FIREBIRD

HEATING SOLUTIONS

ENVIROMAX BLUE SUPREME CONDENSING BOILER TECHNICAL MANUAL



This manual must remain with the householder once installation is complete

Working towards a greener planet

FOREWORD & CONTENTS

FOREWORD

We would like to thank you for purchasing a high efficiency Firebird Enviromax Blue Supreme 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.

Firebird condensing boilers must be installed, commissioned and serviced by an OFTEC registered or competent, qualified engineer/installer. It should be noted that it is the responsibility of the installer/householder to ensure that the boiler is properly commissioned.

All appropriate OFTEC manuals and EU and BS standards should be studied, their requirements adhered to and used in conjunction with these instructions.

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1 STANDARDS & REGULATIONS

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, current 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
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 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.: 0845 0869001 Fax: 0208 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 open-flued 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 & 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.

3 HOUSEHOLDER INSTRUCTIONS

3.1 OPERATING PROCEDURE - POPULAR, HEATPAC, SLIMLINE HEATPAC & UTILITY

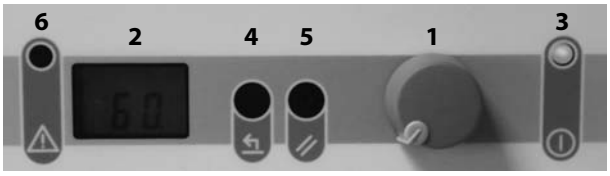
To start the boiler:

- Switch on power supply to boiler.
  If a timer control is fitted, this will automatically switch the boiler on and off when heat is required.

To turn off the boiler:

- Turn off the power supply to the boiler.
  The boiler is isolated by unplugging the 7 pin plug from the controller.
  Please be aware that a permanent live cable exists in this plug.

3.2 DIGITAL CONTROLLER - HOUSEHOLDER INSTRUCTIONS



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 six seconds until "OFF" appears on the led screen.
- Switching off the timer or heat demand.
- Turn off the mains electrical supply.


1. Off

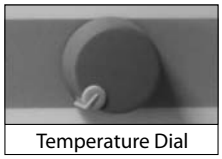

2. Switch on

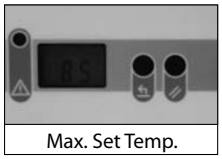
CONTROL PANEL FUNCTIONS

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.

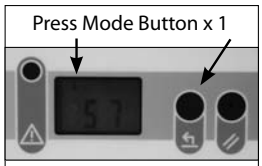

Off


Min. Set Temp.

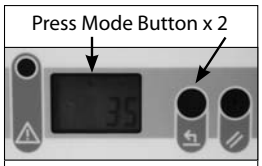

Temperature Dial


Max. Set Temp.

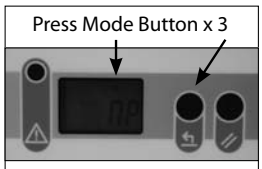
Mode Button & LCD Display



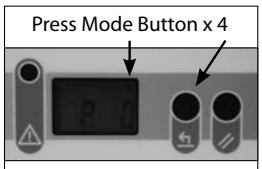
Actual Boiler Temperature



Hours of Operation 1= 10 Hours



System Pressure *(not used)*



Programme No.

ERROR DISPLAY AND RE-SET

Warning Should an ERROR appear on the control panel display, consult you 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 Not used.
E5 Burner Lockout.
Burner Fault.

RE-SET CONTROLLER

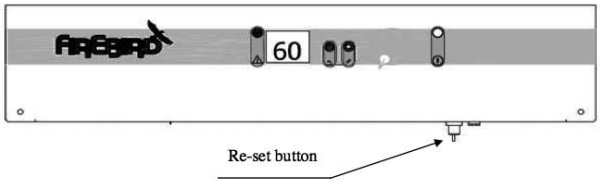


To re-set and clear an error from the control panel, use the tip of a pin and insert into the re-set button (5) on the panel. Press and hold until the error clears.
For error E5 burner lockout, before re- setting the re-set button on the control panel press the re-set button on the burner first.

HIGH-LIMIT THERMOSTAT CUT OFF

This boiler is protected by a high limit thermostat. In the event of the thermostat being activated as a result of overheating, the power to the control panel display will be isolated.

Possible cause: stat. failure or system issue/leak etc.



4 4.1 - INSTALLATION GUIDELINES - REGULATIONS & GUIDELINES

Please note the following important points before commencing installation.

Firebird Blue Supreme condensing boilers have been manufactured and produced in compliance with all current relevant directives, including EMC Directive 2004/108/EC, LV directive 2006/95/EC and the BED directive 92/42/EEC and all European, national and local standards.

Pressurised Heating System

The maximum operating working pressure is 2 bar when the system is at full operating temperature.

Plastic Piping

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 instruction 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.

Underfloor Heating

The boiler should **not be directly** connected to underfloor heating, as a minimum return temperature of 37˚ is required (it can be used with underfloor heating with adequate temperature controls to ensure return values are as stated above).

Magnetic Filtration

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.

Positioning the Boiler

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 Blue Supreme boilers are one of the quietest boilers on the market, some householders are particularly sensitive and the following points should be considered:

1. All Firebird Blue Supreme boilers have a push fit flue at the top.
2. The Firebird top outlet low level flue kit has been specifically designed for Firebird boilers. The use of third party low level flue kits is not acceptable.

A suitable corrosion inhibitor must be added to the heating system.

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

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 - 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.

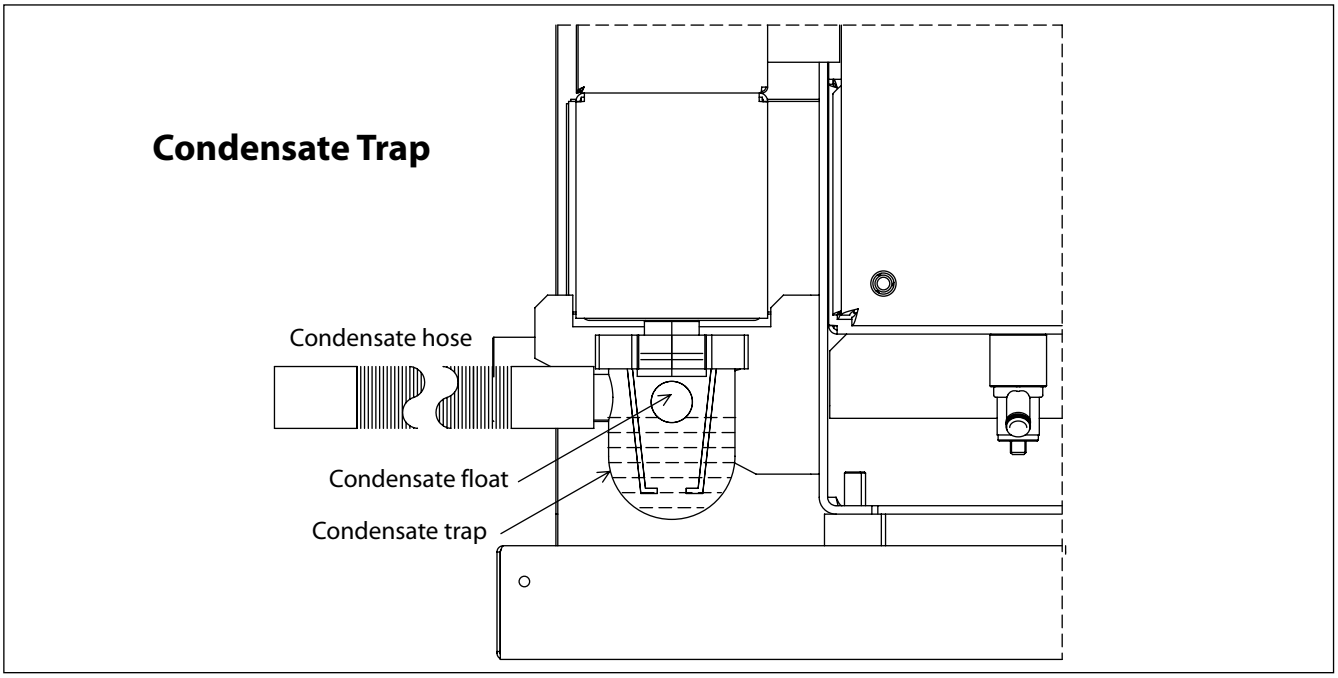
The 75mm condensate trap is provided with the boiler and is situated underneath the heat recovery unit. The condensate trap should be checked and cleaned during annual service.

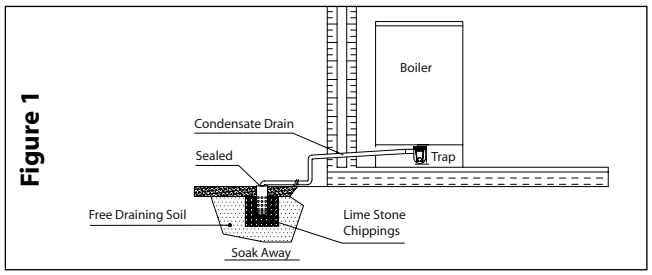
The condensate line should:

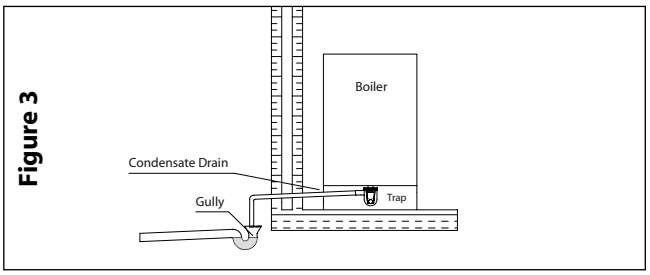
- be plastic and have a minimum diameter of 22mm;
- have a fall from the boiler of 1:100 minimum;
- have as few bends as possible to reduce the risk of trapping condensate.

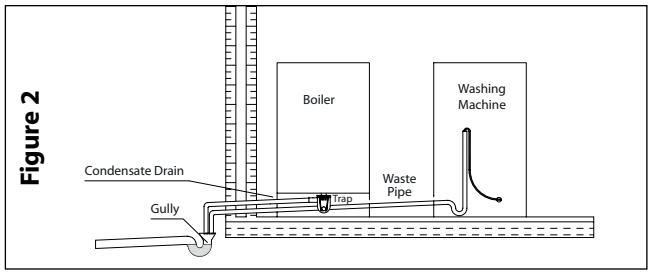
CONDENSATE PIPEWORK THAT IS EXTERNAL OR IN AN UNHEATED GARAGE SHOULD NOT EXCEED 3 METERS AND SHOULD BE LAGGED WITH WATER PROOF INSULATION TO PREVENT FREEZING.

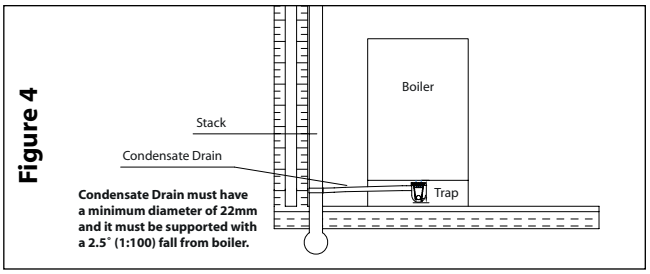
SYSTEM NO. 1 - CONDENSATE TRAP







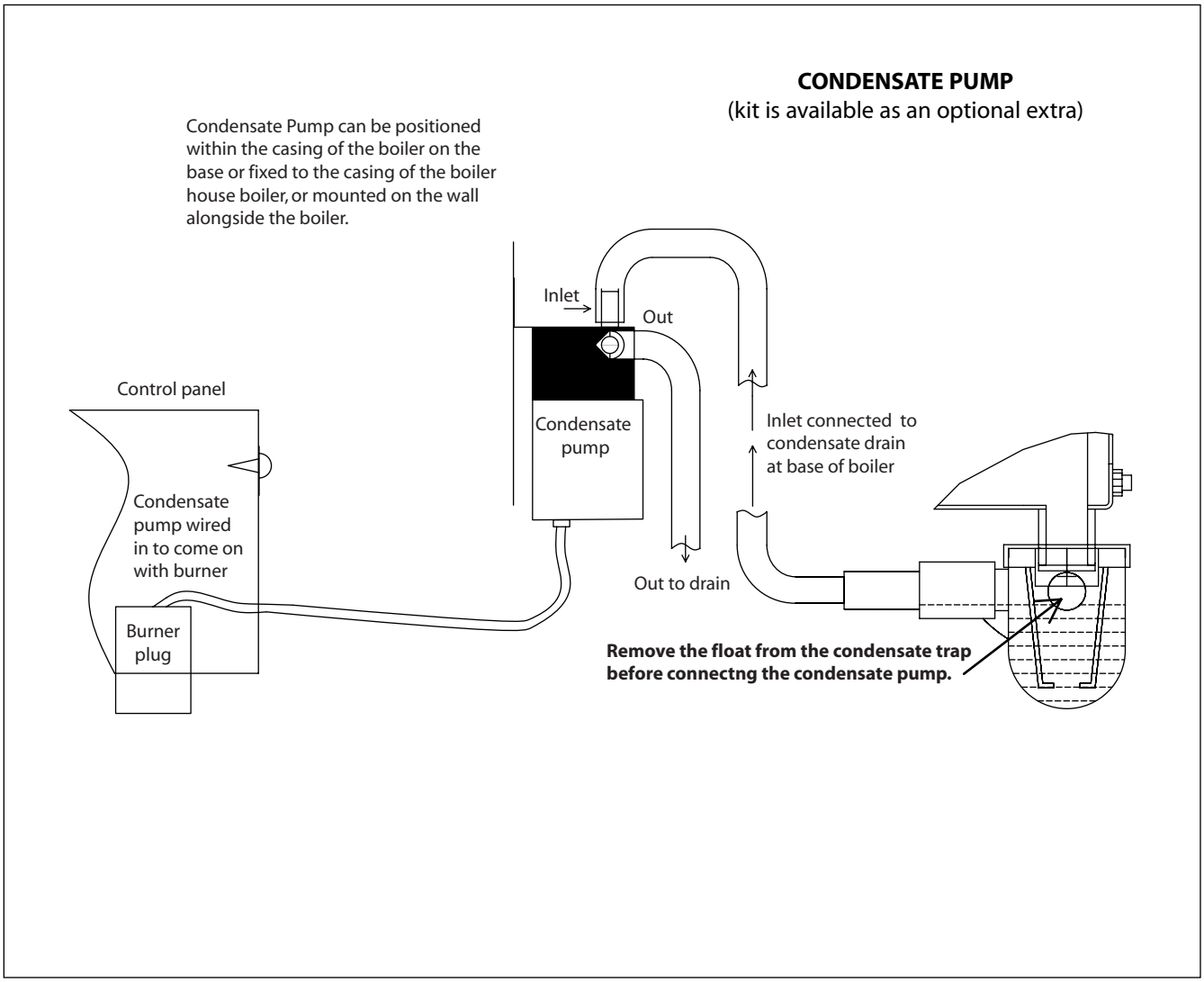




Ensure that the boiler combustion chamber cannot be filled through the condensate trap from another appliance (eg. washing machine) which is drained at a higher level (see Figure 2).

SYSTEM NO. 2 - CONDENSATE PUMP

If the boiler is situated such that it is below a drainage area (eg. basement), a condensate pump can be used.



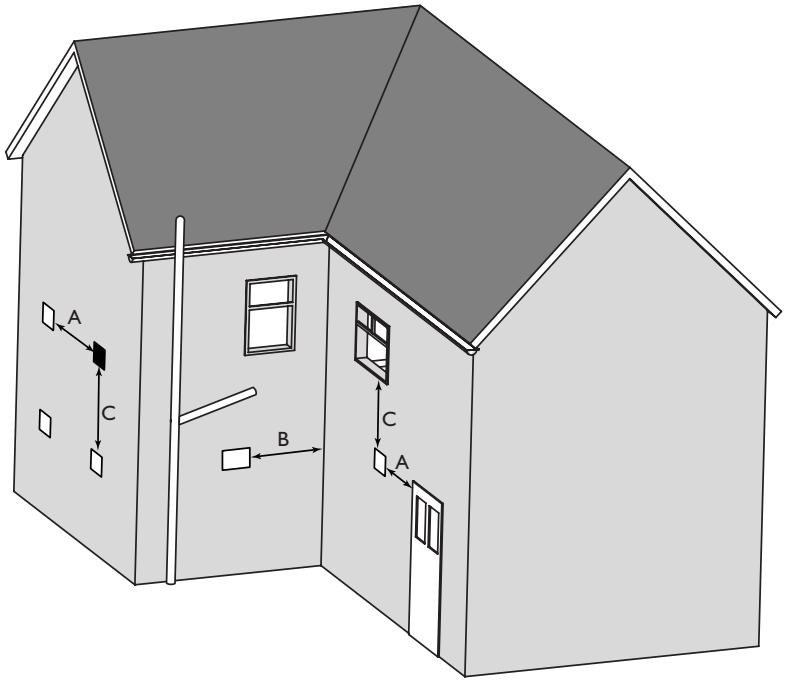
4.3 - FLUE REGULATIONS - REGULATIONS & GUIDELINES

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 wind 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 13).**

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

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

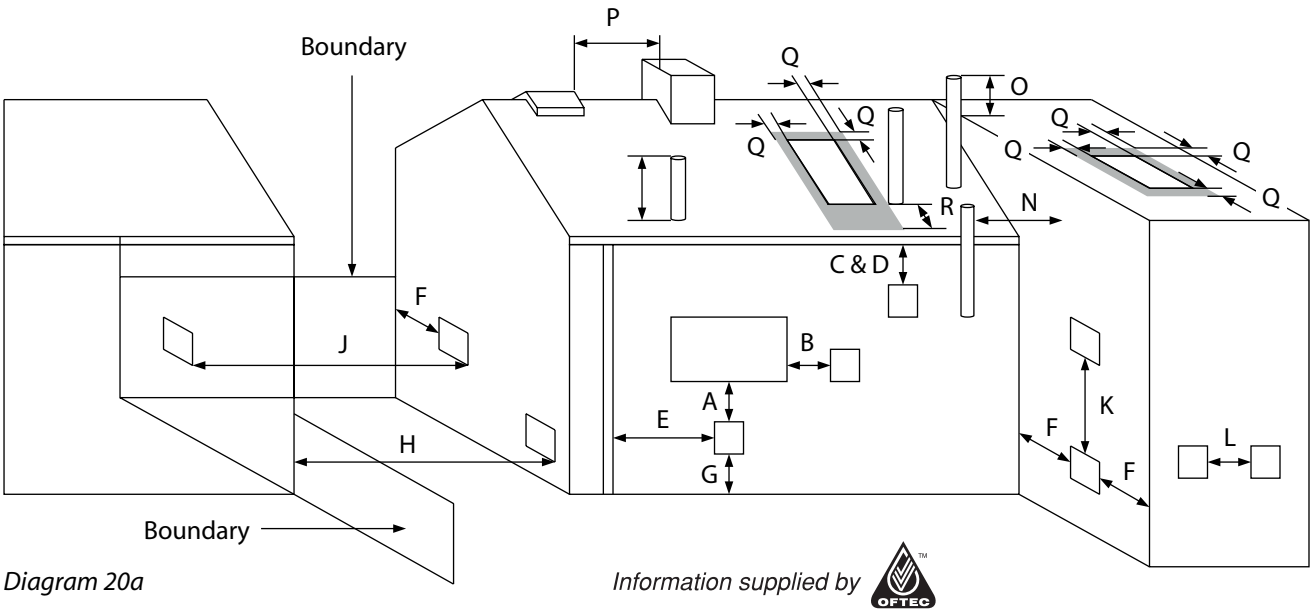


Diagram 20a

Information supplied by OFTEC

Minimum distances to terminals in millimetres 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

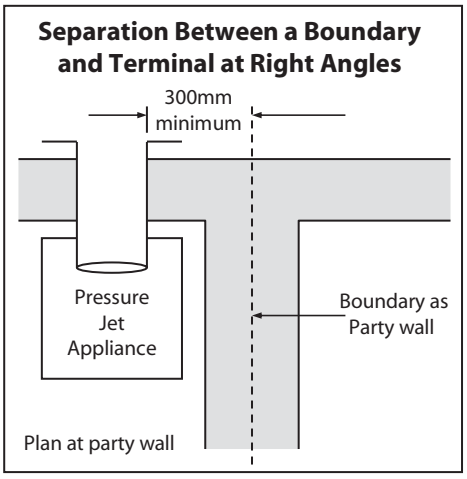
SEE NEXT PAGE FOR IMPORTANT NOTES

4.3 - 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. 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.
8. Notwithstanding the dimensions given in the diagram and table, a terminal should not be sited closer then 300mm to combustible material.
9. It is essential that a flue or chimney does not pass through the roof within the shaded area shown by dimensions Q and R.
10. 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.

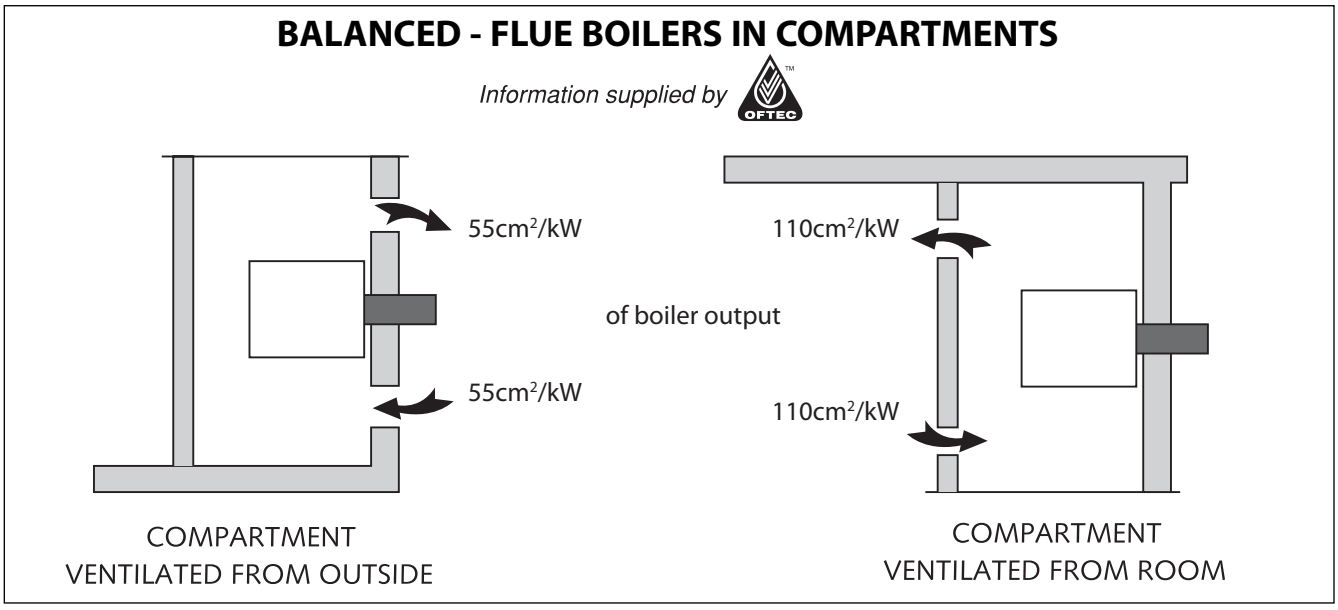
Diagram 20b



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. Utility and Popular) does not require individual ventilation.





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 1 m (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 1 m 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.

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 12 (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.

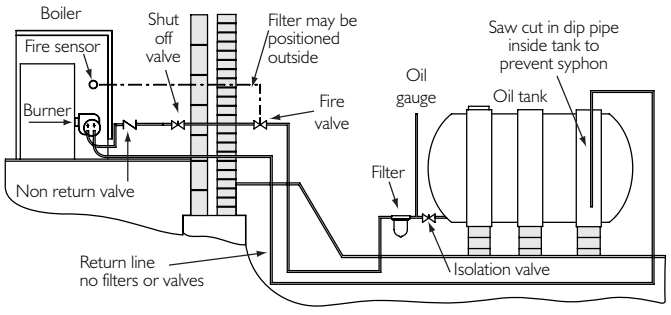
FLEXIBLE OIL PIPE(S)

Two flexible burner oil hoses are supplied with the boiler which must be wholly contained within the appliance case.

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.



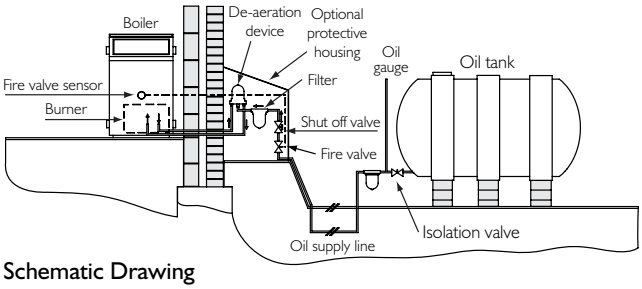
DEAERATOR SINGLE PIPE SYSTEMS

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.

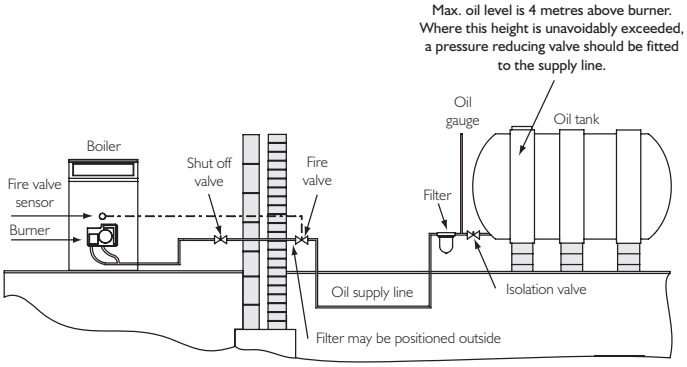


Schematic Drawing
Single pipe oil supply with deaeration device (eg. deaerator).
Bottom of oil tank below or level with burner.
(Adapted from OFTEC drawing)

An oil filter of 15 µm or less must be used.

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. In this case, use a tee joint to join the flexible oil lines and connect the oil pipe from the tank to the open end of the joint.



FIRE VALVES

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 bunded.

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 bunded.

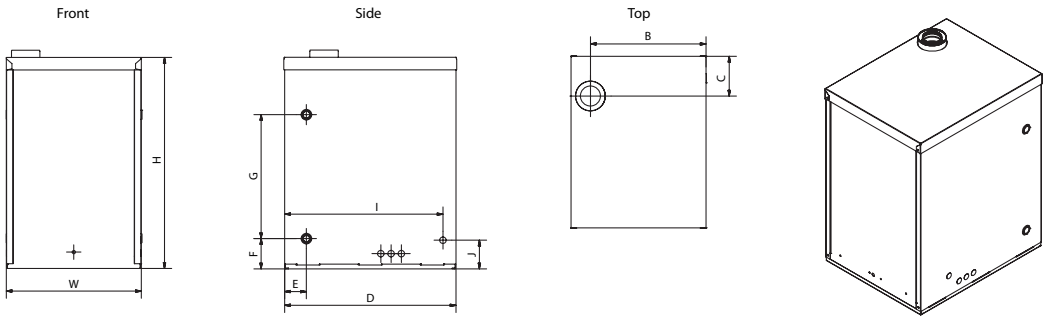
Those externally installed tanks with a capacity of less than 2,500 litres will require a bund if located not more than 50 metres from a spring or bore hole, 10 metres from controlled waters and additionally where it may constitute a hazard.

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.

5 5.1 - TECHNICAL DETAILS - POPULAR



Model Enviromax Blue Supreme	Output kW	Weight kg	Dimensions (mm)									
			H	W	D	B	C	E	F	G	I	J
Popular 20	20	175	930	595	760	509	175	96	133	545	696	126
Popular 26	26	175	930	595	760	509	175	96	133	545	696	126

All connections are 1" BSP.

WATER CONTENT
Water Content Boiler - 24 Litres

WATER SIDE RESISTANCE

Flow rate to give a nominal output at 10k differential

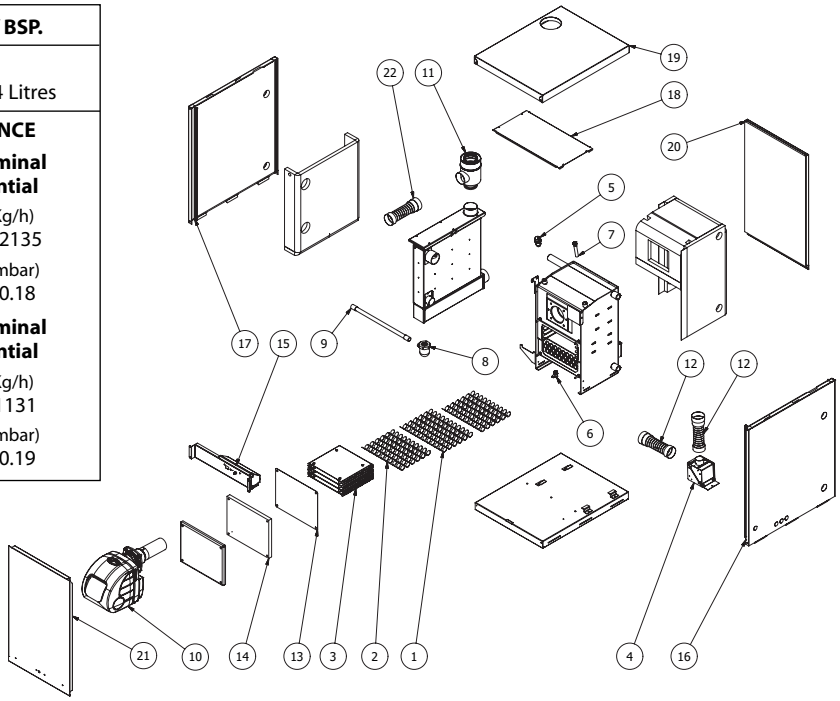
Flow Rate Measured (Kg/h)
20KW = 1642 **26KW** = 2135

Waterside Resistance (mbar)
20KW = 0.18 **26KW** = 0.18

Flow rate to give a nominal output at 20k differential

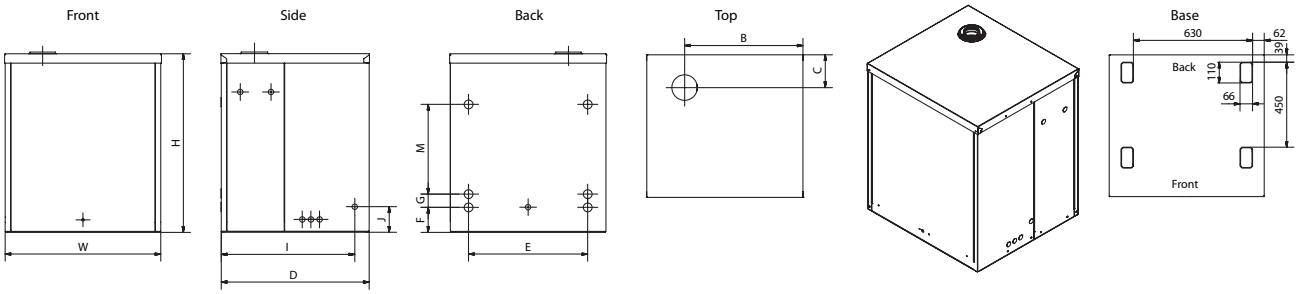
Flow Rate Measured (Kg/h)
20KW = 870 **26KW** = 1131

Waterside Resistance (mbar)
20KW = 0.19 **26KW** = 0.19



No.	Qty	Description	C20	C26
1	7	Tube Baffle Single	113957	113957
2	6	Tube Baffle	113956	113956
3	1	Smoke Baffle	313958	313958
4	1	Flap Valve	313965	313965
5	1	Auto Air Vent 1/2" BSP	111327	111327
6	1	1/2" Drain Cock	111329	111329
7	1	Stat Pocket	111317	111317
8	1	Condensate Trap	112184	112184
9	1	Condensate Hose 500mm	111537	111537
10	1	MHG Rocket Burner	95201000840	95201000840
11	1	5" Balance Flue Adaptor	114124	114124
12	2	Burner Air Hose MHG	95021001013A	95021001013A
13	1	Door Seal	114038	114038
14	1	Door Duroboard	114039	114039
15	1	Control Panel	314123	314123
16	1	Casing Right Side	213975	213975
17	1	Casing Left Side	213974	213974
18	1	Casing Lagging Support	213979	213979
19	1	Casing Top	213976	213976
20	1	Casing Back	213977	213977
21	1	Casing Front	313980	313980
22	1	Burner Air Hose	111902	111902

5.2 - TECHNICAL DETAILS - HEATPAC



Model Enviromax Blue Supreme	Output kW	Weight kg	Dimensions (mm)										
			H	W	D	B	C	E	F	G	I	J	M
Heatpac 20	20	185	930	830	755	626	174	630	132	70	695	133	475
Heatpac 26	26	185	930	830	755	626	174	630	132	70	695	133	475

All connections are 1" BSP.

WATER CONTENT
Water Content Boiler - 24 Litres

WATER SIDE RESISTANCE

Flow rate to give a nominal output at 10k differential

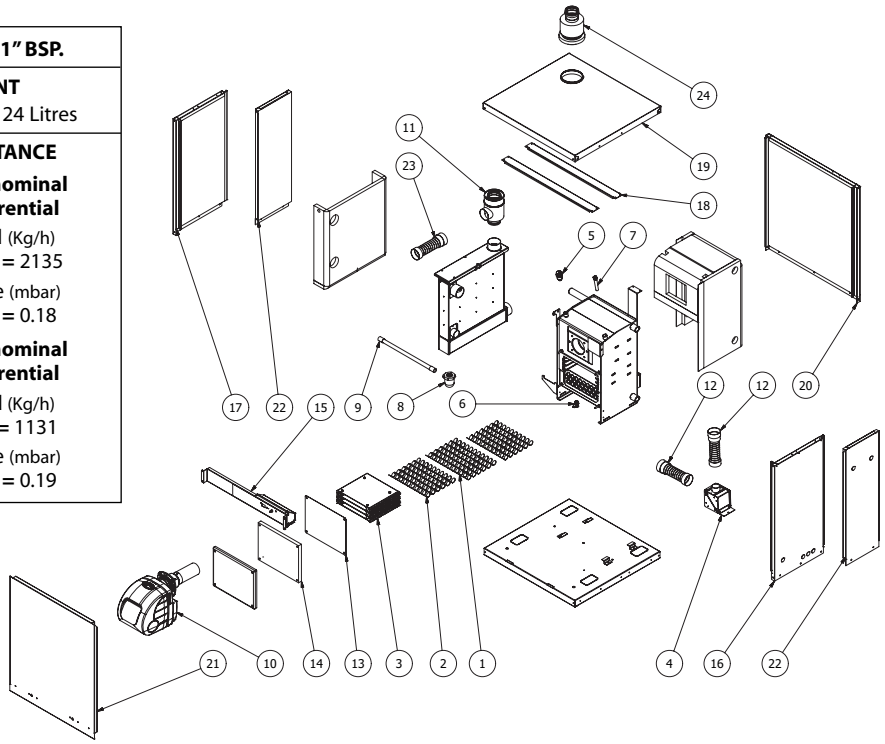
Flow Rate Measured (Kg/h)
20KW = 1642 **26KW** = 2135

Waterside Resistance (mbar)
20KW = 0.18 **26KW** = 0.18

Flow rate to give a nominal output at 20k differential

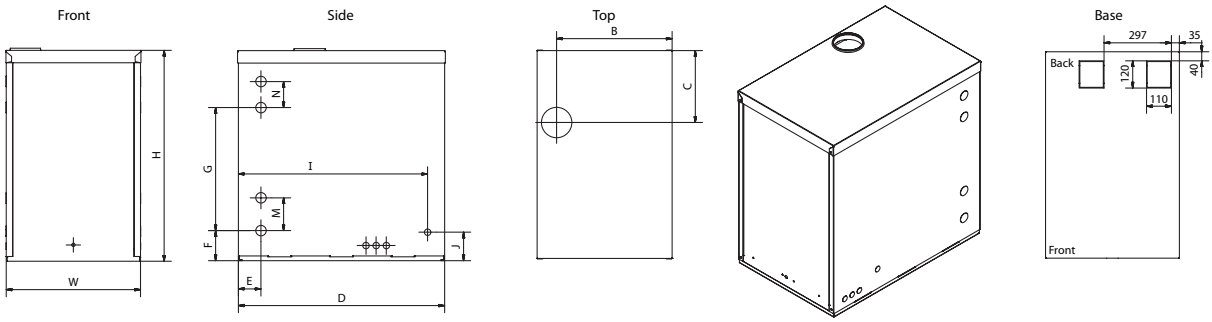
Flow Rate Measured (Kg/h)
20KW = 870 **26KW** = 1131

Waterside Resistance (mbar)
20KW = 0.19 **26KW** = 0.19



No.	Qty	Description	C20	C26
1	7	Tube Baffle Single	113957	113957
2	6	Tube Baffle	113956	113956
3	1	Smoke Baffle	313958	313958
4	1	Flap Valve	313965	313965
5	1	Auto Air Vent 1/2" BSP	111327	111327
6	1	1/2" Drain Cock	111329	111329
7	1	Stat Pocket	111317	111317
8	1	Condensate Trap	112184	112184
9	1	Condensate Hose 500mm	111537	111537
10	1	MHG Rocket Burner	95201000840	95201000840
11	1	5" Balance Flue Adaptor	114124	114124
12	2	Burner Air Hose MHG	95021001013A	95021001013A
13	1	Door Seal	114038	114038
14	1	Door Duroboard	114039	114039
15	1	Control Panel	314138	314138
16	1	Casing Fixed Right Side	214133	214133
17	1	Casing Fixed Left Side	214134	214134
18	2	Casing Top Support	214027	214027
19	1	Casing Top	214135	214135
20	1	Casing Back	214132	214132
21	1	Casing Front	314139	314139
22	2	Removable Panel	211521	211521
23	1	Burner Air Hose	111902	111902
24	1	Balance Flue Adaptor	114126	114126

5.3 - TECHNICAL DETAILS - SLIMLINE HEATPAC



Model Enviromax Blue Supreme	Output kW	Weight kg	Dimensions (mm)											
			H	W	D	B	C	E	F	G	I	J	M	N
Slimline Heatpac 20	20	180	930	595	916	509	317	100	133	545	838	126	145	115
Slimline Heatpac 26	26	180	930	595	916	509	317	100	133	545	838	126	145	115

All connections are 1" BSP.

WATER CONTENT
Water Content Boiler - 24 Litres

WATER SIDE RESISTANCE

Flow rate to give a nominal output at 10k differential

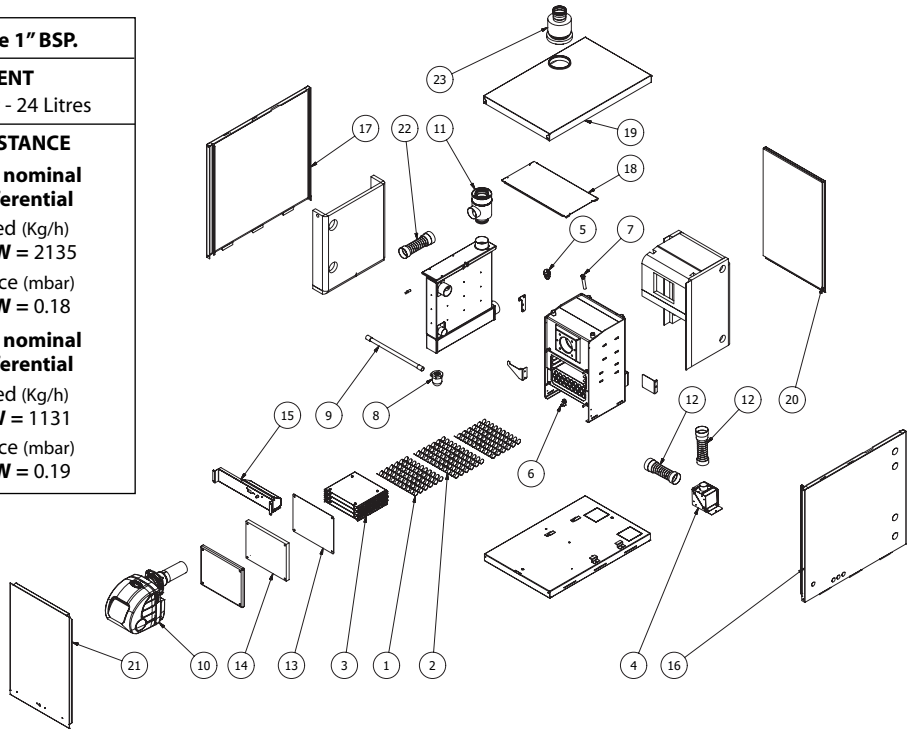
Flow Rate Measured (Kg/h)
20KW = 1642 **26KW** = 2135

Waterside Resistance (mbar)
20KW = 0.18 **26KW** = 0.18

Flow rate to give a nominal output at 20k differential

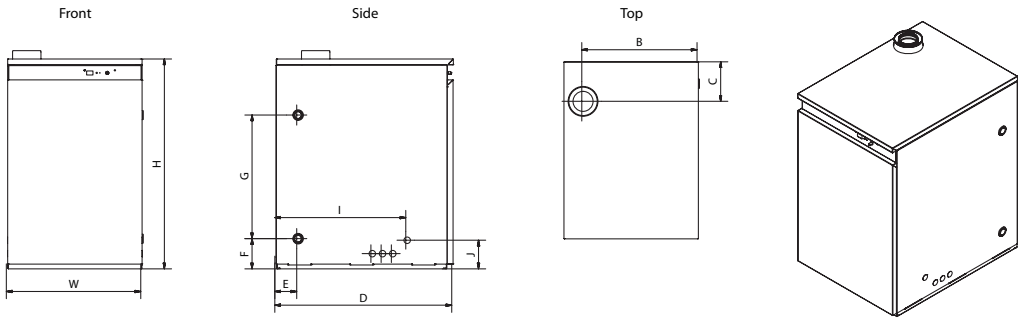
Flow Rate Measured (Kg/h)
20KW = 870 **26KW** = 1131

Waterside Resistance (mbar)
20KW = 0.19 **26KW** = 0.19



No.	Qty	Description	C20	C26
1	7	Tube Baffle Single	113957	113957
2	6	Tube Baffle	113956	113956
3	1	Smoke Baffle	313958	313958
4	1	Flap Valve	313965	313965
5	1	Auto Air Vent 1/2" BSP	111327	111327
6	1	1/2" Drain Cock	111329	111329
7	1	Stat Pocket	111317	111317
8	1	Condensate Trap	112184	112184
9	1	Condensate Hose 500mm	111537	111537
10	1	MHG Rocket Burner	95201000840	95201000840
11	1	5" Balance Flue Adaptor	114124	114124
12	2	Burner Air Hose MHG	95021001013A	95021001013A
13	1	Door Seal	114038	114038
14	1	Door Duroboard	114039	114039
15	1	Control Panel	314123	314123
16	1	Casing Right Side	214022	214022
17	1	Casing Left Side	214023	214023
18	1	Casing Lagging Support	213979	213979
19	1	Casing Top	214024	214024
20	1	Casing Back	214021	214021
21	1	Casing Front	314033	314033
22	1	Burner Air Hose	111902	111902
23	1	Balance Flue Adaptor	114126	114126

5.4 - TECHNICAL DETAILS - UTILITY



Model Enviromax Blue Supreme	Output kW	Weight kg	Dimensions (mm)									
			H	W	D	B	C	E	F	G	I	J
Utility 20	20	174	925	592	780	508	174	96	133	545	697	126
Utility 26	26	174	925	592	780	508	174	96	133	545	697	126

All connections are 1" BSP.

WATER CONTENT
Water Content Boiler - 24 Litres

WATER SIDE RESISTANCE

Flow rate to give a nominal output at 10k differential

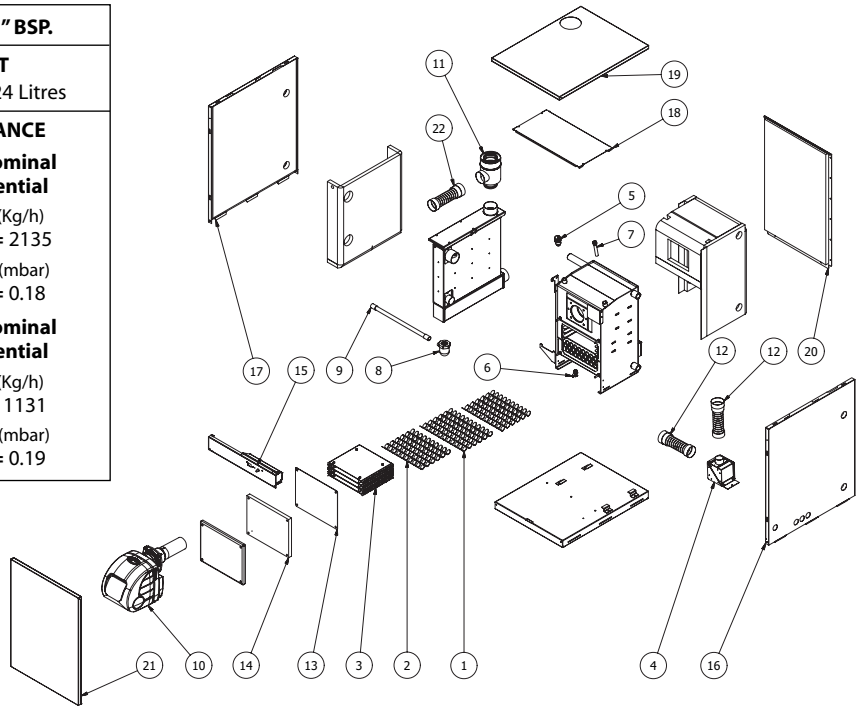
Flow Rate Measured (Kg/h)
20KW = 1642 **26KW** = 2135

Waterside Resistance (mbar)
20KW = 0.18 **26KW** = 0.18

Flow rate to give a nominal output at 20k differential

Flow Rate Measured (Kg/h)
20KW = 870 **26KW** = 1131

Waterside Resistance (mbar)
20KW = 0.19 **26KW** = 0.19



No.	Qty	Description	C20	C26
1	7	Tube Baffle Single	113957	113957
2	6	Tube Baffle	113956	113956
3	1	Smoke Baffle	313958	313958
4	1	Flap Valve	313965	313965
5	1	Auto Air Vent 1/2" BSP	111327	111327
6	1	1/2" Drain Cock	111329	111329
7	1	Stat Pocket	111317	111317
8	1	Condensate Trap	112184	112184
9	1	Condensate Hose 500mm	111537	111537
10	1	MHG Rocket Burner	95201000840	95201000840
11	1	5" Balance Flue Adaptor	114124	114124
12	2	Burner Air Hose MHG	95021001013A	95021001013A
13	1	Door Seal	114038	114038
14	1	Door Duroboard	114039	114039
15	1	Control Panel	313936	313936
16	1	Casing Right Side	214007	214007
17	1	Casing Left Side	214006	214006
18	1	Casing Lagging Support	213979	213979
19	1	Casing Top	214009	214009
20	1	Casing Back	214008	214008
21	1	Casing Front	214010	214010
22	1	Burner Air Hose	111902	111902

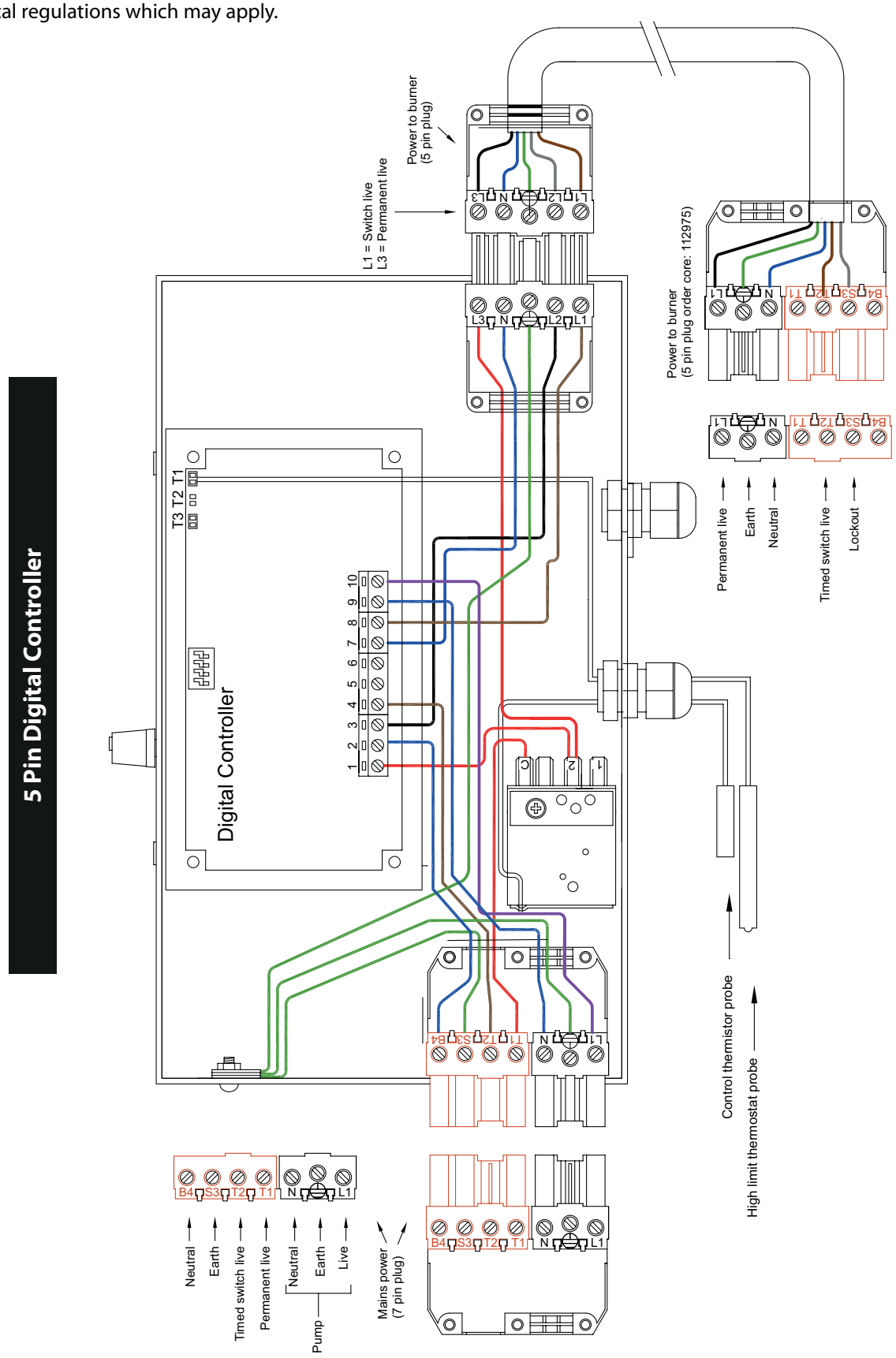
ELECTRICAL SUPPLY

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 ETCI / IET Regulations and any local regulations which may apply.

5 Pin Digital Controller



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.**

CHECKLIST FOR INSTALLING AND COMMISSIONING A BLUE SUPREME 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 allyway, 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 advise.

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 oil filter on the oil line and a service isolating valve on the burner. A 15 micron filter must be fitted.
- There should be a remote sensing fire valve.
- If a deaerator is required, the oil pump does not need to be adjusted as it is preset for a two pipe system only.
- Verify that the oil tank has been installed correctly as per building standards.

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 wall plate should be fitted with an opening for air under the flue;
  - check that the flue guard is fitted (if applicable).
- When installing a Blue Supreme Heatpac or Slimline Heatpac, ensure that the flue pipe is secured in place.

Burner set-up:

- Check that the sealing ring is in position (see burner manual).
- The air setting on the burner is factory set and **should not be adjusted**.
- Check all connections for possible leaks.
- Turn on the oil supply and switch on power to the boiler.
- Set the thermostat to the minimum temperature and let the boiler run until it cuts out at 60˚C.
- Allow the boiler to operate for at least two full "on/off" cycles during commissioning.
- Use a smoke pump to check clean combustion.

Flue gas analysis and fine tuning of the burner:

- Increase the thermostat setting to refire the burner.
- Wait for the CO_2 to stabilise.
- The boiler must be at 45˚C or higher before any adjustments or analysing is carried out. By doing this, you are also ensuring the thermostat is working.
- See next page for fine tuning the burner.
- 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.

7 COMMISSIONING & BURNER

BURNER

1. A 15micron filter must be fitted to the oil line.
2. All burners are supplied with a two pipe system.
3. Use Kerosene 28 Second Class C fuel only.
4. The minimum oil pump pressure for Kerosene 28 Second Class C fuel is 7 bar and the maximum is 10 bar.
5. The burner supplied with your Firebird Blue Supreme condensing boiler has been factory set. For on-site commissioning, only the pump pressure should be adjusted to achieve the correct CO_2 level (this is to allow for slight variations in caloric value (cv) of the fuel). **The burner air setting should not be adjusted.**
6. If the CO reading is greater than 40ppm when commissioning this boiler, contact the Firebird technical desk for assistance before leaving the premises.
7. Use burner settings as indicated below. **These settings are specific to the Firebird Enviromax Blue Supreme boilers.**

Enviromax Model	Burner	Output		Blast Tube	Steinen Nozzle			Pump Pressure	Avg. Fg ˚C	CO2
		kW	BTU		Size	Angle	Type			
Blue Supreme 20	MHG RHE 1.26HG	19.7	67K	Standard	0.55	80˚	HT	10 bar	45	13.5
Blue Supreme 26	MHG RHE 1.26HG	26	89K	Standard	0.75	80˚	H	10 bar	45	13.5

For burner technical details which are not covered in this manual, refer to the burner manufacturer's manual.



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.

8 SERVICING

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 cock. 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 the boiler.

Cleaning a Firebird Enviromax Blue Supreme boiler:

1. Remove all baffles, including the tube baffles in the condensing section and clean them.

2. Remove the condensate trap and clean it, place a tray under the connection for the trap. Vacuum out any lose 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 the combustion chamber door seals and replace if required.

THE BURNER

1. Remove the mixing unit, complete with ignition electrodes, clean the mixer head and electrodes, check the clearance in electrodes: 2-3mm. Replace the electrodes if worn.
2. Replace the nozzle (ensure correct specification Steinen nozzle is used).
3. Check the condition of the sealing ring and replace if necessary. At a minimum, this should be replaced every second service.
4. Inspect the oil filter in the pump and clean. Replace if necessary.
5. Clean the fan and the housing. Check the setting of the air intake nozzle (see burner manual). The recommended air intake nozzle setting is 4.5.
6. Check all electric connections.
7. Check the flexible oil lines.

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.

9 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



HEATING SOLUTIONS

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