
# Commercial Enamel Indoor/Outdoor Storage Cylinders

## Owner and installer guide

Rinnai

# Important

Cylinders shall be installed in accordance with:
- Manufacturer's installation instructions
- Current AS/NZS 3000, G12/AS1 and/or AS3

Installation, servicing, repair, and removal shall be carried out only by authorised personnel.

Not suitable as a spa or swimming pool heater.

- Owner, please retain this guide for future reference
- Installer, please leave this guide with the owner

**Warning**
Improper installation, adjustment, alteration, service and maintenance can cause property damage, personal injury or loss of life.

This appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.

For more information about buying, using, and servicing of Rinnai appliances call: 0800 RINNAI (0800 746 624).

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# Contents

# Owner information

**Damaged components**
If any component is damaged, it must be replaced by an authorised person using genuine Rinnai replacement parts.

**Draining and filling the system**
This normally occurs during installation or servicing and must be carried out by an authorised person.

**Installation by a licensed tradesperson**
Only a licensed tradesperson can install, adjust, maintain, and service this water heater. Any work carried out by a non-licensed tradesperson is illegal and will void any warranty.

## TROUBLESHOOTING

**Cold water relief valve discharging continuously**
It is normal for the cold water relief valve to discharge a small quantity of water through the drain line. If water is discharging continuously there may be a fault with one of the valves, contact your installer to discuss.

# Maintenance and servicing

Hot water systems require regular maintenance and servicing. For reliable operation annual servicing is recommended in addition to the following.

| Period | What needs to be done |
|---|---|
| Every six months | TPR (temperature & pressure relief) operate the easing gear |
| Periodically | Check and replace the anodes |
| * In hard water areas the element(s) must be periodically descaled. To do this the cylinder must be drained and the element(s) removed | |

**TPR valve**
Depending on the model the valve is located near the top, or on top of the cylinder. It is essential for safe operation. The TPR valve works by automatically venting hot water if the temperature or pressure of the water in the cylinder gets too high.

Every six months operate the easing gear to remove lime deposits and check that it is not blocked. As this will discharge hot water, ensure no one is near the drain line.

WARNING Failure to operate the relief valve easing gear at least once every six months may result in the water heater exploding. Continuous leakage of water from the valve may indicate a problem.

It is important that you raise and lower the easing gear gently. During the operation, if the valve does not discharge water when the easing gear is lifted, or does not seal again when closed, arrange for an authorised person to come and inspect the system immediately.

IMPORTANT During servicing of your cylinder the TPR valve needs to be checked and/or replaced. This needs to be done by an authorised person at intervals not exceeding five years, or more frequently in areas where the water is classified as hard.

A TPR valve must not be replaced with one that has a higher pressure rating than that specified for the cylinder.

**Anodes in enamel tanks**
Storage tanks manufactured from metal can be susceptible to corrosion. The combined effects of water pressure, temperature and water chemistry can create an aggressive environment for corrosion of some materials. For this reason anodes are placed in enamel tanks so as to corrode first. Anodes should be changed every five years or more frequently in hard or aggressive water areas.

**Maintenance and servicing**
Rinnai has a maintenance, service, and spare parts network with personnel who are fully trained and equipped to give the best advice on your Rinnai product. Regular maintenance and servicing is not covered by the Rinnai warranty.

For help locating a service person in your area call 0800 RINNAI (0800 746 624).

TPR position - top of cylinder

How to operate the easing gear

# Specification summary

**Suitability**
The commercial indoor / outdoor cylinders can be used in commercial hot water storage applications such as apartments, hotels, wineries, dairy farms or heat recovery applications.

The storage cylinder is designed to hold water supplied from a controlled external heat source such as a gas boiler or heat pump.

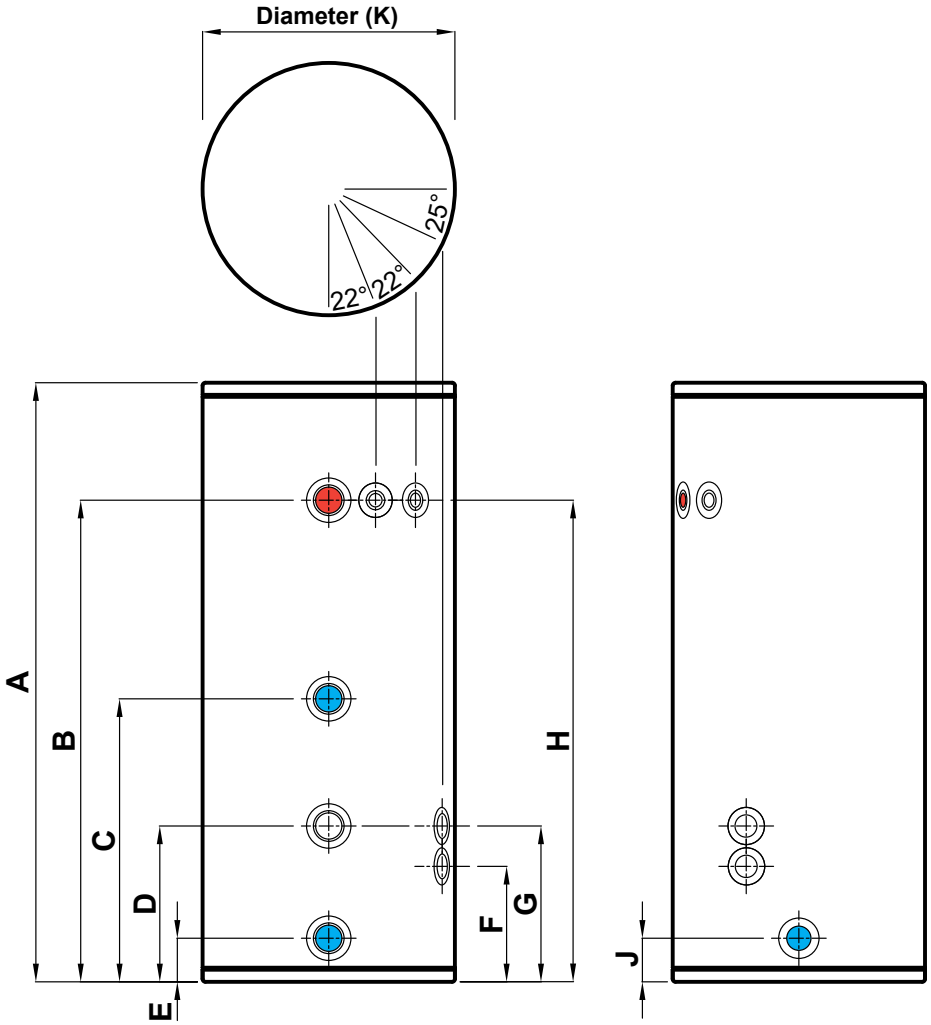
- Commercial indoor / outdoor installations
- Mains or low pressure systems
- Gas or heat pump storage buffer

**Warranty**

| | |
|---|---|
| Cylinder commercial | 5 years |
| Parts and labour | 1 year |

| | |
|---|---|
| **Codes** | 270 L MEC0270625E<br>330 L MEC0330625E<br>440 L MEC4400720E |
| **Cylinder construction** | Inner cylinder X class enamel<br>Outer casing Corrosion resistant colourbond steel<br>Insulation High density polyurethane foam |
| **Location** | Cylinders not to be located in areas subject to frost |
| **TPR valve (supplied)** | 46 kW, 1000 kPa, 99 °C<br>The supplied TPR must be installed to ensure safe operation. Failure to do so can potentially cause injury and damage the unit. |
| **TPR valve (optional accessory)** | TPR valve 25 mm, 132 kW, 1000 kPa (code: 12095) |
| **Pressure limiting valve** | Approximately 750 kPa (not supplied) |
| **Maximum temperature** | Maximum heat source return temperature - 75 °C |
| **Cold water expansion valve** | Approximately 850 kPa (not supplied) |
| **Weights empty / full** | 270 L 86 kg 356 kg<br>330 L 101 kg 431 kg<br>440 L 125 kg 565 kg |
| **Protection against water** | IPX4 |

# Dimensions




| Model / Codes | | | MEC0270625E (270 L) | MEC0330625E (330 L) | MEC0440720E (440 L) |
|---|---|---|---|---|---|
| **Dimensions (mm)** | | | | | |
| A | Height overall | - | 1484 | 1772 | 1763 |
| B | Hot outlet | DN50 | 1193 | 1481 | 1478 |
| C | Upper cold inlet[4] | DN50 | 701 | N/A | N/A |
| D | Heat source / ring main return[1, 5] | DN50 | 386 | 386 | 415 |
| E | Cold inlet | DN50 | 108 | 108 | 108 |
| F | Sensor pocket[2] | DN20 | 286 | 286 | 286 |
| G | Heat source / ring main return[1, 4] | DN20 | 386 | 386 | 386 |
| H | TPR[3, 4] | DN25 | 1193 | 1481 | 1491 |
| J | Cold inlet | DN20 | 108 | 108 | 108 |
| K | Diameter | - | 625 | 625 | 720 |

**Footnotes**

[1] Max. heat source return temperature 75 °C

[2] 6.4 mm i.d pocket fitted

[3] 20 x 25 reducing bush + DN20, 1000kPa, 46kW TPR supplied. DN25, 1000 kPa, 135kW TPR optional accessory; Part No. 12095

[4] Plug supplied in accessory pack

[5] 50 x 32 reducing bush in accessory pack

# Plumbing arrangement

The cylinder component of the system must be installed in accordance with G12/AS1 and/or AS3. For service and maintenance, please allow sufficient room for access to covers and valves. All hot water pipe work should be insulated with polythene foam or equivalent insulation to optimise performance and energy efficiency. This includes all water fittings.

All hot water supply parts must comply with G12/AS1 and/or AS3.


- The valve or drain valve outlet pipe must not be sealed or blocked.
- Valves with pressure ratings other than those listed in this manual must not be used.
- If the water supply pressure exceeds the rated pressure, a pressure reducing valve is to be fitted in the installation.
- A discharge pipe connected to the pressure relief device is to be installed in a continually downwards direction and in a frost free environment. Water may drip from the discharge pipe of the pressure relief device, this pipe must be left open to the atmosphere.

**Base requirements**
Cylinders must be installed in an upright position on a level, stable, and water impervious base. The base must be capable of withstanding the weight of a full system. The structure must not shift.

Consideration should be given to location of the cylinder and base to prevent water ponding on the base and installations should allow water to drain and dry. Ensure the storage cylinder does not stand on permanently wet surfaces.

Where there is potential of damage occurring from a leaking system, a suitably drained safe tray is fitted as per AS/NZS 3500.4 5.4 and G12/AS1 6.11.3.

**Drain valves**
In accordance with AS/NZS 3500.4 5.11.3, drain lines from temperature / pressure-relief valves, expansion control valves and tundishes shall be installed and located so as not to cause a nuisance, is readily discernible and incurs no risk or damage to the building (including slabs and footings) or injury to persons. Discharging drain lines or TPR relief lines onto the base is not advised as over time water discharge can adversely affect the cylinder.

**Seismic restraint**

| | |
|---|---|
| 270, 330 L | Refer AS/NZS 3500.4 5.5.4 or G12/AS1 Figure 14 |
| 440 L | Refer seismic restraint manufacturer's instructions, for example Ray Staiger Limited 4-strap, as per BRANZ appraisal 761. |

**Pipe work**
It is the installer’s responsibility to adequately size the distribution pipe work in a property to ensure sufficient performance from all outlet fittings. Water pipe sizing should be performed in accordance with AS/NZS 3500.4 and/or G12/AS1. Pipe sizing and valve selection must be performed to allow for the water supply pressure.

A drain off tap or line must be fitted to the inlet of the water heater.

All hot water pipe work should be insulated with polythene foam or equivalent insulation to optimise performance and energy efficiency.

DO NOT drill anything into the water heater, this could damage critical components and cause corrosion.

Pipe runs to be kept as short as possible to maximise efficiency.

**TPR valve**
The supplied TPR valve must be installed to ensure safe operation. Failure to do so can potentially cause injury and damage the unit.

The TPR valve must be fitted with a drain pipe to direct any water discharged to a visible point outside the property. The drain pipe must have a continuous fall and be at least the same size as the TPR valve outlet. Where the drain pipe exceeds three metres in length it is recommended an air break be provided within 300 mm of the TPR valve outlet. Where an air break is used it is recommended that the pipe size after the air break be increased to one size larger than the TPR valve. It must also be protected from freezing conditions.

# Storage and delivery temperatures

**Storage temperature**
The storage cylinder is designed to hold hot water from a controlled external heat source such as a gas boiler or heat pump.

The temperature of water flowing from the controlled heat source to the cylinder should not exceed 75 °C. Hotter water temperatures will void the warranty.

**Sanitary fixtures delivery temperature**
Must comply with G12 6.14 Safe water temperatures.

Water temperatures over 50 °C can cause severe scalds. Local regulations must be considered regarding temperature limitations of hot water supplied to areas used primarily for personal hygiene. The temperature is limited to 45 °C for early childhood centres, schools, nursing homes or similar facilities, and 50 °C for all other buildings. To comply with these requirements, a temperature limiting device, such as a tempering or thermostatic mixing valve will be required on all installations.

# Typical installation schematic

Refer next page.

## Additional comments about the installation

A temperature sensor is only required in one cylinder.

For multiple cylinder applications, there are three separate circuits each of which must be connected hydraulically balanced ('reverse-return'):

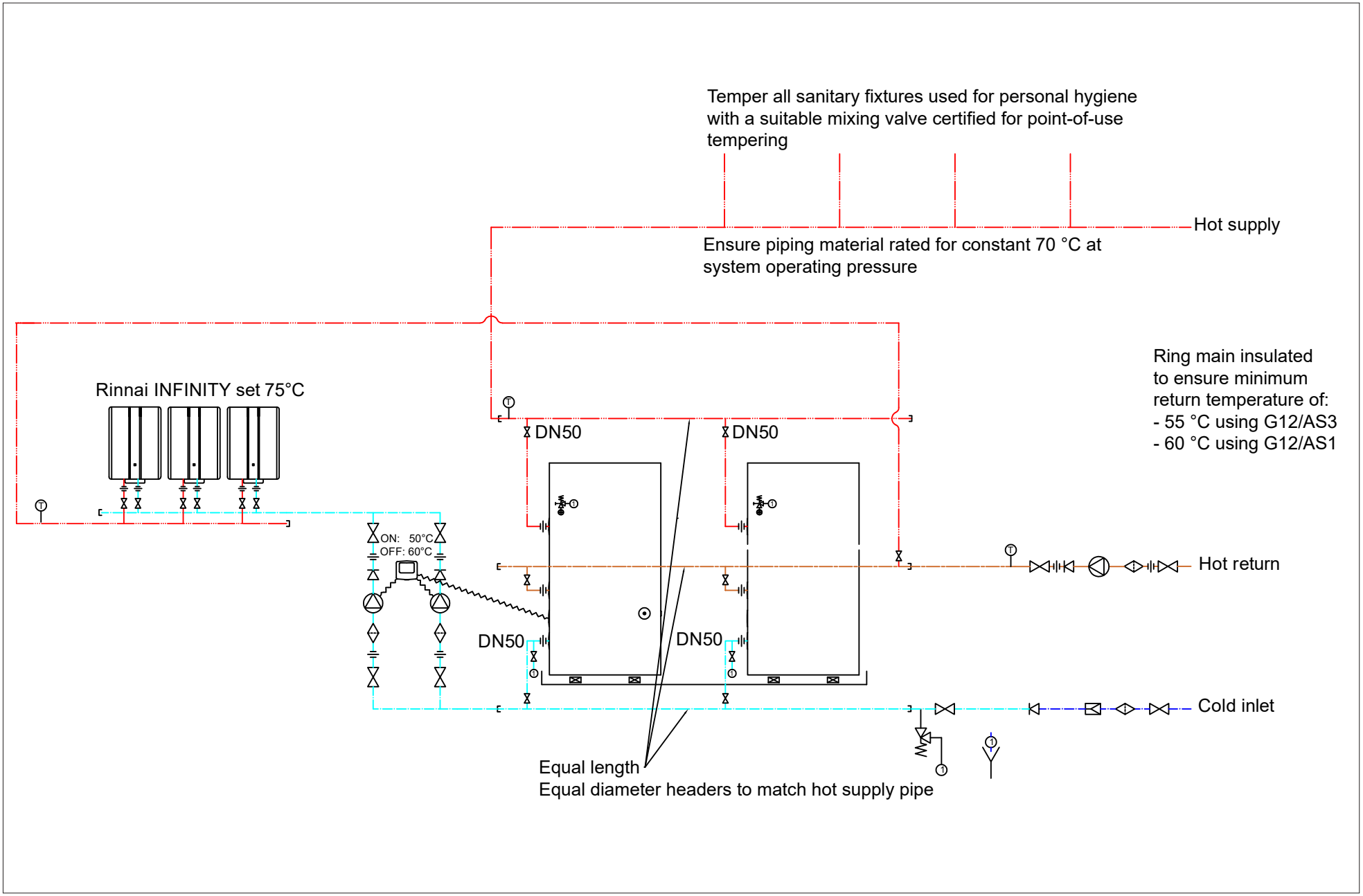
1. Cold inlet / hot outlet
2. Heat source flow and return
3. Building hot water flow and return.

**System differential**

When used with Rinnai INFINITY water heaters a differential MUST BE maintained between the pump-off setting and the Rinnai INFINITY setpoint. Standard settings are:

- Rinnai INFINITY: 75 °C
- Pump ON: 50 °C
- Pump OFF: 60 °C

Failure to observe a differential will result in short-cycling of the Rinnai INFINITY(S) and significantly reduce economic life.


Temper all sanitary fixtures used for personal hygiene with a suitable mixing valve certified for point-of-use tempering
Hot supply
Ensure piping material rated for constant 70 °C at system operating pressure
Ring main insulated to ensure minimum return temperature of:
- 55 °C using G12/AS3
- 60 °C using G12/AS1
Rinnai INFINITY set 75°C
DN50
DN50
ON: 50°C
OFF: 60°C
Hot return
DN50
DN50
Cold inlet
Equal length
Equal diameter headers to match hot supply pipe

# Limited Warranty - Rinnai Commercial Enamel Storage Cylinders

## Commercial application warranty

| Component | Warranty period | Warranty |
|---|---|---|
| Cylinder only | 5 years | Replace or repair free of charge[1] the cylinder if it fails due to faulty manufacture. The cost of removal of the cylinder, re-installation, and labour costs are the responsibility of the owner. |
| Components supplied by Rinnai | 1 year | Parts and labour |

All terms of the warranty are effective from the first date of installation. Proof of installation will be required. Where the date of installation is not known or cannot be proven, the warranty will be based on the date of manufacture. Any warranty claim must be made within a reasonable time of discovery of the potential fault or defect.

The cylinder must be sized and installed according to written guidelines from Rinnai.

[1] Except for certain travel and transport costs, refer 'Warranty terms and conditions'.

## General warranty terms

Rinnai reserves the right to make modifications and change specifications and its parts without notice.

For the purposes of the Consumer Guarantees Act 1993, Rinnai only guarantees the availability of repair facilities and spare parts for the express warranty periods recorded in the Rinnai warranty summary table.

Where the product is being acquired for the purposes of a business, the provisions of the Consumer Guarantees Act 1993 do not apply and no other warranties (either express or implied by law), apart from those stated in this warranty, apply.

## Warranty terms and conditions

- All terms of this warranty are effective from the date of first installation. The attending service person reserves the right to verify this date.
- All Rinnai appliances must be installed, commissioned, serviced, repaired and removed in accordance with the manufacturer's instructions, local regulations, and municipal building codes by persons authorised by local regulations to do so.
- All appliances must be operated and maintained in accordance with the manufacturer's operating instructions.
- This warranty applies only to the components supplied by Rinnai. It does not apply to components supplied by others, such as, isolating valves, electrical switches, pipe work, electrical cables, fuses, but not limited to these.
- Where the appliance has not been sited in accordance with the installation instructions or installed such that normal service access is difficult, a service charge will apply. If at the discretion of the attending service person the installation is deemed illegal or access is dangerous, service will be refused. Any work required to gain access to the appliance will be chargeable by the attending service person (for example, removal of walls, or the use of special equipment to move components, but not limited to these)

- Where a failed component is replaced under warranty, the balance of the original appliance warranty will remain effective. The replacement part or appliance does not carry a new warranty.

- Rinnai reserve the right to transfer functional components from defective appliances if they are suitable.

- Rinnai reserve the right to have installed product returned to the factory for inspection.
  - The decision of whether to repair or replace a faulty component of the cylinder is at the sole discretion of Rinnai.

  - Where Rinnai determines that the cylinder needs to be removed for repair, Rinnai may undertake such removal and may permanently replace the unit with a substitute unit that is in the reasonable opinion of Rinnai, in a better or equal condition to the defective unit.

- Where the cylinder is installed outside the metropolitan area or further than 40 km from an authorised repairer, travel costs shall be the owner's responsibility.

## Warranty exclusions

The following exclusions may cause the warranty to become void and will result in a service charge and costs of parts (if required).

- Water supplied to the cylinder by an uncontrolled heat source or by a controlled heat source in excess of 75 °C.

- Accidental damage, defects or failure caused by acts of nature (fire, wind, lightning, flood, storm, hail storm fallout), vandalism, earthquake, war, civil unrest, pests, animals, insects, or entry of foreign objects or matter into the product such as dirt, debris or moisture.

- Defects or failure due to environmental damage such as corrosion.

- Failure due to abuse or misuse, improper maintenance or improper storage.

- Failure due to incorrect or unauthorised installations.

- Failure or damage caused by alterations, service or repair work carried out by unauthorised personnel.

- Where the cylinder has failed directly or indirectly as a result of poor water quality outside the limits specified (refer next page).

- Where it is found that there is no fault with the appliance and the issue is related to the installation or is due to power failure.

- Subject to any statutory provisions to the contrary, Rinnai does not accept:
  - Liability for consequential damage or any incidental expenses resulting from any breach of the warranty.
  - Claims for damage to buildings or any other consequential loss either directly or indirectly due to leaks from the cylinder or any other faults.

## Water quality

Water chemistry has a direct impact on hot water heaters, affecting corrosion protection measures, or causing scale buildup.

Water quality MUST:

1. Meet the Water Services (Drinking Water Standards for New Zealand) Regulations 2022 and the Aesthetic Values for Drinking Water Notice 2022, or the water standards as statutorily defined at the time; AND
2. Be within the limits shown in the table below.

Water quality outside these limits will void this warranty.

### Water quality and impurity limits

| | | | |
|---|---|---|---|
| **TDS (Total Dissolved Solids)** | <1000 mg/L | **Chlorides** | <250 mg/L |
| **Total Hardness $CaCO_3$** | <200 mg/L | **Sodium** | <200 mg/L |
| **Alkalinity** | <200 mg/L | **Iron** | <1 mg/L |
| **Dissolved (free) $CO_2$** | <25 mg/L | **LSI**[1] | -1.0-0.8 @20 °C |
| **pH** | 6.5-8.5 | | |
| [1] Langelier Saturation index — scaling potential of water | | | |

## Water quality warranty guidelines

### Stagnation

Leaving water stagnant in the system will promote corrosion. It is recommended that systems, if not in use, are flushed on an eight week cycle.

# Rinnai.co.nz

Tel: 0800 746 624
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