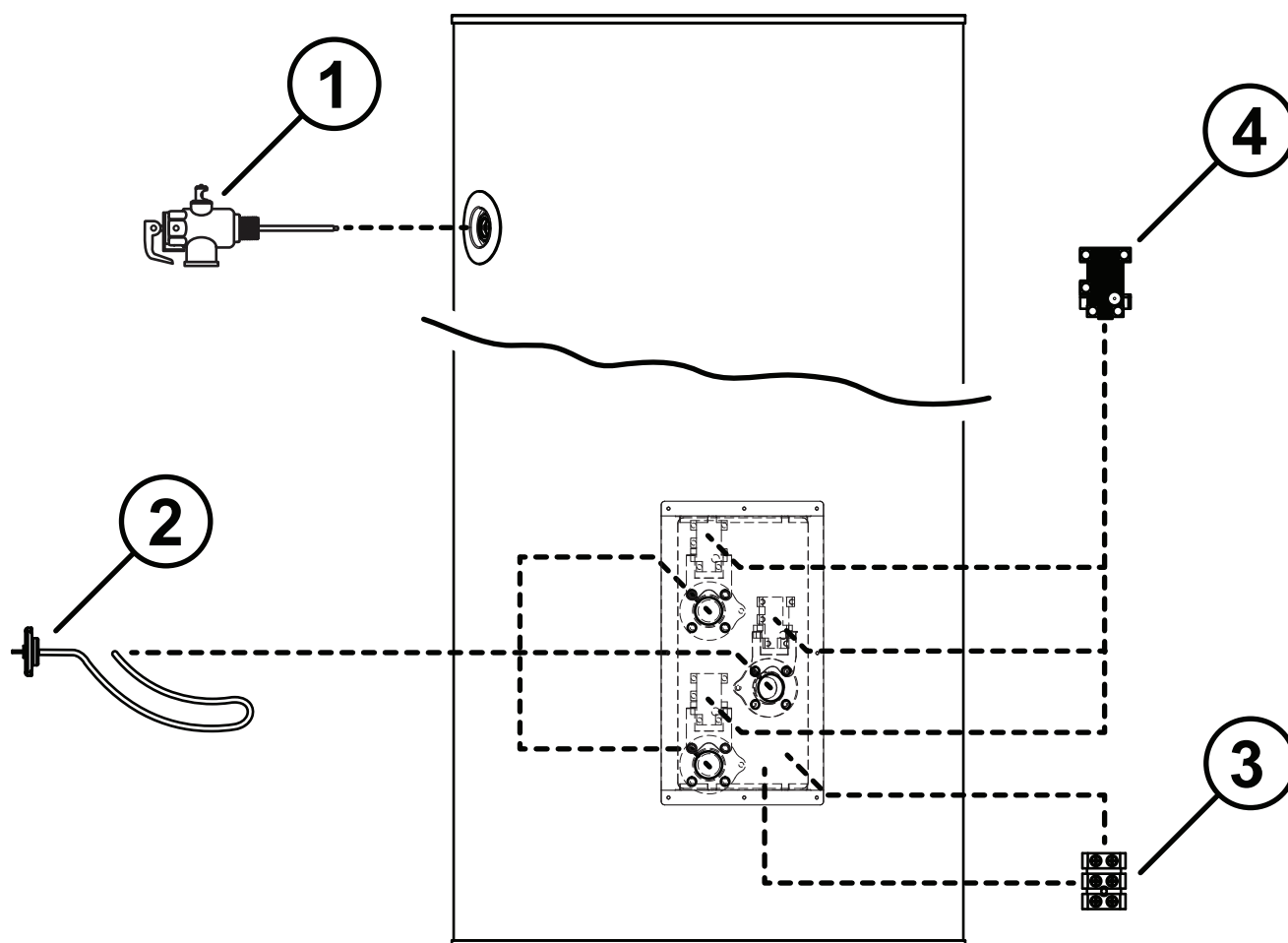
Rinnai service network personnel are fully trained and equipped. If your Rinnai appliance requires servicing contact Rinnai as per the details on the back page of this manual. Rinnai recommends that this commercial appliance be inspected and serviced by a qualified person every 12 months.

The ECV and PTR valve **MUST BE** checked for performance or replaced by a qualified person at intervals not exceeding 5 years or more frequently in areas where the water is classified as scaling water (refer to "Water Quality" on page 8 for details).

If the electric supply conduit to the water heater is damaged, it **MUST BE** replaced only by a authorised person in order to avoid a hazard.

# SPECIFICATIONS

## APPLIANCE COMPONENTS

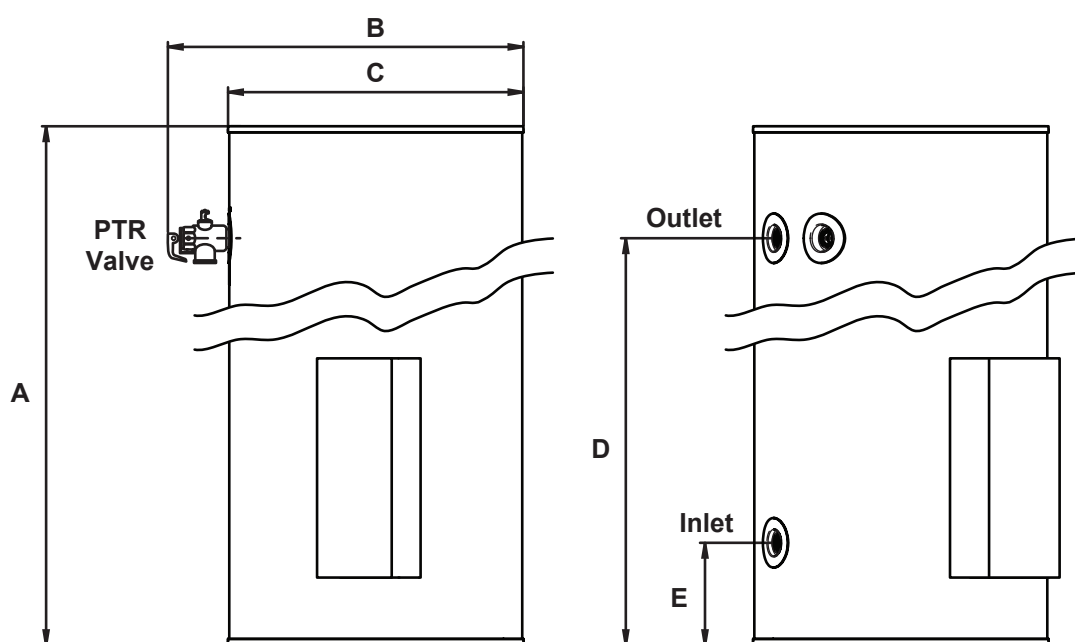


| Item | Description                     | Used in     | RA Part No. |
|------|---------------------------------|-------------|-------------|
| 1    | Valve PTR 850kPa HT575          | 315 L only  | 11004782    |
|      | Valve PTR 1000kPa HT575-20      | 80 L only   | 11004783    |
| 2    | Element 3.6kW (Includes Gasket) | 80 or 315 L | 95110046    |
|      | Element 4.8kW (Includes Gasket) |             | 10003735    |
|      | Element 6.0kW (Includes Gasket) | 315 L only  | 10003743    |
| 3    | Terminal Block                  | 80 or 315 L | 26401708    |
| 4    | Thermostat R/SH ADJ. 60° - 80°C | 80 or 315 L | 10403717    |



Valves with pressure ratings other than specified are unsuitable and **MUST NOT** be used.  
Components **MUST BE** replaced with those specified by Rinnai.

TABLE 1 DIMENSIONS



| Models       | A    | B   | C   | D    | E   | Weight (kg) | Rated Capacity Hot Water (l) | Inlet / Outlet Connections |
|--------------|------|-----|-----|------|-----|-------------|------------------------------|----------------------------|
| QRESS315L336 | 2080 | 690 | 600 | 1855 | 285 | 75          | 315                          | Rp 2"                      |
| QRESS315L348 |      |     |     |      |     |             |                              |                            |
| QRESS315L360 |      |     |     |      |     |             |                              |                            |
| QRESS80L336  | 660  | 690 | 600 | 405  | 255 | 30          | 80                           | Rp 1 1/4"                  |
| QRESS80L348  |      |     |     |      |     |             |                              |                            |

Unless otherwise specified all dimensions are in mm

TABLE 2 RATINGS &amp; OTHER SPECIFICATIONS

| Models       | Heating Element x3 (kW) | Maximum Current Per Phase (A) | Cylinder Rated Pressure (kPa) | PTR Valve Rated Pressure (kPa) | ECV Rated Pressure (kPa) | ECV Fitted                               |                                       |
|--------------|-------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------|------------------------------------------|---------------------------------------|
|              |                         |                               |                               |                                |                          | Fit PLV if mains pressure exceeds: (kPa) | Recommended PLV pressure rating (kPa) |
| QRESS315L336 | 3.6                     | 15                            | 850                           | 850                            | 700                      | 550                                      | 500                                   |
| QRESS315L348 | 4.8                     | 20                            |                               |                                |                          |                                          |                                       |
| QRESS315L360 | 6.0                     | 25                            |                               |                                |                          |                                          |                                       |
| QRESS80L336  | 3.6                     | 15                            | 1000                          | 1000                           | 850                      | 680                                      | 500                                   |
| QRESS80L348  | 4.8                     | 20                            |                               |                                |                          |                                          |                                       |

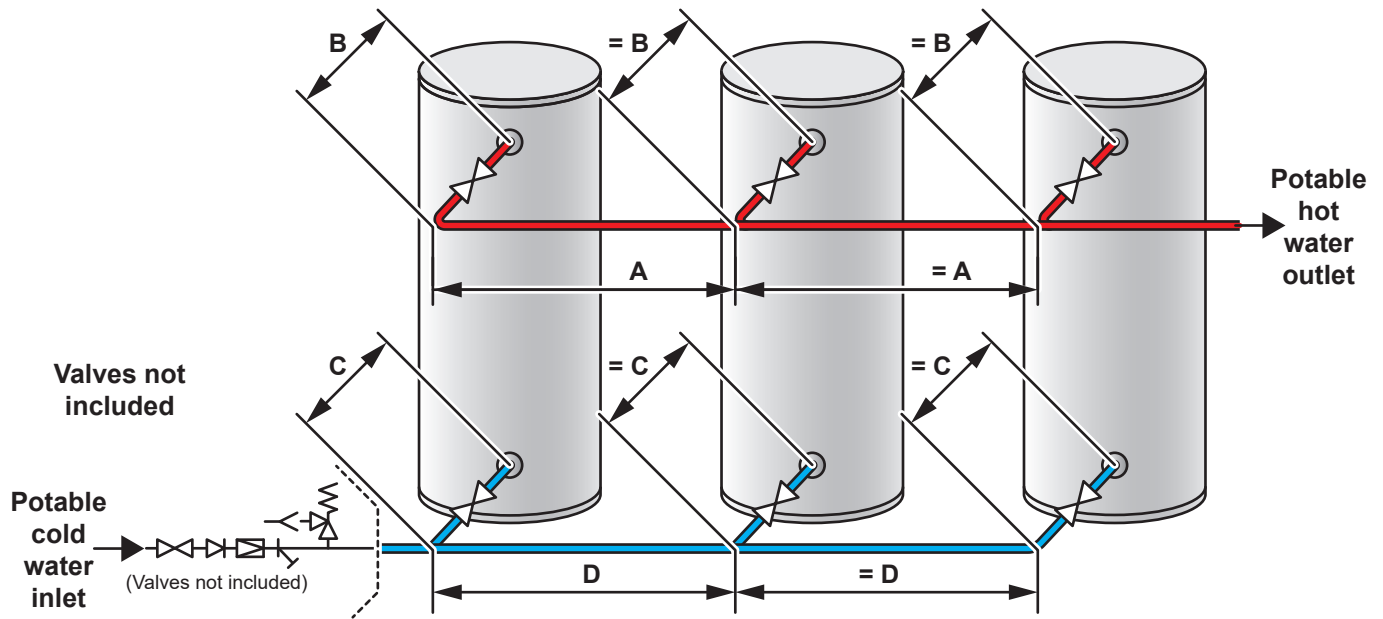
A PLV **MUST BE** fitted if the supply pressure exceeds the limits shown. If the mains pressure is within the limits shown fitment of the PLV is optional.



Valves with pressure ratings other than specified are unsuitable and **MUST NOT** be used.

# INSTALLATION CONFIGURATIONS

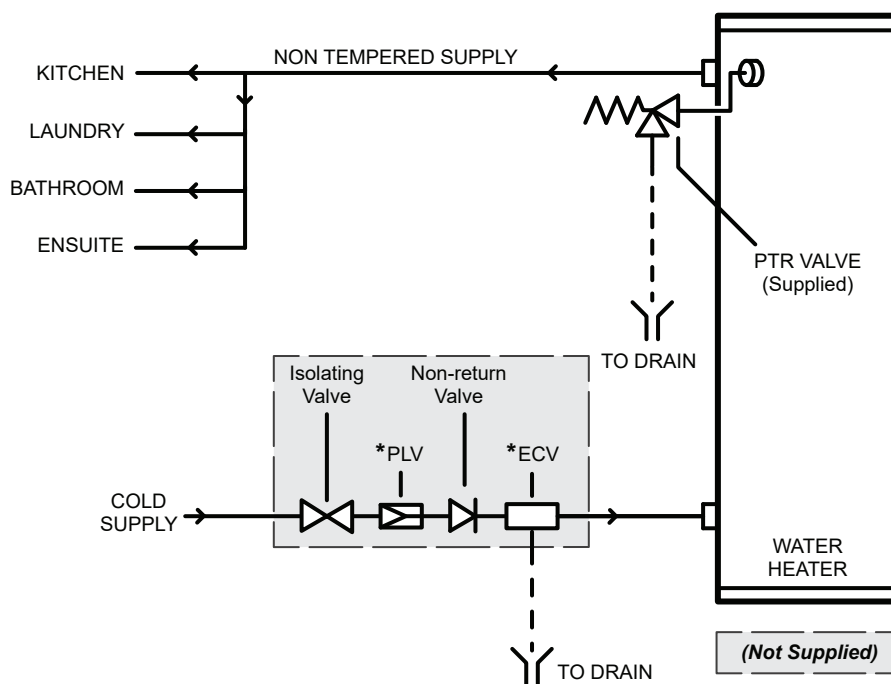
## HOT WATER PLUMBING SYSTEM EXAMPLE - MULTIPLE INSTALLATION



When multiple systems are installed, they **MUST BE** equal length and plumbed (see example figure above) to ensure pressure drops are balanced.

For multiple systems and tanks, ensure the connecting pipework is configured to balance system pressure drop.

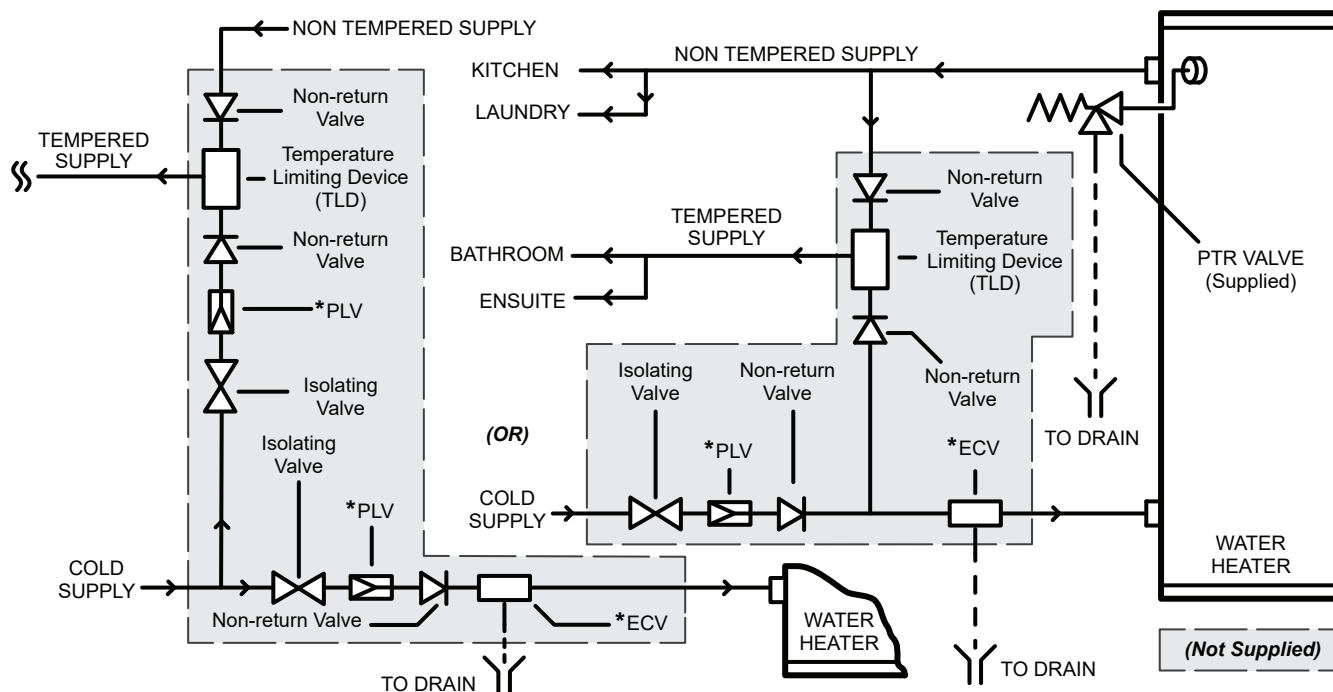
# HOT WATER PLUMBING SYSTEM EXAMPLE - NO TLD



\* For ratings see the table on page 11.

Valves with pressure ratings other than specified are unsuitable and **MUST NOT** be used.

# HOT WATER PLUMBING SYSTEM EXAMPLE - WITH TLD



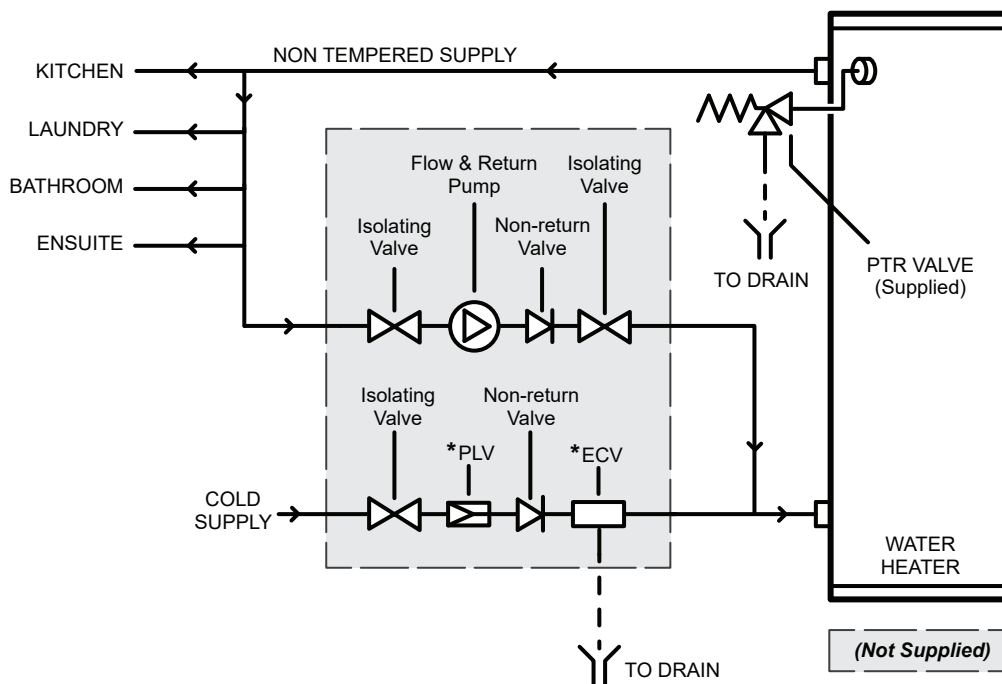
\* For ratings see the table on page 11.

Valves with pressure ratings other than specified are unsuitable and **MUST NOT** be used.

It may be a requirement that the hot and cold water supply pressures to a Temperature Limiting Device (TLD) are equal. If this is the case, a PLV with the same pressure rating as the PLV for the hot water is required for the TLD as shown.

# INSTALLATION

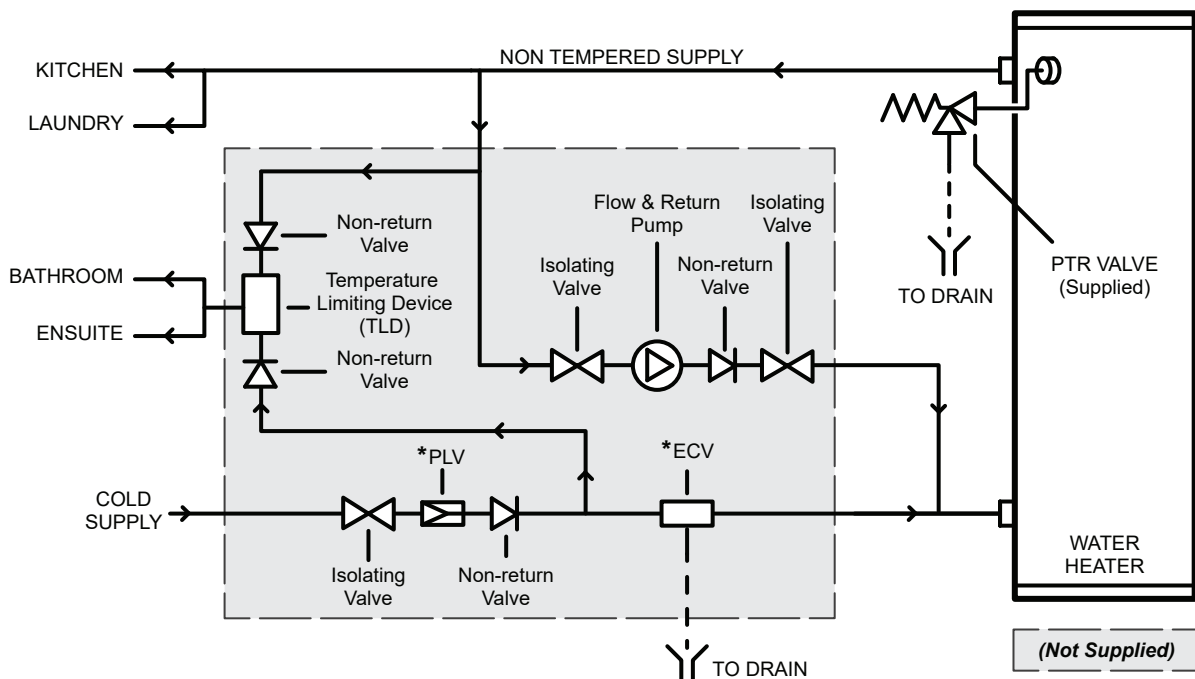
## HOT WATER PLUMBING SYSTEM EXAMPLE / FLOW & RETURN PIPE WORK - NO TLD



\* For ratings see the table on page 11.

Valves with pressure ratings other than specified are unsuitable and **MUST NOT** be used.

## HOT WATER PLUMBING SYSTEM EXAMPLE / FLOW & RETURN PIPE WORK - WITH TLD



\* For ratings see the table on page 11.



1. Valves with pressure ratings other than specified are unsuitable and **MUST NOT** be used. This schematic is an example only, variations may also be suitable.
2. Tempered water from a TLD **CANNOT** be re-circulated. The TLD **MUST BE** positioned in a dead leg, branching off the circulated hot water flow and return pipe.

This appliance **MUST BE** installed only by a authorised person in accordance with:

- Manufacturers installation instructions
- Current AS/NZS 3000 wiring rules
- Current AS/NZS3500.4 Plumbing and drainage
- All local regulatory requirements

This appliance is **NOT** suitable for use as a spa or swimming pool heater.

## LOCATION

The Rinnai QRE storage water heater range have an ingress protection rating of IPX4 making them suitable for internal or external installation.

The water heater should be placed as close as practicable to the most frequently used hot water outlet point or points to minimize the delay time for hot water delivery. This will usually be the kitchen tap. For installations where the distance between the water heater and the outlets is considerable, a flow and return system can be used which will minimize the waiting time for hot water delivery.

It is recommended that the water heater is installed at ground or floor level. It **MUST BE** installed in a vertically upright position. The water heater **MUST BE** accessible without the use of a ladder or scaffold. Installation into roof spaces **MUST** comply with local regulatory authority requirements.

Ensure the PTR valve, isolating valves, access covers, thermostats and heating elements have sufficient clearances and are accessible for service and removal. The information on the rating plates **MUST** also be readable.

The water heater **MUST BE** installed in free standing mode on a level and stable base in a manner that is acceptable to local authorities. Avoid situations that may result in pooling of water around the base of the water heater.

Where property damage can occur as a result of water leakage, the water heater **MUST BE** installed with a safe tray (overflow tray) and drain. Construction, installation and draining of the safe tray **MUST** comply with local regulatory requirements and. AS/NZS3500.4 also requires the use of a safe tray for particular situations.

## WATER QUALITY

The water quality of most public supplies is suitable for the water heater. Water quality from bore wells is generally unsuitable. Refer to the 'Warranty Conditions' for water quality parameters and how they affect warranty. If in doubt about water quality, have it checked against the parameters listed in the warranty conditions.

If sludge or foreign matter is present in the water supply, a suitable strainer or filter should be incorporated in the water supply to the water heater.

Scaling water is defined as having a total hardness in excess of 200 mg/litre (expressed as calcium carbonate) or a Saturation Index in excess of +0.4. Areas that have a scaling water supply include South Australia and Western Australia. In a scaling water supply, calcium carbonate and possibly other compounds are deposited out of the water onto any hot metallic surfaces and form a scale.

In areas of scaling water an ECV **MUST BE** fitted on the cold water line between the non-return valve and the connection to the water heater to protect the PTR valve and the water heater. Local regulatory authorities may require that an ECV be fitted. The ECV is to be supplied and fitted by the installer.

## MAINS PRESSURE

The QRE electric storage water heater range utilise mains pressure by connecting directly to the mains water supply. If the mains water supply pressure in your area exceeds the rated pressure of the water heater a PLV **MUST BE** fitted.

The mains water supply pressure should be greater than 350kPa for true mains pressure operational performance to be achieved.

### THERMOSTAT SETTING

The thermostat setting can be adjusted between 60°C of 80°C. It has been factory pre-set to 70°C as this is sufficient for most commercial applications.



The thermostat settings **MUST ONLY** be adjusted only by a authorised person.

### REDUCING THE RISK OF SCALDING

This water heater can deliver water at temperatures which can cause scalding. Children, disabled and the elderly are at the highest risk of being scalded.

Local regulatory requirements and the requirements of AS/NZS 3500.4 **MUST BE** considered regarding temperature limitations of hot water delivered to areas used primarily for personal hygiene such as bathrooms and ensuites. The delivery temperature may be limited to 45°C for early childhood centres primary and secondary schools and nursing homes or similar facilities for young, aged, sick or people with disabilities and 50°C for all other buildings. These temperatures will reduce the risk of scald injury and can be achieved by the use of a TLD, for example a thermostatic mixing valve or tempering valve.

Rinnai recommend that an approved TLD is fitted into the hot water pipe work from the water heater to areas used primarily for personal hygiene such as bathrooms and ensuites to reduce the risk of scalding.

Refer to the installation configurations "Hot Water Plumbing System Example - With TLD" on page 13 and "Hot Water Plumbing System Example / Flow & Return Pipe Work - With TLD" on page 14.

### PLUMBING CONNECTIONS

#### Connections to the water heater

Refer to Specifications for the plumbing connection sizes and location (Table 1) and the specified pressure ratings of valves (Table 2). Refer also to the diagrams under "Installation Configurations".



Valves with pressure ratings other than specified **MUST NOT** be used.

An isolation valve and non-return valve **MUST BE** fitted in the cold water supply to the water heater so the water heater can be isolated. Combination isolation and non-return valve such as 'Duo' or 'Trio' valves are suitable for this purpose.

Isolation valves **MUST NOT** be fitted directly to the appliance. Use disconnection unions between the water heater and the valves to allow the water heater to be disconnected from pipework at a later date.

Purge pipework to remove swarf and other foreign matter before final connection to the water heater to avoid damage to the water heater.

If olive compression fittings are used for connections the olives **MUST BE** metallic such as brass or copper. Only approved thread sealing tape or sealant should be used.

#### Water Pipes

Pipe sizing should be carried out by persons competent to do so for each individual installation in accordance with local regulatory requirements and take into consideration the specifications of the water heater.

The cold supply pipe to and hot water pipe from the water heater **MUST BE** insulated in accordance with local regulatory requirements and AS/NZS 3500.4 to optimise performance and energy efficiency. Insulation **MUST BE** weatherproof and UV resistant if exposed.

The hot water pipe from the outlet of the water heater should also be configured in the shape of a "heat trap" to aid energy efficiency in accordance with local regulatory requirements and AS/NZS3500.4.

To prevent damage to the water heater when attaching pipe clips or saddles to the jacket, it is recommended that self drilling screws with a maximum length of 12mm are used. If drilling is required take extreme care **NOT** to penetrate the inner cylinder. Damage to the inner cylinder is **NOT** covered under warranty.

## Pressure and Temperature Relief (PTR) Valve

A combination PTR valve is supplied with the water heater. It is an important safety device and **MUST BE** fitted in all installations before the water heater is operated.

**DO NOT** use the valve if the sensing probe has been bent or it is damaged in some other way.

The PTR valve is to be screwed to the connection marked "PTR Valve" at the top of the water heater.

The thread **MUST BE** sealed with an approved sealing tape. Make sure the sealing tape does **NOT** hang over the end of the thread of the valve as this may block the waterway and prevent the valve from operating properly.

To screw the valve into the water heater connection use a wrench on the spanner flats and **NOT** the valve body. Leave the valve outlet pointing downwards. A copper drain pipe **MUST BE** fitted to the valve outlet in accordance with the section "Relief Valve Drain Lines" on the bottom of page 17.

The valve body **MUST BE** insulated in accordance with local regulatory requirements and AS/NZS 3500.4 to optimise performance and energy efficiency. Insulation **MUST BE** applied in a manner that ensures it does **NOT** interfere with the operation of the valve. Insulation material **MUST BE** weatherproof and UV resistant if exposed.

## Expansion Control Valve (ECV)

In areas of scaling water an ECV **MUST BE** fitted on the cold water line between the non-return valve and the connection to the water heater to protect the PTR valve and the water heater, as per the diagrams under "Installation Configurations". It **MUST BE** the last valve on the cold inlet before the water heater.

Local regulatory authorities may require that an ECV be fitted. The ECV is to be supplied and fitted by the installer.

Refer to the section Water Quality for more information on scaling water.

A copper drain pipe **MUST BE** fitted to the valve outlet in accordance with the section "Relief Valve Drain Lines" on the bottom of page 17.

The valve body **MUST BE** insulated in accordance with local regulatory requirements and AS/NZS 3500.4 to optimise performance and energy efficiency. Insulation **MUST BE** applied in a manner that ensures it does **NOT** interfere with the operation of the valve. Insulation material **MUST BE** weatherproof and UV resistant if exposed.

## Pressure Limiting Valve (PLV)

A PLV is to be fitted if the supply pressure exceeds the limits shown in Table 2 "Ratings & Other Specifications" on page 11 as per the diagrams under "Installation Configurations". The PLV is to be supplied and fitted by the installer.

## Relief Valve Drain Lines

Copper drain lines of size DN15 **MUST BE** fitted to the ECV (if fitted) and the PTR valve. Use disconnection unions to connect drain lines to the valves.

The configuration of drain lines **MUST BE** in accordance with local regulatory requirements and the requirements of AS/NZS3500.4.

The length should be as short as possible on a continuous downward slope with no restrictions. Length should **NOT** exceed 9 metres with no more than three 45° bends. If a drain line discharges into a tundish, the drain line from the tundish **MUST NOT** be less than DN20. The drain line from a tundish **MUST** meet the same requirements as drain lines from relief valves.

The drain lines from the PTR valve and ECV (if fitted) from an individual water heater may be interconnected subject to local regulatory authority requirements and AS/NZS3500.4. The termination point **MUST** also comply with local regulatory requirements and AS/NZS3500.4. Drain lines **MUST NOT** discharge into a safe tray.

The outlet of drain lines **MUST NOT** be obstructed and be positioned so that they are readily discernible but **NOT** cause injury, damage or nuisance.

In areas where water pipes are prone to freezing, drain lines **MUST BE** insulated and **NOT** exceed 300mm in length. In this case the drain line **MUST** discharge into a tundish through an air gap of between 75mm and 150 mm.



## HAZARDOUS VOLTAGE, RISK OF ELECTRICAL SHOCK

Disconnect all sources of supply, prior to the commencement of any electrical work



### ELECTRICAL CONNECTIONS



All electrical work including permanent wiring and connections to the water heater **MUST BE** performed only by a authorised person in accordance with local regulatory requirements and AS/NZS3000 wiring rules.

The electrical power supply to the water heater **MUST NOT** be switched on until it is filled with water and insulation resistance has been tested as satisfactory (a satisfactory electrical insulation test reading).

The water heater must be directly connected to a 3 phase 415 Volt AC star supply with one heating element per phase for the models with 3 heating elements and a common Neutral. An isolating switch **MUST BE** installed at the switchboard.

A means of disconnection **MUST BE** incorporated in the fixed wiring. Ensure the building wiring to the water heater is capable of withstanding the electrical load (refer to "Table 2 Ratings & Other Specifications" on page 11 for electrical load details).

The above method of connection is recommended, however it is possible to convert and connect these water heaters to a single phase 230/240 Volt AC supply. Contact Rinnai for necessary additional requirements and details.

Check the available tariffs with the local electricity supplier. The Off-Peak (overnight) tariff is usually the most economical for the customer.

Use a suitable conduit for any external electrical cable connections to the water heater. Electrical cable entry to the water heater is via a 25mm hole provided beneath the front cover, fitting of an approved M25 weatherproof cable gland at the electrical cable entry point is also required.

The power rating of the heating elements is shown on the data label of the heater and are rated for a 230/240 Volt AC power supply.



**THE WATER HEATER IS NOT SUITABLE FOR POWER SUPPLIES UTILISING A 415 VOLT DELTA CONNECTED SUPPLY.**

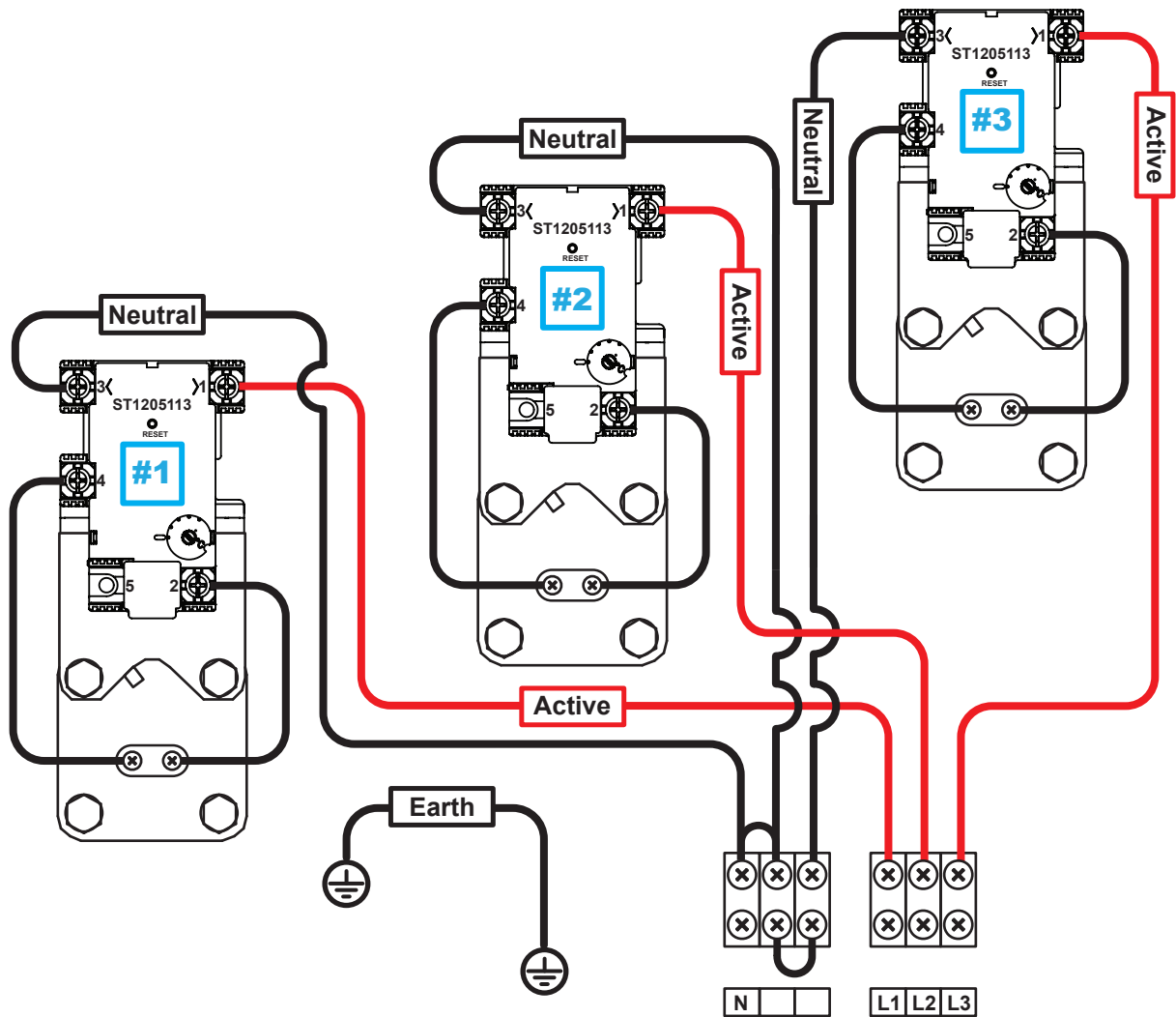
Remove the front cover to access terminal blocks and connect all ACTIVE and NEUTRAL wires in accordance with the wiring diagram on the next page, a copy of which is also located on the inside of the front cover. Ensure that the Earth wire is securely fixed to the earth post provided on the heater case.

The thermostat is adjustable from 60°C to 80°C. Turning the adjustment knob anticlockwise decreases the temperature setting and turning it clockwise increases the temperature setting. Rinnai advise that the thermostat be set at 70°C as this temperature is sufficient for most commercial applications.

Inspect and ensure that all wiring links are secure, ensure the Over-temperature Energy Cut-Off is reset by pressing the red 'reset' button on the Thermostat and ensure the water heater is filled with water.

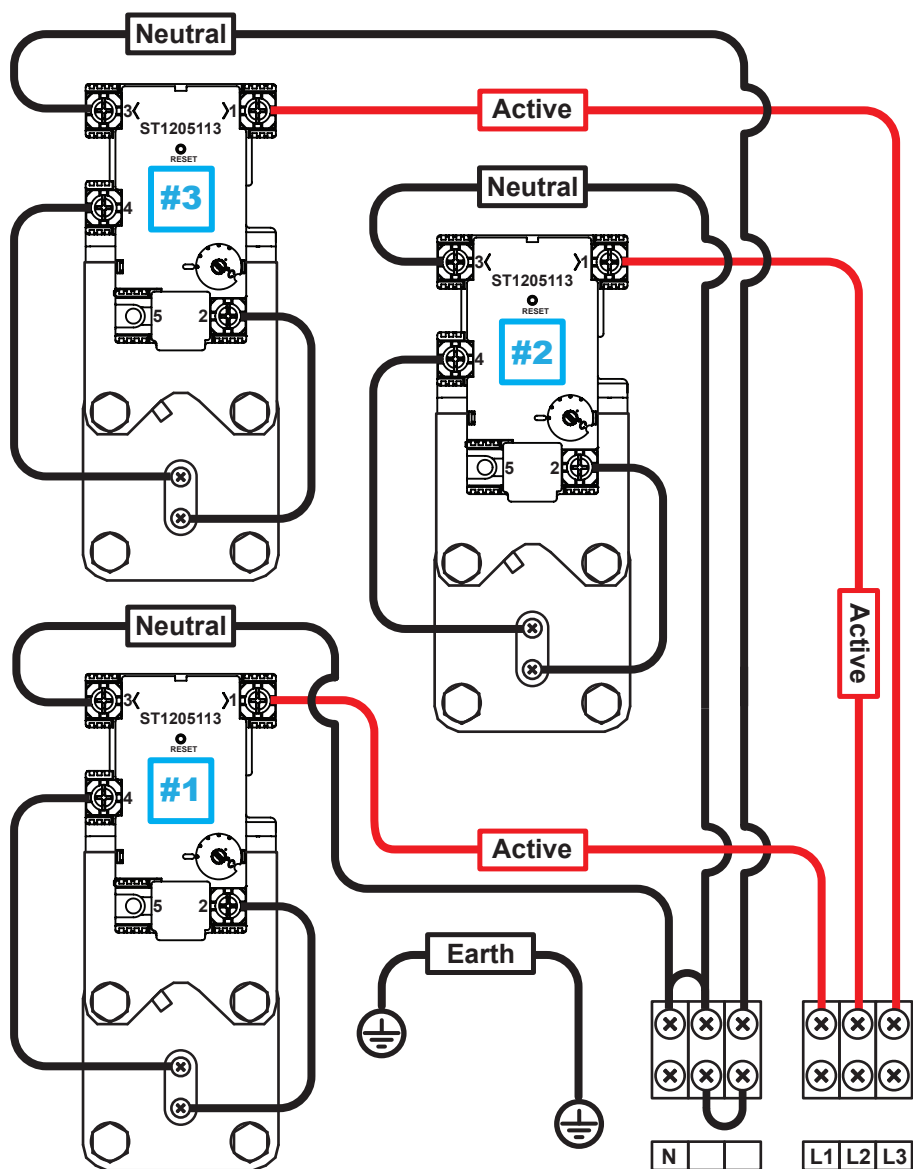
Replace the front cover after electrical work is completed and ensure the water heater is filled with water before turning the power on.

## WIRING DIAGRAM - 80L



| Thermostat Specifications<br>ST1205113 |            |
|----------------------------------------|------------|
| Number of Poles                        | Single     |
| Number of Throws                       | Single     |
| Dial Colour                            | Pink       |
| Temp Range                             | 60 to 80°C |
| Dial Set At                            | 70°C       |
| Cut Off                                | 60°C ± 3   |
| Differential                           | 8°C ± 4    |
| Reset                                  | Manual     |

## WIRING DIAGRAM - 315L



| Thermostat Specifications<br>ST1205113 |            |
|----------------------------------------|------------|
| Number of Poles                        | Single     |
| Number of Throws                       | Single     |
| Dial Colour                            | Pink       |
| Temp Range                             | 60 to 80°C |
| Dial Set At                            | 70°C       |
| Cut Off                                | 60°C ± 3   |
| Differential                           | 8°C ± 4    |
| Reset                                  | Manual     |



Commissioning activities **MUST BE** carried out only by an authorised person.

**DO NOT** switch on the electric power supply until the water heater is filled completely with water.

### **TO FILL & TURN 'ON' THE WATER HEATER**

1. Open all hot water taps in the building, including the shower.
2. Open the cold water isolation valve to water heater. Air will now be forced out of the taps.
3. Close each tap when water runs freely without air bubbles.
4. Check all plumbing connections and pipe work for water leaks.
5. Connect the water heater to the electricity supply, and turn the electric power supply 'ON'.

### **TO TURN 'OFF' THE WATER HEATER**

It may be necessary to turn off a water heater after installation and commissioning, for example during building activities or if the premises are vacant.

1. Isolate or turn 'OFF' the water heater at the electricity supply.
2. Close the cold water isolation valve at the inlet to the water heater.

# NOTES





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## **National Help Line**

Tel: 1300 555 545\* Fax: 1300 555 655  
*Monday to Friday, 8.00 am to 5.00 pm EST.*

## **After Hours Hot Water Service Line**

Tel: 1800 000 340\*

*\*Cost of a local call higher from mobile or public phones.*

For further information visit **[www.rinnai.com.au](http://www.rinnai.com.au)**  
or email **[enquiry@rinnai.com.au](mailto:enquiry@rinnai.com.au)**

Rinnai has a Service and Spare Parts network with personnel who are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance requires service, please call our National Help Line. Rinnai recommends that this appliance be serviced every 3 years.

With our policy of continuous improvement, we reserve the right to change, or discontinue at any time, specifications or designs without notice.