

Rinnai

Owner and installer guide

XL indoor commercial storage cylinders

Models: MSX0500, MSX0800, MSX1000



Hello installer

Please leave this guide with the owner as it contains important safety and warranty information.

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Important:

Cylinders shall be installed in accordance with:

- Manufacturer's installation instructions
- Current AS/NZS 3000, AS/NZS 3500, NZS 4219:2009, G12/AS1
- Local regulations and municipal building codes

Installation, servicing and repair 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 or maintenance can cause property damage, personal injury or loss of life.

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



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Owner information

Damaged components

If any component is damaged, it must be replaced by an authorised person using 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.

Maintenance and servicing

Hot water systems, like cars, require regular maintenance and servicing. For reliable operation annual servicing is recommended.

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).



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.

Location

Cylinders should be installed in accordance with G12/AS1. For servicing and maintenance, please allow sufficient room for access to covers and valves.

The Rinnai XL cylinders are for indoor installations only and must be vertically floor mounted. Areas that are subject to freezing must be avoided. Pipe runs should be kept as short as possible for maximum efficiency.

Base requirements

Cylinders should be installed on a flat level base of sufficient strength to support the weight of the water when full. The cylinder must also be suitably restrained against seismic activity, refer NZS 4219:2009—a calculation is required to determine an acceptable method of restraint. As installations can vary significantly we are unable to detail a specific method here. We have however completed a portion of the calculation, using the worst case scenario, to determine the load restraint for each cylinder, refer table on p.8.

Cylinder access

Cylinders should not be located where they will be difficult to remove. Where a cylinder is not easily accessible for maintenance and replacement, the Rinnai Warranty will not cover any additional costs caused by access difficulty.

Drain valve

Provision must be made to drain the cylinder if required for servicing.

Drain lines

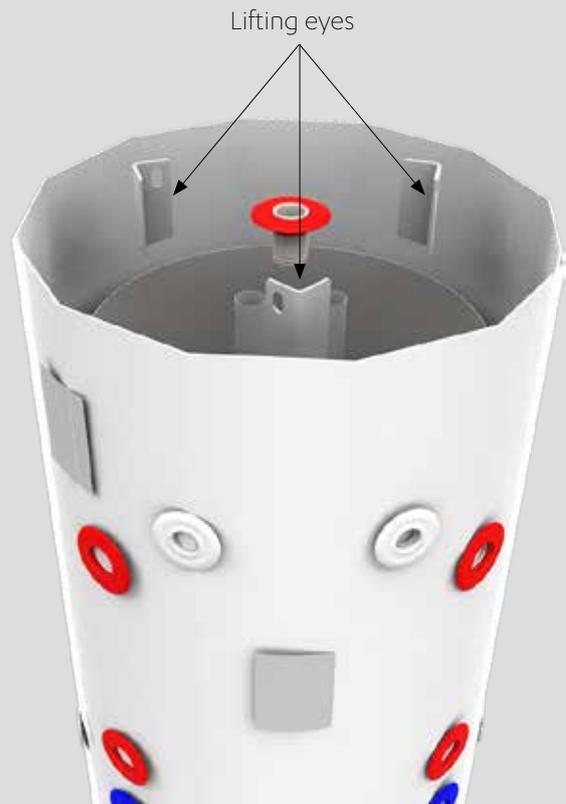
These must be installed in accordance with AS3500 and/or G12/AS1.

To aid installation

The Rinnai XL cylinders have lifting points located at the top of each unit, refer image below. To access the lifting eyes remove the top cover.



Seismic restraint needs to be determined by a calculation specific to the installation, as per NZS 4219:2009.



Lifting eyes to aid installation are accessible by removing the top cover.

XL cylinders

specification summary



500 L: MSX0500
800 L: MSX0800
1000 L: MSX1000

Description

Made of duplex 2205 stainless steel for high strength and corrosion resistance, with 100 mm of insulation to maximise heat efficiency.

Benefits

- Excellent corrosion and pitting resistance
- Competitive ten year warranty
- 1200 kPa pressure rating designed to meet the needs of taller buildings

Suitability

These large volume indoor buffer cylinders can be used in commercial hot water storage applications such as apartments, hotels, wineries, dairy farms or heat recovery applications.

Hard or aggressive water will need to be treated in order to use these cylinders, if in doubt please test before use.

Construction

2205 duplex stainless steel with a PREN value of 35. This Ferritic-Austenitic steel combines high strength, and excellent corrosion and pitting resistance. The marine grade steel also gives a low thermal expansion and high chloride resistance.

2205 duplex stainless steel has approximately twice the strength of standard 304 and 316 stainless making it equipped to deal with system pressures.

Insulation

100 mm of polyurethane-injected foam

Pressure rating

1200 kPa

Heat loss 24 hrs @ 65 °C

500 L 2.14 kWh
 800 L 2.74 kWh
 1000L 3.33 kWh

Weights empty/full

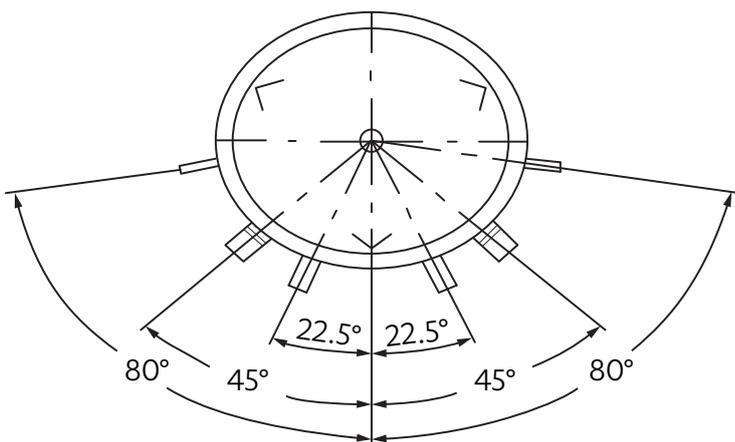
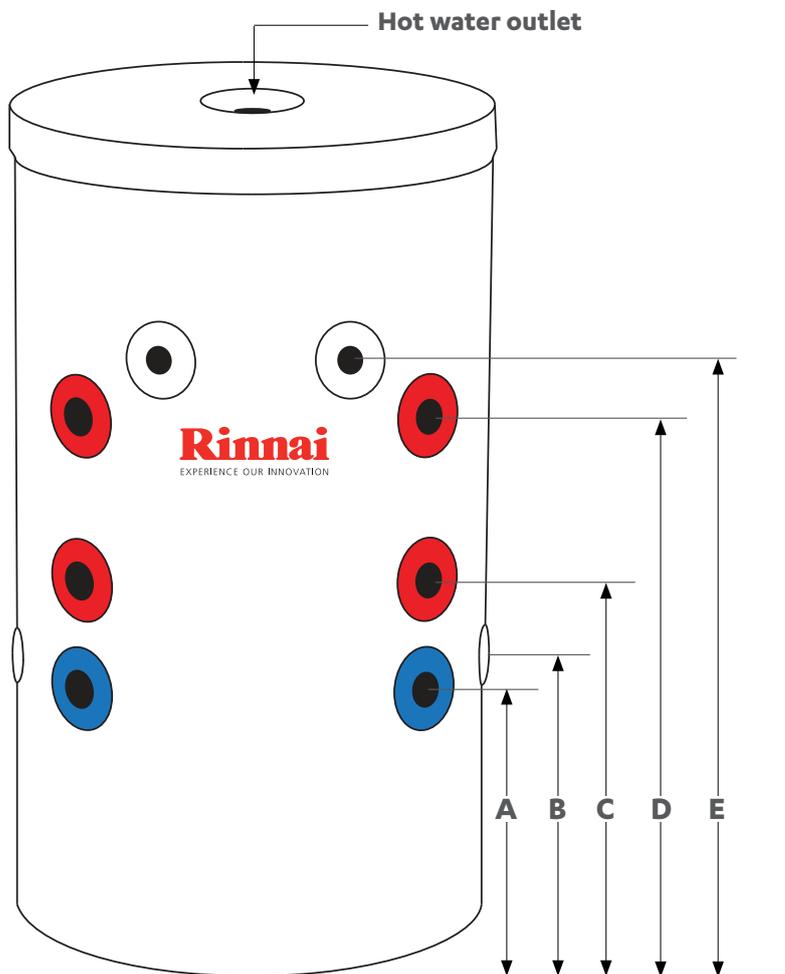
500 L: 99 kg / 599 kg
800 L: 153 kg / 953 kg
1000L: 178 kg / 1178 kg

Warranty

10 years—cylinder is warranted to a maximum temperature of 95 °C.

XL cylinders

dimensions



	Diam.	Height	A	B	C	D	E
500 L	Ø 860 mm	1820 mm	496 mm	496 mm	696 mm	1301 mm	1421 mm
800 L	Ø 1010 mm	1923 mm	557 mm	557 mm	767 mm	1347 mm	1487 mm
1000 L	Ø 1010 mm	2318 mm	557 mm	557 mm	769mm	1742 mm	1892 mm

Delivery temperatures

Must comply with G12 6.14 Safe water temperatures.

Connections and settings

Pressure limiting valve

1000 kPa (approx.)

If the water supply pressure exceeds the rated pressure a pressure limiting valve is to be fitted to the installation.

Cold water pressure relief valve

700 kPa (approx.)

Temperature & pressure relief valve (TPR)

The TPR valve is not supplied with the cylinder.

Must comply with G12/AS1:

- 6.4 Safety devices
- 6.5 Temperature control devices
- 6.6 Relief valves

Load restraint calculation

This references the section on seismic restraint, which is noted on p. 5.

NZS 4219:2009 Load restraint calculation commercial hot water storage cylinders:

Cylinder capacity	Net weight	Gross weight	Weight calculation	Load demand coefficient	Lateral force on tank
500 L	99 kg	599 kg	5.9 kN	1.80	10.56 kN
800 L	153 kg	953 kg	9.3 kN	1.80	16.81 kN
1000 L	173 kg	1173 kg	11.5 kN	1.80	20.69 kN

Load demand coefficient	
Building importance level	4
Part category	P7
Floor height coefficient (C_H)	3
Zone factor (Z)	0.6
Component performance factor (C_p)	0.85
Component risk factor (R_c)	0.25
	1.80

Water quality



XL cylinders are manufactured to suit most NZ council water supplies. However some water supplies can have a detrimental effect on the water heater, its operation, and life expectancy.

Pitting corrosion

The XL stainless steel cylinders are made from 2205 grade duplex stainless steel. This material has very good resistance to pitting corrosion with a Pitting Resistance Equivalent Number (PREN) of 35. This is a commonly used engineering indicator of corrosion resistance in stainless steel materials. The higher the PREN number the greater the resistance. In comparison 304 grade stainless, which is commonly used in domestic cookware and kitchen sinks, has a PREN number of 19. This means that XL stainless steel tanks are highly resistant to pitting corrosion, but not completely immune from it.

Pitting corrosion may occur in the form of deposit attack if the water supply has a high percentage of dissolved solids present. It is advised in areas with a high concentration of dissolved solids in the water supply that you consult with a water quality and filtration expert prior to installation.

Hard water

Hard water (containing calcium carbonate) can cause scaling on hot surfaces. Scale reducing or water softening devices should be considered in hard water areas. The unit is not guaranteed against damage due to scaling.

Water quality outside the limits (as set down below) will void this warranty. Water quality tests must be carried out at the customer's own cost but Rinnai will reimburse any reasonable test costs where water quality is within the limits tabled.

Water Quality and Impurity Limits

TDS (Total Dissolved Solids)	Total Hardness CaCO₃	Dissolved (free) CO₂	pH	Langelier Index
Up to 600 mg/L or ppm	Up to 200 mg/L or ppm	Up to 25 mg/L or ppm	6.5-8.5	Between -1.0-0.8

Most metropolitan water supplies fall within these limits. If you are unsure about water quality, please contact Rinnai and we will provide you with the details of an authorised agency able to test your water for compliance to Rinnai standards. If sludge or foreign matter is present in the water supply, a suitable filter should be incorporated in the water supply.

Some examples of water quality issues where water may need to be treated:

- Hard water (areas including Wanganui)
- Aggressive water (areas including Christchurch)
- Both hard and aggressive water (some bore water)

10 Year Limited Warranty

Rinnai XL commercial indoor storage cylinders warranty summary table

All terms of the warranty, subject to the conditions below, are effective from the date of installation. Proof of installation date will be required.

Commercial application warranty

Component	Warranty period	Warranty
All components	Up to 1 year	Replace or repair free of charge the cylinder and/or part if it fails due to faulty manufacture.
Inner cylinder	10 years	Replace or repair free of charge* the inner 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.

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

* Except for certain travel and transport costs, refer to the 'Warranty terms and conditions' (9).

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.

If the cylinder is being acquired for personal, domestic or household use, this warranty does not limit any consumer rights or guarantees that may apply under the Consumer Guarantees Act 1993. If 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

1. All terms of this warranty are effective from the date of installation. The attending service person reserves the right to verify this date.
2. All Rinnai cylinders must be installed, commissioned, serviced, repaired and removed in accordance with the manufacturer's installation instructions, local regulations, and municipal building codes by persons authorised to do so.
3. All Rinnai cylinders must be operated and maintained in accordance with manufacturer's instructions.
4. The warranty applies only to the components supplied by Rinnai. It does not apply to components supplied by others, such as, but not limited to these, isolating valves, electrical switches, pipe work, electrical cables, and fuses. Rinnai reserve the right to transfer functional components from defective water heaters if they are suitable.

5. Where the cylinder 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 reasonable access to the cylinder will be chargeable by the attending service person (for example, removal of cupboards, doors, walls, or the use of special equipment to move components, but not limited to these).
6. The cylinder warranty is for the period indicated in the summary table. Where the inner cylinder and/or part is replaced under warranty, the replacement cylinder and/or part will carry a new warranty.
7. Rinnai reserve the right to transfer functional components from defective water heaters if they are suitable.
8. Rinnai reserve the right to have the installed product returned to the factory for inspection.
9. Where the cylinder is installed outside the metropolitan area or further than 40 km from a Rinnai authorised service centre, travel costs shall be the owner's responsibility.
10. Rinnai reserves the right to replace the cylinder for another type if upon inspection it is deemed another cylinder of a different construction is more suitable.

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).

1. Accidental damage and acts of God.
2. Failure due to abuse or misuse, improper maintenance or improper storage.
3. Failure due to incorrect or unauthorised installations.
4. Failure or damage caused by alterations, service or repair work carried out by persons other than those authorised by Rinnai.
5. Where the cylinder has failed directly or indirectly as a result of poor water quality outside the limits specified.

TDS (Total Dissolved Solids)	Total Hardness CaCO₃	Dissolved (free) CO₂	pH	Langelier Index
Up to 600 mg/L or ppm	Up to 200 mg/L or ppm	Up to 25 mg/L or ppm	6.5-8.5	Between -1.0-0.8

6. Where it is found that there is no fault with the cylinder and the issue is related to the installation or is due to power failure.
7. Subject to any statutory provisions to the contrary, Rinnai does not accept:
 - a. liability for consequential damage or any incidental expenses resulting from any breach of the warranty,
 - b. claims for damage to building or any other consequential loss either directly or indirectly due to leaks or any other faults.



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