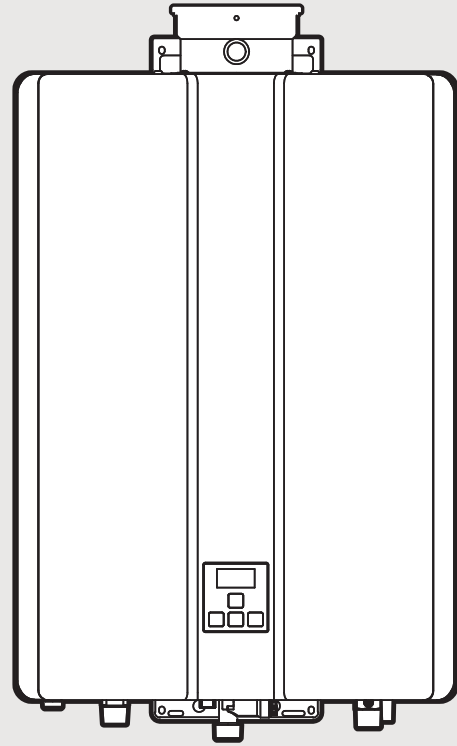
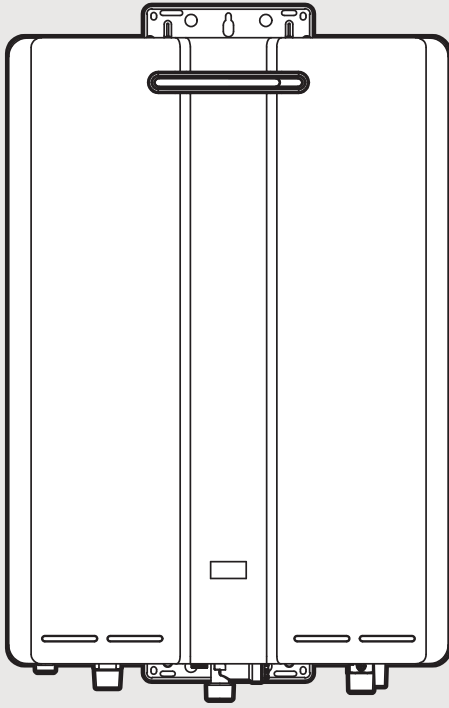


N56kWe external (REU-N3237WC-ZK)

N56kWi internal (REU-N3237FFC-ZK)



INFINITY N-Series continuous flow water heaters

Installation guide

Rinnai

Important

This appliance must be installed in accordance with:

- Manufacturer's installation instructions
- Current AS/NZS 3000, AS/NZS 3500, AS/NZS 5601.1 and G12/AS1

For use with Natural Gas or Universal LPG as indicated on the appliance.

Not suitable as a spa or swimming pool heater.

Not suitable for hydronic applications.

Appliance must be installed, commissioned and serviced by an authorised person, being in New Zealand a licensed gasfitter.

Warning

Improper installation, adjustment, alteration, service and 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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Before installation:

- Unpack the appliance and check for damage. DO NOT install any damaged items.
- Check all components and that the correct gas type has been supplied.
- Get an overview of the steps required before starting the installation. Failure to follow these instructions could cause a malfunction of the appliance. This could result in serious injury and property damage.
- These instructions apply only to the Rinnai N-Series continuous flow water heater models listed on the cover page of this guide.

Specification

Designed and made in Japan, the Rinnai INFINITY N-Series are condensing continuous flow gas hot water heaters with inbuilt frost protection. They have electronic ignition and require electricity to operate. The internal unit is a room sealed appliance.

The INFINITY N-Series units are factory preset to 55 °C. They can be preset to deliver higher temperatures, up to 85 °C, making them ideal for commercial applications.

Specification summary

- Colour Silver
- Input 16-209 MJ/h
- Output 55.5 kW
- Efficiency 97 %

Suitability

Primarily designed for commercial applications, but can be used for larger hot water capacity residential projects.

Capacity

Hot water capacity 1.5-37 litres per minute.

Nominal water capacity 32 litres per minute at a 25° rise (1920 L/h).

Connections

Hot water outlet	R ³ / ₄ (20 mm)
Cold water inlet	R ³ / ₄ (20 mm)
Gas supply	R ³ / ₄ (20 mm)
Condensate	R ¹ / ₂ (15 mm)

Exhaust system

Forced flue

Ignition system

Direct electronic ignition.

Line pressures

NG	1.13-3.0 kPa
LPG	2.75-3.0 kPa

Line pressure maximum

3.5 kPa (maximum standing pressure under abnormal intermittent conditions is 5.0 kPa). In the case of commercial metering (i.e. 35-37 kPa coming in), there may be a requirement to regulate the incoming line pressure down.

Ingress protection rating

IPX5

Power consumption

- Normal: 70 W (NG), 85 W (LPG)
- Automatic frost protection: 154 W (external), 150 W (internal)
- Standby: 2.4 W

Noise level

Internal unit: 49 dB(A)

External unit: 54 dB(A)

NOx af

Less than 50 ppm

Safety devices

- Flame failure
- Boil-dry protection
- Overheat protection (OHS)
- Fusible link
- Pressure relief valve
- Combustion fan rpm check

Water supply

Nominal operating pressure: 300-1000 kPa

Minimum operating pressure: 10 kPa

Minimum water flow: 1.5 litres per minute

Weight: 29 kg

Internal model flueing

The internal N-Series models MUST USE Rinnai flue components—use of non approved flue components will result in a dangerous installation.

The Rinnai N-Series flue system must be installed in accordance with the Rinnai flue installation manual provided with the flue kit and/or components. Refer to the flue manual for more information and flue configuration options.

Appliance location

This appliance **MUST BE** placed as close as possible to the most frequently used hot water outlet(s) to minimise the delay for hot water delivery¹. For installations where the distance between the water heater and outlets is considerable, a flow and return system can be used to minimise the waiting time for hot water delivery. Alternatively multiple appliances can be strategically placed to serve outlets with minimal delay.

An AC 230 V, 10 A earthed power point must be provided adjacent² to the appliance. This power point must be weatherproof. It must be clear of the gas and water connections to the appliance and also the flue exhaust and water pressure relief valve. The power cord of the appliance is 1.5 m long.

All appliances **MUST BE** installed to ensure access can be gained without hazard or undue difficulty for maintenance and servicing. Sufficient clearances shall allow access and removal of all serviceable components. Appliances should not be mounted more than 2.5 m above the ground or floor level unless the customer can arrange permanent and safe access, or can provide another means of safe access.

The appliance **MUST BE** mounted on a vertical structure with the water and gas connections on the underside pointing downwards.

Location of the flue terminal **MUST BE** in accordance with Section 6 and Figure 6.2 of AS/NZ 5601.

Outdoor (external) models

This appliance is designed for outdoor installations only. It **MUST BE** located above ground in open air with natural ventilation, without stagnant areas, where gas leakage and products of combustion can be rapidly dispersed by wind and natural convection.

Indoor (internal) models

This appliance is for indoor installations only. They may be installed in an enclosure if the requirements of AS/NZS 5601.1 are satisfied. An enclosure is defined as a compartment, enclosed area or partitioned off space primarily used for the installation of the appliance.

- **DO NOT** install in areas where contaminated air is present.
- Consider, before installation, where air has the ability to travel within a building.
- Where possible, install the heater in a sealed space so that it is free of contaminated indoor air.

It is important a suitable drained catch pan is fitted where damage could be caused by discharge from the water heater. Provision must be made for safe disposal of any leaking water to an external location.

This appliance **MUST BE** used with the appropriate Rinnai flue system.

¹ Rinnai recommend a maximum pipe run of 10 m.

² Power point can be within the pipe cover if a pipe cover is installed—must comply with AS/NZS Wiring rules

General installation information

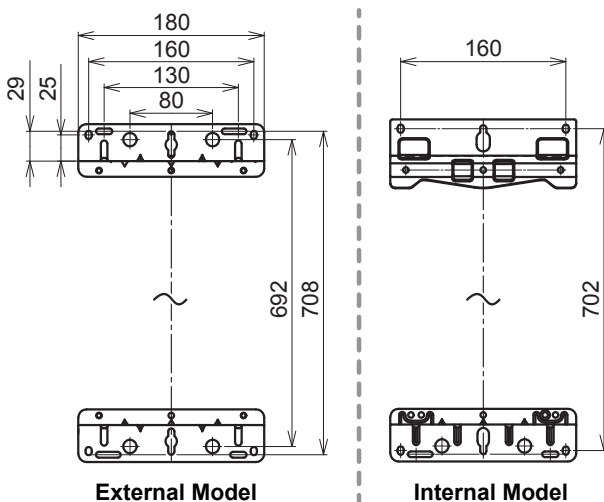
Securing the Rinnai INFINITY

The wall structure on which units are mounted **MUST BE** capable of supporting the weight of the appliance (29 kg) and associated pipe work.

Ensure that suitable fixing screws or bolts are used to secure the unit to the wall, in accordance with AS/NZS 5601 section 6. Wooden plugs shall not be used.

The top bracket has a keyhole slot so that the appliance can be positioned by hanging it on one screw. Once in position the appliance can be secured with appropriate fixings.

The appliance can be mounted directly against the wall or structure. There is no need to use non-combustible sheeting or leave an air gap between the appliance back panel and the wall or structure to meet the temperature hazard requirements of AS/NZS 5601.



Water supply

The appliance is intended to be permanently connected to the water mains.

Refer p.4 for operational water pressure limitations. Approved pressure limiting valves may be required if the maximum rated water supply pressures are exceeded. To achieve the rated flow, the minimum water supply pressures must be met.

The water heaters will operate at lower pressures but will not achieve the rated flow. Contact Rinnai for gravity fed or low pressure installations.

Water chemistry and impurity limits are detailed in the operation guide within the warranty section. Most metropolitan water supplies fall within these requirements.

If you are unsure about the water quality contact your water authority. If sludge or foreign matter is present in the water supply, a suitable filter or strainer is required in the water supply to the water heater to prevent unwarranted damage and loss of performance.

Frost protection

Frost protection operates automatically, as long as the appliance is connected to the electrical power supply, by activating when the temperature inside the unit drops below 3.5 °C¹, and turns off once the temperature inside the unit reaches 7 °C¹.

¹ Approximate temperatures

Pipe sizing

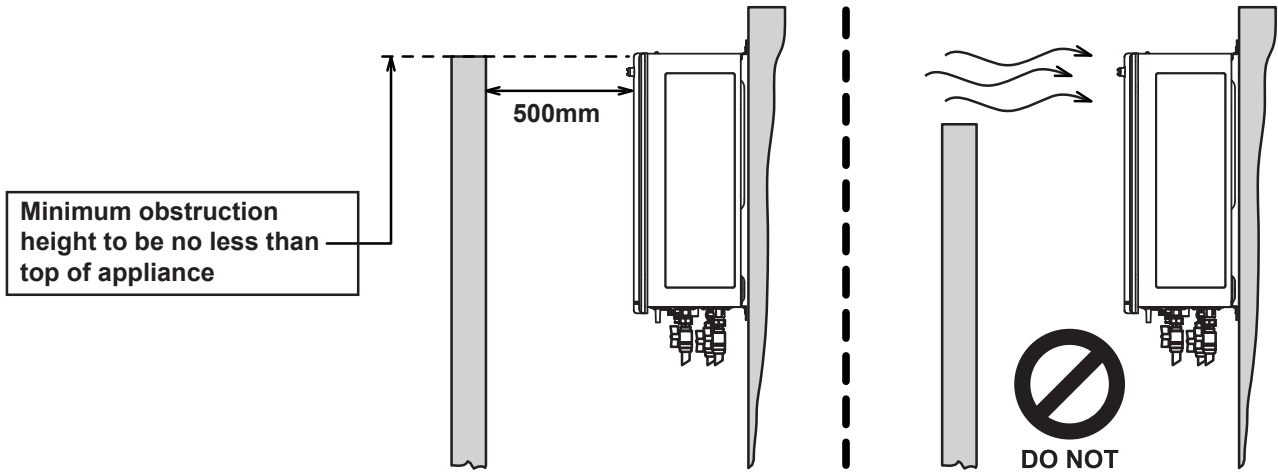
If the gas pipe sizing is insufficient the appliance won't perform properly. Gas pipe sizing must consider the gas input into this appliance as well as other gas appliances in the premises. The gas meter and regulator must be specified for this gas rate.

An approved sizing chart such as the one in AS/NZS 5601 should be used. Refer p. 4 for gas consumption details.

Water pipe sizing and layout should be performed in accordance with AS/NZS 3500. All hot water pipe work should be insulated to optimise performance and energy efficiency.

External unit - horizontal obstructions

AS/NZS 5601 states a minimum horizontal clearance of 500 mm between a building structure and obstruction facing the terminal. At 500 mm the obstruction needs to be the full height of the unit, as shown below, and not a partial obstruction. A partial obstruction of less than 1 m could result in wind pushing the flue gases back into the flue terminal.



There **MUST** be **NO** partial obstructions to the appliance front cover or any other part of the appliance casing. This will avoid the appliance from failing to operate under windy conditions.

Water delivery temperature

Requirements of AS/NZS 3500 MUST BE considered regarding the temperature limitations of hot water supplied to areas used primarily for personal hygiene. The temperature of these areas may be limited to 55 °C or less.

If the appliance is to deliver water primarily for the purposes of personal hygiene in an early childhood centre, school, nursing home or similar facility as defined in AS/NZS 3500.4, a Temperature Limiting Device (TLD), such as a tempering valve may be required, even if the appliance is set to 55 °C or less. For these types of applications contact Rinnai.

Requirements for Rinnai INFINITY units installed without controllers

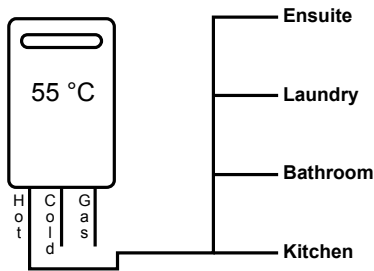


Diagram 1 - 55 °C Appliance

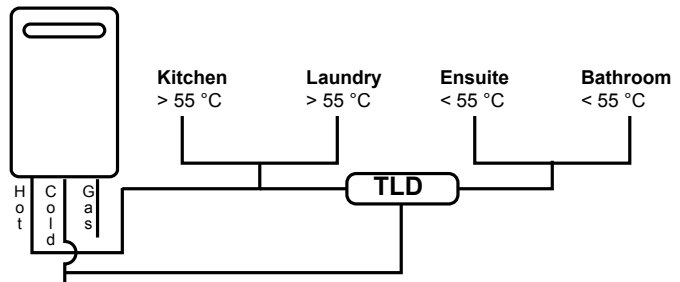
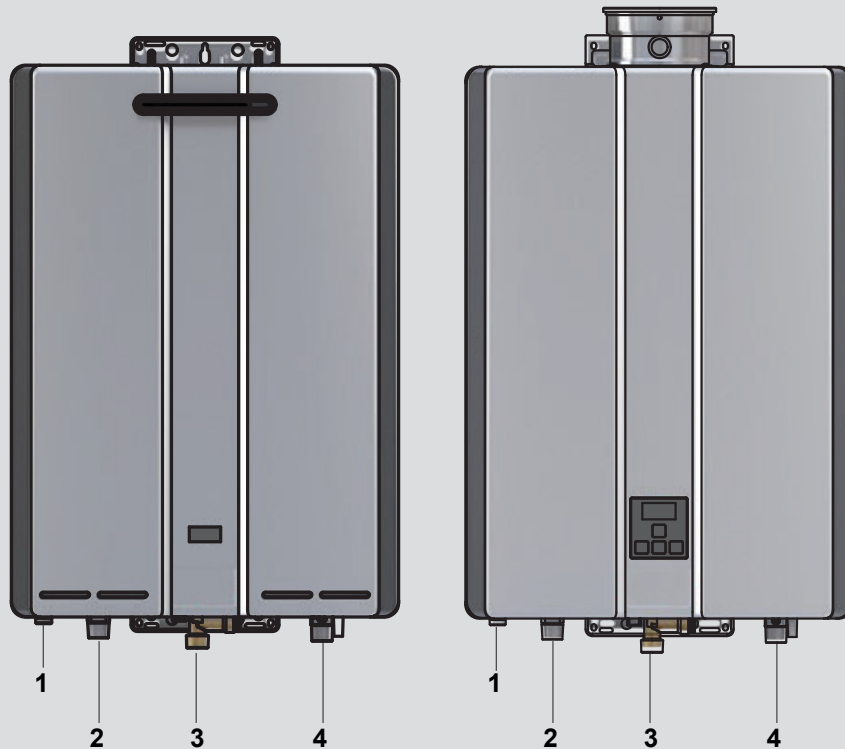


Diagram 2 - Not a 55 °C Appliance
(TLD = Temperature Limiting Device)

When the Rinnai INFINITY is set to deliver water at a temperature higher than 55 °C, it will be necessary to fit a Temperature Limiting Device for delivery to areas used for the purposes of personal hygiene.

Connections and fittings



1. Condensate connection

From centreline	196 mm
From wall	135 mm
From bottom of unit	24 mm

3. Cold water connection

From centreline	10 mm
From wall	91 mm
From bottom of unit	54 mm

2. Hot water connection

From centreline	130 mm
From wall	157 mm
From bottom of unit	41 mm

4. Gas connection

From centreline	142 mm
From wall	72 mm
From bottom of unit	45 mm

Model	Gas consumption MJ/h	Water Supply kPa		Weight kg	Fittings			Cond.
		Min.	Max.		Hot	Cold	Gas	
N56kWe (external) REU-N3237WC-ZK	16-209	300	1000	29 kg	R ³ / ₄ (20 mm)	R ³ / ₄ (20 mm)	R ³ / ₄ (20 mm)	R ¹ / ₂ (15 mm)
N56kWi (internal) REU-N3237FFC-ZK	16-209	300	1000	29 kg	R ³ / ₄ (20 mm)	R ³ / ₄ (20 mm)	R ³ / ₄ (20 mm)	R ¹ / ₂ (15 mm)

Service connection points

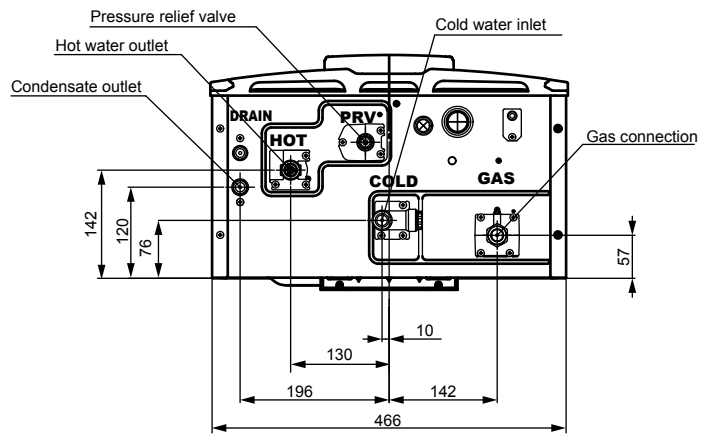
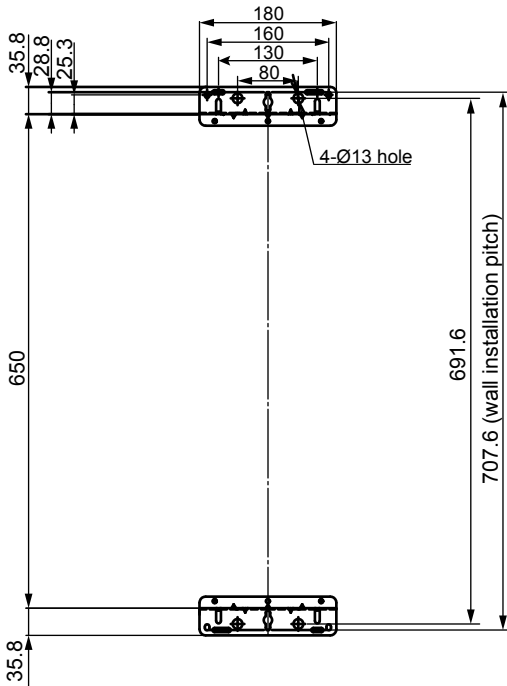
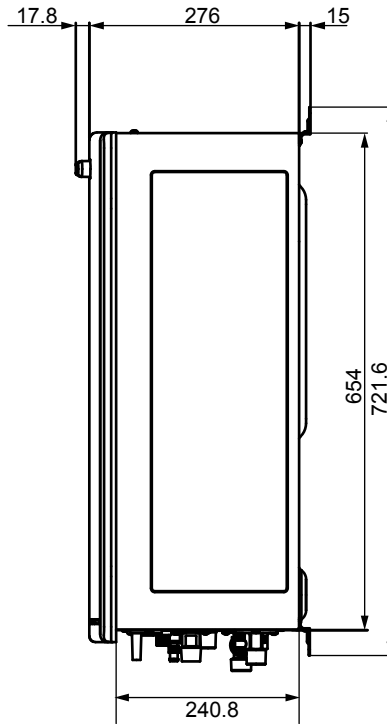
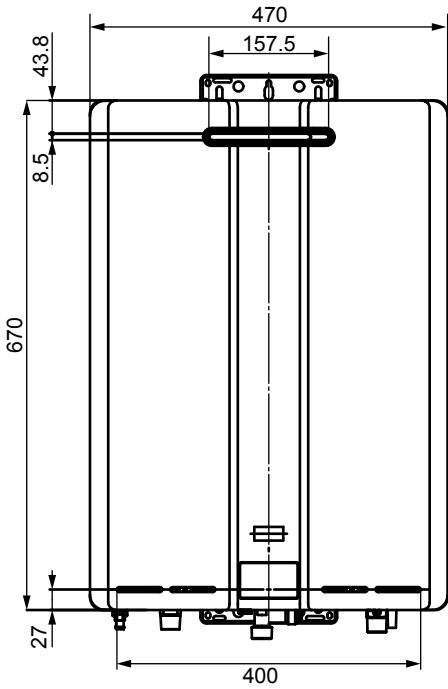
An approved full flow isolation valve and disconnection union **MUST BE** fitted to the cold water inlet. A non-return valve is not required unless required by local regulations.

Isolation valves **MUST NOT** be fitted directly to the appliance.

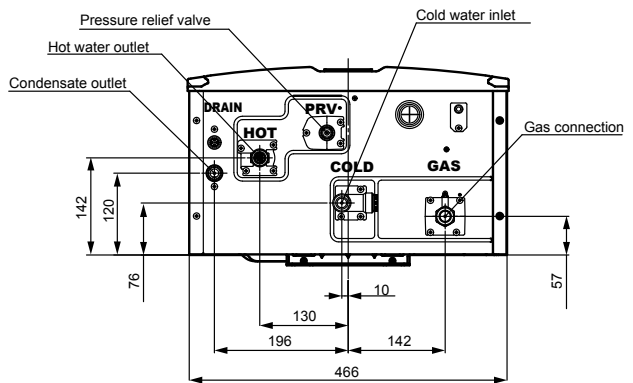
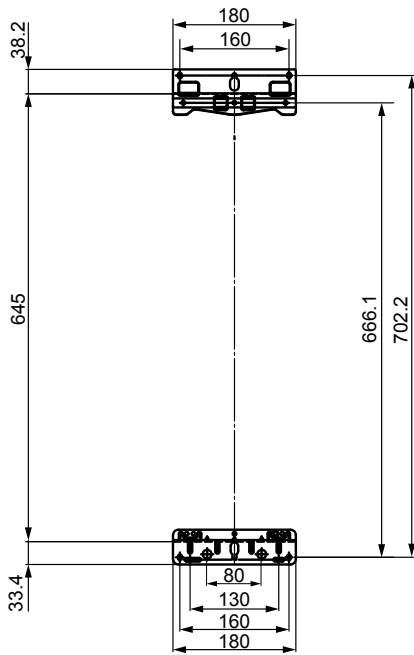
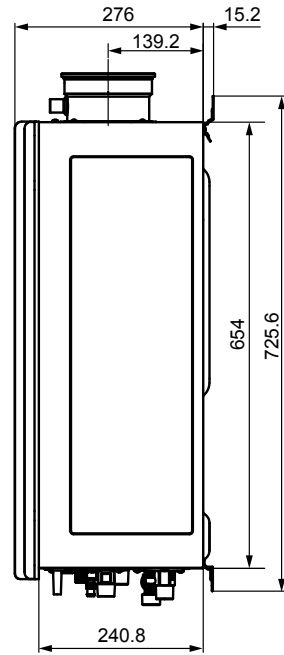
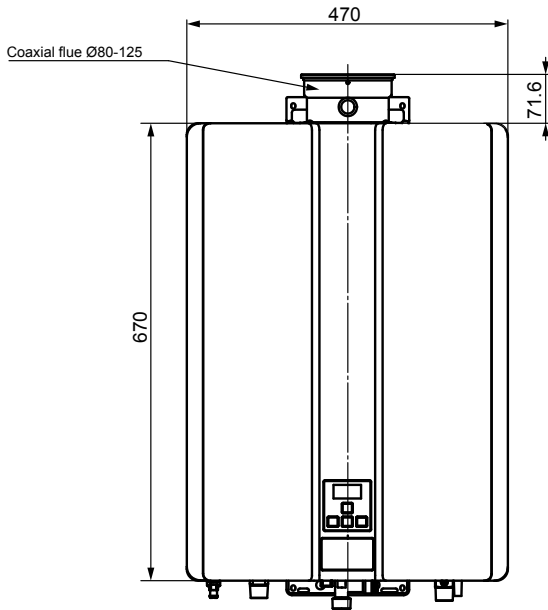
It may be necessary to fit a temperature limiting device for delivery to areas used primarily for the purposes of personal hygiene, refer previous page for 'Water delivery temperature' information.

Purge gas and cold water supply lines to remove air and swarf before final connection. Swarf in the gas or water supplies may cause damage, a common problem, which is not covered by warranty.

Dimensions - N56kWe (external)



Dimensions - N56kWi (internal)

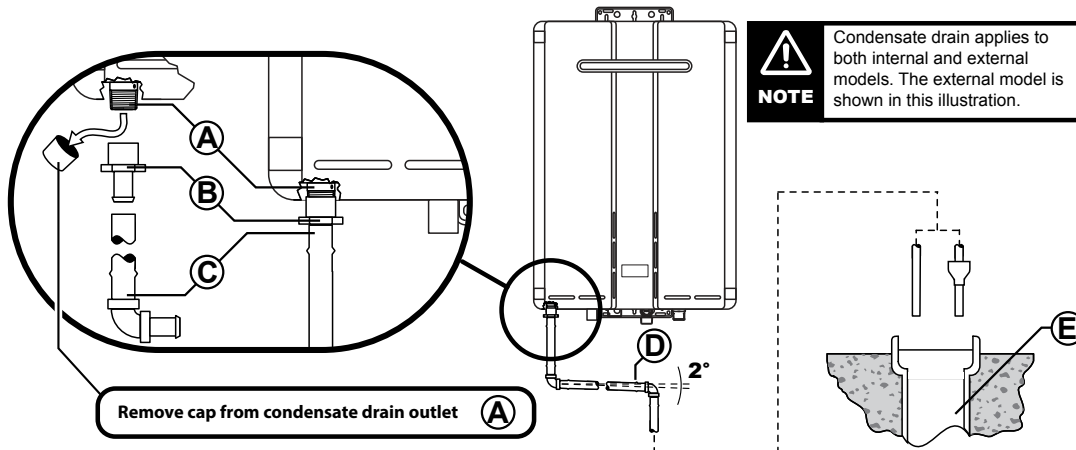


Condensate

The Rinnai INFINITY N-Series water heaters generate condensate continuously at a rate of up to 5 litres per hour as a by-product of a highly efficient gas burner. This condensate must be drained via a pipe to a suitable point of discharge. As condensate is a by-product of gas combustion it is mildly acidic. For this reason copper tube **MUST NOT** be used as it will corrode. Instead Rinnai recommend plastic pipes and fittings.

Important considerations for the condensate drain pipe

The content of AS/NZS 3500 'Temperature / Pressure Relief and Expansion Control Valve Drain Lines' has been used as a guide in preparing the information below.



A. Water heater drain outlet connection, R $\frac{1}{2}$ " (15 mm) BSP male. Condensate drain outlet connection, $\frac{1}{2}$ " (15 mm) BSP male nylon.

N.B: The black plastic shipping cap **MUST BE** removed from the condensate drain outlet prior to water heater operation.

B. PE R $\frac{1}{2}$ " BSP (15 mm) female to barbed irrigation system connector (13-19 mm) or equivalent plastic fitting¹.

C. Drain pipe and fittings to match B.

D. Continuous fall of at least 2° from water heater to discharge point. Lengths and bends in accordance with the table below.

Lengths and changes of direction				
Max. length (m)	9	8	7	6
Max. changes of direction greater than 45°	3	4	5	6

E. Suitable points of discharge are deemed to be drains, sewers or pits. **DO NOT** discharge onto electrical connections, earth stakes, copper pipes, concrete paths or into a pond.

Installation

The drain line **MUST NOT** discharge onto electrical connections, earth stakes, copper pipes, concrete paths or into a pond.

The point of discharge from each drain line shall be located so that the release of condensate does not cause a nuisance, is readily discernible and incurs no risk of damage to the building.

There shall be no tap, valve or other restrictions in any line.

Each line shall fall continuously from the valve to the approved point of discharge.

Drain lines shall not discharge into a storage water heater safe tray.

The end of the condensate line shall be:

- Not lower than 200 mm or higher than 300 mm above an unpaved surface; or
- Not lower than 75 mm, or higher than 300 mm above a gravel pit not less than 100 mm in diameter in a paved surface.
- Where discharging over a tundish or gully trap, drain lines shall have an air gap of a size at least twice the diameter of the drain line.

¹ Non-PE plastics will fail over time due to contact with the acidic condensate. Damage caused by installation of non-PE plastics will not be covered by warranty.

Interconnection of condensate drain lines

Condensate drain lines from multiple water heaters may be joined together provided they conform with the requirements detailed on the previous page.

Common stack discharge

Where individual water heaters are installed in a multi-storey building, the condensate drain lines may discharge into a common stack, subject to the following:

- The discharge from the common stack is to a tundish, having a discharge line, that is not less than the size of the common stack, directly connected to a fixture trap, and installed in connection with any adjacent soil or waste stack.
- The discharge point of the common stack is such that any discharge is readily visible and will not cause any nuisance.
- The common stack is vented by extending the pipe upwards, above the roof level.

Tundish drain lines

The drain line from any tundish shall not be less than DN 20 or less than one size larger than that of the largest drain line discharging into a tundish. Tundish drain lines shall comply with the requirements detailed on the previous page.

Areas subject to freezing

In areas where water pipes are prone to freezing, the drain pipe from any valve shall be insulated and not exceed 300 mm in length. It shall discharge into a tundish through an air gap of not less than 75 mm and not more than 150 mm measured from the outlet of the drain pipe to the rim of the tundish.

Commissioning

AS/NZS 5601.1, clauses 2.6.8 and 6.11.2, states that every part of a gas installation shall be commissioned prior to initial use. It is the installer's responsibility to ensure all current AS/NZS 5601 requirements are met. The URL's provided are links to short videos on how key steps are performed.



The appliance operation must be tested after installation. Ensure the building occupants do not have access to the hot water outlets during this procedure.

Please note

The Rinnai INFINITY N-Series comes with a factory preset outlet temperature of 55 °C. Also preset are the regulator and solenoid. **DO NOT ADJUST** the regulator/solenoid valve of the appliance, as it is factory preset and electronically controlled and so **DOES NOT** require ANY adjustment. **DO NOT** change the gas type. The gas type **MUST** be the same as that found on the appliance labelling. If the gas type differs to that shown on the appliance, **DO NOT** proceed and contact Rinnai.

Inlet supply pressure to the appliance **MUST BE** checked and set within the operating parameters of the appliance in all instances.

If the appliance can not be adjusted to perform correctly call 0800 RINNAI (0800 746 624) for assistance.

Steps to commissioning a Rinnai INFINITY water heater

- 1 Flush water pipes and gas line**
Before final connection of the water heater, flush the gas, hot and cold water supply lines. Swarf in the gas or water supplies may cause damage, a common problem, which is not covered by warranty.
- 2 Connect the gas line**
- 3 Purge the gas line of air**
- 4 Final connection test**
- 5 Check supply pressure**
Operate ALL other gas appliances at their maximum rate. With all gas appliances on maximum the supply pressure must read between 1.13-3.0 kPa on Natural gas and on LPG 2.75-3.0 kPa.

If the pressure is lower, the gas supply is inadequate and the appliance will not operated to specification. It is the installer's responsibility to check the gas meter, service regulator and pipe work for correct operation and sizing, and rectify as required.
- 6 PCB settings checked**
Refer p.16 for PCB interface layout and functions.

PCB settings checked against parameters listed in the commissioning sheet.
- 7 Operate and check for gas leaks**
Replace the appliance front cover otherwise the unit won't operate correctly, operate and test for gas leaks using an electronic leak detector.

8 Operational test—water flow and temperature at the hot water outlets

Confirm the hot water delivery temperature using a thermometer.

If water controllers are fitted, it is necessary to test their operation through the complete range of functions, refer separate instructions provided with the water controllers.

9 Check cold water inlet filter

Inspect and clean the water inlet filter. This may need to be repeated to ensure the filter remains clear, especially on new installations.



Short video: <http://rinnai.co.nz/006>

If you feel the customer is capable of doing this check it would be beneficial to show them how to inspect and clean the water filter as well.

10 Customer handover

After testing is completed, explain to the customer the function and operation of the water heater and water controllers (if fitted).

Also talk to them about:

- The gas, power, and water connections
- How frost protection works
- Procedure for draining the water heater
- Where to find the data plate
- Maintenance and servicing

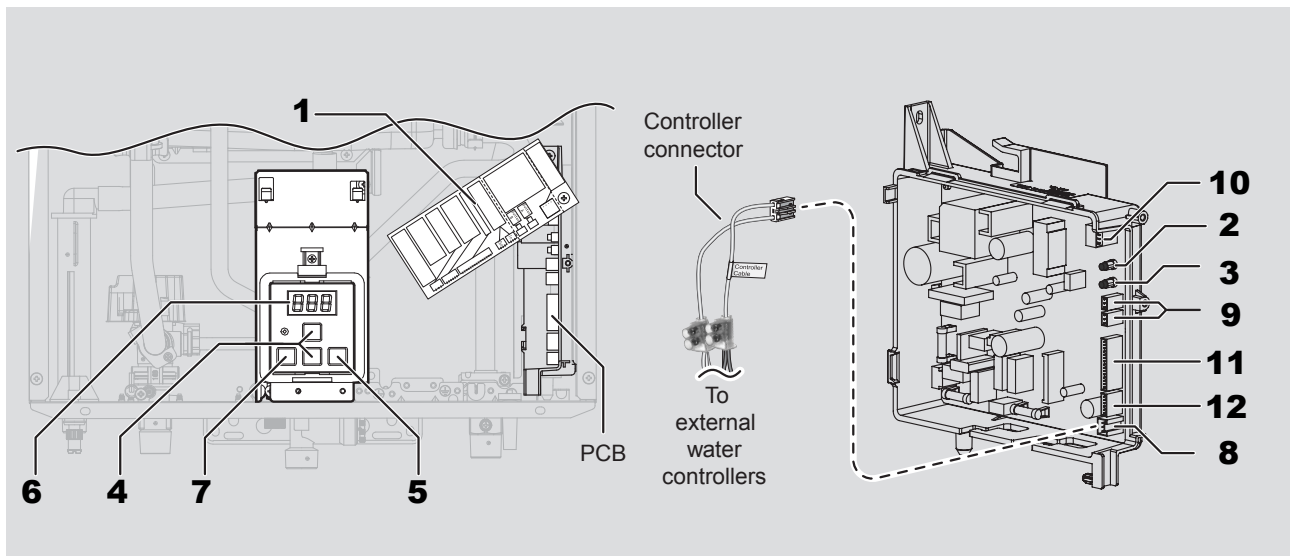
If the customer is not there try and contact them by phone to discuss these important points.

Ensure the installer details section is completed in the operation guide, the commissioning checklist has been completed and signed, and that the guide and checklist are left with the customer.

PCB interface and functions

Rinnai N-Series water heaters are fitted with a mounted control module that is connected by a dedicated wiring harness to the PCB. The control module cannot be removed or relocated externally.

When the water heater is placed into programming mode the control module becomes the programming interface. For internal models a cutout is provided in the appliance cover, which allows access to the control module by the end user. When not in programming mode the control module has the same functions as the Compact controller. For external models there is no cutout in the appliance cover (no access for the end user). When not in programming mode the control module acts as a 'status monitor' for the appliance.



- | | | |
|-----------|--|--|
| 1 | Plastic PCB cover (PCB interface layout guide) | Can be rotated to gain access to PCB (DO NOT REMOVE) |
| 2 | Push button A (PB-A) | Mode button, places the PCB into programming mode |
| 3 | Push button B (PB-B) | DO NOT USE (PCB transfer or combustion setting mode) |
| 4 | Up/down buttons | Menu button, cycles through available menu options—refer commissioning sheet |
| 5 | On/Off button | Value button, cycles through available menu values—refer commissioning sheet |
| 6 | LED digital display | Displays menu and values |
| 7 | Priority button | DO NOT USE (Change priority to another remote controller) |
| 8 | Accessory port (controllers) | Used for connecting additional controllers |
| 9 | Accessory ports (in/out) | Cascade cable connection |
| 10 | Communication interface socket | Data transfer—commercial use only |
| 11 | Control module socket | Connects PCB to the control module via dedicated wiring harness |
| 12 | Accessory port | EZ Connect connection |

Water controller installation

The maximum number of controllers that can be fitted to an N-Series water heater is **three**, refer water controller configurations section below.

General information

Other manufacturers water controllers are NOT compatible with Rinnai water heaters. Water controllers MUST NOT be used with any solar boost water heater. Rinnai water controllers bought in from other countries are not compatible with Rinnai appliances sold in New Zealand.

Water controllers and transceivers (for those with wireless controllers) DO NOT contain serviceable parts and must only be serviced by an authorised person.

Master controller

Only one master controller can be designated as a 'master' water controller. This water controller is normally used in the kitchen. The remaining controllers are 'sub-controllers' and are for use in bathrooms, toilets, and laundries. The temperature limit for all sub-controllers is 50 °C, this is a safety feature, to reduce the risk of burns in these areas. A master controller MUST NOT be installed in a bathroom.

Water controller configurations

- A maximum of three Compact controllers (MC-601) can be fitted.
- Only one master controller can be installed. This can be a Kitchen Deluxe¹ (MC-100V), or any other Compact controller (MC-601).

¹ When a Kitchen Deluxe controller is fitted, it will always function as a master controller, this is the default setting and cannot be changed.

- In addition to a master controller, up to two additional controllers can be fitted

Controller location

- Do not install water controllers near a heat source, such as a cook top, stove or oven. Heat steam, smoke, and hot oil may cause damage.
- Do not install water controllers outdoors unless protection from water/dust ingress and sunlight are provided.
- Do not install water controllers in direct sunlight.
- Do not install water controllers against a metal wall unless the wall is earthed in accordance with AS/NZS 3000.
- Water controllers must not be installed where chemicals such as benzene, alcohol, turpentine, hydrogen sulphide, ammonia, chlorine or other similar chemicals are in use.

The water controller is water resistant, however excessive exposure to water may result in damage. Durability is improved when positioned OUTSIDE the shower recess.

- Avoid direct exposure to water or steam as these may cause the controller to malfunction.
- Water controllers must be installed in shaded and clean locations. They should be fitted out of reach of children (suggested height 1.5 m from the floor), and installed at least 400 mm above the highest part of a sink, basin or bath.

When cleaning your water controller use only a damp cloth and mild detergent.

Communication cables

Wired water controllers operate at an extra low voltage (12 V DC), which is supplied from the water heater. A 10 m long communication cable is supplied for connection to the water heater. Only Rinnai supplied communication cables may be used.

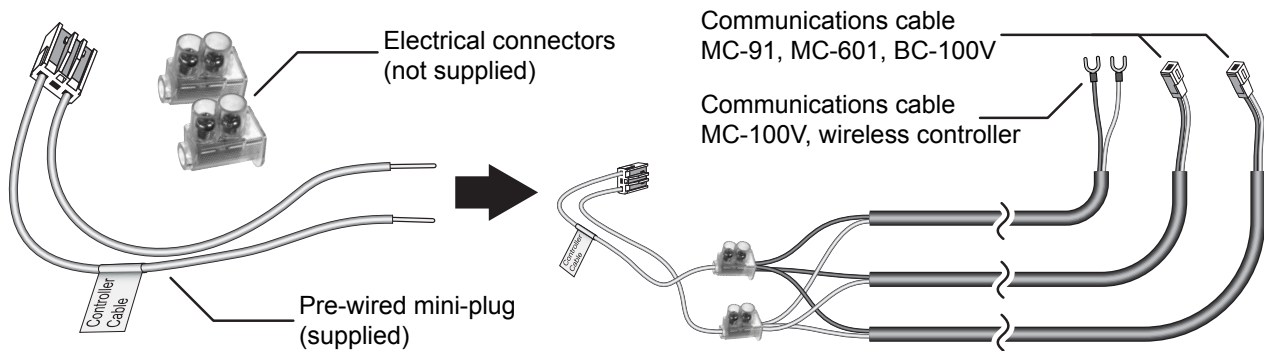
Connecting communication cables to the mini-plug



DO NOT attempt to connect water controller cables to the mini-plug when it is plugged into the PCB unless the power to the water heater is switched OFF, otherwise damage to electrical components may occur.

Water controllers are connected to the PCB by a dedicated pre-wired mini-plug.

Standard electrical cable connectors can be used to terminate the water controller wires to those on the mini-plug. The existing spade connectors, of the communication cables, will need to be removed prior to termination. Controllers are not polarity sensitive, however to avoid confusion it is recommended that like coloured wires be terminated together.

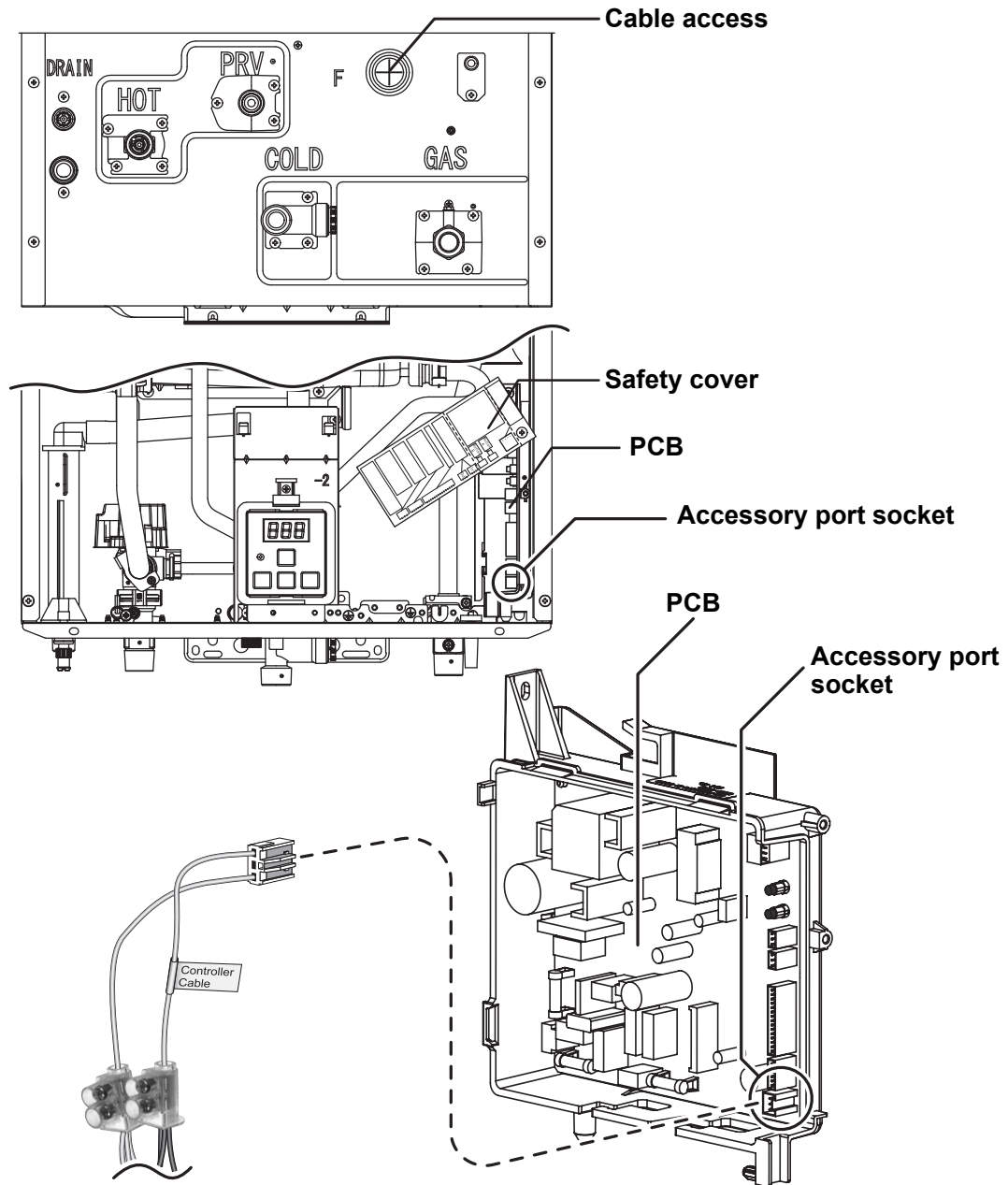


Connecting communication cables to the PCB (refer image on next page)

DO NOT attempt to connect the mini-plug or water controller cables to the water heater unless the power to the water heater is switched OFF, otherwise damage to electrical components may occur.

1. Isolate the power supply by switching the power point off and removing the water heater plug from the power socket.
2. Remove the front cover of the appliance.
3. Insert the mini-plug and the connected water controller cables through the cable access at the base of the appliance. Ensure the cable connectors are located inside the appliance for protection.
4. Locate the PCB (bottom right of the appliance), and carefully rotate the plastic safety cover out of the way.
5. Locate the accessory port socket (bottom front of PCB).
6. Plug the mini-plug into the accessory port socket, the plug and socket are keyed so that they can only be plugged into the one direction).
7. Proceed with the water controller installation and connect the communication cables to the controllers.

Connecting communication cables to the PCB



Rinnai.co.nz

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

Installation guide



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