

Models: MSX0500, MSX0800, MSX1000



XL indoor commercial storage cylinders

Owner and installer guide

Rinnai

Important

Cylinders shall be installed in accordance with:

- Manufacturer's installation instructions
- Current AS/NZS 3000, AS/NZS 3500, NZS 4219
- G12/AS1, G12/AS3
- Local regulations

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).

Rinnai New Zealand Limited
105 Pavilion Drive, Mangere, Auckland
PO Box 53177, Auckland Airport, Auckland 2150

Phone: (09) 257-3800
Email: info@rinnai.co.nz
Web: rinnai.co.nz
[youtube.com/rinnainz](https://www.youtube.com/rinnainz)
[facebook.com/rinnainz](https://www.facebook.com/rinnainz)

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Installer

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

Important information



Important

All cylinders have the potential to leak water. To minimise damage, ensure that the cylinder has been installed with a suitably drained drip tray or bund, the person doing the installation is responsible for this.

Safety messages

Damaged components

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

Child supervision

Children should be supervised to ensure they do not play with any part of the hot water system.

Hot pipe work

Care should be taken not to touch the pipe work from the cylinder as this could be very hot.

Safety devices

The cylinder is supplied with a:

- Temperature Pressure and Relief (TPR) valve that ensures the water remains at a safe pressure and temperature.

Do not operate the system unless all the safety devices are fitted and are in working order. It is also important that you do not tamper or remove any of these devices.

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 require regular maintenance and servicing. To ensure longevity of your cylinder we recommend the following.

Period	What needs to be done
Every six months	TPR (temperature & pressure relief) operate the easing gear
Year five	Inspection and service the entire hot water system, including element*
Every 24 months after year five	Inspection and service the entire hot water system, including element*

* 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

This valve is located near the top of the cylinder and 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 to check that it is not blocked. As this will discharge hot water, ensure no one is near the drain line.



DANGER

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.



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.

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

To water heater



To drain line

GENTLY lift until water flows from the drain line, lower GENTLY to release

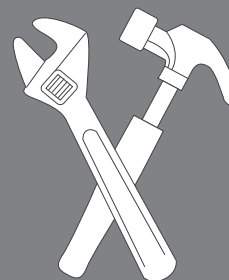
Troubleshooting

Do not attempt to carry out any work other than that mentioned in this troubleshooting section. If you have any other faults or problems, please contact your installer, or contact Rinnai.

INSUFFICIENT OR NO HOT WATER	
Excessive hot water consumption	Often people are surprised at the amount of hot water used, especially when showering. If the amount of hot water used during the day exceeds the storage capacity of the cylinder, it is likely there will be insufficient hot water.
Temperature & Pressure Relief (TPR) valve continually discharging water	<p>It is normal that this valve allows a small quantity of water to be discharged during the heating cycle. If it discharges more than a bucket of water during a 24 hour period or discharges continuously there may be another problem.</p> <p>If the valve dribbles continuously, try easing the valve gear for a few seconds as described on the previous page. This may dislodge any foreign matter and alleviate the problem.</p> <p>If the valve discharges at high flows, especially at night, it may be as a result of the water pressure exceeding the design pressure of the system. Contact your installer about fitting a Pressure Limiting Valve (PLV).</p>
NO WATER FROM THE TAP	
Restriction in the hot tap or failure of the cold water supply to the water heater	Check for water flow at the other taps and that the cold water isolation valve is fully open.
WATER FLOW FLUCTUATIONS	
One or more taps opened at the same time	<p>More than one or two hot taps in use at the same time may cause a decrease in the hot water flow.</p> <p>Is there more than one or two hot taps open, or are appliances such as a dishwasher or washing machine, in use at the same time.</p>

Installation

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



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—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.12.

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 G12/AS1 or G12/AS3 (AS/NZS 3500.4).

To aid installation

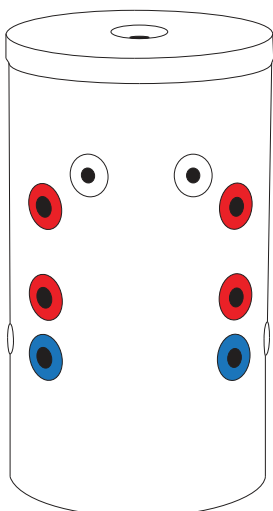
The Rinnai XL cylinders have lifting points located at the top of each unit, refer image below. To access the lifting eyes remove the top cover.



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



Specification summary



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

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

TPR (supplied)

1000 kPa, 25 mm, 132 kW

One TPR valve is supplied with each cylinder. If additional valves are required these can be ordered separately.

Rated pressures

The XL cylinders as are storage vessel are rated to the following pressures:

- Max. TPR pressure 1500 kPa*
- Max. ECV pressure 1300 kPa
- Max. PLV pressure 1000 kPa

* Suitable TPR, rated and approved to 1500 kPa would need to be sourced.

Heat loss 24 hrs @ 65 °C

500 L 3.27 kWh
800 L 4.18 kWh
1000L 5.09 kWh

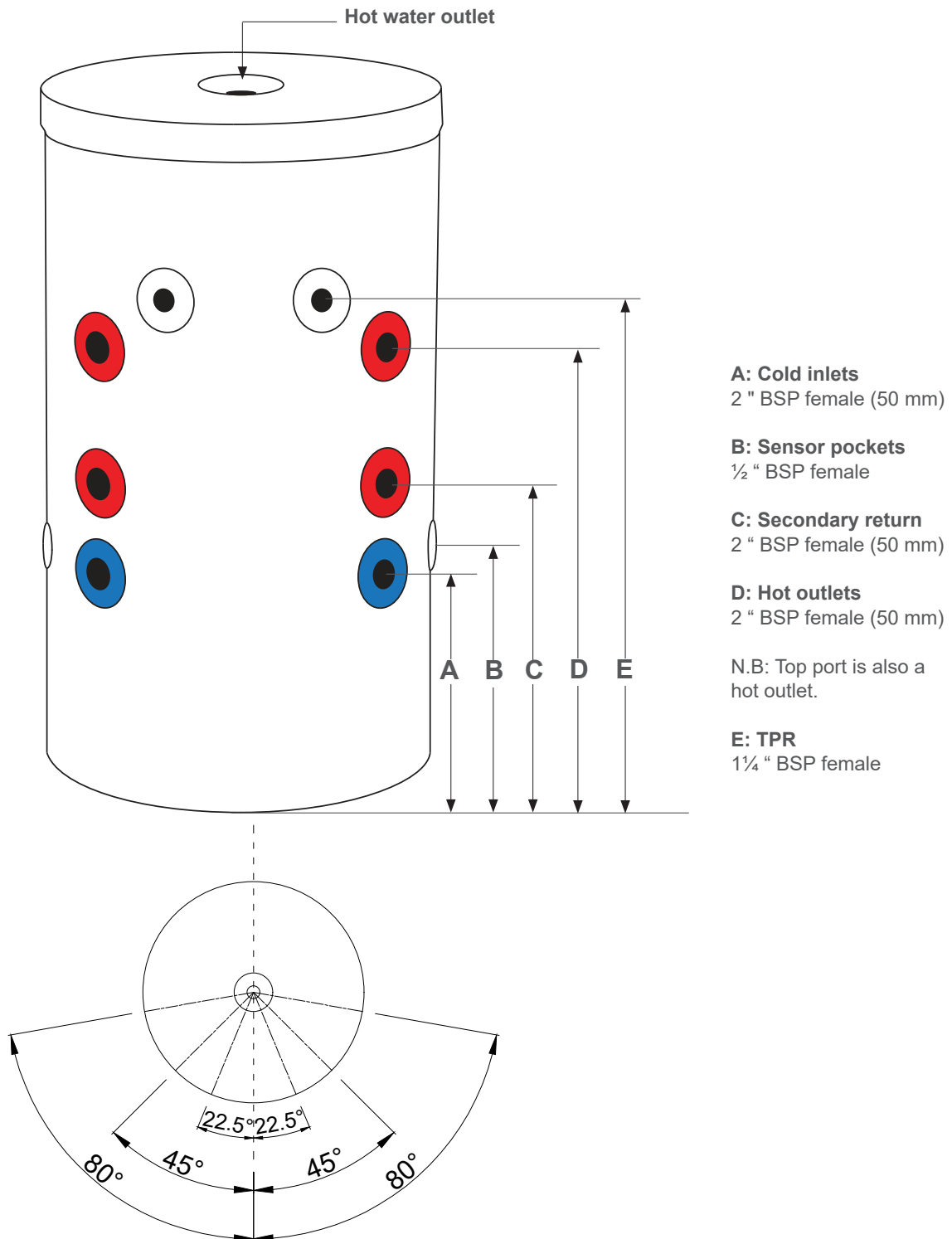
Weights empty/full

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.

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	769 mm	1742 mm	1892 mm

Delivery temperatures

Must comply with G12 6.14 Safe water temperatures.

Connections and settings

Supplied Temperature & pressure relief valve (TPR)

1000 kPa, 25 mm, 132 kW

One TPR valve is supplied with each cylinder. If additional valves are required these can be ordered separately.

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.

The water may drip from the discharge pipe of the pressure-relief device and that this pipe must be left open to the atmosphere.

A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in a frost-free environment.

Maximum TPR pressure

1500 kPa¹

Pressure limiting (reducing) valve

This water heater MUST be installed with a pressure limiting valve and appropriate cold water expansion valve. Refer AS/NZS 3500.4 Table 5.9.1 (B).

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

Maximum expansion control / cold water pressure relief valve

1300 kPa

Temperature sensor pocket

A 6 mm ID temperature sensor pocket is supplied with the cylinder. Fit this to the preferred sensor port (refer B on page 9). Plug the unused port.

¹ Suitable TPR, rated and approved to 1500 kPa would need to be sourced.

Load restraint calculation

This references the section on seismic restraint, which is noted on p.7. This portion of the calculation uses the worst case scenario, to determine the load restraint.

NZS 4219 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

Commissioning

Commissioning and draining activities must be carried out by an authorised person.

To fill and turn on the water heater

1. Open all hot water taps.
2. Open the cold water isolation valve to the water heater. Air will now be forced out of the taps.
3. Close each tap when the water runs freely without air bubbles.
4. Check all plumbing connections and pipe work for water leaks.

To drain the water heater

1. Turn off the water heater energy source.
2. Close all the hot water taps.
3. Gently operate the TPR valve, this will relieve the pressure in the water heater.
4. Open the drain valve—make sure no damage will occur from discharged water.
5. Operate the TPR valve again. This allows air into the water heater and will result in the water draining.

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.
Cylinder	10 years	Replace or repair free of charge* 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.

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 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 repairer, 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).

- 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 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)	<600 mg/L	Free Chlorine	<2 mg/L
Total Hardness CaCO₃	<200 mg/L	Manganese	<0.01 mg/L
Alkalinity	150-200 mg/L	Sodium	<150 mg/L
Dissolved (free) CO₂	<25 mg/L	Iron	<0.5 mg/L
pH	6.5-8.5	LSI¹	-1.0-0.8 @20 °C
Chlorides	<100 mg/L		

¹ Langelier Saturation index — scaling potential of water

Water quality warranty guidelines

Filtration

Where there is discolouration, foreign debris, or silt present in the water, an inline filter must be fitted into the water supply to protect the stainless steel water heater from corrosion. Particulates and deposits in hot water systems are corrosive to stainless steel and can lead to premature pitting. The filters must be periodically replaced to maintain the integrity of the system.

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.

Bore and tank water

Bore and tank water supplies should be considered to be corrosive and should be tested prior to using the system. Bore and tank water must meet the water quality parameters stated in the above table.

Rinnai.co.nz

Tel: 0800 746 624
<http://www.youtube.com/rinnainz>
<http://facebook.com/rinnainz>

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& installer guide 12997-B