

The Rinnai logo is displayed in white, bold, sans-serif font on a solid red rectangular background.

Owner's manual

Demand Duo

Continuous flow with storage backup

Customised hot water systems with 2-5 Rinnai INFINITY HD or EF commercial continuous flow gas hot water heaters.



Hello installer

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

Important:

This system shall be installed in accordance with:

- Manufacturer's installation instructions
- AS/NZS 5601 Gas Installations
- Current AS/NZS 3000, G12, AS/NZS 3500.4
- Local regulations and municipal building codes

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

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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contents:

About the Demand Duo system	4
Important	5
Maintenance and servicing	6
Maintenance and servicing schedule	7
Rinnai INFINITY error codes	8
AlphaStat-Plus thermostat error codes	9
Troubleshooting.....	10
Water quality	11
General safety.....	11
Limited Warranty	12

About the Demand Duo system

The thermostat senses the temperature of the water in the cylinder and when it drops below the set point the primary pump is activated. This flow starts the Rinnai INFINITY continuous flow water heaters, which returns heated water to the cylinder.

Reset timer

The system is equipped with a reset timer to ensure the pump does not run continuously. This may occur if the Rinnai INFINITY units do not ignite. The timer will shut off the pump every 15 minutes for a few seconds to ensure the continuous flow water heater resets itself.

Safety devices

For safe operation the cylinder component of the system is fitted with :

- Temperature Pressure and Relief (TPR) valves that ensures the water remains at a safe pressure and temperature.
- Automatic cylinder thermostat to maintain water temperature.

It is important that you do not tamper with or remove these devices. In the case of the TPR valves, do not block or seal the valve, or drain pipe.

The water heating system must not be operated unless these devices are fitted and are in good working order.

Cylinder thermostat setting

To meet the New Zealand Building code requirement¹ to disinfect water for legionella bacteria², the cylinder thermostat has been set to 65 °C.

¹ Clause G12.3.9, Acceptable Solution G12/AS1 6.14.3

² Legionella is a bacterium that can cause Legionnaires' disease—a severe form of pneumonia

Important

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

Catch pan

It is important a suitably drained catch pan (or drain system) is fitted where damage could be caused by discharge from the cylinder. This is a mandatory requirement of the installation. If damage is caused by a leaking cylinder that has not been installed with a suitable drain system the owner can seek compensation through the installer or consider claiming on insurance.

In the event of a power failure

The system will not operate without electricity. In the event of a power failure, when power is restored the water flow may need to be stopped and restarted to get the system working again.

Frost protection

Frost protection¹ is fitted as standard on all Rinnai INFINITY models. Frost protection operates automatically, as required, whenever the appliance is connected to the electric power supply.

If power has failed and there is a risk of damage from frost, turn off the gas supply to the unit and open a tap slightly to allow flow through the unit. This may prevent damage from freezing. If the system is not going to be used for an extended period and the power supply is disconnected, turn off the water and gas supply and arrange for a plumber to drain all water from the system to prevent frost damage.

Discolouration of flue outlets

The colour of the flue outlet on the Rinnai INFINITY may change over time due to condensate in the exhaust gases. This is normal. The discolouration will not damage the unit, and will not affect performance of the water heater.

¹ Frost protection turns on when the temperature inside the unit drops below 3.5 °C and switches off when the temperature reaches 7 °C. The heat inside the unit is provided by ceramic heating elements that stop the water within the pipework of the unit from freezing.

Maintenance and servicing



Hot water systems, like cars, require regular maintenance and servicing. To ensure longevity of your system we recommend the following.


Period	What needs to be done
Every six months	TPR (temperature & pressure relief) valves—operate the easing gear
Annually	Inspection and service of the entire hot water system, refer commercial maintenance and servicing schedule on the following page

Note: In hard water areas it is recommended the Rinnai INFINITY units are flushed with food grade vinegar or acetic acid to reduce lime buildup.

TPR valves

The valves are located near the top of the cylinder and are 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.

 **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.



During servicing of your system 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

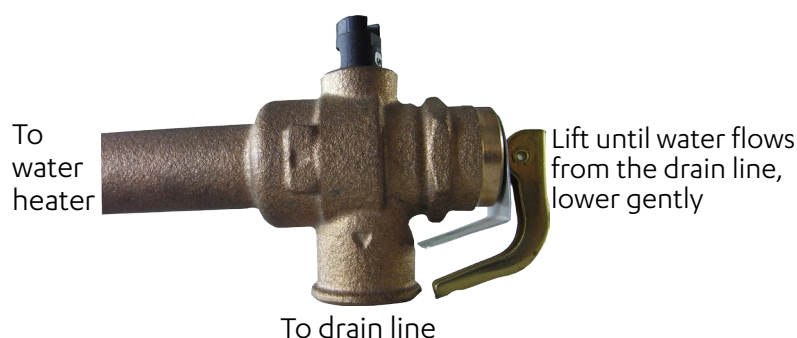
Rinnai has a maintenance, service, and spare parts network with personnel who are fully trained and equipped to give the best advice on your Rinnai product. Regular maintenance and servicing is not covered by the Rinnai warranty.

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



Maintenance and servicing schedule

Rinnai recommends the following maintenance and servicing schedule to extend the life and performance of commercial water heating systems. With multiple water heaters servicing can be carried out on individual units without shutting down the whole system.

Maintenance/servicing	Annually	5,000 hours	10,000 hours
Water filters cleaned	✓		
Error codes, hours run and ignition cycle data recorded	✓		
Burners removed and cleaned	✓		
Heat exchanger fins cleaned while burners removed	✓		
General cleaning inside case and inspection	✓		
Flame rods and ignitors removed and cleaned	✓		
Gas pressures set	✓		
TPR valves checked and replaced if necessary	✓		
Flue system inspected if internal Rinnai INFINITY units are installed	✓		
Entire system checked to ensure no nesting insects or animals are obstructing any components	✓		
Hard water areas, flush with food grade vinegar or citric acid*	✓		
Clean filters in circuit to Rinnai water heaters	✓		
Verify cylinder thermostat control of pump (ON: 65, OFF: 60)	✓		
Water flow valves replaced		✓	
Heat exchanger replaced			✓

* Process available from Rinnai if needed.

Rinnai INFINITY error codes

Troubleshooting with controllers or status monitor

Your Rinnai INFINITY continuous flow water heater has a self diagnostic capability. If a fault occurs, an error code will flash on the digital controller (if you have water controllers) or a status monitor (all commercial Rinnai INFINITY units except the HDi200 and HD250). This assists with diagnosing the fault and may enable you to overcome a problem without a service call. Please quote the code displayed when contacting Rinnai.

Common error codes	Fault	Possible solution
-	Noticeable reduction in water flow	Inlet water filter needs to be cleaned—service call.
03	Power interruption, water will not flow when power is back on	Turn off all hot water taps and press On/Off twice.
10	Air intake or flue blocked	Service call.
11	No ignition, no gas supply	Check gas is turned on at water heater and gas meter, or cylinder.
12	Flame failure, low gas flow	Check gas is turned on at the water heater and gas meter or cylinder. Check there are no obstructions to the flue outlet.
14	Overheat thermal fuse	Service call.
16	Over temperature warning	Service call.
25	Condensate trap error	Check condensate drain for blockage.
32	Outgoing water temperature sensor faulty	Service call.
33	Heat exchanger outlet sensor faulty	Service call.
34	Air temperature sensor faulty (internal models only)	Service call. Will require; checking sensor wiring for damage, measuring resistance of sensor, checking combustion fan, checking internal flue leakage, checking flue system integrity, and possibly replacing sensor.
52	Gas modulating valve faulty	Service call.
61	Combustion fan failure	Service call.
65	Water flow control faulty—does not stop flow properly	Service call.
71	Microprocessor failure	Service call.
72	Microprocessor failure	Service call.
LC	Scale build-up in heat exchanger—when checking maintenance code history, 00 is substituted for LC	Service call.

In all cases you may be able to clear the error code by turning the hot water off, then on again. If the error code remains, contact Rinnai for advice.

Troubleshooting without controllers or status monitor window

Fault	Possible solution
Unit does not start	Check power is on at the unit. Check gas isolation valve at the unit and gas meter are fully open.
Unit starts and then shuts down immediately	Check power is still on. Check gas isolation valve at the unit and gas meter are fully open.
Unit starts then water goes cold	Check power is still on. Open hot water tap fully.
Excessive temperature fluctuation while water is flowing	Service call.
Excessive noise or vibration from the water heater	Service call.

Faults caused by insufficient gas supply, insufficient water supply, gas quality, water quality, installation errors or operation errors are not covered by the Rinnai warranty.

AlphaStat-Plus thermostat error codes

Error code	Cause	Possible solution
Lo on display	Sensor below -20 °C	Check cylinder temperature
Hi on display	Sensor above 140 °C	Check cylinder temperature
SSd on display TANK light flashing	a. Wire to cylinder sensor broken b. Cylinder sensor damaged	Repair wire Replace tank sensor and/or whole thermostat
SSd on display TANK light on	a. Wire to cylinder sensor shortened b. Cylinder sensor damaged	Repair wire Replace cylinder sensor and/or whole thermostat

Repair and replacement

Do not attempt to repair the AlphaStat-Plus thermostat. In the case of a defective or improperly functioning control, the control will need to be replaced.

Troubleshooting

General system troubleshooting

What's happening	Possible cause	Explanation and/or possible solution
Delivery temperature not hot enough	No electrical or gas supplies to the heat source	Check and turn on the power and gas supplies.
	Insufficient gas	Check gas supply, availability and pressure.
	Temperature sensor has dislodged or failed	Check temperature sensor is correctly positioned and providing information to the thermostat.
	Excessive load on system	Check maximum demand does not exceed rated capacity.
	Inadequate heating circuit—pump not working properly	Check all valves are fully open.
Delivery temperature too hot	Tempering or thermostatic mixing valve malfunctioning	Service call.
	Tempering or thermostatic mixing valve malfunctioning	Service call.
Make-up water flowing continuously	Leak in cylinder and/or heating circuit.	Check for leaks.

Water quality

Water chemistry and impurity limits are stated in the detailed warranty statement (p. 14). Most metropolitan water supplies fall within these requirements.

If you are unsure about the quality of the water, please contact Rinnai and we will provide you with the details of an authorised agency who are able to test your water for compliance to Rinnai standards.



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

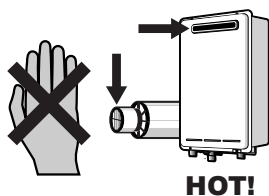
General safety

Power cords

Any power leads from the system **MUST BE** plugged into a weatherproof electrical outlet. If the power supply cord of the system is damaged it must be replaced by an authorised person in order to avoid a hazard, using genuine replacement parts available from Rinnai. Take care not to touch power cords with wet hands.



- Do not touch the unit cover or the flue outlet
- Do not insert objects into the flue outlet



Keep flammable materials, spray cans, fuel containers, pool chemicals, trees, shrubs etc. well clear of the system and flue outlet.



Limited Warranty

Rinnai warranty summary table

This warranty applies to Rinnai Demand Duo skid systems with Rinnai INFINITY HD and EF commercial units.

All terms of the warranty, subject to the conditions below, are effective from the date of installation. Proof of installation date will be required. Where the date of installation is not known or cannot be proven the warranty will commence one month after the date of manufacture.

Component	HEAT EXCHANGER		ALL OTHER PARTS	
	Parts	Labour	Parts	Labour
Rinnai INFINITY HD/EF unit	5000 hours or three years*	1500 hours or one year*	1500 hours or one year*	1500 hours or one year*

* Whichever comes first

Component	Parts	Labour
Demand Duo cylinder	Five years	One year
Pump	Two years	One year
Thermostat, controls, valves, etc.	One year	One year

For commercial applications, the water heating system must be sized and installed to written guidelines from Rinnai.

General warranty terms

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

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 commercial hot water heating systems 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 commercial hot water heating systems 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.
5. Where the hot water system 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 system will be chargeable by the attending service person (for example, removal of doors, walls, or the use of special equipment to move components, but not limited to these).
6. The hot water system warranty is for the period indicated in the summary table.
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 system 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.

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 system 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 system 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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