

FIREBIRD



HEATING SOLUTIONS

ENVIROMAX CONDENSING BOILERS TECHNICAL MANUAL



This manual must remain with the householder once installation is complete

Working towards a greener planet

FOREWORD

We would like to thank you for purchasing a high efficiency Firebird condensing oil boiler. This instruction manual is produced for the reference and guidance of qualified installation engineers, preferably OFTEC (Oil Firing Technical Association) registered. EU legislation governs the manufacture, operation and efficiency of all domestic central heating oil boilers. Our boilers and burners are supplied as matched units.

	PAGE
1. STANDARDS & REGULATIONS	2
2. SAFETY	3
3. HOUSEHOLDER INSTRUCTIONS	
3.1 Operating Procedure - Popular, Kitchen, System, Heatpac, Slimline Heatpac, Systempac & Slimline Systempac	5
3.2 Digital Controller - Kitchen	6
3.3 Operating Procedure - Combi, Slimline Combi & Combipac	7
3.4 Combi Timer	8
3.5 Slimline Combi Timer	9
4. REGULATIONS & GUIDELINES	
4.1 Installation Guidelines	10
4.2 Positioning the Boiler	11
4.3 Condensate Disposal	12
4.4 Flue Regulations	14
4.5 Flue Systems	18
4.6 Oil Supply & Magnetic Filtration	21
4.7 Domestic Heating & Hot Water	23
5. TECHNICAL DETAILS & DIMENSIONS	
5.1 Popular	27
5.2 Kitchen	28
5.3 Heatpac, Systempac, Combipac , Slimline Heatpac & Slimline Systempac	30
5.4 Combi & Slimline Combi	32
5.5 System	34
6. PARTS	
6.1 Popular	35
6.2 Kitchen	36
6.3 Heatpac & Systempac	38
6.4 Combipac	40
6.5 Slimline Heatpac & Slimline Systempac	42
6.6 Combi	44
6.7 Slimline Combi	46
6.8 System	48
7. WIRING	
7.1 Popular	50
7.2 Kitchen	51
7.3 Heatpac & Systempac	53
7.4 Combi, Slimline Combi & Combipac	54
7.5 Combi & Slimline Combi - PCB Panel	56
7.6 System	57
8. BURNER	58
9. COMMISSIONING	60
10. SERVICING	62
11. TERMS & CONDITIONS OF WARRANTY	63

To ensure the highest standards of installation & safety, it is important that the boiler be installed in compliance with the following regulations where applicable. It is the responsibility of the installer and everyone concerned with any aspect of installation, to ensure that all applicable standards and regulations are fully adhered to.

The following is a list of some of the applicable standards and regulations. Please always check for the most up to date version.

Part L & J	England & Wales
Part F	Section III Scotland - Conservation of Fuel Power
Part L	Northern Ireland - Conservation of Fuel Power
Part J	Republic of Ireland - Conservation of Fuel Power
BS 5410	Part 1: 2014 - Code of Practice for Oil Firing - Installation up to 44kW Part 2: 2013 - Code of Practice for Oil Firing - Installation for 44kW and greater
BS 799	Part 5: 2010 - Specification for Oil Storage Tanks
BS 4876: 1984	Performance Requirements for Oil Burning Appliances
BS EN 12828: 2012 + A1: 2014.	(UK National Annex) - Heating Systems in Buildings - Design for Water Based Heating Systems
BS 7074	Part 1: 1989 - Application, Selection and Installation of Expansion Vessels and Ancillary Equipment for Sealed Water Systems
BS 7593: 2006	Code of Practice for Treatment of Water in Heating Systems
BS 715: 1989	Metal Flue Pipes, Fittings, Terminals and Accessories
BS 1181: 1989	Clay Flue Linings and Flue Terminals
BS 4543	Part 3: 1990 - Factory made Insulated Chimneys for Oil Fired Appliances
BS 8558	Design, Installation, Testing and Maintenance of Services Supplying Water
BS 7671	Current IEE Regulations - Requirements for Electrical Regulations Local Water Undertaking Bylaws - Water Supply (Water Fittings) Regulations 1999 - The Control of Pollution (Oil) Regulations

In addition, the work must comply with relevant building regulations for oil fired boilers and oil storage tanks.

OFTEC also publish excellent guides including: Safe Working Practices for Oil Fired Technicians - OFTEC Technical Book Three (Installation Requirements for Oil Fired Boilers and Oil Storage Tanks) - OFTEC Technical Book Four (Domestic Heating Systems) and it is recommended that these should adhere to Domestic Heating Design Guide.

COPIES OF BRITISH STANDARDS MAY BE PURCHASED DIRECT FROM:

**BSI (Customer Services),
389 Chiswick High Rd., London W4 4AL.
Tel.: +44(0)845 0869001 Fax: +44(0)208 9967001**

International and EC Standards are also available from above.

OFTEC PUBLICATIONS ARE AVAILABLE FROM:

**OFTEC, Oil Firing Technical Association,
Foxwood House, Dobbs Lane,
Kesgrave, Ipswich, IP5 2QQ.
www.oftec.org**

BOILER INSTALLATION:

Other than special considerations for condensate removal and plume dispersal, the installation of oil firing condensing boilers is the same as for non-condensing boilers.

BS5410 - Part 1: 2014 gives the requirements for domestic boiler and oil storage installations.

If an appliance is to be installed inside a building or within a restricted area externally, a carbon monoxide detector alarm conforming to EN 50291 should be installed in accordance with the manufacturer's instructions.

For condensing boilers, the same requirements apply for installation with regard to cleaning and flushing and providing inhibitors, as are followed for any other boiler. Manufacturer's instructions must always be followed together with the requirements of EN 12828: 2012 + A1: 2014 & BS EN 12831: 2003 and the statutory requirements of the Building Regulations.

HEALTH & SAFETY INFORMATION

The installer should be aware of his/her responsibilities under the current, local Health and Safety at Work Act. The interests of safety are best served if the boiler is installed and commissioned by a competent, qualified engineer, OFTEC trained and registered. If not, a Building Notice is required in England & Wales. Other parts of the British Isles, including the Channel Islands, also require notification to building control.

Under the Consumer Protection Act 1987 (UK), section 6 of the Health and Safety Act 1974 (UK) and the Safety, Health and Welfare at Work Act 2005 (ROI), we are required to provide information on substances hazardous to health.

INSULATION AND SEALS

Ceramic Fibre, Alumino - Silicone Fibre material are used for boards, ropes and gaskets. Known hazards are that people may suffer reddening and itching of the skin. Fibre entering the eye will cause foreign body irritation. It may also cause irritation to the respiratory tract.

Precautions should be taken by people with a history of skin complaints or who may be particularly susceptible to irritation. High dust levels are only likely to arise following harsh abrasion. Suitable personal protective equipment should be worn where appropriate.

Generally, normal handling and use will not give discomfort. Follow good hygiene practices, wash hands before consuming food, drink or using the toilet.

First Aid - medical attention should be sought following eye contact or prolonged reddening of the skin.

The small quantities of adhesives and sealants used in the product are cured. They present no known hazards when used in the manner for which they are intended.

THIS PRODUCT HAS BEEN DESIGNED TO THE FOLLOWING STANDARDS:

This equipment complies with the Low Voltage Directive 2006/95/EC & the EMC Directive 2004/108/EC.

EMC - conformity was demonstrated by meeting the following standards:

EN 55014-1: 2006/A2: 2011: Electromagnetic Compatibility - Requirements for Household Appliances, Electric Tools and Similar Apparatus - Part 1: Emission

EN 55014-2: 1997/A2: 2008: Electromagnetic Compatibility - Requirements for Household Appliances, Electric Tools and Similar Apparatus - Part 2: Immunity - Product Family Standard

EN 61000-3-2: 2009: Electromagnetic Compatibility (EMC) Part 3-2: Limits - Limits for Harmonic Current Emissions (equipment input current <16 A per phase)

EN 61000-3-3: 2008: Electromagnetic Compatibility (EMC) Part 3-3: Limits - Limitation of Voltage Changes, Voltage Fluctuations and Flicker in Public Low-voltage Supply Systems (equipment with rated current <16 A per phase and not subject to conditional connection)

Safety - conformity was demonstrated by meeting the following standards:

EN60335-1: 2012: Household and Similar Electrical Appliances - Safety - Part 1: General Requirements

EN60335-2-102: 2006/A1: 2010: Household and Similar Electrical Appliances - Safety - Part 2-102: Particular Requirements for Gas, Oil and Solid-fuel Burning Appliances having Electrical Connections

FUEL SPILLAGE

1. Switch off all electrical and other ignition sources.
2. Remove all contaminated clothing to safeguard against fire risk and skin damage. Wash affected skin thoroughly with soap and water and remove clothing to a safe well ventilated area and allow to air before cleaning.
3. Contain and smother the spill using sand or other suitable oil absorbent media or non-combustible material.
4. Do not allow fuel to escape into drains or water courses. If this happens, contact the relevant authorities in your area (Ireland). Contact The Environment Agency on 0800 807060 (UK).
5. Consult local authority about disposal of contaminated soil.

SAFETY

Safe use of Kerosene.

These fuels give off a flammable vapour when heated moderately. Vapour ignites easily, burns intensely and may cause explosion. The vapour can follow along at ground level for considerable distances from open containers and spillages collecting as an explosive mixture in drains, cellars, etc.

Fuels remove natural oils and fats from the skin and this may cause irritation and cracking of skin. Barrier cream containing lanolin is highly recommended together with good personal hygiene and where necessary appropriate personal protection equipment (P.P.E.).

Gas oil may also cause irreversible damage to health on prolonged or repeated skin contact.

Always store fuels in a properly constructed and labelled tank. Always handle fuel in open air or well ventilated space away from sources of ignition and refrain from smoking.

Always drain fuel using a proper fuel retriever, funnel or mechanical siphon. Never apply heat to a fuel tank, container or pipework. Never siphon fuel through tube by mouth. If accidentally swallowed, contact a doctor immediately and do **NOT** induce vomiting. Avoid inhaling fuel vapour as this can cause light headedness and seriously impair judgement.

FIRST AID

If fuel is accidentally swallowed:

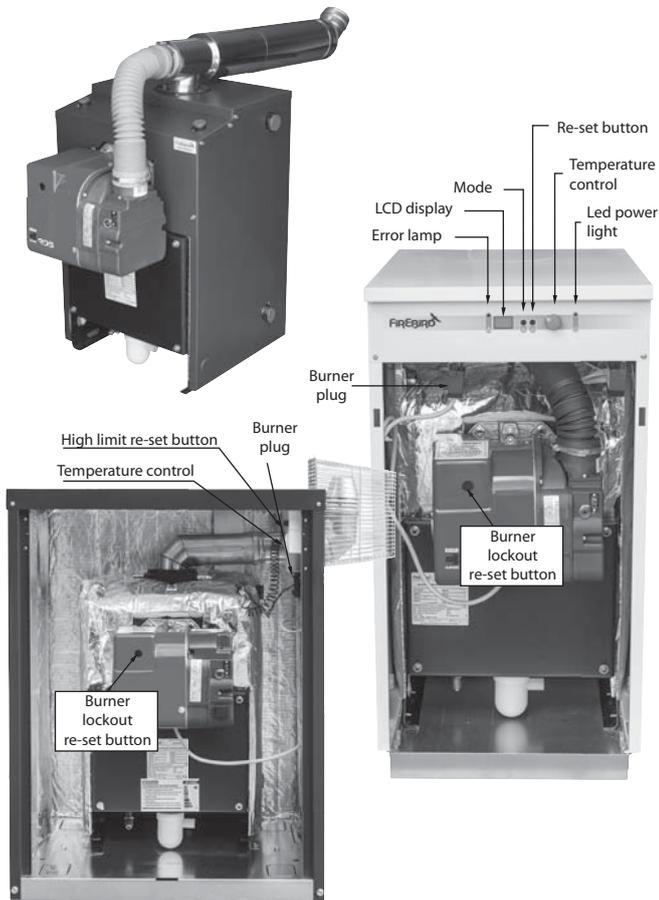
* Seek medical attention immediately.

Do **NOT** induce vomiting.

If fuel is splashed into eyes:

* Wash out with running water for at least ten minutes and seek medical attention.

POPULAR, KITCHEN, SYSTEM, HEATPAC, SLIMLINE HEATPAC, SYSTEMPAC & SLIMLINE SYSTEMPAC



To start the boiler:

- Turn on fuel supply.
- Switch on power supply to boiler.
- Turn timer control (if fitted) to "ON".
- Set the boiler thermostat to the required temperature. The boiler thermostat controls the boiler operation by automatically maintaining the required boiler water temperature output. Safe operation is also maintained by the burner control system which provides the required ignition and shut off sequence. If the optional timer control is fitted, this will automatically switch the boiler off and on when heat is required.

To turn off the boiler:

- Turn the timer control (if fitted) to "OFF".
- Turn off the mains electrical supply to the boiler.

Lights not included in Popular and Heatpac models.

Thermostat Control



Set at Max 80°C



Set at Mid 70°C



Set at Min 60°C

Burner Lockout

(Please note that the following applies to the models on this page as well as those on the next pages).

The boiler is factory fitted with a burner control box lockout safety feature which operates automatically if a fault occurs in the burner operation. Should this occur, the light on the front of the burner will illuminate.

This could be caused by:

- A. An interruption in the fuel supply (eg. empty oil supply tank).
- B. An electrical supply fault.
- C. A fault with the burner or its safety control system.
- D. The failure of a component (eg. photo cell).
- E. Worn or dirty oil nozzle.

Before attempting to restart the boiler, the front panel and the burner cover should be removed and a visual check made for any obvious problems such as oil leaks, loose connections etc.

**ENSURE OIL TANK CONTAINS
KEROSENE 28 SECOND CLASS C FUEL**

To restart the boiler:

1. Press reset button.
2. Ensure that the boiler thermostat, time switch (if fitted) and any external controls connected to the boiler are set to call for heat.
3. Check that the oil supply valves are open and that there is sufficient oil in the tank.
4. Check that the burner lockout light is unlit and with the mains on, the boiler will be ready to commence its start sequence.

3 3.2 KITCHEN DIGITAL CONTROLLER - HOUSEHOLDER INSTRUCTIONS

This controller has a number of new features as standard, these include: anti-cycling, frost protection, on/off switch option, hours of operation recorded, optional system pressure display (If pressure sensor is fitted), pump over-run and LCD display. The LCD display shows key boiler information and error codes.



CONTROL PANEL

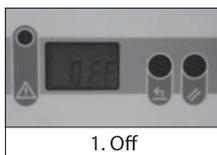
1. Temperature control knob.
2. LCD display.
3. Led lamp power. Lights green when power to the panel.
4. Mode button (for scrolling through the display options on LCD display).
5. Re-set button.
6. Error light.

TO START THE BOILER:

- Turn on fuel supply.
- Switch on power supply to boiler. Green Led will light up, LCD Screen will show set temperature or "OFF". If (OFF) appears on the led screen, press button 4 and hold for 6 seconds until set temperature appears on the led screen.
- Turn on timer, or heat demand switch i.e. room stat.
- The set temperature displayed on the LCD screen will increase. Temperature range: min. 60°C to max. 85°C.

THE BOILER CAN BE TURNED OFF BY:

- Pressing button 4 and holding for 6 seconds until "OFF" appears on the led screen.
- Switching off the timer or heat demand.
- Turn off the mains electrical supply.



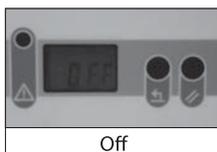
1. Off



2. Switch on

CONTROL PANEL FUNCTIONS

The LCD screen displays boiler set temperature, actual boiler temperature, hours of operation, system pressure (if a pressure sensor is fitted) and program number. The different displays are accessed by pressing the mode button (4) on the panel.



Off



Min. Set Temp.

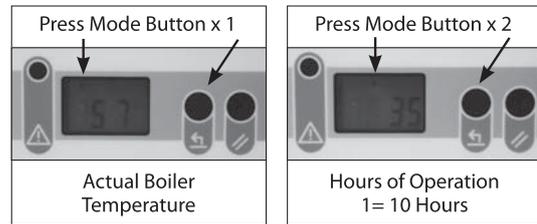


Temperature Dial



Max. Set Temp.

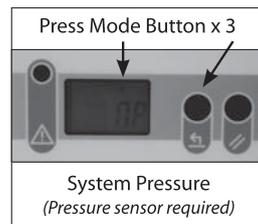
Mode Button & LCD Display



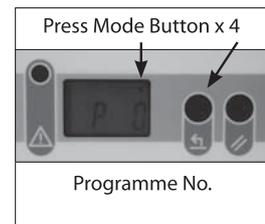
Actual Boiler Temperature



Hours of Operation
1= 10 Hours



System Pressure
(Pressure sensor required)



Programme No.

ERROR DISPLAY AND RE-SET

Warning: should an **ERROR** appear on the control panel display, consult your local service engineer or the Firebird technical department before attempting to re-set the error.

ERROR DISPLAY



- E1 Faulty Control Thermistor.
- E3 Faulty Flue Thermistor if fitted.
- E4 Pressure Error (only in sealed systems where pressure sensor required). Minimum system pressure 2 bar. Maximum system pressure 3 bar.
- E5 Burner Lockout. Burner Fault.

RE-SET CONTROLLER

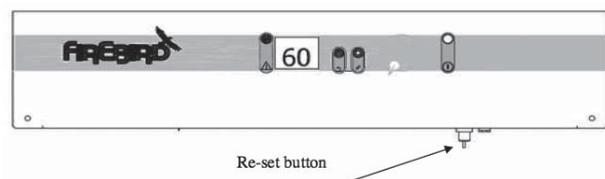


To re-set and clear an error from the control panel, use the tip of a pin and insert into the re-set button (5) on the panel. Press and hold until the error clears.
For error E5 burner lockout, before re-setting the re-set button on the control panel press the re-set button on the burner first.

HIGH-LIMIT THERMOSTAT CUT OFF

The panel LCD display (2) and the green led lamp (3) will fail to light when the power is on.

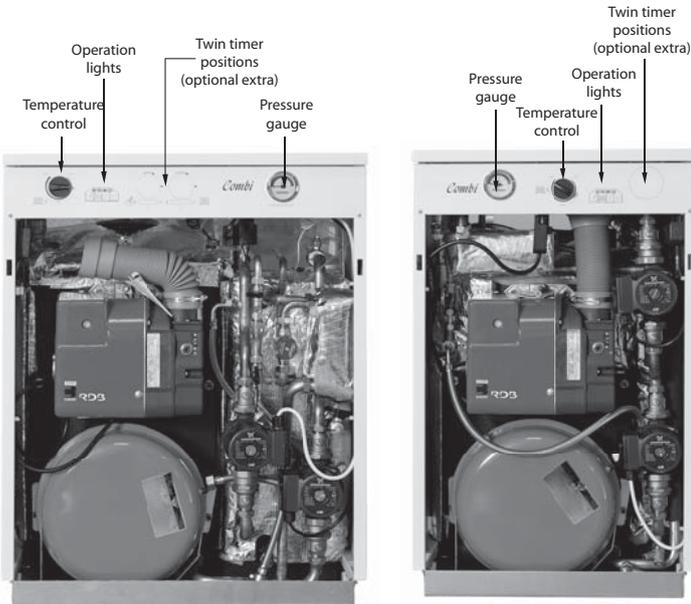
The High limit re-set button is located under the control panel. Remove the black cap over the re-set button and push the button in fully to re-set the high limit stat. It is important that in the event of the high limit thermostat tripping out, or an error display on the control panel, a Firebird approved service engineer is contacted.



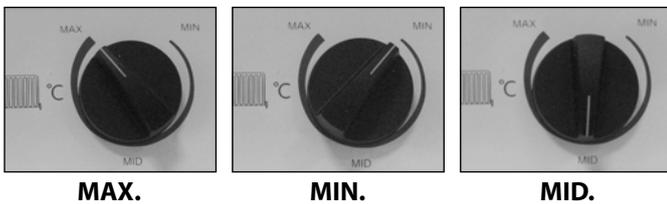
Re-set button

3 3.3 OPERATING PROCEDURE - HOUSEHOLDER INSTRUCTIONS

COMBI, SLIMLINE COMBI & COMBIPAC



THERMOSTAT CONTROL



To start the boiler :

- Turn on fuel supply.
- Switch on power supply to boiler.
- Set the boiler thermostat to the required temperature (for central heating max. 80°C min. 60°C).
- Set timers (if fitted). **See page 8 & 9.**



The central heating thermostat controls the boiler **when in central heating mode only**, thus maintaining the required boiler water temperature output for central heating.



Domestic hot water temperature is controlled by a separate non adjustable thermostat, plus a thermostatic mixing valve. **See page 10.**

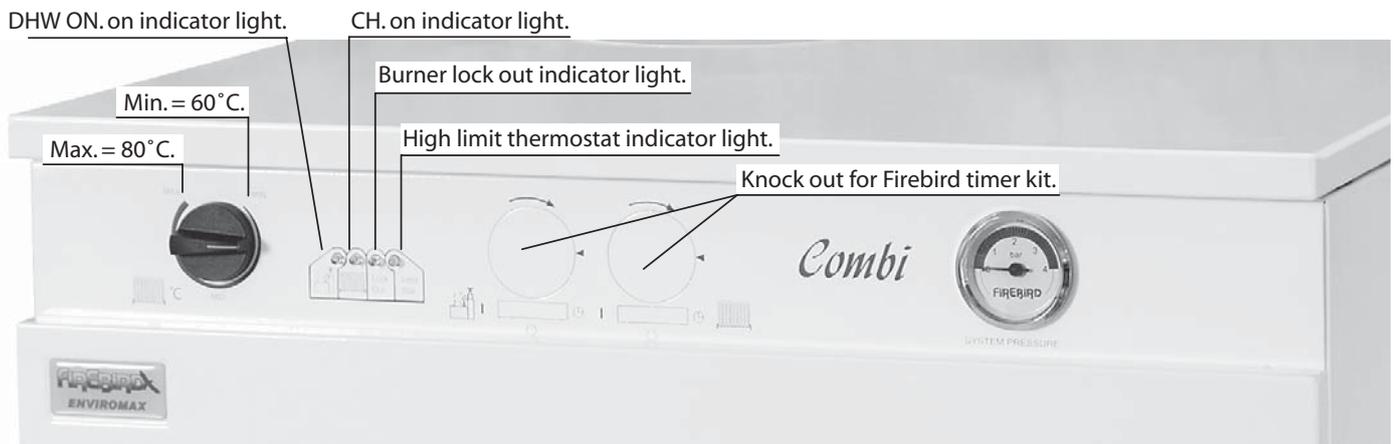
Safe operation is also maintained by the burner control system, which provides the required ignition and shut off sequence.

If the optional timer controls are fitted, these will automatically switch the boiler off and on, as and when central heating or domestic hot water is required.

To turn off the boiler:

- Turn both timer switches to "OFF" (if fitted).
- Turn off the mains electrical supply to the boiler.
- Unplug the 7 pin plug from control panel.

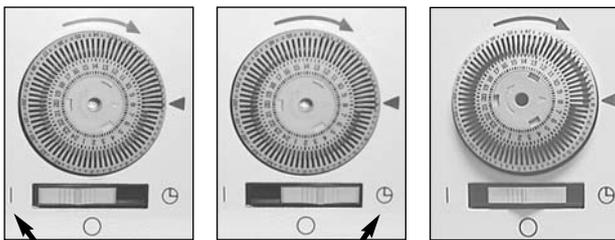
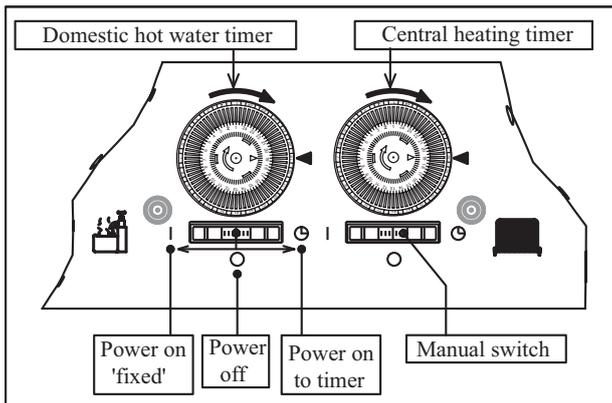
WHEN SERVICING, ALWAYS SWITCH OFF THE MAINS SUPPLY TO THE BOILER



3 3.4 COMBI TIMER - HOUSEHOLDER INSTRUCTIONS



Optional Twin Timer Kit



Timer switch position A constant

Timer switch position B timed

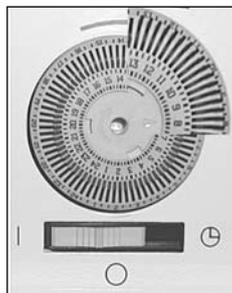
Timer switch position C off

Programming Guide

Setting Up

The outer dial should be set to the current time. Rotate the dial slowly in a clockwise direction, until the correct hour is aligned with the arrow head printed on the dial. Note that the outer dial is printed with the 24 hour clock:

- 8:00 a.m. = 8 on the dial.
- 8:00 p.m. = 20 on the dial.



Do not attempt to rotate the dial in an anti-clockwise direction.

Programming Switching Times

Set all tappets between the "on" and "off" times required, to the outer edge of the dial (see figure 1). For example, to set the timer to come on at 8:00 a.m. and to turn off at 1:00 p.m., push tappets on the dial to between the numbers 8 and 13 to outer edge of dial.

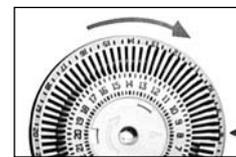


Figure 1



Manual Switch

The manual switch has three settings: Fixed On / Fixed Off / Auto control, allowing manual control of the switched output without disrupting the timed (tappet) settings.

The FM1 Timer is a single channel 24 hour timer. It can be used to control the central heating or hot water circuits. If it is a requirement to have the hot water circuit in a combination boiler time controlled where this boiler is installed, then a second timer can be connected via the seven pin mains in plug on this control panel. Refer to the combi wiring instructions pages 54 & 55.

The slide switch can be set at any of the three settings and will remain in this position until manually changed. When the manual switch is set on "Auto" the timer will come on as per the tappet settings.

Central Heating Control

The control panel is designed for simplicity of use and is equipped with an adjustable thermostat dial, optional time controls and a limit thermostat reset button as shown above. It also has a built in system pressure gauge which is connected to the boiler and heating system water at the safety valve.

When replacing, make sure that each thermostat pocket receives the correct phial by marking and noting carefully each phial and its correct pocket.

3 3.5 SLIMLINE COMBI TIMER - HOUSEHOLDER INSTRUCTIONS

1000 RF – 2 channel Timer / Thermostat

The Firebird 1000 RF – 2-channel set consists of a two-channel radio frequency timer / thermostat, providing timed control of hot water, and timed thermostatic control of central heating. The set is made up of a battery-powered transmitter (Tx) (see figure 1) and a boiler-mounted receiver (Rx) (see figure 2). The receiver fits within the boiler. For correct connection, follow the instructions supplied with the controller. A suitable location on the wall should be chosen to mount the transmitter, away from draughts or any extraneous sources of heat, including sunlight.

The transmitter is a 7 day programmable device, giving timed control of hot water and timed thermostatic control of heating. Installation and operating instructions for the transmitter are available from the manufacturer and are supplied with the unit.

The Firebird 1000 RF needs a clear line of vision between the transmitter and the receiver to operate. Some materials within domestic structures have a varying impact on the strength of radio frequency signals, for instance metal sheeting being one that obstructs the signals. This means that the Firebird 1000 RF can not be installed inside the casing of an outdoor boiler, i.e. a Combipac or Heatpac.

Grasslin Single Channel 24 Hour Timer

The F1 Timer is used to time the central circuit only in the Firebird Slimline Combi Boiler. This means that the combi is switched on 24 hours a day when the domestic hot water is on stand by mode. The timer is simple to use and install. Installation instructions are supplied with the timer.

Operating the timer:

- The timer has 3 settings:
 - Off (see figure 5).
 - On Constant (see figure 6).
 - Timed Mode (see figure 7).

2. Setting the time.

The time is shown in 24 hour scale. Each line between the numbers represents 15 minutes. Turn the dial until the white arrow (see figure 3) points at the time. The time in this picture is 2.30 pm.

3. Setting the timer:

Slide the switch to Timed Mode (see figure 7). Around the timer there are a series of pins. Each pin represents 15 minutes, by pulling out the pins (see figure 4). This brings on the central heating in the Combi for this length of time. In figure 4, the 5 pins are pulled out from 7.15 to 8.30 am. This means that the central heating in the Combi is operating for this length of time (one hour and fifteen minutes).

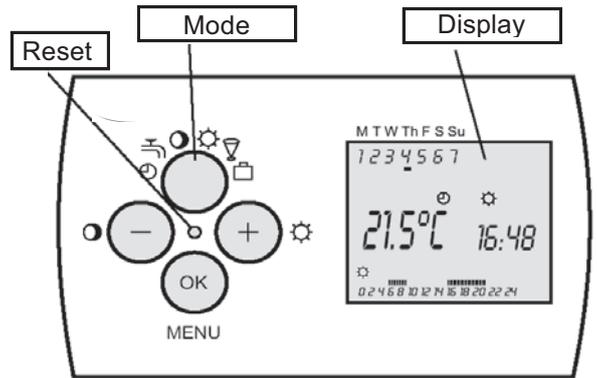
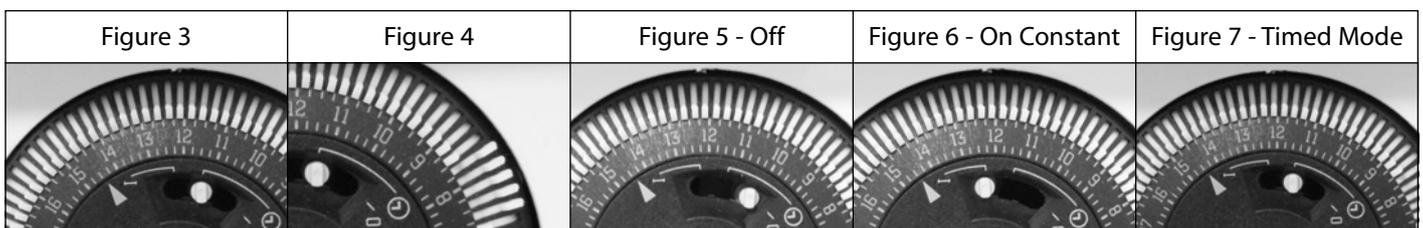


Figure 1



Figure 2



4 4.1 - INSTALLATION GUIDELINES - REGULATIONS & GUIDELINES

Please not following important points before commencing installation.

INSTALLATION & COMMISSIONING

Boilers must be installed, commissioned and serviced by an OFTEC registered, competent, qualified engineer and as set out in the installation manual, using correct test equipment.

EXPANSION VESSEL

Total water content of system and boiler must be calculated to determine if an additional pressure vessel is required.

HARD WATER - LIMESCALE

Failure to check water hardness and fit appropriate water softening equipment will result in scale build up and consequent reduction in water heating performance. Check with local Water Authority if in doubt.

PLASTIC PIPING - WARNING

The boiler thermostat control and safety system is not designed, and must not be relied on, to protect plastic pipe from overheating. Plastic pipe must never be connected directly to the boiler. If you choose to use plastic pipe anywhere on your heating circuits, please consult the plastic pipe manufacturer for their instructions on how to ensure their product never overheats. Our boiler control and safety high limit thermostats are not designed to fulfil this function. Firebird accepts no responsibility for failure of plastic piping and fittings for whatever reason.

BOILER THERMOSTAT / THERMISTOR FUNCTION

The control thermostat on the boiler allows the householder to vary temperature to central heating from a low of 60°C to a high of 80°C to 82°C, depending on the model.

In accordance with EU boiler standards, your boiler is also fitted with a safety high limit thermostat, fixed at 114°C. This system protects the boiler in the event of the control thermostat failing and keeps the boiler safe.

The safety high limit thermostat will shut the boiler off and will require the limit button to be pushed to restart the boiler. If the problem re-occurs, you should call your service engineer.

In cases where the flow from the boiler is down to the heating system, fitting a pump over run thermostat (a pipe stat) is recommended. This is to prevent the residual heat build up in the boiler from unnecessarily activating the high limit thermostat and thus causing nuisance. See Heatpac Wiring Diagram on page 53.

Firebird Kitchen, System, Combi and Heatpac models are factory fitted with an over run thermostat pump.

TIME AND TEMPERATURE CONTROLS

The Building Regulations state that central heating systems must have time and temperature control on the pipe circuits (eg. thermostatic radiator valves / TRVs, room thermostats, cylinder thermostats etc.).

BURNER

The burner is factory set for use with kerosene 28 second class C fuel.

ROOM SEALED BALANCED FLUES

BS 5410 Part 1: 2014 - Code of Practice for Oil Firing - Installation up to 44kW Output Capacity for Space Heating and Hot Water Supply Purposes - Paragraph 11.2 Mounting.

"The flue terminal should be mounted so that it is separated from any combustible material forming a part of the building.

Such combustible material may take the form of cladding on the surface of a non-combustible wall through which the flue outlet passes. In such a case, the cladding adjacent to the flue outlet should be replaced by non-combustible material extending not less than 50mm beyond the outside dimensions of the flue outlet.

The wall through which the flue outlet passes may itself be of combustible material, and if so the flue outlet, where it passes through the wall, should be surrounded by non-combustible insulating material not less than 50mm thick (see next page). The insulating material itself should be contained in a steel liner to provide the necessary structural rigidity and to prevent moisture reaching the insulating material.

WARNING

The manufacturer cannot accept responsibility for any damage to persons, animals or property due to error in installation or in the burner adjustment or due to improper or unreasonable use or non observance of the technical instruction enclosed with the burner, or due to the intervention of unqualified personnel.

4 4.2 - POSITIONING THE BOILER - REGULATIONS & GUIDELINES

Ensure that adequate clearance is available for making the water and flue connections.

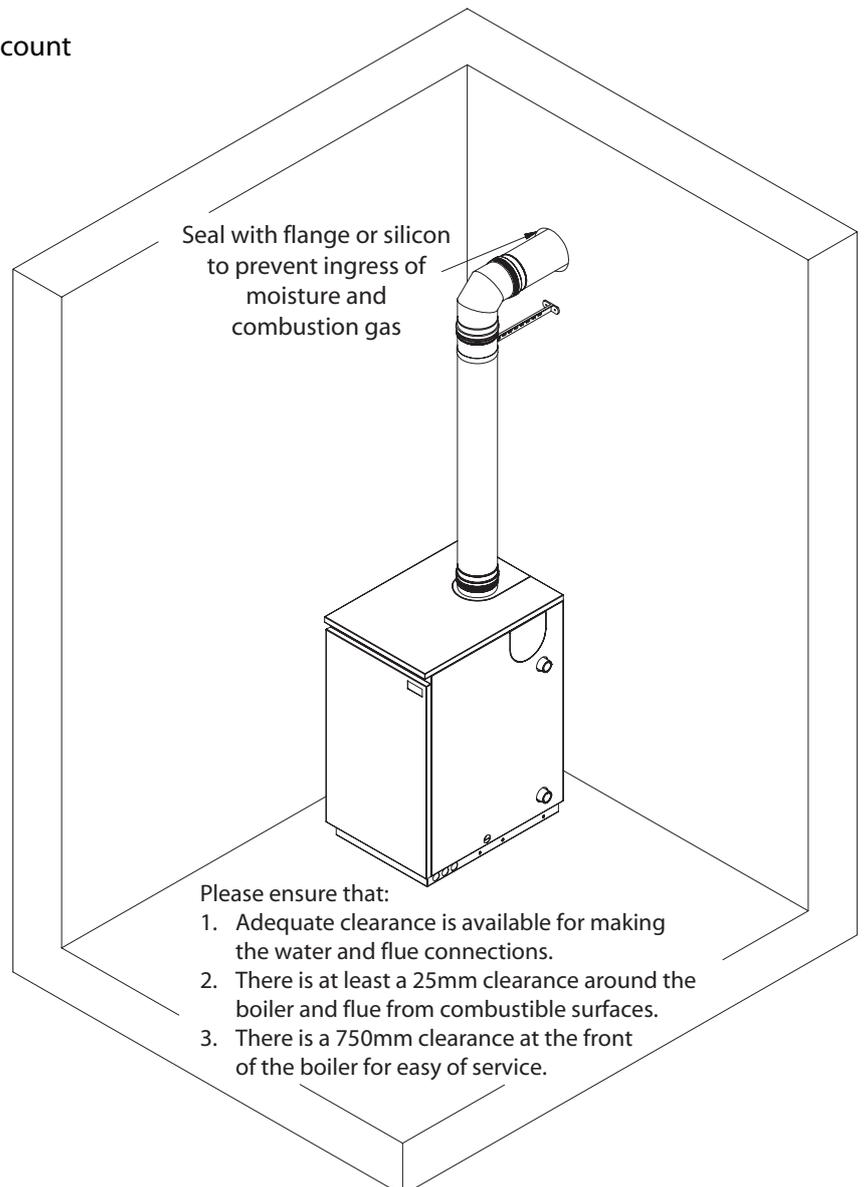
The boiler is serviced from the front and a clearance of 750mm must be available at the front of the boiler.

No special hearth is required as the boiler is fully insulated, but the floor must be level and capable of supporting the weight of the boiler and its water content.

Sound levels must also be a consideration. Whilst Firebird Enviromax boilers are one of the quietest boilers on the market, some householders are particularly sensitive and the following points should be considered:

1. Tiled surfaces in a small room will amplify noise - particularly if the wall construction is hollow.
2. If a conventional flue passes through a bedroom, it is capable of transmitting noise.
3. Low level flue terminals can produce exhaust noise on the outside terminal and this should be considered when siting near adjacent property.
4. The Firebird low level flue kit has been specifically designed for Firebird's indoor boilers. The use of third party low level flue kits is not recommended and may affect the warranty.
5. The siting of the boiler should take into account the disposal of condensate products.

- **It is recommended that a suitable corrosion inhibitor is added to the heating system.**
- **New and existing systems should be treated with chemical cleaner and properly flushed before the boiler is fitted and corrosion inhibitor added.**
- **In areas of hard water, a suitable descaler would also be required.**



4 4.3 - CONDENSATE DISPOSAL - REGULATIONS & GUIDELINES

Firebird condensing boilers, when in condensing mode, extract more heat from the flue products and the resulting condensate which is mildly acidic, needs to be drained from the boiler via a condensate pipe to the drainage system.

Provision must be made for the removal of condensate from the boiler to an internal soil stack, waste pipe, external soil stack, gully or soak-away, as per BS 6798: 2014.

The 75mm condensate trap is provided with the boiler and situated on the front of the boiler (under the cleaning door). This should be checked at regular intervals and cleaned during annual service.

The condensate line should:

- be plastic and have a minimum diameter of 22mm;
- have a fall from the boiler of 1:100 minimum;
- have as few bends as possible to reduce the risk of trapping condensate.

Copper or steel cannot be used.

CONDENSATE PIPEWORK THAT IS EXTERNAL OR IN AN UNHEATED GARAGE SHOULD NOT EXCEED 3 METERS AND SHOULD BE LAGGED WITH WATER PROOF INSULATION TO PREVENT FREEZING.

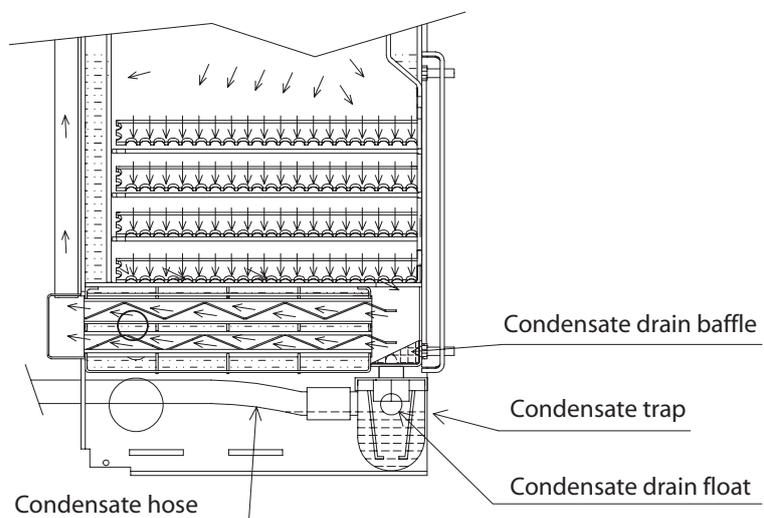
SYSTEM NO. 1 CONDENSATE TRAP IMPORTANT Always prime condensate trap.



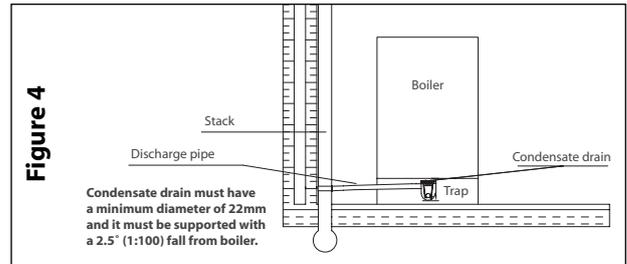
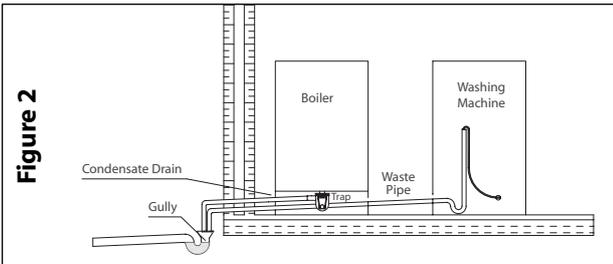
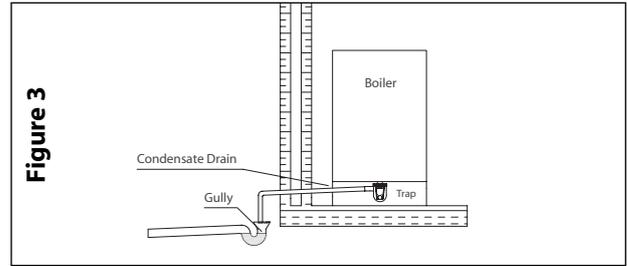
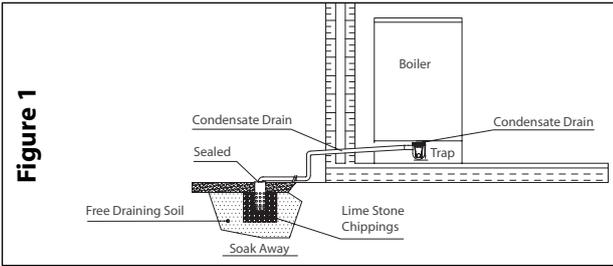
Condensate baffle and condensate trap

Before switching on your Firebird condensing oil boiler check that:

- (1) The float & condensate drain baffle are in place.
- (2) That the condensate trap is primed.
- (3) The condensate discharge pipe is a corrosion resistant pipe.

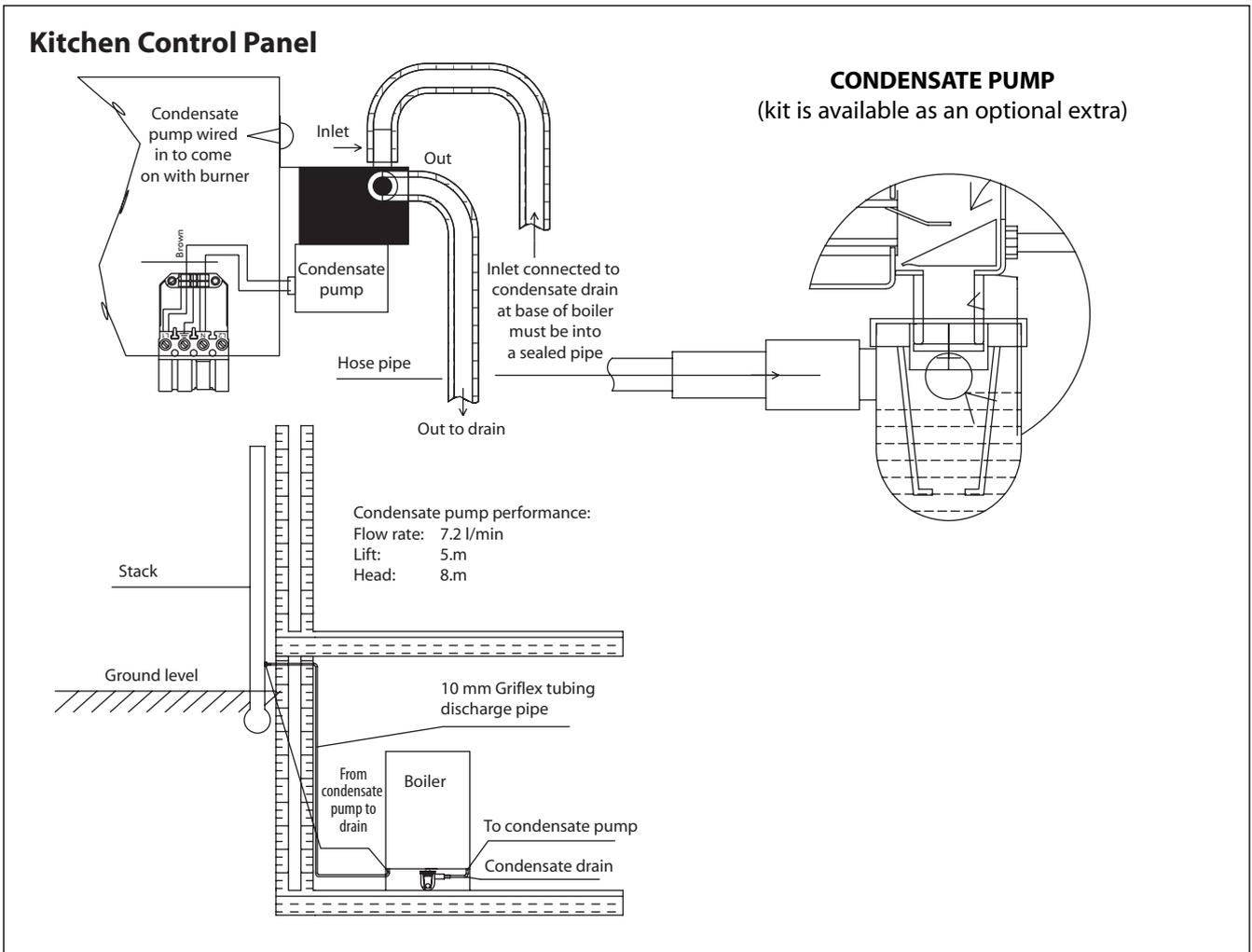


4 4.3 - CONDENSATE DISPOSAL - REGULATIONS & GUIDELINES



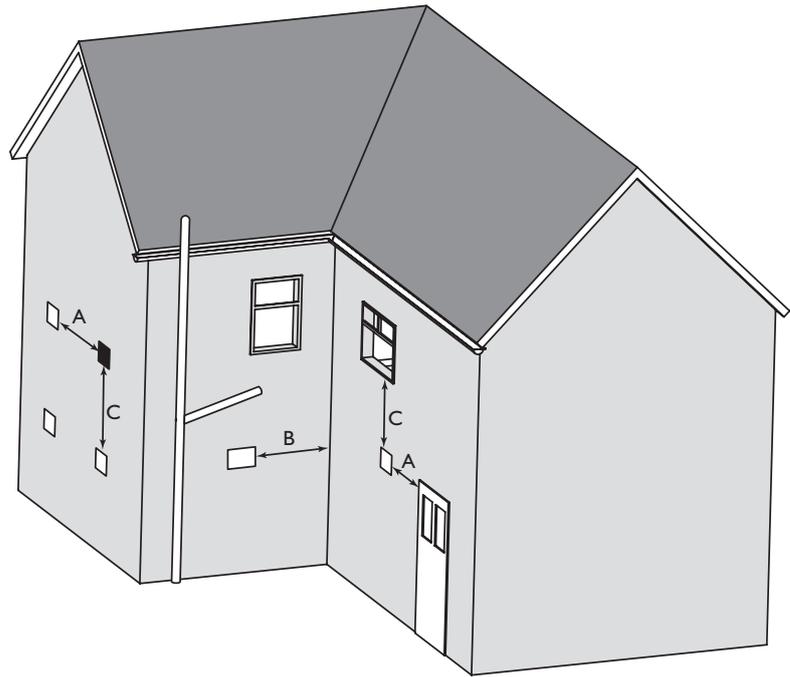
Ensure that the boiler combustion chamber cannot be filled through the condensate trap from another appliance (eg. washing machine) which is drained at a higher level (see Figure 2).

SYSTEM NO. 2 - CONDENSATE PUMP



BALANCED FLUE SITING

- A.** Horizontal from opening, airbrick, opening window etc.
- B.** From an internal or external corner.
- C.** Below an opening, airbrick, opening window etc.



Information supplied by  OFTEC
 Book 3 2010
See note at foot of page

- Notes:
- 1.** The terminal should be positioned to avoid combustion products entering the building or accumulating in stagnant pockets around buildings.
 - 2.** The terminal must be protected by a guard if it is less than 2 metres above ground level or in a position where any person has access to it (i.e. a balcony).
 - 3.** A heat protection shield should be fitted if the terminal is less than 850mm from a plastic or painted gutter or less than 450mm from painted eaves.
 - 4.** Prevailing winds should be taken into account when siting a flue.

* **FIREBIRD RECOMMENDS AS PER OFTEC RECOMMENDATIONS, THAT THE FLUE SHOULD BE A MINIMUM DISTANCE OF 1 METRE FROM OPENINGS SO THAT IT DOES NOT CAUSE A NUISANCE AND PERMITS THE DISPERSAL OF COMBUSTION PRODUCTS (SEE PAGE 18).**

Building Regulations

BUILDING REGULATIONS	A	B	C
Northern Ireland 2000	600	600	600
Republic of Ireland 1997	600	600	600

*Where the terminal is within 1 metre of any plastic material, such material should be protected from the effects of combustion products of fuel. There are additional general requirements in most Regulations and Standards that the flue must be positioned so that it does not cause a nuisance and permits the dispersal of combustion products.

NOTE: The Building Regulations clearances shown above are the minimum allowed. To take account of prevailing site conditions, it is advisable wherever necessary, to follow the manufacturer's preferred recommendation. If in doubt contact the manufacturer for advice.

ALWAYS CHECK FOR ANY BUILDING REGULATIONS AMENDMENTS WHICH MAY HAVE BEEN ISSUED AFTER THE PUBLICATION OF THIS MANUAL

4 4.4 - FLUE REGULATIONS - REGULATIONS & GUIDELINES

Clearances advised by BS 5410 Part 1: 2014

Regular Appliance (Open, Low Level Discharge and Balanced) Flue Termination Clearance

The basic requirement with regard to flue positioning is that no hazard or nuisance is caused by the flue gases. Diagrams 20a and 20b show clearances advised by BS 5410 Part 1: 2014.

Regional requirements where flue clearances differ can be found in the regional requirements section in OFTEC Book 3 2010

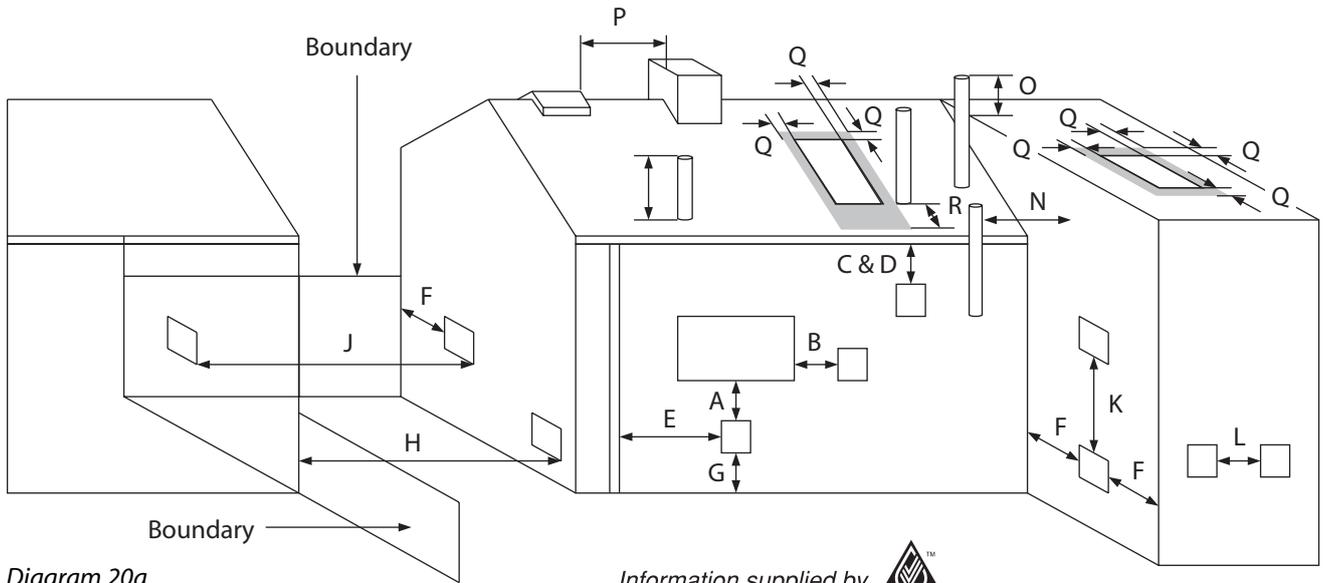


Diagram 20a

Information supplied by 

Minimum distances to terminals in millimeters as measured from the top of the chimney or the outer edge of where flue gases pass through low level discharge openings

	Location	Appliance Burner Type
		Pressure Jet Condensing
A	Directly below an opening, airbrick, opening window etc.	1000
B	Horizontally to an opening, airbrick, opening window etc.	1000
C	Below a gutter, eaves or balcony with protection	1000
D	Below a gutter or a balcony without protection	1000
E	From vertical sanitary pipe work	300
F	From an internal or external corner or surface or boundary alongside the terminal	300
G	Above ground or balcony level	300
H	From a surface or a boundary facing the terminal	2500
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 on the side of the terminal	750
O	Above a vertical structure less than 750mm from the side of the terminal	600
P	From a ridge terminal to a vertical structure on the roof	1500
Q	Above or to the side of any opening on a flat or sloping roof	300
R	Below any opening on a sloping roof	1000

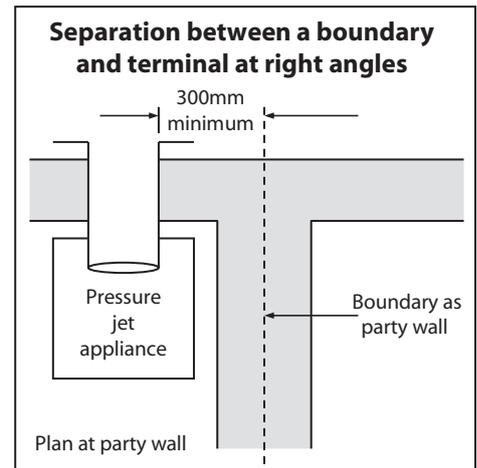
SEE NEXT PAGE FOR IMPORTANT NOTES

4 4.4 - FLUE REGULATIONS - REGULATIONS & GUIDELINES

NOTES: These notes form an integral part of the information shown on the previous page.

1. Terminals should be positioned to avoid products of combustion accumulating in stagnant pockets around the building, or entering into buildings.
2. Appliances burning Class D oil have additional restrictions (see OFTEC Book 3 2010).
3. Vertical structures in N, O and P include tank or lift rooms, parapets, dormers etc.
4. Terminating positions A to L are only permitted for appliances that have been approved for low level flue and low level balanced flue discharge when tested to BS EN 303-1.
5. Terminating positions must be at least 1.8m distant from an oil storage tank unless a wall with at least 30 minutes fire resistance and extending 300mm higher and wider than the oil storage tank is provided between the oil storage tank and the terminating position.
6. Where a flue is terminated less than 1m away from a projection above it and the projection consists of plastic or has a combustible or painted surface, then a heat shield of at least 750mm wide should be fitted to protect these surfaces.
7. For terminals used with vaporising burners, a horizontal distance of at least 2300mm is required between the terminal and the roof line.
8. If the lowest part of the terminal is less than 2m above the ground, balcony, flat roof or other place to which any person has access, the terminal must be protected by a guard.
9. Notwithstanding the dimensions given in the diagram and table, a terminal should not be sited closer than 300mm to combustible material.
10. It is essential that a flue or chimney does not pass through the roof within the shaded area shown by dimensions Q and R.
11. Where protection is provided for plastic components, such as guttering, it is essential that this is to the standard specified by the manufacturer of the plastic components.

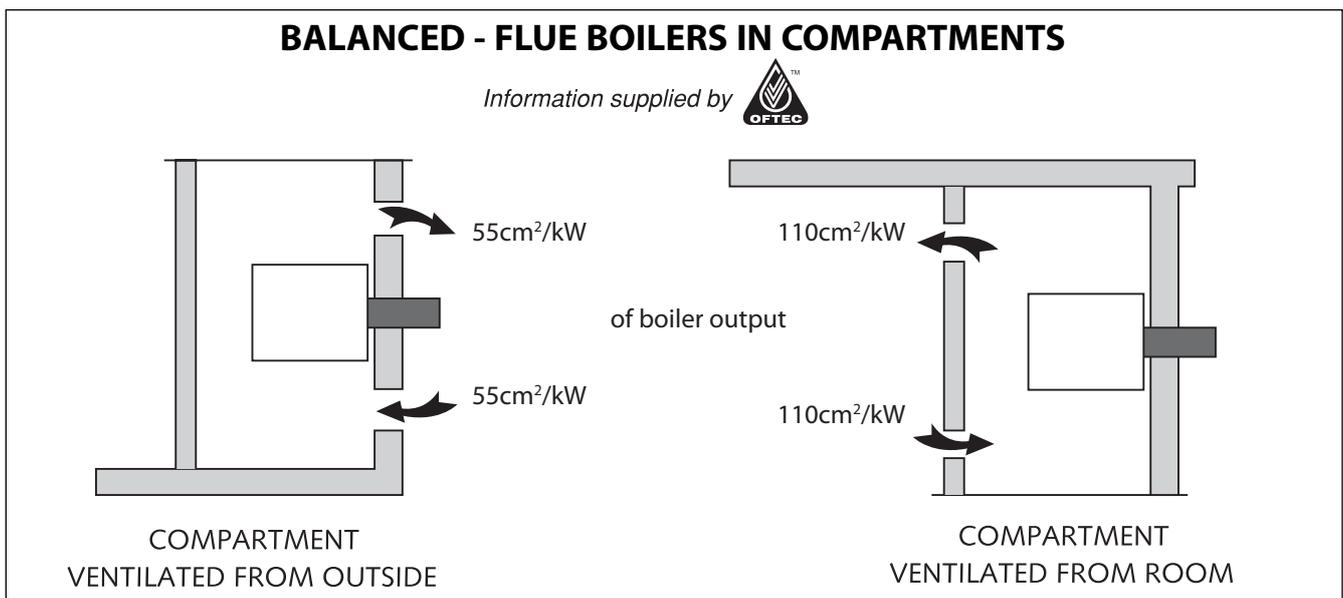
Diagram 20b



BALANCED FLUE BOILERS

The Firebird boiler may be set for room-sealed flue operation using a Firebird condensing balanced flue kit. This kit does **not** draw **combustion air** from inside the room. **It is drawn from outside, direct to the burner by an air pipe supplied with the boiler.** Flue gases are expelled through the same kit. However, if the boiler is installed in a **compartment** or **small room**, some **ventilation air** is necessary to maintain an acceptable temperature in the boiler area.

Balanced flue boiler in room (eg. kitchen) does not require individual ventilation.



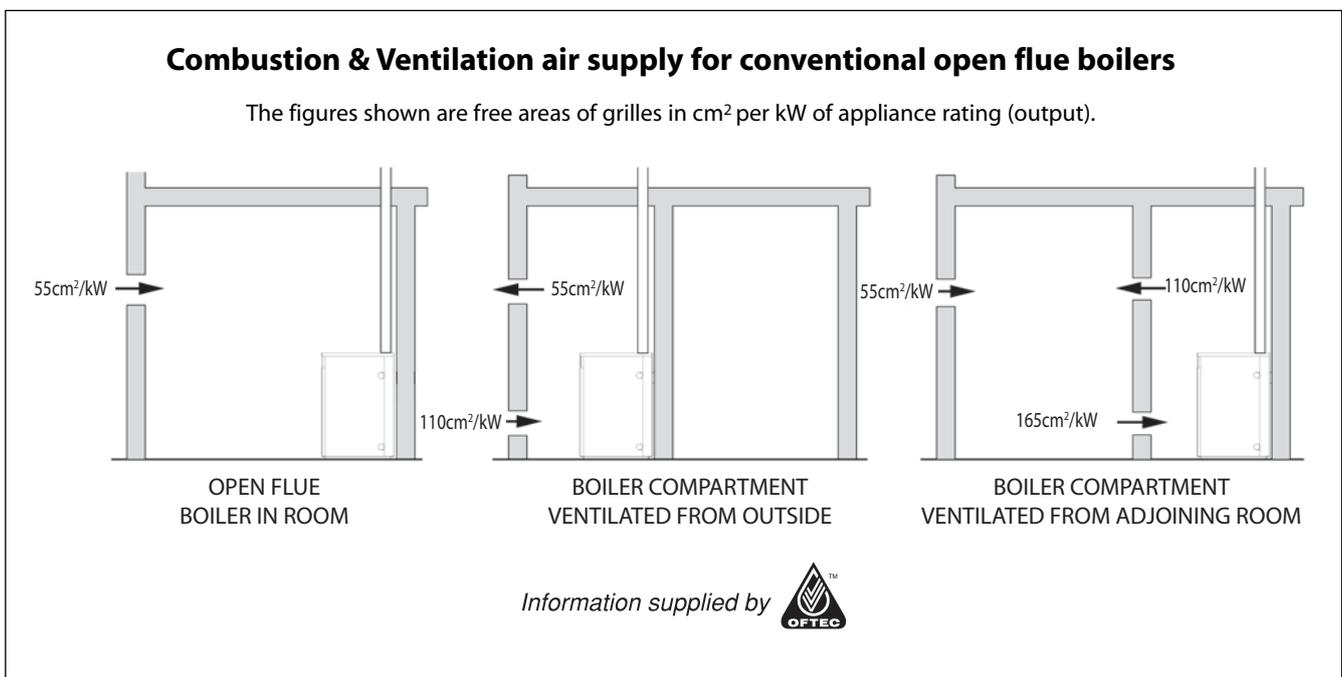
Ventilation and Combustion Air

Conventional Flue Boilers

An adequate supply of **combustion and ventilation air** is essential for efficient and safe boiler operation and the openings for this should be positioned to cause least possible draught, **with no possibility of being accidentally blocked**.

Please note: The British Standard Code of Practice for Oil Firing BS 5410 Part 1: 2014, requires a permanent air inlet opening of **55cm² per kW** of boiler rated output. (Note: 1kW = 3412 BTU/h).

Also, when the boiler is installed in a compartment or confined space, **ventilation** openings are required to ventilate and to avoid overheating in the boiler area.



FULL TEXT of both BS 5410 Part 1: 2014 and appropriate Building Regulations for each country should be obtained and fully applied.

N.B. Please note:

BS 5410-1:2014 only permits room sealed boilers to be sited within garages.

Definitions

Combustion Air: Air required directly by boiler oil burner for combustion process.

Ventilation Air: Air required in room for ventilation, cooling, etc. and to promote a healthy living environment.

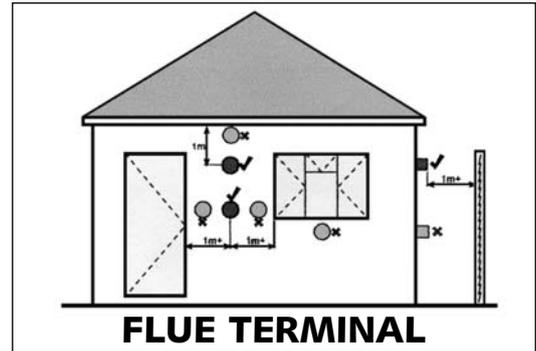


CONDENSATE PLUME DISPERSAL

When choosing the location for a condensing boiler, special consideration must be given to the positioning of the flue terminal. Care should be taken to locate it so as to prevent either the end user or their neighbours perceiving the plume to be a nuisance.

It should be noted that the normal statutory clearances required around low level flue terminals may not be sufficient to cope with plume dispersal from a condensing boiler. The following points should be considered:

1. Plumes can extend out horizontally and can also drift out to the sides and above the terminal. Care needs to be taken, therefore, to avoid the plume reaching adjacent surfaces, particularly windows and neighbours dwellings.
2. Flue terminals need to be located where air can pass freely across them to disperse vapours.
3. The effect of the moisture generated must be considered in relation to the possible corrosion of metal parts it might reach and to the possible formation of ice on pathways in freezing conditions.
4. Keep flue terminals a minimum of 1m (horizontally) from openings in the building.
5. Do not install flue terminals directly below a window.
6. Do not install flue terminals next to a door.
7. Do not install flue terminals within 1m of ventilated soffits or eaves.
8. Keep flue terminals at least 2.5m away from a surface or boundary facing the terminal.
9. In certain circumstances the installation of a plume dispersal extension to the flue may be unavoidable. This takes the plume exhaust from the boiler up and away from any obstruction, door or window opening and will also prevent the risk of re circulation of the plume gasses into the air intake of the burner (on next page).
10. Follow the appliance manufacturer's instructions.



CONVENTIONAL FLUE SYSTEMS

IMPORTANT

The Firebird condensing boiler **must not** be installed with existing flue systems. A flue system suitable for wet flues must be used. If a flue system which is unsuitable is used it **will invalidate the warranty**.

Because of the high operating efficiencies of the Firebird condensing boilers and low flue gas temperatures, it is necessary to pay extra special attention to the flues and chimneys.

Existing chimneys must be lined with a liner certified as suitable for condensing oil boilers by a flue manufacturer.

Twin wall insulation must be used for external applications, with **seals** and stainless steel inner skin.

Only vitreous enamel or high grade stainless steel can be used between boiler and chimney in an internal installation, aluminium or asbestos type material **must not be used (vitreous enamel must not be cut)**.

Condensate must be able to run back into the flue chamber of the boiler and not escape, as up to 1.5 ltr. of condensate can be produced in a conventional flue. No trap is required in the flue system.

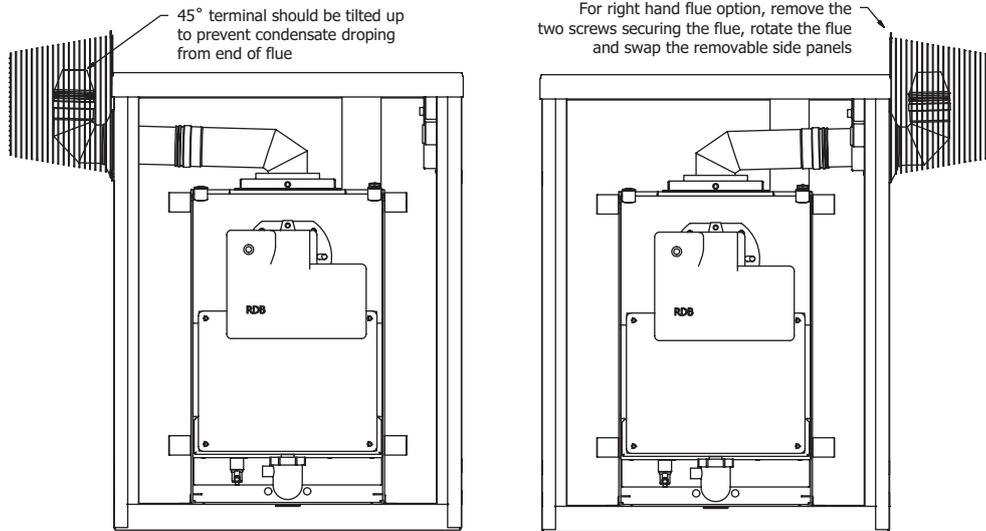
The terminal must be positioned to avoid combustion products entering the building and as per Building Regulations. **Refer to BS5410 Part 1: 2014 OFTEC installation requirements book 4.**

Every individual concerned with any aspect of installation should be deemed as competent, and be aware of all current National and Local Government Standards and Building & Installation Regulations.

4 4.5 - FLUE SYSTEMS - REGULATIONS & GUIDELINES

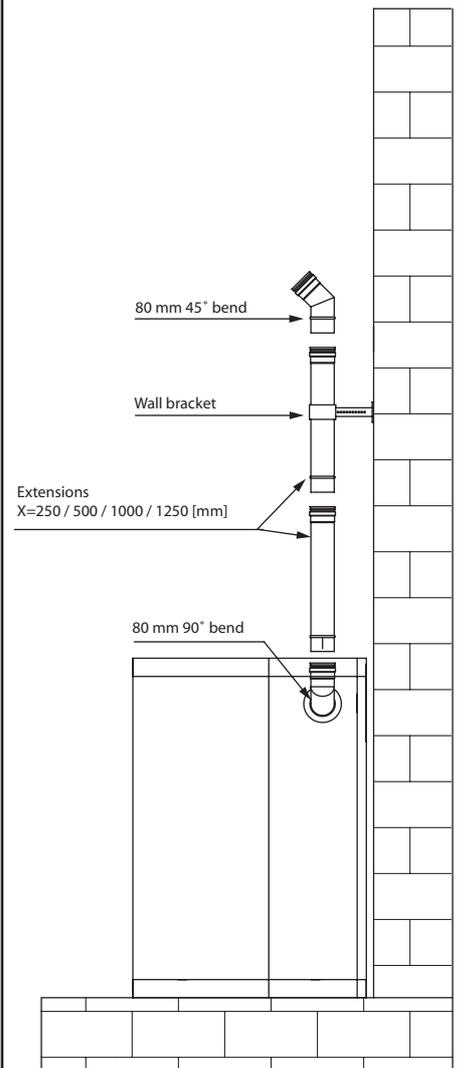
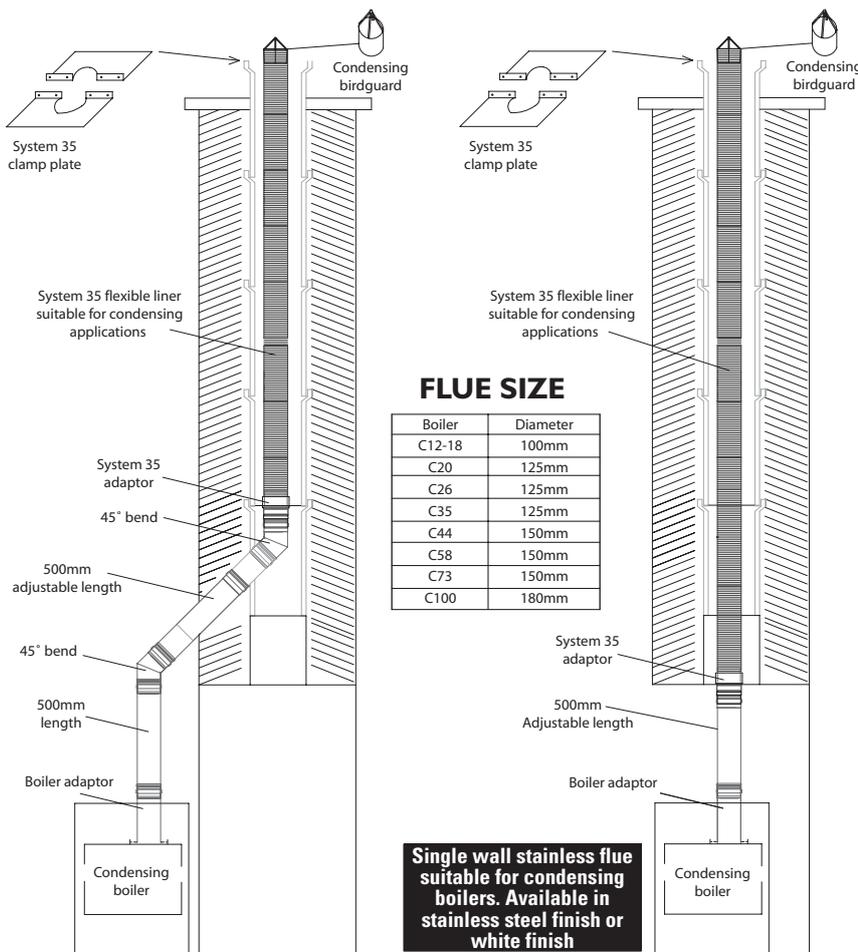
INSTALLATION INSTRUCTIONS SUPPLIED WITH ALL FLUE KITS

HEATPAC FLUE



CONDENSING BOILER CHIMNEY INSTALLATION

PLUME KIT



NOTE:
All brick chimney constructions must comply with current building regulations and BS 5410 Part 1: 2014. Insulated factory made chimneys should comply with BS 4543.

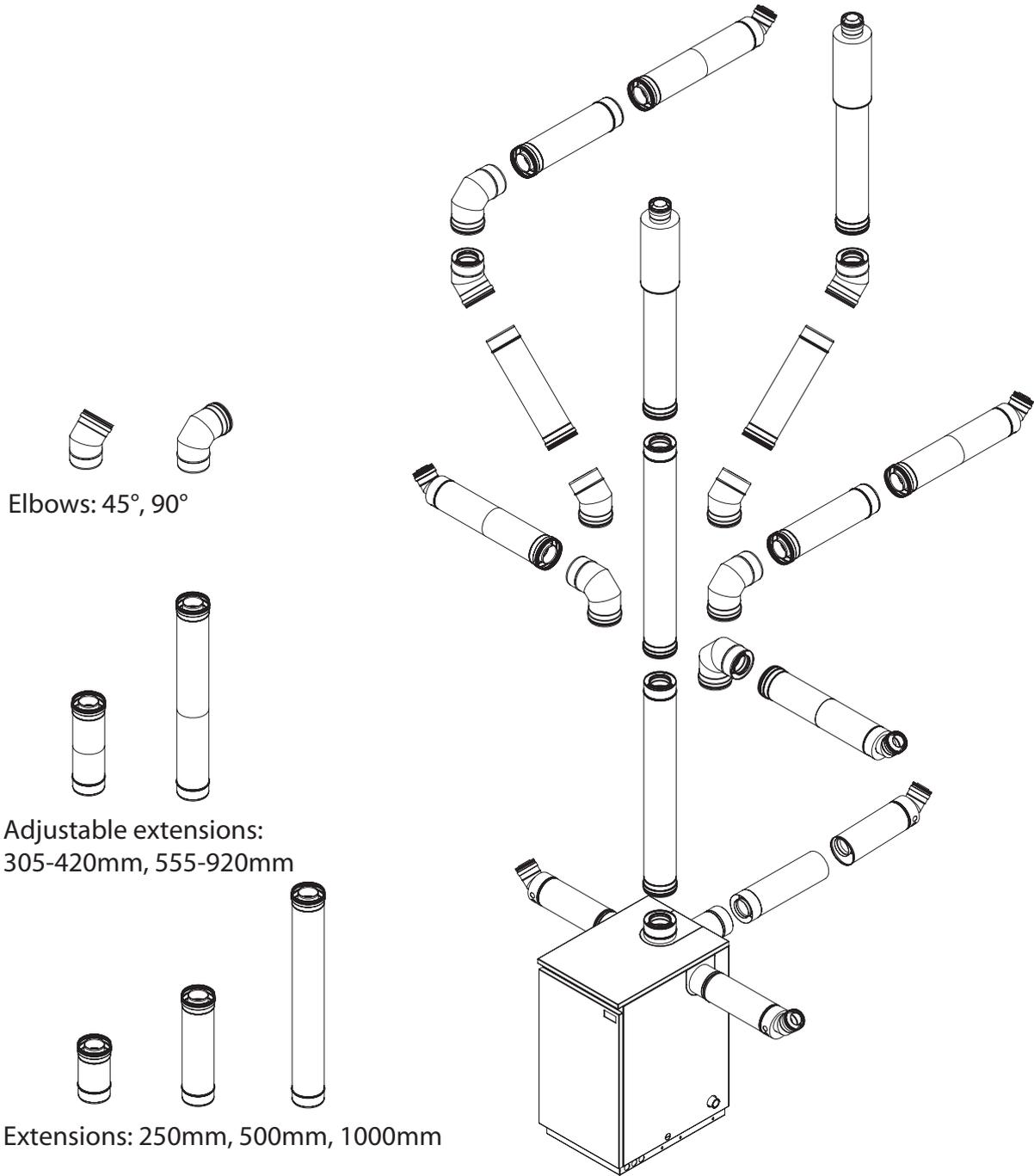
FIREBIRD ENVIROMAX FLUE SYSTEMS

High level vertical & horizontal flue kits = max. flue length 6m

Low level flue kits = max. flue length 3m

Overall length must take into account bends where

45° bend = 0.5m length and 90° bend = 1m length



Flue kits are included with all Heatpac models

INSTALLATION INSTRUCTIONS SUPPLIED WITH ALL FLUE KITS

OIL STORAGE TANK SITING

Consult OFTEC Manuals

It is unlikely that a fire will start at an oil tank. However, the stored fuel must be protected from a fire or heat source that originates nearby. For this reason oil tanks of up to 3500 litres should be separated from openings, other than airbricks, in the building by a minimum of 1.8m and a non-fire rated boundary by a minimum of 760mm. Where this cannot be achieved, a 30 minute fire rated barrier should be constructed between the hazard and the tank, which extends a minimum of 300mm higher and 300mm past each end of the tank. Note that a minimum separation distance should be maintained between a flue exit and fire barrier (see page 15 (flue clearances)).

Steel tanks must be mounted on brick or block piers with a waterproof membrane between the piers and tank.

Oil storage tanks should not be sited within 1.8m of boiler flue outlets.

Do not allow household waste or hot ashes container in vicinity of oil storage tank or boiler flue outlet.

FLEXIBLE OIL PIPE(S)

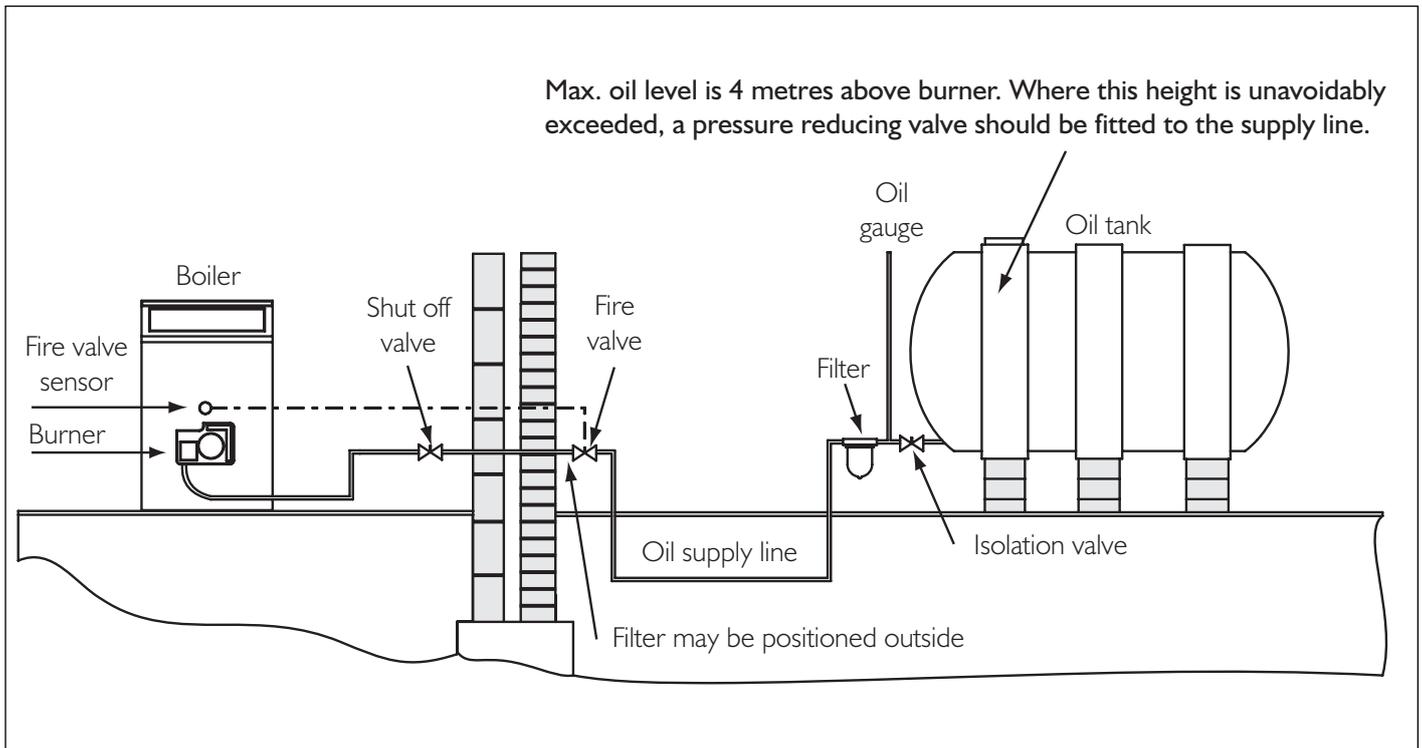
A flexible burner oil hose is supplied with the boiler which must be wholly contained within the appliance case.

The flexible oil pipe supplied with the boiler is suitable for Kerosene only. The oil pipe must be upgraded to a bio-compatible Riello flexible oil pipe where a bio-fuel mixture is used.

Please note: A filter must not be fitted inside the boiler and all joints in the oil line must be oil tight. Soldered joints are not permissible. Before connecting to the boiler, always flush the complete oil supply line and ensure that oil supply is completely clean and free of any dirt or foreign matter.

SINGLE PIPE SYSTEM

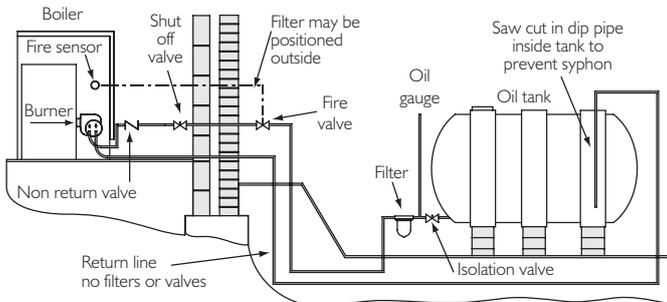
Where installation is such that the bottom of the tank is located above the oil burner, a single pipe system may be used. The oil burner should then be set for single pipe operation (see also manufacturer's oil burner manual).



TWO PIPE SYSTEMS

Where installation is such that the bottom of the tank is located below the oil burner pump, a two pipe system is required. Ensure that valves and filters are not fitted in the return line as this must be unobstructed at all times.

The oil burner pump should be set for two pipe operation as detailed in accompanying oil burner manufacturer’s manual, refer also to burner section of this manual.



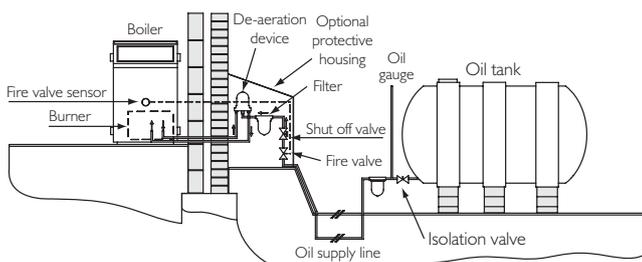
DEAERATOR SINGLE PIPE SYSTEMS

Deaerators should not vent in internal spaces (see OFTEC book 3)

Where installations normally require a two pipe system but have long or impractical return line runs, a 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.

The oil burner pump should be set for two pipe operation.

INDIVIDUAL DEAERATOR INSTRUCTIONS MUST BE IMPLICITLY FOLLOWED.



Schematic Drawing
Single pipe oil supply with de-aeration device (eg. deaerator).
Bottom of oil tank below or level with burner.
(Adapted from OFTEC drawing)

The recommended minimum filtration rate is 70 µm.

FIRE VALVES

A fire valve is an essential part of the oil supply system. It should be capable of cutting off the flow of oil outside the building in the event of a fire starting up within the boiler. The valve should be located just outside the building at the point where the oil supply line enters. It must be activated by a remote sensor located over the burner, but in a position clear of any direct radiation or excessive heat.

IMPORTANT: Fire Valves should comply with OFTEC Standards OFS E101. Fitting of fire valves should comply with BS 5410 Part 1:2014 and OFTEC book 3.

REGULATIONS & STANDARDS

In **England and Wales**, installation in single family dwellings have to comply with the building Regulations Part J. This requires compliance with BS 5410 Part 1 : 2014. All tanks either deemed to be at risk or with a capacity of more than 2,500 litres will require to be banded.

For installation in **Scotland**, Building Standard Part F applies. This requires compliance with BS 5410 Part 1: 2014 and BS 5410 Part 2: 2013. All tanks either deemed to be at risk or with a capacity of more than 2,500 litres will require to be banded.

Those externally installed tanks with a capacity of less than 2,500 litres will require a bund if located not more than 50 metres from a spring or bore hole, 10 metres from controlled waters and additionally where it may constitute a hazard.

The above risks and hazards are described in OFTEC book 3.

In **Northern Ireland**, the Building Regulations do not currently cover the installation of oil storage tanks.

In the **Republic of Ireland** the requirements of BS 5410 Part 1: 2014 and BS 5410 Part 2: 2013 are required to be complied with be Building Regulations Part J.

MAGNETIC FILTRATION

Effective permanent magnetic filtration of central heating systems.

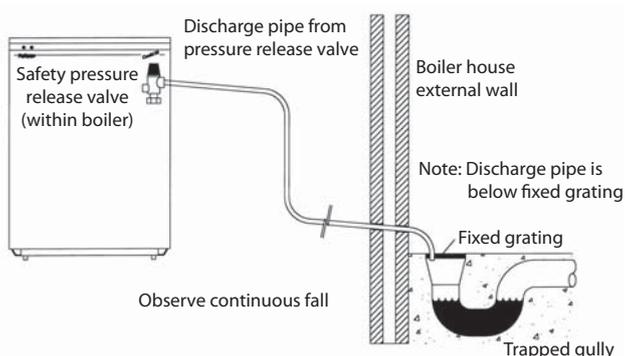
It is recommended at the time of installation of this boiler, to install a permanent effective magnetic filter on the return pipework after the last radiator on the central heating system.

This will maintain maximum operational efficiency and protect the boiler from the damaging, long-term effects of “magnetite” (black iron sludge). It is essential that the filter is sized similar to the return pipework e.g. 22mm (3/4”) or 28mm (1”). In all circumstances, an effective magnetic filter must be installed in accordance with the manufacturer’s instructions.

SEALED HEATING CIRCUIT (also applies to System Boilers)

The system must comply with BS 7074 Part 1 and BS 5449 Part 1 with a maximum water temperature of 80°C.

- * A manual reset overheat limit thermostat is located at the rear of the electrical control panel (see page 51 & 52). If a boiler overheat condition arises, the burner will stop and remain inoperative until this thermostat reset button is depressed.



- * A pressure relief valve to BSEN 4126 Part 1: 2013, operating at 3 bar (45 lb/in²), is fitted. A discharge pipe of 15 mm diameter is also fitted to the discharge connection on the pressure relief valve. During installation, an extension pipe should be fitted to this, leading to outside the building. The pipe should be as short as possible and may need a tundish fitted in a protected position within the building.

Note: Water must not discharge above an entrance, window or where the public has access. The installer must be aware that the discharge may be boiling water.

- * A drain cock must be fitted at the lowest points in the system to enable draining as necessary. A drain cock is already fitted at the bottom of the boiler heat store to enable draining of the boiler and tank unit only. All pipes connected to the boiler should have shut off valves fitted to facilitate this.
- * A pressure gauge, with a range of 0-4 bar, is fitted to the boiler control panel. This indicates water pressure in the boiler and the system at the time of reading. Pressure when cold should be 0.5 bar minimum to 1.5 bar maximum. This is known as "Initial System Design Pressure" (P_i).

N.B. Initial System Design Pressure (measured in bar) equals static head of system (measured in bar) plus 0.3.



When the system is cold and filled to initial fill pressure P_i , the pointer on the pressure gauge should point at **1 bar**.

The pressure gauge shown has two red zones marked on it. The first is between 0 and 1/2 a bar. If the pointer falls into this zone when the system and the boiler are cold, this indicates that the initial system fill pressure has dropped. This will activate the **pressure switch**, cutting off power supply to the Combi or System boiler. Refill the system manually until indicated pressure rises to 1 bar.

N.B. Insufficient pressure in the boiler will cause power supply to switch off.

- * A 12 litre expansion vessel is fitted to the boiler, precharged with air or nitrogen to **1 bar**, which allows a system static head of 5 metres. If the static head is greater than this, the air charge in the vessel must be increased to balance the higher static head. **The air charge should not exceed a pressure of 1.5 bar.**

The Firebird Combi boilers with built in expansion vessels have an initial air charge pressure of 1 bar. If the total water content of the system is greater than the capabilities of the vessel supplied, then an additional vessel will be required to be fitted to the return pipe, as close as is practical to the boiler. There should be no valves or restrictions between the vessel and the boiler. See page 24 for vessel sizes.

If the static head is altered, it is also necessary to alter the air charge pressure to equal static head (+ 0.3 bar). This is necessary in order to keep the system water from entering the expansion vessel until the system is being heated and thus allow its maximum acceptance volume (V) to be used **only to accommodate the expansion of system water during boiler operation.**

Remember that the air charge pressure **must** be **equal** in both vessels (attached to the same system). In the above example this is 1 bar. The **air charge pressure** is the air pressure in the expansion vessel **before** the system is filled. It is measured with a tyre gauge attached to the Schrader valve on the vessel.

When the heating system is up to full working temperature, if the pointer on the pressure gauge should enter the red zone (between 2.5 - 4 bar pressure), it is likely that:

- (a) The total system water content is greater than that calculated and if additional expansion vessel has been fitted it should be replaced with a larger unit; or if only the integral boiler expansion vessel is used, then an additional expansion vessel is required.
- (b) The static head may be higher than calculated. In this case it is necessary to re-measure the static head and revise the expansion vessel air charge pressure.
- (c) The expansion vessel is the incorrect size or the air charge pressure is incorrect.

Refer to BS 7074 Part 1 and BS 5449 Part 1 for further information.

EXPANSION VESSEL AND SYSTEM REQUIREMENTS

Safety Valve Setting	3 bar		
Initial System Pressure	0.5 bar	1.0 bar	1.5 bar
Total Water Content of System	TOTAL VESSEL VOLUME **		
Litres	Litres	Litres	Litres
25	2.1	2.7	3.9
50	4.2	5.4	7.8
75	6.3	8.2	11.7
100	8.3	10.9	15.6
125	10.4	13.6	19.5
150	12.5	-> [16.3] <-	23.4
175	14.7	19.1	27.2
200	16.7	21.8	31.2
225	18.7	24.5	35.1
250	20.8	27.2	39.0

FOR FURTHER INFORMATION CONSULT APPROPRIATE TRAINING MANUALS AND BS 7074 PART 1, BS 5449 PART 1, ETC.

** When calculating the size of any additional expansion vessel, remember to deduct the boiler expansion vessel volume of 12 litres from the calculated total system vessel volume required, as given in the above table.

EXAMPLE: using the table on this page:

If total water content of system is - 150 litres
and initial system pressure required is - 1.0 bar
then vessel volume required is - 16.3 litres
[from above table]
The vessel supplied with boiler is - 12.0 litres
therefore an additional vessel of is required - 4.3 litres
(minimum)

(For this system of 150 litres - total water volume)

The nearest available stock size for additional vessel required, at 1 bar initial system pressure (taken from above table) is 5 litres.

It is emphasised that the installer should be fully acquainted with sealed system installation and operation, calculation of total system water volume, determining of initial system pressure required and calculation of any additional expansion vessel volume required. **The warranty is void if the boiler is installed in a system with insufficient expansions.**

N.B. Ensure that all expansion vessels in the same system are set at equal air charge pressures.

DOMESTIC HOT WATER CIRCUITS

The final 600 mm mains water supply should be of copper tube to BS 2871 Part 1. Ensure that any capillary fittings used are of a lead free solder variety.

For user comfort, the mains pressure at the taps should be between 1 and 5 bar. If it exceeds this, it is advisable to fit a pressure reducing valve adjusted to reduce pressure to an acceptable level within the above range. It may be advisable to discuss this with the householder.

Where long hot water supply pipe runs are used, these should be insulated to prevent rapid cooling of residual hot water after draw off is completed.

If the boiler is fitted in a hard water area, check that the hardness does not exceed 150 p.p.m., by testing with a standard test strip. Immerse test strip in flowing tap water for one second. Shake off excess water. Check strip after approximately fifteen seconds. If three or more zones have changed colour, the water hardness is over 150 p.p.m. (read instructions on test strip package). Fitting of an in line scale inhibitor is then necessary.

Failure to check water hardness and fit appropriate water softening equipment will result in scale build up and consequent reduction in water heating performance. Check with local Water Authority if in doubt.

Hot and cold taps, mixing valves and fittings must be suitable for operating at mains pressure up to 10 bar. Bidets with the supply of hot and cold mains water are permitted if they are of the over-rim flushing type and have shrouded outlets which enable them to have temporary hand held spray attached. Showers of loose headed or flexible type must be fixed so that the head cannot fall closer than 25mm above the top edge of the bath to prevent it immersing into the bath water. Alternatively the shower should have a double check valve incorporated at the point of the flexible connections.

WATER FLOW REGULATION

The flow rate of water from individual taps may be affected by any of the following:

1. **Number of taps in use at one time.**
2. **Cold mains pressure.**
3. **Diameter and length of pipework in the domestic water circuits within the dwelling.**
4. **Excessive flow from 3/4" bath taps in a house system converted to mains water supply.**

It is recommended:

- A. To ensure that the mains water connection to the appliance is the first connection from the mains on entering the dwelling.
- B. Where flow starvation is encountered, that flow restrictors or balancing valves are fitted at supply outlets.

* The boiler has circulating pumps fitted and another circulating pump is normally not required. They are factory set at maximum output. This setting should not be altered on the domestic hot water pump, as production of domestic hot water may be adversely affected.

SYSTEM FILLING, TESTING AND MAKE-UP

Introduction

Mains cold water is supplied through the boiler pipework to two separate circuits, operating at different pressures.

Circuit One

This is the radiator heating system, including boiler and primary tank, which is filled from the mains supply via a flexible filling loop (see method A) within the boiler, to a pressure determined from the system static head, expansion vessel size and system water volume. This flexible filling loop should be disconnected when the boiler and system are filled and checked, (see diagrams for method A and B).

Circuit Two

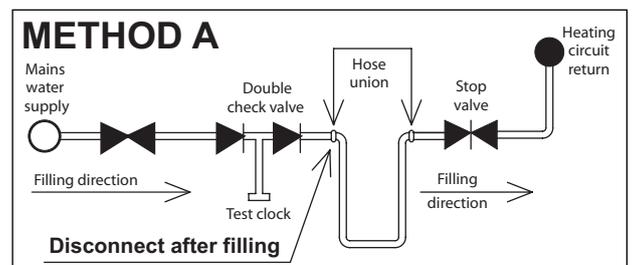
This is the domestic cold water supply through the boiler plate heat exchanger via the domestic hot water pipework, direct to the hot taps. This works at full mains pressure or if this is excessive, at a reduced pressure controlled by a mains pressure reducing valve, to a pressure acceptable to the householder and satisfactory for the correct operation of a Combi and System boiler. This mains pressure reducing valve is not supplied with the boiler but is available from your local supply merchant.

System filling should take place slowly and can be done by either of the following methods:

Manual Filling

The Firebird Combi boiler comes with this system built into the appliance. It consists of a flexible hose connection with a butterfly shut off valve at each end and a double check valve assembly at boiler end. To conform to requirements of BS 7074 Part 1 and local Water Authority Bye Laws, the flexible hose should be disconnected at one end when filling has been completed and checked. Two end caps are supplied and should be fitted to disconnected ends as a safety precaution against inadvertent opening of ball valves.

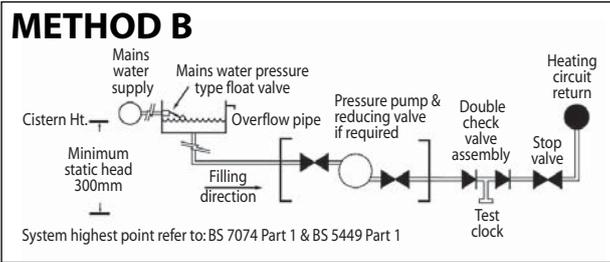
The pressure gauge on the control panel should be checked occasionally when the system is cold. Refill to initial fill pressure if necessary. Should this be a frequent occurrence, the complete system should be checked for leaks.



Automatic Filling

Automatic system filling may be made with a feed and make-up cistern connected through a double check valve and stop valve assembly to the return side of the heating system as close to the boiler as is practical. This cistern should be located above the heating systems highest point to give a minimum static head of 300 mm between it (highest point) and the cistern. The manual filling system fitted to boiler should then be disconnected and connection points blanked off.

This system has the advantage of automatic water make-up, in the event of system pressure loss due to air elimination and minor leaks. In any case the control panel pressure gauge should be occasionally checked.



N.B. Remember also to check the air fill pressure of the expansion vessel when the system is cold, using standard tyre gauge connected to Schrader air valve on vessel.

NOTE: There shall be no direct connection to the mains, even with the use of a non-return valve without the permission of Local Water Authority.

* It is recommended that an inhibitor be added at the time of final fill, to protect the system from corrosion. Ensure that this is carried out in accordance with inhibitor manufacturer's instructions. The installer should ensure that the inhibitor used is suitable and that it will have no adverse effect on expansion vessels diaphragms or any other part or component of the system.

With water supply turned off, thoroughly flush out the boiler and system to remove all foreign matter, before allowing the boiler and pumps to operate. If in doubt, drain the system and repeat above procedure. At this stage, flushing-out water should be clean and clear of all foreign matter.

Refill the system and again vent at all points as described above. Examine the complete system for water leaks, having pressurised it to 1 - 2.5 bar. Correct any leaks, then check operation of the safety valve by admitting further water until this valve operates. This should occur when the system pressure rises to between 2.7 and 3.3 bar. When satisfied with the valve operation, and with the mains water still turned off, draw off sufficient water until the initial system design fill pressure (P_f) (cold fill) is established (0.5 - 1 bar - as calculated for system).

Remember that the initial cold fill pressure can only be checked when system water has been properly cooled down. Check that final operating pressure (P_f) is under 2.5 bar with all radiators turned on and up to the highest working temperature. Should the system operating pressure exceed this, check:

COMMISSIONING

* **Before proceeding to filling, ensure that the electricity supply is switched off at the mains to avoid any possibility of the time switch or the frost thermostat operating and passing power to the appliance.**

Filling and Testing

Check that all connections, especially compression joints, are fully tightened. Re-check and ensure that the pressure vessel air charge is correct, then fill the system with water via the filling system used. Turn off the water supply before the system pressure reaches the safety valve operation point of 3 bar (2 to 2.5 bar). Vent the system via all manual air vents including circulating pumps, boiler, radiators, system high points etc. Check that dust caps are loosened on auto air vents, keep a constant check on the system pressure gauge (fitted to control panel). If pressure has dropped, re-admit water to above pressure. Ensure all appropriate boiler and system valves are open.

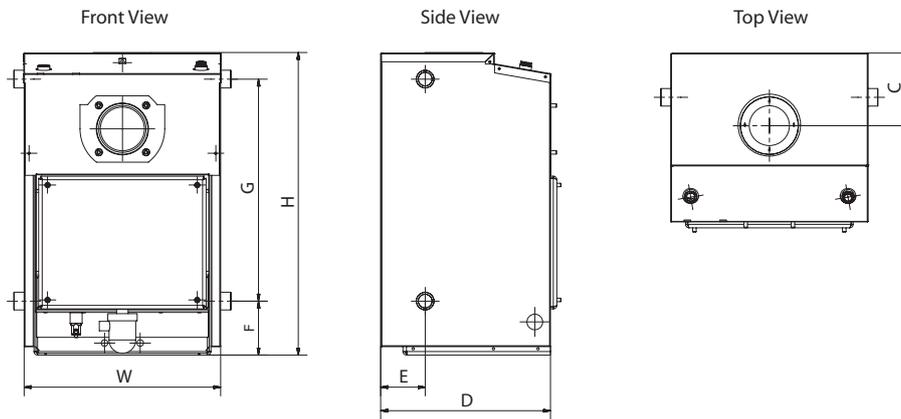


1. That the initial cold fill pressure is correct and if additional expansion vessel is fitted, that pressure is equal in each vessel.
2. That expansion vessels are sized correctly.

Special attention should be given to existing heating systems where a Firebird Combi boiler has replaced an existing unit. Extra effort should be made to ensure that all original pipe work and radiators are repeatedly flushed. If possible, use a proprietary cleansing agent suitable for the system, as loosened scale and foreign matter can seriously reduce domestic hot water performance and pump efficiency.

Use a suitable corrosion inhibitor.

5 5.1 - POPULAR - TECHNICAL DETAILS & DIMENSIONS

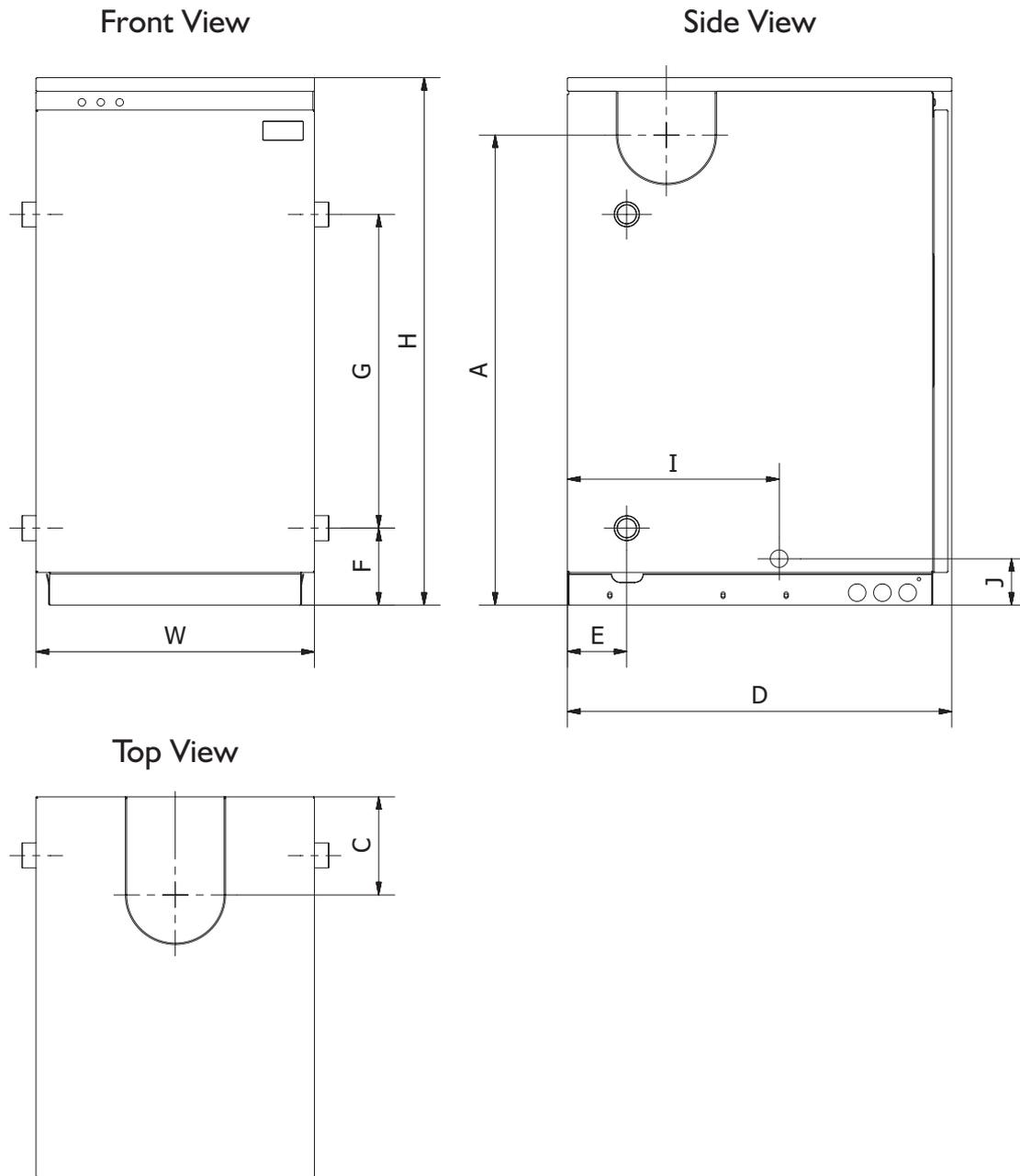


Model Enviromax	Output kW	Weight kg (incl. burner)	Dimensions(mm)			Burner depth	C	E	F	G
			H	W	D					
Popular C12-18	12-18	99	684	344	381	202	164	100	122	502
Popular C20	15-20	107	684	441	381	202	164	100	122	502
Popular C26	20-26	112	684	441	381	202	164	100	122	502
Popular C35	26-35	115	684	441	381	202	164	100	122	502
Popular C44	35-44	182	815	470	531	202	154	96	123	620
Popular C58	44-58	190	815	470	531	253	154	96	123	620
Popular C73	58-73	210	873	530	525	253	155	96	123	670
Popular C100	80-100	300	1052	625	745	253	139	112	130	832

Use a copper pipe (not plastic) for a minimum of 1 metre off the boiler.

Boiler Model		C12/18	C20 + 26	C35	C44 + 58	C73	C100
Heat Output	kW	12-18	15-20/20-26	26-35	35-44/44-58	58-73	80-100
	Max. BTU/h ('000)	40-60	50 - 90	90-120	120-200	200-250	270-340
CONNECTIONS							
Heating Flow		1" BSP	1" BSP	1" BSP	1 1/2" BSP	1 1/2" BSP	2" BSP
Heating Return		1" BSP	1" BSP	1" BSP	1 1/2" BSP	1 1/2" BSP	2" BSP
Drain Off Valve		1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP
Condensate Trap		22mm PLASTIC	22mm PLASTIC	22mm PLASTIC	22mm PLASTIC	22mm PLASTIC	22mm PLASTIC
WATER CONTENT							
Boiler (Litres)		24	24	24	43.5	54	75
FLUE (Indoor Boilers)							
Balanced Flue Assembly (mm)		125 (5")	125 (5")	125 (5")	150 (6")	180 (7")	200 (8")
Conventional Flue Assembly (mm)		100 id.	100 id.	100 id.	150 id.	180 id.	180 id.
Max. Low Level Flue Length (metres)		3	3	3	3	3	3
Max. High Level Flue Length (metres)		6	6	6	4	4	4
Max Vertical Level Flue Length (metres)		4	4	4	4	4	4
HEATING SYSTEM (SEALED)		Fit in accordance with BS 7074 Part 1, BS 5449, OFTEC standards and all other relevant legislation. Preset Pressure Relief Valve 3 bar					
MAINS WATER SUPPLY PRESSURE		Min. 1 bar - Max. 10 bar (for user comfort, we recommend pressure at tap to be between 2 and 5 bar). Limescale excess: When over 150/200 ppm, fit appropriate scale reducer.					
WATER SIDE RESISTANCE		20KW		26KW		35KW	
Flow Rate To Give A Nominal Output At 10k Differential							
Flow Rate Measured (Kg h-1)		1642		2135		2874	
Waterside Resistance (mbar)		0.18		0.18		0.18	
Flow Rate To Give A Nominal Output At 20k Differential							
Flow Rate Measured (Kg h-1)		870		1131		1523	
Waterside Resistance (mbar)		0.19		0.19		0.19	
PRESSURE JET OIL BURNERS		RIELLO RDB 2.2 up to C44 & RIELLO RDB 4.2 up to C58 to C100					
FUEL		C2 Kerosene					
ELECTRICAL SUPPLY		230V AC 50Hz 5A					
TEMPERATURE CONTROL							
Boiler Central Heating Control		60°C - 80°C					
Boiler Safety Limit		110°C					

5 5.2 - KITCHEN - TECHNICAL DETAILS & DIMENSIONS

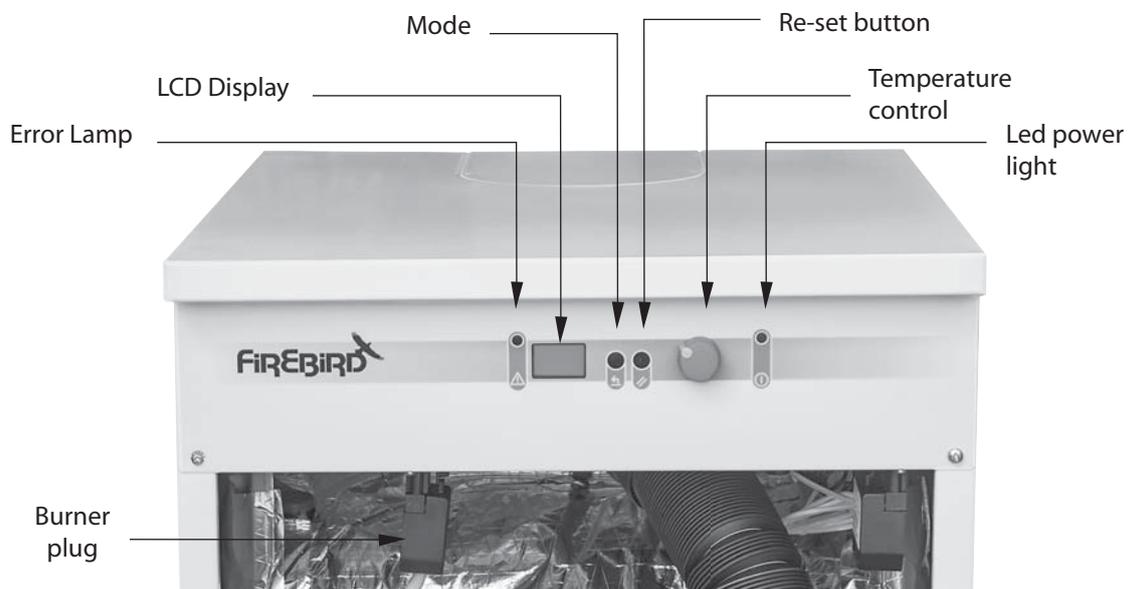


Model Enviromax	Output kW	Weight kg	Dimensions(mm)									
			H	W	D	A	C	E	F	G	I	J
Kitchen C12/18	12-18	115	845	345	610	753	157	94	124	502	336	75
Kitchen C20	15-20	125	845	442	610	753	157	94	124	502	336	75
Kitchen C26	20-26	128	845	442	610	753	157	94	124	502	336	75
Kitchen C35	26-35	131	845	442	610	753	157	94	124	502	336	75
Kitchen C44	35-44	210	1046	464	852	914	154	100	125	620	485	86
Kitchen C58	44-58	216	1046	464	852	914	154	100	125	620	485	86
Kitchen C73	58-73	242	1196	524	851	1024	157	100	125	670	484	86
Commercial Utility	80-100	390	1249	623	1071	-	158	130	132	832	723	72

5 5.2 - KITCHEN - TECHNICAL DETAILS & DIMENSIONS

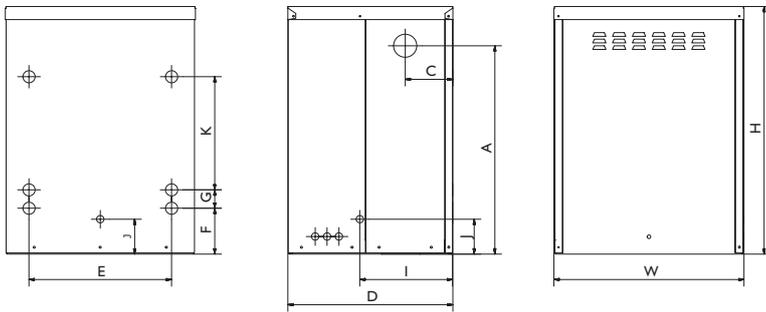
Boiler Model		C12/18	C20 + 26	C35	C44 + 58	C73	Commercial Utility
Heat Output	kW Max. BTU/h ('000)	12-18 40-60	15-20/20-26 50 - 90	26-35 90-120	35-44/44-58 120-200	58-73 200-250	80-100 270-340
CONNECTIONS							
Heating Flow		1" BSP	1" BSP	1" BSP	1 1/2" BSP	1 1/2" BSP	2" BSP
Heating Return		1" BSP	1" BSP	1" BSP	1 1/2" BSP	1 1/2" BSP	2" BSP
Drain Off Valve		1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP
Condensate Trap		22mm PLASTIC	22mm PLASTIC	22mm PLASTIC	22mm PLASTIC	22mm PLASTIC	22mm PLASTIC
WATER CONTENT							
Water Content Boiler		24	24	24	43.5	54	75
FLUE (Indoor Boilers)							
Balanced Flue Assembly (mm)		125 (5")	125 (5")	125 (5")	150 (6")	180 (7")	200 (8")
Conventional Flue Assembly (mm)		100 id.	100 id.	100 id.	150 id.	180 id.	180 id.
Max. Low Level Flue Length (metres)		3	3	3	3	3	3
Max. High Level Flue Length (metres)		6	6	6	4	4	4
Max Vertical Level Flue Length (metres)		4	4	4	4	4	4
HEATING SYSTEM (SEALED)		Fit in accordance with BS 7074 Part 1, BS 5449, OFTEC standards and all other relevant legislation. Preset Pressure Relief Valve 3 bar					
MAINS WATER SUPPLY PRESSURE		Min. 1 bar - Max. 10 bar (for user comfort, we recommend pressure at tap to be between 2 and 5 bar). Limescale excess: When over 150/200 ppm, fit appropriate scale reducer.					
WATER SIDE RESISTANCE							
Flow Rate To Give A Nominal Output At 10k Differential				20KW	26KW	35KW	
Flow Rate Measured (Kg h-1)				1642	2135	2874	
Waterside Resistance (mbar)				0.18	0.18	0.18	
Flow Rate To Give A Nominal Output At 20k Differential							
Flow Rate Measured (Kg h-1)				870	1131	1523	
Waterside Resistance (mbar)				0.19	0.19	0.19	
PRESSURE JET OIL BURNERS		RIELLO RDB 2.2 up to C44 & RIELLO RDB 4.2 up to C58 to C100					
FUEL		C2 Kerosene					
ELECTRICAL SUPPLY		230V AC 50Hz 5A					
TEMPERATURE CONTROL							
Boiler Central Heating Control		60°C - 80°C					
Boiler Safety Limit		110°C					

Use a copper pipe (not plastic) for a minimum of 1 metre off the boiler.

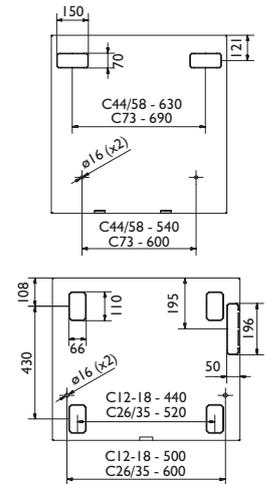
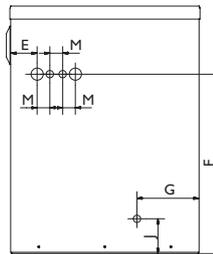


HEATPAC, SYSTEMPAC & COMBIPAC

HEATPAC & SYSTEMPAC

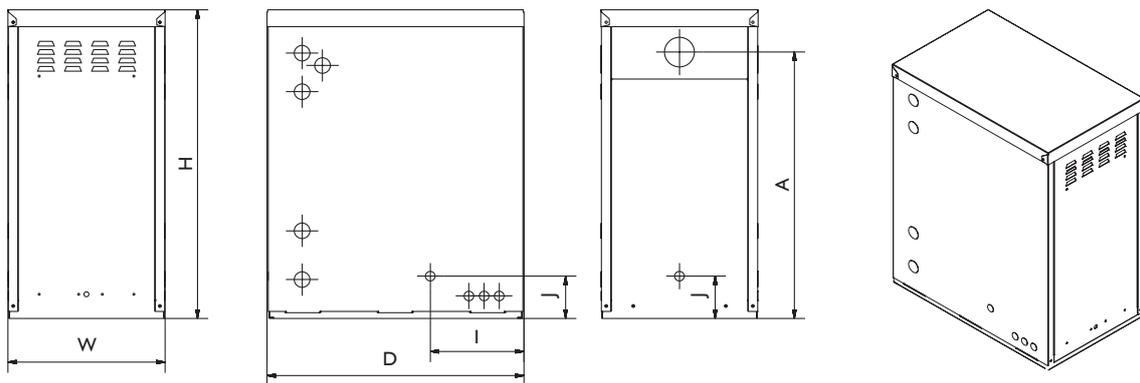


COMBIPAC



Model Enviromax	Output kW	Dimensions											
		H	W	D	C	A	E	F	G	I	J	K	M
Heatpac C12-18	12-18	945	620	625	180	795	440	175	70	351	133	432	-
Heatpac C26	20-26	945	720	625	180	795	540	175	70	351	133	432	-
Heatpac C35	26-35	945	720	625	180	795	540	175	70	351	133	432	-
Heatpac C44	35-44	1074	839	855	180	936	684	175	115	507	134	505	-
Heatpac C58	44-58	1074	839	855	180	936	684	175	115	507	134	505	-
Heatpac C73	58-73	1200	903	855	180	1039	684	175	115	507	134	555	-
Systempac C20	15-20	945	720	625	180	795	540	175	70	351	133	432	-
Systempac C26	20-26	945	720	625	180	795	540	175	70	351	133	432	-
Systempac C35	26-35	945	720	625	180	795	540	175	70	351	133	432	-
Systempac C44	35-44	1074	839	855	180	936	684	175	115	507	134	505	-
Combipac C20	15-20	945	720	625	180	795	100	685	235	351	133	-	48
Combipac C26	20-26	945	720	625	180	795	100	685	235	351	133	-	48
Combipac C35	26-35	945	720	625	180	795	100	685	235	351	133	-	48

SLIMLINE HEATPAC & SLIMLINE SYSTEMPAC



Model Enviromax	Output kW	Weight kg	Dimensions					
			H	W	D	A	I	J
Slimline Heatpac/Systempac C20	15-20	147	920	465	760	794	277	126
Slimline Heatpac/Systempac C26	20-26	150	920	465	760	794	277	126
Slimline Heatpac/Systempac C35	26-35	153	920	465	760	794	277	126

Use a copper pipe (not plastic) for a minimum of 1 metre off the boiler.

5 5.3 - OUTDOOR MODELS - TECHNICAL DETAILS & DIMENSIONS

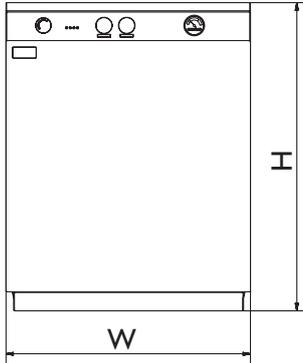
		Combipec Systempac/Slimline Systempac					Heatpac / Slimline Heatpac				
Boiler Model		C20+C26	C35	C20+C26	C35	C44	C12/18	C20+C26	C35	C44+C58	C73
Heat Output	kW	15-20/20-26	26-35	15-20/20-26	26-35	35-44	12-18	15-20/20-26	26-35	35-44/44-58	58-73
	Max. BTU/h ('000)	50-90	90-120	50-90	90-120	120-150	40-60	50-90	90-120	120-200	200-250
CONNECTIONS											
Heating Flow		22 mm	28 mm	22 mm	28 mm	1 1/2" BSP	1" BSP	1" BSP	1" BSP	1 1/2" BSP	1 1/2" BSP
Heating Return		22 mm	28 mm	1" BSP	1" BSP	1 1/2" BSP	1" BSP	1" BSP	1" BSP	1 1/2" BSP	1 1/2" BSP
Mains Cold Feed (Copper)		15 mm	15 mm	15 mm	15 mm	15 mm	-	-	-	-	-
Hot Water Delivery (Copper)		15 mm	15 mm	-	-	-	-	-	-	-	-
Drain Off Valve		1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP	1/2" BSP
Safety Pressure Valve Outlet (Copper)		15 mm	15 mm	15 mm	15 mm	15 mm	-	-	-	-	-
Condensate Trap		22 mm	PLASTIC	22 mm	PLASTIC			22 mm	PLASTIC		
CIRCULATING PUMP											
Domestic Hot Water Plate		25/60	25/60	25/60	25/60	25/80	-	-	-	-	-
Heat Exchanger		25plate	31plate	-	-	-	-	-	-	-	-
Integral Expansion Vessel Normal Capacity		12 litres	12 litres	12 litres	12 litres	18 litres	-	-	-	-	-
Expansion Vessel Pre-charge Pressure		1 bar	1 bar	1 bar	1 bar	1 bar	-	-	-	-	-
Low Pressure Water Switch?		✓	✓	✓	✓	✓	✗	✗	✗	✗	✗
Filling Loop Included?		✓	✓	✓	✓	✓	✗	✗	✗	✗	✗
WATER CONTENT											
Boiler (Litres)		24	24	24	24	45	24	24	24	43.5	54
Primary Tank (Litres)		40	40	-	-	-	-	-	-	-	-
D.H.W. GUIDE PERFORMANCE*											
in litres/min (120 litre draw-off at 40°C Δt.)		16	20	-	-	-	-	-	-	-	-
FLUE											
		Integral flues.									
HEATING SYSTEM (SEALED)											
		Fit in accordance with BS 7074 Part 1, BS 5449, OFTEC standards and all other relevant legislation.									
Max. Operating Pressure		2.5 bar		2.5 bar							
Max. System Pressure Cold		1.5 bar		1.5 bar							
Min. System Pressure Cold		0.5 Bar		0.5 bar							
Preset Pressure Relief Valve		3 bar		3 bar				3 bar			
MAINS WATER SUPPLY PRESSURE											
		Min. 1 bar - Max. 10 bar (for user comfort, we recommend pressure at tap to be between 2 and 5 bar). Limescale excess: When over 150/200 ppm, fit appropriate scale reducer.									
WATER SIDE RESISTANCE											
Flow Rate To Give A Nominal Output At 10k Differential				20KW			26KW			35KW	
Flow Rate Measured (Kg h-1)				1642			2135			2874	
Waterside Resistance (mbar)				0.18			0.18			0.18	
Flow Rate To Give A Nominal Output At 20k Differential				20KW			26KW			35KW	
Flow Rate Measured (Kg h-1)				870			1131			1523	
Waterside Resistance (mbar)				0.19			0.19			0.19	
PRESSURE JET OIL BURNERS											
RIELLO RDB 2.2 up to C44 & RIELLO RDB 4.2 from C58 to C73											
FUEL											
C2 Kerosene											
ELECTRICAL SUPPLY											
230V AC 50Hz 5A											
TEMPERATURE CONTROL											
<i>FROST THERMOSTAT FITTED TO ALL OUTDOOR MODELS</i>											
Boiler Central Heating Control		60°C - 80°C			60°C - 80°C			60°C - 80°C			
Boiler Safety Limit		110°C			110°C			110°C			
Tank (DHW)- Fixed		78°C			-			-			
Early Alert - Fixed		87°C			-			-			
Over-run - Fixed		93°C			87°C			87°C			

* where water demand exceeds this, a flow restrictor is recommended. This will ensure a water supply at an adequate temperature.

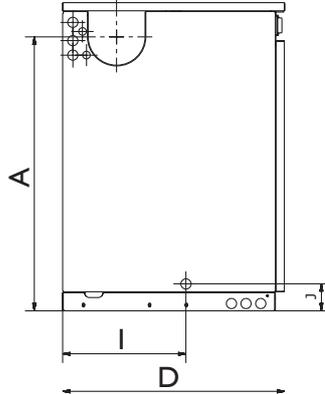
5 5.4 - COMBI & SLIMLINE COMBI - TECHNICAL DETAILS & DIMENSIONS

COMBI

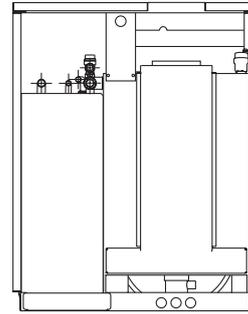
Front View



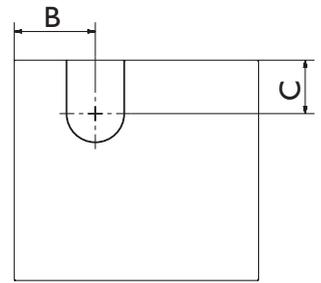
Side View



Rear View

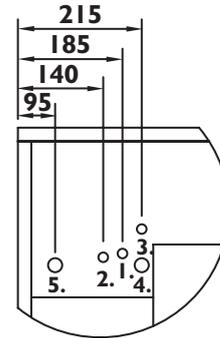


Top View



Model	Output kW	Weight kg	Dimensions (mm)							
			H	W	D	A	B	C	I	J
Combi C20	15-20	173	845	665	605	750	220	147	335	75
Combi C26	20-26	176	845	665	605	750	220	147	335	75
Combi C35	26-35	179	845	665	605	750	220	147	335	75

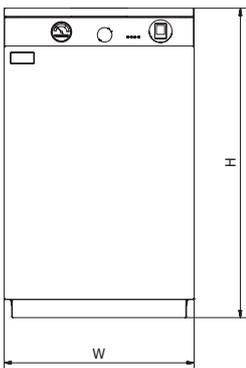
C.H. flow & return 22mm copper • D.H.W. mains feed & safety valve 15mm copper



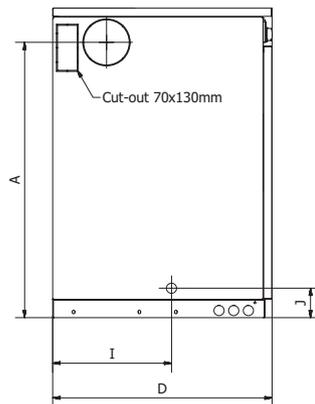
1. Mains feed
2. D.H.W.
3. 3 bar safety valve
4. C.H. flow
5. C.H. return

SLIMLINE COMBI

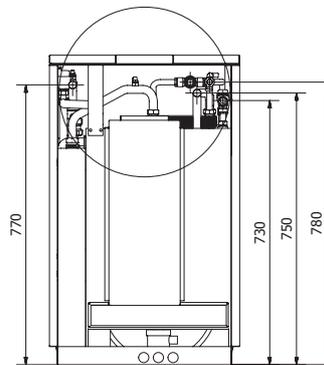
Front View



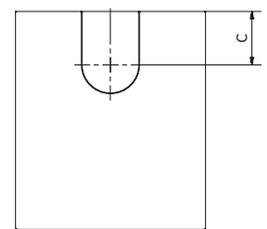
Side View



Rear View

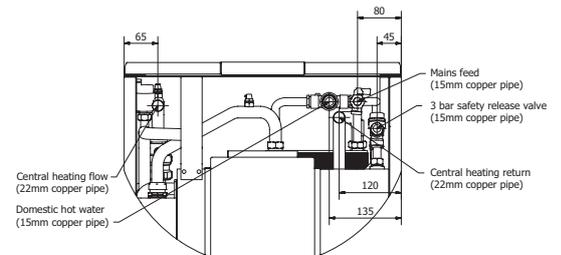


Top View



Model	Output kW/hr	Weight kg	Dimensions (mm)					
			H	W	D	A	B	C
Slimline Combi	C20	179	855	520	600	760	260	147
Slimline Combi	C26	182	855	520	600	760	260	147
Slimline Combi	C35	185	855	520	600	760	260	147

C.H. flow & return 22mm copper • D.H.W. mains feed & safety valve 15mm copper



Use a copper pipe (not plastic) for a minimum of 1 metre off the boiler.

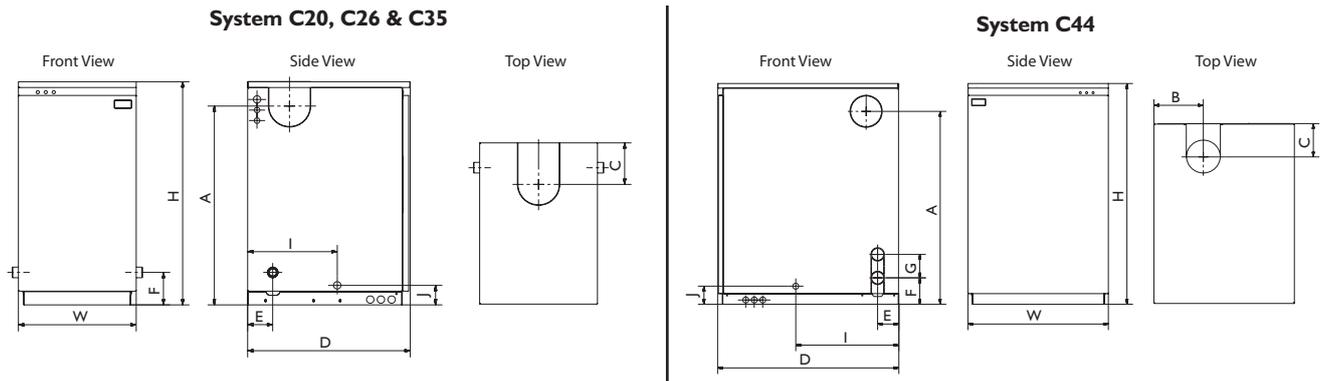
5 5.4 - COMBI & SLIMLINE COMBI - TECHNICAL DETAILS & DIMENSIONS

Boiler Model Heat Output kW Max. BTU/h ('000)	C20 + C26 15-20/20-26 50-90	C35 26-35 90-120	
CONNECTIONS Heating Flow Heating Return Mains Cold Feed (Copper) Hot Water Delivery (Copper) Drain Off Valve Safety Pressure Valve Outlet (Copper) Condensate Trap	22 mm 22 mm 15 mm 15 mm 1/2" BSP 15 mm 22 mm PLASTIC	28 mm 28 mm 15 mm 15 mm 1/2" BSP 15 mm 22 mm PLASTIC	
CIRCULATING PUMP Domestic Hot Water Plate Heat Exchanger Integral Expansion Vessel Normal Capacity Expansion Vessel Pre-charge Pressure Low Pressure Water Switch? Filling Loop Included?	25/60 25plate 12 litres 1 bar ✓ ✓	25/60 31plate 12 litres 1 bar ✓ ✓	
WATER CONTENT Boiler (Litres) Primary Tank (Litres) Primary Tank (Litres)	24 40 (Combi) 11 (Slimline Combi)	24 40 (Combi) 11 (Slimline Combi)	
D.H.W. GUIDE PERFORMANCE* in litres/min (120 litre draw-off at 40°C Δt.) in litres/min (120 litre draw-off at 40°C Δt.)	16/18 (Combi) 12/14 (Slimline Combi)	20 (Combi) 16 (Slimline Combi)	
FLUE (Indoor Boilers) Balanced Flue Assembly (mm) Conventional Flue Assembly (mm) Max. Low Level Flue Length (metres) Max. High Level Flue Length (metres) Max Vertical Level Flue Length (metres)	125 (5") 100 id. 3 6 6	125 (5") 100 id. 3 6 6	
HEATING SYSTEM (SEALED) Max. Operating Pressure Max. System Pressure Cold Min. System Pressure Cold Preset Pressure Relief Valve	Fit in accordance with BS 7074 Part 1, BS 5449, OFTEC standards and all other relevant legislation. 2.5 bar 1.5 bar 0.5 bar 3 bar		
MAINS WATER SUPPLY PRESSURE	Min. 1 bar - Max. 10 bar (for user comfort, we recommend pressure at tap to be between 2 and 5 bar). Limescale excess: When over 150/200 ppm, fit appropriate scale reducer.		
WATER SIDE RESISTANCE	20KW	26KW	35KW
Flow Rate To Give A Nominal Output At 10k Differential			
Flow Rate Measured (Kg h-1)	1642	2135	2874
Waterside Resistance (mbar)	0.18	0.18	0.18
Flow Rate To Give A Nominal Output At 20k Differential			
Flow Rate Measured (Kg h-1)	870	1131	1523
Waterside Resistance (mbar)	0.19	0.19	0.19
PRESSURE JET OIL BURNERS FUEL ELECTRICAL SUPPLY	RIELLO RDB 2.2 C2 Kerosene 230V AC 50Hz 5A		
TEMPERATURE CONTROL Boiler Central Heating Control Boiler Safety Limit Tank (DHW)- Fixed Early Alert - Fixed Over-run - Fixed	60°C - 80°C 110°C 78°C 87°C 93°C		

* where water demand exceeds this, a flow restrictor is recommended. This will ensure a water supply at an adequate temperature.

Use a copper pipe (not plastic) for a minimum of 1 metre off the boiler.

5 5.5 - SYSTEM - TECHNICAL DETAILS & DIMENSIONS

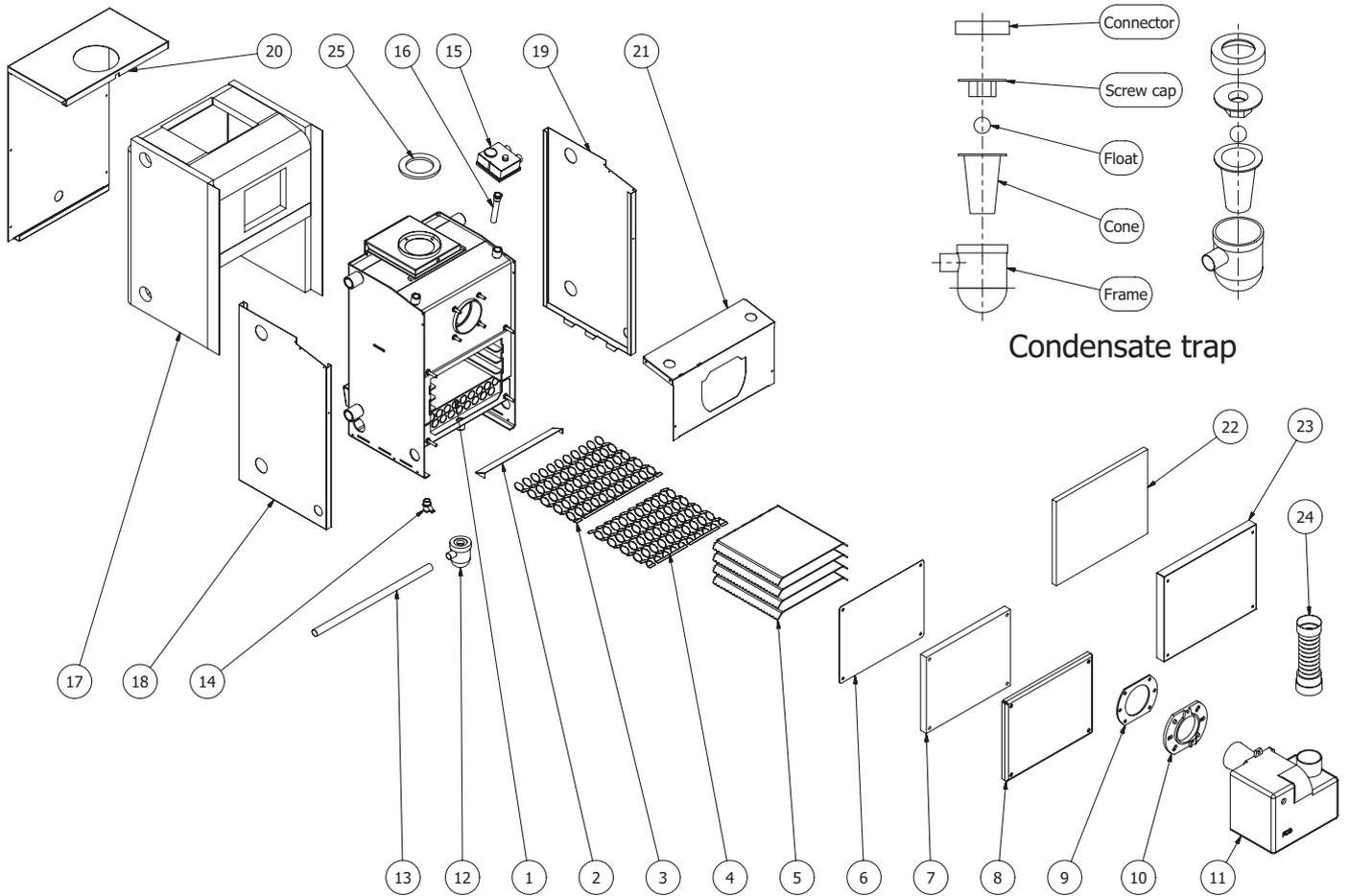


Model	Output kW	Weight kg	Dimensions(mm)											
			H	W	D	A	B	C	E	F	G	I	J	
Enviromax														
System C20	15-20	143	844	442	610	752	-	157	94	123	-	336	74	
System C26	20-26	146	844	442	610	752	-	157	94	123	-	336	74	
System C35	26-35	149	844	442	610	752	-	157	94	123	-	336	74	
System C44	35-44	235	1046	660	852	914	232	158	100	125	111	485	86	

Use a copper pipe (not plastic) for a minimum of 1 metre off the boiler.

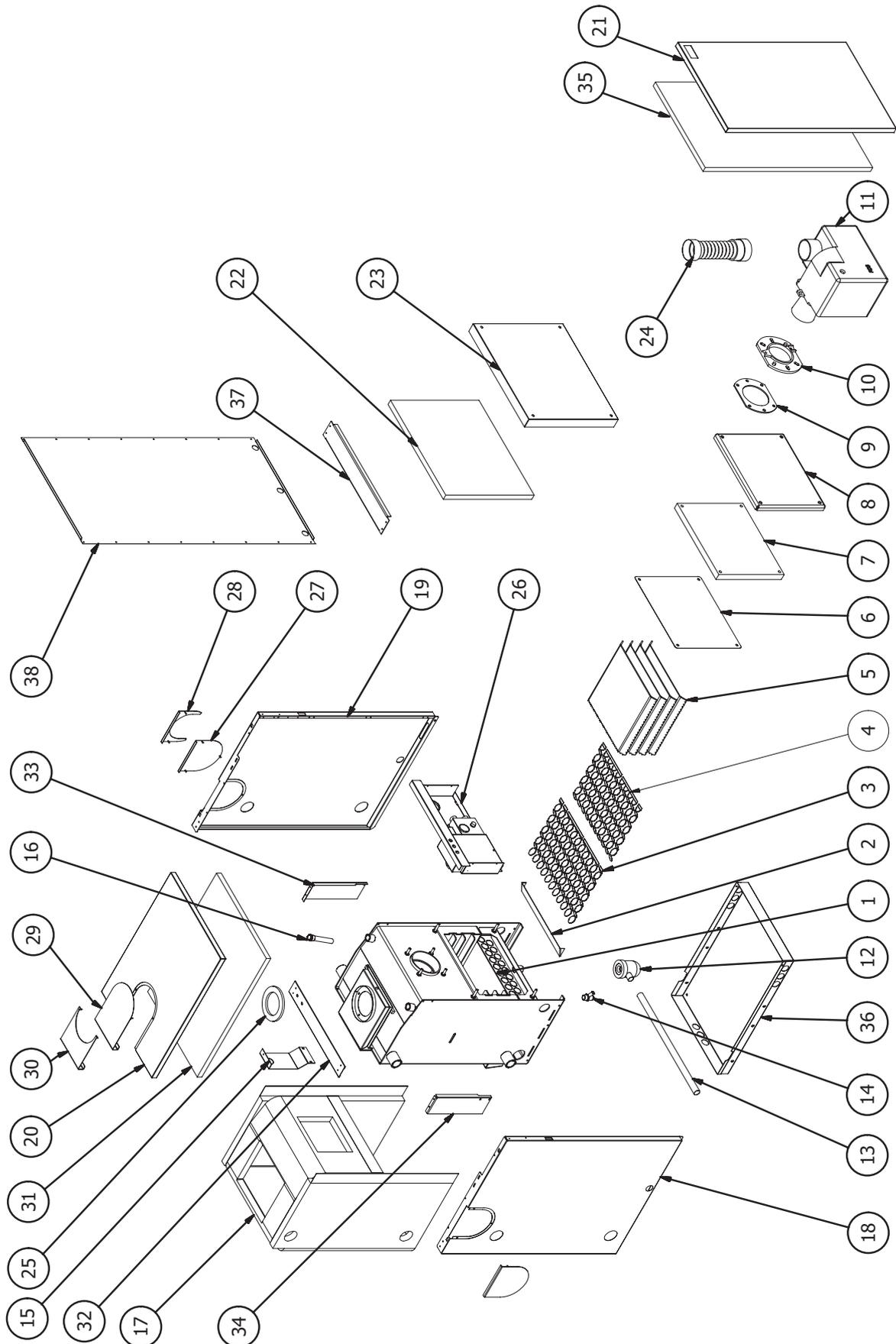
Boiler Model		C20 + C26	C35
Heat Output	kW Max. BTU/h ('000)	15-20/20-26 50-90	26-35 90-120
CONNECTIONS			
Heating Flow		22 mm	28 mm
Heating Return		1" BSP	1" BSP
Mains Cold Feed (Copper)		15 mm	15 mm
Hot Water Delivery (Copper)		-	-
Drain Off Valve		1/2" BSP	1/2" BSP
Safety Pressure Valve Outlet (Copper)		15 mm	15 mm
Condensate Trap		22 mm PLASTIC	22 mm PLASTIC
CIRCULATING PUMP			
Integral Expansion Vessel Normal Capacity		25/60	25/60
Expansion Vessel Pre-charge Pressure		12 litres	12 litres
Low Pressure Water Switch?		1 bar	1 bar
Filling Loop Included?		✓	✓
WATER CONTENT			
Boiler (Litres)		24	24
Primary Tank (Litres)		-	-
FLUE (Indoor Boilers)			
Balanced Flue Assembly (mm)		125 (5")	125 (5")
Conventional Flue Assembly (mm)		100 id.	100 id.
Max. Low Level Flue Length (metres)		3	3
Max. High Level Flue Length (metres)		6	6
Max Vertical Level Flue Length (metres)		6	6
HEATING SYSTEM (SEALED)			
Max. Operating Pressure		Fit in accordance with BS 7074 Part 1, BS 5449, OFTEC standards and all other relevant legislation.	
Max. System Pressure Cold		2.5 bar	
Min. System Pressure Cold		1.5 bar	
Preset Pressure Relief Valve		0.5 bar	
		3 bar	
MAINS WATER SUPPLY PRESSURE			
		Min. 1 bar - Max. 10 bar (for user comfort, we recommend pressure at tap to be between 2 and 5 bar). Limescale excess: When over 150/200 ppm, fit appropriate scale reducer.	
WATER SIDE RESISTANCE			
Flow Rate To Give A Nominal Output At 10k Differential			
Flow Rate Measured (Kg h ⁻¹)		20KW	26KW
Flow Rate Measured (Kg h ⁻¹)		1642	2135
Waterside Resistance (mbar)		0.18	0.18
Flow Rate To Give A Nominal Output At 20k Differential			
Flow Rate Measured (Kg h ⁻¹)		870	1131
Flow Rate Measured (Kg h ⁻¹)		870	1131
Waterside Resistance (mbar)		0.19	0.19
PRESSURE JET OIL BURNERS			
FUEL		RIELLO RDB 2.2	
ELECTRICAL SUPPLY		C2 Kerosene	
		230V AC 50Hz 5A	
TEMPERATURE CONTROL			
Boiler Central Heating Control		60°C - 80°C	
Boiler Safety Limit		110°C	
Over-run - Fixed		87°C	

6 6.1 - POPULAR - PARTS



No.	Description	C12-18	C20	C26	C35	C44	C58	C73	C100
1	Boiler Shell	312808	312026	312026	312026	311634	311634	311481	312422
2	Heat Deflector	212810	210904	210904	210904	211643	211643	211500	212420
3	Tube Baffle 1 Way	110908 (7 off)	110908 (5 off)	110908 (5 off)	110908 (5 off)	111502 (8 off)	111502 (8 off)	111502 (11 off)	111502 (10 off)
4	Tube Baffle 4 Way	110907 (2 off)	110907 (4 off)	110907 (4 off)	110907 (4 off)	111503 (6 off)	111503 (6 off)	111503 (6 off)	111503 (12 off)
5	Smoke Baffle	212809 (4 off)	212022 (4 off)	212028 (4 off)	212122 (4 off)	211651 (8 off)	211640 (8 off)	211501 (8 off)	212419 (8 off)
6	Graphite Door Seal	112813	111314	111314	111314	111646	111646	111511	112414
7	Door Gasket	112812	110918	110918	110918	111645	111645	111506	112362
8	Boiler Door	212811	210910	210910	210910	211644	211644	111505	212423
9	Burner Insulation Gasket	2567398	2567398	2567398	2567398	2567398	2567398	2567398	2567398
10	Burner Flange	2567398	2567398	2567398	2567398	2567398	2567398	2567398	2567398
11	Burner	413886	410205	410206	410207	410209	410210	410210	410210
12	Condensate Trap	112184	112184	112184	112184	112184	112184	112184	112184
13	Condensate Hose	111537	111537	111537	111537	111537	111537	111537	111537
14	Drain Cock	111329	111329	111329	111329	111329	111329	111329	111329
15	Dual Thermostat	111316	111316	111316	111316	111316	111316	111316	111316
16	Stat Pocket	111317	111317	111317	111317	111317	111317	111317	111317
17	Lagging Jacket	113029	110917	110917	110917	111653	111653	111438	112633
18	Casing Left Panel	211543	211534	211543	211543	211649	211649	211435	212418
19	Casing Right Panel	211542	211542	211542	211542	211647	211647	211434	212415
20	Casing Back Panel	212827	211544	211544	211544	211650	211650	211436	212417
21	Casing Burner Panel	212828	211545	211545	211545	211648	211648	211437	212416
22	Casing Front Insulation	n/a	112634						
23	Casing Front Panel	n/a	212616						
24	Air Hose	111902	111902	111902	111902	111902	111902	110501	110501
25	Flue Gasket	112104	112104	112104	112104	112105	112105	112713	112712

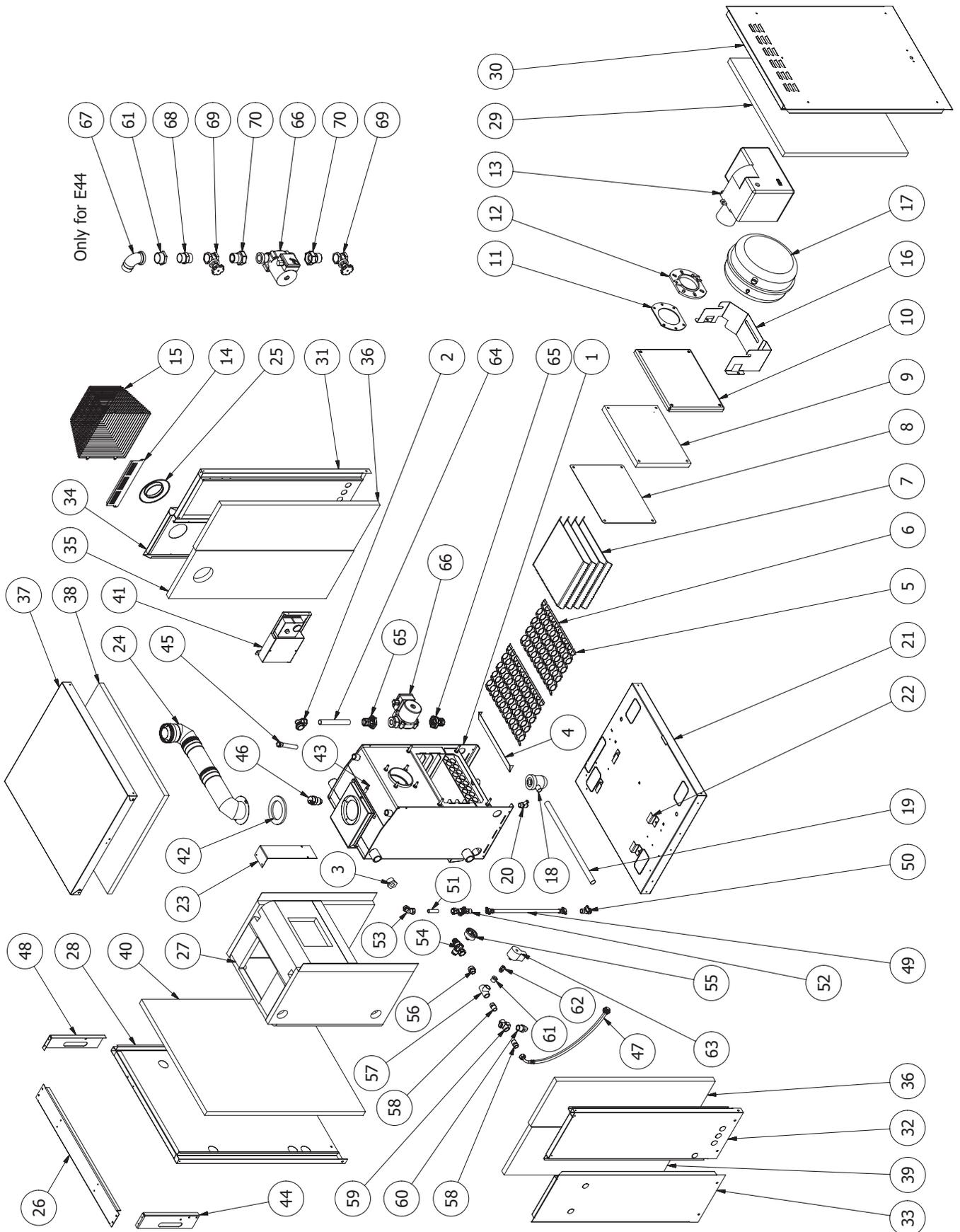
6 6.2 - KITCHEN - PARTS



6 6.2 - KITCHEN - PARTS

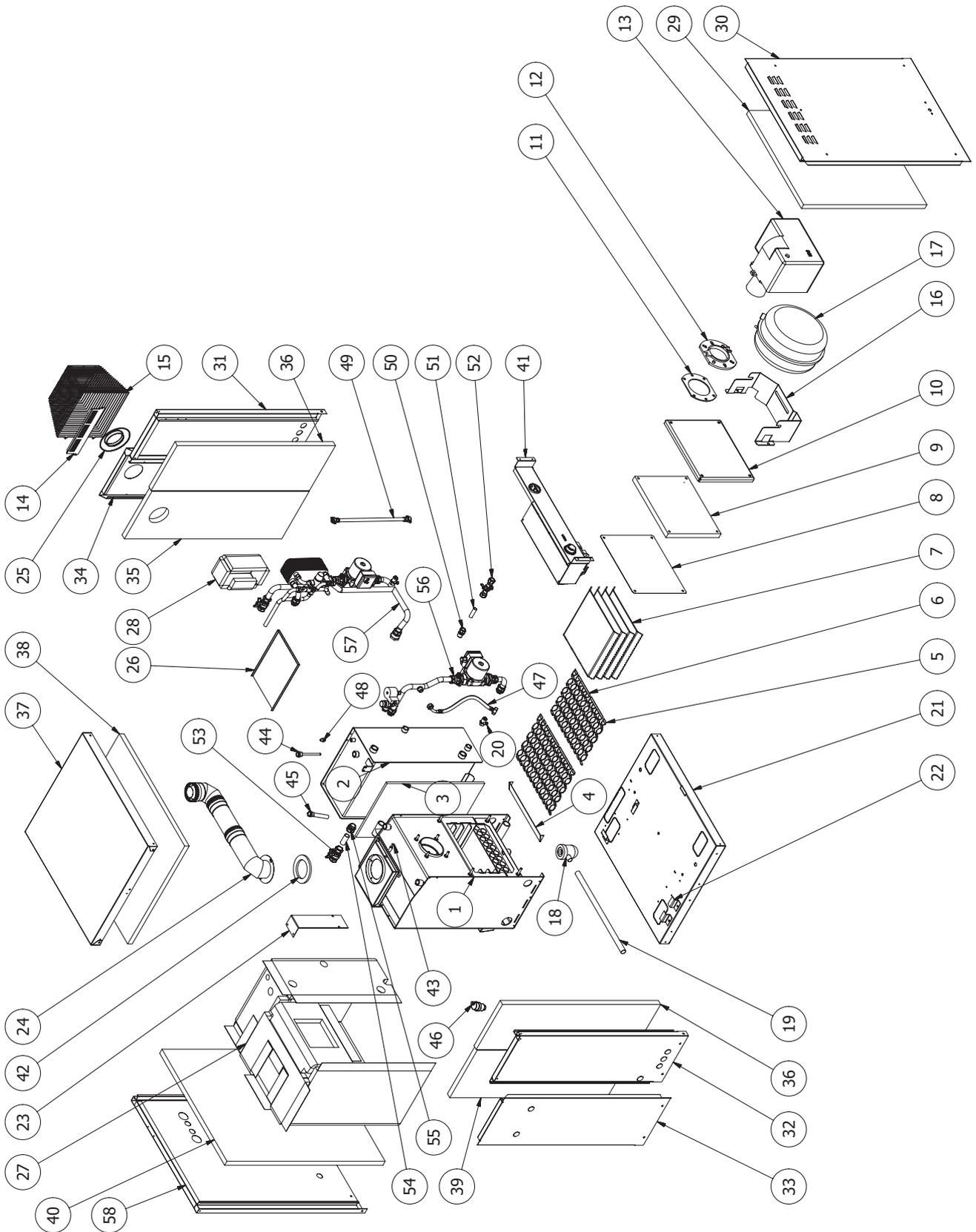
No.	Description	C12-18	C20/26	C35	C44	C58	C73	C100
1	Boiler Shell	312808	312026	312026	311634	311634	311481	312422
2	Heat Deflector	212810	210904	210904	211643	211643	211500	212420
3	Tube Baffle 1 Way	110908 (7 off)	110908 (5 off)	110908 (5 off)	111502 (8 off)	111502 (8 off)	111502 (11 off)	111502 (10 off)
4	Tube Baffle 4 Way	110907 (2 off)	110907 (4 off)	110907 (4 off)	111503 (6 off)	111503 (6 off)	111503 (6 off)	111503 (12 off)
5	Smoke Baffle	212809	212028 (4 off)	212122 (4 off)	211651 (8 off)	211640 (8 off)	211501 (8 off)	212419 (8 off)
6	Graphite Door Seal	111314	111314	111314	111646	111646	111511	112414
7	Door Gasket	112813	110918	110918	111645	111645	111506	112362
8	Boiler Door	212811	210910	210910	211644	211644	111505	212423
9	Burner Insulation Gasket	3005787	3005787	3005787	3005787	3005795	3005795	3005795
10	Burner Flange	3006384	3006384	3006384	3006384	3008637	3008637	3008637
11	Burner	413886	410206	410207	410209	410210	410210	410210
12	Condensate Trap	112184	112184	112184	112184	112184	112184	112184
13	Condensate Hose	111537	111537	111537	111537	111537	111537	111537
14	Drain Cock	111329	111329	111329	111329	111329	111329	111329
15	Back Bracket	210916	210916	210916	211770	211770	211591	213105
16	Stat Pocket	111317	111317	111317	111317	111317	111317	111317
17	Lagging Jacket	113029	110917	110917	111653	111653	111438	112633
18	Casing Left Panel	111377A	111377A	111377A	111761	111761	111580	213108
19	Casing Right Panel	111377B	111377B	111377B	111766	111766	111853	213111
20	Casing Top Panel	114102	111375	111375	111764	111764	111582	213120
21	Casing Front Panel	114103	111376	111376	111762	111762	111581	213122
22	Casing Door Insulation	n/a	n/a	n/a	n/a	n/a	n/a	112634
23	Casing Door Panel	n/a	n/a	n/a	n/a	n/a	n/a	212616
24	Air Hose	111902	111902	111902	111902	111902	110501	110501
25	Flue Gasket	112104	112104	112104	112105	112105	112713	112712
26	Control Panel	314111	311670	311670	311706	311706	311707	313117
27	Side Flue Blank	113031	113031	113031	n/a	n/a	n/a	n/a
28	Side Half Moon Blank	113032	113032	113032	n/a	n/a	n/a	n/a
29	Top Flue Blank	111388	111388	111388	111586	111586	111803	213121
30	Top Half Moon Blank	111397	111397	111397	111587	111587	111802	n/a
31	Top Panel Insulation	114105	111794	111794	111765 & 112011	111765 & 112011	111592 A&B	113124 & 113125
32	Casing Back Support	214104	111596	111596	111767	111767	111585	213116
33	Right Bracket	210915B	210915B	210915B	211805B	211805B	211806B	211590A
34	Left Bracket	210915A	210915A	210915A	211805A	211805A	211806A	211590B
35	Casing Front Insulation	114106	110937	110937	111763	111763	111593	113123
36	Casing Base	214101	210914	210914	211769	211769	211589	213106
37	Casing Top Stiffener	n/a	n/a	n/a	n/a	n/a	n/a	213104
38	Casing Back Panel	n/a	n/a	n/a	n/a	n/a	n/a	213119

6 6.3 - HEATPAC & SYSTEMPAC - PARTS



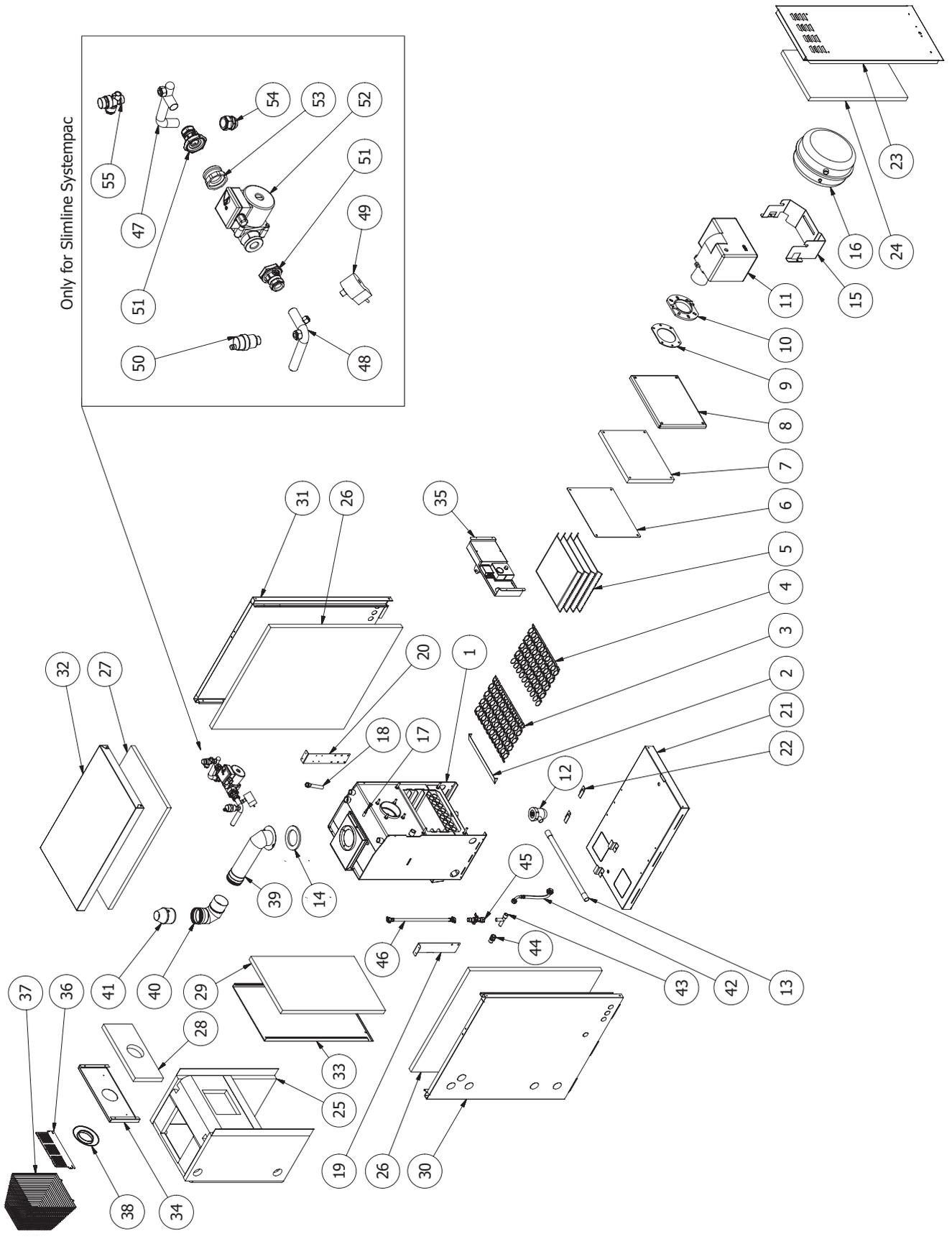
No.	Description	C12-18 Heatpac 312808	C20 Heatpac 312026	C26 Heatpac 312026	C35 Heatpac 312026	C44 Heatpac 311634	C58 Heatpac 311634	C73 Heatpac 311481	C20 Systempac 312026	C26 Systempac 312026	C35 Systempac 312026	C44 Systempac 311634
1	Boiler Shell	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110768	110766	110766	n/a
2	Compression elbow 22mm	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110768	110766	110766	n/a
3	Reducing Bushing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110766	110766	110766	n/a
4	Heat Deflector	212810	210904	210904	210904	211643	211643	211500	210904	210904	210904	211643
5	Tube Baffle 1Way	110908 (3 off)	110908 (5 off)	110908 (5 off)	110908 (5 off)	111502 (8 off)	111502 (8 off)	111502 (13 off)	110908 (5 off)	110908 (5 off)	110908 (5 off)	111502 (8 off)
6	Tube Baffle 4Way	110907 (3 off)	110907 (4 off)	110907 (4 off)	110907 (4 off)	111503 (6 off)	111503 (6 off)	111503 (6 off)	110907 (4 off)	110907 (4 off)	110907 (4 off)	111503 (6 off)
7	Smoke Baffle	212809 (4 off)	212022 (4 off)	212022 (4 off)	212122 (4 off)	211651 (8 off)	211640 (8 off)	211501 (8 off)	212022 (4 off)	212028 (4 off)	212122 (4 off)	211651 (8 off)
8	Graphite Door Seal	112813	111314	111314	111314	111646	111646	111511	111314	111314	111314	111646
9	Door Gasket	112812	110918	110918	110918	111645	111645	111506	110918	110918	110918	111645
10	Boiler Door	212811	210910	210910	210910	211644	211644	211505	210910	210910	210910	211644
11	Burner Insulation Gasket	2567398	2567398	2567398	2567398	2567398	2567398	413273	2567398	2567398	2567398	2567398
12	Burner Flange	2567398	2567398	2567398	2567398	2567398	2567398	413273	2567398	2567398	2567398	2567398
13	Burner	413886	410206	410206	410206	410206	410206	413273	410206	410206	410206	410209
14	Terminal Guard Plate	213027	213027	213027	213027	213027	213027	213027	213027	213027	213027	213027
15	Terminal Guard	111289	111289	111289	111289	111289	111289	111289	111289	111289	111289	111289
16	Pressure Vessel Bracket	n/a	n/a	n/a	n/a	n/a	n/a	n/a	210962	210962	210962	n/a
17	Pressure Vessel	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110658	110658	110658	110755
18	Condensate Trap	112184	112184	112184	112184	112184	112184	112184	112184	112184	112184	112184
19	Condensate Hose	111537	111537	111537	111537	111537	111537	111537	111537	111537	111537	111537
20	Drain Cock	111329	111329	111329	111329	111329	111329	111329	111329	111329	111329	111329
21	Casing Base	213144	211528	211528	211528	211746	211746	211807	211528	211528	211528	211746
22	Casing Clamp	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)	211600 (4 off)
23	Casing Back Bracket	412031	412031	412031	412031	411658	411658	411657	412031	412031	412031	411658
24	Flue Kit Seal	110721	110721	110721	110721	110721	110721	110721	110721	110721	110721	110721
25	Flue Kit Seal	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
26	Casing Top Stiffener	113029	110917	110917	110917	111653	111653	111438	110917	110917	110917	111653
27	Lagging Jacket	213146	211516	211516	211516	211748	211748	211809	211516	211516	211516	211748
28	Casing Back Panel	113133	111411C	111411C	111411C	111749C	111749C	111810C	111411C	111411C	111411C	111749C
29	Casing Front Insulation	213148	211527	211527	211527	211754	211754	211815	211527	211527	211527	211754
30	Casing Front	211518	211518	211518	211518	211758	211758	211815	211518	211518	211518	211758
31	Casing Fixed Right Panel	211517	211517	211517	211517	211752	211752	211813	211517	211517	211517	211752
32	Casing Fixed Left Panel	211521	211521	211521	211521	211751	211751	211812	211521	211521	211521	211751
33	Casing Removable Left Panel	212004	212004	212004	212004	211750	211750	211811	212004	212004	212004	211750
34	Casing Removable Right Panel	111411E	111411E	111411E	111411E	111749E	111749E	111810E	111411E	111411E	111411E	111749E
35	Casing Removable Right Panel Insulation	111411B (2 off)	111411B (2 off)	111411B (2 off)	111411B (2 off)	111749B (2 off)	111749B (2 off)	111810B	111411B (2 off)	111411B (2 off)	111411B (2 off)	111749B (2 off)
36	Casing Fixed Panel Insulation	213147	211519	211519	211519	211753	211753	211814	211519	211519	211519	211753
37	Casing Top Panel	113132	111411F	111411F	111411F	111749F	111749F	111810F	111411F	111411F	111411F	111749F
38	Casing Top Insulation	111411D	111411D	111411D	111411D	111749D	111749D	111810D	111411D	111411D	111411D	111749D
39	Casing Removable Left Panel Insulation	113131	111411A	111411A	111411A	111749A	111749A	111810A	111411A	111411A	111411A	111749A
40	Casing Back Panel Insulation	310453	310453	310453	310453	310453	310453	310453	310453	310453	310453	310453
41	Control panel	112104	112104	112104	112104	112105	112105	112105	112104	112104	112104	112105
42	Flue Gasket	110923	110923	110923	110923	110923	110923	110923	110923	110923	110923	110923
43	Flue Gas Analysis Blank	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
44	Casing Left Bracket	111317	111317	111317	111317	111317	111317	111317	111317	111317	111317	111317
45	Stat Pocket	111327	111327	111327	111327	111327	111327	111327	111327	111327	111327	111327
46	Auto Air Vent	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110660	110660	110660	110660
47	Pressure Vessel Hose	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
48	Casing Right Bracket	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
49	Filling Loop Hose	n/a	n/a	n/a	n/a	n/a	n/a	n/a	111341	111341	111341	111341
50	Check Valve	n/a	n/a	n/a	n/a	n/a	n/a	n/a	111820	111820	111820	111820
51	Copper Pipe Part F	n/a	n/a	n/a	n/a	n/a	n/a	n/a	111352	111352	111352	111352
52	Double Check Valve	n/a	n/a	n/a	n/a	n/a	n/a	n/a	111332	111332	111332	n/a
53	Compression Elbow 15mm	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110767	110767	110767	n/a
54	Safety Release Valve	n/a	n/a	n/a	n/a	n/a	n/a	n/a	111330	111330	111330	n/a
55	Pressure Gauge	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110771	110771	110771	n/a
56	Reducing Nipple	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110763	110763	110763	n/a
57	Tee	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110736	110736	110736	n/a
58	Nipple	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110675	110675	110675	n/a
59	Manifold	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110761	110761	110761	n/a
60	Reducing Nipple	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110765	110765	110765	n/a
61	Reducing Bushing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110764	110764	110764	110735
62	Pressure Switch Adapter	n/a	n/a	n/a	n/a	n/a	n/a	n/a	111336	111336	111336	n/a
63	Pressure Switch	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110607	110607	110607	n/a
64	System Copper Pipe Part 4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	213631	213631	213631	n/a
65	Pump Valve	n/a	n/a	n/a	n/a	n/a	n/a	n/a	112228	112228	112228	n/a
66	Circulating Pump	n/a	n/a	n/a	n/a	n/a	n/a	n/a	410647	410647	410647	414040
67	Elbow	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
68	Nipple	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110756
69	Gate Valve	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110758
70	Pump Union	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	110760

6 6.4 - COMBIPAC - PARTS



No.	Description	C20	C26	C35
1	Boiler Shell	312135	312135	312135
2	Tank	310628	310628	310628
3	Tank Insulation	111431	111431	111431
4	Heat Deflector	210904	210904	210904
5	Tube Baffle 1 Way	110908 (5 off)	110908 (5 off)	110908 (5 off)
6	Tube Baffle 4 Way	110907 (4 off)	110907 (4 off)	110907 (4 off)
7	Smoke Baffle	212022 (4 off)	212028 (4 off)	212122 (4 off)
8	Graphite Door Seal	111314	111314	111314
9	Door Gasket	110918	110918	110918
10	Boiler Door	210910	210910	210910
11	Burner Insulation Gasket	2567398	2567398	2567398
12	Burner Flange	2567398	2567398	2567398
13	Burner	410205	410206	410207
14	Terminal Guard Plate	213027	213027	213027
15	Terminal Guard	111289	111289	111289
16	Pressure Vessel Bracket	210962	210962	210962
17	Pressure Vessel	110658	110658	110658
18	Condensate Trap	112184	112184	112184
19	Condensate Hose	111537	111537	111537
20	Drain Cock	111329	111329	111329
21	Casing Base	211528	211528	211528
22	Casing Clamp	211600 (4 off)	211600 (4 off)	211600 (4 off)
23	Casing Back Bracket	212012	212012	212012
24	Flue Kit	412031	412031	412031
25	Flue Kit Seal	110721	110721	110721
26	Drip Tray	210693	210693	210693
27	Lagging Jacket	113252	113252	113252
28	Heat Exchanger Jacket	110663	110663	110663
29	Casing Front Insulation	111411C	111411C	111411C
30	Casing Front	211527	211527	211527
31	Casing Fixed Right Panel	211518	211518	211518
32	Casing Fixed Left Panel	211517	211517	211517
33	Casing Removable Left Panel	211521	211521	211521
34	Casing Removable Right Panel	212004	212004	212004
35	Casing Removable Right Panel Insulation	111411E	111411E	111411E
36	Casing Fixed Panel Insulation	111411B (2 off)	111411B (2 off)	111411B (2 off)
37	Casing Top Panel	211519	211519	211519
38	Casing Top Insulation	111411F	111411F	111411F
39	Casing Removable Left Panel Insulation	111411D	111411D	111411D
40	Casing Back Panel Insulation	111411A	111411A	111411A
41	Control Panel	311524	311524	311524
42	Flue Gasket	112104	112104	112104
43	Flue Gas Analysis Blank	110923	110923	110923
44	Stat Pocket	111335	111335	111335
45	Stat Pocket 3 Way	111317	111317	111317
46	Auto Air Vent	111327	111327	111327
47	Pressure Vessel Hose	110660	110660	110660
48	Manual Air Vent	110645	110645	110645
49	Filling Loop Hose	111341	111341	111341
50	Compression Unit 15mm	111331	111331	111331
51	Copper Pipe Part F	111352	111352	111352
52	Double Check Valve	111332	111332	111332
53	Butterfly Valve	111326	111326	111326
54	Copper Pipe Part 6	111347	111347	111347
55	Compression Unit 22mm	112000	112000	112000
56	Pipe Work 1	See detail drawing	See detail drawing	See detail drawing
57	Pipe Work 2	See detail drawing	See detail drawing	See detail drawing
58	Casing Back Panel	211516	211516	211516

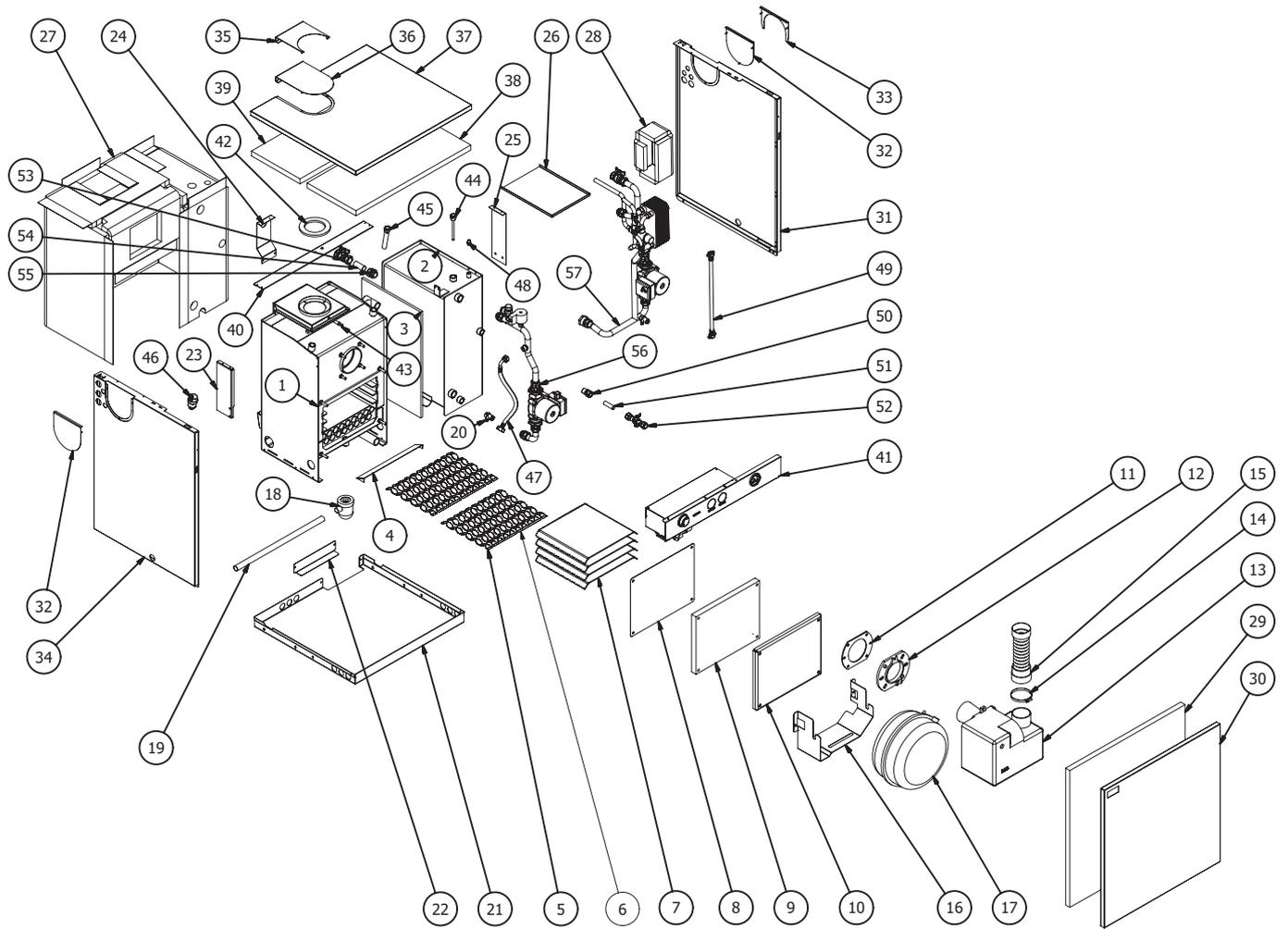
6 6.5 - SLIMLINE HEATPAC & SLIMLINE SYSTEMPAC - PARTS



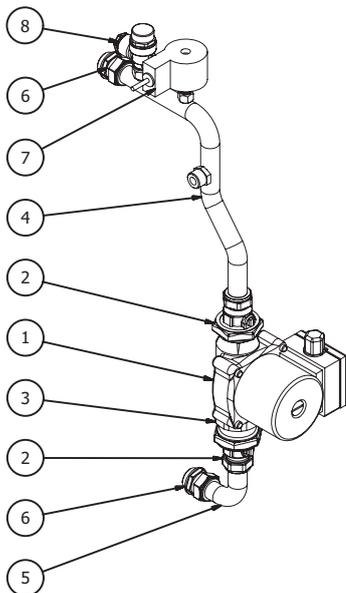
6 6.5 - SLIMLINE HEATPAC & SLIMLINE SYSTEMPAC - PARTS

No.	Description	Slimline Heatpac C20, C26, C35	Slimline Systempac C20, C26, C35
1	Boiler Shell	312134	312733
2	Heat Deflector	210904	210904
3	Tube Baffle 1 Way	110908 (5 off)	110908 (5 off)
4	Tube Baffle 4 Way	110907 (4 off)	110907 (4 off)
5	20/26/35 kW smoke baffle	212022 / 212028 / 212122 (4 off)	212022 / 212028 / 212122 (4 off)
6	Door Gasket	111314	111314
7	Door Duroboard	110918	110918
8	Door	210910	210910
9	Burner Flange Gasket	ZE3005787	ZE3005787
10	Burner Flange	n/a	n/a
11	Burner	410205 / 401206 / 410207	410205 / 401206 / 410207
12	Condensate Trap	112184	112184
13	Condensate Hose 500mm	111537	111537
14	Flue Ring Gasket	112104	112104
15	Vessel Bracket	n/a	210962
16	12L Pressure Vessel	n/a	110658
17	Flangeless Plug	110923	110923
18	Stat Pocket	111317	111317
19	Left Top Bracket	211603	212894
20	Right Top Bracket	211603	211603
21	Casing Base	211594	211594
22	Boiler to Base Bracket	211600	211600
23	Casing Front	211604	211604
24	Casing Front Lagging	112010C	112010C
25	Boiler Lagging	110917	110917
26	Casing Side Lagging	112010D	112010D
27	Casing Top Lagging	112010E	112010E
28	Casing Flue Outlet Lagging	112010B	112010B
29	Casing Back Lagging	112010A	112010A
30	Casing Left Side	211607	211607
31	Casing Right Side	211608	211608
32	Casing Top	211609	211609
33	Casing Back	211605	211605
34	Casing Flue Outlet	211606	211606
35	Control Panel	311146	313261
-	Pressure Switch	n/a	110607
36	Terminal Guard Plate	213027	213027
37	Terminal Guard	111289	111289
38	Flue Seal	110721	110721
39	Flue Kit	411482	411482
40	Flue Bend 90°	413006	413006
41	Cone	412049	412049
42	Flexible Hose	n/a	n/a
43	System Pipe No. 3	n/a	110971
44	G1/2" to 15mm BSP Compression	n/a	111331
45	Double Check Valve	n/a	111332
46	Flexible Hose G 1/2" 400mm	n/a	111341
47	System Pipe No. 1	n/a	110969
48	System Pipe No. 2	n/a	110970
49	Pressure Switch	n/a	110607
50	Auto Air Vent	n/a	111327
51	Pump Valve	n/a	110644
52	Circulating Pump	n/a	410647
53	Recessed Pump Adaptor	n/a	110648
54	Compression Union	n/a	112000
55	Safety Release Valve	n/a	111353

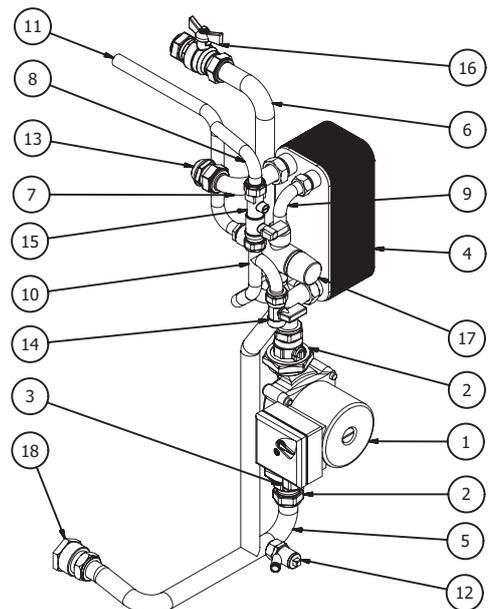
6 6.6 - COMBI - PARTS



Pipe work 1



Pipe work 2



6 6.6 - COMBI - PARTS

No.	Description	C20	C26	C35
1	Boiler Shell	312135	312135	312135
2	Tank	310628	310628	310628
3	Tank Insulation	111431	111431	111431
4	Heat Deflector	210904	210904	210904
5	Tube Baffle 1 Way	110908 (5 off)	110908 (5 off)	110908 (5 off)
6	Tube Baffle 4 Way	110907 (4 off)	110907 (4 off)	110907 (4 off)
7	Smoke Baffle	212022 (4 off)	212028 (4 off)	212122 (4 off)
8	Graphite Door Seal	111314	111314	111314
9	Door Gasket	110918	110918	110918
10	Boiler Door	210910	210910	210910
11	Burner Insulation Gasket	2567398	2567398	2567398
12	Burner Flange	2567398	2567398	2567398
13	Burner	410205	410206	410207
14	Jubilee Clip	110481	110481	110481
15	Air Hose	111902	111902	111902
16	Pressure Vessel Bracket	210962	210962	210962
17	Pressure Vessel	110658	110658	110658
18	Condensate Trap	112184	112184	112184
19	Condensate Hose	111537	111537	111537
20	Drain Cock	111329	111329	111329
21	Casing Base	211151	211151	211151
22	Casing Base Blank	211546	211546	211546
23	Casing Left Bracket	210915	210915	210915
24	Casing Back Bracket	210916	210916	210916
25	Casing Right Bracket	210681	210681	210681
26	Drip Tray	210693	210693	210693
27	Lagging Jacket	113252	113252	113252
28	Heat Exchanger Jacket	110663	110663	110663
29	Casing Front Insulation	111743	111743	111743
30	Casing Front	111534	111534	111534
31	Casing Right Panel	111532	111532	111532
32	Casing Side Blank 1	113031	113031	113031
33	Casing Side Blank 2	113032	113032	113032
34	Casing Left Panel	111530	111530	111530
35	Casing Flue Trim	111536	111536	111536
36	Casing Flue Blank	111533	111533	111533
37	Casing Top Panel	111535	111535	111535
38	Casing Top Insulation 1	111744A	111744A	111744A
39	Casing Top Insulation 2	111744B	111744B	111744B
40	Casing Back Support	111531	111531	111531
41	Control Panel	111619	111619	111619
42	Flue Gasket	112104	112104	112104
43	Flue Gas Analysis Blank	110923	110923	110923
44	Stat Pocket	111335	111335	111335
45	Stat Pocket 3 Way	111317	111317	111317
46	Auto Air Vent	111327	111327	111327
47	Pressure Vessel Hose	110660	110660	110660
48	Manual Air Vent	110645	110645	110645
49	Filling Loop Hose	111341	111341	111341
50	Compression Unit 15mm	111331	111331	111331
51	Copper Pipe Part F	111352	111352	111352
52	Double Check Valve	111332	111332	111332
53	Butterfly Valve	111326	111326	111326
54	Copper Pipe Part 6	111347	111347	111347
55	Compression Unit 22mm	112000	112000	112000

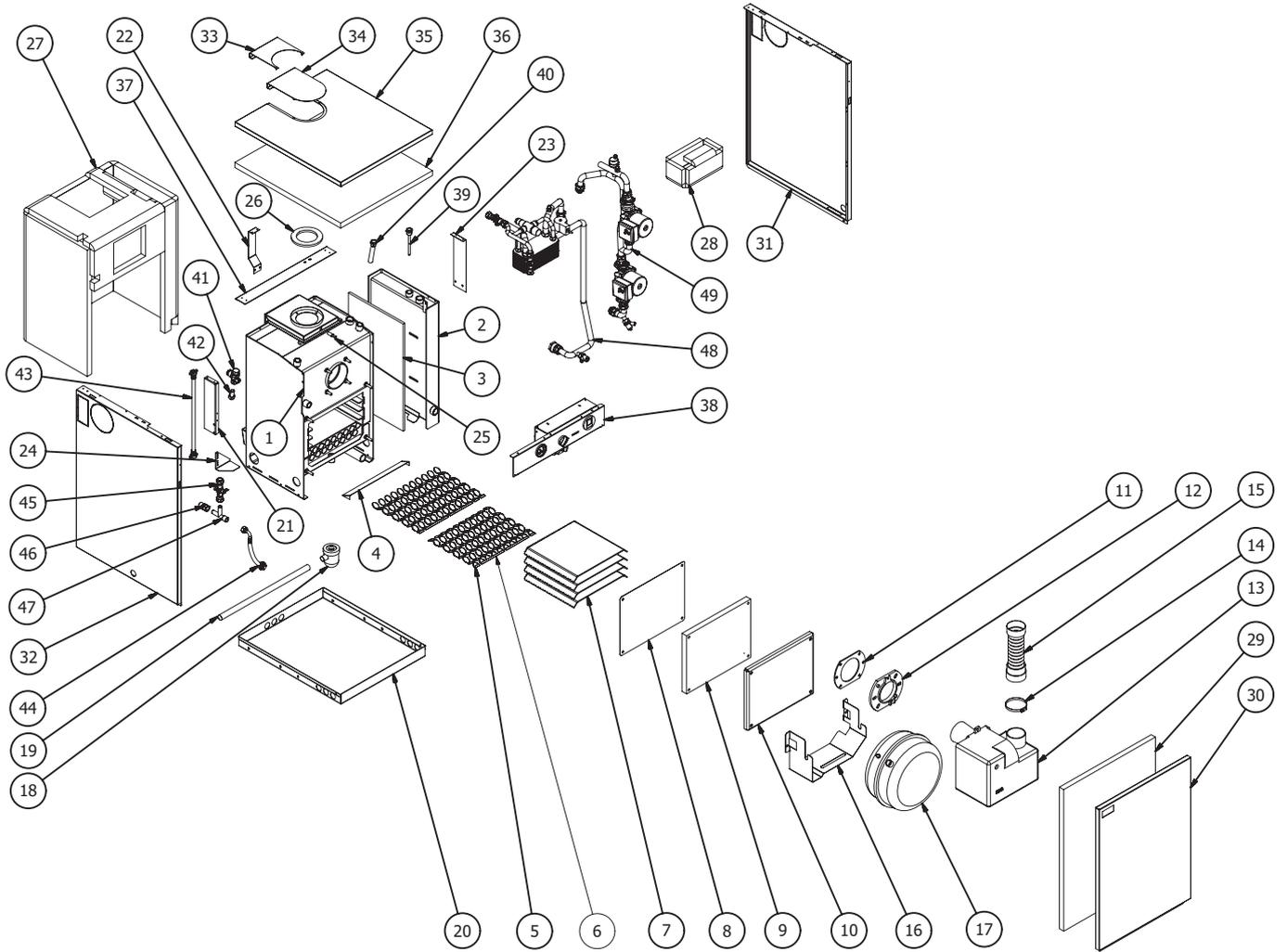
Pipe Work 1

1	Grundfos Circulating Pump 25-60	FC03102	FC03102	FC03102
2	Pump Valve 22mm	FC03101 (2 off)	FC03101 (2 off)	FC03101 (2 off)
3	Recessed Pump Adaptor	110648	110648	110648
4	Copper Pipe Part 1	111342	111342	111342
5	Copper Pipe Part 2			
6	3/4 To 22mm Compression	112000 (2 off)	112000 (2 off)	112000 (2 off)
7	Pressure Switch New	110607	110607	110607
8	0.5 Bsp Safety Release Valve	111353	111353	111353

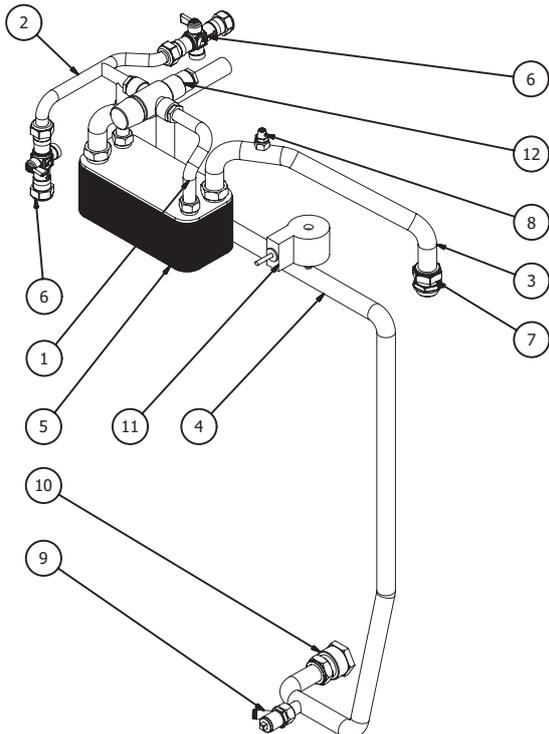
Pipe Work 2

1	Grundfos Circulating Pump 25-60	FC03102	FC03102	FC03102
2	Pump Valve 22mm	FC03101 (2 off)	FC03101 (2 off)	FC03101 (2 off)
3	Recessed Pump Adaptor	110648	110648	110648
4	31 Plate Brazed Heat Exchanger	110651	110651	110651
5	Copper Pipe Part 3A	111344	111344	111344
6	Copper Pipe Part 4	111345	111345	111345
7	Copper Pipe Part 5	111346	111346	111346
8	Copper Pipe Part A	111348	111348	111348
9	Copper Pipe Part C	111350	111350	111350
10	Copper Pipe Part E	111351	111351	111351
11	Copper Pipe Part G	111349	111349	111349
12	1/2" Drain Cock	111329	111329	111329
13	3/4 To 22mm Compression	112000	112000	112000
14	Check Valve 15mm	111820	111820	111820
15	Check Valve 15mm With Lock	111353A	111353A	111353A
16	Butterfly Valve	111326	111326	111326
17	Thermostatic Mixing Valve	FC03080	FC03080	FC03080
18	1 Bsp With 22mm Female Coupler	110786	110786	110786

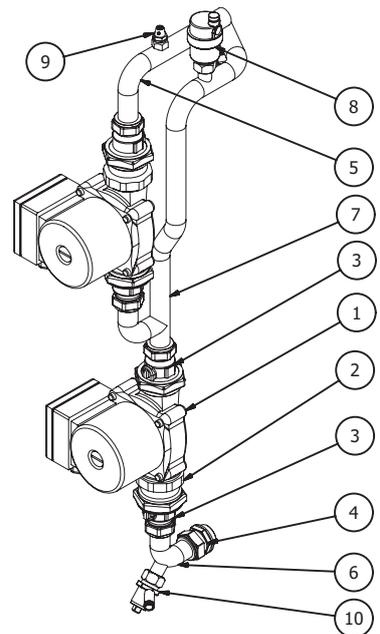
6 6.7 - SLIMLINE COMBI - PARTS



Pipe work 1



Pipe work 2



6 6.7 - SLIMLINE COMBI - PARTS

No.	Description	C20	C26	C35
1	Boiler Shell	312283	312283	312283
2	Tank	312284	312284	312284
3	Tank Insulation	112288	112288	112288
4	Heat Deflector	210904	210904	210904
5	Tube Baffle 1 Way	110908 (5 off)	110908 (5 off)	110908 (5 off)
6	Tube Baffle 4 Way	110907 (4 off)	110907 (4 off)	110907 (4 off)
7	Smoke Baffle	212022 (4 off)	212028 (4 off)	212122 (4 off)
8	Graphite Door Seal	111314	111314	111314
9	Door Gasket	110918	110918	110918
10	Boiler Door	210910	210910	210910
11	Burner Insulation Gasket	2567398	2567398	2567398
12	Burner Flange	2567398	2567398	2567398
13	Burner	410205	410206	410207
14	Jubilee Clip	110481	110481	110481
15	Air Hose	111902	111902	111902
16	Pressure Vessel Bracket	210962	210962	210962
17	Pressure Vessel	110658	110658	110658
18	Condensate Trap	112184	112184	112184
19	Condensate Hose	111537	111537	111537
20	Casing Base	212271	212271	212271
21	Casing Left Bracket	212273	212273	212273
22	Casing Back Bracket	212272	212272	212272
23	Casing Right Bracket	212274	212274	212274
24	Heat Exchanger Support	212610	212610	212610
25	Flue Gas Analysis Blank	110923	110923	110923
26	Flue Gasket	112104	112104	112104
27	Lagging Jacket	112285	112285	112285
28	Heat Exchanger Jacket	110663	110663	110663
29	Casing Front Insulation	112289	112289	112289
30	Casing Front	112269	112269	112269
31	Casing Right Panel	112267	112267	112267
32	Casing Left Panel	112266	112266	112266
33	Casing Flue Trim	111536	111536	111536
34	Casing Flue Blank	111533	111533	111533
35	Casing Top Panel	112268	112268	112268
36	Casing Top Insulation	112290	112290	112290
37	Casing Back Support	112270	112270	112270
38	Control Panel	312286	312286	312286
39	Stat Pocket	111335	111335	111335
40	Stat Pocket 3 Way	111317	111317	111317
41	Safety Release Valve	111353	111353	111353
42	Copper Pipe 8	112609	112609	112609
43	Filling Loop Hose	111341	111341	111341
44	Pressure Vessel Hose	110660	110660	110660
45	Double Check Valve	111332	111332	111332
46	Compression Unit 15mm	111331	111331	111331
47	Copper Pipe 3	110971	110971	110971

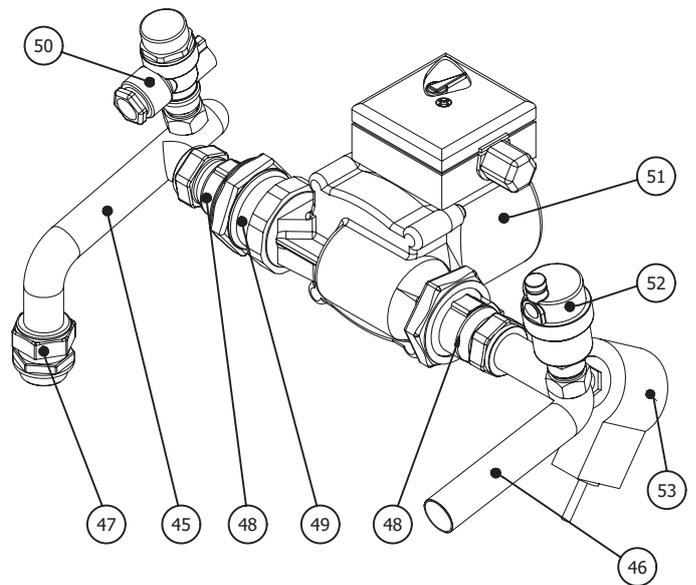
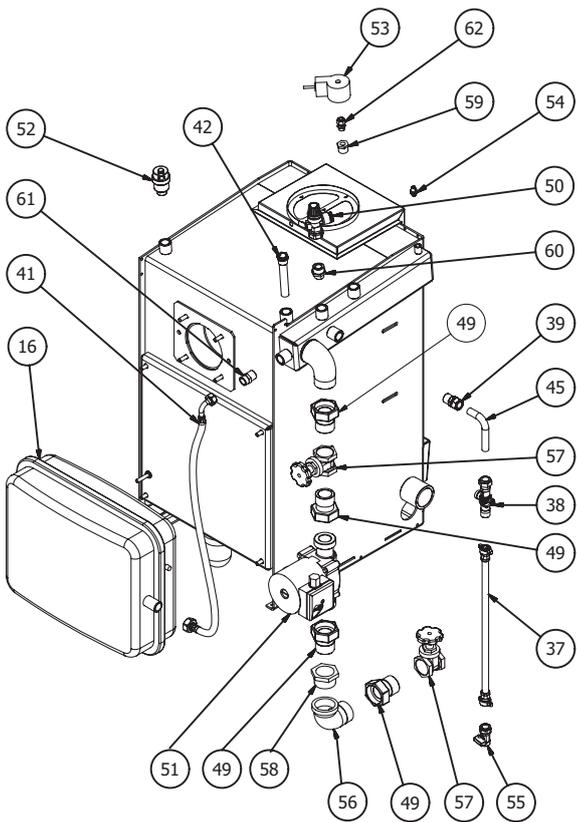
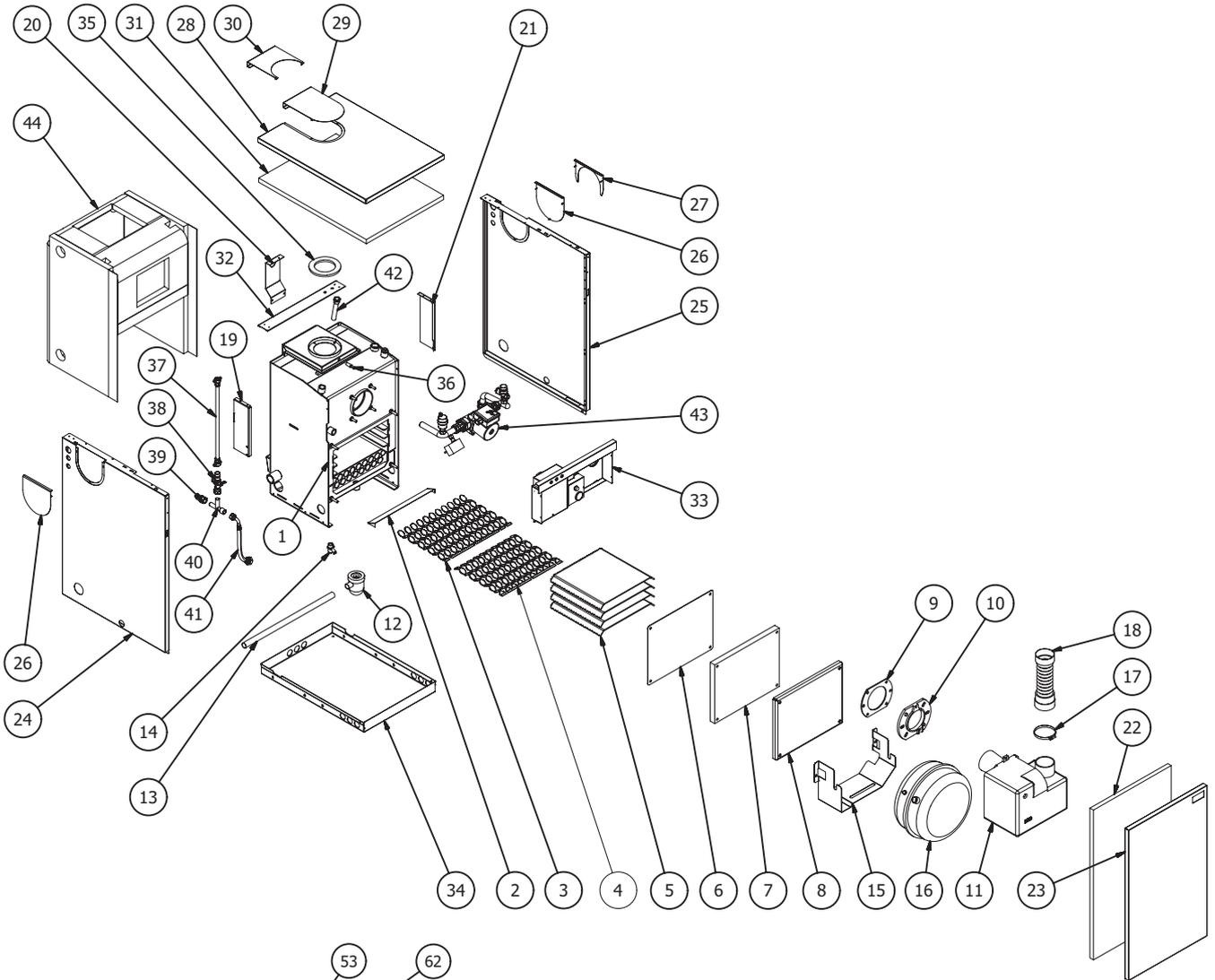
Pipe Work 1

1	E20 Slimline Combi Pipe 1	112276	112276	112276
2	E20 Slimline Combi Pipe 2	112277	112277	112277
3	E20 Slimline Combi Pipe 3	112278	112278	112278
4	E20 Slimline Combi Pipe 7	112282	112282	112282
5	31 Plate Brazed Heat Exchanger	110651	110651	110651
6	Double Check Valve 15mm	111332 (2 off)	111332	111332
7	3/4 To 22 Mm Compression	112000	112000	112000
8	1/8" Manual Air Vent	110645	110645	110645
9	1/2" Drain Cock	111329	111329	111329
10	1 Bsp With 22mm Female Coupler	110786	110786	110786
11	Pressure Switch New	110607	110607	110607
12	Thermostatic Mixing Valve	FC03080	FC03080	FC03080

Pipe Work 2

1	Grundfos Circulating Pump 25-60	FC03102 (2 off)	FC03102 (2 off)	FC03102 (2 off)
2	Recessed Pump Adaptor	110648 (2 off)	110648 (2 off)	110648 (2 off)
3	Pump Valve 22mm	FC03101 (4 off)	FC03101 (4 off)	FC03101 (4 off)
4	3/4 To 22mm Compression	112000 (2 off)	112000 (2 off)	112000 (2 off)
5	E20 Slimline Combi Pipe 4	112279	112279	112279
6	E20 Slimline Combi Pipe 5	112280	112280	112280
7	E20 Slimline Combi Pipe 6	112281	112281	112281
8	Auto Air Vent 1/2" Bsp	111327	111327	111327
9	1/8" Manual Air Vent	110645	110645	110645
10	1/2" Drain Cock	111329	111329	111329

6 6.8 - SYSTEM - PARTS



6 6.8 - SYSTEM - PARTS

No.	Description	C20	C26	C35	C44
1	Boiler Shell	312133	312133	312133	311783
2	Heat Deflector	210904	210904	210904	211643
3	Tube Baffle 1 Way	110908 (5 off)	110908 (5 off)	110908 (5 off)	111502 (8 off)
4	Tube Baffle 4 Way	110907 (4 off)	110907 (4 off)	110907 (4 off)	111503 (6 off)
5	Smoke Baffle	212022 (4 off)	212028 (4 off)	212122 (4 off)	211651 (8 off)
6	Graphite Door Seal	111314	111314	111314	111646
7	Door Gasket	110918	110918	110918	111645
8	Boiler Door	210910	210910	210910	211644
9	Burner Insulation Gasket	ZE2567398	ZE2567398	ZE2567398	ZE2567398
10	Burner Flange	ZE2567398	ZE2567398	ZE2567398	ZE2567398
11	Burner	410205	410206	410207	410209
12	Condensate Trap	112184	112184	112184	112184
13	Condensate Hose	111537	111537	111537	111537
14	Drain Cock	111329	111329	111329	111329
15	Pressure Vessel Bracket	210962	210962	210962	n/a
16	Pressure Vessel	110658	110658	110658	110755
17	Jubilee Clip	110481	110481	110481	110841
18	Air Hose	111902	111902	111902	111902
19	Casing Left Bracket	212321	212321	212321	211805A
20	Casing Back Bracket	210916	201916	210916	211770
21	Casing Right Bracket	210915B	210915B	210915B	211797
22	Casing Front Insulation	110937	110937	110937	111788
23	Casing Front	111376	111376	111376	111787
24	Casing Left Panel	111374A	111374A	111374A	111786
25	Casing Right Panel	111374B	111374B	111374B	111792
26	Casing Side Blank 1	113031	113031	113031	n/a
27	Casing Side Blank 2	113032	113032	113032	n/a
28	Casing Top	111375	111375	111375	111793
29	Casing Flue Blank	111388	111388	111388	111586
30	Casing Flue Trim	111397	111397	111397	111587
31	Casing Top Insulation	111794	111794	111794	111789&111791
32	Casing Back Support	111596	111596	111596	111790
33	Control Panel	311670	311670	311670	313320
34	Casing Base	210914	210914	210914	211795
35	Flue Gasket	112104	112104	112104	112105
36	Flue Gas Analysis Blank	110923	110923	110923	110923
37	Filling Loop Hose	111341	111341	111341	111341
38	Double Check Valve	111332	111332	111332	111332
39	Compression Unit 15mm	111331	111331	111331	111331
40	System Pipe 3	110971	110971	110971	n/a
41	Pressure Vessel Hose	110660	110660	110660	110660
42	Stat Pocket	111317	111317	111317	111317
43	Pipe Work	See detail drawing	See detail drawing	See detail drawing	See detail drawing
44	Lagging Jacket	110917	110917	110917	111653
45	System Pipe 1	110969	110969	110969	111348
46	System Pipe 2	110970	110970	110970	n/a
47	Compression Unit 22mm	112000	112000	112000	n/a
48	Pump Valve	110644	110644	110644	110644
49	Recessed Pump Adapter	110648	110648	110648	110760
50	Safety Release Valve	111353	111353	111353	111353
51	Circulating Pump	410647	410647	410647	414040
52	Automatic Air Vent	111327	111327	111327	111327
53	Pressure Switch	110607	110607	110607	110607
54	Manual Air Vent	n/a	n/a	n/a	110645
55	Check Valve	n/a	n/a	n/a	111820
56	Elbow	n/a	n/a	n/a	110756
57	Gate Valve	n/a	n/a	n/a	110758
58	Reducing Bushing	n/a	n/a	n/a	110735
59	Reducing Bushing	n/a	n/a	n/a	110764
60	Reducing Nipple	n/a	n/a	n/a	110763
61	Nipple	n/a	n/a	n/a	110675
62	Pressure Switch Adapter	n/a	n/a	n/a	n/a

7 7.1 - POPULAR - WIRING

ELECTRICAL SUPPLY

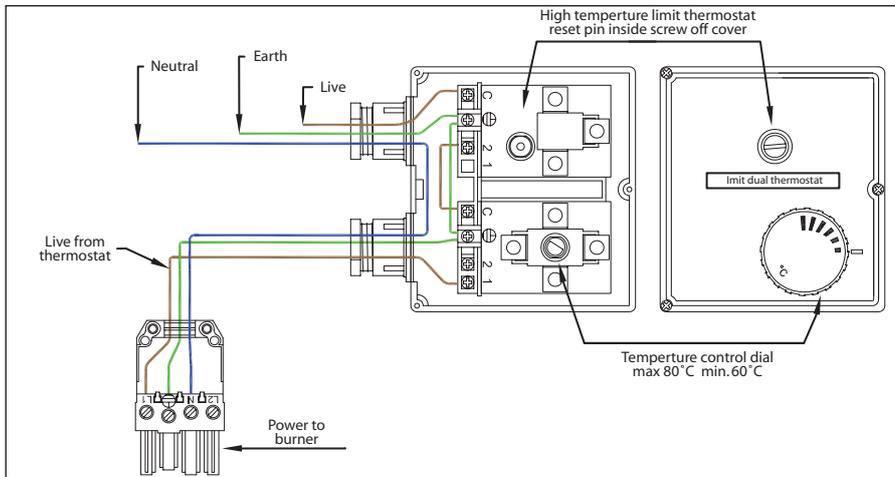
The boiler and controls require 230V 1 phase 50Hz mains electric supply protected with a 5amp fuse.

This appliance must be earthed.

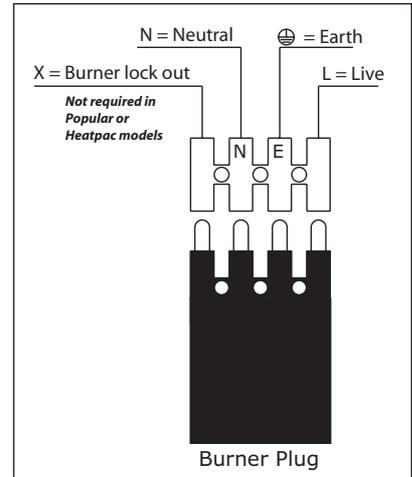
A qualified electrician must carry out all electric wiring in accordance with current I.E.E Regulations and any local regulations which may apply.

The mains electrical supply must be taken from a double pole isolating switch with a 5amp fuse, positioned somewhere close to the boiler. A heat resisting cable must be used which can be routed into the boiler through the access provided on either side of the base. Ancillary controls may be provided for with terminal connections in the control panel.

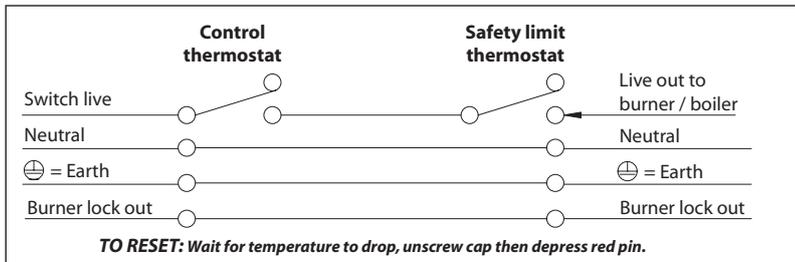
IMIT DUAL THERMOSTAT



4 PIN BURNER PLUG



SCHEMATIC DIAGRAM

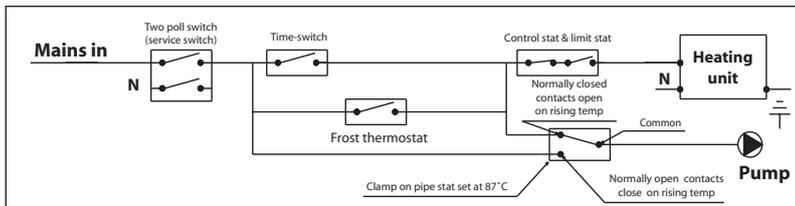


IMPORTANT

When connecting the mains supply to this unit ensure that:

- 1 Double insulated heat resistant cable is used.
- 2 No single insulated cable is exposed at connection points on the (thermostat, burner, plug and socket).
- 3 All relevant lids and covers are properly replaced and secured correctly.
- 4 A permanent power supply (not timed) should be available at boiler location. This can be used for a frost thermostat and or an over heat thermostat, should either or both be needed.

OVER RUN DIAGRAM FOR CIRCULATING PUMP



7 7.2 - KITCHEN - WIRING

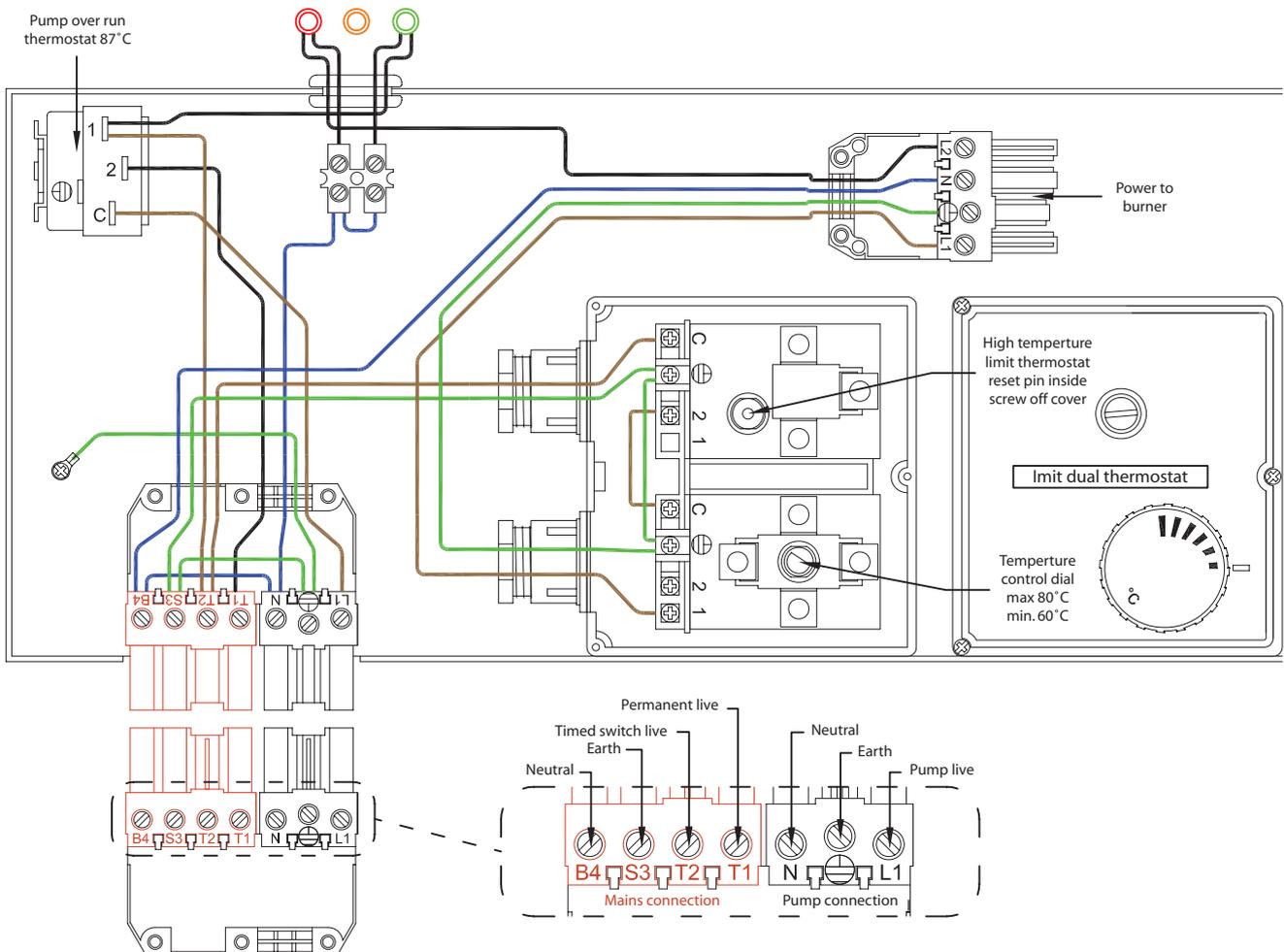
ELECTRICAL SUPPLY

The boiler and controls require 230V 1 phase 50Hz mains electric supply protected with a 5amp fuse.

This appliance must be earthed.

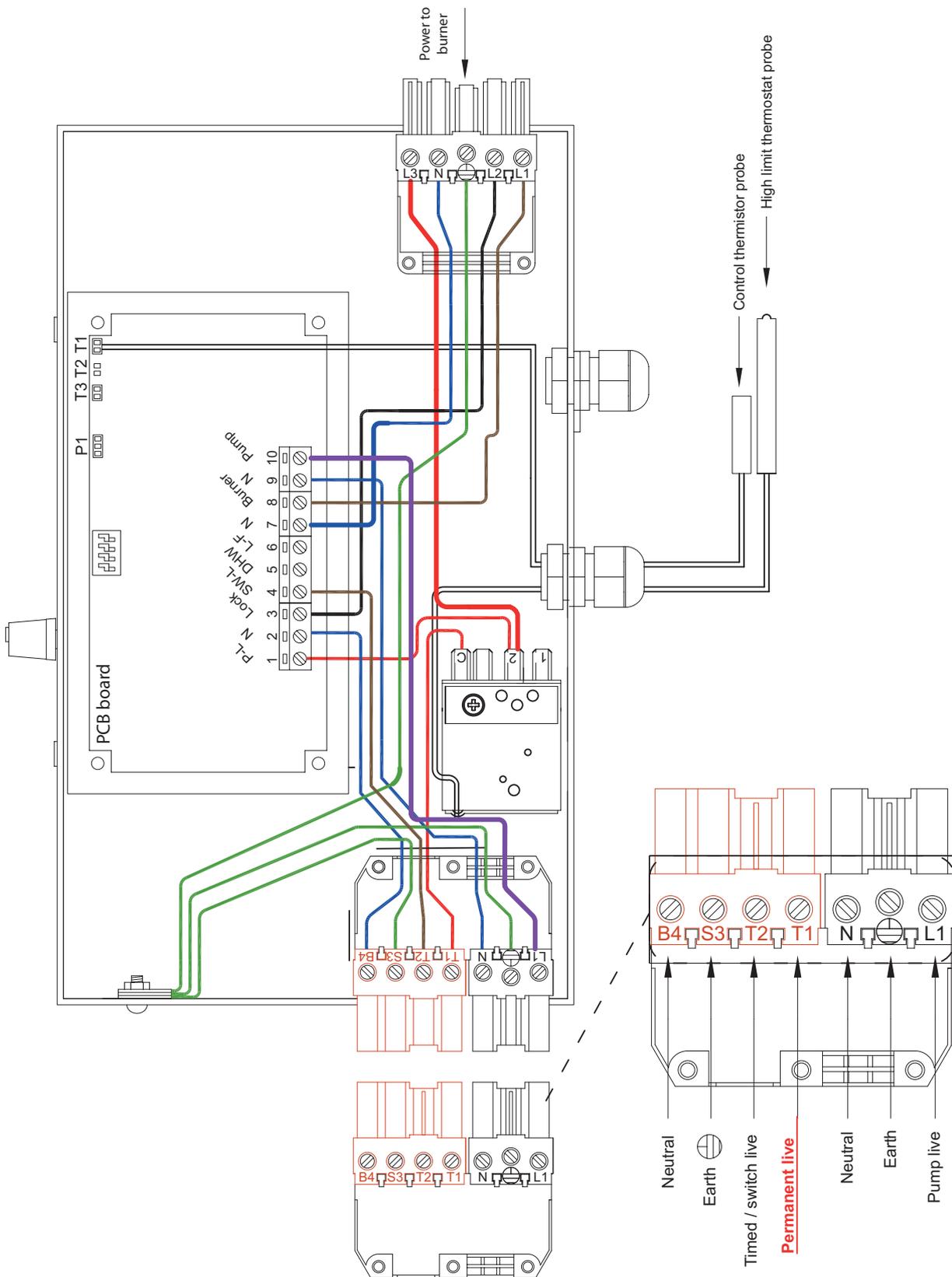
A qualified electrician must carry out all electric wiring in accordance with current I.E.E Regulations and any local regulations which may apply.

The mains electrical supply must be taken from a double pole isolating switch with a 5amp fuse, positioned somewhere close to the boiler. A heat resisting cable must be used which can be routed into the boiler through the access provided on either side of the base. Ancillary controls may be provided for with terminal connections in the control panel.



Use heat resistant cable. Protect supply with 5amp fuse.

7 7.2 - KITCHEN - WIRING



Use heat resistant cable. Protect supply with 5amp fuse.

7 7.3 - HEATPAC & SYSTEMPAC - WIRING

ELECTRICAL SUPPLY

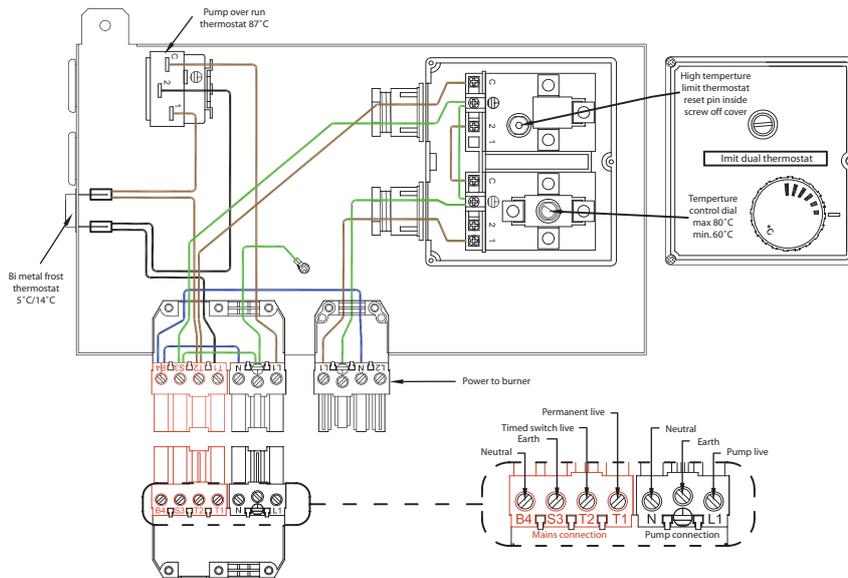
The boiler and controls require 230V 1 phase 50Hz mains electric supply protected with a 5amp fuse.

This appliance must be earthed.

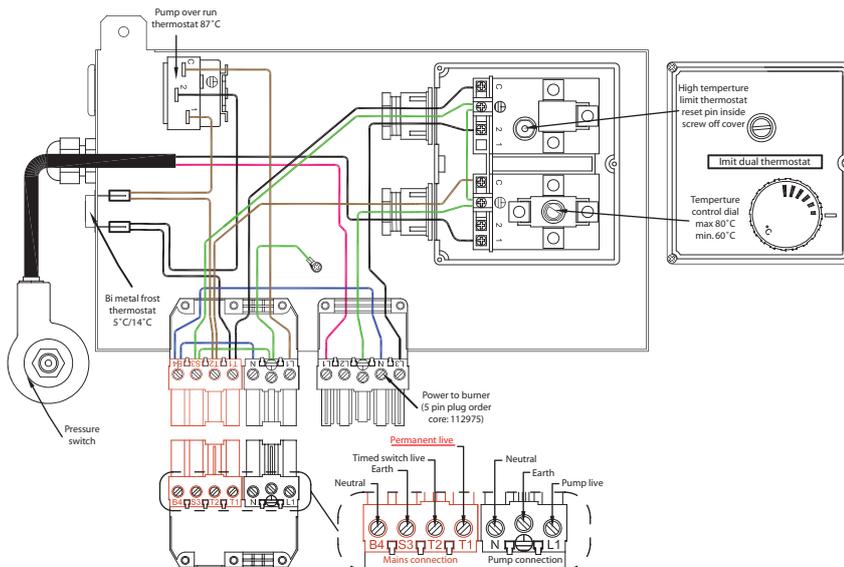
A qualified electrician must carry out all electric wiring in accordance with current I.E.E Regulations and any local regulations which may apply.

The mains electrical supply must be taken from a double pole isolating switch with a 5amp fuse, positioned somewhere close to the boiler. A heat resisting cable must be used which can be routed into the boiler through the access provided on either side of the base. Ancillary controls may be provided for with terminal connections in the control panel.

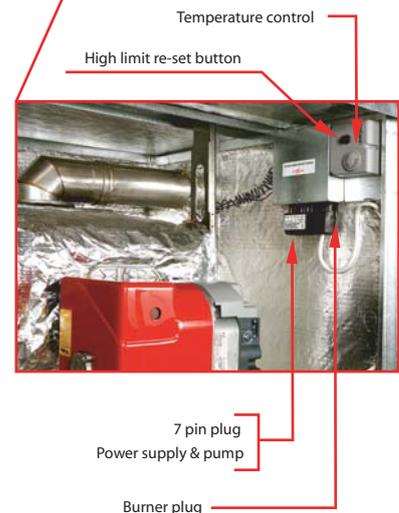
Heatpac Wiring



Systempac Wiring



- Please note a permanent live connection is required to operate post-Purge function on the RDB burner.
- If permanent live supply is not provided the burner will still operate as normal, albeit without the post purge feature.



**Use heat resistant cable.
Protect supply with 5amp fuse.**

IMPORTANT

1. Ensure all wiring and earthing is carried out strictly to best practice and national standards.
2. Protect supply with a 5 amp fuse.
3. Use heat resistant cable.
4. Route and secure all leads away from hot parts of this appliance.

WARNING:

The manufacturer cannot accept responsibility for any damage to persons, animals or property due to error in installation or in the boiler. Or due to improper or unreasonable use or non-observance of the technical instructions enclosed with the boiler, or due to the intervention of unqualified personnel.

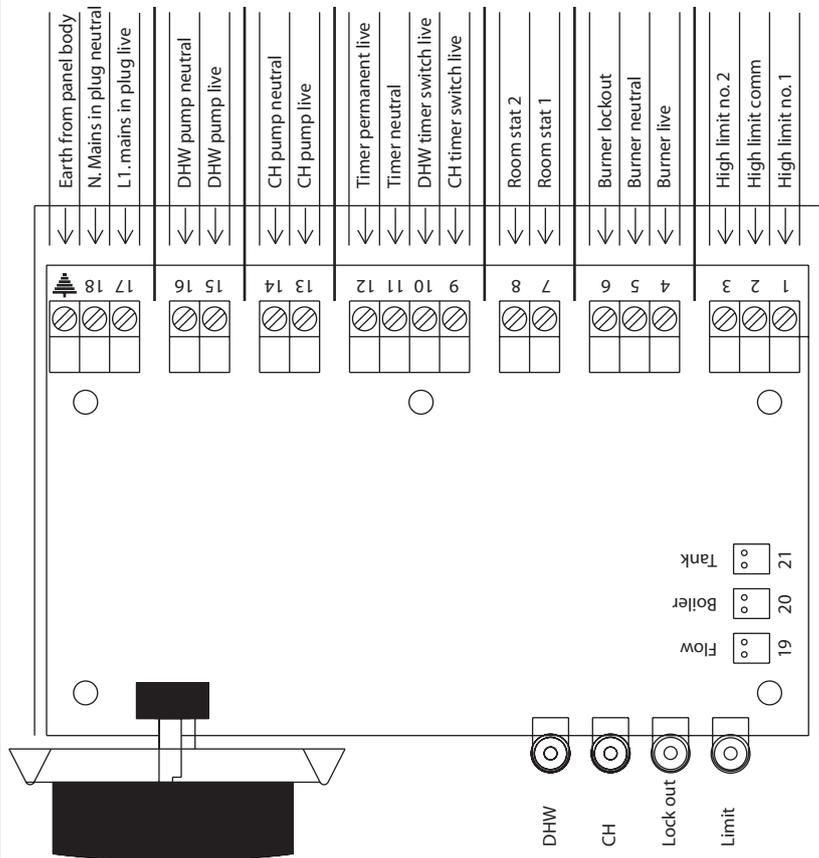
ELECTRICAL SUPPLY:

The boiler and controls require 230V 1 phase 50Hz electric supply protected with a 5amp fuse.

THIS APPLIANCE MUST BE EARTHED

A qualified electrician must carry out all electric wiring in accordance with current I.E.E regulations and any local regulations which may apply. The mains electrical supply must be taken from a double pole isolating switch with a 5amp fuse, positioned somewhere close to the boiler. Heat resisting cable must be used which can be routed into the boiler through the access provided on either side of the base. Ancillary controls may be provided for with terminal connections in the control panel.

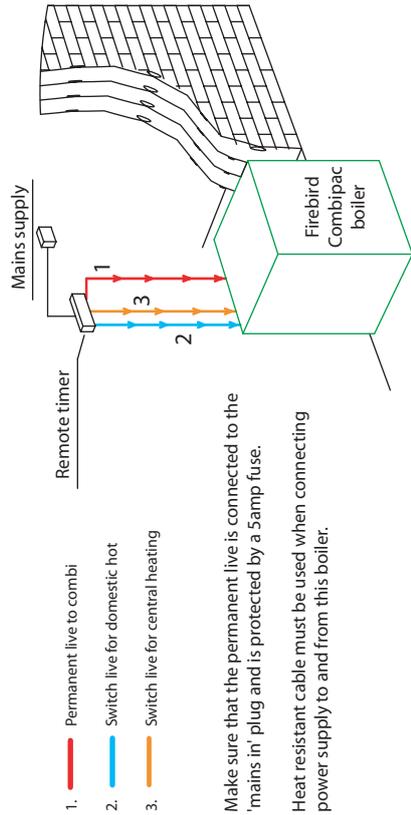
PCB Board



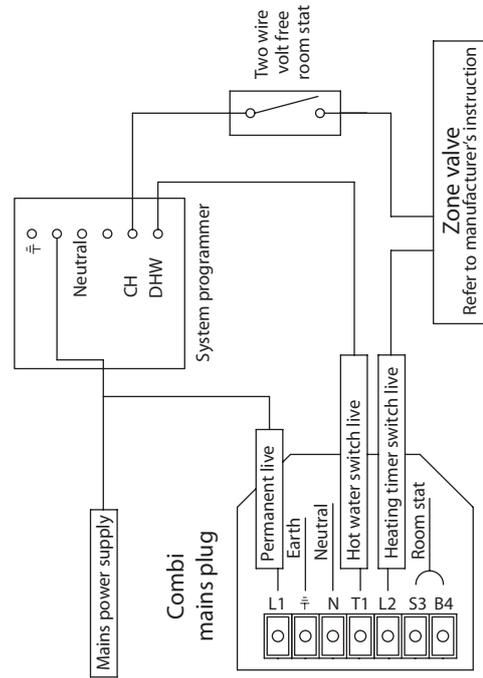
IMPORTANT

When connecting the Combi to a remote single channel timer or programmable room stat, or a two gang timer, follow instructions shown in diagrams below.

The permanent live to a Combi is needed for an over heat thermostat, and for a frost thermostat in the case of the Firebird Combipac.

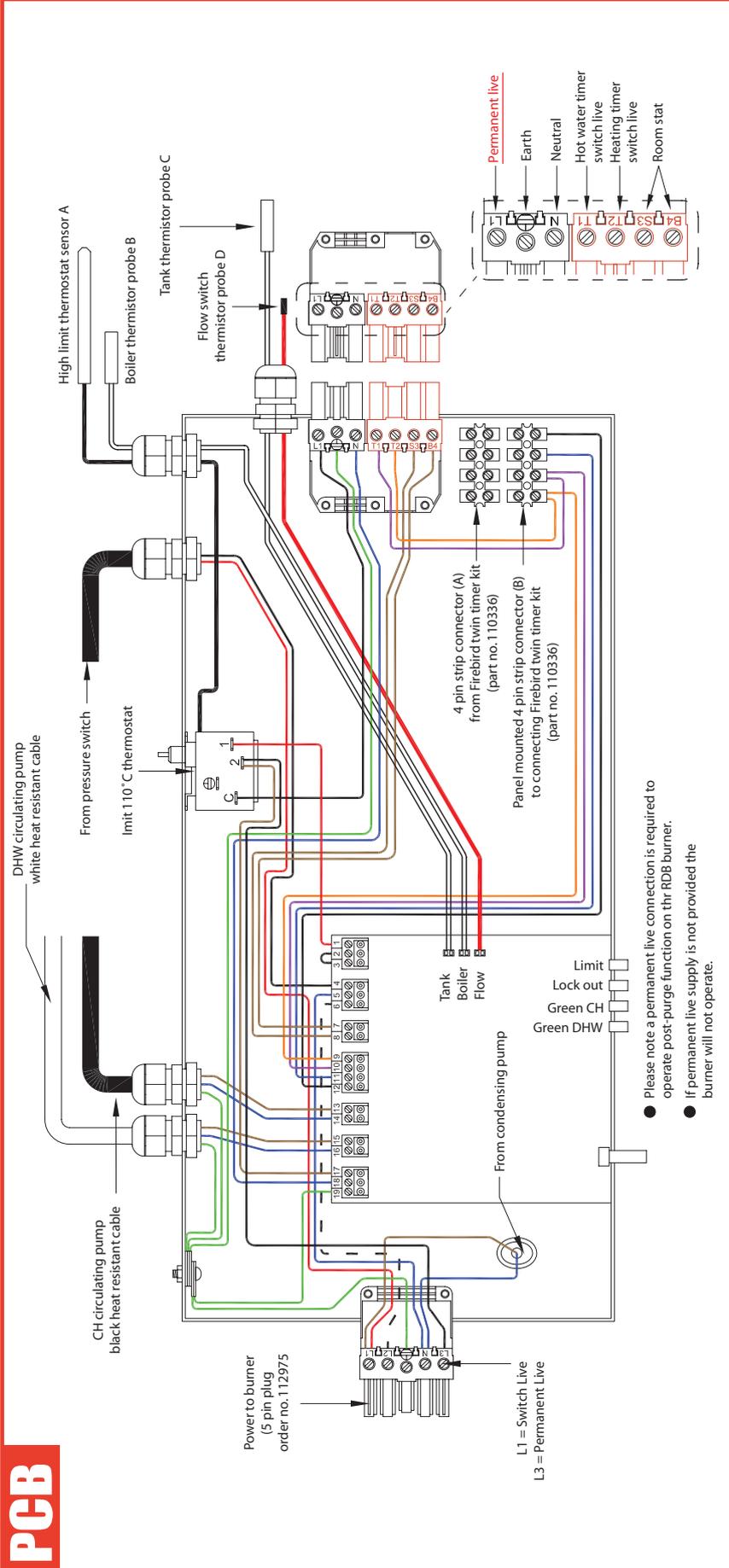


Mains Plug Wiring for Combi and Combipac.



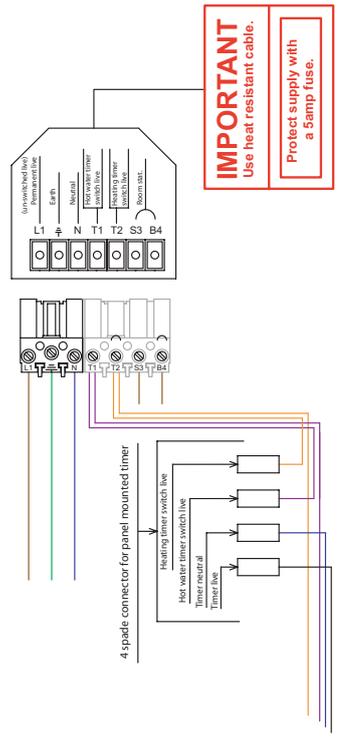
Use heat resistant cable. Protect supply with 5amp fuse.

PCB



- Please note a permanent live connection is required to operate post-purge function on the RDB burner.
- If permanent live supply is not provided the burner will not operate.

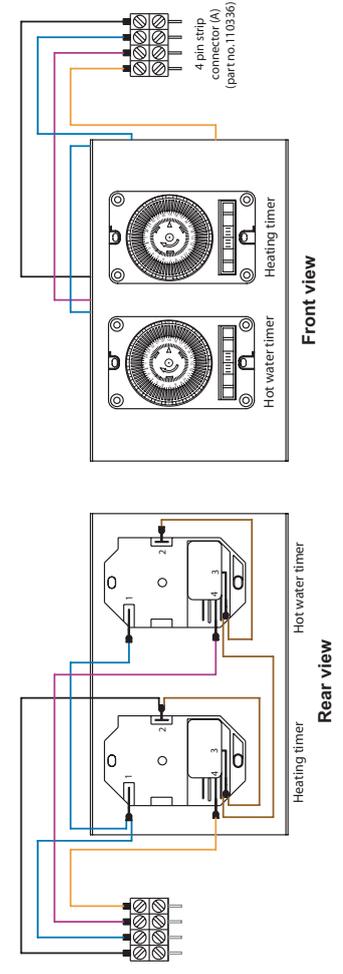
Slimline Combi panel timer connections



IMPORTANT
Use heat resistant cable.

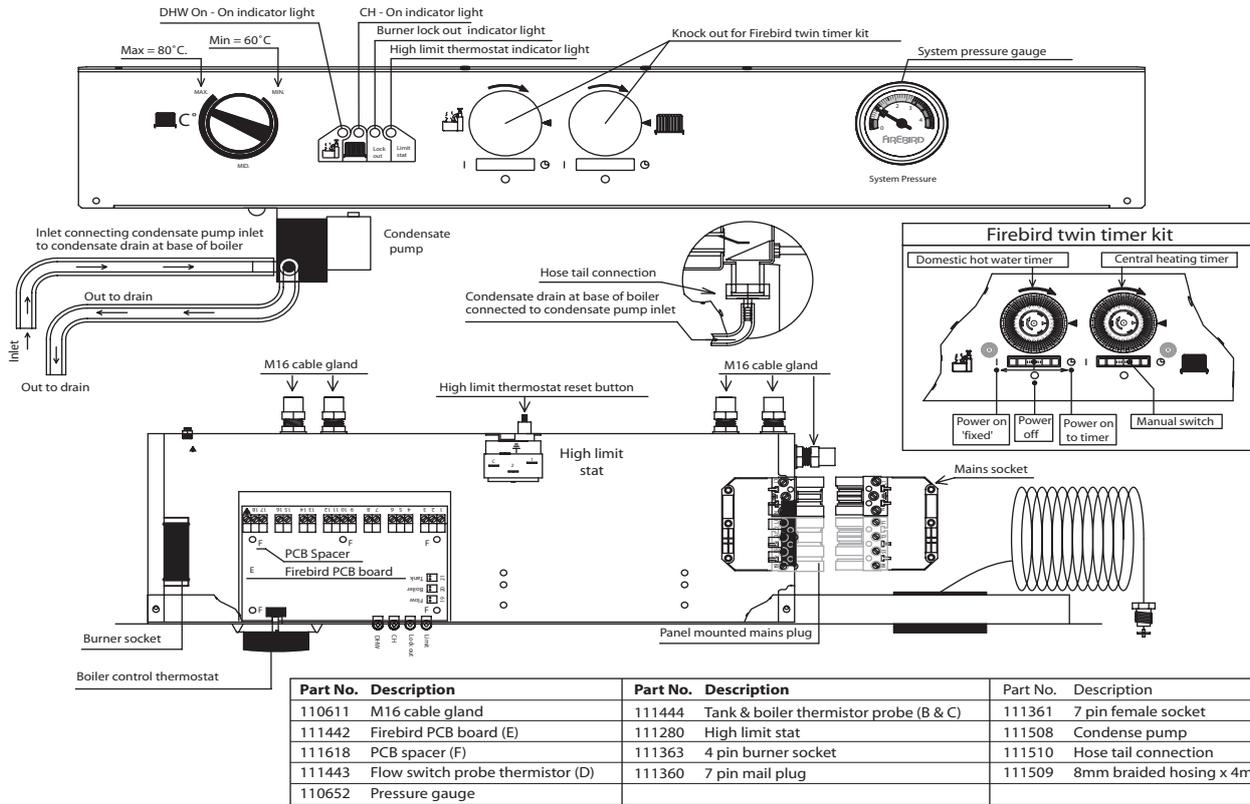
Protect supply with a 5amp fuse.

Firebird twin timer kit

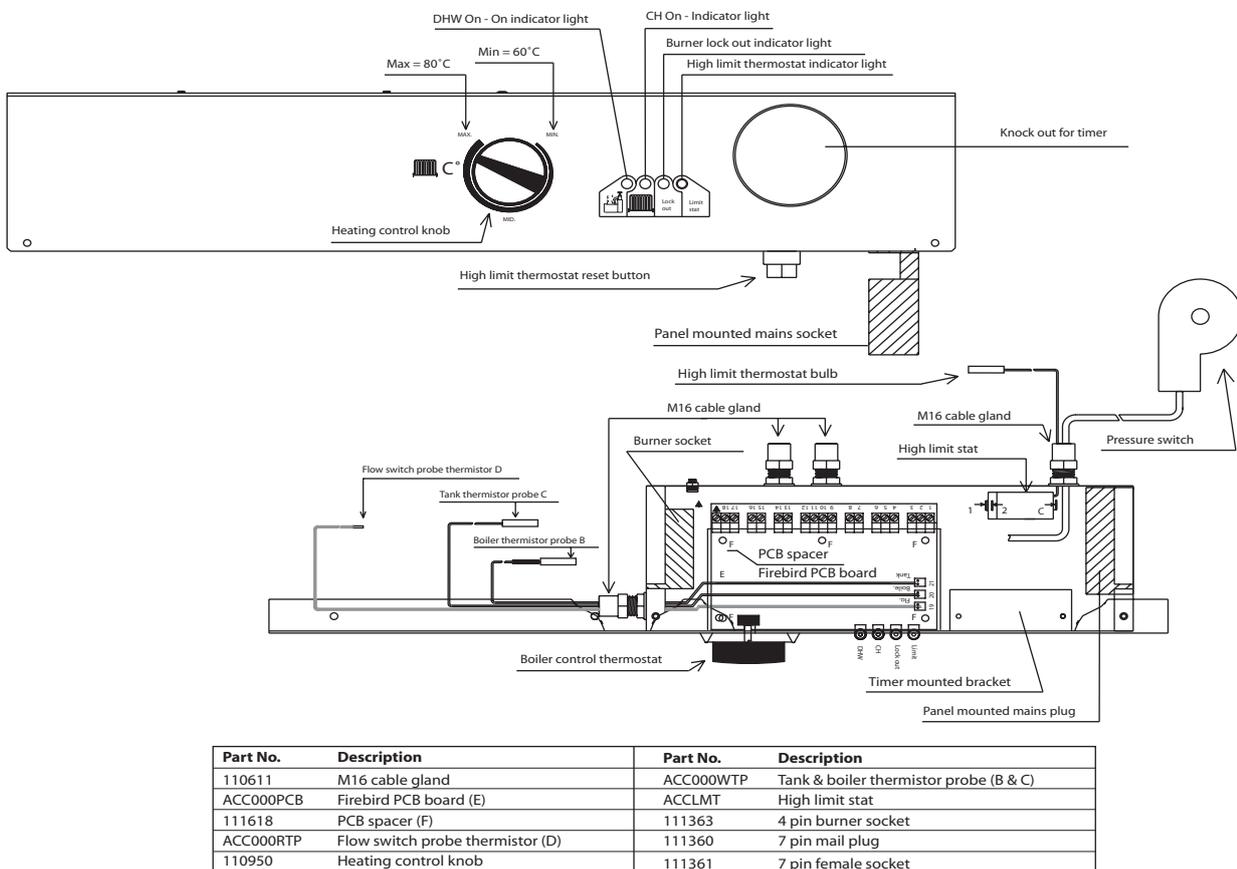


7 7.5 - COMBI & SLIMLINE COMBI - PCB PANEL

Combi PCB Panel



Slimline Combi PCB Panel



7 7.6 - SYSTEM - WIRING

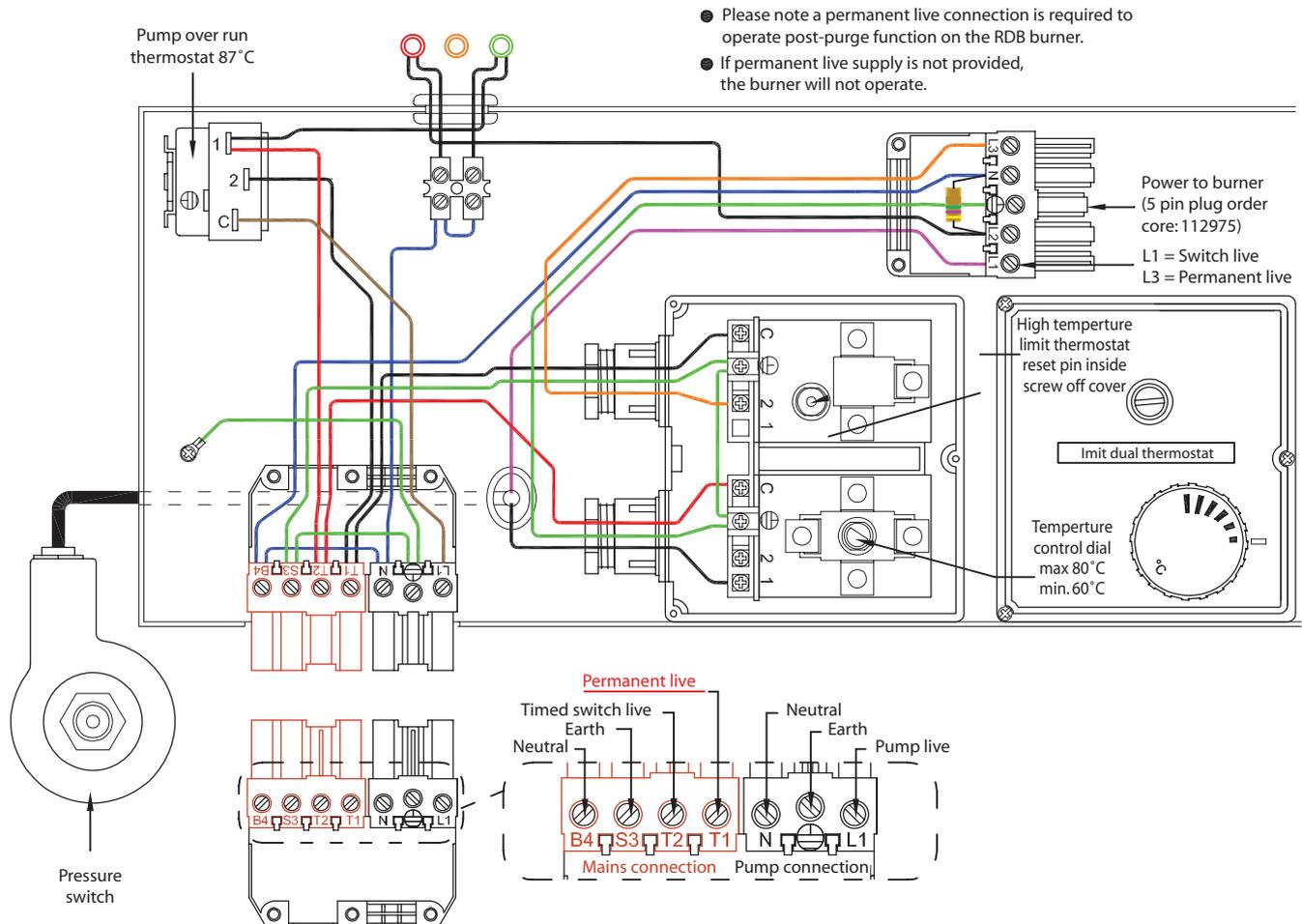
ELECTRICAL SUPPLY

The boiler and controls require 230V 1 phase 50Hz mains electric supply protected with a 5amp fuse.

This appliance must be earthed.

A qualified electrician must carry out all electric wiring in accordance with current I.E.E Regulations and any local regulations which may apply.

The mains electrical supply must be taken from a double pole isolating switch with a 5amp fuse, positioned somewhere close to the boiler. A heat resisting cable must be used which can be routed into the boiler through the access provided on either side of the base. Ancillary controls may be provided for with terminal connections in the control panel.



Use heat resistant cable. Protect supply with 5amp fuse.

The burner nozzle, pump pressure and air setting may have to be changed from the factory setting to suit sight conditions.

KEROSENE SETTINGS FOR FIREBIRD BOILER RANGE USING RDB 2.2 & 4.2 BURNERS

Variations in nozzle throughput, flue type & draught, oil viscosity etc. may give results differing from the below laboratory performance figures. These settings were carried out using a conventional flue.

Model Burner	Output kW. BTU	Blast Tube	Nozzle Size - Angle - Type			Pump Pressure	Air Shutter	Comb Head	Air Box	Avg. Fg. °C	CO ₂	Smoke Bacharach	Restrictor Disc	Deflector Plate
C 15	12 41K	TO	0.4	80°	ES	7 bar	0.75	-	1	60	11-11.5%	0-1	SET 12/15	B12
	15 51K	TO	0.4	80°	ES	10 bar	2.5	-	1	60	11-11.5%	0-1	SET 12/15	B12
	18 59K	TO	0.5	80°	ES	8.5 bar	3.0	-	1	60	11-11.5%	0-1	SET 18	B12
C 20	18 59K	LD2X	0.5	80°	ES	8.5 bar	1.5	-	1	70	11.5%	0-1	C	A11
C 26 RDB 2.2	20 68K	LD2X	0.6	80°	ES	8 bar	2.8	-	1	75	11.5%	0-1	C	A11
	20 68K	T3	0.6	80°	ES	9 bar	1.8	-	1	70	11.5%	0-1	-	STD
	23 79K	T3	0.65	80°	ES	9 bar	2.5	-	1	80	11.5%	0-1	-	STD
C 35	26 89K	T3	0.75	80°	ES	9 bar	4.0	-	1	85	11.5%	0-1	-	STD
	26 89K	T3	0.75	80°	ES	9 bar	4.0	-	1	80	11.5%	0-1	-	STD
	31 104K	T3	0.85	80°	ES	9 bar	5.0	-	1	90	11.5%	0-1	-	STD
C 44	35 120K	T3	1.00	80°	ES	8.2 bar	6.5	-	1	95	11.5%	0-1	-	STD
	40 136K	LD3 slot	1.1	60°	ES	9 bar	3.3	-	2	65	11.5%	0-1	-	STD
	42 143K	LD3 slot	1.10	60°	ES	10 bar	4.0	-	2	70	11.5%	0-1	-	STD
C 58	44 144K	LD3 slot	1.25	60°	S	7.5 bar	5.5	-	2	70	11.5%	0-1	-	STD
	44 150K	Adj. (G7)	1.25	60°	S	8 bar	2.5	0	2	65	11.5%	0-1	-	-
	52 174K	Adj. (G7)	1.50	60°	S	7 bar	3.5	1.5	2	70	11.5%	0-1	-	-
C 73 RDB 4.2	58 198K	Adj. (G7)	1.50	60°	S	9 bar	5.0	2	2	75	11.5%	0-1	-	-
	58 198K	Adj. (G10)	1.50	60°	S	9 bar	5.9	1	2	65	11.5%	0-1	-	-
	66 222K	Adj. (G10)	1.75	60°	S	8.5 bar	6.0	2	2	70	11.5%	0-1	-	-
C 100	73 249K	Adj. (G10)	1.75	60°	S	10 bar	6.5	2.5	2	80	11.5%	0-1	-	-
	80 272K	Adj. (G10)	2.25	60°	S	8 bar	8.0	4	2	80	11.5%	0-1	-	C100
	90 307K	Adj. (G10)	2.50	60°	S	8 bar	8.5	6	2	80	12.5%	0-1	-	C100
	100 340K	Adj. (G10)	2.50	60°	S	9.2 bar	8.5	Max	2	80	12.5%	0-1	-	C100

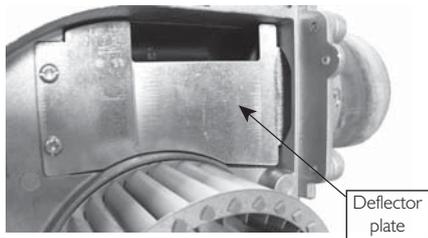
The shaded line represents factory settings. These settings override those in the burner manual.

The above performance figures are based on ideal laboratory test conditions. The air shutter settings above may need to be revised to take into consideration the difference in resistances between conventional and balanced flue installations, air temperature and nozzle tolerance. Use flue gas analyzer to achieve optimum results. Danfoss ES nozzles are a Kerosene nozzle and have a tolerance of +- 5%. Danfoss S + H nozzles are a Diesel nozzle and have a tolerance of +- 15% when used with Kerosene.

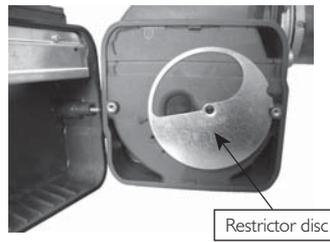
SETTING THE BURNER

1. Establish the type of fuel in the oil tank.
2. Check that the nozzle type, pump pressure and air settings are as per the manual for the output required.
3. Set the thermostat to the minimum temperature and let the boiler run until it cuts out at 60°C.
4. The boiler must be at 60°C or higher before any adjustments or analysing is carried out.
By doing this, you are also ensuring the thermostat is working.
5. Increase the thermostat setting to refire the burner.
6. Wait for the CO₂ to stabilise.
7. Adjust the air and pump pressure if required to achieve a stable 11.5% CO₂.
8. The fuel option on the flue gas analyser should be set to a light oil.

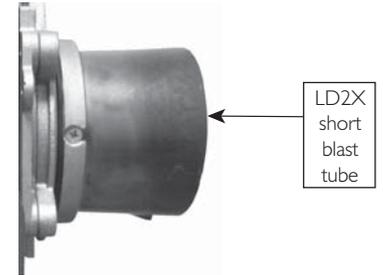
DEFLECTOR PLATE



RESTRICTOR DISC



LD2X BLAST TUBE



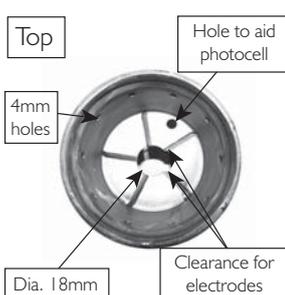
AIR BOX 1



AIR BOX 2

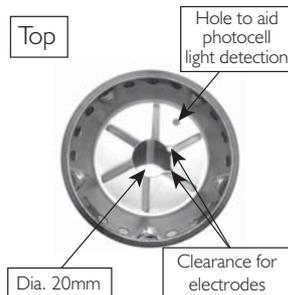


LD2X



Part no. 3002447

RDB T3

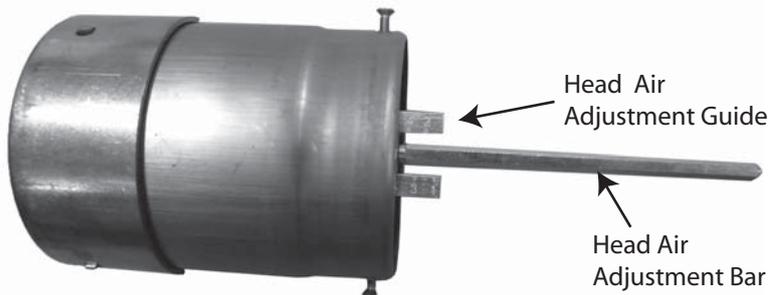


Part no. 3008768

RDB T5



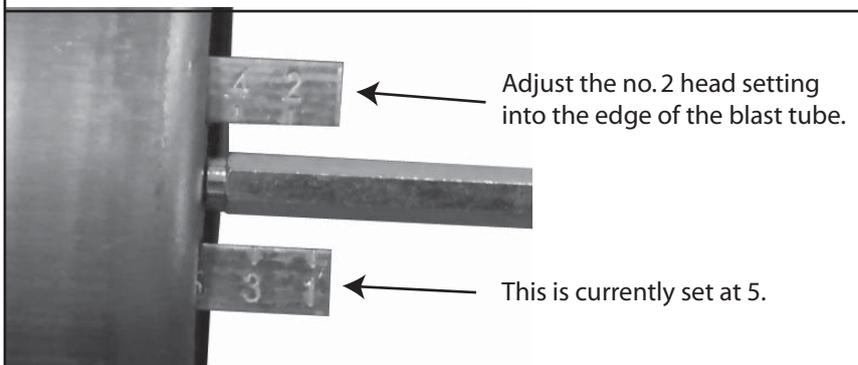
G10 BLAST TUBE



The diffuser moves in and out when the head setting is increased or decreased.

The diffuser moves back into the head when the head setting is decreased, pushing the air through the centre of the diffuser.

The diffuser moves forward when the head setting is increased, pushing the air around the outside of the diffuser.



COMMISSIONING

- ◆ It is the responsibility of the installer/householder to ensure that the boiler is properly commissioned when first used.
- ◆ The boiler should be commissioned by an OFTEC registered, or competent, qualified engineer, familiar with Firebird products.
- ◆ The installation certificate and the commissioning certificate within the boiler passport should be completed and posted to Firebird within 28 days of installation (this can also be done online on the Firebird website). A copy should be retained by the commissioning engineer.
- ◆ The system should be checked thoroughly.

PROCEDURES

OIL TANK

The installation of the oil tank and supply line should comply with all the instructions shown earlier in this manual. Consult OFTEC book 3.

If a single supply line is used, ensure that the bottom of the tank is above the burner. A suction line system via a deaerator should be used where the level of the oil in the tank may fall below the level of the oil burner pump.

Check and ensure correct grade fuel oil has been supplied.

OIL SYSTEM

A two single pipe system may also be used in low-level tank installations. See page 22. Please flush out the oil pipe by drawing off some oil before connecting the fuel pipe to the burner - otherwise there is a danger of grit and dirt being forced into the burner pump, resulting in pump blockage, damage and "lock-out".

CHECKLIST FOR INSTALLING AND COMMISSIONING A FIREBIRD BOILER

Pre-installation check:

- ◆ Is the following documentation included with the boiler, Installation Manual, Boiler Passport, Burner Book?
- ◆ Is the base on which the boiler is to be installed solid?
- ◆ Allow sufficient room for future servicing of the boiler.

Where does the flue terminate:

- ◆ Make sure there is no window, door or fence within 1 metre of the flue-terminal.
- ◆ If the flue terminates in a corner or into an alleyway, re-circulation of the combustion gases in the air intake could occur. A plume dispersal may be required or an alternative flue arrangement might be available. Contact the Firebird technical department for advice.
- ◆ The appropriate class 1 flue must be used with a conventional flue installation. Contact Firebird if unsure.

Power supply:

- ◆ Is a timed and permanent power supply available, via a fused spur with a 5amp fuse.

Oil supply:

- ◆ The burner is set for 28 Second Class C fuel.
- ◆ Check that there is a good quality filter on the line with an isolating valve.
- ◆ There should be a remote sensing fire valve.
- ◆ If a deaerator is required, fit the bypass screw in the oil pump. Check that the second flexible oil line is approved by the manufacturer.
- ◆ Verify that the oil tank has been installed correctly as per building standards.

Boiler check:

- ◆ All baffles should be installed correctly.
- ◆ Check that the condensate trap is fitted securely, primed with water and piped out into a suitable drain. It is easier to check the trap when the boiler door is removed.
- ◆ The boiler door should be refitted, complete with graphite seal and then tightened.

Flue check:

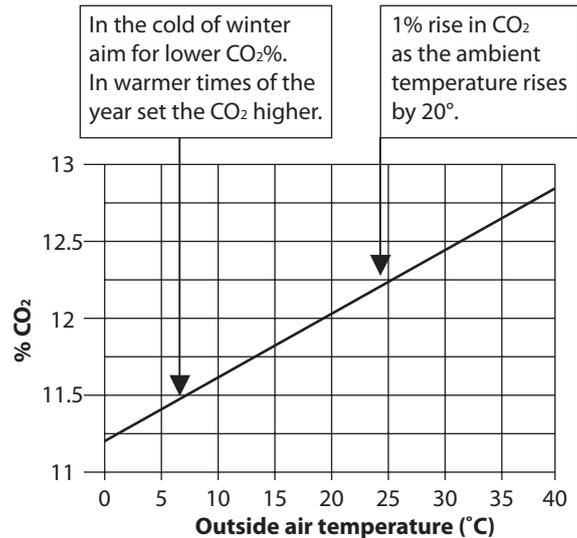
- ◆ The flue must be fitted correctly, with a fall back to the boiler. Note: internal fall of 2.5° within the flue.
- ◆ For concentric balanced flue:
 - the cone supplied should be inserted in to the end of the flue;
 - the wall plate should be fitted with an opening for air under the flue;
 - check that the flue guard is fitted.
- ◆ When installing a Heatpac or a Slimline Heatpac, the 90° bend should be fitted pointing up.

Burner set-up:

- ◆ Check that the nozzle is the right size for the type of boiler and for the system heat demand.
- ◆ Set the air to what is required for the nozzle size +.5 on the dial - example: the factory setting for a Firebird C26 has a Danfoss .65 80° ES nozzle with a pump pressure of 9 bar and air at 2.5. Set the air to 3 for the first start up. The final air setting to suit the boiler set up will be determined by using a flue gas analyser.
- ◆ Check all connections for possible leaks.
- ◆ Turn on the oil supply and switch on power to the boiler.
- ◆ Set the thermostat at minimum.
- ◆ Use a smoke gun to check clean combustion.

Flue gas analysis and fine tuning of burner:

- ◆ Ensure flue gas is over 50°C when setting CO₂.
- ◆ Allow the boiler to run for a period of time before fine tuning to the Firebird settings.
- ◆ This fine tuning should be done with the boiler in the condition it is going to be operating at, that is, if a balanced flue is installed, the air hose is fixed on the burner. In the case of a Heatpac, ensure that the door is closed for a period of time before setting the analyser on the system.
Note: When fine tuning the burner with the flue gas analyser, adjustments in both the air and pump pressure may be required to achieve the desired CO₂ %.
- ◆ Print off a copy of the flue analysis and attach to the boiler passport.
- ◆ Make sure the flue gas analysis plug is replaced correctly into the flue when finished the flue analysis.
- ◆ Check the correct operation of the thermostat on the boiler.



HANDING OVER

The householder should receive:

- A clear and concise demonstration of the boiler operation and any system controls.
- This manual, the burner manufacturer's manual and any other instructions.
- OFTEC forms CD10 and CD11.
- The boiler passport.

The householder should be advised to:

- Service the boiler annually and to ensure that the service records in the boiler passport are completed.
- Read the terms and conditions of warranty.
- Keep all boiler documentation in a safe place.

A commissioning record should be completed and a copy retained by the Engineer. This can be found in the Boiler Passport.

Annual servicing must be carried out by an OFTEC registered or a competent, qualified engineer, familiar with Firebird products.

Do not commence service until both the electrical and oil supply to the boiler have been safely isolated.

THE OIL TANK

Check for oil leaks. Draw off any accumulated water and sludge from the tank by opening the drain valve. Turn off the oil supply and remove the filter bowl, then wash the element clean with Kerosene. Fit a new element if required.

THE BOILER

Remove combustion access door for access to baffles and to clean heat exchanger.

Cleaning a Firebird condensing boiler:

1. Remove all baffles, including the tubular baffles in the condensing section and clean them.
2. Remove the condense trap and clean it, place a tray under the connection for the trap. Vacuum out any loose debris from the chamber.
3. Clean the inside of the boiler with a vacuum cleaner.
4. Refit all the baffles and the condensate trap securely.
5. System pressure should not exceed 2 bar at full operating temperature. The expansion vessel should be checked during the annual service to ensure that it is operating correctly.

Check insulation sealing and the silver foil lining in combustion access door - replace if necessary. Check graphite seal and replace if necessary. When refitting this door be careful not to damage the foil and insulation by over tightening.

Check that the condensate trap is secure in position, clean and free of combustion debris. Ensure that the condensate drain is free and not blocked.

Expansion vessel pre-charge pressure should be checked annually.

THE BURNER

Check oil nozzle size and replace (see burner section for details).

Ensure correct specification replacement nozzle is used.

1. Check all oil filters and replace as necessary.
2. Remove burner and clean blast tube and ensure that airways are clear.
3. Ensure electrodes are clean, dry, not broken and are set as per burner specifications.
4. Clean fan and photocell.
5. **Once again check flexible oil lines and connections for damage or leaks, replace as necessary. Replace flexible oil lines every 2 years.**

Combustion Check

1. Carry out a combustion analysis.
2. Follow the steps as set out in the burner set-up section.
3. Check safety operation, pull out the photo cell, cover and make sure the burner locks out.
4. Check the thermostat operation.
5. Allow the boiler to operate for at least two full "on/off" cycles.

Ensure service record is recorded in boiler passport.

11 TERMS & CONDITIONS OF WARRANTY

Firebird products are designed and manufactured to give many years of trouble free service.

The terms laid down in the warranty must be adhered to

- ◆ Firebird provides a comprehensive, conditional warranty of 5 years on the boiler shell and 2 years on all other parts from date of installation, provided installation has occurred within 12 months from date of purchase.
- ◆ The 5 year boiler shell warranty consists of parts and labour for the first 3 years and parts only for years 4 and 5.
- ◆ The warranty will only apply if the boiler is commissioned by an OFTEC registered or competent, qualified engineer and is serviced annually thereafter.
- ◆ Please ensure that the commissioning certificate within the Boiler Passport is fully completed by an OFTEC registered or competent, qualified engineer and is returned to Firebird within 28 days of complete installation and commissioning. The Boiler Passport is included with every boiler and can also be completed online at the following link:
<http://www.firebird.ie/index.php/boiler-passport.html>.
- ◆ Correct commissioning will ensure that your boiler is set to operate at its maximum fuel efficiency.
- ◆ Consumable components, the nozzles and the oil hose are excluded.

TERMS & CONDITIONS OF WARRANTY

1. Warranty implies that the product shall be free from defective parts or workmanship for a period of warranty cover, which begins from the date of installation.
2. All claims under the warranty programme must be within the time limits stated on the left.
3. Installation and commissioning of the product must be in accordance with (a) instruction/technical manuals (b) all relevant standards and codes of practice.
4. An OFTEC registered or competent, qualified engineer, using the correct installation and test equipment must carry out installation and commissioning.
5. This warranty does not cover special, incidental or consequential damages, injury to persons or property, or any other consequential loss.
6. Maintenance should be carried out at the intervals stated in the instruction/technical manual.
7. Firebird accepts no liability in respect of any defect arising from incorrect installation, negligence, fair wear and tear, misuse, alteration or repair by unqualified persons.
8. Firebird will not accept any liability in respect of any defect occurring to the product due to limescale build-up and or low return water temperature.
9. The warranty programme extends to reasonable labour costs EXCEPT in the case of a 5 year warranty period whereby any valid claim made after 3 years will not include labour costs.
10. Firebird's prior authorisation must be obtained before examination or repair of the product takes place.
11. Firebird will examine all claims made under the warranty programme and for any claims that are deemed invalid, the costs incurred will be borne by the owner.
12. The warranty programme only applies where the product was used for normal domestic heating purposes.
13. Any defective part removed under any or all of the warranty programmes MUST be returned to Firebird.
14. If this appliance is installed in a pressurised system, failure to correctly size the expansion vessel may damage the boiler and invalidate the warranty

*STATUTORY RIGHTS OF THE OWNER ARE NOT
AFFECTED BY THIS WARRANTY*



FIREBIRD

HEATING SOLUTIONS

For further information on Firebird products please contact:

Firebird Heating Solutions Ltd.

Údarás Industrial Estate, Baile Mhic Íre, Co. Cork, Ireland.

t: +353 (0)26 45253 f: +353 (0)26 45309

e: info@firebird.ie web: www.firebird.ie

Firebird Heating Solutions Ltd.

Shean, Forkhill, Newry, BT35 9SY.

t: +44 (0)28 3088 8330 f: +44 (0)28 3088 9096

e: firebirdproducts@hotmail.co.uk web: www.firebird.ie

Firebird Heating Solutions Ltd.

Central Avenue, Lee Mill Industrial Estate,

Nr. Ivybridge, Devon, PL21 9PE, United Kingdom.

t: +44 (0)1752 691177 f: +44 (0)1752 691131

e: sales@firebirduk.co.uk web: www.firebirduk.co.uk

© Copyright applies to all FIREBIRD products. Our policy is one of continual development and we therefore reserve the right to change without prior notice the specification of our products at any time and be without obligation to make similar changes in products previously produced.