

**Rinnai**

# Installation guide

---

# Evolve 950<sup>TM</sup>

Models: RHFE950ETRN/RHFE950ETRL



## Important:

Appliance must be installed with a Rinnai approved flue system.

This appliance shall be installed in accordance with:

- Manufacturer's installation instructions
- AS/NZS 5601 Gas Installations
- 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).

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](mailto:info@rinnai.co.nz)  
Web: [www.rinnai.co.nz](http://www.rinnai.co.nz)  
[www.youtube.com/rinnainz](http://www.youtube.com/rinnainz)  
[www.facebook.com/rinnainz](http://www.facebook.com/rinnainz)

# contents:

Before you start .....	4
Specification.....	5
Gas supply .....	6
Electrical supply .....	6
Wall penetration.....	7
Framing dimensions .....	8
Clearances.....	9
TV installation.....	10
Flueing options.....	11
Evolve 950 installation overview .....	12
Connect flue system.....	13
Install heater into enclosure.....	14
Removing and replacing the glass panel .....	15
Install burn media - log set.....	16
Install burn media - stones .....	18
Commissioning .....	20
Install inner and outer frame .....	21
Test operation and lighting sequence.....	22
Wiring diagram .....	23

# Before you start

Unpack the appliance and components and check for damage. DO NOT install any damaged items. Check all components have been supplied and that you have the correct gas type.

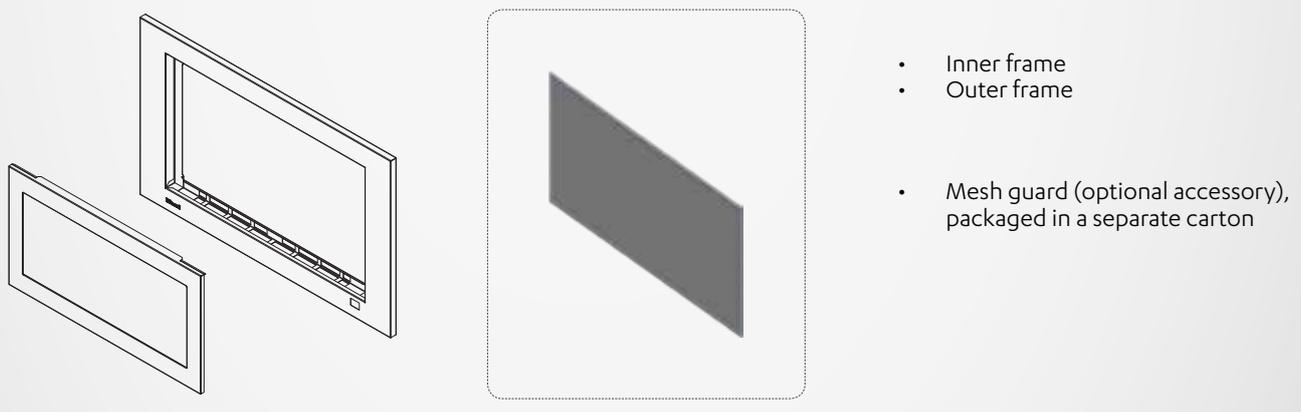
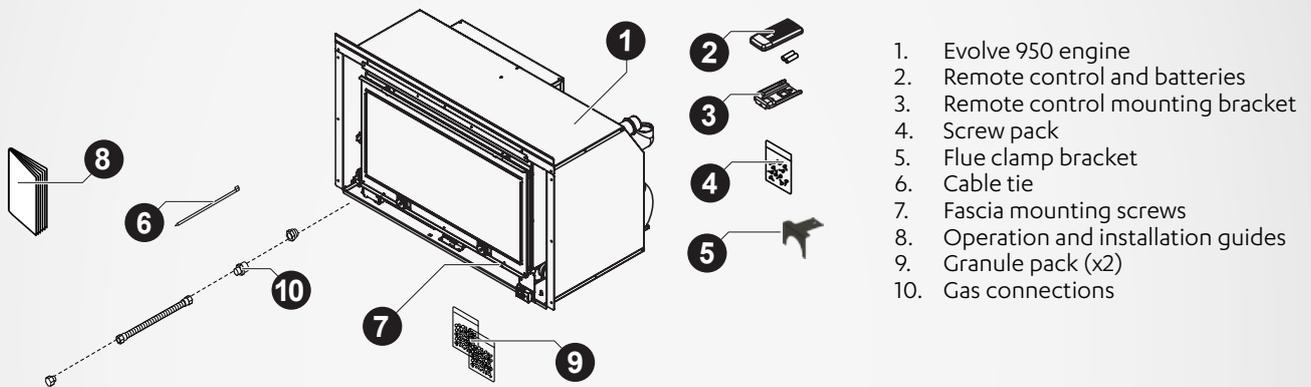
Read these instructions to get an overview of the steps required before starting the installation. Failure to follow these instructions could cause a malfunction of the appliance. This could result in serious injury and/or property damage.

## Flue installation guide

These instructions are to be used in conjunction with the Rinnai Arriva and Evolve flue installation guide supplied with the flue kits.

## Carton contents

The components for the Evolve 950 are supplied in three separate cartons (four if a mesh guard is purchased). Ensure all the components are supplied before starting the installation.



# Specification

## Evolve 950™

### Specification summary

Input	= 10-34 MJ/h
Output	= 2.4-8.13* kW
Efficiency	= 86% (on high)
Heating area	= 82-125 m <sup>2</sup> **
Gas type	= NG or ULPG

Inbuilt exhaust balance flued convection flame fire with electronic temperature control, timer and remote.

### Suitability

Ideal for living rooms and open plan areas. Versatile power flue system makes for easy installation in almost any living space, including bedrooms.

The Evolve is ideal for a new build installation into a false (mock) chimney.

### Data plate

Located inside the appliance, upper right hand side.

### Convection fan

2-speed centrifugal, double diameter 160 x 180 mm.

### Gas connection

½" BSP, the gas supply terminates inside the heater—lower left hand side of the appliance.

### Ignition

Continuous spark electronic ignition.

### Installation considerations

Room size—smaller rooms will heat up quickly, and due to the efficiency of the appliance, the heater (if auto off is selected) will turn to a low flame setting once the set temperature has been reached.

### Noise level - 37-45 dB(A)

### Power flue

Inner 50 mm, outer 70~80 mm. Appliance must be installed with a Rinnai flue system.

### Power consumption and electrical supply

High	= 160 W
Standby	= <8 W

This heater has a 1.5 m power cord with a three pin plug supplied. The power cord passes through a slot in the back right hand corner of the appliance.

### Safety devices

Flame failure sensing system, pressure relief, overheat safety switch, air temperature sensor, thermal fuse, overcurrent fuse, and spark detector.

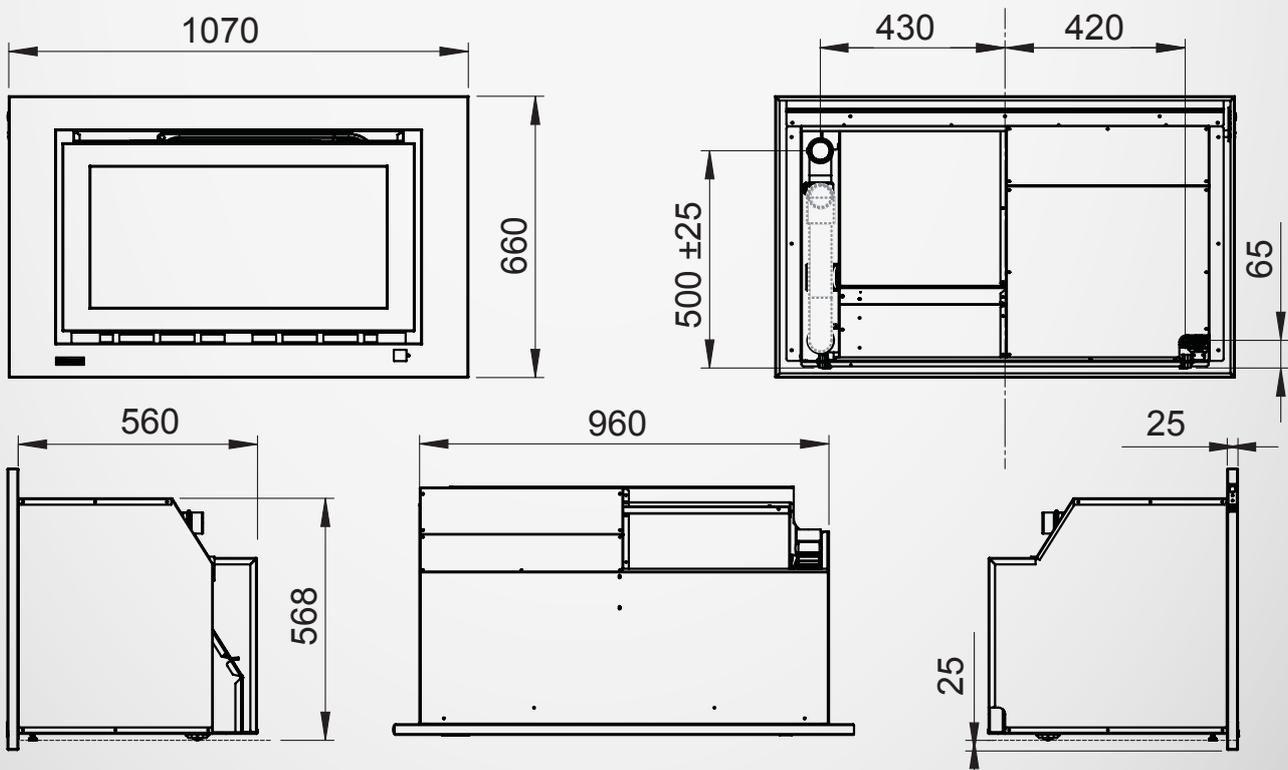
### Temperature control

Thermostatic, temperature control range 16-26 °C.

### Weight - 75 kg

\* Will vary according to gas type and flue configuration \*\* Will vary depending on geographical location in NZ

Dimensions are in mm.



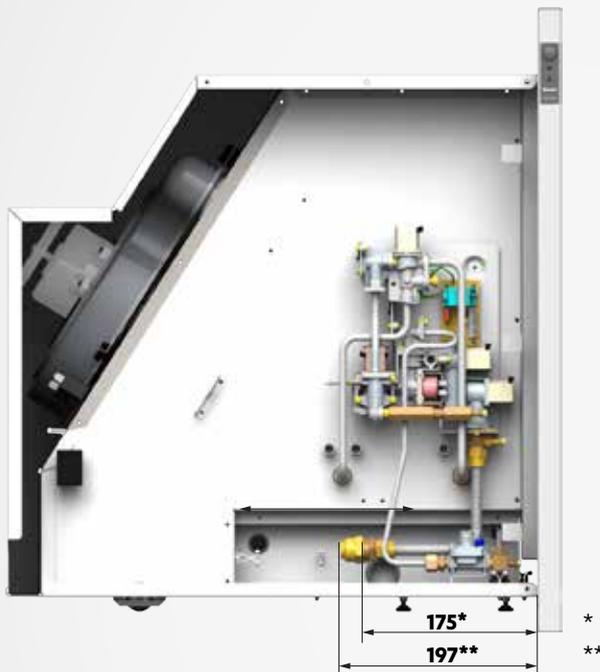
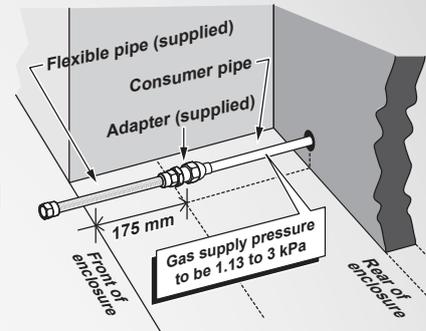
# Gas supply

Gas pipe sizing must consider the gas input to this appliance, as well as other gas appliances in the premises. The gas supply termination is inside the heater, and enters from the lower left hand side of the appliance.

To ensure correct positioning terminate the gas supply so it is 175 mm in from the front face of the enclosure opening.

## Purging the gas supply

Foreign materials and debris such as swarf, filings etc. must be purged from the gas supply. Failure to do so may cause damage to the control valve causing it to malfunction.

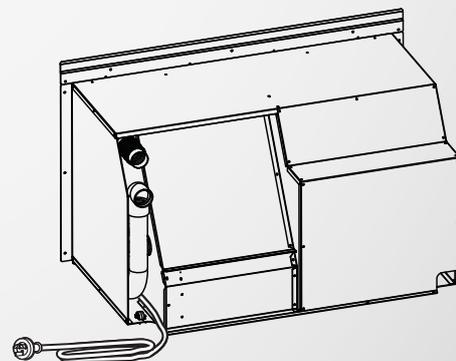


\* Where copper pipe ends  
\*\* With RNZ supplied adaptor

# Electrical supply

This heater has a 1.5 m power cord with a three pin plug supplied. The power cord passes through a slot in the back right hand corner of the appliance.

Rinnai recommend the heater be plugged into a 230 V, 10 A earthed power point. The power point must not be above the heater. Alternatively the appliance can be direct wired if the power supply is to be concealed. Consult a qualified electrician if direct wiring is required as it must comply with AS/NZS 5601 and AS/NZS 3000 and other relevant local regulations.



# Wall penetration

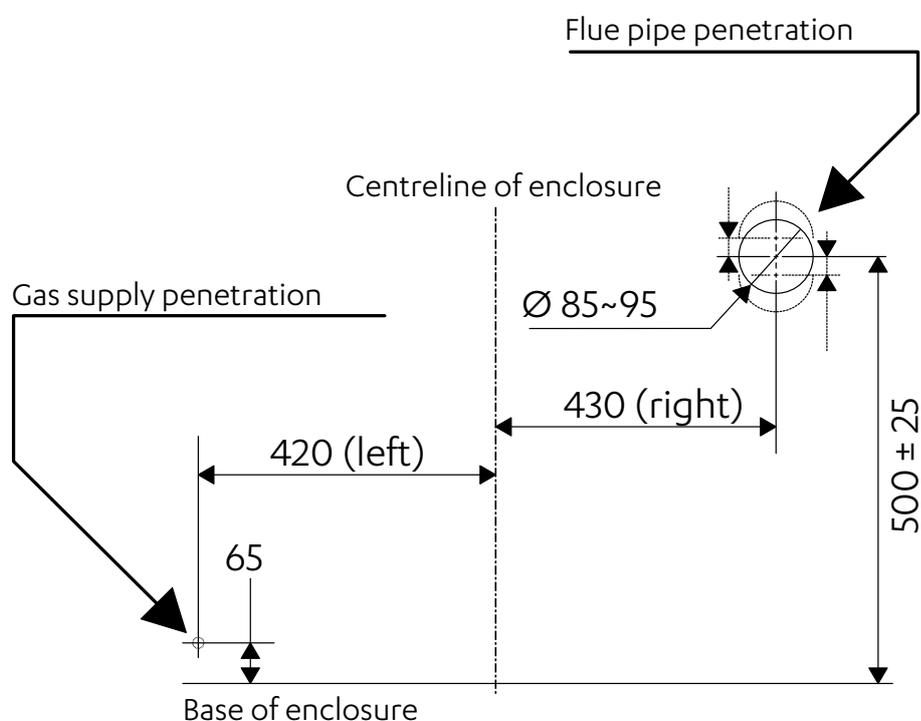
## Direct flue wall penetration requirements

Use the guide pictured to mark the penetration points for the gas supply and flue transition locations. Consideration must be given to the position of any studs, noggins or other components of the wall structure on both sides of the wall. Mark these measurements accurately as this is critical to a successful installation.

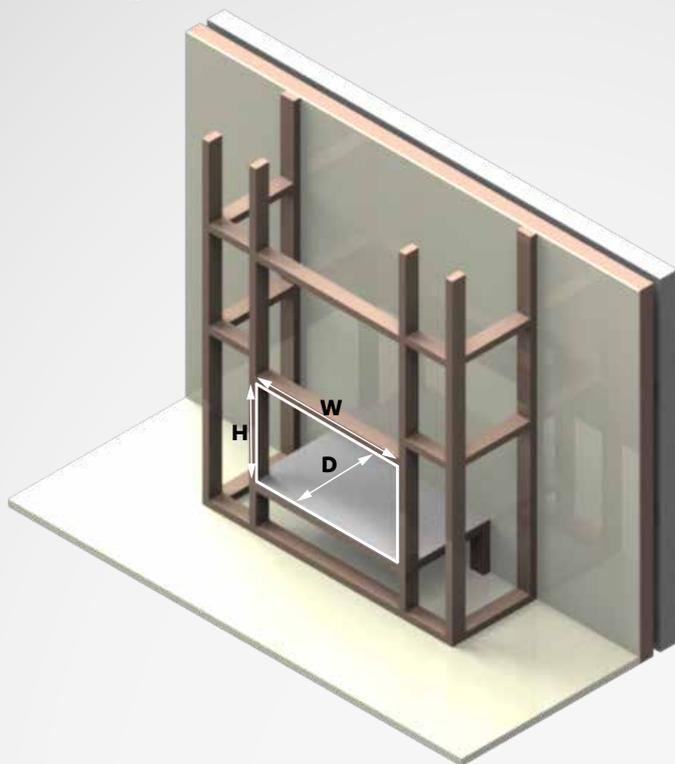
The penetration for the flue transition only needs to be made for direct flue installations, where the terminal is directly to the rear of the appliance. If no flue pipe penetration is required the markings are still useful for indicating the correct position of the flue transition within the enclosure for other flue applications.

For weatherboard walls, drill through the centre of the weatherboard from the outside, then drill from the inside through the plaster board.

Dimensions are in mm.



# Framing dimensions



---

**Enclosure dimensions**

---

**W-width** 965-980 mm

**H-height** 570-580 mm

**D-depth** 570 mm min.

---

The main points governing location are flueing and warm air distribution. The Rinnai Evolve has an integrated zero clearance box that isolates the appliance from combustible materials. This means it can be installed directly into a decorative fireplace constructed from materials such as wood or plaster.

The heater must be positioned within the enclosure on a flat level surface that allows free movement of the appliance. The joists used to support the appliance off the ground must be capable of supporting a minimum of 1.5 times the weight of the appliance. A pair of wheels located at the rear of the heater allows the unit to slide in and out of the enclosure for installation and maintenance.

# Clearances (from the edge of the glass)

The appliance must not be installed where curtains or other combustible materials could come into contact with the heater. In some case curtains may need restraining. The clearances listed below are minimum clearances unless otherwise stated.

## Floor protection

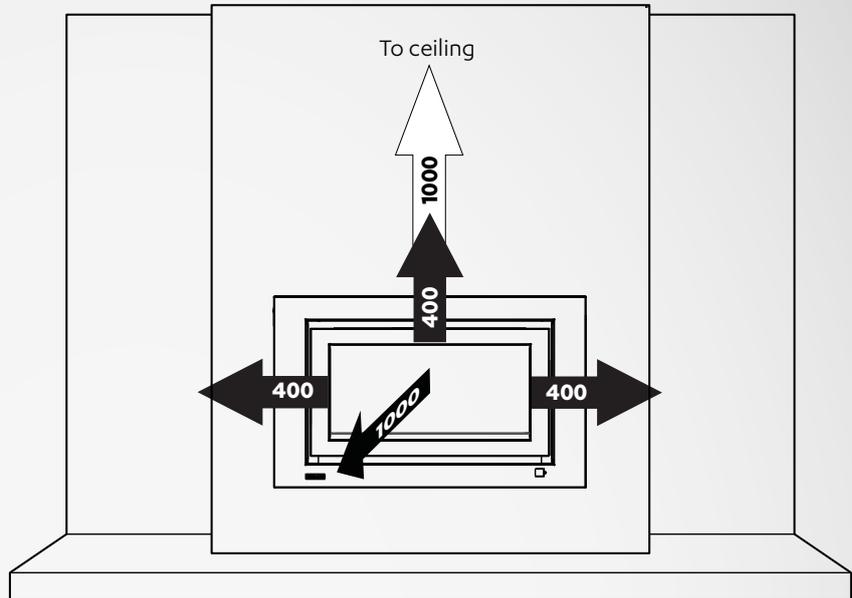
Heat radiating from this fire may over time affect the appearance of some materials used for flooring, such as, carpet, vinyl, cork or timber. This may be amplified if the air contains cooking vapours or cigarette smoke. To avoid this occurring, it is recommended that a mat be placed in front of this appliance.

## Mantels and surrounds

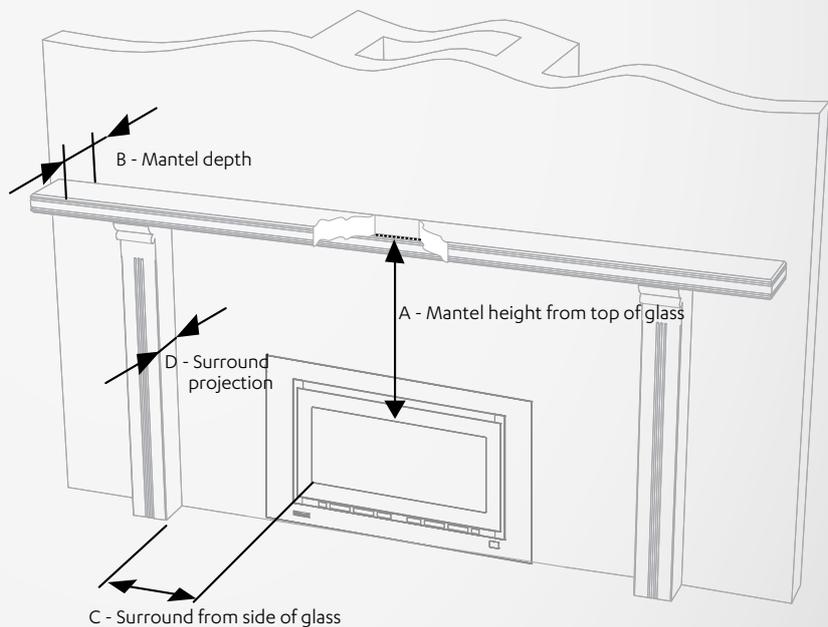
A mantel and surround are allowed providing they are outside the minimum clearances shown.

## Hearths

A hearth is not necessary but can be used for decorative purposes or protection of sensitive flooring if required. A hearth must not obscure the front of the fire.



**Note:** Measurements are taken from the edge of the glass. The 400 mm side clearance includes side walls.



<b>A</b>	Mantel height from top of glass	400 mm min.
<b>B</b>	Mantel depth at A - 400 mm (vertical clearance)	250 mm max.

For every 50 mm of added mantel depth, there must be an additional 100 mm of vertical clearance. For example; a mantel depth (B) of 350 mm will require 600 mm (A) of vertical clearance.

<b>C</b>	Surround from side of glass	250 mm min.
<b>D</b>	Surround projection at C - 250 mm (side clearance)	250 mm max.

# TV installation

The Evolve 950 has a fan that distributes warm air from the top of the appliance out into the room. As warm air is dispersed outwards, as opposed to directly upwards, installation of a TV may be an option.

The diagram shows recommended clearances when installing a TV directly above the Evolve 950, or into a recess. All dimensions are in millimetres.

## 400 mm dimension

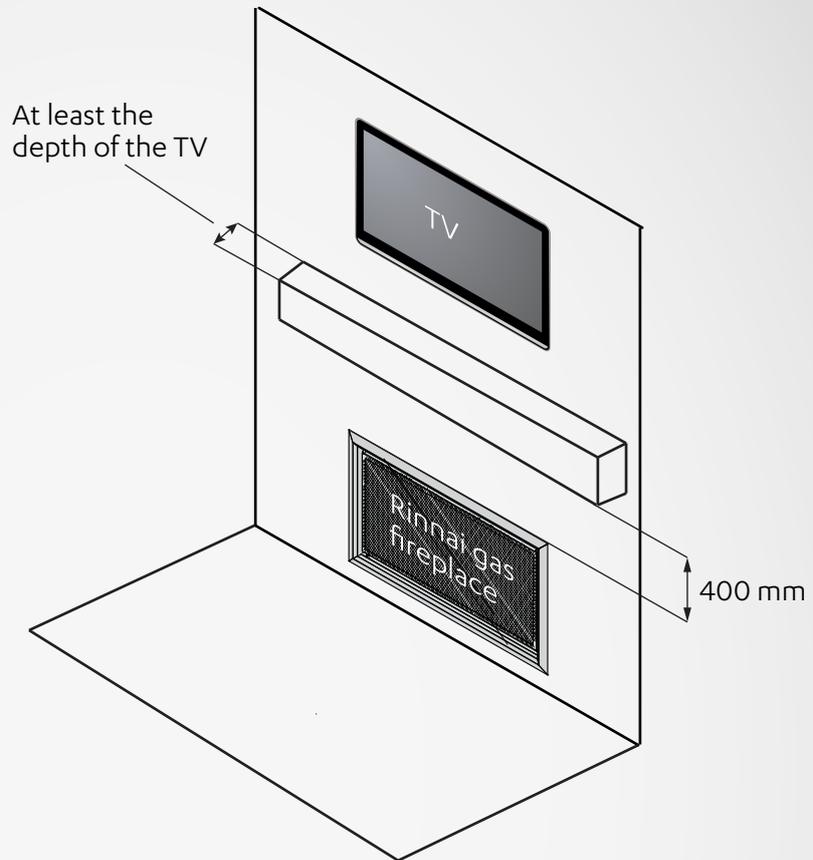
The 400 mm dimension is the minimum clearance required to a mantel. The image adjacent shows the dimension from the edge of the frame, in the case of the Evolve the 400 mm dimension can be taken from the edge of the glass.

For a TV mounted directly above the unit, the mantel must be at least the depth of the TV to deflect heat away.

## Always check with the TV manufacturer

It is up to the owner to check the TV installation with the TV manufacturer—some have warranty conditions that state a TV is not to be installed above a fireplace.

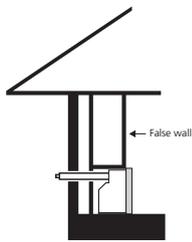
Rinnai does not accept any responsibility for damage to a TV resulting from the use of this information.



# Flueing options

The below options detail the most common flue installations. If you are doing something different, for example up and sideways, and are not sure what components you need, please contact Rinnai.

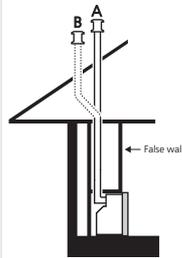
## Rear external wall\*



Flue components:  
 - Direct A flue (R2731), or  
 - Direct B flue (R2732), or  
 - Direct flue (ASPDFK)

This flue configuration could be up to 8.5 m long (no bends).

## Vertical in-wall



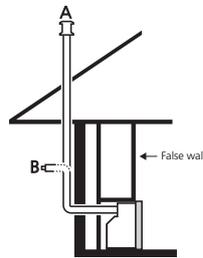
**A flue components:**  
 - Adaption flue (EVOKIT03)  
 - Coaxial pipe (ESPIPE900)  
 - Roof cowl (ESROOFCOWL)

**A flue configuration** could have a flue length of 7 m and contain one 90° bend—the 90° bend would be the flue transition (EVOKIT03).

**B flue components:**  
 - Adaption flue kit (EVOKIT03)  
 - Coaxial pipe (ESPIPE900)  
 - Bend 2 x 45° (ESBEND x 1)  
 - Roof cowl (ESROOFCOWL)

**B flue configuration** could have a flue length of 6.5 m and contain two bends—the first 90° bend would be the flue transition (EVOKIT03), and the second 90° bend would be the two 45° bends (ESBEND).

## Through-wall vertical



**A flue components:**  
 - Direct flue (ASPDFK)  
 - Coaxial pipe (ESPIPE900)  
 - Bend 1 x 90° (ESBEND x 1)  
 - Condensate trap (ESCONDK)  
 - Roof cowl (ESROOFCOWL)

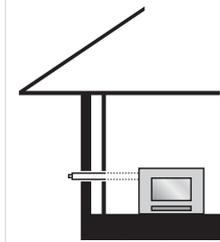
**A flue configuration** could have a flue length of 7.5 m and contain one 90° bend—the 90° bend would be the 90° bend (ESBEND).

**B flue components:**  
 - Direct flue (ASPDFK)  
 - Coaxial pipe (ESPIPE900)  
 - Bends 2 x 90° (ESBEND x 2)  
 - Condensate trap (ESCONDK)

**B flue configuration** could have a flue length of 6.5 m and contain two 90° bends—the bends would be the two 90° bends (ESBEND).

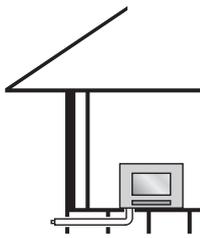
ASPDFK, remove terminal and use on outside wall.

## Through-wall sideways\*



Flue components:  
 - Adaption flue (EVOKIT03)  
 - Coaxial pipe (ESPIPE900)  
 - Wall terminal (ESWTERM)

## Down and out\*



Flue components:  
 - Adaption flue (EVOKIT03)  
 - Coaxial pipe (ESPIPE900)  
 - Bend 2 x 45° (ESBEND x 1)  
 - Wall terminal (ESWTERM)

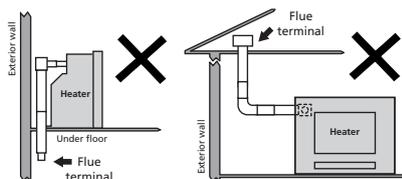
\* Allow for a 2° fall from the heater connection to the wall terminal.

## Flueing notes

For all installations a Rinnai flue system **MUST BE** used. Detailed flue instructions are provided with the flue kits.

### Termination point

Flue is not to terminate under floors or in a roof space.



### Condensate

A condensate trap is required for vertical in-wall and through-wall vertical flue installations to ensure condensate generated during combustion is trapped and prevented from entering the chamber of the heater.

For horizontal, and down and out installations, there must be a continuous fall of at least 2° to the wall terminal. This equates to approximately 20 mm per metre to the termination point to drain the condensate. For direct flueing, direct flue kits A and B have an inbuilt 2° fall.

### Down rating the appliance

For all flueing EXCEPT direct flueing, the appliance must be down rated (ensures optimum performance of the fan) as per the instructions on the commissioning sheet.

### Maximum flue length and number of bends

- Max. flue length - 8.5 m
- Max. number of bends - three

One 90° bend equals 1 m. For every 90° bend the overall length must be reduced by 1 m. For example if an installation has three 90° bends, the maximum flue length can be 5.5 m. The flue transition for all flueing installations, excluding direct horizontal flueing, is counted as a 90° bend.

# Evolve 950 installation overview



1. Construct frame as per enclosure dimensions on p. 8.



2. Line wall—could also plaster at this stage.



3. Complete the gas connection refer p. 6. Electrical supply can also be completed at this point.



4. Connect flue system.



5. Install heater into enclosure, screw to frame, and complete gas, air hose, and flue connection p. 14.



6. Install burn media, refer p 16-19.



7. Commission unit, refer p. 20.



8. Install outer frame, mesh guard (if purchased), and inner frame refer p. 21.



9. Test operation and lighting sequence, refer p. 22.



11. Complete installation checklist in operation guide and complete customer handover—add a touch of magic!

# Connect flue system

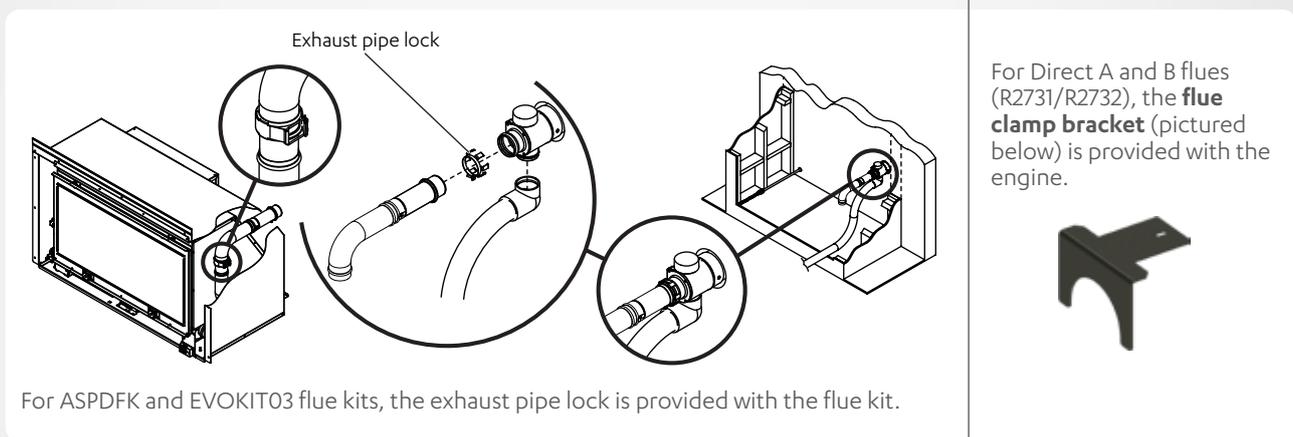
Consult the Rinnai Arriva and Evolve flue installation guide supplied with the Arriva/Evolve flue kits for detailed flue installation instructions. For connection of the flue to the heater refer information below.

## Removing the pipe clamp, extension tube and exhaust pipe

Before installing the heater into the enclosure the pipe clamp, telescopic extension tube, and exhaust pipe need to be removed so there is room to connect the flue system.

1. Undo the pipe clamp and remove the telescopic extension tube from the exhaust pipe.
2. Secure the telescopic extension tube to the flue system with the exhaust pipe lock or the flue clamp bracket.
3. Attach the air hose to the flue transition and secure with the cable tie provided.

Please note that in the adjacent image in step 4 the air hose is already connected to the flue. It is much easier to connect the air hose to the unit than to connect the air hose to the flue once the heater is in place. Ensure the air intake hose of the heater is properly secured to the air connection on the flue system using the cable tie provided, and that the rubber seal is placed on the unused air intake connection.



## Flue transition (ASPDK, EVOKIT03)

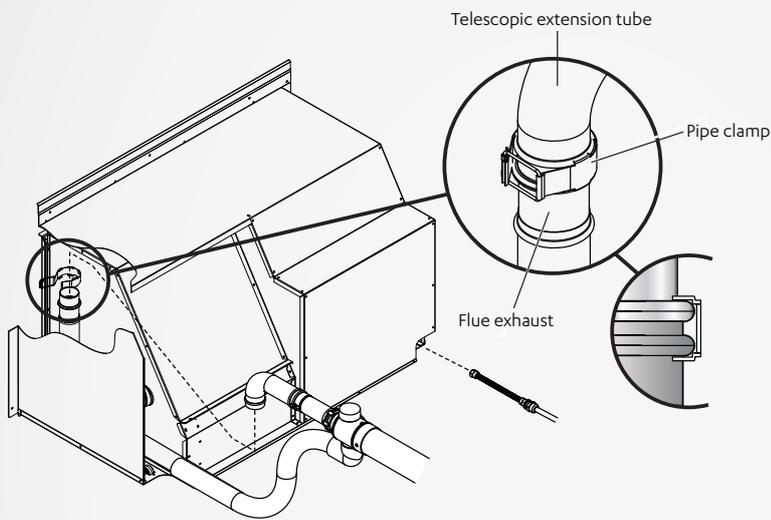
The flue transition provides a connection between the flue system and the heater's flue spigot and air intake. For all flueing installations, except horizontal direct flueing, the flue transition is counted as a 90° bend. The flue transition requires a 5 mm clearance from combustibles. This clearance is provided automatically when the supplied standoff brackets are used. All other flue components, except the elbow section of the EVOKIT03, are designed for zero clearance and can be placed hard against timber or plasterboard.



# Install heater into enclosure

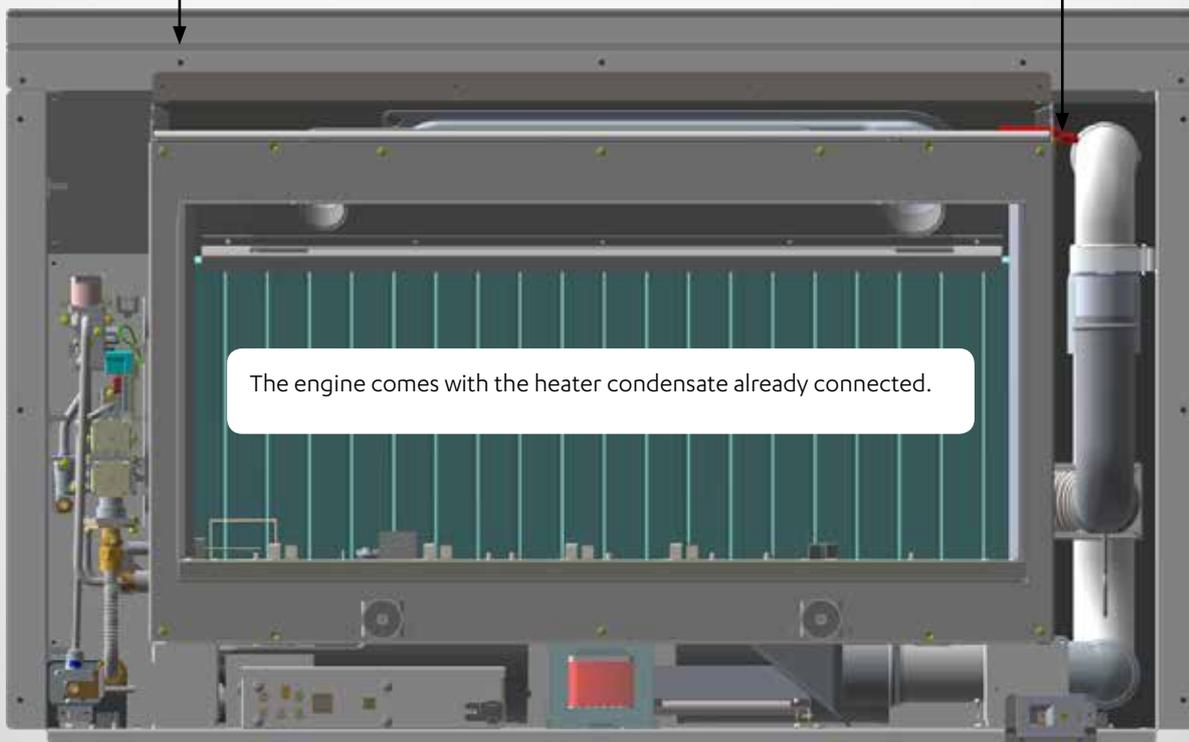
1. Carefully move the heater into the enclosure, guiding the piping, flexible gas connection, and telescopic extension tube into the access openings and through the appliance. Ensure that the air hose is not in a position where it could get caught or crushed by the unit.
2. Once the engine is in place reconnect the flue exhaust to the telescopic extension tube and secure together with the pipe clamp.
3. Secure the heater flange in place using the 11 seismic constraint screws provided.
4. Complete gas, air hose, and flue connection. If vertically flueing ensure condensate tube, provided with the EVOKIT03 flue kit, is attached to the condensate pipe on the heater—refer images below.

**Please note:** The unit is supplied with the heater condensate already connected.



Flange screw position—11 in total

Flue condensate pipe connection



## Removing and replacing the glass panel

Before the burn media can be installed into the combustion chamber, the glass panel needs to be removed. Remove the four retaining screws—two at the top and two at the bottom. When replacing tighten all four screws and then back off by quarter of a turn. If the glass panel is screwed too tight, the panel will bow and the spring release mechanism won't work properly.

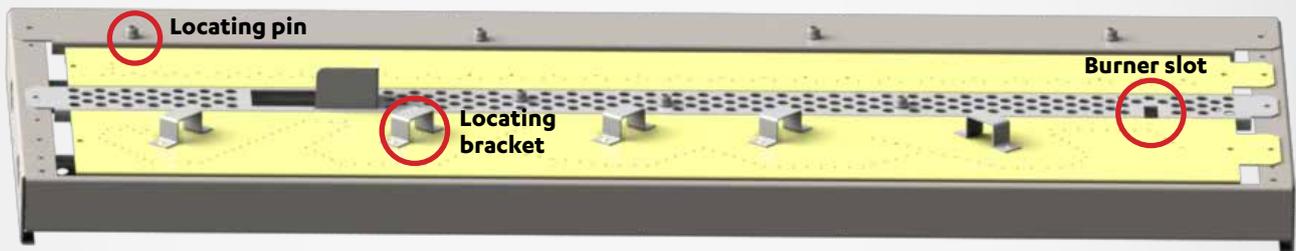
The glass panel needs to be replaced after installing the burn media and before commissioning.



**Front panel of the Evolve showing the four screw positions for removing and replacing the glass panel**

# Install burn media - log set

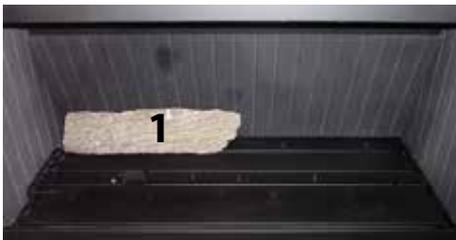
The log set, consisting of eight log pieces, and two granule packs come packaged in a separate box. The glass retainer will need to be removed before installing the log set and granules. Use extreme care when handling the log pieces, they are made from a fragile material and will damage easily.



It is important to place the pieces in the correct position. Incorrect placement can create carbon build-up and affect performance. Malfunctioning due to improper log/granule placement is not covered by warranty. The unit must never be used with broken logs or other burn media (except those specifically designed for the Evolve).

## 1. Back left log

Align bottom locating holes with the locating pins at the back of the burner—the log will sit up against the back of the combustion chamber.



## 2. Back right log

Align bottom locating holes with the locating pins at the back of the burner—the log will sit up against the back of the combustion chamber, and there will be a gap between the back two logs.



### 3. Front left small log

Refer fully assembled image for reference. Place onto the middle left locating pin and left front locator bracket.



### 4. Front right small log

Refer fully assembled image for reference. Place onto the middle right locating pin and right front locator bracket.



### 5. Front middle small log

Refer fully assembled image for reference. Place onto the middle locating pin and central front locator bracket.



### 6. Front large left log

Place onto the locating pin of the first log and slot onto the left front locating bracket.



### 7. Front large middle log

Place onto the locating pin of log four and slot onto the right front locating bracket.



### 8. Top upper right large log

Place onto the locating pin of log seven and swivel OVER log 4 so the end rests into the burner slot.

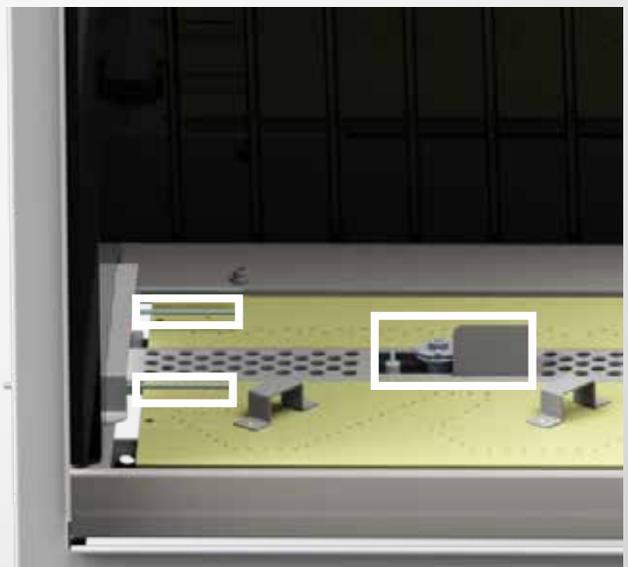


## Adding the granules

The granules as well as being added to create a more realistic log flame affect (by diffusing the gas flames through the burner ports) also assist in soot prevention and are **CRITICAL** to the performance of the heater. **Never pour** the granules directly from the pack as dust particles from the plastic bag may block the ports.

DO NOT place the granules in the left hand operational area (highlighted) and DO NOT have them touching the flame rod as this will cause a blockage and the unit will not start.

Place the granules **evenly** (do not stack) around the logs in the front part of the burner and on the middle section of the burner (in the gaps between the logs)—refer fully assembled image.



# Install burn media - stones

The stone set, consisting of 30 stones (10 white and 20 grey), and two granule packs come packaged in a separate box. The glass retainer will need to be removed before installing the stones and granules. Use extreme care when handling the stones, they are made from a fragile material and will damage easily.



1G, 2G, 4G = front grey cut out stones  
L1-L6 = large grey stones

3W, 5W = front white cut out stones  
w = small to medium white stones

It is important to place the pieces in the correct position. Incorrect placement can create carbon build-up and affect performance. Malfunctioning due to improper stone/granule placement is not covered by warranty. The unit must never be used with broken stones or other burn media (except those specifically designed for the Evolve).

## 1. Place first grey cut out stone (1G)

The five stones with the bottom cut outs need to be placed first on the front burner brackets. Place the first grey cut out stone on the far left burner bracket.



## 2. Place the second grey cut out stone (2G)

Place the second grey cut out stone on the left burner bracket.



## 3. Place first white cut out stone (3W)

Place the first white cut out stone on the middle burner bracket. The white stones are designed to be interspersed to add contrast and provide a good visual picture—make sure they are not all placed together.



## 4. Place the fourth grey cut out stone (4G)

Place the fourth grey cut out stone on the next burner bracket.



**5. Place the fifth white cut out stone (5W)**

Place the fifth white cut out stone on the far right burner bracket.



**6. Place back three large grey stones**

Place the three large grey stones (L1, L2, L5) at the back of the burner as shown—they can be positioned over the locating pins.



**7. Place middle three large grey stones**

Place the remaining three large grey stones (L3, L4, L6) in the middle of the burner as shown.



**8. Place smaller grey and white stones front and back**

Place the smaller grey (g) and white (w) stones at the back and front of the burner.



**9. Place smaller grey and white stones in the middle**

Place remaining smaller grey (g) and white (w) stones in the middle section of the burner



**Adding the granules**

Refer p. 17 for important information about placement of the granules. The only difference in installation are the granules will be placed evenly around the stones with particular attention to the front section—refer fully assembled image on previous page.

# Commissioning

The gas pressures of the appliance are factory preset for direct flue installations (most common type of installation) and will normally not require adjustment. The combustion chamber glass must be on when checking the operating pressures.

The commissioning sheet is located in a plastic pouch inside the unit on the right hand side.

For all Evolve flueing EXCEPT direct flueing, the appliance must be down rated as per the instructions on the commissioning sheet.

Follow the commissioning instructions to complete the gas pressure adjustments. When commissioning is complete check for full and correct operation of the appliance, and return the commissioning sheet to its plastic pouch.

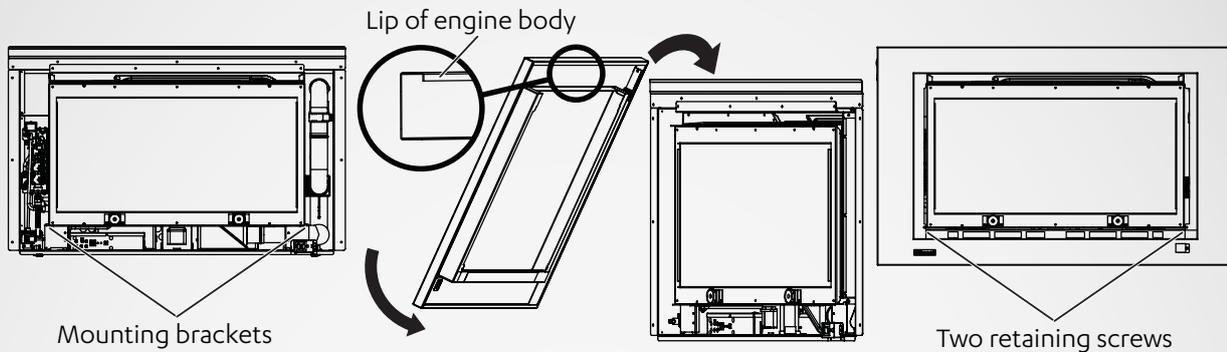


**Commissioning sheet—located inside a plastic pouch inside the unit (right hand side)**

# Install inner and outer frames

## Installing the outer frame

1. Hook the inside fold of the outer frame to the top lip of the engine body.
2. Rotate the bottom of the outer frame in towards the engine body, connect the control panel cat 5 cable, and secure with the two retaining screws.



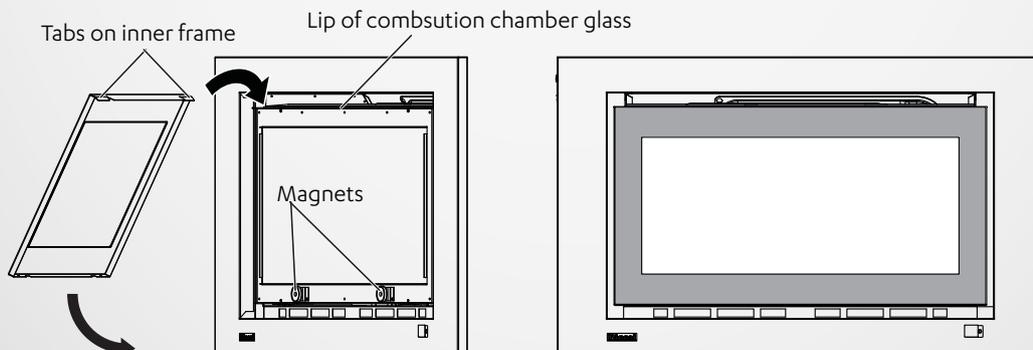
## Installing the optional mesh guard

The optional mesh guard, if purchased, needs to be installed before the inner frame as the inner frame holds it in place. Hook the mesh guard over the two top mounting tabs on the engine front and rotate towards the engine body.



## Installing the inner frame

1. Hook the tabs of the inner frame to the top lip of the combustion chamber glass.
2. Rotate the bottom of the inner frame in towards the engine body allowing the magnets to secure the inner frame to the engine.



# Test operation and lighting sequence

It may take approximately two hours of operation for the burn media to achieve their full flame pattern and glow. During the initial burning in period, some smoke and smell may be experienced. The appliance should run on the high setting in a well ventilated room until these dissipate. It is important to check the flame pattern during this time.

## Abnormal flame pattern

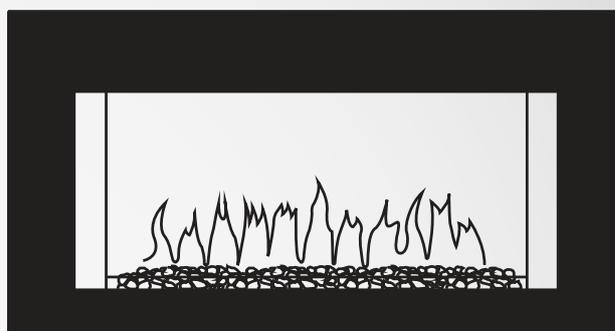
Abnormal flame performance and/or pattern can indicate a problem with your fire, such as blocked gas injectors, or that the burn media has shifted. There are some warning signs that could indicate a problem.

- Unusual smell from the appliance
- Continued difficulty or delay in establishing a flame
- Flame appears either very short or very long
- Flame only burns part way across the burner
- Severe soot building up on the inside of the glass door

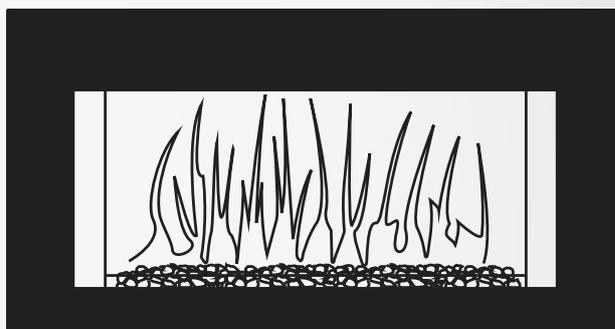
## Important

It is the responsibility of the installer to check that under normal conditions of the appliance, all flue gases are exhausted to the outside atmosphere, and that there is no spillage of combustion gases into the room.

If the appliance cannot be made to perform correctly please contact Rinnai.



Normal flame pattern

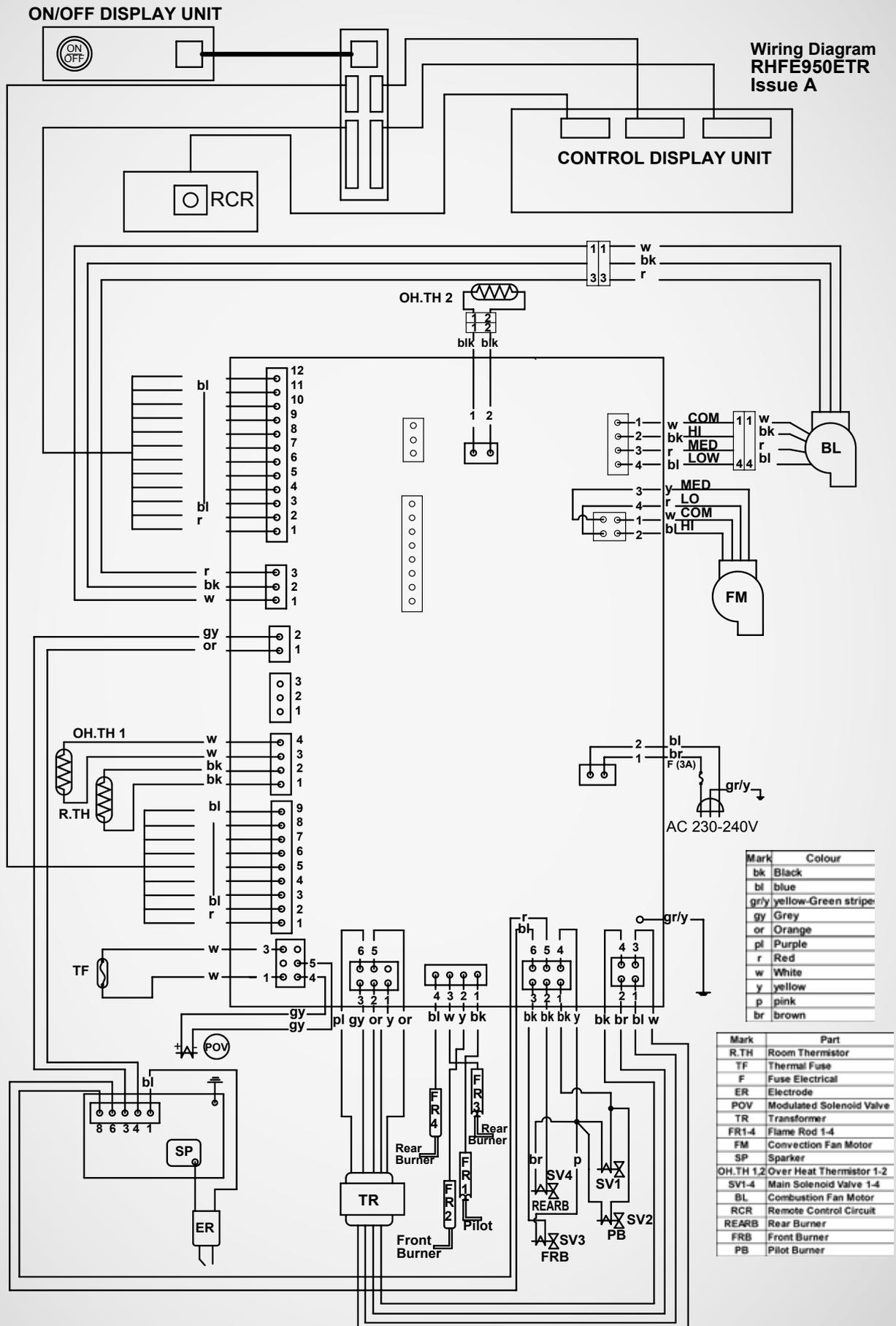


Abnormal flame pattern

# Installation checklist and customer handover

Complete the installation checklist in the customer operation guide, and make sure you leave the guide with the customer. Explain to the customer about the use and care of the unit, and ensure they understand the instructions and operation of the appliance.

# Wiring diagram (part of commissioning)





Experience our innovation

**Rinnai.co.nz** | **0800 746 624**

<http://www.youtube.com/rinnainz>

<http://www.facebook.com/rinnainz>