

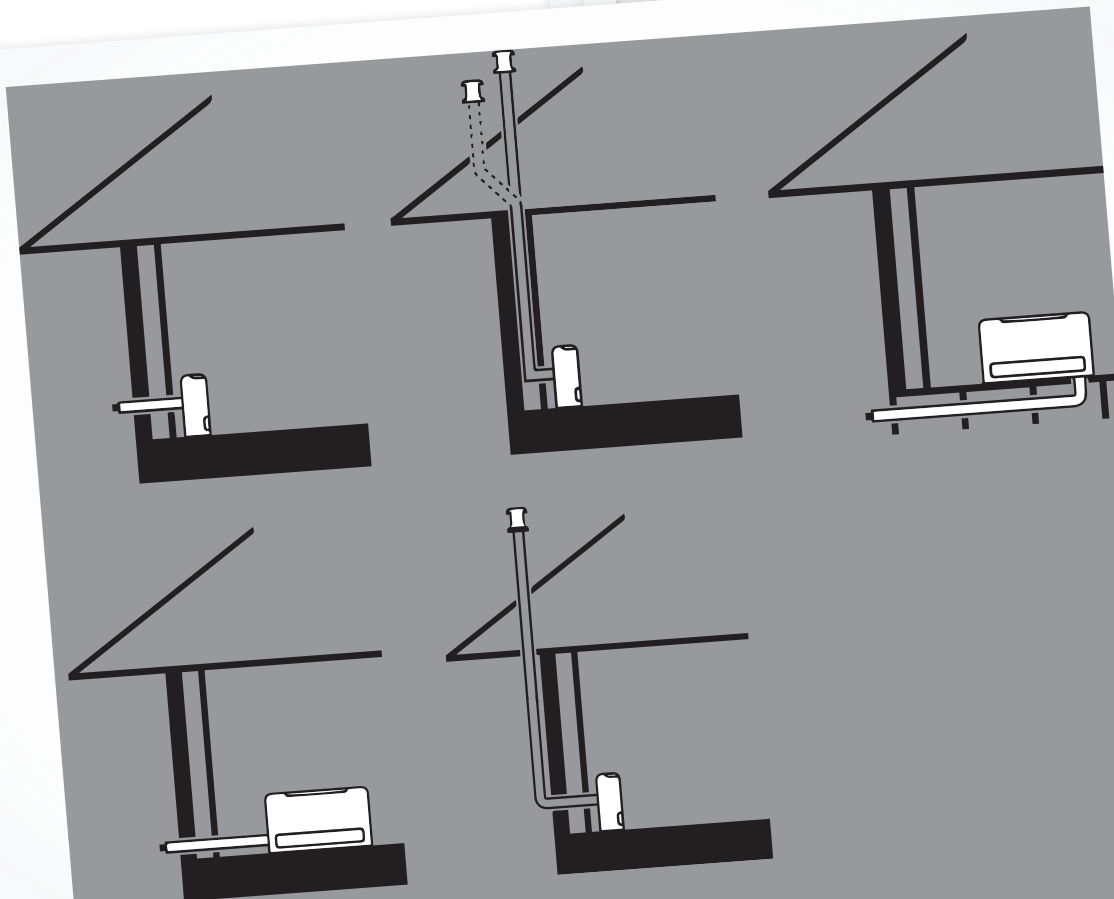
**Rinnai**

# Flue installation guide

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# Energysavers

**Models:** RHFE309FT / RHFE559FT / RHFE561FT / RHFE1005FT



## Important

Rinnai Energysaver flueing shall be installed in accordance with:

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

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

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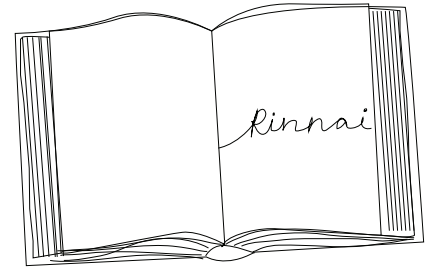
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## About this guide

The intention of this guide is to outline the most common types of flue installations and to provide an overview of how to assemble the flue components. If you have an installation that varies from that detailed in this guide, please contact Rinnai.



If there is information missing that you feel would be helpful to other installers, please let us know and we will look to include in future updates.



# Important



For all flue installations there are some important 'must-dos' to ensure the flue is installed correctly. These are summarised below.

## Air intake hose

At no time must the air intake hose be cut or shortened.



## Rear panels

The rear panels are NOT an optional component and **MUST BE** fitted to ensure the correct and safe operation of the appliance. Failure to fit the panels will void any warranty.

## Flue must be secure

To prevent the flue from moving or coming apart the joints between the flue components **MUST BE** secured by screws (easier to undo if necessary) through the outer pipes. If joints are not secured properly, products of combustion could disperse into the room being heated—this is potentially very dangerous.

The flue components **MUST BE** clipped to the wall using the wall straps provided in each flue kit.

## ESDFK component

To prevent overheating of the plastic flue components the minimum length of the ESDFK when measured from the back plate of the transition casting **MUST NOT** be less than 300 mm when joining to other components, refer p. 24.

## Connecting flue components

Inner pipe joints are sealed with an o-ring seal lubricant. A small plastic tub of silicone grease is provided with the main flue kits. Use this silicone grease to lubricate the o-rings on the inner pipes prior to assembly. This is important as the o-rings can dry out and break, and replacing o-rings is difficult.

DO NOT use petroleum based lubricants. Petroleum jelly or other similar based lubricants will cause deterioration of the o-ring seals.

## Flue sections located outside

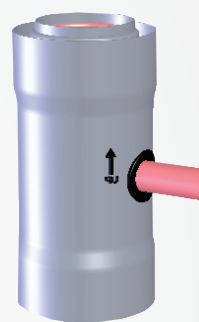
Sections of the flue located outside require the following precautions:

- Only use PVC cement between the joints of the outer PVC pipes to secure and seal the joints against ingress of dust and water.
- To secure and seal the outer joints of PVC such as the condensate trap, only use non-acidic silicone sealant. Aluminium may corrode if a sealant containing acetic acid or other acid is used.

## ESBEND installation and connection

If installed incorrectly there is potential for the outer bend to overheat. A separate installation sheet is provided with each ESBEND kit to ensure correct alignment of the bend component.

## Condensate trap



A condensate trap is required for all vertical flue installations to ensure condensate generated during combustion is

trapped and prevented from entering the chamber of the heater. In all installations the arrow on the condensate trap must point up.

## 2° fall to the wall terminal

For direct, sideways through-wall, and down-and-out flue installations, there must be a continuous fall of at least 2° to the wall terminal. This equates to 20 mm per metre to the termination point to drain the condensate. The Direct AA and A mushroom flue kits (R1350/R1351) have an inbuilt 2° fall.

## 2° fall back to the heater

Required when any part of the flue system goes horizontally then vertically, refer p. 22.

# Energysaver flueing guidelines

All Rinnai Energysavers must be installed with an approved Rinnai Energysaver flue system. Approved flue components are detailed in this guide.

Every Energysaver requires a flue system that will draw effectively and clear flue products safely under all potential wind and climatic conditions.

It is the responsibility of the installer to ensure that the appliance is provided with an effective flue. Some guidelines to assist with flue design are listed below. These must be read and modified as necessary with reference to the particular installation.

## Clearance to combustibles

All Energysaver flue components have zero clearance EXCEPT for the elbow section of the ESKIT03, and ESELBOWB. These components require a minimum clearance of 25 mm from combustible materials.

## Maximum flue length and number of bends

Max. flue length - 9 m  
Max. no. of bends - 3

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 6 m.

The flue transition connection, of the ESKIT03 and ESELBOWB is counted as a 90° bend.

## Flue terminal locations

Must be compliant with AS/NZS 5601.1.

- Do not flue into natural draught flues or fireplaces.
- Do not flue into other rooms, roof spaces, or under floor spaces.

Flue terminal must be positioned away from flammable materials.

In areas subject to heavy snowfall, keep snow clear of the flue terminal at all times.

## Flashings

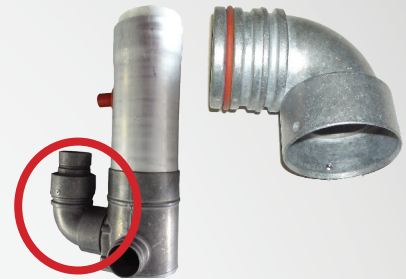
Flashings are not part of the flue kit and must be specified.

## Vertical terminations: Flue cowl clearance

To ensure products of combustion are cleared, adequate clearance from the building is required.

The flue cowl should have a 500 mm clearance from any part of the building. This also applies to steeped and pitched roofs which should be clear of the ridge line.

Lesser clearances may provide perfectly adequate flue systems depending on the installation. Minimum clearances are shown in AS/NZS 5601.1.



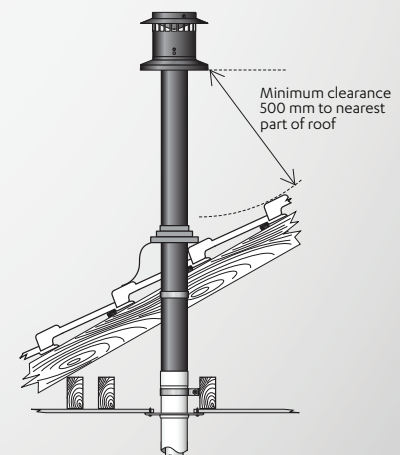
Elbow section of the ESKIT03 and ESELBOWB



Keep flammable materials away from the flue terminal



Keep snow away from the flue terminal



500 mm flue clearance from roof line

# Flueing options

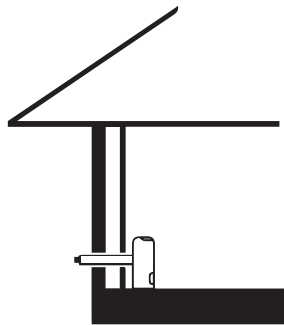
The below options detail the most common types of flue installations. If you have an installation that varies from that shown, please contact Rinnai.

## Direct

- Direct AA mushroom flue (R1350), or
- Direct A mushroom flue (R1351), or
- Direct flue (ESDFK)

## Direct extended

- Direct flue (ESDFK)
- Flue pipe (ESPIPE900)

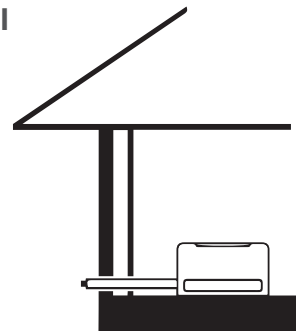


## Sideways in-wall

- Direct flue (ESDFK)
- Elbow adaptor (ESELBOWB)
- Flue pipe (ESPIPE900)

## Sideways front-of-wall

- Backspacer kit
- Direct flue (ESDFK)
- Flue pipe (ESPIPE900)

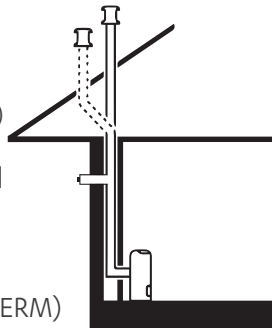


## Vertical in-wall direct

- Flue adaptor kit (ESKIT03)
- Flue pipe (ESPIPE900)
- Roof cowl (ESROOFCOWL)

## Vertical in-wall offset

- Flue adaptor kit (ESKIT03)
- Flue pipe (ESPIPE900)
- 45° bends (ESBEND)
- Roof cowl (ESROOFCOWL)

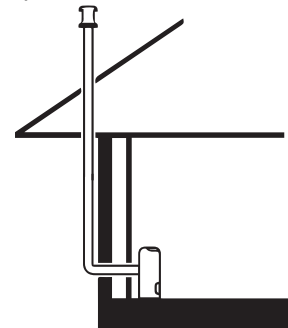


## Vertical in-wall horizontal

- Flue adaptor kit (ESKIT03)
- Flue pipe (ESPIPE900)
- 45° bends (ESBEND)
- Horiz. wall terminal (ESWTERM)

## Horizontal through-wall vertical flueing

- Direct flue (ESDFK)
- 90° bend (ESBEND)
- Flue pipe (ESPIPE900)
- Condensate trap (ESCONDK)
- Roof cowl (ESROOFCOWL)

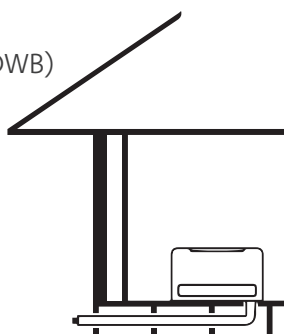


## Down-and-out

- Back spacer kit
- Direct flue (ESDFK)
- Flue pipe (ESPIPE900)
- 45° bends (ESBEND)

## Down-and-out in-wall

- Elbow adaptor (ESELBOWB)
- Direct flue (ESDFK)
- Flue pipe (ESPIPE900)
- 45° bends (ESBEND)



## ESPIPE900

Order lengths as required.

## ESBEND kit

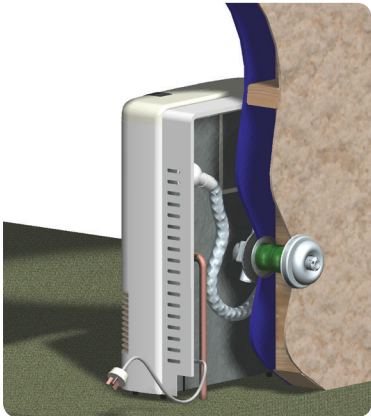
Contains 2 x 45° bends.

## Back spacer kit

Refer p. 10 for model codes.

# Flue components

**Direct mushroom flue kits** (refer separate instructions included with each kit)



## Direct AA mushroom flue kit

Code = R1350 (stainless steel)

For use in walls 75-115 mm thick (can be cut to size).

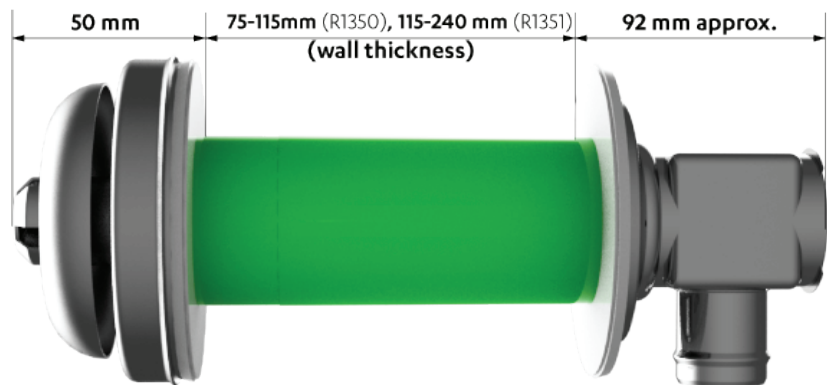
This is a complete kit with an inbuilt 2° fall to drain condensate, no other components are required.

## Direct A mushroom flue kit

Code = R1351 (stainless steel)

For use in walls 115-240 mm thick (can be cut to size).

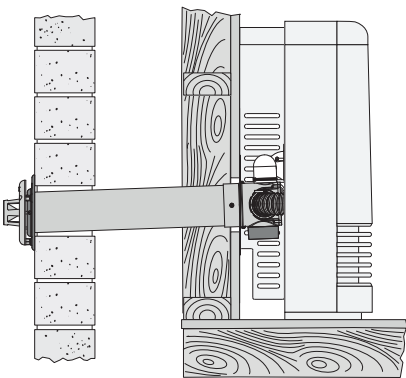
This is a complete kit with an inbuilt 2° fall to drain condensate, no other components are required.



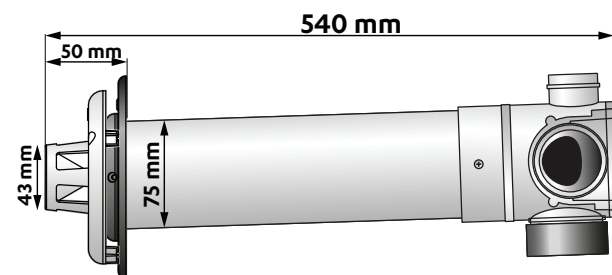
## Direct flue kit

Code = ESDFK (aluminium)

Suitable for walls up to 385 mm (can be cut to size). Can be used in combination with ESPIPE900 for longer flueing.



Black outside wall terminal Ø 140 mm



## Coaxial flue pipe

Code = ESPIPE900

Extension pipe (960 mm installed) used to construct horizontal, vertical, and down-and-out flueing. Can be cut to size. Inner is aluminium, and outer is PVC plastic. Comes with one wall bracket (not pictured)

- O-ring for pipe (4350)
- Spacer for pipe (4351)



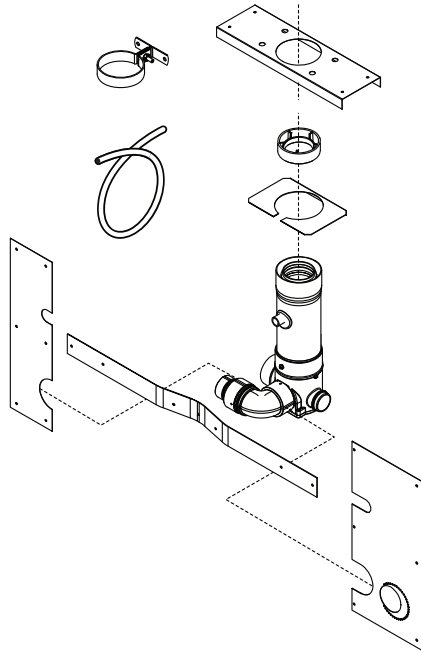


## Energysaver in-wall flue adaptor kit

Code = ESKIT03

In-wall transition flue kit. Elbow section of this kit requires a 25 mm clearance from combustibles, the rest is zero clearance.

Includes condensate trap, top plate, wall spacer plate, and vermin plates.



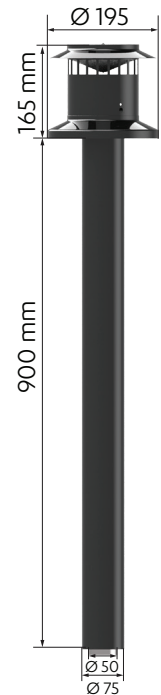
## Vertical terminal

Code = ESROOFCOWL

Roof cowl and connecting pipe (960 mm installed) for termination of flue in vertical installations—can be cut to size.

Powder coated (black) galvanised steel.

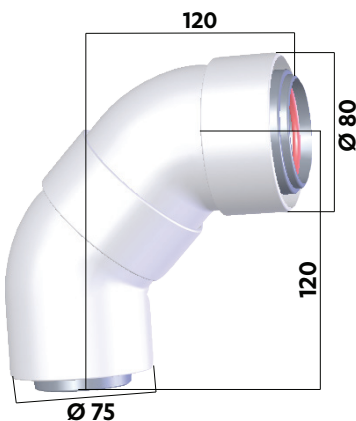
Flashings are not part of the kit and must be specified.



## 45° flue bends (x2)

Code = ESBEND

Used to facilitate between horizontal, vertical, and downwards flueing. Two spacers are included. Bends can be used separately or together as one 90° bend.



## Horizontal wall terminal

Code = ESWTERM

Used to terminate the flue pipe (ESPIPE900) in horizontal flue installations when used in conjunction with ESKIT03.

Contains:

- Flue terminal (aluminium)
- External wall plate (black PVC)



## Wall plate

Code = ESPLATE

Used if an extra wall cover is required to tidy any installation work through the wall, ceiling, or floor.

Black or white available.

Ø 170 mm

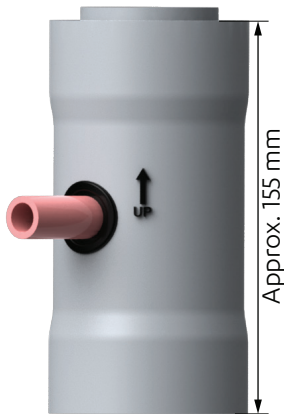


### Condensate trap

Code = ESCONDK

Typically only ordered separately for horiz. through-wall vertical flueing (p. 22). Supplied with drain tube (not pictured). When installed the arrow **MUST** point up.

**N.B:** The condensate trap is included with the ESKIT03.



### Elbow adaptor

Code = ESELBOWB

For horizontal, and down-and-out installations that are recessed into the wall and **DO NOT** require a back spacer kit.

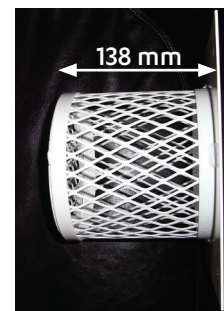
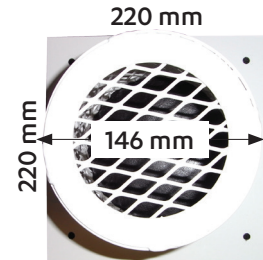
Requires a minimum clearance of 25 mm from combustible materials.



### Flue guard (steel)

Code = R1370

Protection against hot flue gases when the flue terminates low to the ground. Colour - warm white.

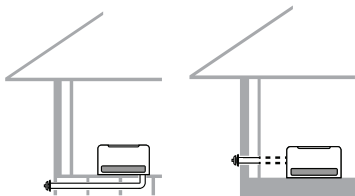


### Back spacer kits

Codes

- ESBSKH 1005FT back spacer kit
- ESBSKE 309FT back spacer kit
- ESBSKF 559FT back spacer kit
- ESBSKG 561FT back spacer kit

The back spacer kit covers the flue elbow connection and provides the required clearances from the heater and wall in down-and-out flueing, and sideways front-of-wall flueing installations.



The back spacer kit is used **INSTEAD** of the rear panels supplied with each Energysaver and adds approximately 115 mm of additional depth (standard rear panel is 85 mm, back spacer kit is 200 mm)



**309FT Energysaver with standard rear panels**



**561FT Energysaver with back spacer kit**

Back spacer kit contains:

- Left, right, and top spacer panels
- Flue elbow connection
- Plastic edging seal
- Extended side panel brackets (1005FT only)

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# Wall flue penetrations

In most instances the flue penetration can be marked using the heater. Where the heater and/or components are not on site use the penetration arc diagrams below to work out where the flue is to penetrate the wall.

Ensure there are no wall studs, noggins, wiring, or other obstructions within the wall cavity where the flue is to penetrate.

1. Select the desired location of the heater.
2. Find the vertical centre line of the heater and mark this location on the wall.
3. Using the **A** and **B** measurements from the table, mark off the arc centre on the wall. The arc centre corresponds to the pivot point centre of the telescopic flue elbow\* on the heater.
4. From the arc centre use the measurements **C**, **D** and **E** from the table to draw an arc on the wall.

The lower end point of the arc will be the lower limit of the minimum horizontal and vertical centre of penetration (**G**).

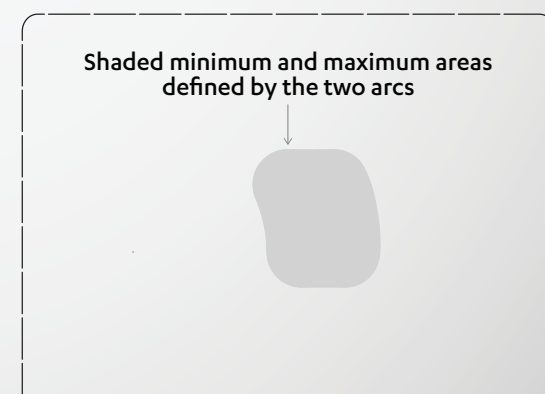
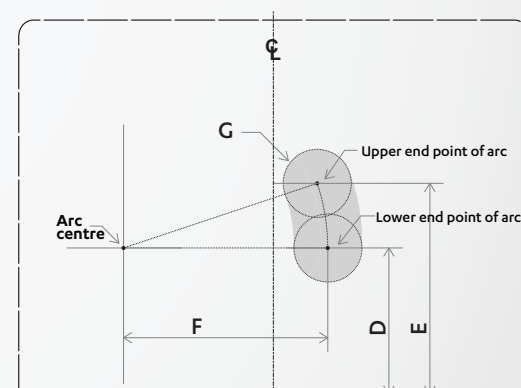
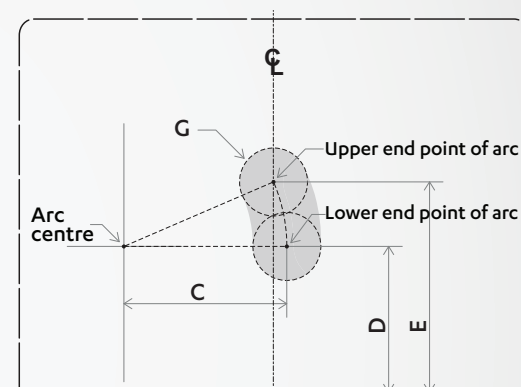
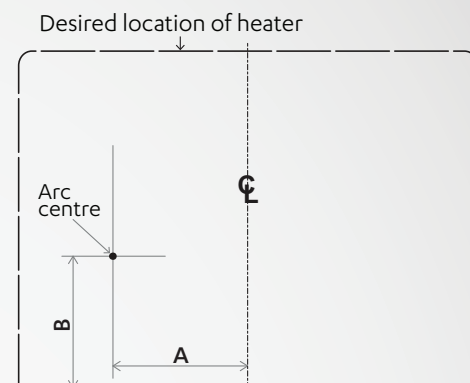
The upper end of the arc will be the upper limit of the minimum horizontal and vertical centre of penetration (**G**).

5. From the arch centre use measurements **F**, **D** and **E** from the table to draw an arc on the wall.

The lower end point of the arc will be the lower limit of the maximum horizontal and vertical centre of penetration (**G**).

The upper end of the arc will be the upper limit of the maximum horizontal and vertical centre of penetration (**G**).

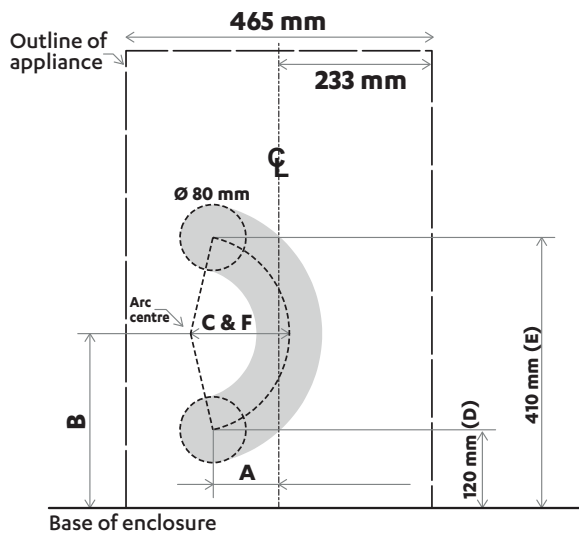
6. The penetration may be made anywhere within the shaded areas defined by the two arcs.



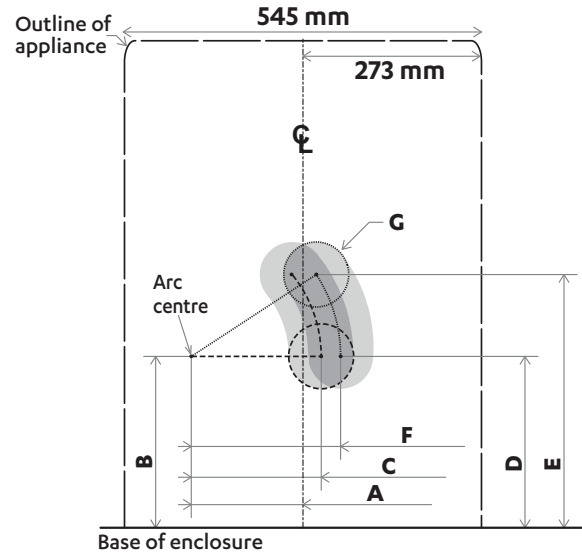
\* The 309FT model has a fixed length (non-telescopic) flue elbow—C and F measurements will be the same.



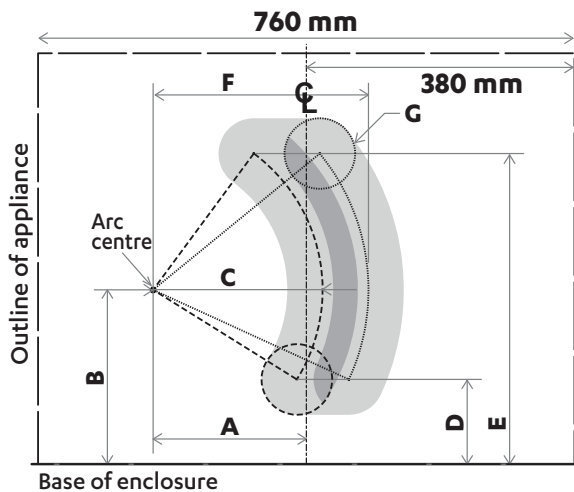
### 309FT



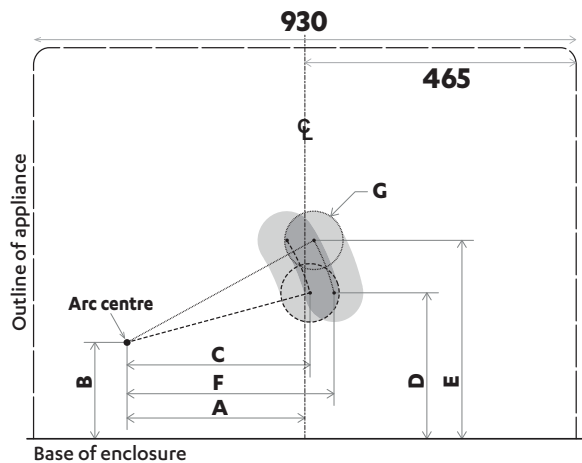
### 561FT



### 559FT



### 1005FT



### 309FT 559FT 561FT 1005FT

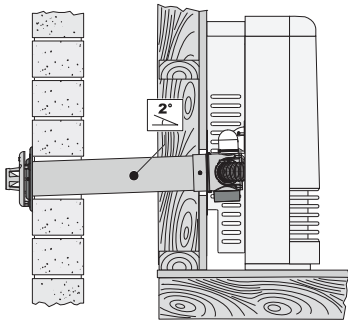
All dimensions are in mm.

	309FT	559FT	561FT	1005FT	
<b>A</b>	Horizontal distance from CL to arc centre	132	207	172	305
<b>B</b>	Vertical distance from base to arc centre	265	247	267	165
<b>C</b>	Minimum horizontal limit of arc	150	240	200	325
<b>D</b>	Minimum vertical limit of arc	220	220	267	250
<b>E</b>	Maximum vertical limit of arc	410	440	393	340
<b>F</b>	Maximum horizontal limit of arc	150	305	230	365
<b>G</b>	Penetration diameter	80	80	80	80

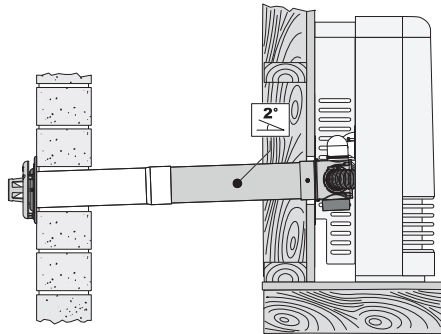
# Direct flueing using the ESDFK flue kit

The ESDFK kit can be used for walls up to 385 mm, and can be cut to length to suit wall thicknesses less than 385 mm. The ESDFK can also be used in combination with ESPIPE900 for walls greater than 385 mm, this is called direct extended flueing.

**Direct flueing**



**Direct extended flueing**



**ESPDFK wall terminal**



Refer p. 24 if cutting to length for important information regarding cutting the outer and inner pipes. Flue must terminate 300 mm above ground level. It must not terminate under the building.

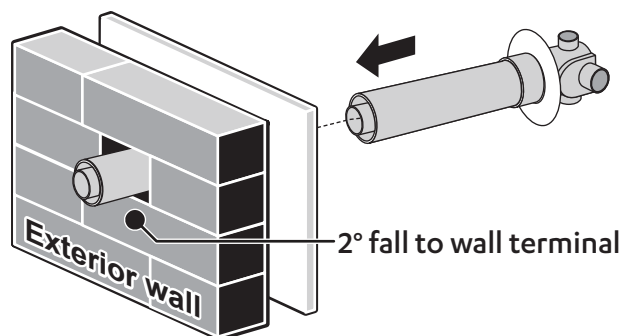
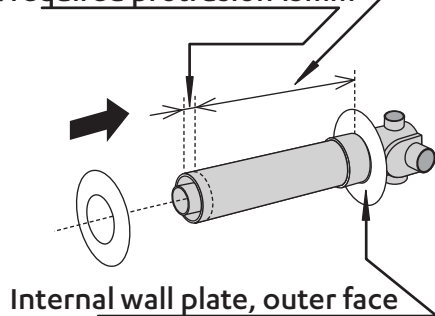
## Flue length

Direct extended flueing—flue can be up to 9 m (no bends).

## Creating a direct flue installation for walls less than 385 mm

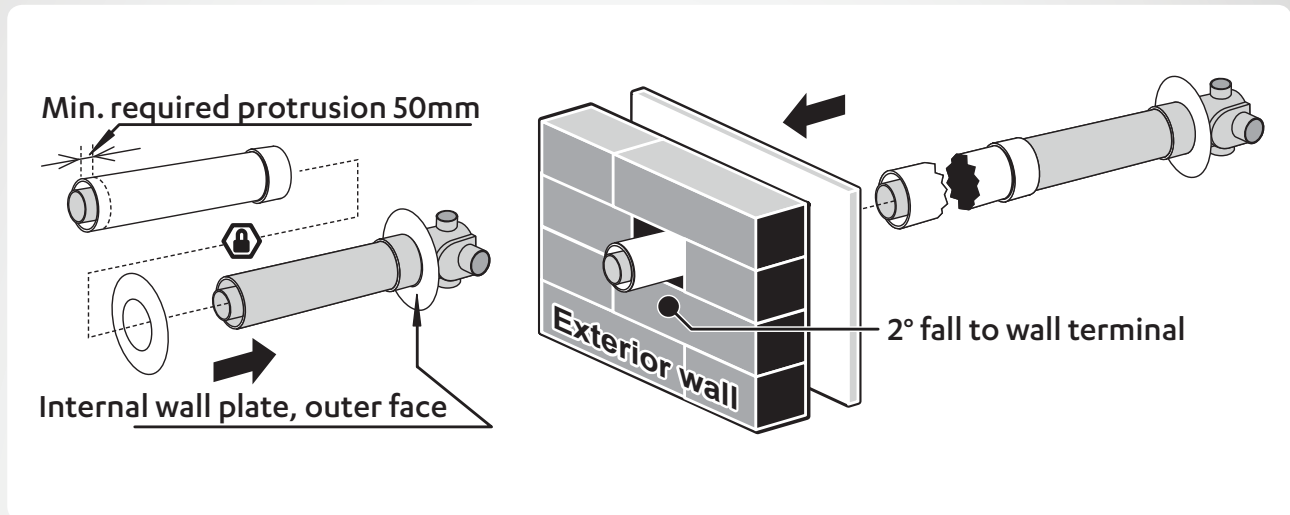
1. Create the wall penetration. Allow for a continuous 2° fall from the heater connection point to the wall terminal.
2. Slide the internal wall plate over the terminal end of the ESDFK pipe until it is nested on the raised ring of the flue transition. Pass the ESDFK through the internal wall penetration until the internal wall plate is flush with the wall.
3. Create the wall terminal.
4. Move the heater into place and connect the heater flue pipe to the flue. This is done with the flue lock clamp provided with the heater.

Max. wall thickness 385mm  
Min. required protrusion 15mm



## Creating a direct extended flue installation for walls greater than 385 mm

1. Refer step 1 on previous page.
2. Join ESPIPE900 to ESDFK—cutting is not required to join these components together. The joints between ESDFK and ESPIPE900 **MUST BE** secured by screws through the outer pipes to prevent disconnection.
3. Follow steps 2-4 as outlined in the previous section for creating a direct flue installation.



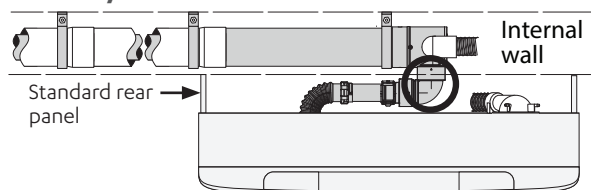
# Sideways horizontal flueing

The sideways flue installation can be run along the left or right hand side of the internal wall behind the heater. If retrofitting, the flue can be boxed in along the floor or behind a 125 mm false wall. This installation requires additional clearance off the wall with a back spacer kit.

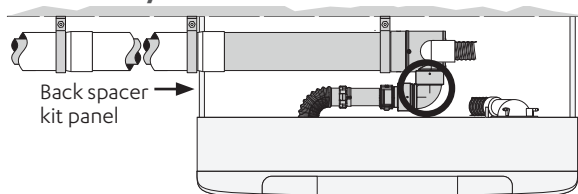
Sideways flueing can be an untidy installation. If going in-wall there needs to be a large hole made in the wall, not only for the flue, but for the connection of the heater's flexible combustion air inlet hose. If going front-of-wall a hole needs to be cut out of the back spacer kit side panel. Ensure the homeowner is aware of how this installation will look.

The instructions on these pages mainly address the sideways front-of-wall installation using the back spacer kit. Please adapt the instructions as necessary for sideways in-wall installations.

## Sideways in-wall

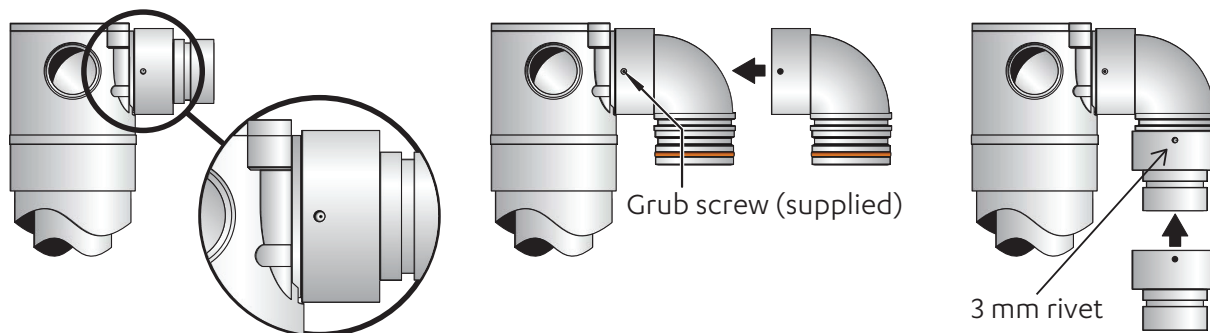


## Sideways front-of-wall



Elbow connection (circled) requires a 25 mm clearance to combustible materials

## Modifying the ESDFK



## Flue length

Total flue length can be 8 m—the elbow component is counted as a 90° bend.

If bends need to be included to offset a stud, or noggin, the flue length can be up to 6 m and contain two 90° ESBEND's (two ESBEND kits).



## Steps for creating sideways horizontal flueing

1. Using a drill, remove the pop rivet used to fasten the straight flue pipe to the flue transition of the ESDFK and remove.

Fit the elbow adaptor to the flue transition by pushing it fully home and then fasten in place with the grub screw (supplied) using an Allen key. The grub screw terminates in a groove in the flue transition.

Refit the straight pipe connection to the end of the elbow until it is fully home and fasten in place with a 3 mm rivet.

2. Temporarily position the heater in the desired location.
3. Attach the ESDFK to the flue outlet pipe from the rear of the heater. Align the flue in the direction of the discharge, either left or right ensuring a 2° fall towards the flue terminal.
4. **Sideways front-of-wall only**—attach the appropriate back spacer kit to the rear of the heater, refer separate instructions.

Mark the location of the flue penetration through the side panel of the back spacer kit. Remove panel and cut or knock-out an 80 mm Ø hole for the flue pipe to pass through—ensure the edges are smooth. Fit the protective plastic edge supplied with the back spacer kit around the hole.

5. Fit the ESPIPE900 to the ESDFK by lubricating the o-rings with the supplied o-ring grease, then fit the female inner aluminium pipe end over the male inner pipe end of the adjoining component.

If a front-of-wall installation, refit the back spacer kit side panel to the heater with the flue pipe passing through it.

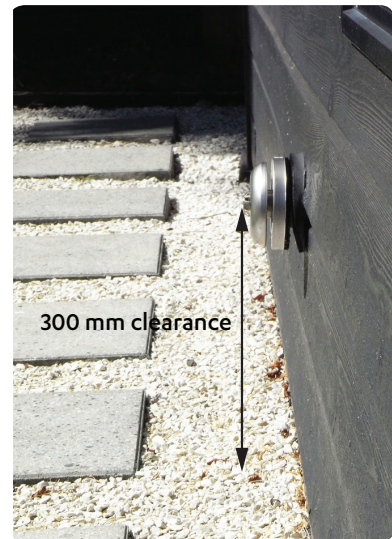
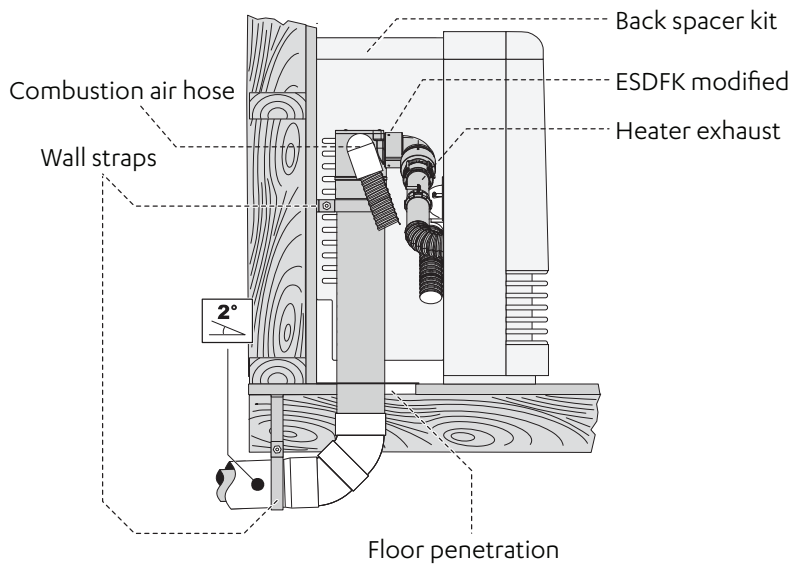
6. Locate the heater in the desired position relative to the wall. Do not secure the heater at this stage.
7. Fit additional lengths of ESPIPE900 as required.
8. Create the wall penetration, and if required (front-of-wall installation) install and fasten the internal wall plate to the internal wall.
9. Create the wall terminal, refer p. 26.
10. Secure joints between flue components through the outer pipes with screws and secure the entire flue system using the wall straps supplied.

# Down-and-out flueing

The down-and-out flue option allows for the ESDFK to face downwards and for the flue to run vertically through a hole in the floor, and then horizontally to a suitable location outside. When considering the location of the heater due care must be taken to ensure that the flue path under the floor is free of obstructions such as studs, noggins, joists, braces, electrical wires etc.

The instructions on these pages detail an installation using the back spacer kit, and where the flue penetrates the floor in front of the wall. Please adapt the instructions as necessary for down-and-out in-wall installations.

## Down-and-out configuration overview

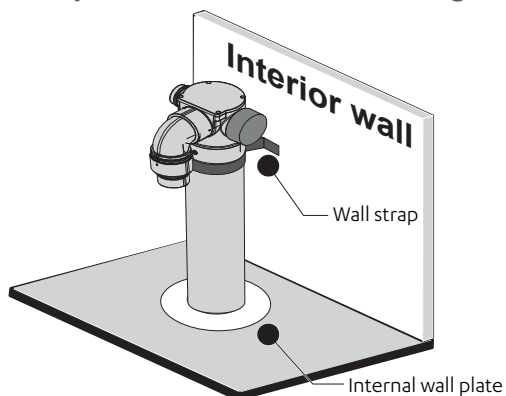


Flue must terminate horizontally 300 mm above ground level. It must not terminate under the building.

## Flue length

In the above example the flue could be up to 7 m long and contain one 90 ° bend.

## Floor penetration and assembling the flue components



## Steps for creating down-and-out flueing

### 1. **Modify the ESDFK (refer image on p. 16)**

Using a drill, remove the pop rivet used to fasten the straight flue pipe to the flue transition of the ESDFK and remove.

Fit the elbow adaptor to the flue transition by pushing it fully home and then fasten in place with the grub screw (supplied) using an Allen key. The grub screw terminates in a groove in the flue transition.

Refit the straight pipe connection to the end of the elbow until it is fully home and fasten in place with a 3 mm rivet.

### 2. **Create floor penetration**

Temporarily attach the ESDFK to the flue outlet pipe of the heater. Mark the location of the floor penetration, then cut an 80 mm hole through the floor. Ensure the hole edges are smooth.

Disconnect the ESDFK from the heater. Pass the ESDFK through the standoff clip and the internal wall plate, then pass the assembly through the floor penetration.

Secure ESDFK to the wall with the standoff clip and fasten the internal wall plate in place to the floor.

### 3. **Cut, fit, and secure flue components**

Prepare the horizontal section of the flue located under the floor by assembling, connecting

and securing the ESPIPE900, ESBEND and subsequent ESPIPE900 lengths as required.

Allow for a 2° continuous fall from the first section of horizontal pipe to the wall penetration.

### 4. **Locate the heater**

Locate the heater in the desired position relative to the wall. Do not secure the heater at this stage.

### 5. **Create wall penetration and terminal**

Create the wall terminal, refer p. 26.

### 6. **Secure flue system**

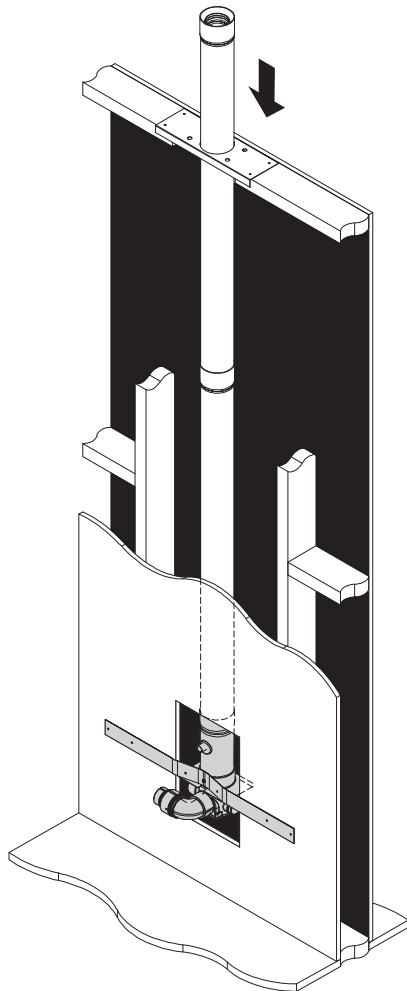
Secure the joints between the flue components through the outer pipes with screws and secure the entire flue system using the wall straps supplied.

### 7. **Install rear spacer panels OR back spacer kit**

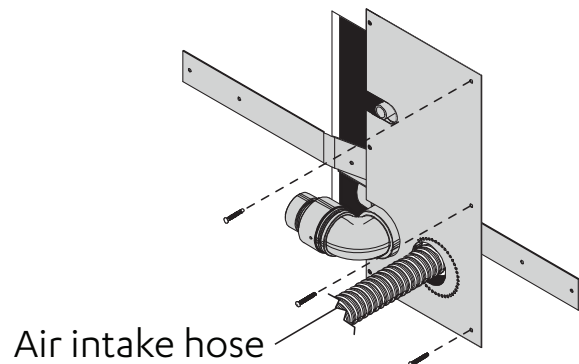
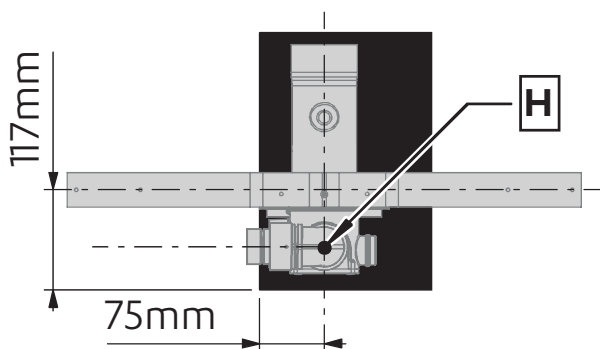
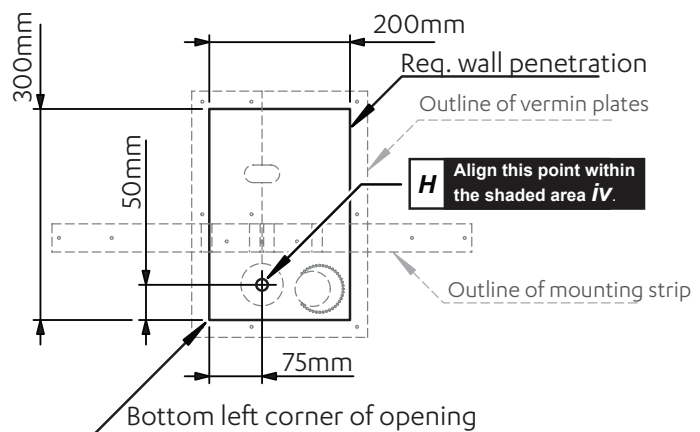
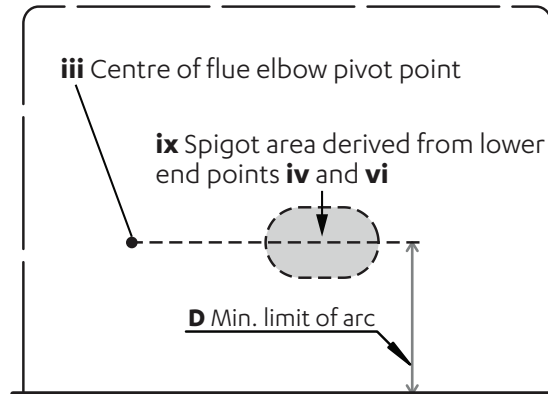
Install remaining rear spacer panels (supplied with the heater) OR the back spacer kit and secure to the internal wall.

# Vertical in-wall flueing

The vertical in-wall flue installation is installed within a stud wall (minimum cavity depth of 90 mm), is run vertically upwards, and includes a condensate trap. When considering the location of the heater ensure that the flue path in the roof space is free from obstructions such as studs, noggins, wiring, joists etc.



i Appliance outline example RHFE-559





## Steps for creating vertical in-wall flueing

1. In conjunction with the wall penetration information (p. 12-13) create a 300 mm high by 200 mm wide opening. The bottom left corner of this opening is 75 mm to the left of starting point H and 50 mm below starting point H.

2. Remove the screw from the front of the transition casting (retain) and slide the wall spacer plate over the transition casting so that the folded tab is facing down and to the rear. Using the removed screw attach the mounting strip across the front of the transition casting.

Lubricate the o-ring of the condensate trap and attach this to the transition assembly ensuring that the drain tube is facing to the front and that the arrows points up.

3. Install the above assembly in the wall cavity observing the measurements shown to ensure correct fitting of the heater and other components. Secure in place with the appropriate fittings.

4. In the top plate directly above the transition assembly cut a hole for the flue path, the maximum width MUST NOT exceed 150 mm. Ensure the transition assembly is covered to prevent debris entering.

Lubricate the o-ring of the condensate trap with the male end pointing towards the heater. Fit the required lengths of ESPIPE900 to reach, but not pass through, the top plate (lubricating the o-rings of each additional ESPIPE900 length before fitting). When this point is reached secure the top plate bracket over the hole in the top plate.

5. Continue flueing to the termination point and fit an ESROOFCOWL. To avoid obstructions in the flue path an offset can be created using the ESBEND.

6. Pass the combustion air hose of the heater through the right hand vermin plate.

**Note:** When installing the 1005 the combustion air hose diameter is larger than the other models. A knockout is provided in the vermin plate and a protective grommet is fitted before the hose can be passed through.

The combustion air hose for the heater is attached to the large diameter combustion air inlet.

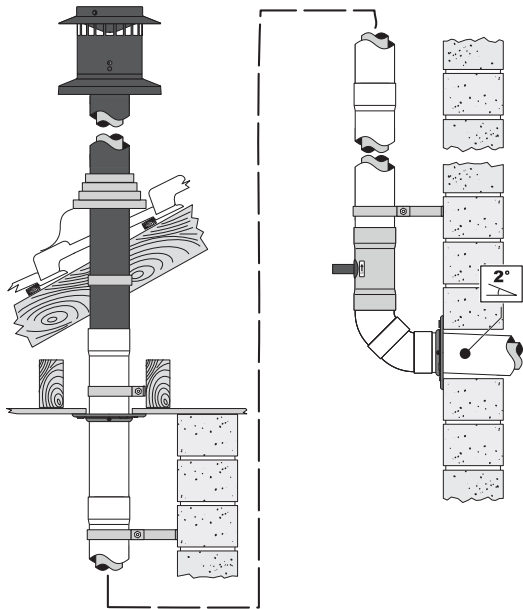
7. Move the right hand vermin plate along the hose until it is flush against the wall then secure in place with the screws provided.
8. Screw the left hand vermin plate to the right hand vermin plate using

the screws provided. When overlapped correctly the holes in both plates will be aligned. Use remaining screws to fix the left hand vermin plate to the wall.

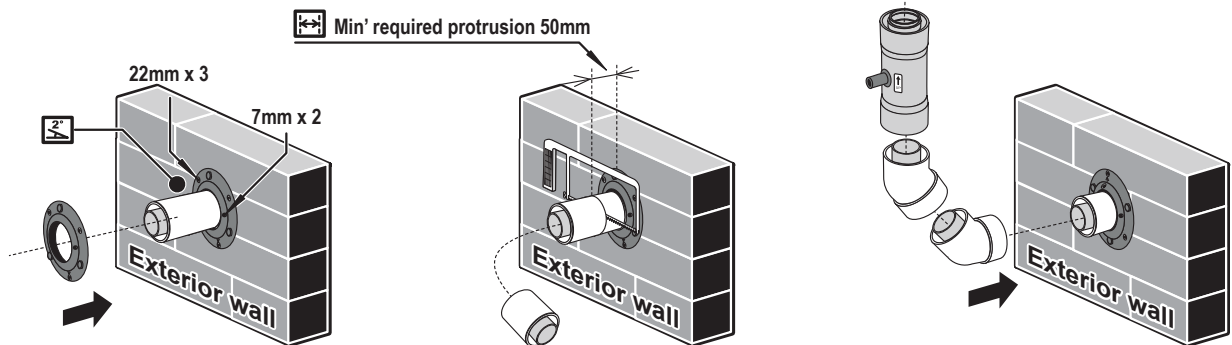
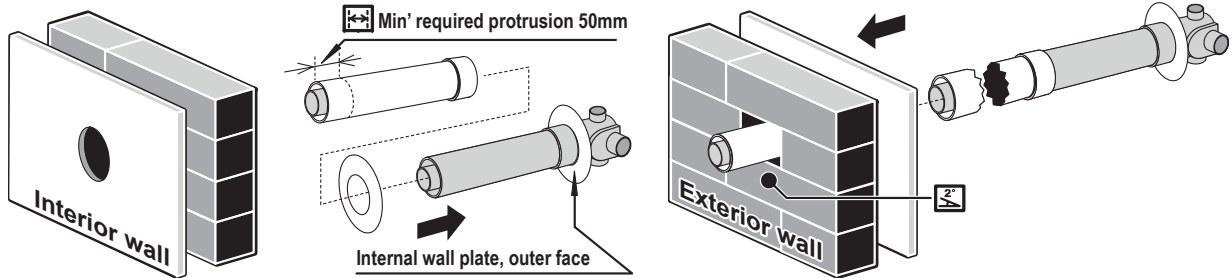
9. Connect the condensate drain tube to the heater, refer p. 27.
10. Install rear panels and fasten the heater and panels to the internal wall.

# Horizontal through-wall vertical flueing

These types of installations are rare, but have been used on the odd occasion where traditional flueing is not possible. A large portion of the flue will be visible—check with the homeowner that this is okay.



A 2° fall is required from the wall penetration back towards the heater. This will ensure the small amount of condensation in the short section between the heater and condensate trap will burn off rapidly during normal operation.



## Steps for creating horizontal through-wall vertical flueing

Some 'quirks' associated with this type of installation:

- **Condensate trap**

The condensate trap is attached to the heater from the outside. A longer length of condensate tube is required (not supplied). This needs to be connected back through to the heater via a separate hole, which needs to be weathertight. An alternate option is to drain the condensate to a waste drain/gully trap through a PVC line. For more information please contact Rinnai.

- **2° fall back to the heater**

As there is a vertical component in the installation condensate needs to be drained back towards the heater, this requires the ESDFK component to be angled 2° back to the heater.

1. The creation of the horizontal section is the same as creating a direct or direct extended flue installation, refer p. 14.  
the heater or drain the condensate to a waste drain/gully trap, refer 'condensate trap' note above. If the condensate trap is being connected back to the heater you will need a longer tube than the one supplied.
2. Slide the internal wall plate over the terminal end of the assembled flue pipe until it is nested on the raised ring of the flue transition.
3. Pass the assembly through the internal wall penetration until the internal wall plate is flush with the wall.
4. Slide the external wall plate over the outer pipe protruding through the exterior wall. Once the external wall plate is in the correct position secure it to the wall using the three screws in the holes provided. The wall plate is then secured to the outer pipe of the flue using the two horizontal holes and the two 7 mm screws provided.
5. Prepare the vertical section of the flue.
6. Either connect the condensate tube back to
7. Make the heater exhaust connections.
8. Install the rear spacer panels and fasten the heater and panels to the internal wall.

# Cutting to length (ESDFK, ESPIPE900)

Cutting of the last component in the flue assembly may be required to achieve the required length. Cutting is also required at a wall penetration. Cutting for both purposes is described below.



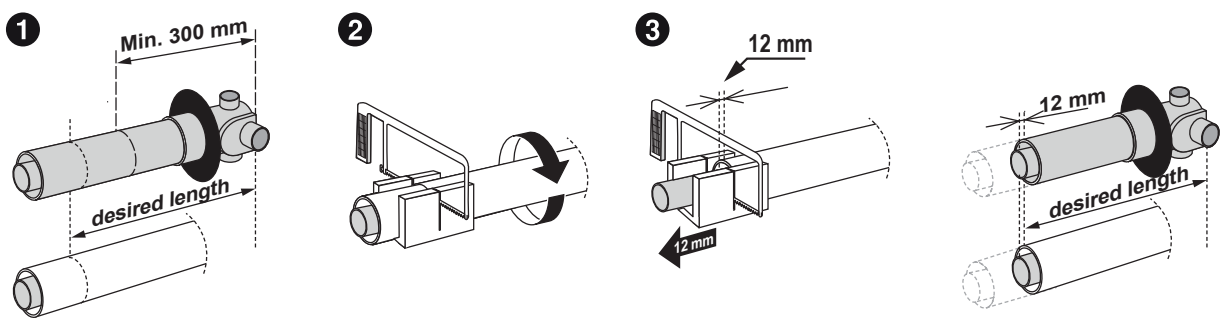
## Important

The minimum length of the ESDFK when measured from the back plate of the transition casting **MUST NOT** be less than 300 mm when joining to other components.

Ensure all burrs and swarf are removed from any cut ends.

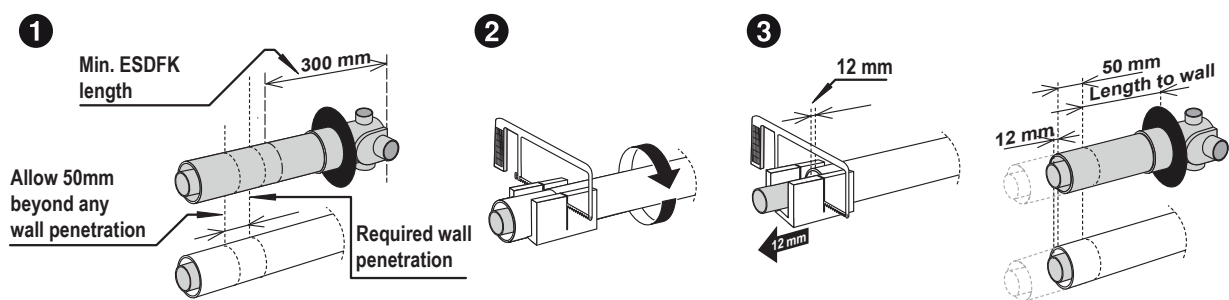
ESPIPE900, can be cut to size at the male end—do not cut the female end.

### Cutting components to achieve the desired flue length



1. Measure and mark off the outer pipe at the desired length.
2. Cut the outer pipe to the required length. Take care not to cut the inner pipe.
3. From the 'new' end of the outer pipe measure and mark off an additional 12 mm\* on the inner pipe. Cut the inner pipe at this mark. Take care to keep the cut parallel to the outer pipe.

### Cutting components at a wall penetration



1. Measure and mark the outer pipe at a point flush with the surface of the wall penetrated PLUS an additional 50 mm.
2. Cut the outer pipe to the required length. Take care not to cut the inner pipe.
3. Refer step 3 above.

\* The additional 12 mm on the inner pipe is needed to connect the flue terminal or ESBEND

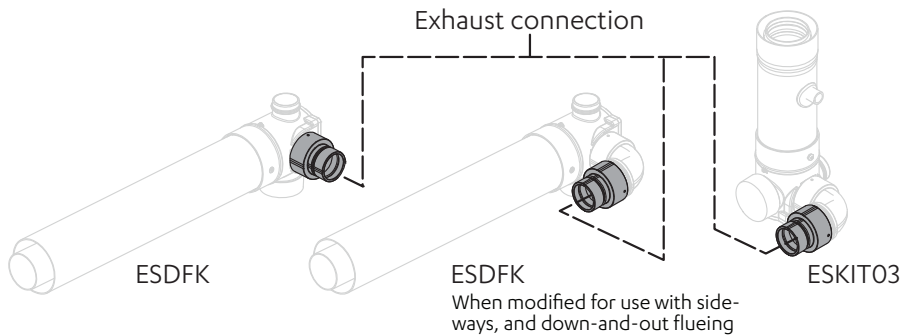


# Connecting the heater exhaust and air supply



This step in the installation is critical. If this joint is not secured properly, products of combustion could disperse into the room being heated.

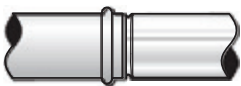
## Exhaust connection of the ESDFK and ESKIT03 (shaded sections)



1. Lubricate the o-ring of the exhaust connection and fit the exhaust pipe of the heater. Push the exhaust pipe fully home so the end of the exhaust connection and the collar of the exhaust pipe are fully mated.
2. Attach the flue lock clamp\*, provided with the heater, over the exhaust pipe and transition adaptor. Ensure the teeth of the flue lock clamp engage over the collar of the exhaust pipe AND the channel in the transition adaptor. Close the clamp until the tab locks to secure both components together.
3. For the 559, 561, and 1005 models, use the adjustable telescopic tube of the exhaust pipe to position the heater. DO NOT extend the telescopic tube beyond the red indicator groove.
4. The combustion air hose is attached to the small diameter combustion air inlet. Secure the combustion air hose to the combustion air inlet with the cable tie supplied with the heater.
5. Secure the protective sock in place on the exhaust pipe using the stainless steel sheath clamp provided with the heater.
6. Ensure the unused air intake is plugged using the rubber cap provided.

\* 1005 model comes with two flue lock clamps, one large, and one small.

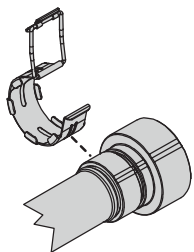
Maximum extension



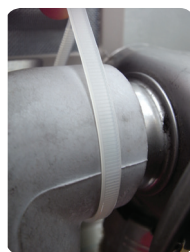
**Incorrect** tube is over extended



Adjustment of telescopic tube for 559, 561, and 1005 models



Flue lock clamp



Combustion air hose attachment

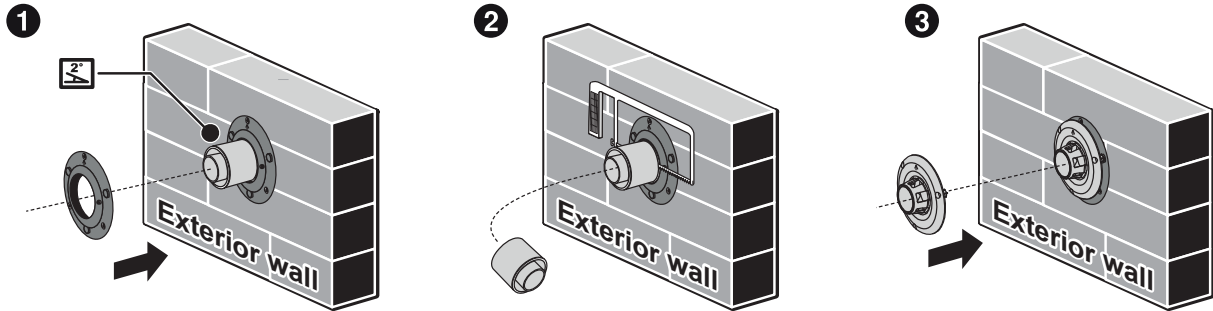


Securing the protective sock

# Assembling a wall terminal

Only the ESDFK, and the ESPIPE900 /ESWTERM can be used to create a wall terminal.

## Steps to create a wall terminal



1. Fit the supplied external wall plate over the outer pipe of the flue protrusion (arrow points up).



**2° fall to the outside—arrows point up**

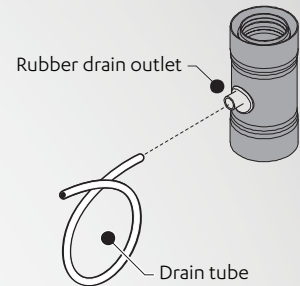
Once the external wall plate is in the correct position secure it to the wall, using the three 22 mm screws, and into the wall plate holes. Secure the wall plate to the outer pipe using the two horizontal holes and the two 7 mm screws provided.

2. Carefully cut through the outer and inner pipes (refer previous page). Take care to avoid cutting the external wall plate, and keep the cuts of the internal and external pipes as parallel as possible. Remove all burrs and swarf from the cut ends.
3. Align the arrows of the metal flue terminal and wall plate to point in the same direction (must always point up) and screw the terminal to the external wall plate using the 22 mm screws into the holes provided.

# Connecting the condensate drain tube

The condensate drain kit is provided with the ESKIT03 (p. 9). It is used for vertical flue installations that require draining of condensate back into the heater.

1. Insert one end of the drain tube into the rubber drain outlet of the condensate trap.
2. Carefully mark and drill a 10 mm deep hole in the rear panel of the heater—refer model dimensions below. For models 309FT, 559FT, and 561FT you must drill through the raised rear panel as well as the back panel of the heater.



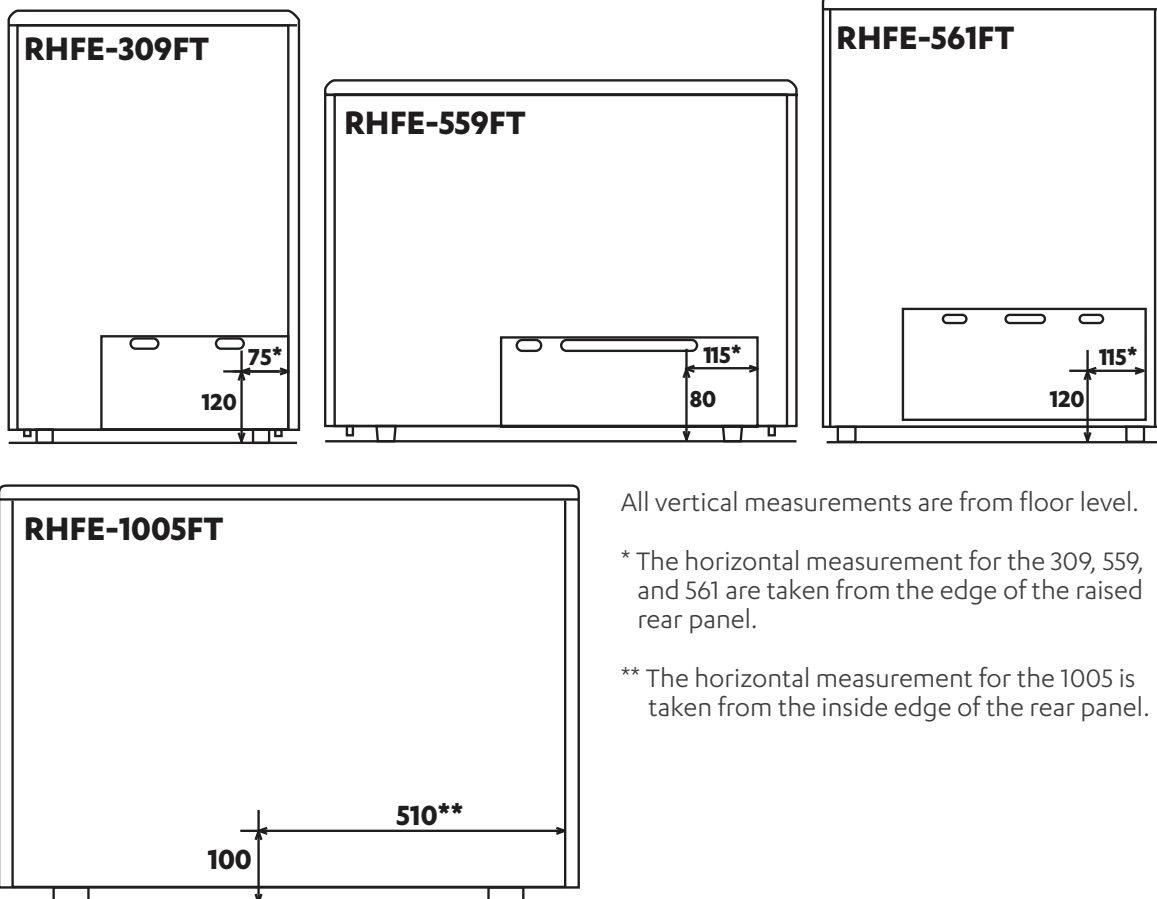
Take care not to drill deeper than 10 mm into the back panel of the heater as this may damage internal components, such as the heat exchanger.

3. Feed approximately 60 mm of the free end of the drain tube through the hole created in step 2, ensuring that any condensate can drain into the condensate tray of the heater.



DO NOT allow the drain tube to come into contact with any part of the heat exchanger.

4. Secure the drain tube to the rear of the appliance with a pipe clip.



All vertical measurements are from floor level.

\* The horizontal measurement for the 309, 559, and 561 are taken from the edge of the raised rear panel.

\*\* The horizontal measurement for the 1005 is taken from the inside edge of the rear panel.



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