heating products

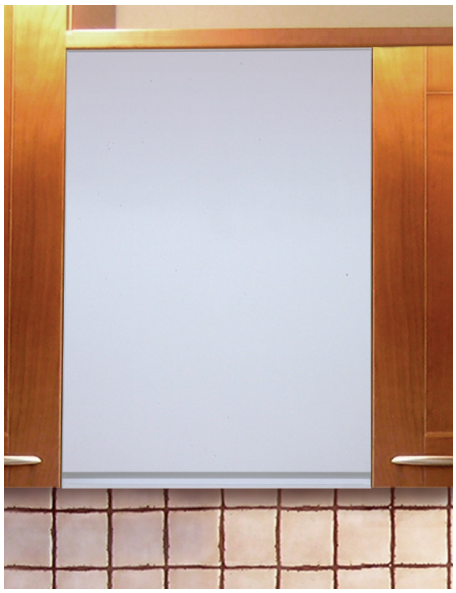
thermeco
clean heat technology

High Efficiency Oil Fired Boilers

Condensing Boiler Handbook

All Models

For owners, installers and service engineers



Internal Wall Mounted

External Wall Mounted

External Floor Standing

Internal Floor Standing

OFTEC Member

ISO 9001 REGISTERED FIRM

WRAS Approved Product

Part L Compliant

Band A

SEDBUCK Range 90% and above

Important Health and Safety Information for Installers and Service Engineers

Health and Safety at Work Act 1974
Consumer Protection Act 1987
COSHH Regulations 1988

The following information is given as a requirement of the above legislation.

Great care is taken by Thermeco Boilers to ensure that Boilers are designed and manufactured to meet general safety requirements when properly used and installed as recommended in this manual.

It is the responsibility of Users and Engineers to ensure that adequate protective clothing and glasses are worn when working on the Boiler.

FUEL

KEROSINE GAS & OIL FUELS (MINERAL OILS)

1. The effect of minerals oils on the skin vary according to the duration of exposure.
2. The lighter fractions also remove the protective grease normally present on the surface of the skin rendering the skin dry, liable to crack and more prone to damage caused by cuts and abrasions.
3. Skin rashes (oil Acne). Immediately seek medical attention for any rash, wart or sore developing on any part of the body, particularly on the scrotum.
4. As far as possible avoid any skin contact with mineral oil or clothing contaminated with mineral oil.
5. Never breathe any mineral oil vapours. Do not fire the Burner in the open i.e. out of the Boiler as misfire will cause unburnt oil vapours.
6. Barrier cream containing lanolin such as Rosalex Antisolv, is highly recommended together with a strict routine of personal cleansing.
7. Under no circumstances should mineral oils be taken internally - never suck or blow a pipe!

SEALS AND INSULATION

FIBREGLASS INSULATION, GLASS ROPE, MINERAL WOOL, INSULATION PADS AND CERAMIC FIBRE.

1. Avoid inhalation of fibres or dust, wear face mask.
2. Avoid eye contamination by fibres or dust - wear eye protection.
3. As far as possible avoid any skin contact with Fibreglass Insulation, Glass Rope, Mineral Wool, Insulation Pads and Ceramic Fibre.

OTHER MATERIALS

SEALANTS, ADHESIVES AND PAINTS

Sealants, Adhesives and Paints are used in the construction of Boilers. When used in the manner for which they are intended they do not present any known hazard.

ELECTRIC

All Boilers when in use have electrical supply of 240V (enough to endanger life) connected to the Panel and Burner.

Always isolate the boilers during cleaning, servicing and repair.

EXTERNAL BOILERS

In wet weather conditions due consideration should be given to the metal casing and electrical current within the Boiler casing.

Never open the front door of External Wall Mounted Boilers in conditions such that water could come in contact with any electrical component causing an immediate danger to life.

GAH (Heating Products) Limited will not accept responsibility for any damage or personal injury caused by not giving due consideration to the above safety recommendations.

In pursuance of a policy of constant development, GAH (Heating Products) Limited reserve the right to change any boiler part or design without notice, therefore certain details included in this manual may not be correct at the time of printing. Any modification and improvements detailed in this manual does not commit Thermeco to update any system previously supplied.

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Manual Ref BC1
Issue 4
Date ..... April 2008

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CONTENTS

1-1 Installer

Boiler Installed by:-

Tel: _____

Fax: _____

email: _____

Boiler Commissioned by:-

Tel: _____

Fax: _____

email: _____

To the householder.

Thank you for purchasing a Themeco Oil Fired Boiler.

In the unlikely event of a problem arising with the Boiler please first refer to:- Section 10-1 'Householders Fault Finding' of this Manual.

If you cannot rectify the problem from the information given, or if the problem persists contact the INSTALLER who will assess the problem and if necessary contact our service department.

DO NOT involve a third party that may incur you costs as this will not be covered by the Boiler Guarantee.
Any work not authorised by GAH (HEATING PRODUCTS) LTD. may also invalidate the Guarantee.
Work carried out and parts fitted by unauthorised engineers cannot be guaranteed.
The Boiler must be commissioned within 10 working days of installation, failure to do so will invalidate the Guarantee.

1-2 Householders Information

The type of fuel required for the Boiler is :-

Kerosine 28 second class C

For Information on Bio fuel consult installer or GAH.

Tank Capacity ✍

Note
The price of fuel has seasonal fluctuations and varies from supplier to supplier. You are advised to shop around for a good deal.

Oil Suppliers

☎

☎

Boiler Service Engineer

☎

☎

1-3 Service History

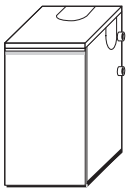
It is a condition of the Guarantee that the Boiler is serviced every 12 months.

	By	Date	Next Service due by	Notes
Installed			N/A	**Boiler must be commissioned within 10 working days**
Commissioned				
Service				
Service				
Service				
Service				
Service				
Service				

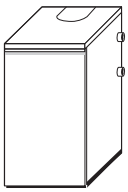
1-4 Boilers covered by this manual

My Boiler ✔ Tick box

	QUICK PAGE REFERENCE		
	Oil Connection	Wiring Diagram	Dimensions



Floor Standing Internal
Model **BFIC 12/24**
kW 12.0 to 24.0
Btu/hr x 1000 40 to 80
✍ ☐



Floor Standing Internal
Model **BFIC 24/30**
kW 24.0 to 30.0
Btu/hr x 1000 80 to 100
✍ ☐

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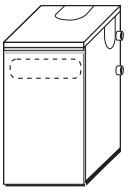
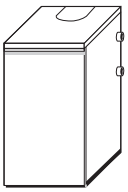


Floor Standing Internal System
Model **BFISC 12/24**
kW 12.0 to 24.0
Btu/hr x 1000 40 to 80
✍ ☐ INTERNAL EXPANSION VESSEL



Floor Standing Internal System
Model **BFISC 24/30**
kW 24.0 to 30.0
Btu/hr x 1000 80 to 100
✍ ☐ EXTERNAL EXPANSION VESSEL

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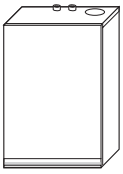
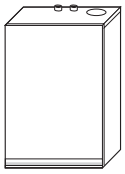


Wall Mounted Internal
Model **BWIC 12/16**
kW 12.0 to 16.0
Btu/hr x 1000 40 to 55
✍ ☐



Wall Mounted Internal
Model **BWIC 16/25**
kW 16.0 to 25.0
Btu/hr x 1000 55 to 85
✍ ☐

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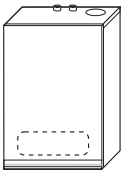
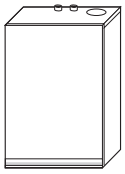


Wall Mounted Internal System
Model **BWISC 12/16**
kW 12.0 to 16.0
Btu/hr x 1000 40 to 55
✍ ☐ INTERNAL EXPANSION VESSEL



Wall Mounted Internal System
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kW 16.0 to 25.0
Btu/hr x 1000 55 to 85
✍ ☐ EXTERNAL EXPANSION VESSEL

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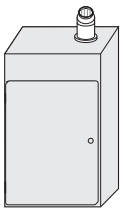
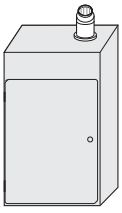


Wall Mounted External
Model **BWEC 12/16**
kW 12.0 to 16.0
Btu/hr x 1000 40 to 55
✍ ☐



Wall Mounted External
Model **BWEC16/25**
kW 16.0 to 25.0
Btu/hr x 1000 55 to 85
✍ ☐

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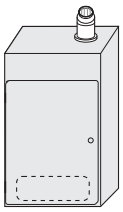

Wall Mounted External System
Model **BWESC 12/16**
kW 12.0 to 16.0
Btu/hr x 1000 40 to 55
✍ ☐ INTERNAL EXPANSION VESSEL

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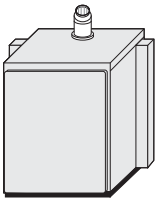
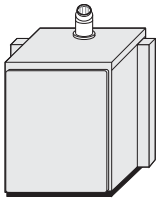


Floor Standing External
Model **BFEC 12/24**
kW 12.0 to 24.0
Btu/hr x 1000 40 to 80
✍ ☐



Floor Standing External
Model **BFEC 24/30**
kW 24.0 to 30.0
Btu/hr x 1000 80 to 100
✍ ☐

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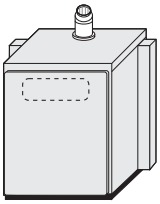

Floor Standing External System
Model **BFESC 12/24**
kW 12.0 to 24.0
Btu/hr x 1000 40 to 80
✍ ☐ INTERNAL EXPANSION VESSEL

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2-1 Control Box Internal Boilers

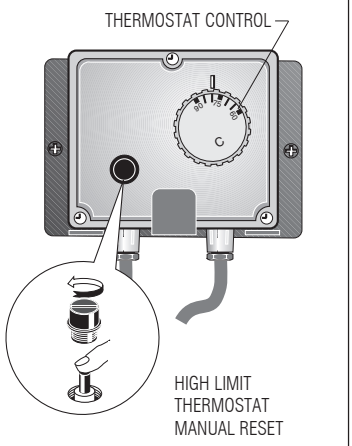


Fig. 2-1a Control Box - Internal Boilers

2-1.1 Boiler Thermostat Control

The Boiler Thermostat Control is used to control the temperature of the water within the Boiler Water Chamber.

The temperature range of the control is 60°C to 90°C. The recommended settings of the Boiler Thermostat control are:-

Winter Heater and Hot Water 80°C - Summer Hot Water only 65°C.

2-1.2 High Limit Thermostat with Manual Reset

A High Limit Thermostat with an integral Manual Reset button is fitted as standard to all internal condensing Boilers. Boilers fitted with Manual Reset High Limit Thermostats will not restart automatically after overheating has occurred.

The High Limit Thermostat will trip and shut the Boiler down when the water within the Boiler is overheated.

When the water temperature falls to a satisfactory level (10°C below High Limit Thermostat setting), the Manual Reset button (protected by a removable plastic cap) should be pressed - this will restart the Boiler.

If overheating occurs check that the Boiler Heating Thermostat control is set at 80°C or below. If it still occurs more than occasionally, consult your installation engineer as there may be a fault within the system.

2-2 Control Panel External Boilers

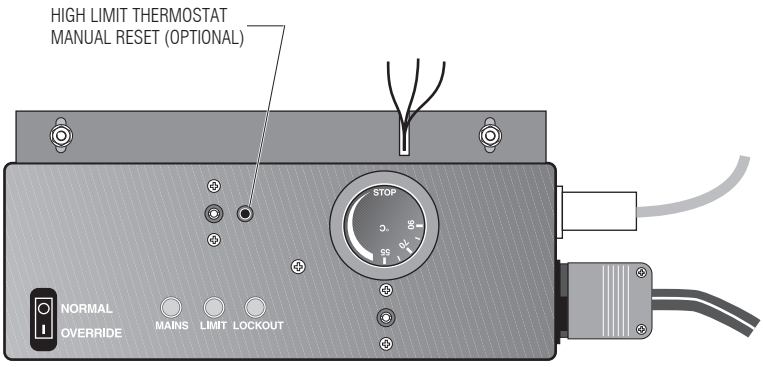


Fig. 2-2a Control Panel - External Boilers

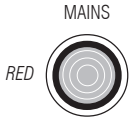
2-2.1 Boiler Thermostat Control

The Boiler Thermostat Control is used to control the temperature of the water within the Boiler Water Chamber.

The Thermostat control has a 'STOP' position to switch the Boiler OFF.

The temperature range of the control is 55°C to 90°C. The recommended settings of the Boiler Thermostat control are:-

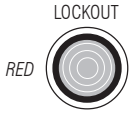
Winter Heater and Hot Water 80°C - Summer Hot Water only 65°C.



2-2.2 Mains Indicator Lamp

The Mains Indicator Lamp will be lit when the Boiler Mains Switch is ON and the heating system control is calling for heat.

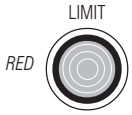
If the Lamp does not illuminate refer to Section 10 Fault Finding.



2-2.3 Lockout Indicator Lamp

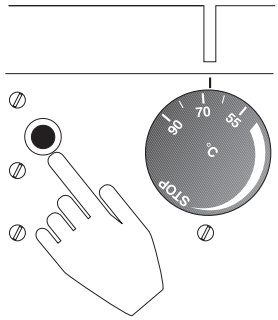
When the Lockout Indicator Lamp is illuminated, it indicates that a Burner 'Lockout' has occurred and the Boiler is not operational.

Refer to 3-3 to restart Boiler.



2-2.4 Limit Indicator Lamp

The Limit Indicator Lamp is illuminated when the water within the Boiler is overheated i.e. the High Limit Thermostat of the Boiler control is tripped.



2-2.5 Manual Limit Reset Button

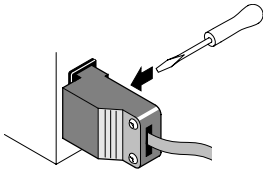
A High Limit Thermostat with an integral Manual Reset button is normally fitted to all external condensing Boilers. Boilers fitted with 'Manual Reset' High Limit Thermostats will not restart automatically after overheating has occurred.

The Limit Indicator Lamp is OFF when the Boiler is operating normally.

If the Lamp is ON the water within the Boiler is or has overheated i.e. the High Limit Thermostat of the Boiler control is tripped.

When the Limit Lamp is ON (High Limit Thermostat tripped) the Boiler shuts down. When the water temperature falls to a satisfactory level (10°C below High Limit Thermostat setting), the Manual Reset button should be pressed - this will restart the Boiler.

If overheating occurs check that the Boiler Heating Thermostat control is set at 80°C or below. If it still occurs more than occasionally, consult your installation engineer as there may be a fault within the system.



TO REMOVE PLUG PRESS SMALL SCREWDRIVER THROUGH HOLE IN REAR OF PLUG

2-2.6 Mains Plug

The Mains Plug connects power to the Boiler.

The plug must be IN for the Boiler's Frost Protection to function.

2-2.7 Normal/Override

The Normal/Override switch allows for the household heating control circuitry to be overridden by switching to the permanent live.

The switch is intended for use by service engineers to allow operation of the Boiler without the necessity of entering the household.

The switch should be set at NORMAL (O) at all other times.

3-1 Switching the Boiler ON

To set Boiler for operation:-

Internal

1. Turn fuel supply on.
2. Switch power supply to the Boiler ON.
3. Set Boiler Thermostat Control to the required setting.
4. Set Central Heating Control System to ON.

External

1. Turn fuel supply on.
2. Switch power supply to the Boiler ON.
3. Set Normal/Override switch to Normal.
4. Set Boiler Thermostat Control to the required setting.
5. Set Central Heating Control System to ON.

Note

The Installer should instruct the user on operating the central heating system.

3-1.1 Boiler Operation

The Boiler Thermostat switches power to the burner ON and OFF in response to the temperature of the water within the Heat Exchanger.

The burner will automatically fire when the water temperature within the Boiler falls below the thermostat control setting, and will continue to run until the water temperature rises to the set °C.

The burner has its own Control System that gives correct ignition and shut-off sequences to maintain safe operation.

3-1.2 Automatic Boiler Operation

A fully automatic central heating and hot water installation with its own remote timer and control system will switch the Boiler ON and OFF as and when heat is required.

3-2 Switching the Boiler OFF

Note

For frost protection of External Wall Mounted and External Freestanding Boilers the mains switch controlling the Boiler must be ON.

The Boiler can be switched off by any of the following means:-

1. Switch the Mains Switch on the Boiler Control Panel to OFF (external only).
2. Turn the Boiler Thermostat control to STOP.
3. Switch OFF the mains switch controlling the Boiler.
4. Set the central heating control system to OFF.

Remember

Switch on the fuel before attempting to restart the Boiler.

IMPORTANT In the event of abnormal operation:-

1. **Switch OFF the mains switch controlling the Boiler.**
2. **Shut OFF fuel supply.**
3. **Refer to Section 10 Fault Finding.**

3-3 Burner 'Lockout'

Note

External Boilers have a 'Lockout' lamp on the control panel. This will illuminate when 'lockout' has occurred.

The burner has its own control system that synchronises the burner ignition sequences. The safety system of the burner includes a flame detector (photoresistor) which senses the light of the flame.

In the event of a failure of the flame, the burner control goes through a re-ignition sequence. If the flame is not evident within 15 seconds, the burner shuts down due to its lockout circuit being energised.

The reset lamp in the burner beset button illuminates to indicate that 'lockout' has occurred.

In the event of a 'lockout', wait 45 seconds and restart the burner by pressing the reset button.

If lockouts are more than occasional, consult your service engineer as there may be a fault with the fuel supply or burner.

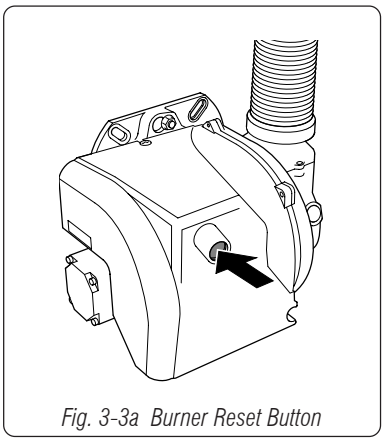


Fig. 3-3a Burner Reset Button

3-3.1 Restart Boiler after 'Lockout'

Lockouts indicate a fault in the Boiler operation and can be attributed to:-

1. An interruption in the fuel supply (most common).
2. A fault in the electrical supply i.e. very low voltage.
3. Faulty operation of the burner or its safety control system.
4. A component failure.
5. A fault in heating system control external to Boiler.

Before attempting to restart the Boiler, remove the front panel of the Boiler and look for any obvious problems i.e. oil leaks.

Restart Procedure:-

1. Check that there is sufficient oil in the tank and that the supply valves are open.
2. Check that the Boiler thermostat, time switch or programmer and any other system controls are set to call for heat.
3. Press and release the red glowing plunger reset button on the burner control box. The red light will extinguish and the burner will commence the start sequence.

   After 15 seconds, the burner should fire normally.

If the burner does not fire, the lockout symptoms will persist and the burner control box reset button will again glow.

4. Wait at least 45 seconds and press the lockout button on the control box again.

IMPORTANT If the Boiler fails to start on the second attempt then:-
Switch off the Electricity Supply.
Refer to Section 10 Fault Finding.
DO NOT ATTEMPT TO START MORE THAN TWICE.

3-4 Care of the Boiler

IMPORTANT Ensure that the condensate drain pipe is kept clear and able to drain away freely.

3-4.1 All Internal Boilers

Occasionally wipe the casing down with a non-abrasive cleaner and vacuum out dust and cobwebs from within the casing.

3-4.2 External Wall Mounted Boilers

Occasionally wipe the casing down with a non-abrasive cleaner and vacuum out dust and cobwebs from within the casing.

Regular application of car polish to the outside of the casing will help protect the paint finish and prevent algae growth.

3-4.3 Servicing

Condensing Boilers require servicing once a year to ensure continued reliable operation and fuel economy. Servicing at the stated intervals is a prerequisite of the Boiler Warranty.

A competent engineer should be sought to carry out the servicing at the required intervals. An OFTEC trained and registered engineer would be a good choice.

4-1 Compliance

The Boiler and heating system must be installed to comply with the latest Building Regulations, British Standards and OFTEC recommendations, refer to the Appendix at the back of this book.

4-2 Siting and Positioning the Boiler

The Boiler must be commissioned within 10 working days of installation, failure to do so will invalidate the Guarantee.

Note

For Boiler Weight see Section 11.

4:2.1 Considerations for Boiler Position

The most suitable position for the Boiler is usually dictated by the flue arrangement, the location of the flue terminal is restricted by regulations refer to Appendix.

Other consideration will be condensate drain, oil pipe and heating pipework arrangements.

Careful consideration of the most suitable Boiler position should be undertaken before installation.

4-2.2 Noise Levels

Quiet operation is a design feature of Themeco Boilers making them ideal for kitchen and utility room installations. However, consideration should be given to the noise levels of the Boiler and the following:-

1. Sound levels must be discussed with the householder as some individuals are particularly sensitive to even low levels of noise.
2. The type and position of the flu may affect noise levels.
3. Conventional flues are generally noisier than balanced flues.
4. Noise from balanced flues facing neighbouring properties should be considered.
5. Sound levels in small rooms may appear more intrusive than the same sound pressure in a larger room.
6. Some building materials can tend to amplify the sound from Wall Mounted Boilers, using battens to space the Boiler off the wall may reduce this effect.

4-2.3 The Hearth - Floor Standing

The hearth temperature of Select and Option Boilers is less than 85°C. A suitable level hearth, which is impervious to kerosine, must be provided.

Where the Boiler is to stand on a floor of combustible material then protection between the Boiler and the floor should be provided by means of non-combustible material.

The floor must give adequate support to the filled Boiler. Consult the Building Regulations for safe floor loadings.

4-2.4 Frost Protection

The Boiler and the central heating system must be protected from frost.

External Free Standing Boilers have a frost thermostat fitted as standard, this must be correctly wired to provide frost protection - see wiring diagrams Section 11.

All Boilers installed in outhouses or where conditions of frost could arise must be protected by a frost protection arrangement that will fire the Burner when the temperature falls below 4°C.

A suitable antifreeze must also be used in applications where freezing can occur and should be considered for all systems.

4-2.5 Rodent Intrusion

Boilers installed in situations where rodent intrusion is possible, all pipe/cable entry holes of the Boiler must be covered, after installation, to prevent rodents entering the Boiler casing.

4-3 Condensate Drain Arrangement

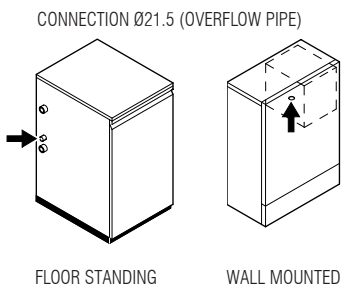


Fig. 4-3a Condensate Drain

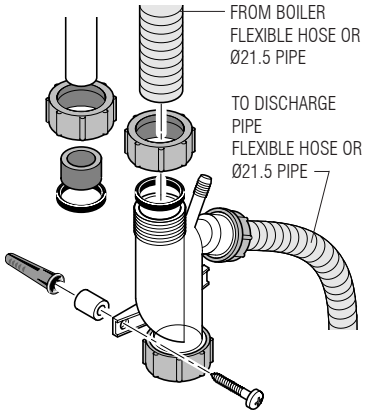


Fig. 4-3b Trap

Note

Figures 4-3c, d, e & f show internal floor standing boilers. The arrangements are common to all Boilers.

Extracting heat from the combustion flue gases by cooling in the condenser unit produces condensation. The condensation is collected and drained from the condensing unit to a condensate drain connection of the Boiler.

The amount of condensate generated will depend on Boiler size and operating conditions, this could be up to 2.5 litres per hour.

4-3.1 Condensate Trap

A clear plastic trap is supplied with the boiler complete with fixing screws, spacers and wall plugs.

A flexible hose 3m x Ø21.5 i.d. x Ø32 o.d. plus clip is also supplied with the Boiler. The flexible pipe can be used to connect from the Boiler to the Trap and from the Trap to the discharge pipe. Alternatively standard Ø21.5 plastic overflow pipe and fittings can be used (not supplied).

The trap provides a 75mm seal.

On floor standing internal Boilers the trap is supplied loose for fitting outside the Boiler case. It must be fitted inside the property or outhouse and not fitted outside.

Where there is room the trap can be fitted inside the Boiler case.

Fill trap with water before starting the Boiler.

4-3.2 Discharge Pipe

The Boiler condensate drain connection is Ø21.5 (standard overflow pipe).

When installing the condensate drain the following points must be considered:-

1. The discharge should not discharge into a sink, bath, or shower etc.
2. External discharge pipe must be either protected from frost or be of at least Ø32.
3. Horizontal runs must have a fall of 3° or 50mm per metre.
4. The discharge pipe run should be kept as short as possible.
5. The maximum permitted run for external pipe is 3m.
6. Horizontal discharge pipe must be supported at 500mm maximum intervals.
7. Vertical discharge pipe must be supported at 1m maximum intervals.

The condensate discharge drain can be arranged in four ways as shown on the following illustrations figs. 4-3c, d, e and f.

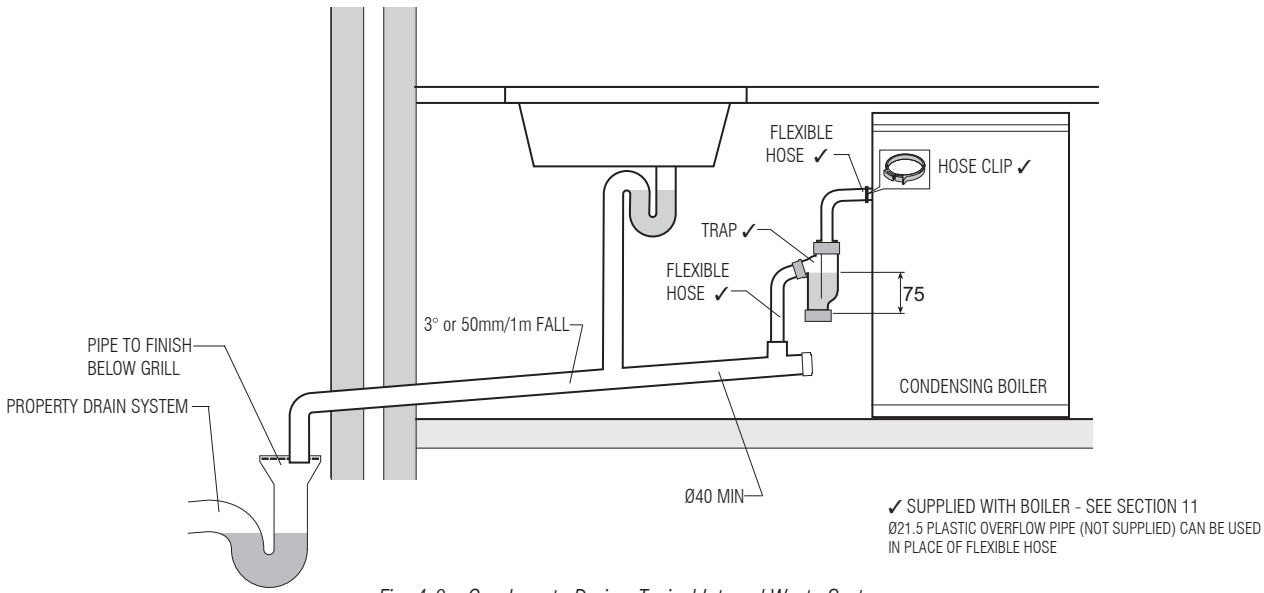


Fig. 4-3c Condensate Drain - Typical Internal Waste System

Note

Figures 4-3c, d ,e & f show internal floor standing boilers. The arrangements are common to all Boilers.

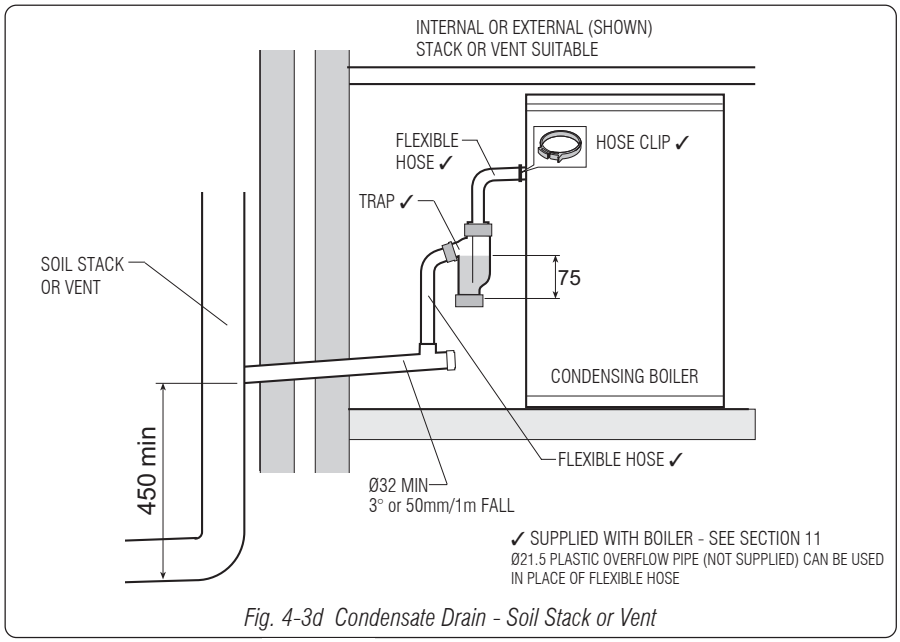


Fig. 4-3d Condensate Drain - Soil Stack or Vent

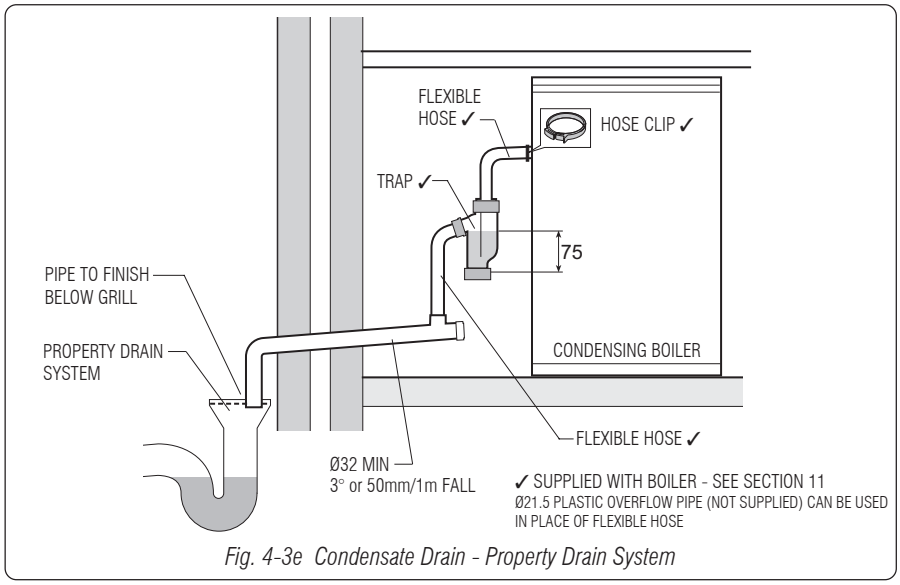


Fig. 4-3e Condensate Drain - Property Drain System

IMPORTANT
The discharge must not be to a rainwater drain unless the property has a combined rainwater and foul water drainage system.

Note

Inline condensate waste neutraliser units are commercially available that profess to neutralise acidic waste allowing condensate to be discharged into septic tanks, sewers and soakaways. They require annual cartridge replacement - consult specialist suppliers.

✓ SUPPLIED WITH BOILER - SEE SECTION 11.

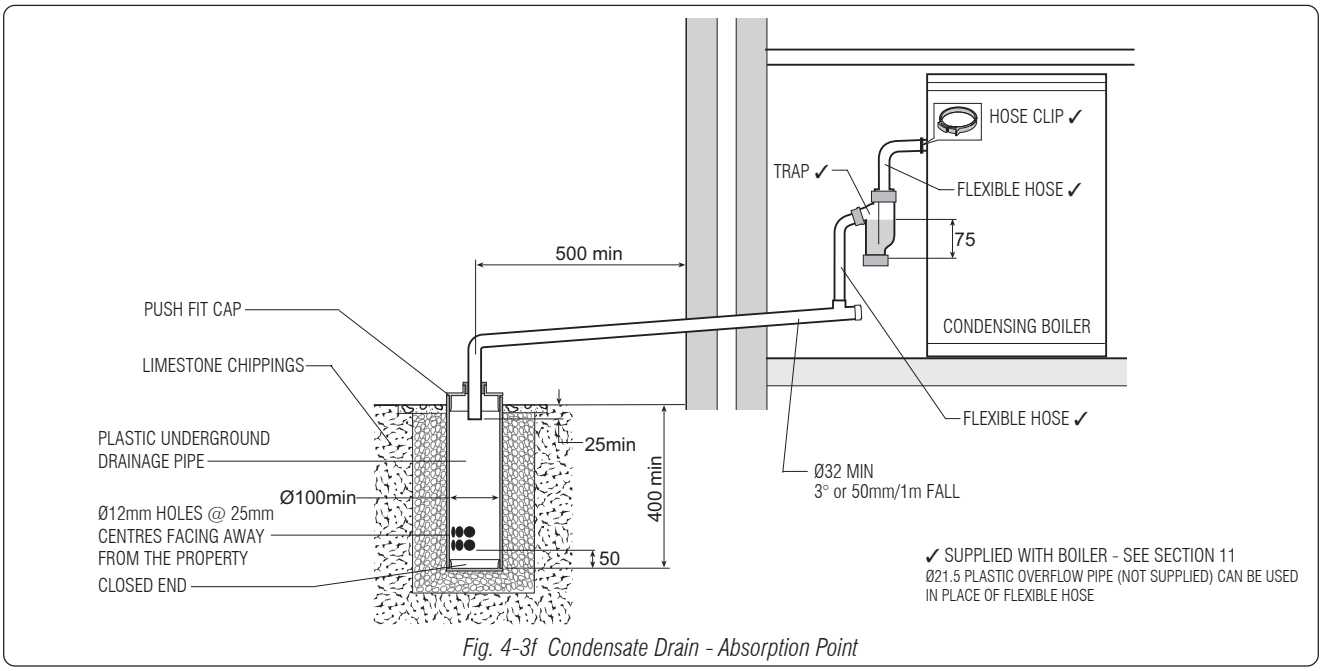


Fig. 4-3f Condensate Drain - Absorption Point

5-1 Floor Standing- Internal

Note
For Boiler dimensions see Section 11.
Fig. 5-1a shows recommended access.

5-1.1 Service Access

Floor standing boilers require front access for servicing.

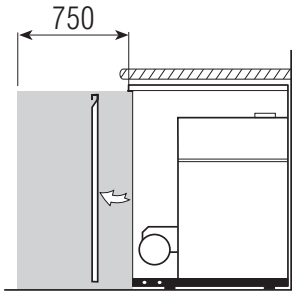


Fig. 5-1a Recommended Access

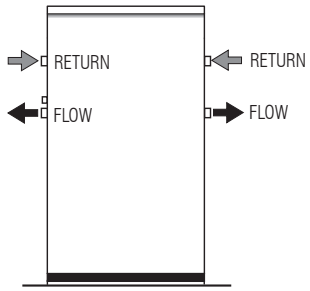


Fig. 5-1b Heating Connections

BFIC 12/24 SHOWN

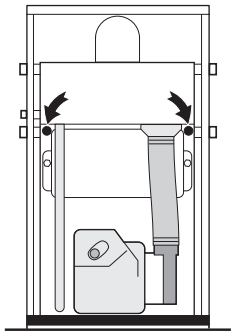


Fig. 5-1c Phial Positions

5-1.2 Heating Connections

Connecting the flow to the right hand spigot will give the maximum flow through the Boiler but this is not essential for satisfactory operation - see fig. 5-1b.

Plastic pipes must terminate at least 1 metre from the Boiler and changed to copper.

5-1.3 Connecting Control Panel (refer to wiring diagram)

Boilers are despatched with the Control Panel fitted. The phials of the two thermostats are inserted into the pockets situated on either side on the top front of the Boiler heat exchanger, see fig. 5-1c.

The mains electricity supply, preferably from a spur switched and fused 5 amp socket, should enter the Boiler casing through one of the holes or knockouts provided.

A plug is provided for connection to the mains supply. The plug fits into the mains connection on the underside of the Control Panel.

The burner is prewired to the Control Panel.

5-1.4 Oil Connection

All Floor Standing Boilers are supplied with a pump set for single pipe oil system.

Fig. 5-1d shows typical oil pipe arrangement.

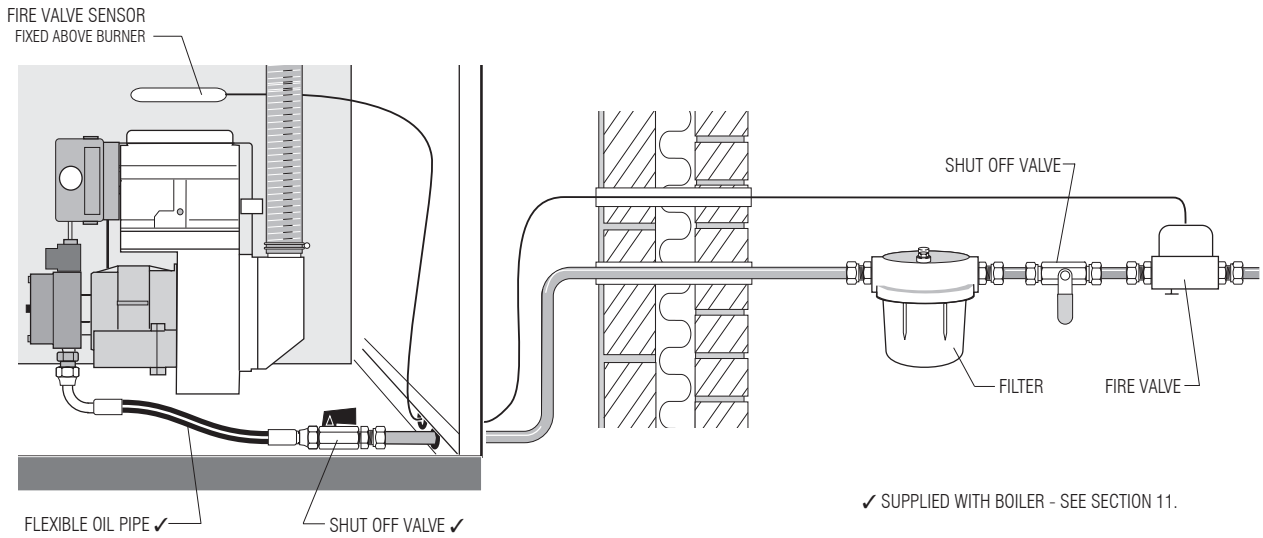


Fig. 5-1d Oil Connection

5-2 Internal Wall Mounted

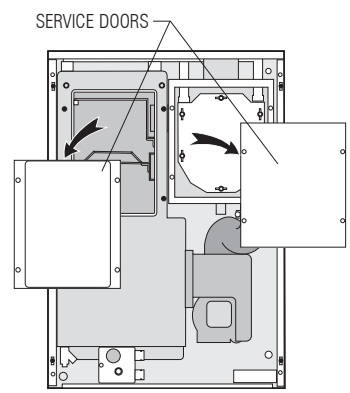


Fig. 5-2a Service Access

5-2.1 Service Access

Boilers have a quick release front panel enabling all routine servicing to be carried out without the necessity of removing any other panels.

The heat exchanger and condensing unit both have bolt on covers which give access for servicing.

Note

Before removing side panels study the burner position and the Boiler wall position and decide on the best oil pipe configuration, see Section 6.

5-2.2 Heating Connection

The flow and return connections are on the top of Boiler heat exchanger - Ø22mm copper.

IMPORTANT

The FLOW connection is on the LEFT HAND side, the RETURN connection is on the RIGHT HAND side when facing the Boiler from the front - see fig. 5-2b.

5-2.3 Condensate Drain

The condensate drain arrangement for Internal Wall Mounted Boilers are the same as for Floor Standing Boilers see 4-3. However there is room for the condensate trap to be located within the Boiler casing if required.

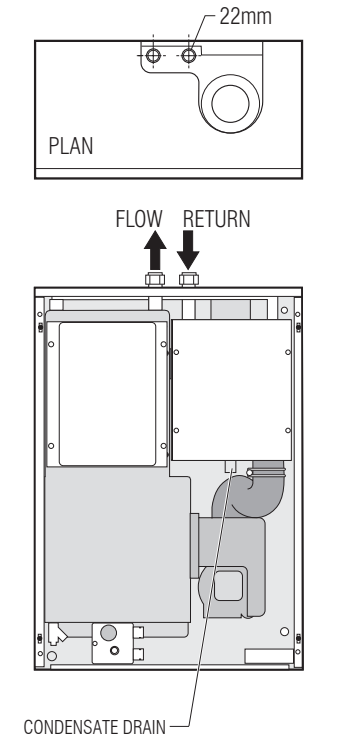


Fig. 5-2b Connections

Note

For dimensions, refer to Section 11.

5-2.4 Fixing the Boiler - Suggested Procedure

1. The first step is to give full consideration to:-
   - i Flue and flue terminal position.
   - ii Condensate drain arrangement.
   - iii Oil pipe arrangement.
   - iv Heating system pipe runs.
2. Remove carton, save this to protect the work top if applicable.
3. Remove the pull-off front panel.
4. Study the burner position and the Boiler wall position and decide on the best oil pipe configuration, see Section 5-2.6 and Section 6.
5. Refer to section 4-3 and decide on the most suitable condensate drain arrangement.
6. Remove the pull-off top panel.
7. Unscrew and remove both side panels and bottom panel complete with control box bracket.
8. Remove burner complete with control box.
9. Remove expansion vessel by disconnecting pipe (BWISC or BFISC 12/16 only).
10. Remove access door and lift out the three baffles from heat exchanger.
11. Remove Boiler body from wood transport blocks - 4 screws.
12. Offer back panel to the position required on the wall and use this as a template to mark the drilling positions for both mounting rawl bolts 'R' fig 5-2c.

    Holes R1 are used to secure the boiler to the transport pallet, these can also be used for additional fixings to secure the back panel to the wall, but should never be used as load bearing fixings.
13. Remove panel and accurately drill required holes and fit 2 rawl bolts into holes 'R', and set rawl bolts securely in the wall using nuts.
14. Remove knockout 'K' from back panel if required.

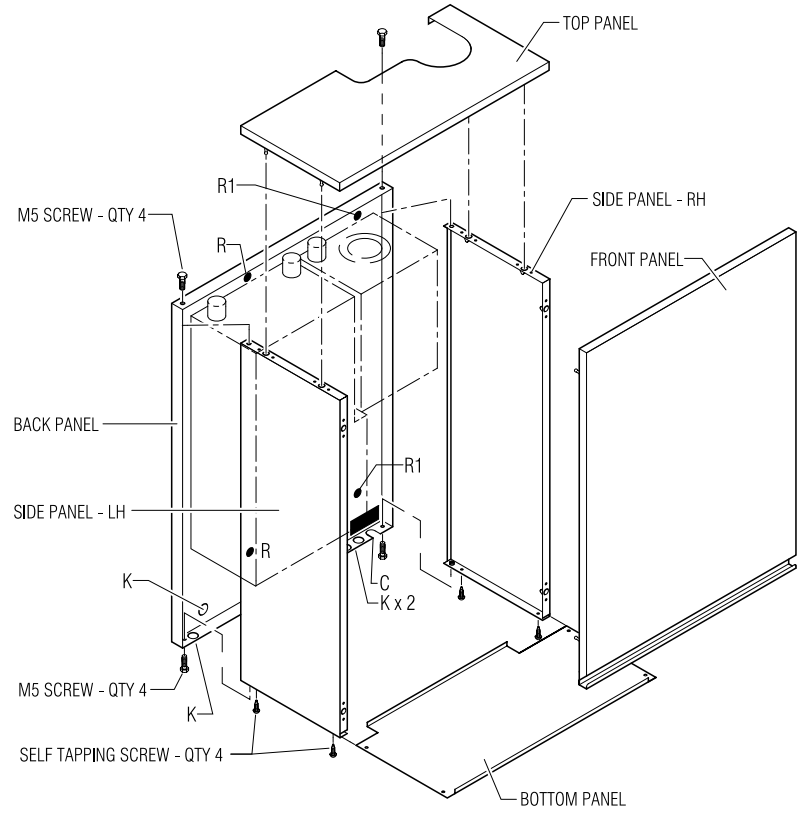


Fig. 5-2d Internal Casing Assembly

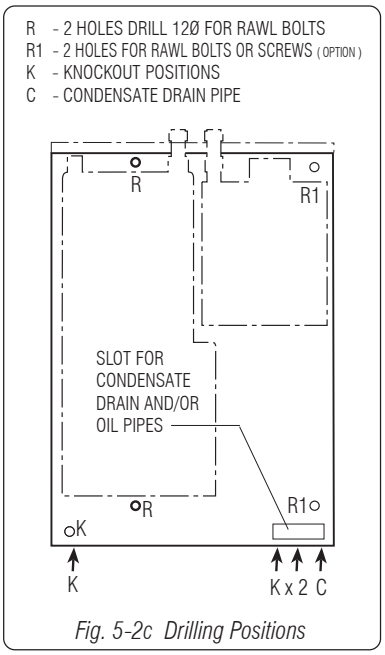


Fig. 5-2c Drilling Positions

15. Hang back panel onto rawl bolts and mark the positions of any holes required through wall for oil pipes, fire check valve, electric cable or condensate drain pipe.
16. Depending on flue arrangement it is advised to cut any holes for the flue before the boiler is fitted to the wall - refer to flue instructions supplied separately.
17. Neatly drill any holes required through the wall and clean up all debris.
18. Fit back panel onto the 2 rawl bolts R - do not fit nuts.
19. Clear work space and carefully lift the Boiler heat exchanger onto the 2 rawl bolts, fit nuts (the long nut is for the top bolt). Tighten nuts sufficiently to support weight.
20. Assemble the flue as per instructions supplied with the flue kit, do not forget trim plate.
21. Pass the flue and trim plate through hole in the wall and connect it to the Boiler (low level only). Seal around flue in wall.
22. Adjust the Boiler for level and tighten the 2 rawl bolt nuts, note that the top rawl bolt must be in the centre of the slot in the heat exchanger.
23. Fit additional screws in panel fixing holes R1 if required.
24. Refit burner c/w control box.
25. Refit baffles and access cover - refer to 9-2 for baffle positions.
26. Make oil pipe conections - see 5-2.6.
27. Fit condensate drain pipe and trap - see 4-3.
28. Make water connections.
29. Refit side panels, bottom panel and refit expansion vessel (BFWICS 12/16 only). Locate control box in its bracket. Fit top panel.

WARNING
The weight of the Boiler Heat Exchanger bare is 50kg (110 lbs) - it is a two person job to lift it in place.

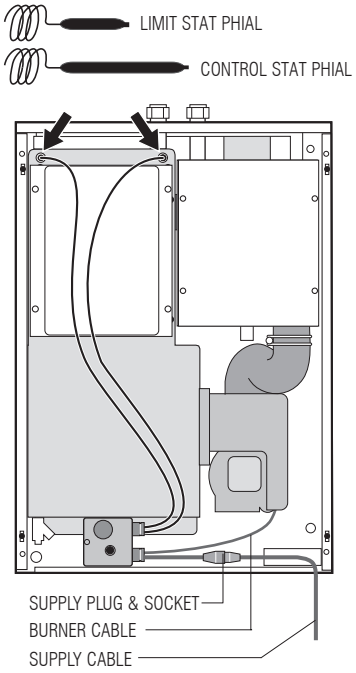


Fig. 5-2e Phial & Cable Positions

5-2.5 Connecting Control Box

Internal Wall Mounted Boilers are despatched with the control box fitted. The phials of the thermostats are inserted horizontally into the pockets at the top of the heat exchanger, see fig. 5-2e.

The mains electricity supply, preferably from a spur switched and fused 5 amp, should enter the Boiler casing through one of the holes or knockouts provided - see fig. 5-2c. This should be wired to the plug supplied with the control box as shown on wiring diagram, see Section 11. The plug and socket should be inside the boiler case.

The Burner is supplied with a 4 wire cable that is pre-wired to the control panel.

CAUTION
Do not trap phial capillary tubes behind access covers.

5-2.6 Oil Connections

All wall mounted Boiler burners are supplied with a pump set for two pipe oil system - see fig. 5-2f.

The burner can be changed to a single pipe oil system - see 11-3.3

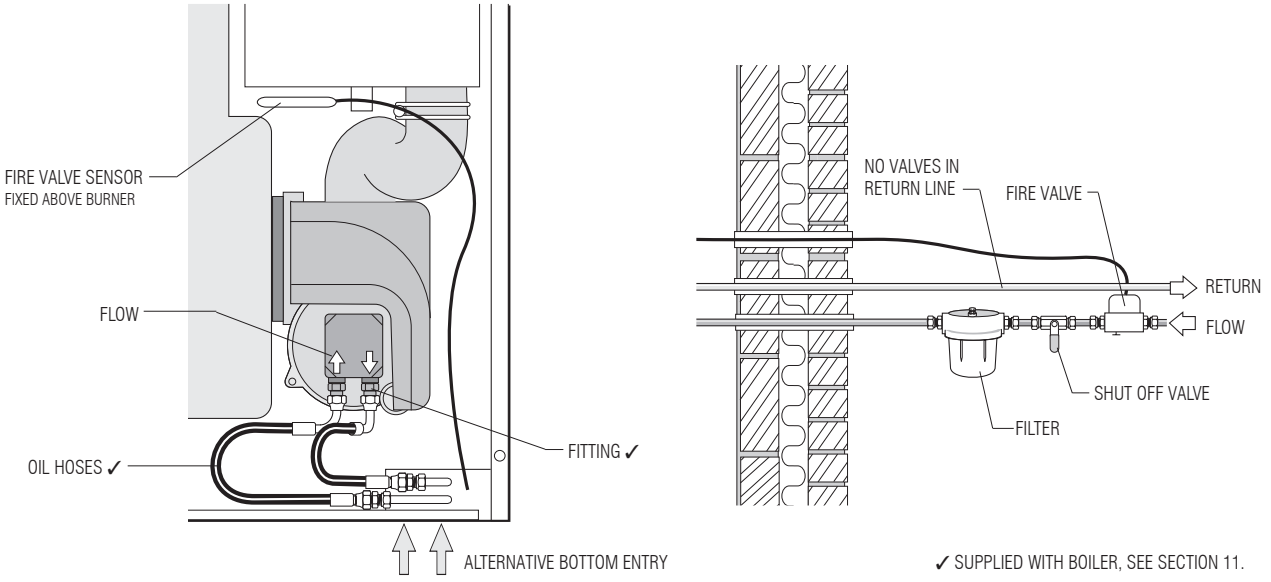


Fig. 5-2f Recommended Two Pipe Oil Connection - Wall Mounted Internal

5-3 Select External Wall Mounted

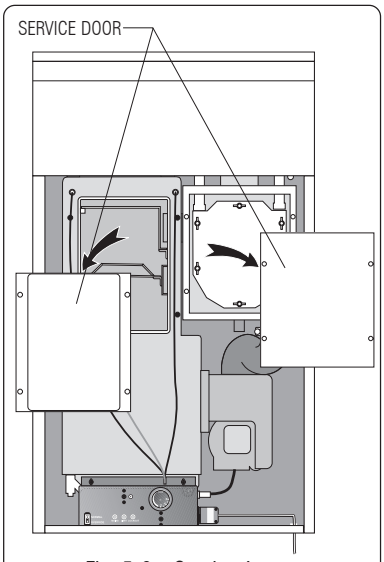


Fig. 5-3a Service Access

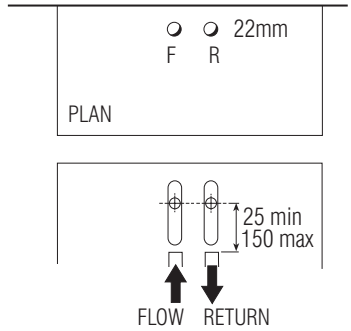


Fig. 5-3b Heating Connections

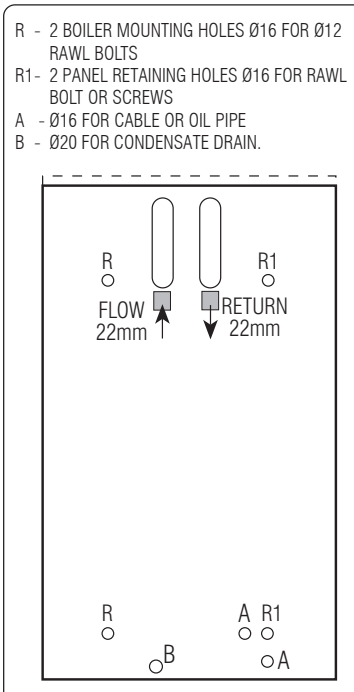


Fig. 5-3c Drilling Positions

5-3.1 Service Access

External Wall Mounted Boilers have a large hinged front door that gives access to the Control Panel and enables all routine servicing to be carried out without the necessity of removing main case or flue. The door can be lifted off in windy conditions.

A large bolted service door is provided on the front of the heat exchanger giving easy access to the baffles and combustion chamber.

5-3.2 Heating Connections

The flow and return connections are on the top of the Boiler heat exchanger - Ø22mm copper. The standard arrangement is to connect through the back panel as shown in fig. 5-3b.

5-3.3 Boiler at Ground Level

The External Wall Mounted range can be wall mounted at ground level, however the following conditions must be considered.

1. A 50mm free air space must be provided under the Boiler.
2. The Burner is supplied for two pipe operation and will probably require changing to single pipe operation - see 11-3.3.
3. Protection against rodent intrusion is essential.

5-3.4 Fixing the Boiler - Suggested Procedure

1. Remove carton.
2. Before removing main case, study the burner position and the Boiler wall position and decide on the best oil pipe configuration, see Section 5-2.6 and Section 6.
3. Open Boiler door and remove flue components.
4. Remove Control Panel by unplugging burner plug and unbolt two nuts.
5. Remove main casing - 3 screws each side.
6. Remove access door and lift out all baffles from heat exchanger.
7. Remove burner.
8. Remove Boiler body from wood transport blocks - 4 screws.
9. Offer back panel to the position required on the wall and use this as a template to mark the drilling positions for the 2 mounting rawl bolts 'R' - see Fig 5-3c.

   Holes R1 are used to secure the boiler to the transport pallet, these can also be used for additional fixings to secure the back panel to the wall, but should never be used as load bearing fixings.

   Also mark the positions of any holes required through the wall for water pipes, oil pipes, fire check valve and electric cable.

WARNING
The weight of the Boiler Heat Exchanger bare is 50kg (110 lbs) - it is a two person job to lift it in place.

10. Remove panel and accurately drill required holes and fit rawl bolts to holes 'R' and set rawl bolts securely in the wall using nuts.
11. Place back panel onto the rawl bolts - do not fit nuts.
12. Clear work space and carefully lift the Boiler heat exchanger onto the 2 rawl bolts, fit nuts. Tighten nuts sufficiently support weight.

continued >>

WARNING
The weight of the Boiler Heat Exchanger bare is 50kg (110 lbs) - it is a two person job to lift it in place.

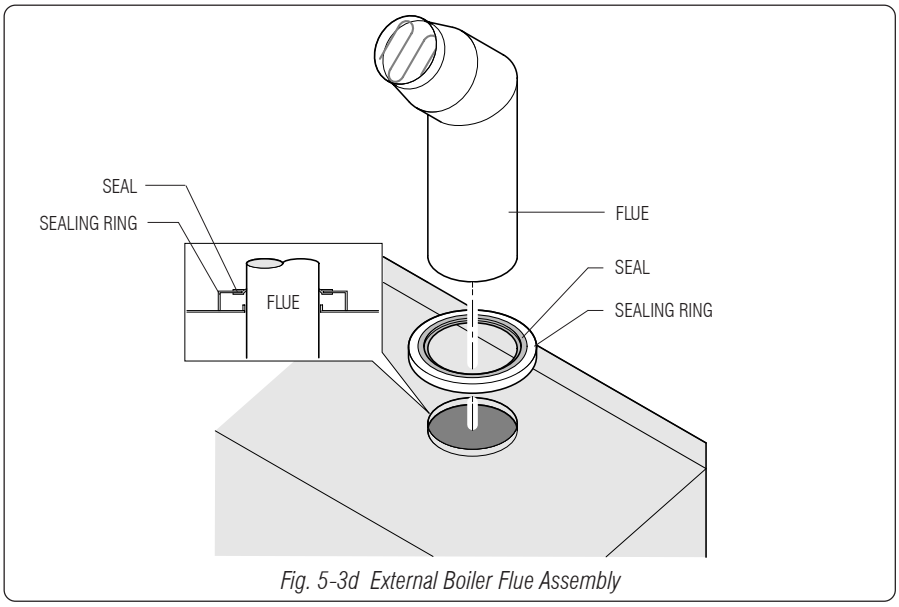


Fig. 5-3d External Boiler Flue Assembly

13. Adjust for level and tighten the rawl bolt, note that the top rawl bolt must be in the centre of the slot in the heat exchanger.
14. Fit additional screws in panel fixing holes R1 if required.
15. Refit Burner. Make oil pipe connections, see Section 5-2.6.
16. Make water connections.
17. Fit main casing.
18. Fit flue as shown in fig. 5-3d. The outlet can be orientated in any direction except directly to the wall. Water entering the flue is not a problem as this will drain to the condsensate drain.
19. Refit Control Panel.
20. Refit Baffles and Access Cover - see Section 9.
21. Finally, seal top and both sides externally with sealant provided - ensure GOOD NEAT SEAL.

CAUTION
Do not trap phial capillary tubes behind access cover.

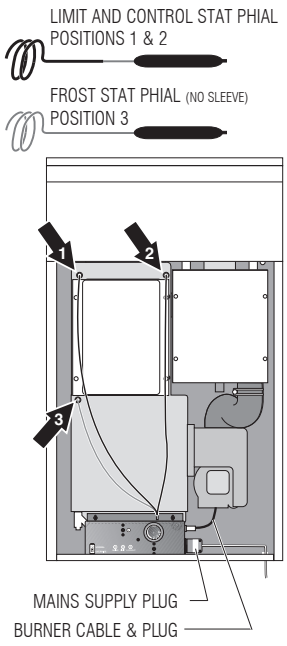


Fig. 5-3e Phial Positions

5-3.5 Connecting Control Panel

The three phials of the thermostats are inserted horizontally in the pockets situated in the heat exchanger, see fig. 5-3e.

The burner is supplied with a 4 wire cable and plug which connects into the burner supply socket on the Control Panel.

The mains electricity supply, preferably from a spur switched and fused 5 amp, should enter the Boiler casing through one of the holes - see Fig. 5-3c.

5-3.6 Frost Protection

All external boilers have a frost thermostat fitted as standard, this must be correctly wired to provide frost protection - see wiring diagrams Section 11.

A suitable antifreeze must also be used in applications where freezing can occur and should be considered for all systems.

5-3.7 Rodent Intrusion

Boilers installed in situations where rodent intrusion is possible, all pipe/cable entry holes of the Boiler must be covered, after installation, to prevent rodents entering the Boiler casing.

5-4 Floor Standing External

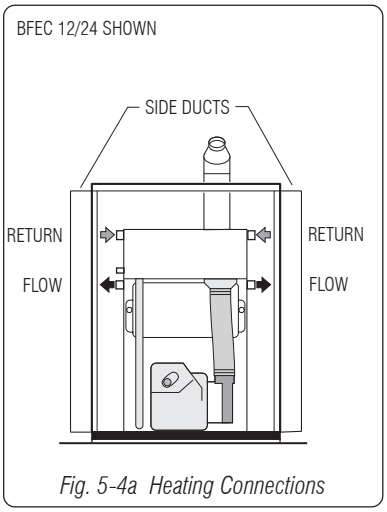


Fig. 5-4a Heating Connections

5-4.1 Floor Standing External Boilers

The external floor standing range of Boilers are based on the Internal Floor Standing range. They can be positioned remote from the dwelling or against an external wall of the dwelling.

Cables must be suitable for outside and/or underground use.

5-4.2 Heating Connections

The heating flow and return pipes should enter the Boiler casing via the two side ducts and connect to the Boiler flow and return spigots. Suitable flexible connectors can be used but MUST be 22mm bore minimum.

Connecting the flow to the right hand spigot will give the maximum flow through the Boiler but this is not essential for satisfactory operation - see fig 5-4a.

5-4.3 Base

A suitable base should be provided, this must be level, impervious to kerosene and non-combustible.

5-4.4 Oil Connection

Floor Standing External Boilers are supplied with a pump set for single pipe oil system. Fig. 5-4b shows a typical oil pipe arrangement.

The oil pipe, fire valve capillary and electric cable should be arranged to enter the Boiler casing via either of the two side ducts.

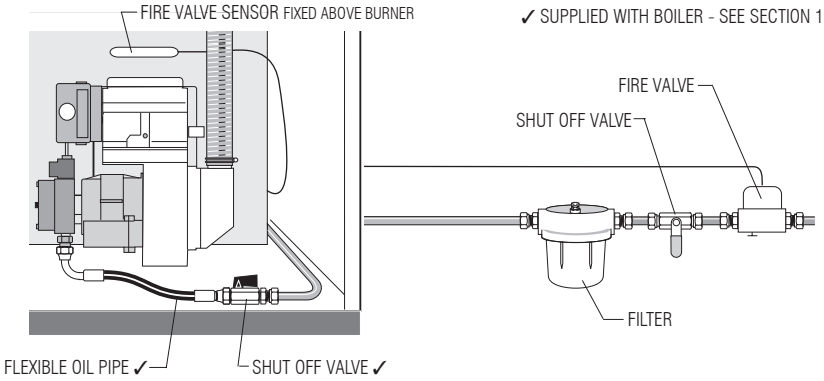


Fig. 5-4b Oil Connection

5-4.5 Fitting the Flue

Fit flue as shown in fig. 5-3d. The outlet can be orientated in any direction except directly to the wall. Water entering the flue is not a problem as this will drain to the condsensate drain.

5-4.6 Frost Protection

All External Boilers have a frost thermostat fitted as standard, this must be correctly wired to provide frost protection - see wiring diagrams Section 11.

A suitable antifreeze must also be used in applications where freezing can occur and should be considered for all systems.

Note
For:-
Connecting Control Panel ... see 5-1.3

5-4.7 Rodent Intrusion

Boilers installed in situations where rodent intrusion is possible, all pipe/cable entry holes of the Boiler must be covered, after installation, to prevent rodents entering the Boiler casing.

5-5 System Boilers

5-5.1 The Heating System

BFISC 12/24, BFESC 12/24, BWISC 12/16 & BWESC 12/16

1. PUMP✓
2. PUMP VALVES ✓
3. PRESSURE RELIEF VALVE ✓
4. PRESSURE GAUGE ✓
5. FILLING LOOP✓
6. EXPANSION VESSEL ✓

The expansion vessel is supplied fitted to the Boiler all other parts are supplied in 'System Kit'

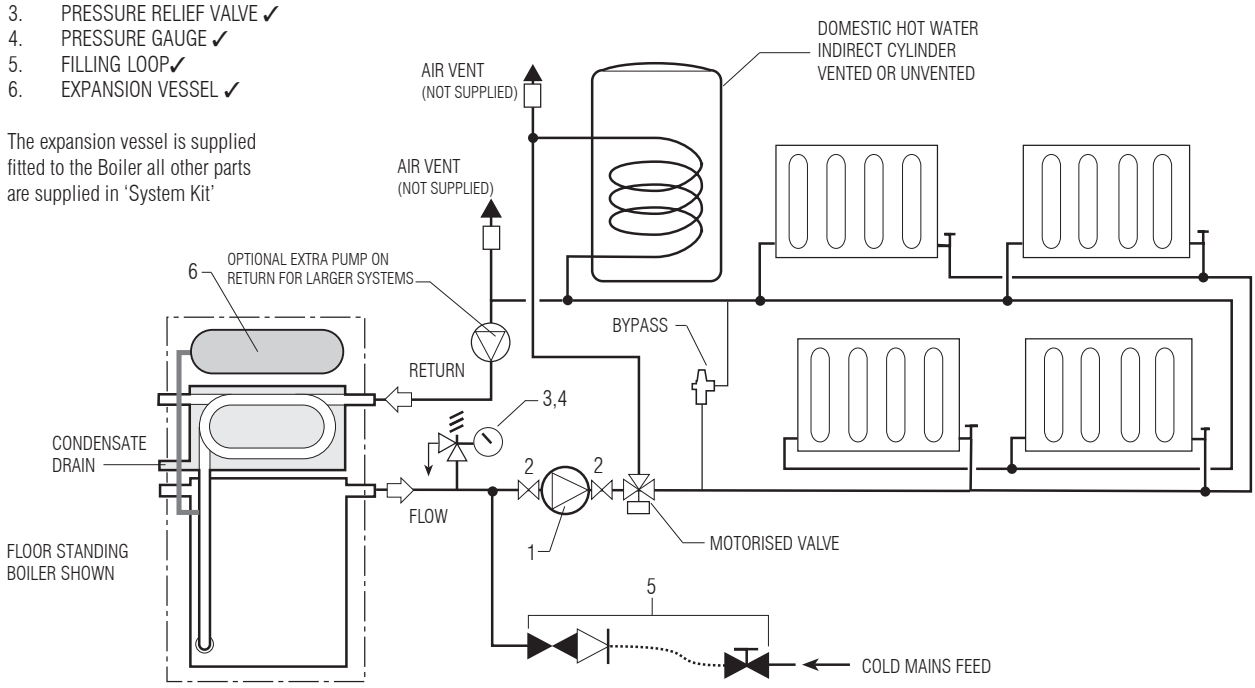


Fig. 5-5a Typical Sealed System BFISC 12/24, BWISC 16/25 & BWESC 12/24

BFISC 24/30 & BWISC 16/25

1. PUMP✓
2. PUMP VALVES ✓
3. PRESSURE RELIEF VALVE ✓
4. PRESSURE GAUGE ✓
5. FILLING LOOP✓
6. EXPANSION VESSEL ✓
7. EV FLEXIBLE HOSE ✓

The expansion vessel is NOT supplied fitted to the Boiler, all parts are supplied in 'System Kit'

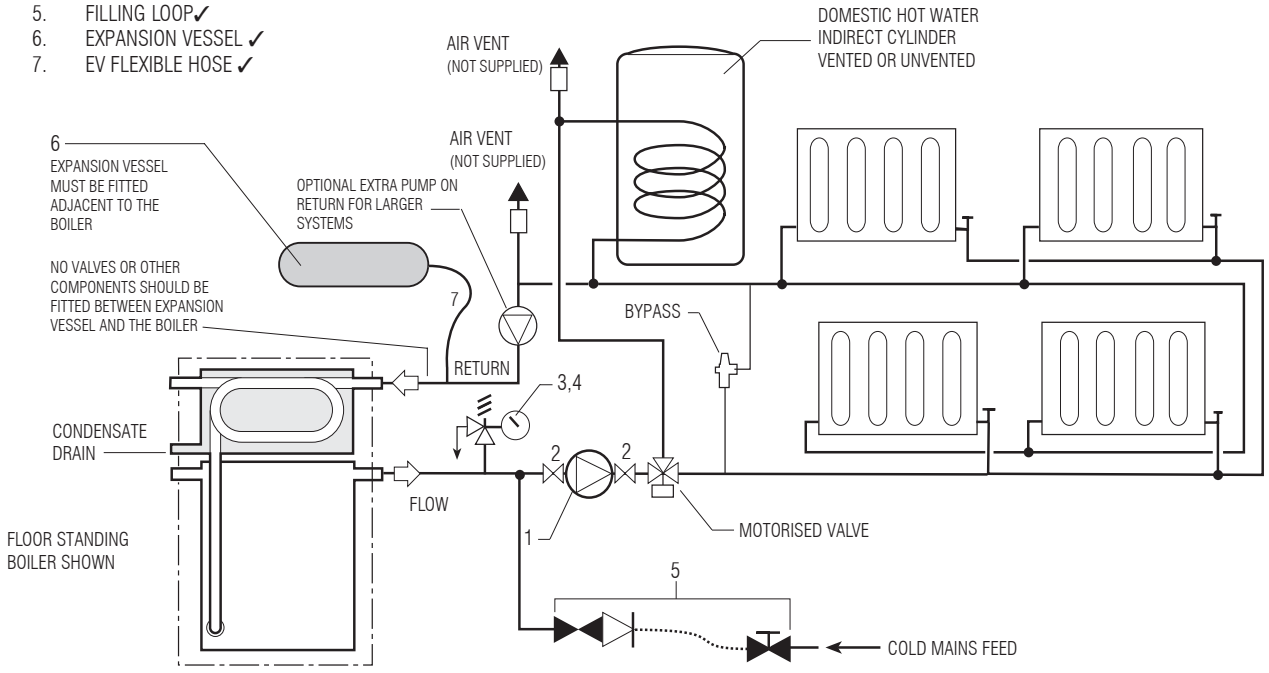
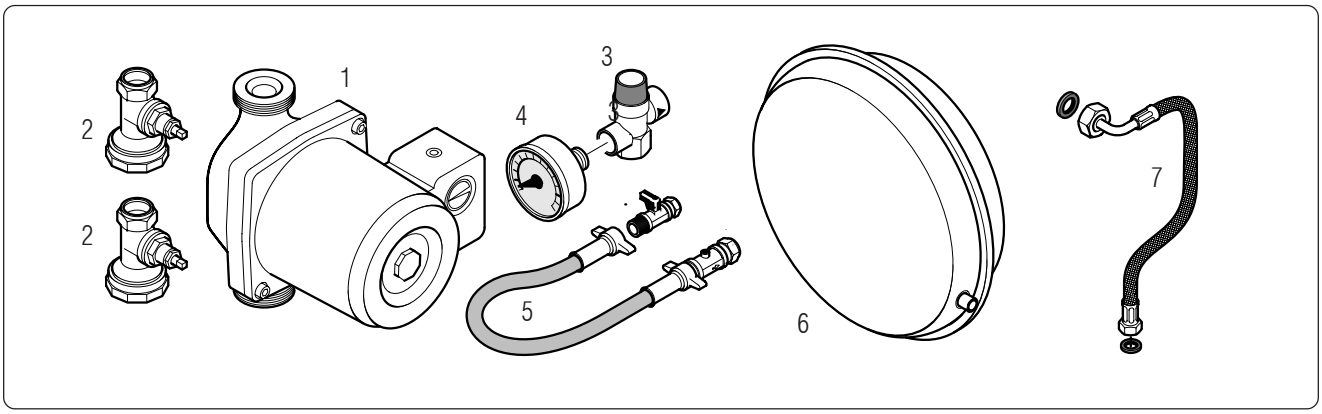


Fig. 5-5b Typical Sealed System for BFISC 24/30 & BWISC 16/25

5-5.2 System Boiler Kit

A System Boiler Kit is supplied with each System Boiler, this may be placed within the Boiler casing for delivery.



System Kit Ref			
Boiler		BFISC 12/24 BWISC 12/16 BWESC 12/16 BFESC 12/24	BFISC 24/30 BWISC 16/25 BFESC 12/24
Item	Part	Supplied	Supplied
1	Pump	✓	✓
2	Pump Valves x 2	✓	✓
3	Pressure Relief Valve	✓	✓
4	Pressure Gauge	✓	✓
5	Filling Loop Kit	✓	✓
6	Expansion Vessel	Fitted to Boiler	✓
7	EV Flexible Hose	Fitted to Boiler	✓

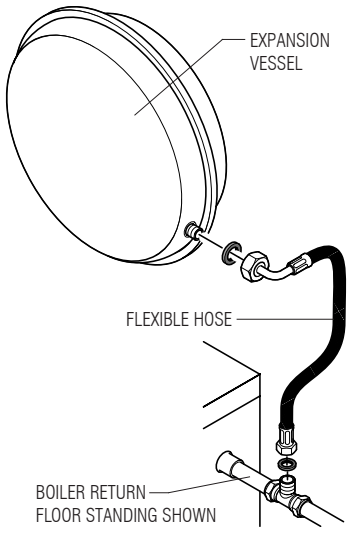


Fig. 5-5c Expansion Vessel BFISC 24/30 and BWISC 16/25

5-5.3 Expansion Vessel

Boilers:- BFISC 12/24, BWISC 12/16, BWESC 12/16 and BFESC 12/24

The expansion vessel is supplied fitted to the boiler within the case.

On Floor Standing Boilers, to access the flue test point, the vessel can be lifted out from the Boiler without the need to disconnect it.

Boilers:- BFISC 24/30 and BWISC 16/25

The expansion vessel is supplied separate from the Boiler. It must be fitted to the heating return adjacent to the Boiler using a 22mm/½BSP/22mm T.

No valves or any other components must be fitted between the expansion vessel and the Boiler.

All Boilers

Maximum pre-charge pressure	1.5 Bar	Maximum working temperature	90°C
Factory pre-charge pressure	1 Bar	Maximum working pressure	3Bar

Expansion Vessel Capacity 10 litres for maximum system expansion of 9 litres.

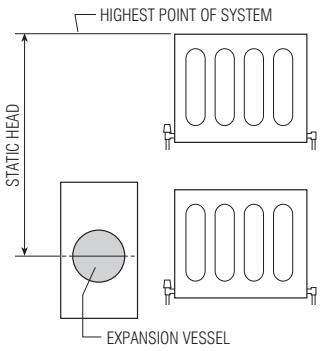


Fig. 5-5d Static Head

Note

For accurate setting of the pre-charge pressure a digital pressure gauge is recommended.

The factory set pre-charge pressure is suitable for systems with a static head of up to 5 metres. If the static head is greater than 5 metres then the pre-charge pressure of the expansion vessel will need to be increased. Increase the pressure using a standard car tyre pump and pressure gauge when the system is empty (zero pressure).

Normally expansion requirement is 4% of the system water content including the Boiler.

IMPORTANT

The 10l Expansion vessel supplied with the Boiler is suitable for systems requiring a maximum expansion of 9 litres.

For systems requiring more expansion a second expansion vessel will be required. BS7074 Part 1 includes information on this requirement.

5-5.4 Pressure Relief Valve

A pressure relief valve (PRV) is supplied with the 'system boiler kit'.

The PRV must be fitted to the flow pipe from the Boiler. It MUST be the first fitting in the flow pipe and MUST be adjacent to the Boiler.

The PRV will vent excess pressure from the system. The valve will open when the pressure exceeds 3 Bar ± 10%.

The pressure relief valve can be manually opened by turning the red knob clockwise, to close the valve continue turning clockwise until it clicks.

5-5.5 Pressure Relief Valve Discharge Pipe

The outlet from the pressure relief valve must be piped using 15mm copper pipe to a visible position outside the dwelling by the installer. The pipe must have a continuous fall and ideally be terminated over a drain.

Local by-laws may require a Tundish to be fitted.

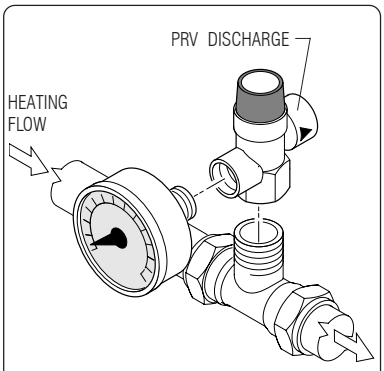


Fig. 5-5e PRV and Gauge

IMPORTANT

Scalding water and steam can be blown out of the discharge pipe. Position the discharge so that it is not a hazard to property or people (especially children).

5-5.6 Pressure Gauge

A pressure gauge is supplied in the 'system boiler kit', idealy this should be fitted to the PRV unit, however it can be fitted anywhere in the system.

When the system is full with cold water and all radiators are full, on and vented, the gauge will show the cold fill pressure. Set the red pointer to the cold fill pressure. If the system pressure, indicated by the black pointer, falls below the cold fill pressure, it indicates that the system requires topping up.

5-5.7 Cold Fill Pressure

The Cold Fill Pressure of the central heating system should be:-

Recommended Pressure - 2 Bar Max. Pressure - 3 Bar Min. Pressure - 1 Bar

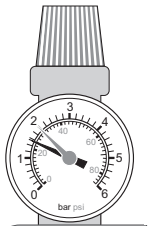


Fig. 5-5f Gauge

5-5.8 Filling Loop

A Filling Loop comprising a flexible hose, double check valve and an isolating valve is supplied with the system boiler kit for filling and topping up the system - see 5-5g.

The filling loop should be fitted between the incoming mains and the heating system return as shown in fig. 5-5a or 5-5b. Locating the filling loop within site of the PRV and pressure gauge is recommended, however it can be fitted elsewhere but an extra gauge must be fitted adjacent to the filling loop.

The take off from the main for the filling loop must be after any pressure reducing valve and before the water softener, if fitted.

When not in use one of the hose unions must be disconnected as there must not be a permanent connection to the mains supply.

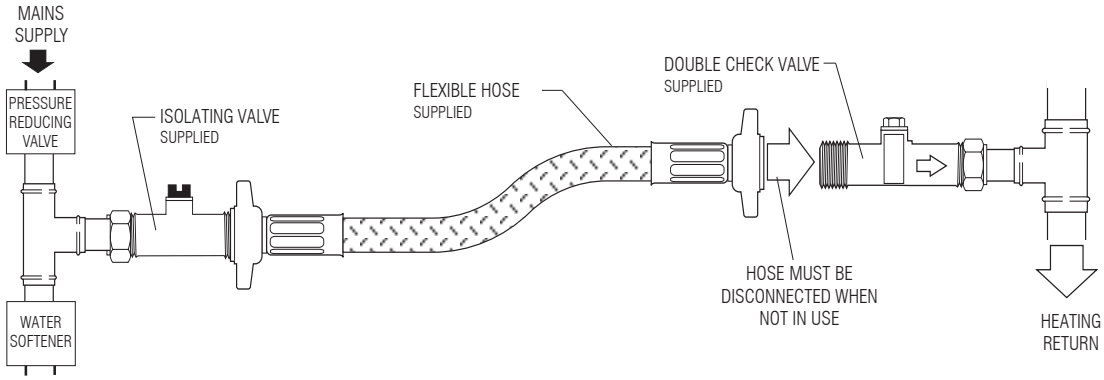


Fig. 5-5g Filling Loop - typical arrangement

5-5.9 Pump

The pump supplied in the system boiler kit, is a standard 3 speed central heating circulating pump which pumps the hot water through the heating system.

The pump with the isolation valves supplied should be fitted close to the Boiler on the flow pipe, after the pressure gauge and PRV.

The ideal setting for the pump speed is speed two.

5-5.10 Pump Wiring

The wiring of the pump should be carried out by a qualified electrician to best suit the system timer/programmer.

IMPORTANT

The pump MUST be wired so that it is ON at all times the Boiler is ON, that is, at all times the system control is calling for heating and/or hot water.

It is recommended that the Boiler is installed so that the system controls prevent the burner firing unless there is demand for heat from a room or cylinder thermostat. When thermally operated or motorised valves are fitted to the system that could stop adequate flow of water through the Boiler, then provision MUST be made to simultaneously switch the electricity supply to the oil burner OFF.

5-5.11 Filling the System

1. Switch OFF electrical supply to the Boiler.
2. Check all drain cocks are closed.
3. Check spare water sockets on the Boiler are blanked off.

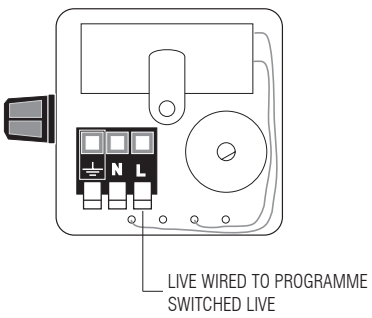


Fig. 5-5h Pump Wiring Connections

Note
Older systems need careful checking and pressure testing as they will be operating at a higher pressure.

Note
The expansion vessel is factory set at 1.0 Bar.

4. Connect the filling loop.
5. Open the filling loop isolating valve part-way so that the system fills slowly.
6. When full and vented make a note of the cold fill pressure on the Boiler pressure gauge.
7. Open drain cocks and vent to fully flush the system.
8. If required, set the expansion vessel pressure to 0.5 Bar below the cold fill pressure recorded in 6 above.
9. Check all drain cocks are closed.
10. Refill and vent the system to the correct cold fill pressure see 5-5.7.
    The correct amount of suitable corrosion inhibitor should be added to the system strictly to the manufacturer's instructions.
11. Shut filling loop isolating valve and disconnect one hose union.
12. Check for leaks.

6-1 Oil Storage Tanks

IMPORTANT
The installation of domestic oil storage tanks is covered by British Standards, Building Regulations and the Environment Agency, before installing a tank check local requirements.

Notes
Check with oil supplier for access requirements.
Refer to Appendix, for required standards for oil tanks.

6-1.1 Size and Siting of Tank

The size and site of the tank should be chosen to be least obtrusive with consideration to the following:-

1. Access for fuel delivery vehicles.
2. Distance of tank from the road. Most delivery vehicles can deliver up to 30m.
3. To obtain discounts on fuel it is normally required to purchase a delivery of 500 gallons (2,300 ltrs.), therefore a 2,500 ltr. tank is ideal.

6-1.2 Plastic Tanks

Plastic tanks are normally placed at ground level. A smooth flat surface supporting the tank across the entire base surface is all that is normally required. Please consult tank manufacturer and local inspectorate for further details.

6-1.3 Bunded Oil Tanks

In some areas a 'bunded' oil tank is required, please consult tank manufacturer and local inspectorate for further details.

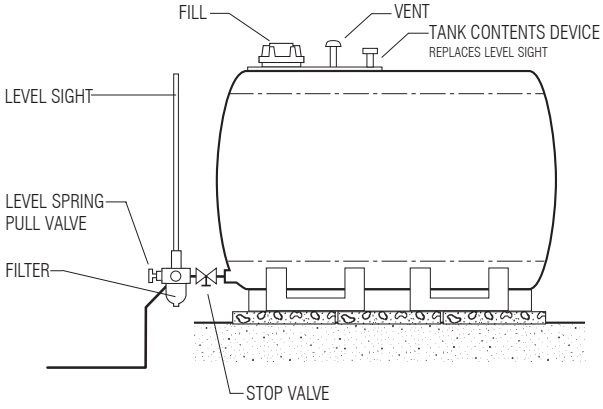


Fig. 6-1a Typical PVC Tank Arrangement (Bottom Outlet)

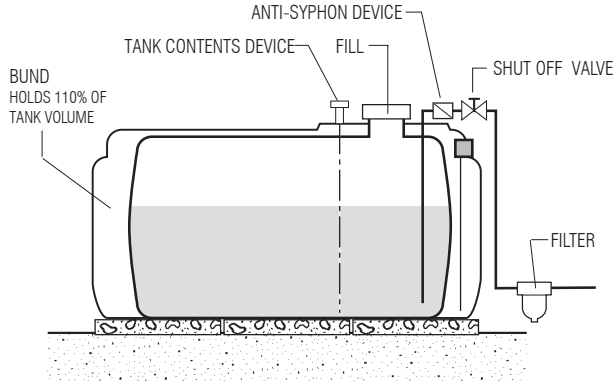
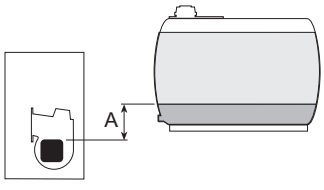
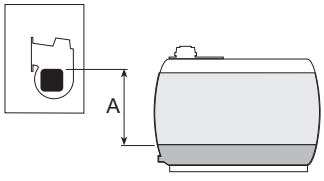


Fig. 6-1b Typical Bunded Oil Tank Arrangement

6-2 Oil System

6-2.1 Oil System Selection

	A	Oil System Options	Notes
Tank Above Burner 	0 to 5m	Single pipe oil system	Refer to 6-3.1
Tank Below Burner 	0 to 1m	Single pipe oil system with non-return valve	Refer to 6-3.2
	1 to 4.0m	Single pipe oil system with *Deaerator (Tigerloop)	Refer to 6-3.3
	1m to 4.0m	Two pipe oil system	Refer to 6-3.4
	Over 4.0m	Oil lifter system	Consult GAH

Notes:- Dimension 'A' is approximate distance from the top of the Burner pump to the lowest oil level.
Details are for Danfoss pumps only. *Deaerator to have integral non-return valve.

6-2.2 Oil Supply Pipe

In ALL oil systems the vertical lift of the oil line should be 10mm diameter.

Horizontal runs should also be 10mm diameter, however it is good practice to use 15mm diameter, on the horizontal sections only, of pipe runs longer than 40 metres.

IMPORTANT
The filter must be fitted outside the Building.
Tigerloops, when fitted, must be fitted outside the property, upright, close to the Boiler and at the same height as the burner.
All joints in the oil line must be oil and air tight.
No soldered joints are permissible in supply pipe.
Always flush the complete oil supply before connecting to the burner.
When specified always fit non-return valves in the position shown on the oil system drawings.
Walls should be sleeved where oil pipes and fire valve capillaries pass through.

6-3 Oil Supply System

6-3.1 Single Pipe System - Tank Above Burner

Where installations have the bottom of the tank above the Oil Burner, a single pipe system can be used, see fig. 6-3a.

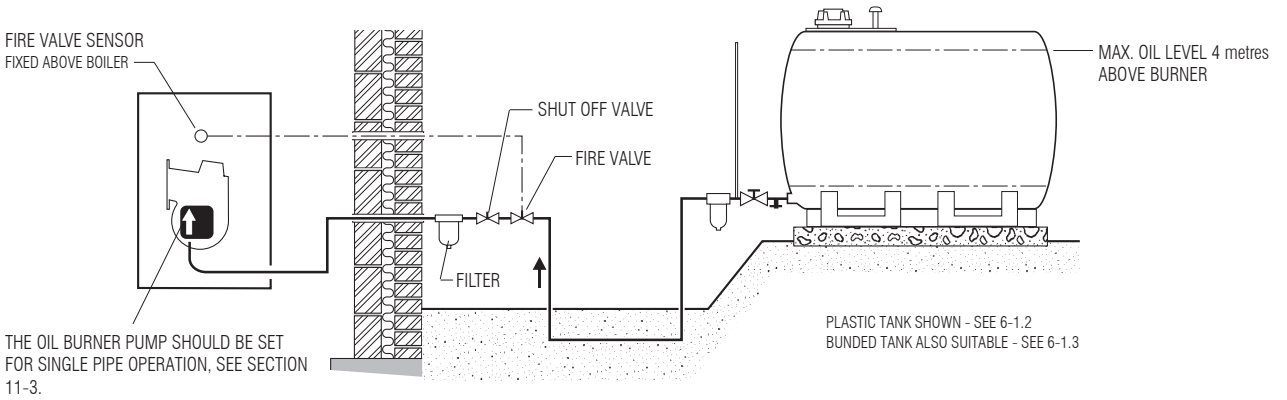


Fig. 6-3a Typical Single Pipe Oil System - Tank Above Burner

6-3.2 Single Pipe System - Tank Below Burner

Where installations have the bottom of the tank up to 1 metre below the Oil Burner, a single pipe system can be used providing a non-return valve is fitted, see fig. 6-3b.

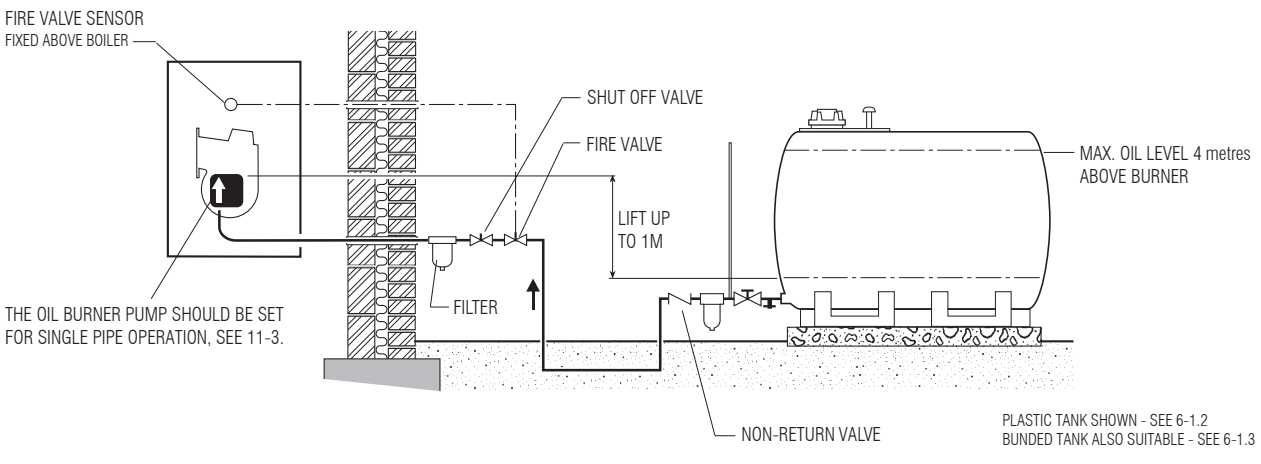


Fig. 6-3b Typical Single Pipe Oil System - Tank Below Burner

Note
Tigerloops are available from your merchant.

6-3.3 Single Pipe System - Deaerator (Tigerloop)

When the Burner is over 1 metre above the tank the installation normally requires a two pipe system, however, a 'Tigerloop' deaerator can be used which removes air from a single pipe lift oil feed. Higher lift heights can be achieved than are possible with conventional two pipe systems.

IMPORTANT
The Tigerloop must be positioned OUTSIDE the property, it must be upright, close to the Boiler and at the same height as the burner.

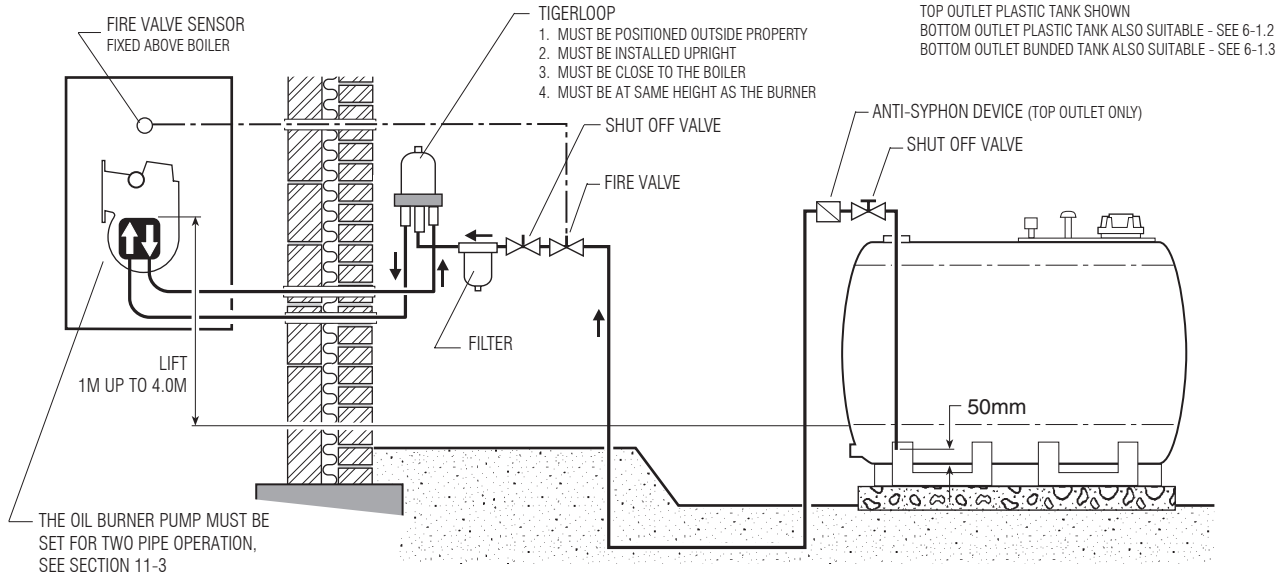


Fig. 6-3c Typical Arrangement for Tigerloop Oil System

6-3.4 Two Pipe System

Where installations have the bottom of the tank below the Oil Burner pump, it is necessary to install a two pipe system.

IMPORTANT
Ensure that valves and filters are not fitted in the return line as this must be unobstructed at all times.

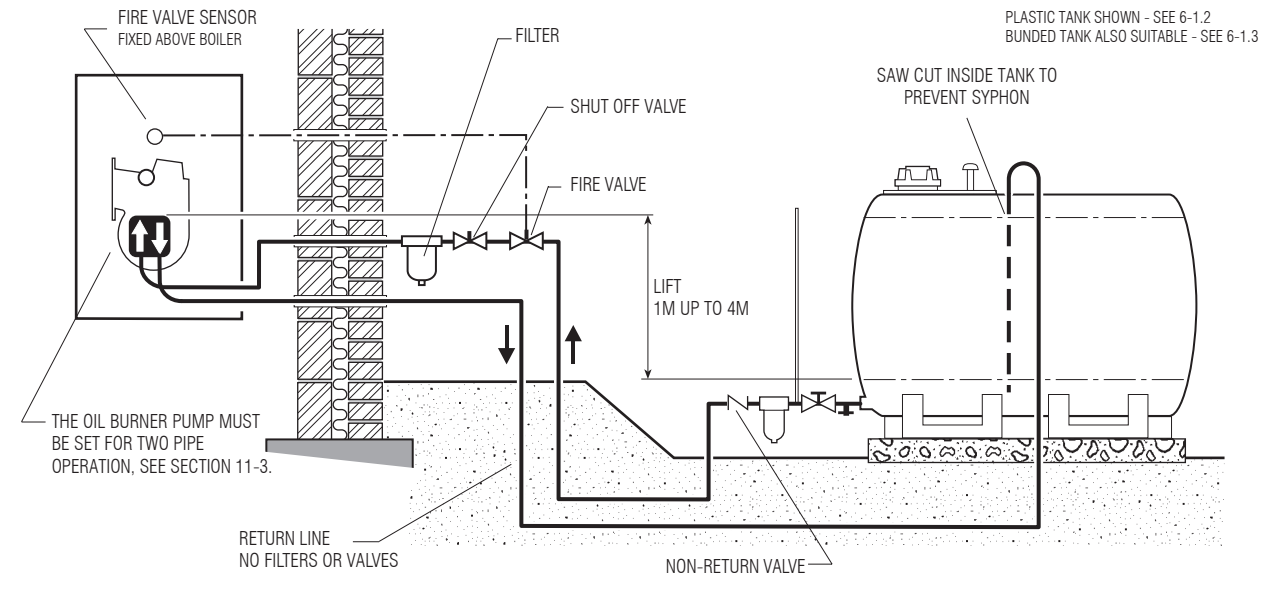
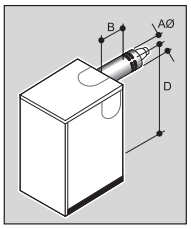
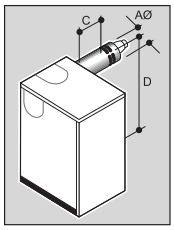


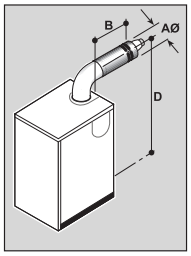
Fig. 6-3d Typical Two Pipe Oil System

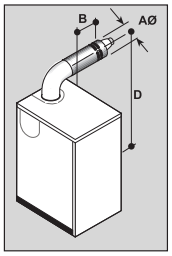
7-1 Balanced Flue Selection

FLOOR STANDING



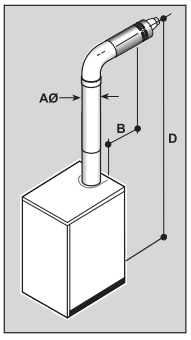


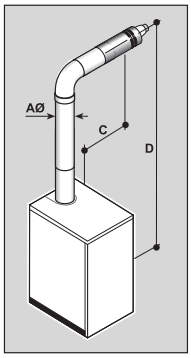




Low Level	BFIC12/24 & BFISC12/24
Kit	LLC - 125
AØ	125
Rear B	240 to 380
Side C	140 to 280
D	765
Extensions	EXT

	BFIC24/30 & BFISC24/30
Kit	LLCW - 125
AØ	125
Rear B	240 to 380
Side C	140 to 280
D	1008
Extensions	EXT





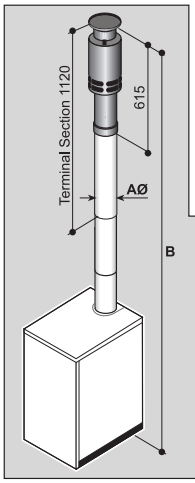
High Level	BFIC 12/24 BFIS C12/24	BFIC 24/30 BFIS C24/30
Kit	HLC - 125	HLC - 125
AØ	125	125
Rear B	240 to 380	240 to 380
Side C	140 to 280	140 to 280
D	1525 to 2085	1634 to 2194
Extensions	EXT For Vertical and Horizontal	EXT For Vertical and Horizontal

Notes
All internal Boilers are supplied suitable for GAH Conventional Flue.

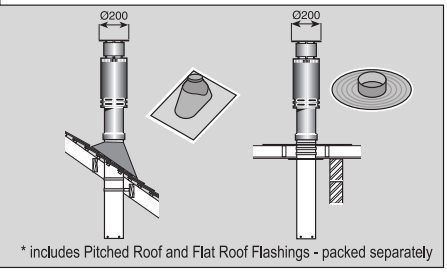
A GAH Conventional Flue kit is available.

Extensions must be ordered separately.

External Boilers have integral flue.

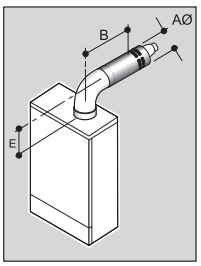


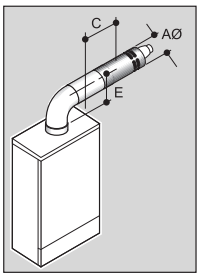
Vertical	BFIC 12/24 BFIS C12/24	BFIC 24/30 BFIS C24/30
Kit	*VTLC - 125	*VTLC - 125
AØ	125	125
B	2070 to 3090	2179 to 3199
Extensions	EXT	EXT

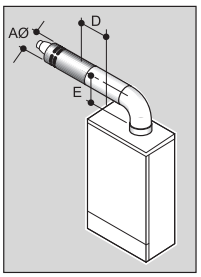


* includes Pitched Roof and Flat Roof Flashings - packed separately

WALL MOUNTED



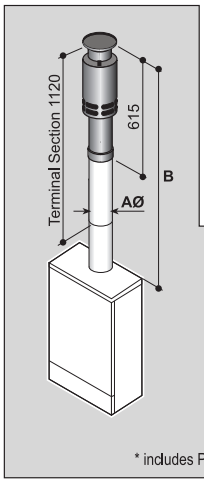




BWIC 12/16
BWISC12/16
BWIC 12/16
BWISC12/16

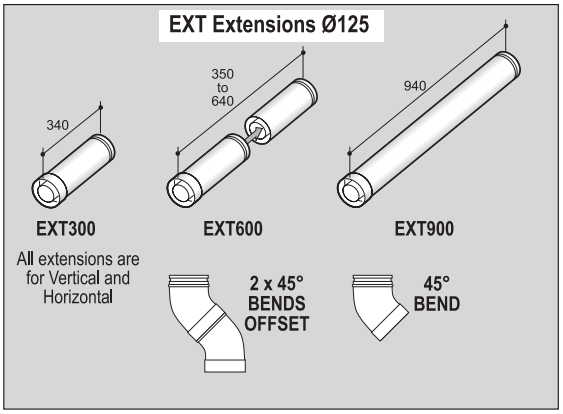
Low Level	
Kit	LLCW - 125
AØ	125
Rear B	240 to 380
R Side C	223 to 363
L Side D	0 to 97
E	145
Extensions	EXT

For Vertical and Horizontal



Vertical	
Kit	*VTLC - 125
AØ	125
B	1323 to 2343
Extensions	EXS, EXT, EXL

* includes Pitched Roof and Flat Roof Flashings - packed separately



7-2 Suggested Flue Siting

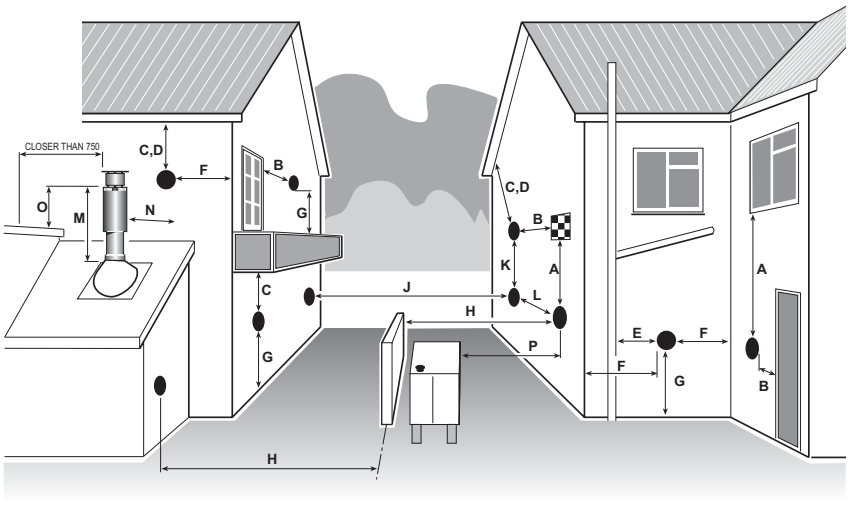


Fig. 7-2a Suggested Flue Siting

7-2.1 Positioning Balanced Flues

Fig. 7-2a and the table below shows recommended clearances when siting balanced flues for oil.

A	Directly below an opening, airbrick, opening window etc.	600*
B	Horizontal to an opening, airbrick, opening window etc.	600
C	Below a gutter, eaves or balcony with protection	75
D	Below a gutter, eaves or balcony without protection	600*
E	From vertical sanitary pipework	300
F	From an internal or external corner	300 /600 Nothern Ireland & Republic of Ireland
G	Above ground or balcony level	300
H	From a surface or a boundary facing the terminal	600
J	From a terminal facing the terminal	1200
K	Vertically from a terminal on the same wall	1500
L	Horizontally from a terminal on the same wall	750
M	Above the highest point of an intersection with the roof	600
N	From a vertical structure to the side of the terminal	750
O	Above structure less than 750 from the side of the terminal	600
P	From an oil tank	1800

Note

**When the terminal is within 1 metre of any plastic material this should be protected from the effects of combustion products of the flue.*

IMPORTANT

For situations and dimensions other than those shown contact the local building control.

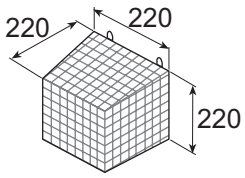


Fig. 7-2b Terminal Guard

7-2.2 Terminal Guard

The temperature of the flue terminal is less than 40°C, therefore a guard is not required for heat protection.

However the flue terminal has sharp edges and a terminal gaurd should be fitted to protect against:-

1. head/body contact from adults and children,
2. children or adults poking their fingers in the terminal slots, or
3. damage to the terminal.

External Boilers are supplied with an integral flue which should not be removed.

7-3 Burner Air Supply

INFORMATION SUPPLIED BY OFTEC. FOR FURTHER INFORMATION CONSULT THE LOCAL BUILDING CONTROL.

7-3.1 Combustion Air Supply

Boiler in room.

No combustion air inlet is required.

Boiler in compartment/small room.

Ventilation air supply is required as shown in fig. 7-3a.

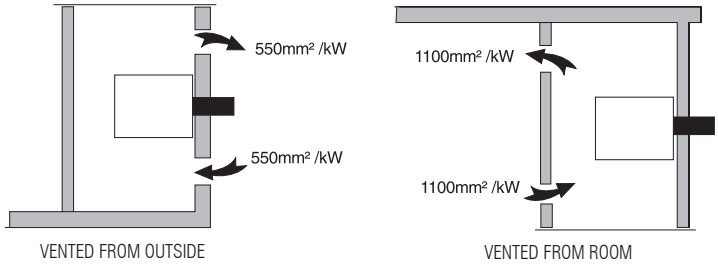


Fig. 7-3a Ventilation Air Supply for Balanced Flues in Compartments

7-3.2 Burner Air Duct

All condensing Boilers are supplied with a flexible air duct fitted from the condenser unit to the burner air intake.

Always inspect the condition of the air duct during routine maintenance and replace if it is split or not air sealed.

BFIC 12/24 SHOWN

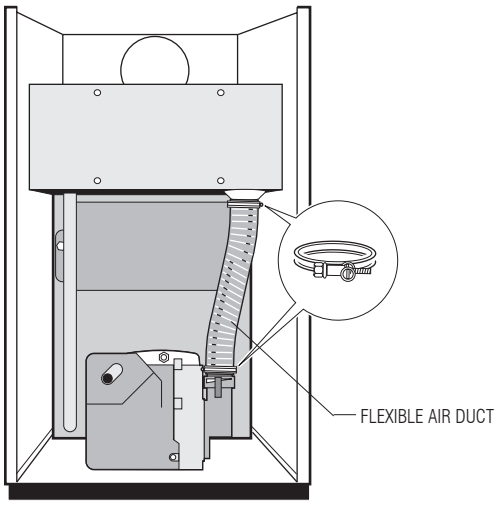


Fig. 7-3b Air Duct - Internal Floor Standing

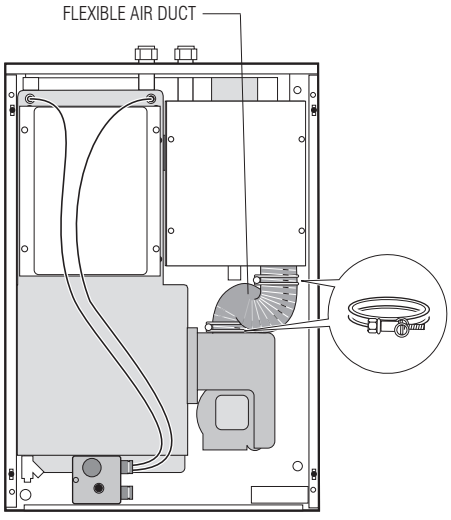


Fig. 7-3c Air Duct - Wall Mounted

8-1 Commissioning Checks

It is recommended that an O.F.T.E.C. trained and registered technician be used. It is the responsibility of the installer to ensure that the Boiler is properly commissioned, see BS5410 Part 1.

8-1.1 Oil Tank and Supply Line

The tank and supply pipe installation should comply with the details shown in Section 6 of this manual. Please check.

Check to see that a single supply pipe is used if the bottom of the tank is above the Burner and that the two pipe suction/return is installed if the level of the oil in the tank can fall below the level of the Burner.

Galvanised iron pipe should not be used, but black iron can, providing it has been adequately protected against corrosion.

Copper pipe should be correctly sized relative to the length of the run and available head or the required lift.

NO SOLDERED JOINTS. NO LEAKING JOINTS.

A remote sensing fire valve must be fitted.

Has a shut-off valve been fitted?

Disconnect the oil supply to the burner and draw off 1 or 2 gallons of oil. Check for impurities and repeat if necessary.

IMPORTANT
Should the commissioning not be carried out within 10 working days of installation, then the manufacturers 2 year guarantee and any extended warranty will become null and void. It is therefore important that the guarantee is returned to G.A.H. (Heating Products) Ltd. completed, in the pre-paid envelope provided.

Building regulations require that the Boiler is commissioned by an OFTEC registered engineer.

IMPORTANT
Check that there is no water in the oil filter before leaving the site. Do not run burner if impurities are found. This will damage the burner pump.

8-1.2 Two Pipe Oil Supply System

Check that a non-return valve is fitted in the suction line, refer to Section 6.

The return pipe should have an anti-syphon cut made just inside the top of the oil tank. This pipe must then continue to within 50mm of the bottom of the tank, preferably not near the sludge end.

8-1.3 The Boiler

Note
For baffle positions see Section 9.

Check that an imperforate hearth is used.

IMPORTANT
Check all baffles are in place, see Section 9.

Check the flow and return pipe connections to the Boiler are correct.

Check the return pipe from the condensing unit to the bottom of the Boiler heat exchanger is correctly fitted.

Check that the system is full of water and whether a corrosion inhibitor and antifreeze has been added.

Check all seals to access covers, doors and flue connections.

Check that phial capillary tubes are not trapped behind access covers.

8-1.4 Condensate Drain

Check condensate drain has been connected.

Check trap is fitted correctly and filled with water.

Check discharge arrangement complies to the details in this manual and to regulations.

8-1.5 The Burner

Check that the Burner pump is correctly set for 1 or 2 pipe oil supply. See Section 6 of this manual.

Check that the correct nozzle is fitted with the correct pump pressure for the output required, see Section 11.

Check available air to the Boiler room for combustion and ventilation.

8-1.6 Conventional Flue and Chimney

Refer to separate instructions supplied with flue.

8-1.7 Balanced Flues

Check balanced flues for positioning and that the installation complies with details in this manual.

Check that the flexible air duct is correctly fitted from the condensing unit to the burner.

Check that the test point bolt is fitted in the adaptor.

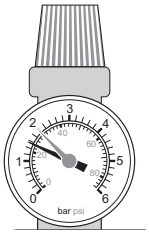
8-1.8 Electrical

Check that the wiring circuit is correctly fused and giving the appropriate supply to the burner.

Check lockout function of the control box by removing the photoresistor from the burner and obscuring light from it.

Check the operation of the limit stat or temperature limiter by temporarily removing the phial of the control stat from its pocket.

8-2 Extra Procedures for System Boilers



Record Cold Fill Pressure

✍

8-2.1 Expansion Vessel Pressure

Check that the expansion vessel is adequate for the system as follows:-

Operate the system at normal temperature (80°C) with all radiators on and hot water on. The system pressure will rise above the cold fill pressure.

If the pressure rises more than 0.5 bar then an additional expansion vessel will be required. Part IBS7074 Part 1 includes information on additional expansion vessel requirements.

8-2.2 Check Pressure Relief Valve

To check operation of the pressure relief valve, temporarily increase the system pressure.

The valve should operate when the pressure increases to 3 bar ± 10%.

Reduce the pressure on completion by manually operating the pressure relief valve.

8-3 Extra Procedures for External Boilers

8-3.1 Frost protction

Check that the Boiler frost stat is wired correctly.

Check all pipework is adequately insulated.

8-3.2 Rodent Protection

Check that all holes in the Boiler casing have been plugged or covered.

Check that cables to the Boiler are protected - metal conduit is recommended.

Plastic plumbing pipe is not recommended for outside use.

8-4 Combustion Tests

Combustion tests must be carried out using an approved test kit.

The householder should be left necessary details of the test.

To obtain the above, first fit a manifold and pressure gauge 0-300 p.s.i. to the oil pump.

Next set the Boiler control stat to 80°C and switch on. Ensure all controls are calling for heat.

Having bled the air out of the system, adjust the pump pressure.

Test holes are provided for all flues.

Check the smoke reading with the Boiler up to temperature and then measure the CO_2 and flue gas temperature.

Reducing air into the burner decreases the flue gas temperature and increases the CO_2. See Section 11 for typical burner settings and test data.

IMPORTANT
DO NOT drill any test holes in balanced flues.
ALWAYS refit test hole bolts.

8-5 Handing Over

Having filled in the guarantee form, this should be sent to GAH (Heating Products) Limited. The installer should next recheck the system and ensure it is completely satisfactory before demonstrating to the householder the operation of the Boiler and its controls.

The manual must be left with the householder together with a copy of the completed warranty form.

Also leave the Burner Booklet with the householder and any other manufacturer's instructions or details supplied with components.

9-1 Routine Service

FUEL 28 Second Class C Kerosene - ONCE A YEAR.

It is good policy to measure the smoke, CO_2, flue gas temperature and oil pressure, before carrying out the routine service. At the same time, check for combustion leaks, oil leaks and any unusual noises from the burner or system. Comparison of 'before' and 'after' results is facilitated.

IMPORTANT
Always turn off the oil supply and switch off and disconnect the electricity supply before working on the Boiler.

Paper type filter elements should be changed.

Elements of mesh type filters should be washed in kerosene. The oil tank should be de-sludged.

Remove the burner and thoroughly clean, paying particular attention to the blast tube and its airways. Electrodes should be checked for wear and crazing of the porcelain. Ensure nozzle is of type and size for output required, see Section 11.

In very dusty conditions, the fan and photocell may need cleaning.

Flexible oil lines should be carefully inspected. It is recommended that flexibles are renewed every two years. If in any doubt fit new.

9-1.1 Boiler

All Boilers have a flueway door giving access to remove baffles. Baffles should be lifted out to enable the heat exchanger to be thoroughly vacuumed clean.

It is important that all flueway doors have a good rope seal and are tightened correctly. Check that the air pipe from the manifold to the burner is in good condition and properly connected at both ends (balanced flue only).

9-1.2 Condensing Unit

The condensing unit should be cleaned at least once per year, however to maintain utmost efficiency more regular cleaning is recommended.

Note
Special condensing boiler cleaning agents are commercially available.

To clean, remove the condensing unit front panels to expose the coil.

Clean the outer chamber with a flue brush and vacuum cleaner.

Remove the inner baffle from the coils and clean this and the coils with soapy water, then rinse, allow the water to run out through condensate drain.

9-1.3 Combustion Test

This must equate to the data in the manual, see Section 11.

9-2 Boiler Baffles

IMPORTANT
All baffles must be fitted.
All baffles must be correctly positioned.
Replace distorted baffles.

Baffles are fitted in the heat exchanger of Boilers, they provide optimum heat distribution to maintain the Boiler efficiency and quiet operation.

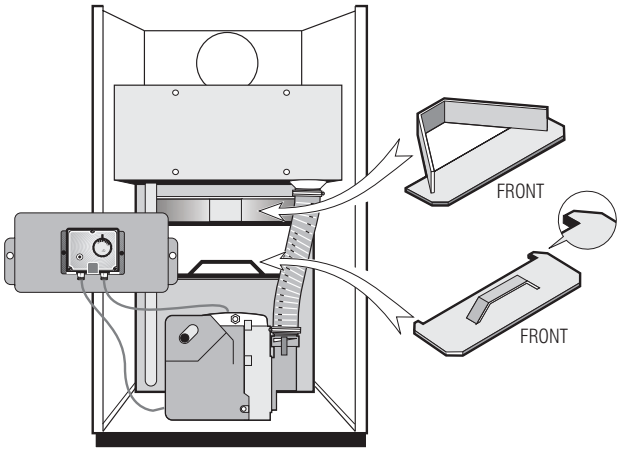
When baffles are left out, wrongly positioned or excessively distorted, the Boiler efficiency will be drastically reduced.

Baffles should be removed, cleaned and replaced during routine servicing.

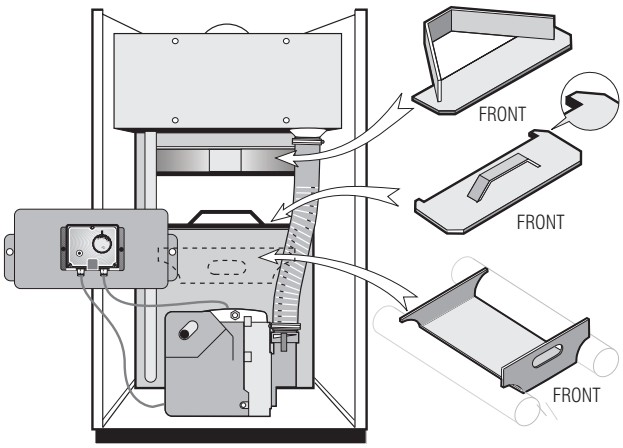
Care should be taken when replacing baffles to ensure that they are correctly fitted.

If baffles appear to be missing check they have not fallen to the bottom of the heat exchanger during transit.

9-2.1 Baffles for Floor Standing Boilers



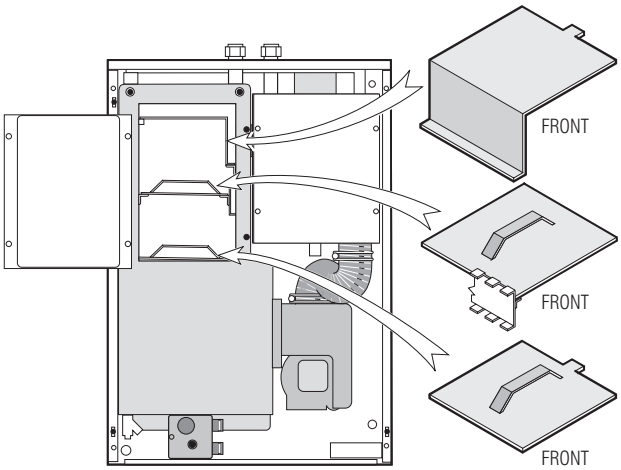
BFIC 12/24 BFISC 12/24
BFEC 12/24 BFESC 12/24

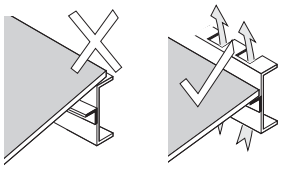


BFIC 24/30 BFISC 24/30
BFEC 24/30 BFESC 24/30

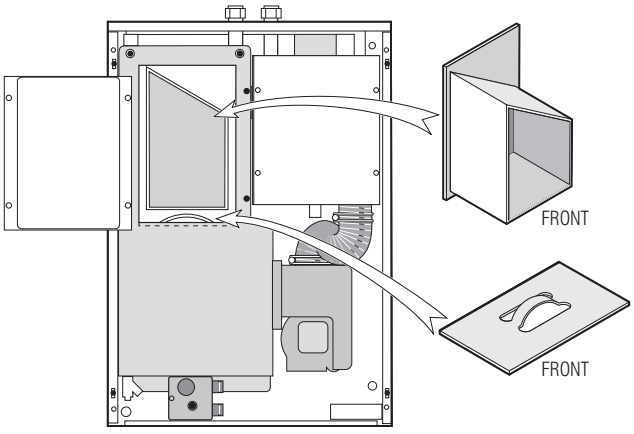
Fig. 9-2a Floor Standing Boiler Baffle Positions

9-2.1 Baffles for Wall Mounted Boilers





BWIC 12/16 BWEC 12/16
BWISC 12/16 BWESC 12/16



BWIC 16/25 BWEC 16/25
BWISC 16/25 BWESC 16/25

Fig. 9-2b Wall Mounted Boiler Baffle Positions

10-1 Householders Fault Finding - also see www.gah.co.uk

IMPORTANT
If you have not been able to rectify the problem contact the INSTALLER who will advise you further.
Do not involve a third party that may incur you costs as this will not be covered by the Boiler Guarantee and any work not authorised by the manufacturer may also invalidate the Guarantee.

Housholder Check			Possible Solution
Is there power to the Boiler ? Is Mains Lamp ON ? (External Boilers only)	No	Fault	There is no power to the Boiler. 1. Check mains switch on the Boiler control panel is ON. 2. Check power to the Boiler is switched ON. 3. Check fuses.
	Yes	Normal	
Is Burner Lockout lamp ON ?	Yes	Fault	Lockout has occurred. 1. You may have run low on oil, check there is oil in the tank. 2. Check the oil from the tank has not been turned OFF. 3. Carry out 'Restart Boiler after Lockout' procedure, see 3-3.
	No	Normal	
Power to the Boiler is On and Lockout lamp is OFF but Boiler is not running, overheating suspected. Is Limit Lamp ON ? (External Boilers only)	Yes	Fault	Boiler may have overheated. 1. Check that the Boiler thermostat control has not been turned fully up. 2. Check that the pump is working. 3. Most Boilers have a manual reset button, press the button to restart the Boiler when it has cooled down - see Section 3.
	No	Normal	
Mains lamp ON (ext only) Lockout Lamp OFF Boiler Thermostat control is set to temperature. Manual reset button has been pressed. Boiler not working.	Yes	Fault	This indicates that the fault may be with the heating control system. 1. Check the programme is set for heat at the required time. 2. Check that the room thermostat is set to temperature. 3. Check power to the control system is ON.
	No	Normal	
Is the Boiler working but making bubbling, gurgling or banging noise ?	Yes	Fault	This indicates that there is air in the system. 1. Bleed the radiators. 2. If you are able, check that the header tank in the loft is full of water, the ball valve may have stuck.
	No	Normal	

10-2 Householders Fault Finding - System Boilers

Housholder Check	Possible Solution
Power to the Boiler is On and Lockout lamp is OFF but Boiler is not running, overheating suspected. Is Limit Lamp ON ? (External Boilers only)	Check pressure gauge reading, it should be between 1 & 2 Bar. If lower, refill system. Check for air in system - with Boiler Off, bleed radiators and open manual air vent/s then refill system.
Water discharging from TPR discharge pipe	Check filling loop is turned OFF and disconnected. System over pressure, consult installer. Insufficient expansion, contact installer.

11-1 Boiler Specifications

BOILER		Floor Standing						
TYPE		Internal		Internal System		External		External System
MODEL		BFIC12/24	BFIC24/30	BFISC12/24	BFISC24/30	BFEC12/24	BFEC24/30	BFESC12/24
Output Factory Set	kW	17.5	27	17.5	27	17.5	27	17.5
	Btu/hr x 1000	60	90	60	90	60	90	60
Output Maximum	kW	24	30	24	30	24	30	24
	Btu/hr x 1000	82	100	82	100	82	100	82
Output Minimum	kW	12	24	12	24	12	24	12
	Btu/hr x 1000	40	80	40	80	40	80	40
Weight empty		126k	144k	134k	152k	131k	146k	136k
Water content (litres)		22	30	27	25	22	30	27
Water connections		4 x ¾" Bsp	4 x ¾" Bsp	4 x ¾" Bsp	4 x ¾" Bsp	4 x ¾" Bsp	4 x ¾" Bsp	4 x ¾" Bsp
Fit below worktop		✓	✓	✓	✓	n/a	n/a	n/a
Front servicing		✓	✓	✓	✓	✓	✓	✓
Water cooled bottom		✓	✓	✓	✓	✓	✓	✓
Balanced flue		125mm	125mm	125mm	125mm	Integral flue		
Conventional flue size		80mm	80mm	80mm	80mm	n/a	n/a	n/a
Manual reset (high limit)over temperature thermostat fitted		✓	✓	✓	✓	✓	✓	✓
Frost protection thermostat fitted		✗	✗	✗	✗	✓	✓	✓
Oil system		Supplied set for single pipe oil system						
Fuels type		All Boilers are supplied set for Kerosene 28 Second Class C fuels. No Boilers are suitable for 35 second Gas Oil. For Bio Fuel Consult GAH.						
Ecoflam Burner		Max 1						
Suitable for fully pumped systems		✓	✓	✓	✓	✓	✓	✓
Suitable for pumped central heating with gravity to cylinder		✓	✓	✓	✓	✓	✓	✓
Operating temperature		60-90°C						
Electricity supply		240V single phase 50Hz - fused 5 amp - WIRE AS SHOWN ON WIRING DIAGRAM						
Maximum operating pressure		2.76 bar - 40 p.s.i. - 90 feet head H_2O						
Conventional flue chimney draft limit		Minimum 1.2mm H_2O, Maximum 4.0mm H_2O						

BOILER		Wall Mounted						
TYPE		Internal		Internal System		External		External System
MODEL		BWIC12/16	BWIC16/25	BWISC12/16	BWISC16/25	BWEC12/16	BWEC16/25	BWESC12/16
Output Factory Set	kW	14	18.5	14	18.5	14	18.5	14
	Btu/hr x 1000	50	60	50	60	50	60	50
Output Maximum	kW	16	25	16	25	16	25	16
	Btu/hr x 1000	55	85	55	85	55	85	55
Output Minimum	kW	12	16	12	16	12	16	12
	Btu/hr x 1000	40	55	40	55	40	55	40
Weight empty		88k	127k	97k	101k	91k	128k	102k
Water content (litres)		17	19	22	24	17	19	22
Water connections		2 x 22mm copper	2 x 22mm copper	2 x 22mm copper	2 x 22mm copper	2 x 22mm copper	2 x 22mm copper	2 x 22mm copper
Fit below worktop		✓	✓	✓	✓	n/a	n/a	n/a
Front servicing		✓	✓	✓	✓	✓	✓	✓
Water cooled bottom		n/a	n/a	n/a	n/a	n/a	n/a	n/a
Balanced flue		125mm	125mm	125mm	125mm	Integral flue		
Conventional flue size		80mm	80mm	80mm	80mm	n/a	n/a	n/a
Manual reset (high limit)over temperature thermostat fitted		✓	✓	✓	✓	✓	✓	✓
Frost protection thermostat fitted		✗	✗	✗	✗	✓	✓	✓
Oil system		Set for 2 pipe oil system						
Fuels type		All Boilers are supplied set for Kerosene 28 Second Class C fuels. No Boilers are suitable for 35 second Gas Oil. For Bio Fuel Consult GAH.						
Ecoflam Burner		Max 1						
Suitable for fully pumped systems		✓	✓	✓	✓	✓	✓	✓
Suitable for pumped central heating with gravity to cylinder		✗	✗	✗	✗	✗	✗	✗
Operating temperature		60-90°C						
Electricity supply		240V single phase 50Hz - fused 5 amp - WIRE AS SHOWN ON WIRING DIAGRAM						
Maximum operating pressure		2.76 bar - 40 p.s.i. - 90 feet head H_2O						
Conventional flue chimney draft limit		Minimum 1.2mm H_2O, Maximum 4.0mm H_2O						

11-2 Burner Setting Data

The following Burner settings given for all Option, Select and Wall Mounted Boilers are for Kerosene 28 Second Class C fuel.

For Bio Fuels consult GAH.

Condensing Boilers are not suitable for 35 Second Class D Gas Oil.

☐ Factory Setting

Model	Burner Type	Output		Nozzle*	Burner Oil Pressure See Section 11-3.2		Firing Rate	CO_2	Flue Gas Temp.
		kW	Btu/h x 1000	Size & Type US/GPH	psi	bar	litres/h	%	Less Ambient °C
Floor Standing Boilers 12/24	Ecoflam Max 1	12	40	0.4/80°	100	7	1.26	10.5-11	40-80°C
		17.5	60	0.6/60°	100	7	1.85	10.5-11	40-80°C
		24	80	0.75/60°	110	7.6	2.3	10.5-11	40-80°C
Floor Standing Boilers 24/30	Ecoflam Max 1	24	80	0.75/60°	110	7.6	2.3	10.5-11	40-80°C
		27	90	0.75/60°	130	9.0	2.5	10.5-11	40-80°C
		30	100	0.85/60°	110	7.6	2.8	10.5-11	40-80°C
Wall Mounted Boilers 12/16	Ecoflam Max 1	12	40	0.4/80°	100	7	1.26	10.5-11	40-80°C
		14	50	0.5/60°	100	7	1.65	10.5-11	40-80°C
		16	55	0.5/60°	110	7	1.65	10.5-11	40-80°C
Wall Mounted Boilers 16/25	Ecoflam Max 1	16	55	0.5/60°	110	7	1.65	10.5-11	40-80°C
		18.5	60	0.6/60°	100	7	1.85	10.5-11	40-80°C
		25	85	0.75/60°	120	8.3	2.45	10.5-11	40-80°C

* While GAH prefer nozzles with an 'H' or 'Hollow' spray pattern, the Boilers will work equally well with other spray patterns providing the Boiler is recommissioned after the nozzle is fitted.

11-3 Burner Settings

11-3.1 Combustion Air Setting

Note

The recommended settings for the combustion head and combustion air are shown in Section 11-2.
Settings should not differ greatly from the settings given.

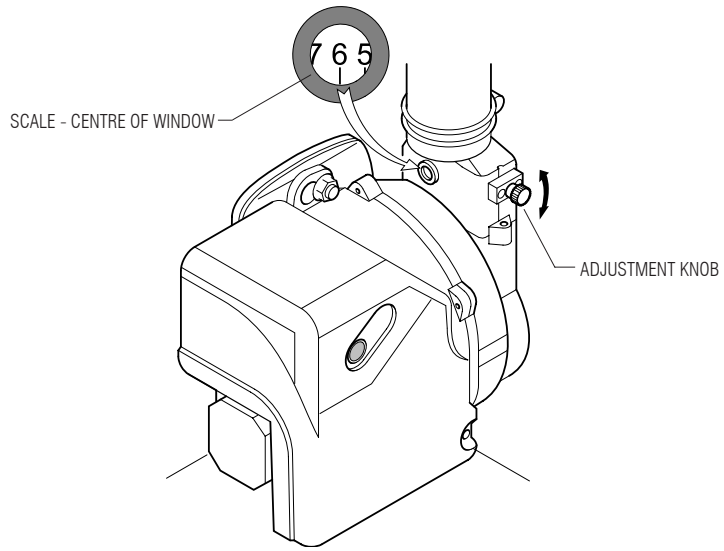


Fig. 11-3a Combustion Air Setting

CAUTION
Only fit and remove pressure gauge when the Boiler is off.

11-3.2 Burner Oil Pressure

The burner pump oil pressure is measured using a pressure gauge fitted into the bleed/ pressure gauge port of the pump. An allen key is used to set the pressure.

Do not adjust the pressure without the use of a gauge.

Note
The recommended settings for the burner oil pressure are shown in Section 11-2. Settings should not differ greatly from the settings given.

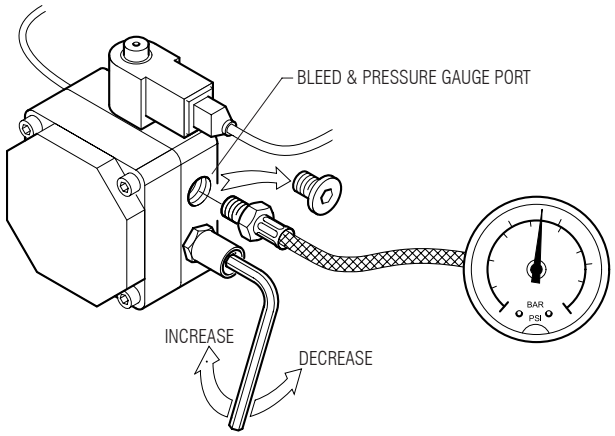


Fig. 11-3b Oil Pressure Adjustment

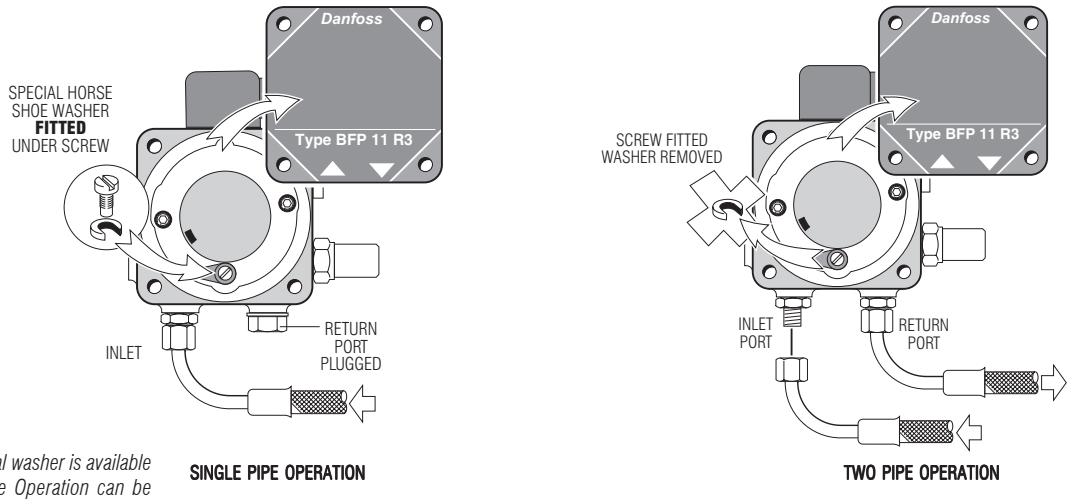
11-3.3 Burner Oil Pump

An ECOFLAM Burner with Danfoss pump is used on Themeco Oil Boilers. Pumps can be set for single and two pipe operation.

Floor standing Boilers are supplied with the burner pump set for single pipe operation.

Wall mounted Boilers are supplied with the burner pump set for two pipe operation.

IMPORTANT
When cover has to be removed - do not damage filter or seal.
Ensure cover is refitted correctly and that it does not leak.



Note
If no special washer is available Single Pipe Operation can be achieved by removing screw.

Fig. 11-3c Pump Single and Two Pipe Operation

11-4 Panel Wiring Diagrams

IMPORTANT

The heating system pump MUST be wired so that it is ON at all times the Boiler is ON, that is, at all times the system control is calling for heat and/or hot water.

It is recommended that the Boiler is installed so that the system controls prevent the burner firing unless there is demand for heat from a room or cylinder thermostat. When thermally operated or motorised valves are fitted to the system that could stop adequate flow of water through the Boiler, then provision MUST be made to simultaneously switch the electricity supply to the oil burner OFF.

11-4.1 Internal Range

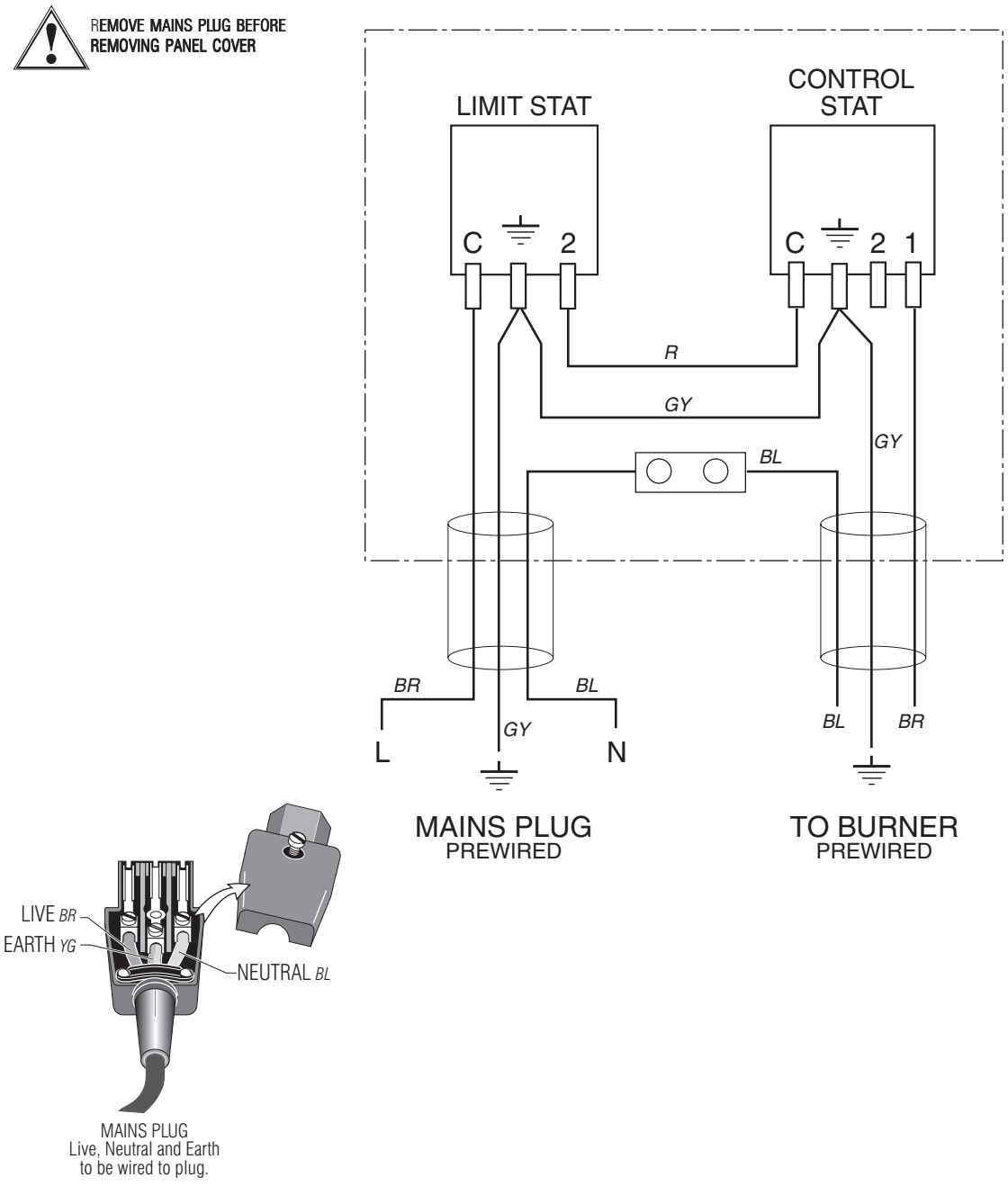


Fig. 11-4a Wiring Diagram for Option Range

11-4.2 External Wiring Diagram

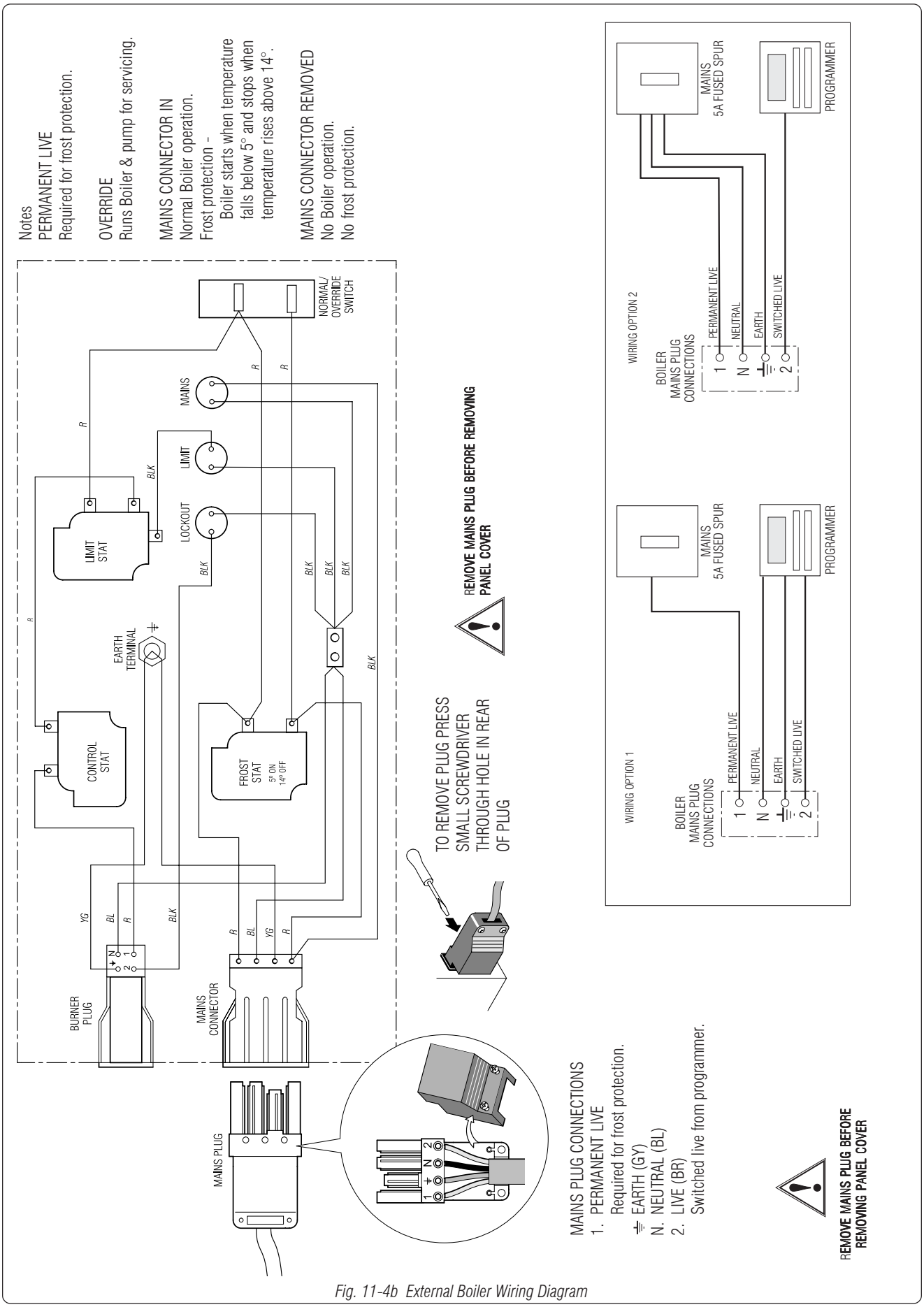


Fig. 11-4b External Boiler Wiring Diagram

11-5 Parts Supplied with Boiler

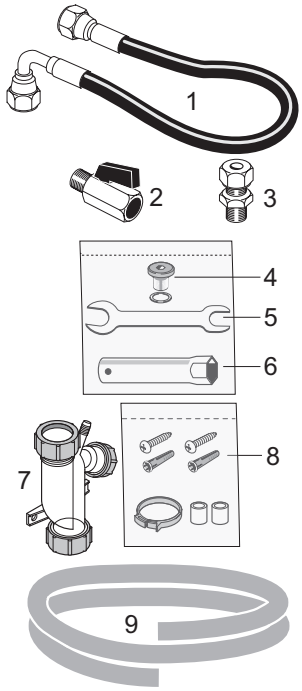


Fig. 11-5a Floor Standing

11-5.1 Floor Standing

Item	Part	Notes
1	Hose	For two pipe installation an extra hose is available at extra cost.
2	Shut Off Valve	Supplied to be fitted adjacent to flexible hose.
3	Nipple	Oil pipe connection.
4	Plug and Washer	1 for connecting to valve - item 3.
5	Spanner	For removing burner.
6	Box Spanner	For removing and replacing burner nozzle.
7	Condensate Trap	Fit outside Boiler case. Not to be fitted outside.
8	Trap Fixing Kit	Screws, wall plugs, hose clip and trap spacers.
9	Flexible Hose	Boiler to trap and trap to condensate drain.

For SYSTEM Boiler Kit refer to section 5-5.2.

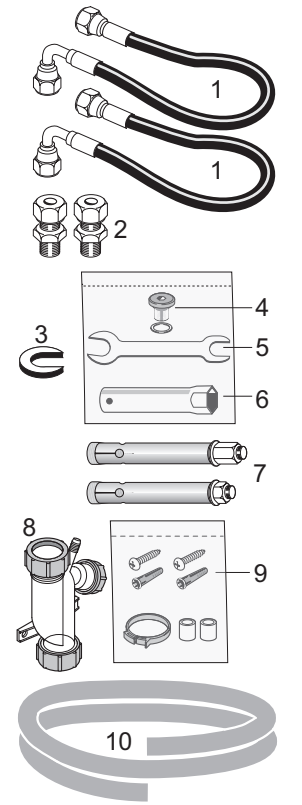


Fig. 11-5b Wall Mounted

11-5.2 WALL MOUNTED Internal & External

Item	Part	Notes
1	Hose	2 hoses are supplied as most wall mounted Boilers have a two pipe oil system.
2	Nipple	Oil pipe connection.
3	Horseshoe Washer	For converting burner pump from two pipe to one pipe oil sysem - see Section 11-3.3.
4	Plug and Washer	
5	Spanner	For removing burner.
6	Box Spanner	For removing and replacing burner nozzle.
7	Rawl Bolts	For mounting back panel and heat exchanger to the wall. The long nut is to clear the flange on the top fixing.
8	Condensate Trap	Fit outside Boiler case. Not to be fitted outside.
9	Trap Fixing Kit	Screws, wall plugs, hose clip and trap spacers.
10	Flexible Hose	Boiler to trap and trap to condensate drain.

For SYSTEM Boiler Kit refer to section 5-5.2.

11-6 Boiler Dimensions

11-6.1 Floor Standing Internal BFIC12/24 & BFISC12/24

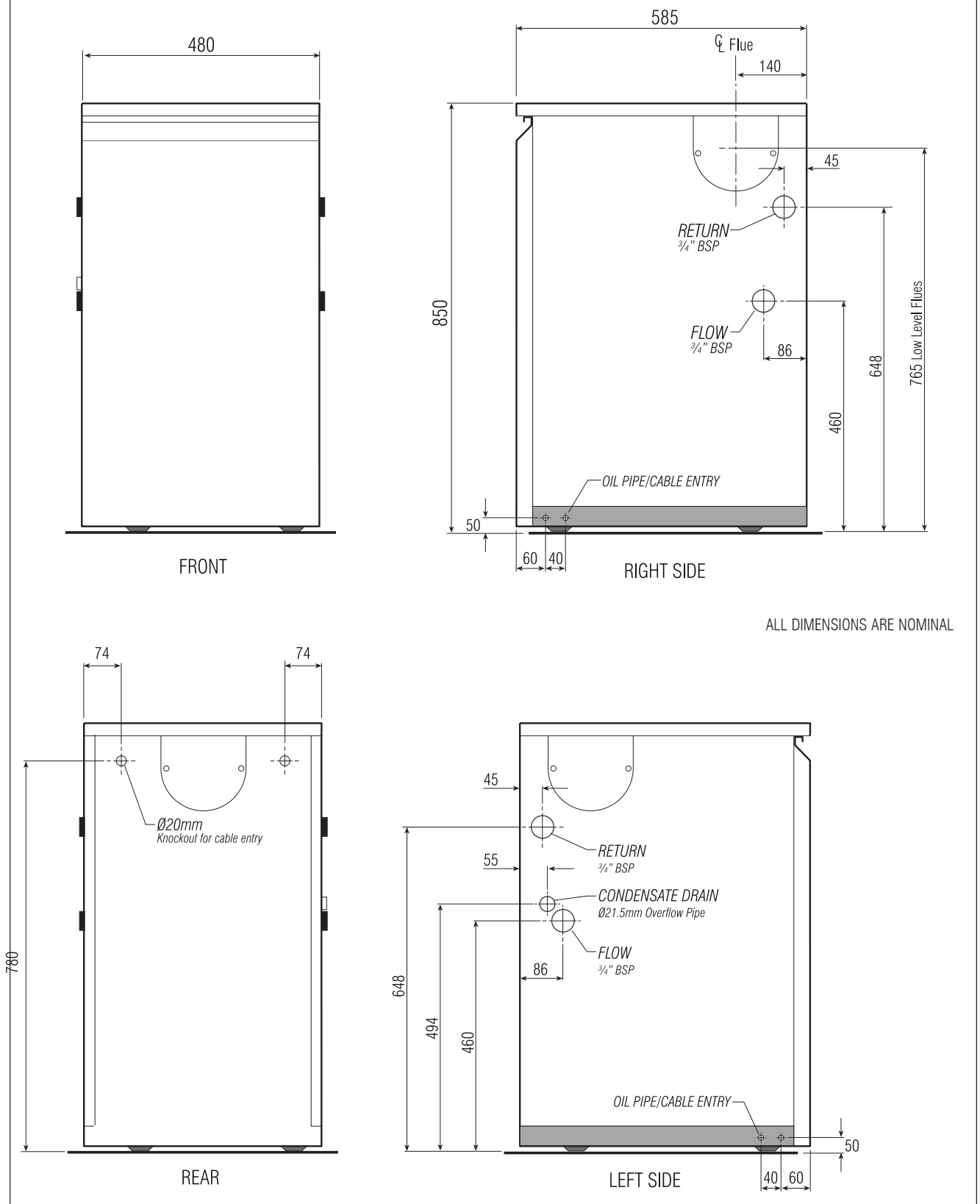


Fig. 11-6a Overall Dimensions FLOOR STANDING INTERNAL BFIC12/24 & BFISC12/24

11-6.2 Floor Standing Internal BFIC 24/30 & BFISC 24/30

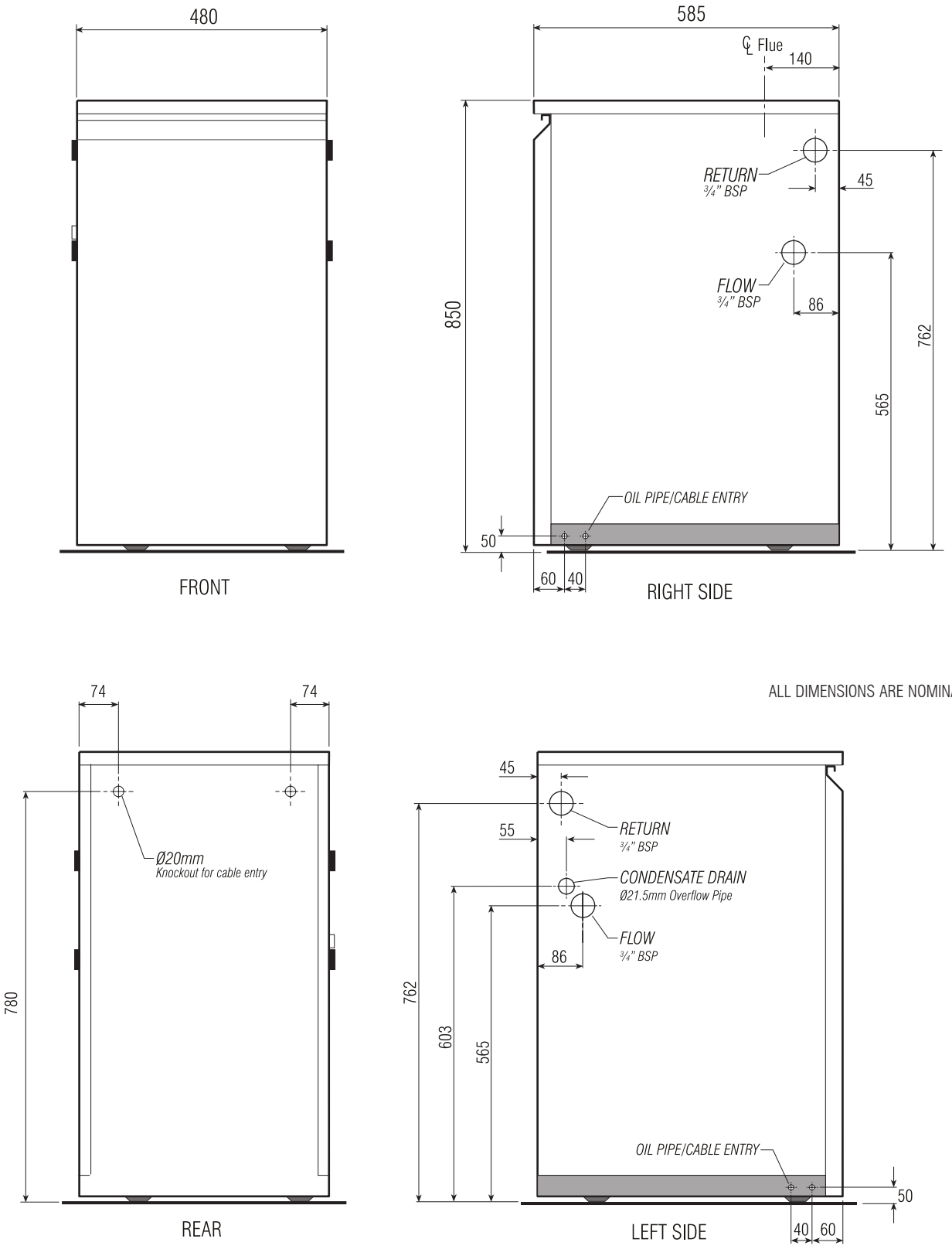
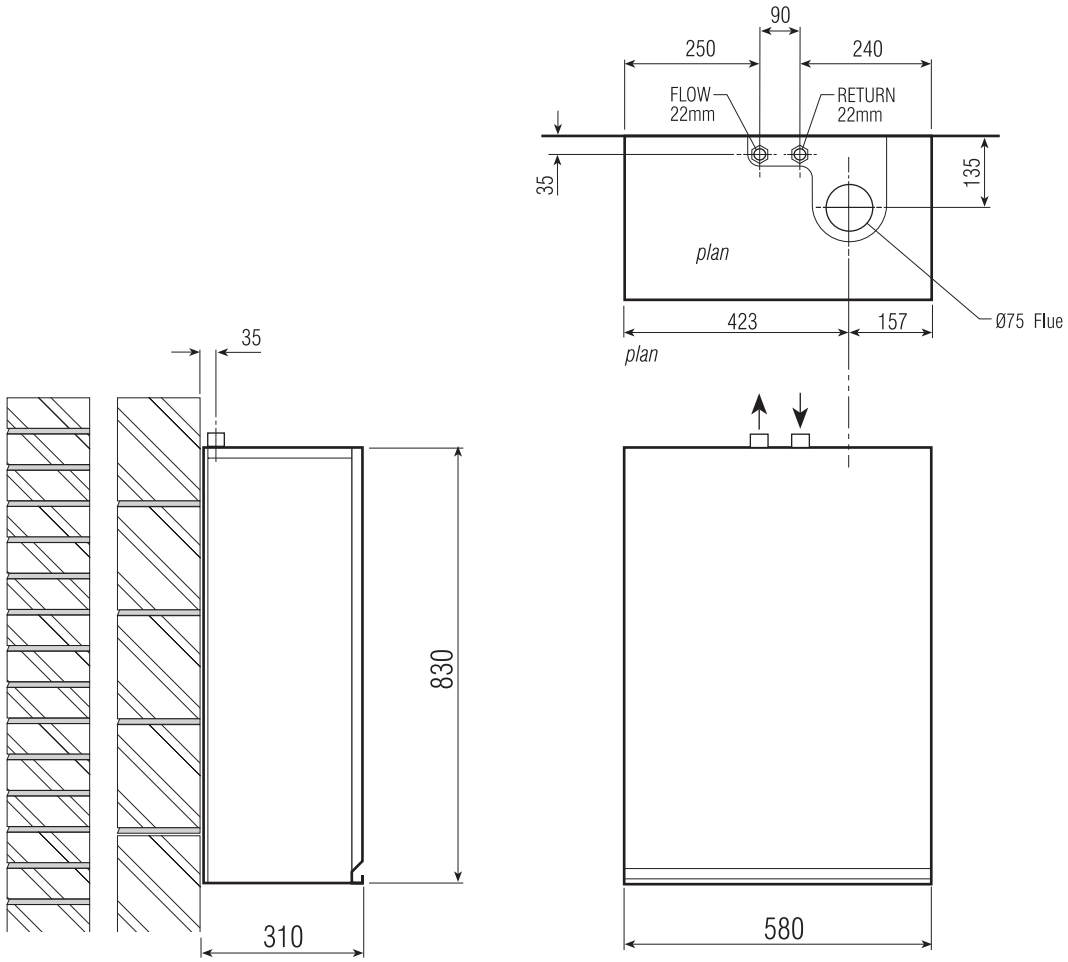
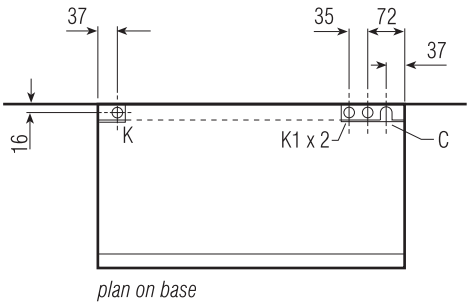


Fig. 11-6b Overall Dimensions FLOOR STANDING INTERNAL BFIC 24/30 & BFISC 24/30

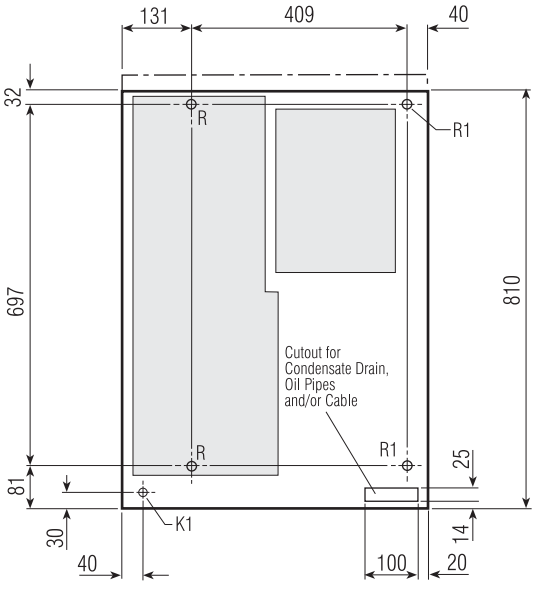
11-6.3 Wall Mounted Internal - All Models

ALL DIMENSIONS ARE NOMINAL





plan on base



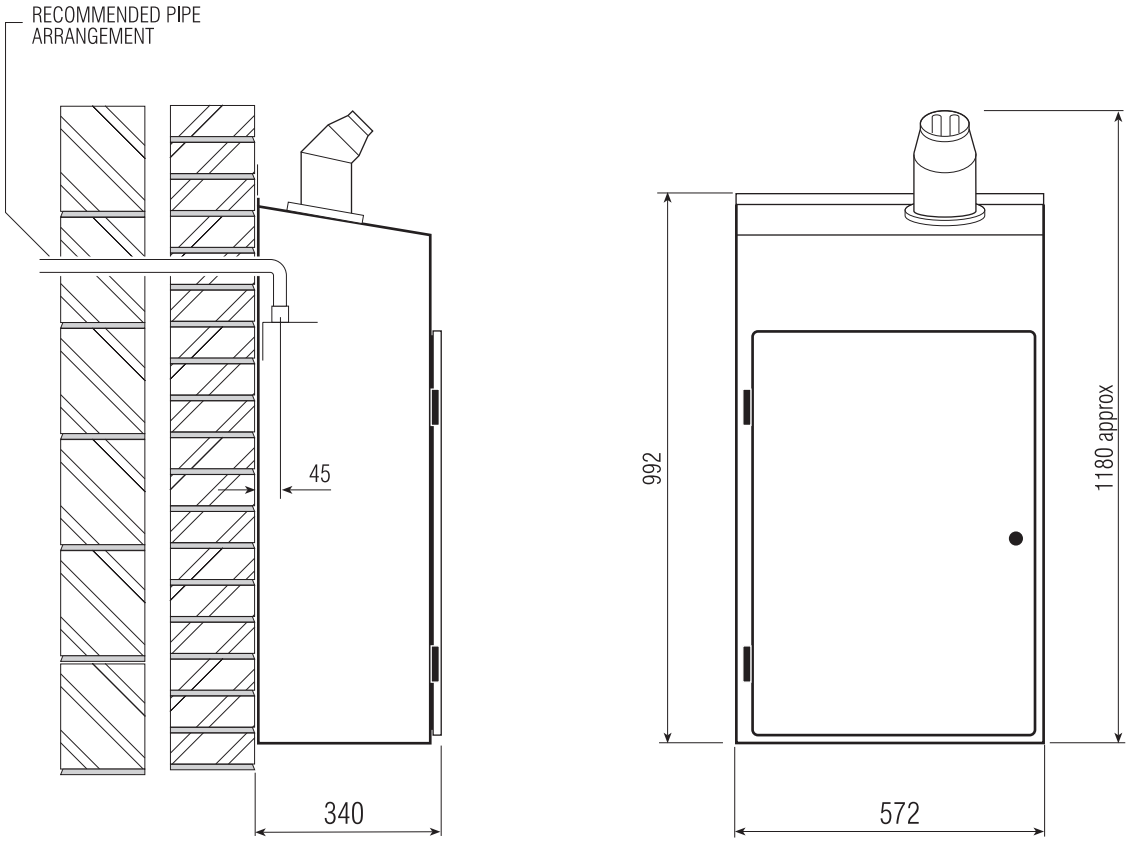
Back Plate Details

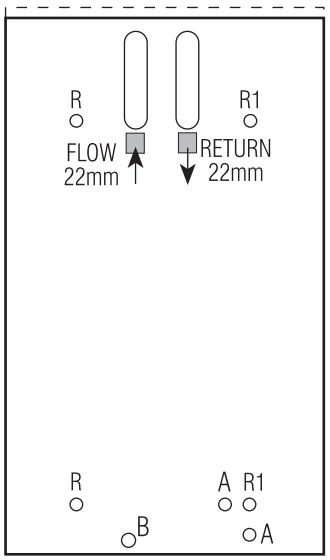
K - Ø20 Knockout for cable or oil pipe
K1 - Ø22 Knockout for cable, oil pipe or condensate drain.
C - Ø22 Cut-out for condensate drain
R - 2 Boiler mounting holes Ø16 for Ø12 rawl bolts
R1 - 2 Panel retaining holes Ø16 for rawl bolt or screws

Fig. 11-6c Overall Dimensions INTERNAL WALL MOUNTED - All Models

11-6.4 External Wall Mounting - All Models

ALL DIMENSIONS ARE NOMINAL





BACK PLATE VIEWED FROM FRONT
USE BACK PLATE AS TEMPLATE TO MARK WALL

R - 2 Boiler mounting holes Ø16 for Ø12 rawl bolts
R1 - 2 Panel retaining holes Ø16 for rawl bolt or screws
A - Ø16 for cable or oil pipe
B - Ø20 for condensate drain.

Fig. 11-6d Overall Dimensions EXTERNAL WALL MOUNTED - All Models

11-6.5 External Floor Standing

ALL DIMENSIONS ARE NOMINAL

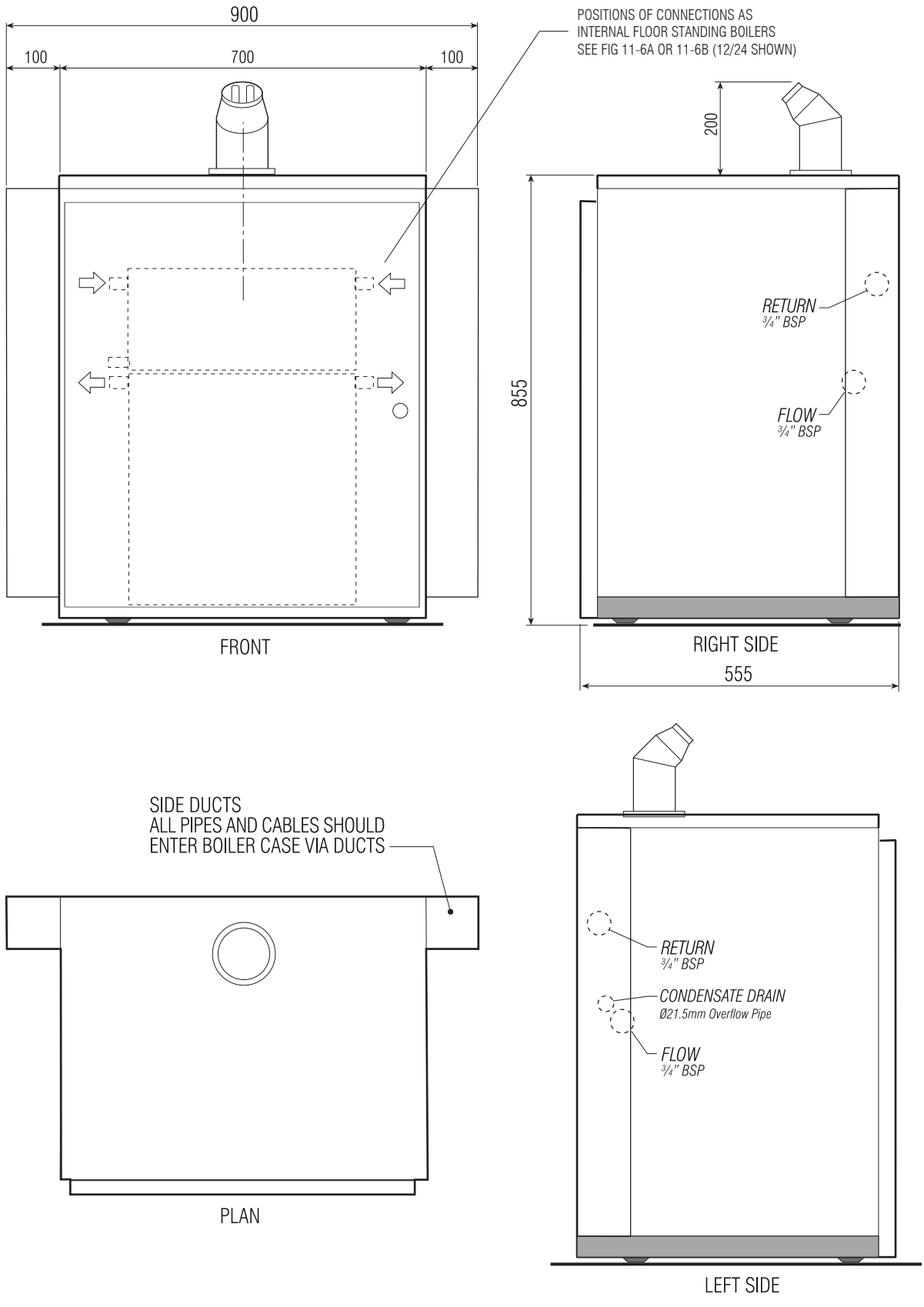
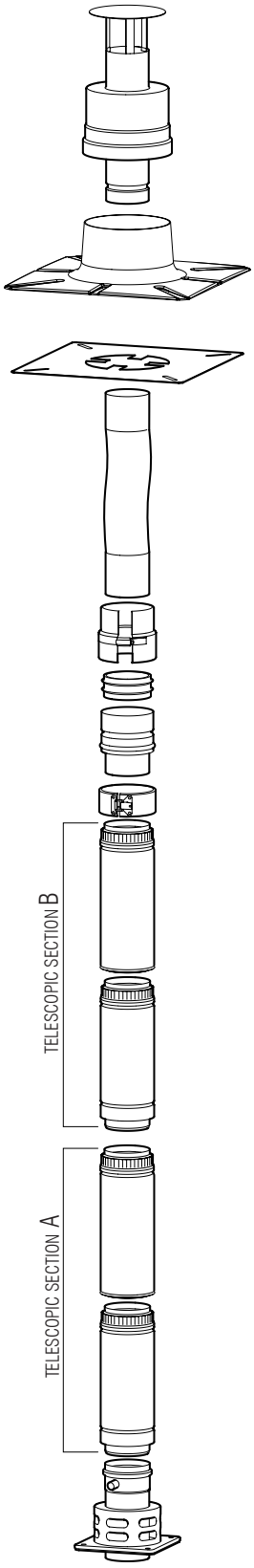


Fig. 11-6e Overall Dimensions EXTERNAL FLOOR STANDING

11-7 Conventional Flue Arrangement - All Internal Boilers

11-7.1 Conventional Flue Kit - straight flue



A	
12/24	24/30
680	789

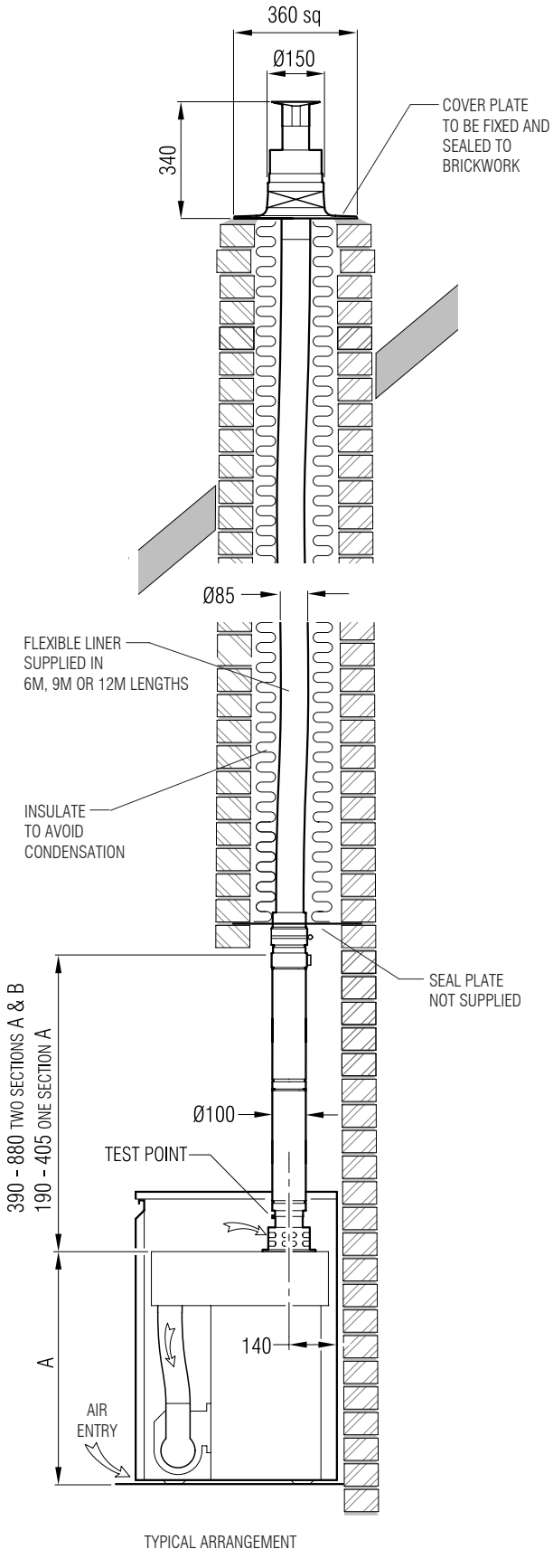
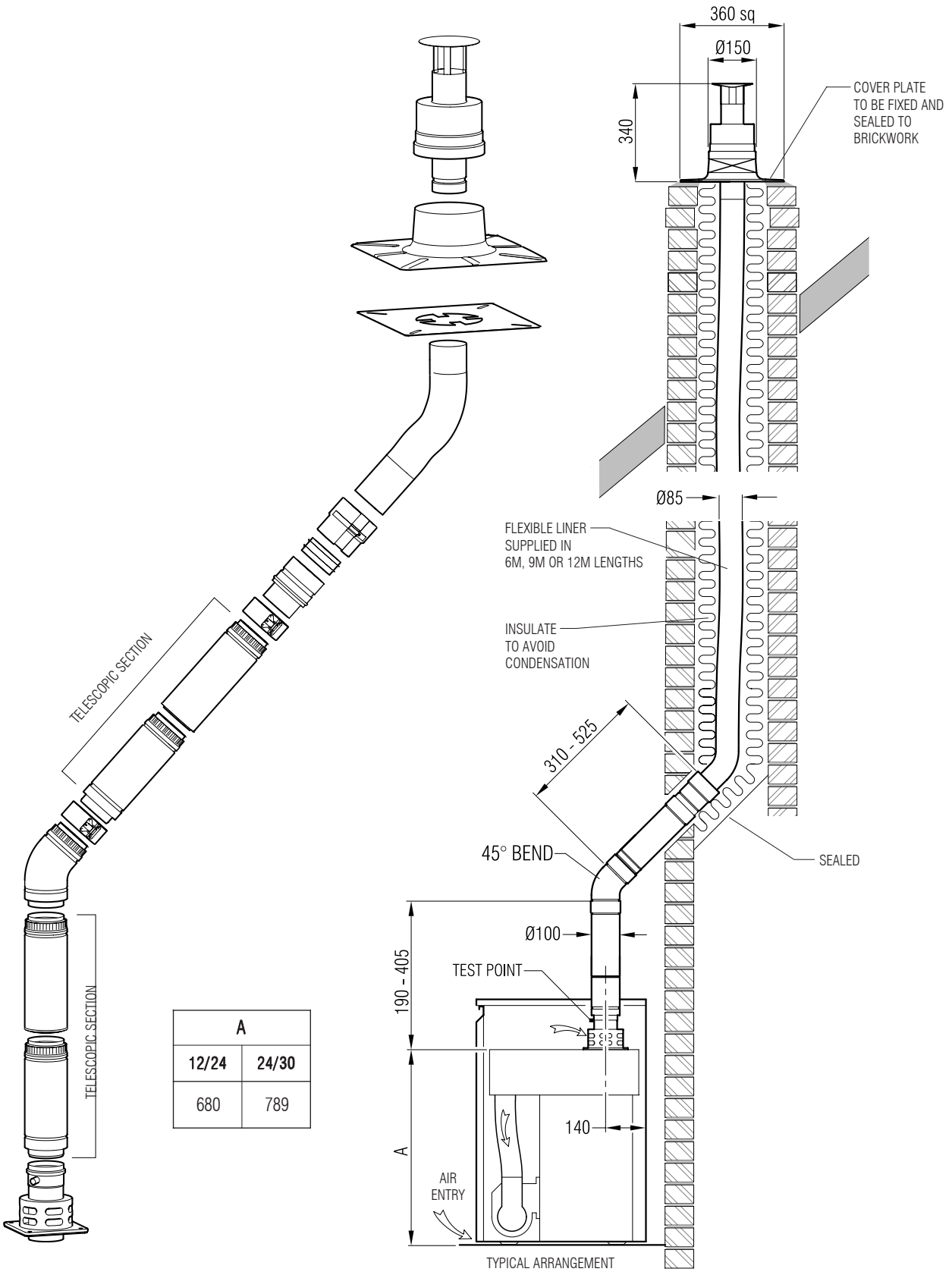


Fig. 11-7a Conventional Straight Flue Arrangement - All Boilers

11-7.2 Conventional Flue Kit - with bend



A	
12/24	24/30
680	789

Fig. 11-7b Conventional Flue Arrangement with Bend - All Boilers

11-8 Balanced Flue Dimensions

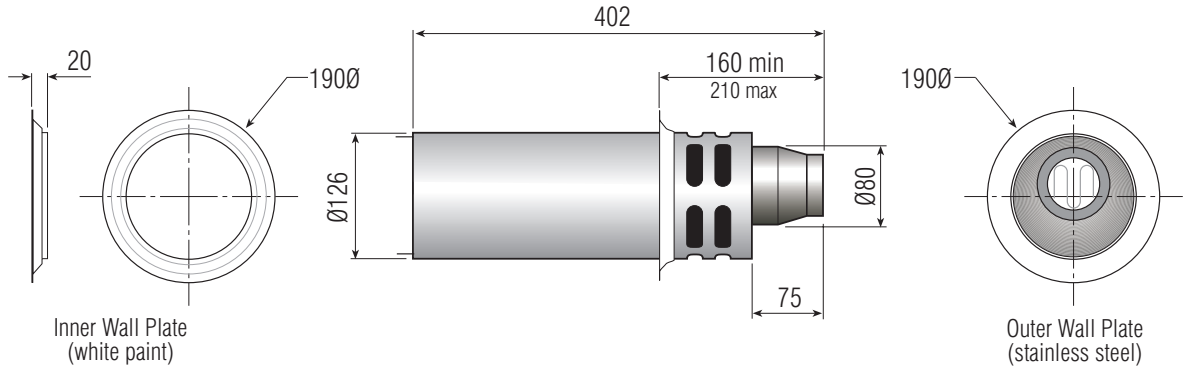


Fig. 11-8a Terminal and Wall Plates

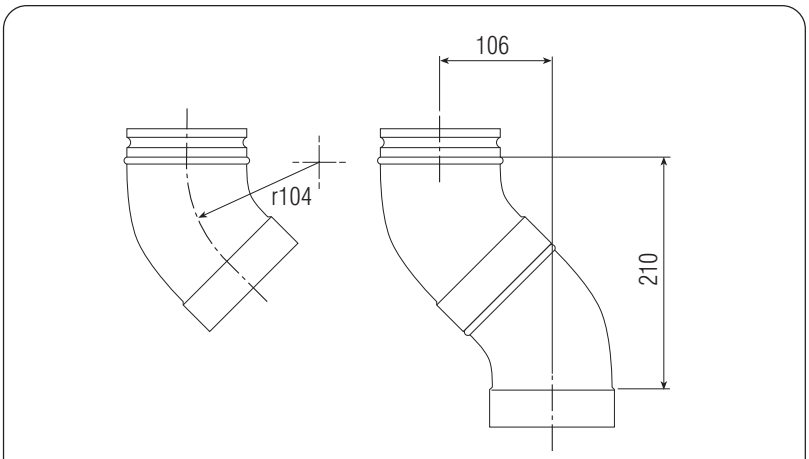
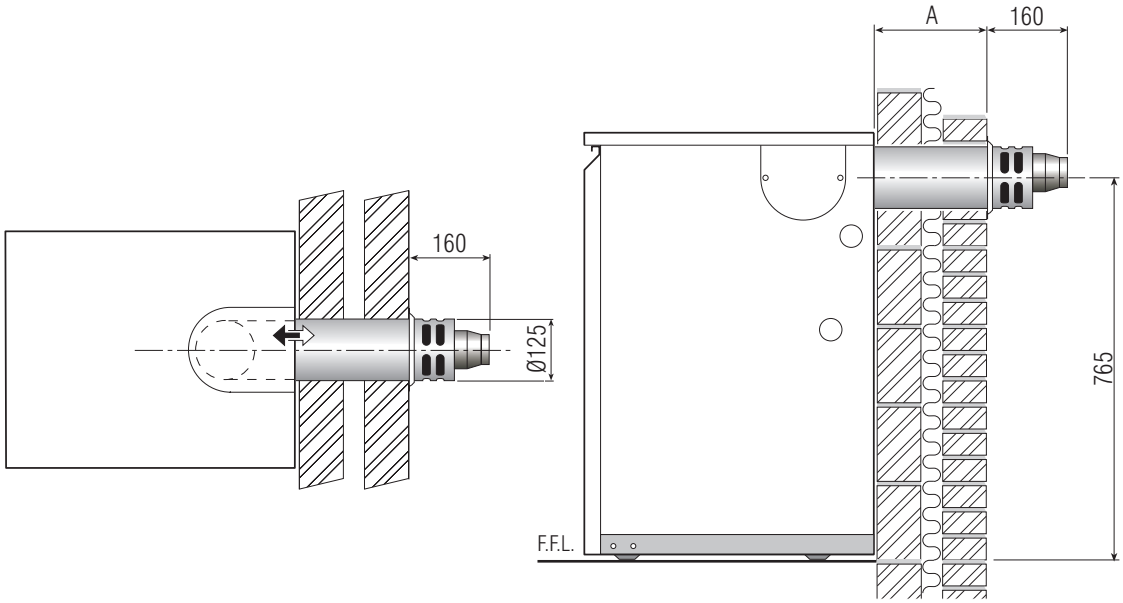


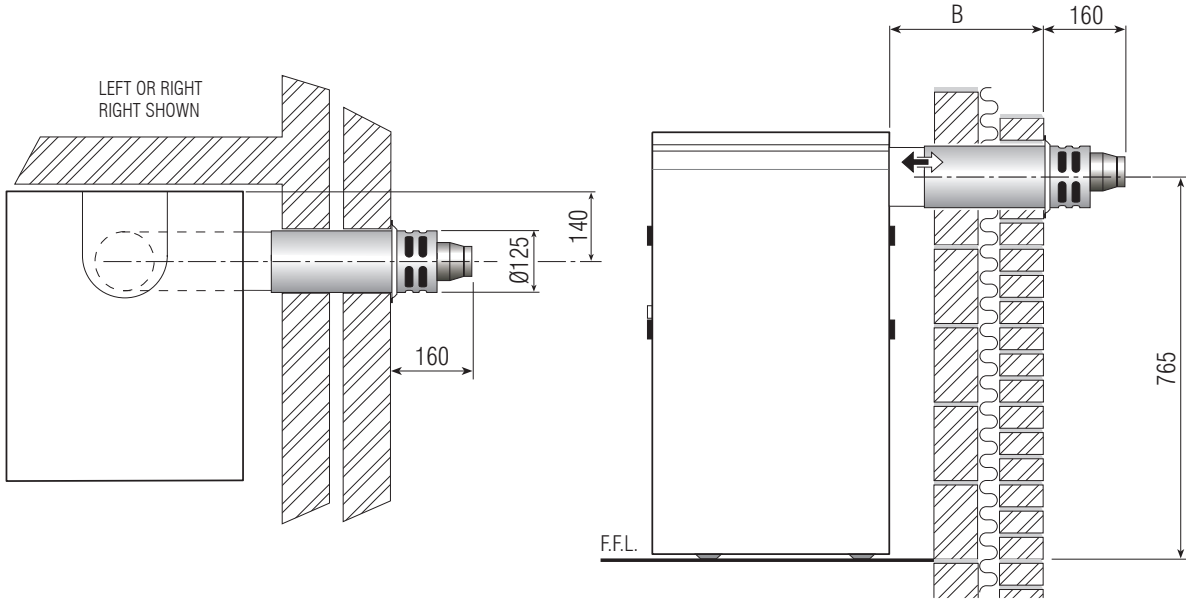
Fig. 11-8b 45° Bend & Offset

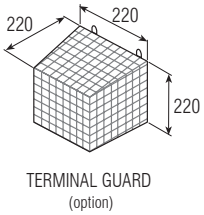
11-8.1 BFIC12/24 & BFISC12/24 LOW LEVEL BALANCED FLUE

NOMINAL DIMENSIONS
TELESCOPIC EXTENSIONS AVAILABLE
FLUES CANNOT BE CUT TO LENGTH



Fitted as Rear Outlet	A		
	Standard Kit	With 1-300 Extension	Maximum Length
LLC-125	240 to 380	300 to 680	2000





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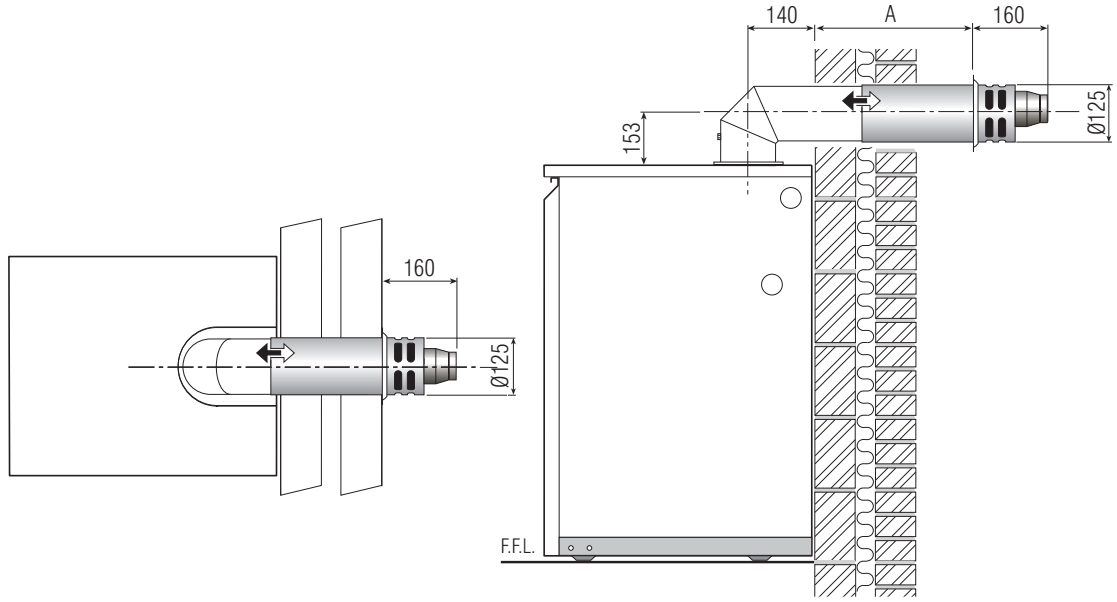
Fitted as Side Outlet	B		
	Standard Kit	With 1-300 Extension	Maximum
LLC-125	140 to 280	200 to 580	1900

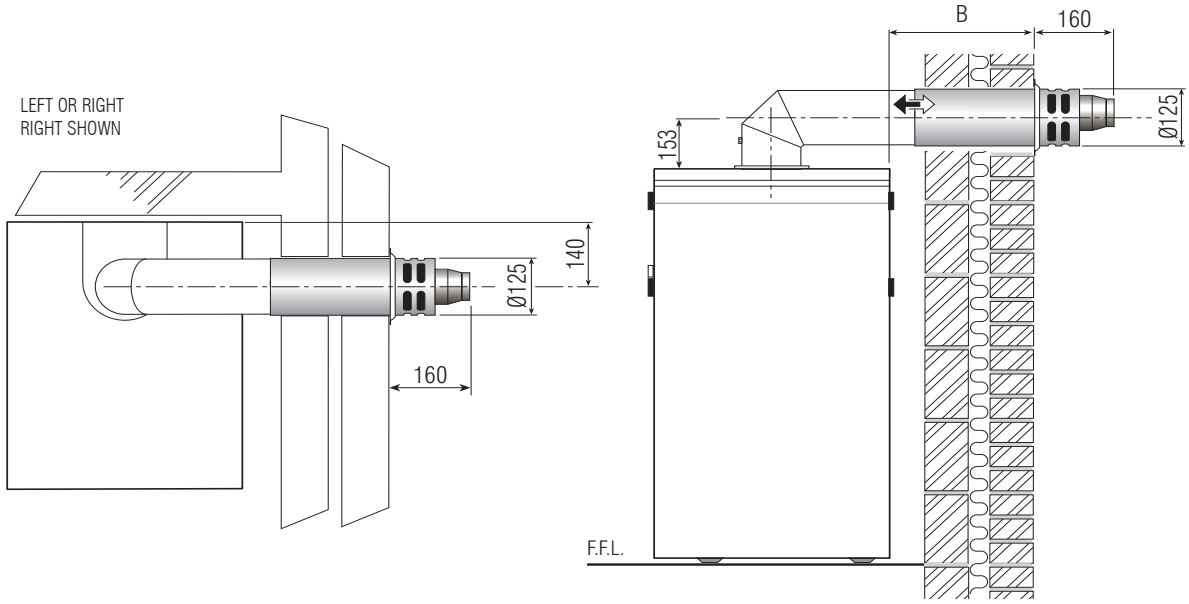
Fig. 11-8c Floor Standing - Low Level Side Balanced Flue Dimensions

11-8.2 BFIC24/39 & BFISC24/30 LOW LEVEL BALANCED FLUE

NOMINAL DIMENSIONS
TELESCOPIC EXTENSIONS AVAILABLE
FLUES CANNOT BE CUT TO LENGTH



Fitted as Rear Outlet	A		
	Standard Kit	With 1-300 Extension	Maximum Length
LLC-125	240 to 380	300 to 680	2000



Fitted as Side Outlet	B		
	Standard Kit	With 1-300 Extension	Maximum
LLC-125	140 to 280	200 to 580	1900

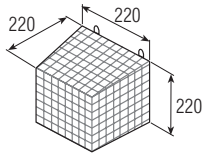


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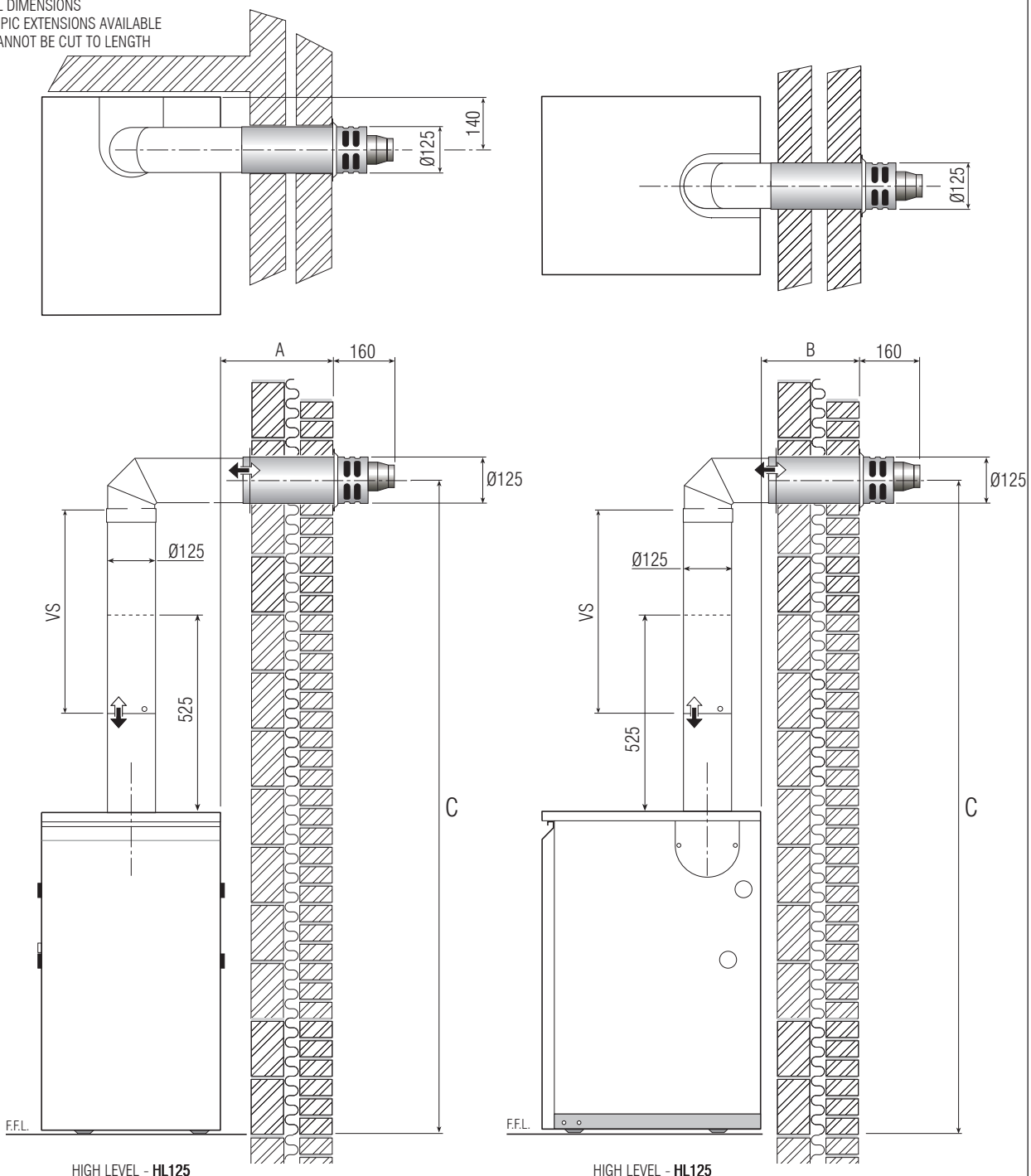
Fig. 11-8d Floor Standing - Low Level Side Balanced Flue Dimensions

11-8.3 Floor Standing Internal HIGH LEVEL SIDE & REAR

NOMINAL DIMENSIONS
TELESCOPIC EXTENSIONS AVAILABLE
FLUES CANNOT BE CUT TO LENGTH



HIGH LEVEL - **HL125**
FITTED AS SIDE OUTLET

HIGH LEVEL - **HL125**
FITTED AS REAR OUTLET

FLUE HLC-125	A Fitted as Side Outlet			B Fitted as Rear Outlet			C Height		
	Standard Kit	With 1-300 Extension	Maximum	Standard Kit	With 1-300 Extension	Maximum	Standard Kit	Without Vertical Section VS*	Maximum
BFIC 12/24 BFISC 12/24	140 to 280	200 to 580	1900	240 to 380	300 to 680	2000	1525 to 2085	1455	3000
BFIC 24/30 BFISC 24/30							1634 to 2194	1564	

*The Vertical Section VS is supplied with the Standard Kit; the flue can be assembled without it to achieve the minimum height.
Extension available for horizontal and vertical 300, 600T & 950.

Fig. 11-8e Floor Standing - High Level Balanced Flue Dimensions

11-8.4 Floor Standing Internal - VERTICAL

NOMINAL DIMENSIONS
TELESCOPIC EXTENSIONS AVAILABLE
FLUES CANNOT BE CUT TO LENGTH

FLUE VTLC-125	A Height		
	Standard Kit	Without Vertical Section VS*	Extensions available
BFIC 12/24 BISC 12/24	2070 to 3090	2000 to 2460	300, 600T & 950
BFIC 24/30 BISC 24/30	2179 to 3199	2109 to 2569	

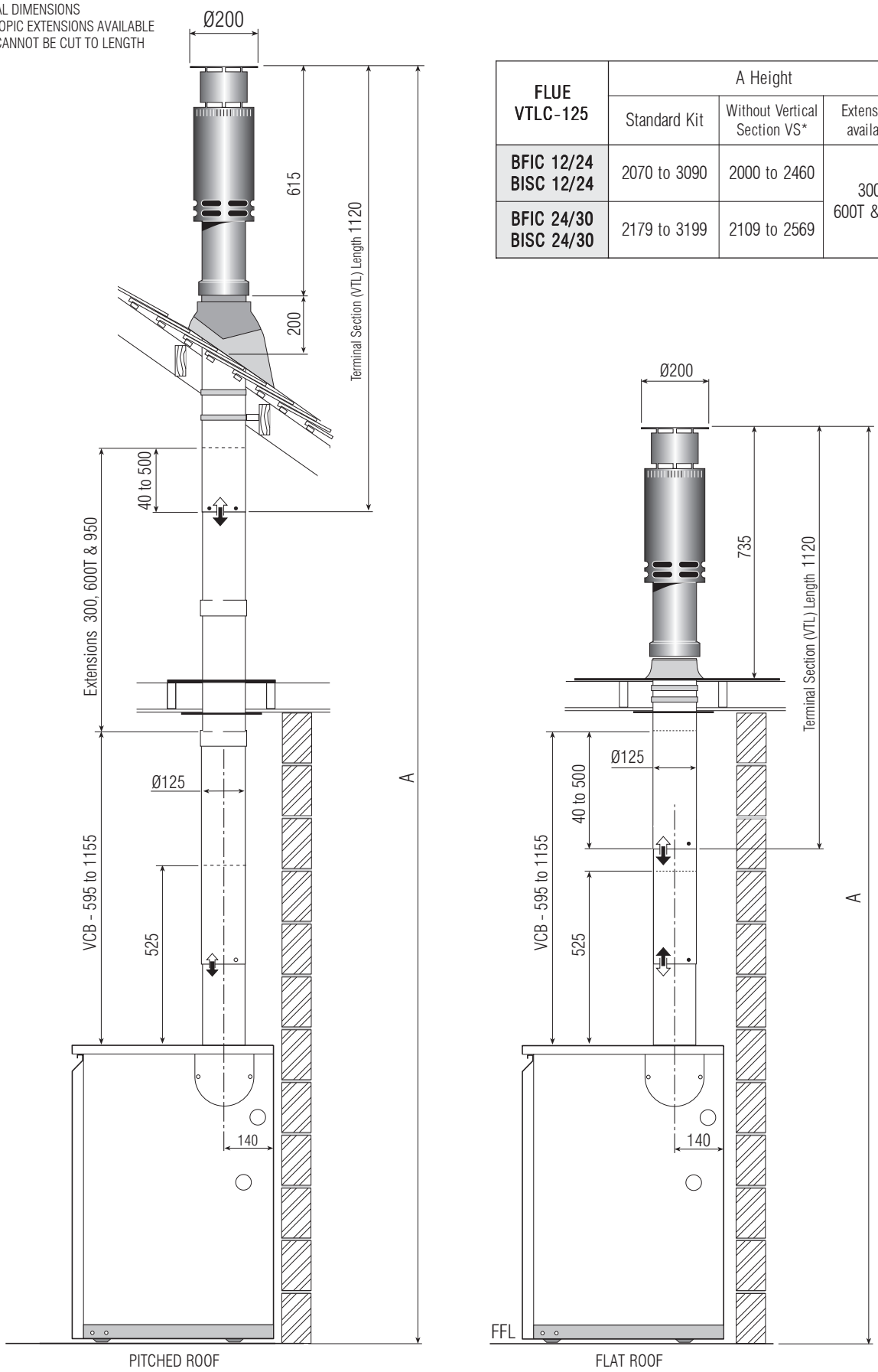
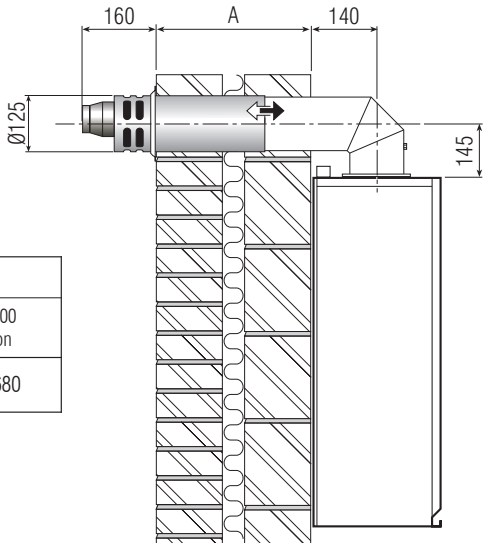
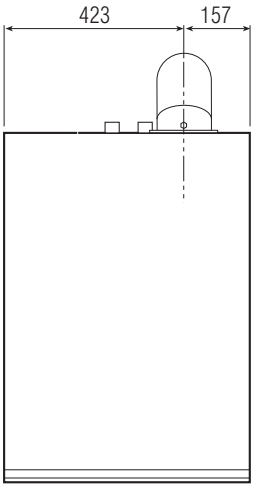


Fig. 11-8f Floor Standing - Vertical Balanced Flue Dimensions

11-8.5 LL125 Wall Mounted Internal - REAR, RIGHT SIDE AND LEFT SIDE

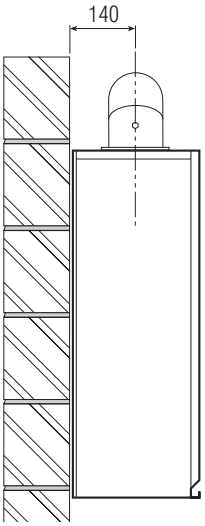
NOMINAL DIMENSIONS
TELESCOPIC EXTENSIONS AVAILABLE
FLUES CANNOT BE CUT TO LENGTH

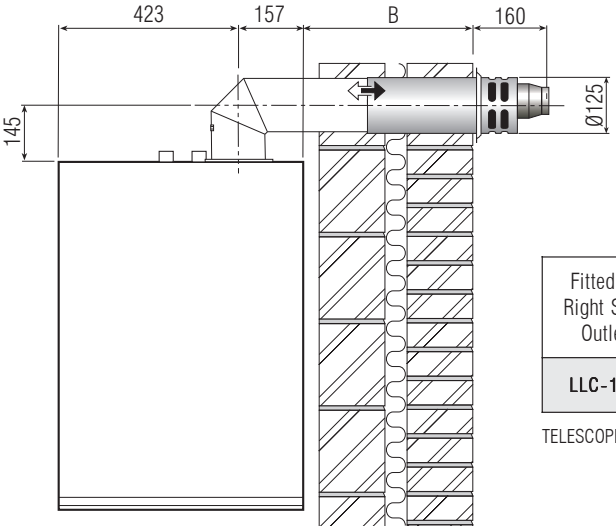




Fitted as Rear Outlet	A	
	Standard Kit	With 1 300 Extension
LLC-125	240 to 380	300 to 680

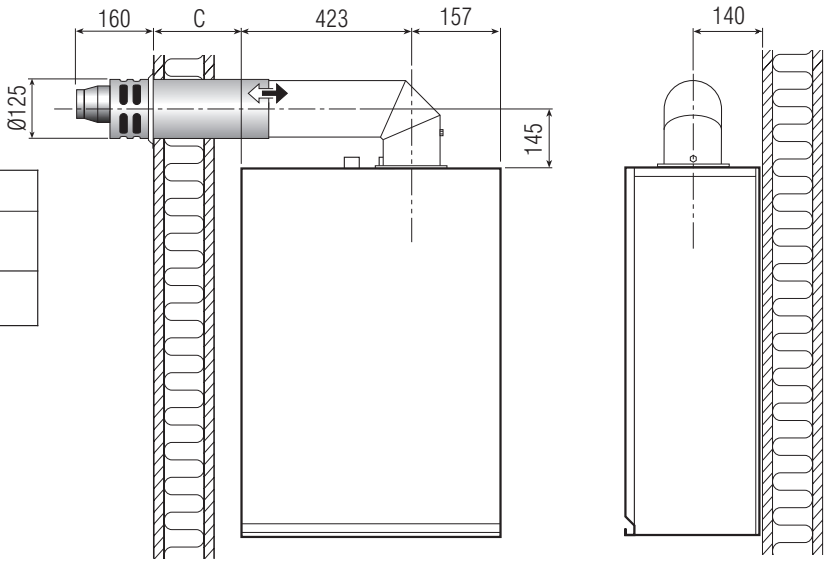
TELESCOPIC HORIZONTAL EXTENSIONS AVAILABLE :-
300, 600T and 950 - MAXIMUM 'A ' = 2000





Fitted as Right Side Outlet	B	
	Standard Kit	With 1 300 Extension
LLC-125	223 to 363	283 to 663

TELESCOPIC EXTENSIONS AVAILABLE 300, 600 and 950



Fitted as Left Side Outlet	C	
	Standard Kit	With 1 300 Extension
11C-125	0 to 97	257 to 397

TELESCOPIC HORIZONTAL EXTENSIONS AVAILABLE :-
300, 600T and 950 - MAXIMUM 'C ' = 1713

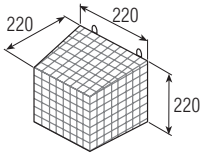


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Fig. 11-8g Internal Wall Mounted - Low Level Balanced Flue

11-8.6 Wall Mounted Internal - VERTICAL

NOMINAL DIMENSIONS
TELESCOPIC EXTENSIONS AVAILABLE
FLUES CANNOT BE CUT TO LENGTH

Wall Mounted Vertical Flues	A Height	B Height
	Standard Kit	Without Vertical Section VS
VTLC-125	1323 to 2343	1253 to 1713

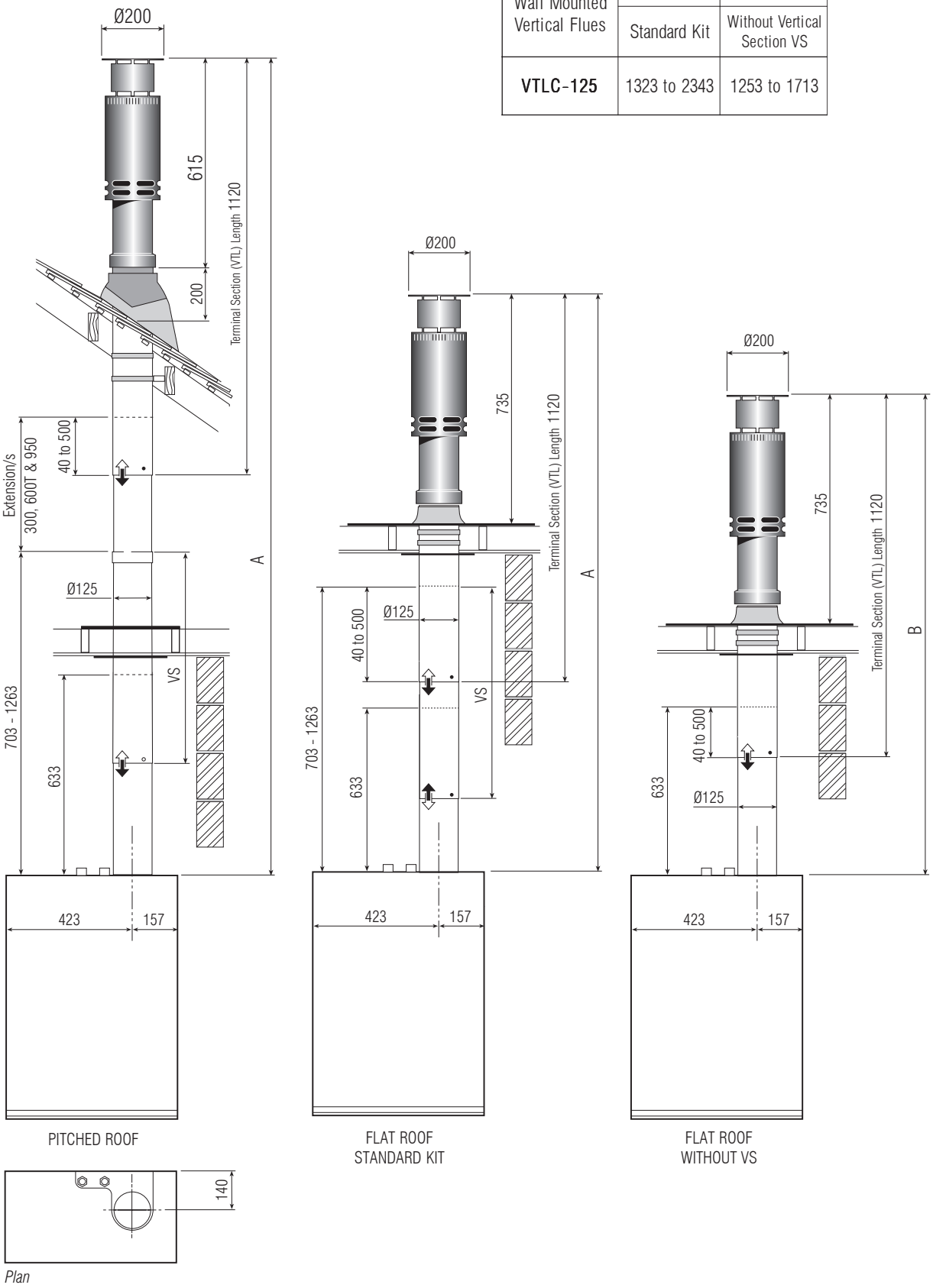
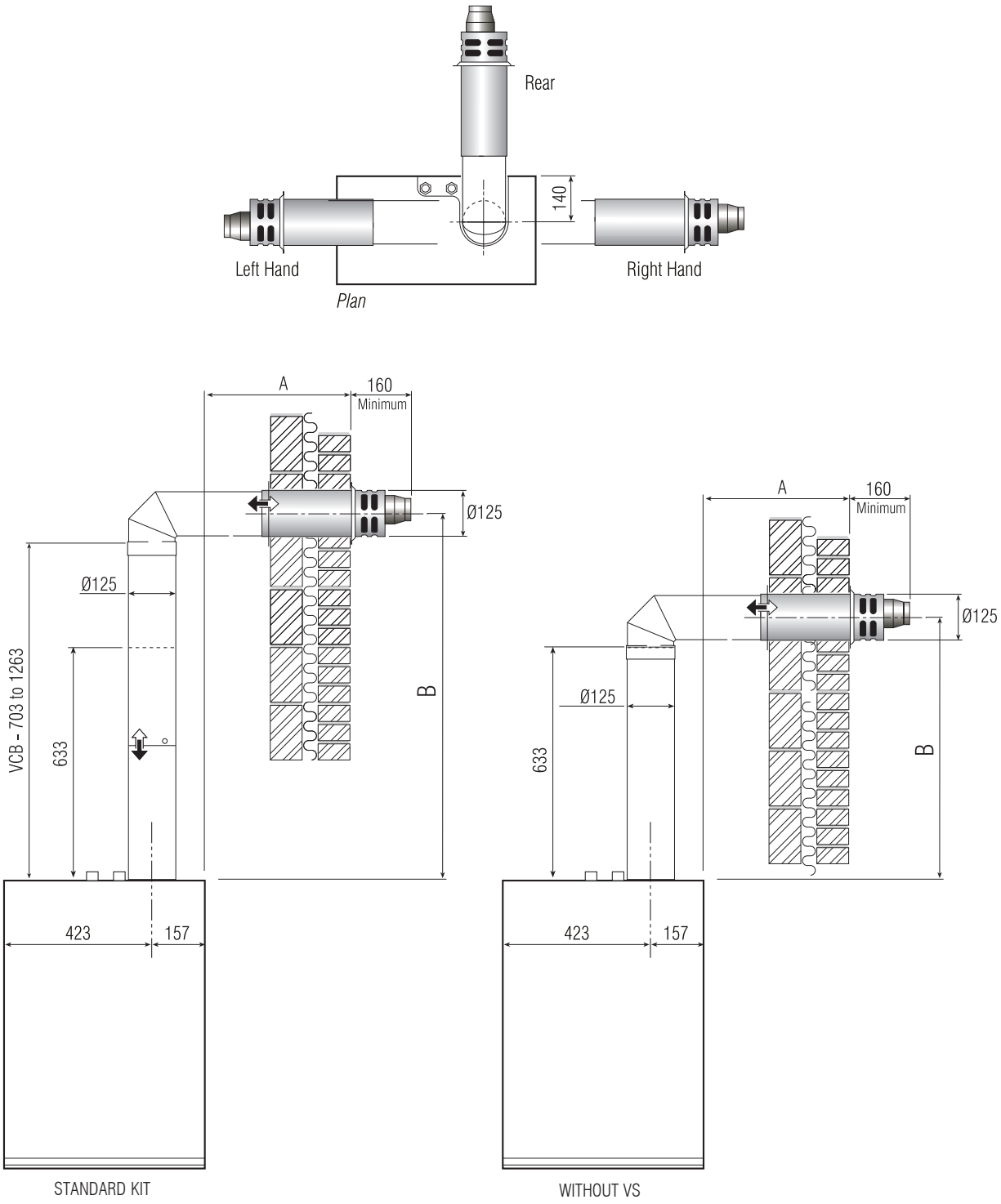


Fig. 11-8h Internal Wall Mounted - Vertical Balanced Flue Dimensions

11-8.7 Wall Mounted Internal - HIGH LEVEL



Wall Mounted High Level Flues	A *Rear		A - Right Hand as shown		A - *Left Hand opp to shown		B Height	
	Standard Kit	With 1 300 Extension	Standard Kit	With 1 300 Extension	Standard Kit	With 1 300 Extension	Standard Kit	Without Vertical Section VS
HLC-125	240 to 380	300 to 680	223 to 363	283 to 663	0 to 97	257 to 397	778 to 1338	708

* ALSO SEE PAGE 55

Fig. 11-8j Internal Wall Mounted - Vertical Balanced Flue Dimensions

AP1 Regulations

AP1-1 Building Regulations

The following Standards and Codes of Practice should be considered when installing Thermeco Boilers.

BS5449 - 1990	Forced Circulation Hot Water Central Heating Systems for Domestic Use.
BS5410 Part 1:1977	Oil installations up to 45kW
BS5410 Part 2:1978	Oil installations over 45kW
BS4543 Part 1 & 3:1976	Factory made insulated chimneys.

Current Building Regulations:-

Part **J** England and Wales
Part **F** Scottish Regulations
Technical Booklet **L** Northern Ireland

Oil Boilers with Conventional Flue installed in rooms where there is an Extractor Fan, the following Building Regulations apply:-

Part **F** England and Wales (also recommended in Northern Ireland)
Part **K** Scotland

The Control of Pollution (Oil) Regulations

AP1-2 OFTEC

OFTEC publish Technical Books that summarise and illustrate the requirements of the above Standards and Regulations.

OFTEC Oil Firing Technical Association
Foxwood House,
Dobs Lane,
Kesgrave,
Ipswich.
IP5 2QQ

www.oftec.org email:- enquiries@oftec.org

AP1-3 Electrical Regulations

All wiring should be to IEE Wiring Regulations 16th Edition.

AP1-4 Oil Tanks

Plastic tanks are covered by OFTEC standard OFS T100.

Refer to BS5410 Part 1 and OFTEC Technical Book 3 for further information on tank installation.

Steel tanks should be manufactured to BS799 Pt 5.

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clean heat technology

heating products

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