SIMPLY BETTER

Installation and Operating Manual for the Euroline Floor Standing Range Output Range 70.0 – 150.0 kW

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1.0 Appliance Type

There are four versions within the Euroline range. Each unit can be supplied with or without an enhanced controller.

Please ensure you have the correct unit for the application and where required located correctly within the cascade prior to beginning the installation.

1.1 The Euroline Standard unit without cascade controller appliances are designed to be applied to systems where the cascade control is undertaken via a remote system manager or a building management system. Either control system must be capable of providing a volt free enable per applied boiler.
3
1.2 The Euroline Enhanced unit with cascade controller appliances are designed to be applied to systems where the cascade control is undertaken by the lead boiler. Control of the system is enhanced by the addition of a dedicated room unit.

The product codes for the standard range are:

Product Name	Product Code
Euroline 80	88.10050-0120
Euroline 100	88.10050-0130
Euroline 120	88.10050-0140
Euroline 140	88.10050-0150

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2.0 Installation Regulations and Requirements

The installation of Euroline boilers must be in accordance with the relevant requirements of Gas Safety (Installation & Use) Regulations 1994, Health & Safety at Work Act, Building Regulations, IEE Regulations, Construction (Design & Management) Regulations 1994, Local Authority Bye-Laws, National, Fire Regulations and Insurance Company requirements.

The following Codes of Practice are also applicable:-

BS 5440-1: 2000 Installation of flues and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases).
Part 1: Specification for the installation of flues.

BS 5440-2: 2000 Installation of flues and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases).
Part 2: Specification for installation and maintenance of ventilation for gas appliances.

BS 5449: 1990 Specification for forced circulation hot water central heating systems for domestic premises.

BS 6644: 2005 Specification for gas fired hot water boilers of rated inputs between 70kW (net) and 1.8MW(net) (2nd and 3rd family gases).

BS 6798: 1987 Specification for installation of gas fired hot water boilers of rated input not exceeding 60 kW.

BS 6880: 1988 Code of Practice for low temperature hot water heating systems of output greater than 45kW. Parts 1, 2 & 3.

BS 6891: 1988 Specification for installation of low pressure gas pipework of up to 28mm (R1) in domestic premises (2nd family gases)

BS 7593: 1992 Code of Practice for treatment of water in domestic hot water central heating systems.

BS 7671: 1992 Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition.

CISBE Guide reference sections B7, B11 and B13.

CP342 Part 2: 1974 Code of Practice for centralized hot water supply.

IGE/UP/2 Gas installation pipework, boosters and compressors on industrial and commercial premises.

IGE/UP/4 Commissioning of gas fired plant on industrial and commercial premises

IGE/UP/10 Installation of gas appliances in industrial and commercial premises. Part 1: Flued appliances.

And any addition prevailing regulation and or code of practice not detailed above.

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2.1 Appliance Warranties

All MHG appliances enjoy a full 36 month warranty as detailed in our terms and conditions.

The guarantee period shall begin on the day of commissioning, or at latest 3 months after delivery has been made.

The customer shall only be able to claim against MHG under guarantee if the commissioning of the object of delivery has been carried out by MHG staff or the authorised supplier, if the customer has followed MHG's instructions relating to the treatment and maintenance of the object of delivery, and if no replacement parts of outside origin have been fitted.

Parts subject to wear such as ignition electrodes, seals etc. are strictly excluded from the guarantee.

In addition to the above warranties, the Primary Heat Exchangers carry a 60 month guarantee against manufacturing or material defect.

Ensure that the heating system is thoroughly cleansed and treated with a suitable inhibiter prior to operating the Euroline boiler/s.

To prevent condensate production within the combustion chamber and heat exchanger the return water temperature must rise above 40^0C as quickly as possible and remain above 40^0C during operation whilst maintaining the minimum flow rate of the appliance.

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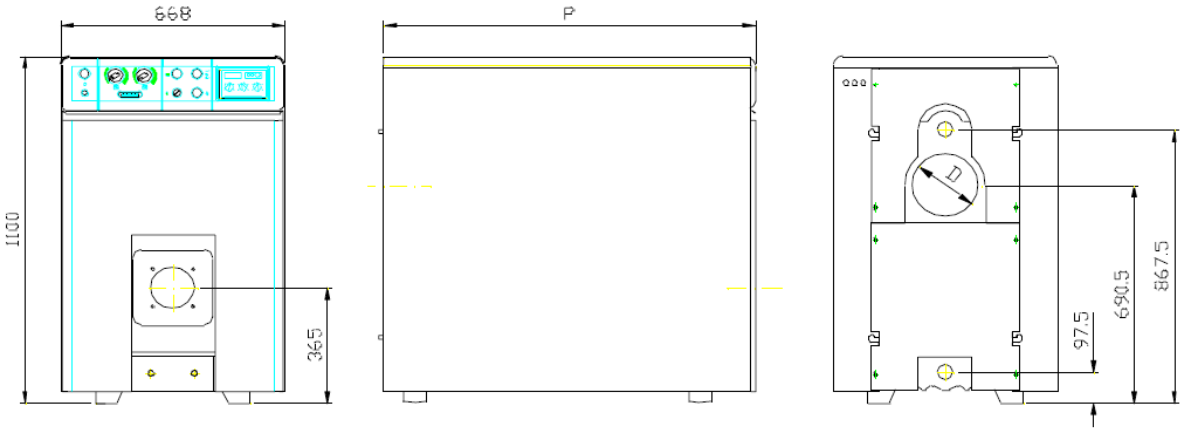
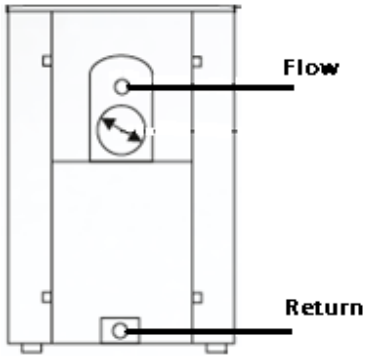
3.0 Dimensions. EUROLINE Boilers



#	Description	Units	E2-80	E2-100	E2-120	E2-140
~	Output	kW	70-90	90-110	110-130	130-150
~	Input	kW	74-96	95-118	117-139	138-161
~	Efficiency	%	94-93	94-93	94-93	94-93
~	Maximum Pressure	bar	4	4	4	4
~	Minimum Pressure	bar	0.5	0.5	0.5	0.5
P	Length	mm	1005	1130	1250	1370
D	Flue Spigot	mm	200	200	200	200
~	Hydraulic Resistance @15ΔT	mbar	1.2	1.8	2.8	3.5
~	Weight	kg	465	520	575	630
~	Minimum Flow Temperature	^{0}C	40	40	40	40
~	Maximum Flow Temperature	^{0}C	90	90	90	90
~	Maximum Flue Draught	Mbar	0.3	0.3	0.3	0.3

3.4 Dimension and Connection Dimension



#	Description	Units	E2-80	E2-100	E2-120	E2-140
~	Flow Connection	Welded Flange	2.5"	2.5"	2.5"	2.5"
~	Return Connection	Welded Flange	2.5"	2.5"	2.5"	2.5"

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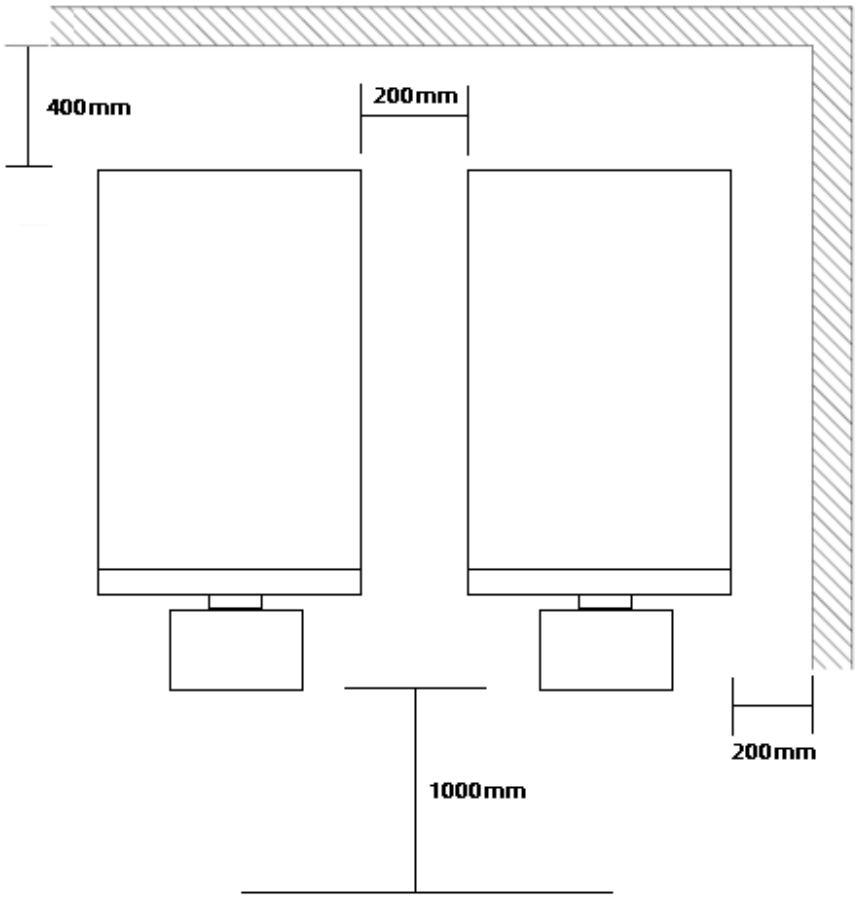
3.6 Installation and Service Clearances



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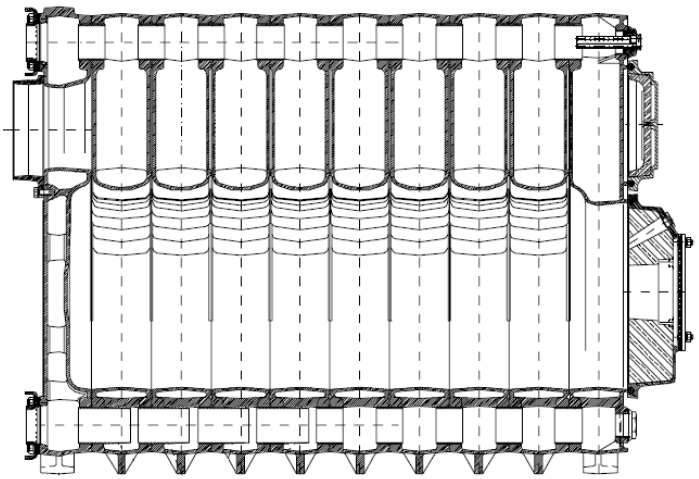
4.0 Delivery and Mobility

All EUROLINEs can be supplied prebuilt and tested or in sectional form if access to the plant room is restricted. In either case the sections may contain residual test water.
The test water utilised contains additives that will help prevent associated pumps from sticking and other metals from oxidising.

To maintain the structural integrity of the appliance / sections suitable lifts webbing and or machinery should be used.



Ensure that the Euroline boilers will be positioned on a suitable base/plinth designed to meet the operating load of the boiler/s.

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5.0 Erection.

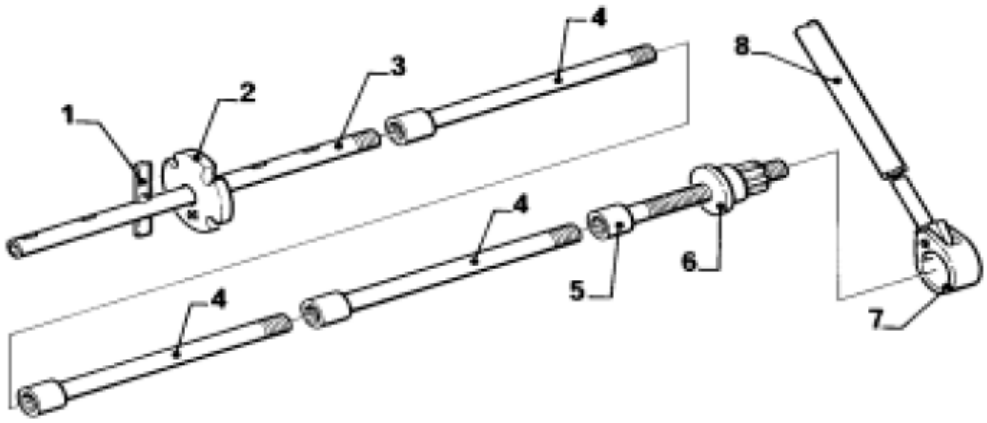
If the Euroline/s have been supplied in sectional form the following build sequence must be undertaken by suitable qualified and equipped personnel.

Prior to commencing the build please ensure that all necessary tools and materials are available.

Ensure that the sections free from any debris, oil, grease or foreign matter.

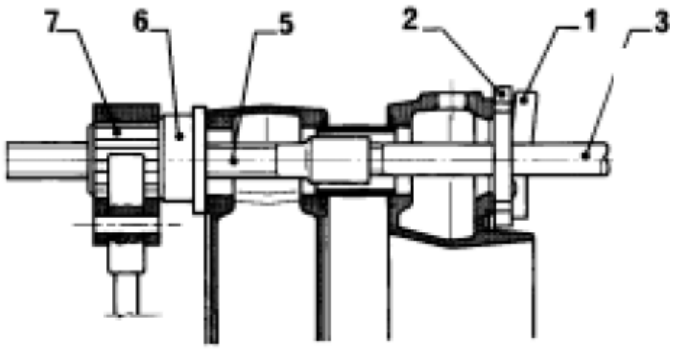
A suitable set of Pulling Up Tools is required to ensure that the nipples and sections are satisfactorily aligned prior to installing the tie rods and undertaking a pressure test.

Pulling tools can be hired for MHG Heating Ltd if required.



#	Description
1	Thrust Pin
2	Thrust Plate
3	End Section Thrust Pin Rod
4	Extension Rods
5	Threaded Tightening Section
6	Threaded Thrust Plate
7	Ratchet Tool
8	Extension Arm

Application of pulling up tool



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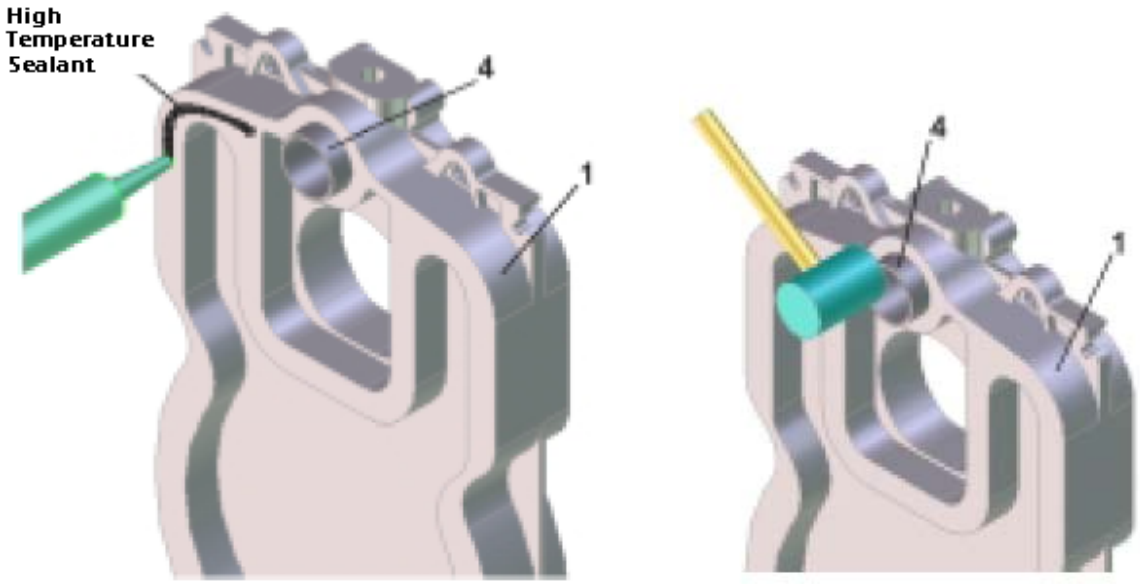
The rear section 1 should positioned in the approximate installation location prior to commencing the build.

Insert a nipple 4 into the flow and return connections. Ensure a centralized and secure fit by using a mallet.

Apply a continual bead of high temperature sealant to the mating face of the section.



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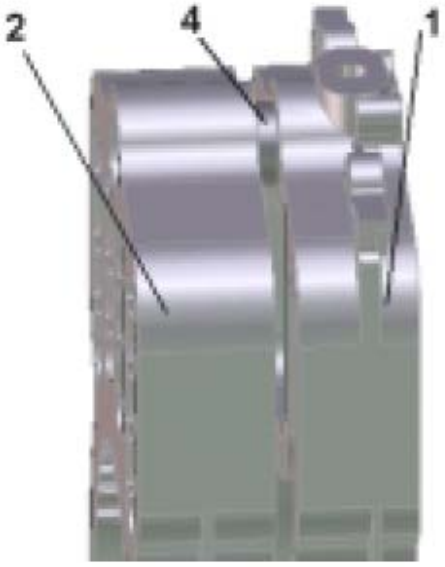
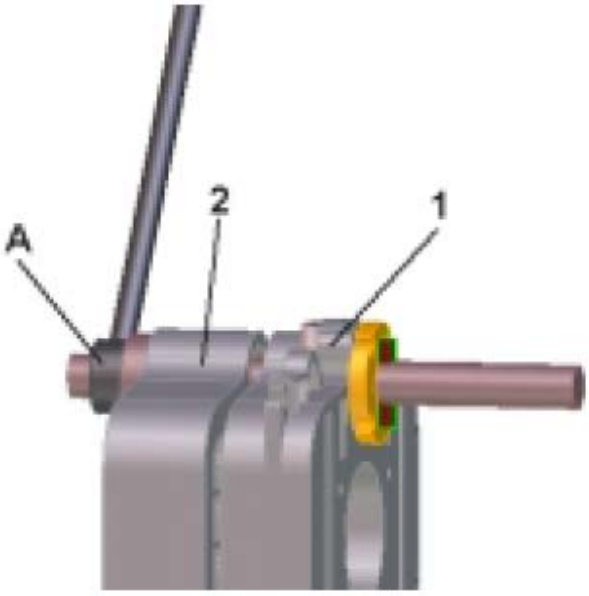
Position an intermediate section 2 adjacent to the rear section ensuring that the nipples 4 are correctly aligned.



Insert the Pulling Up Tools into the flow and return connections.
Ensure that the thrust pins and plates are adjusted to provide adequate thread travel on the threaded thrust plate so that a complete pull up is achieved without unnecessary adjustment.



Repeat this procedure for each section until the front section has been applied.

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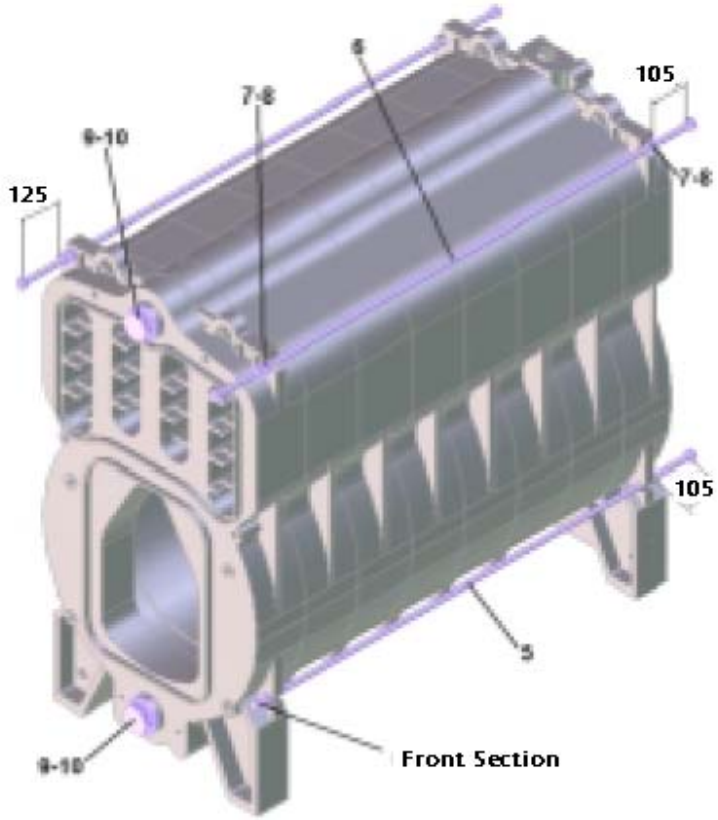
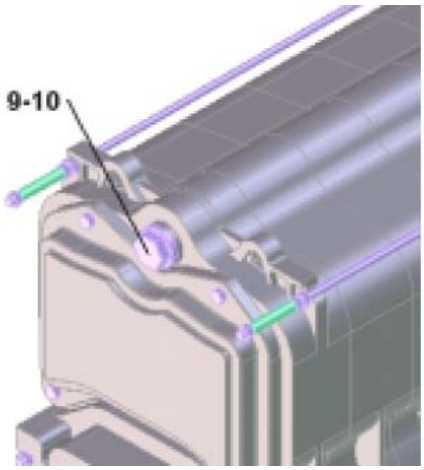
Prior to removing the Pulling Up Tools following the application of the front section the Tie Rods must be applied to the sections as detailed below.

Please ensure that the Tie Rod overhang measurements are adhered to as the Tie Rods are used to mount the case panels.



Following the removal of the Pulling Up Tools the blanking plug and sensor pocket 9 -10 must be applied to allow a pressure test to be undertaken.



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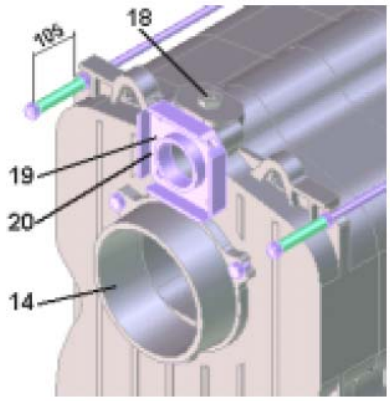
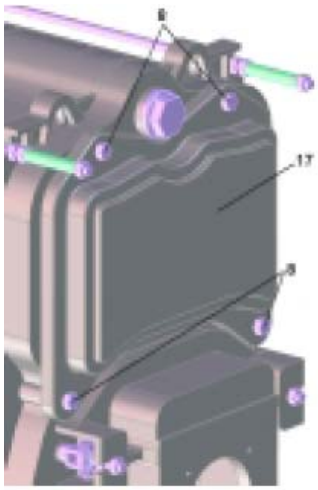


The prevailing British Standard should be referred to when undertaking a pressure test.

Appliance Operating Pressure	Test Pressure (Water)	Test Duration
4 Bar	7.5 Bar	30 Minutes

Following a successful pressure test the remaining components can be applied to the assembled sections. Including the thermostat pocket.

Apply the flue gas way cover.



It is highly recommended that all fixings are retightened following the first few heating cycles.

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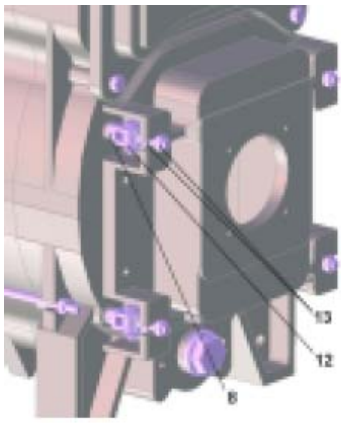
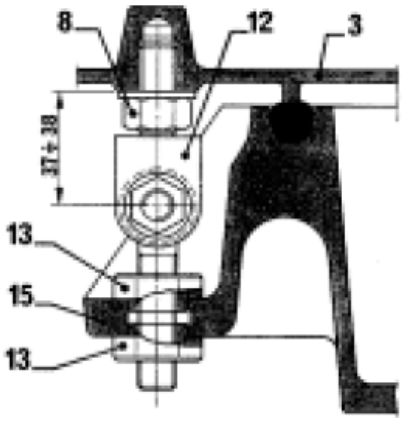
Apply the door/burner mounting assembly





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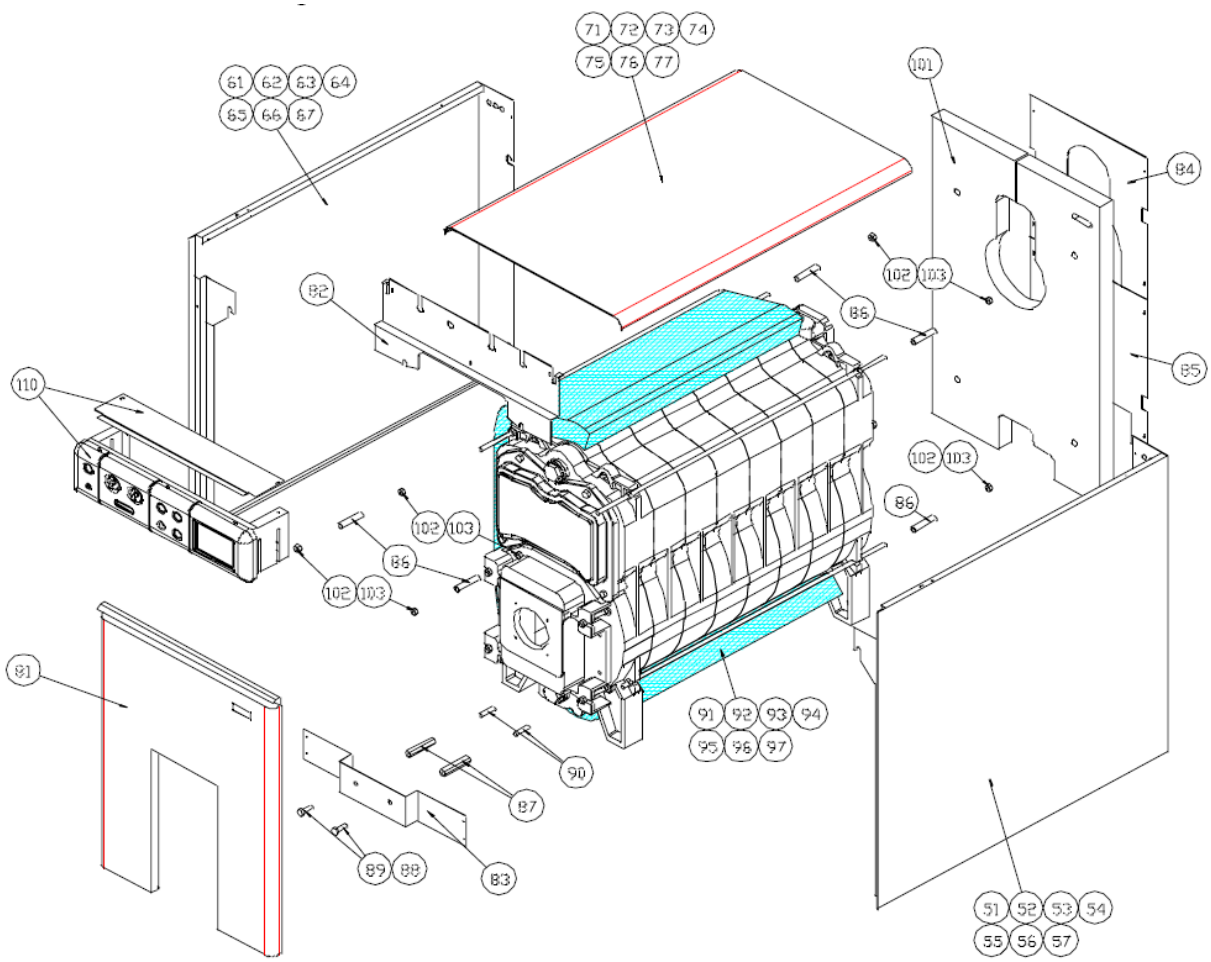
6.0 Fitting the insulation and case assembly.



Order of the assembly:

1. Secure the frame section (82) onto the Tie Rods using Nuts and Washers. (102-103).
2. Slide the spacers (86) over the Tie Rods upper front and all four rear Tie Rods and secure loosely in place with Nuts and Washers (102-103).
3. Wrap the heat exchanger assemble with the mineral wool insulation blanket and secure with supplied taps.
4. Mount the rear insulation pad (101).
5. Hang the side panels onto the Tie Rods ensuring that the spacers (86) are innermost. Secure the panels with the previously applied Nuts and Washers (102-103).
6. Insert threaded nipples (90) into the lower section of the front section. Attached the spacers (87) onto the threaded nipples.
7. Secure the frame section (83) to the spacers and secure with bolts and washers. Using self tapping screws secure the side panels to the frame section (83).
8. Mount the rear panels (84 & 85) on to the Tie Rod.
9. Secure the control panel (110) to the frame section (82) using self taping screws.
10. Drop the top panel in place and mount the outer front panel.

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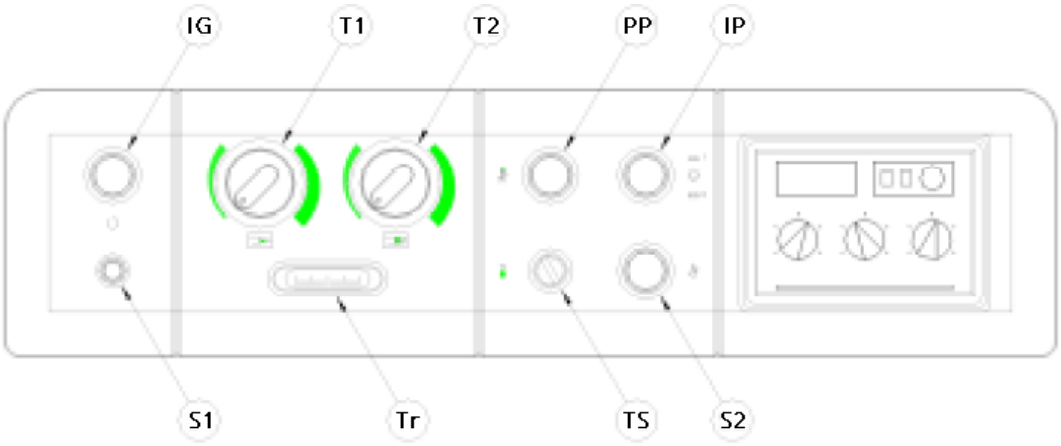
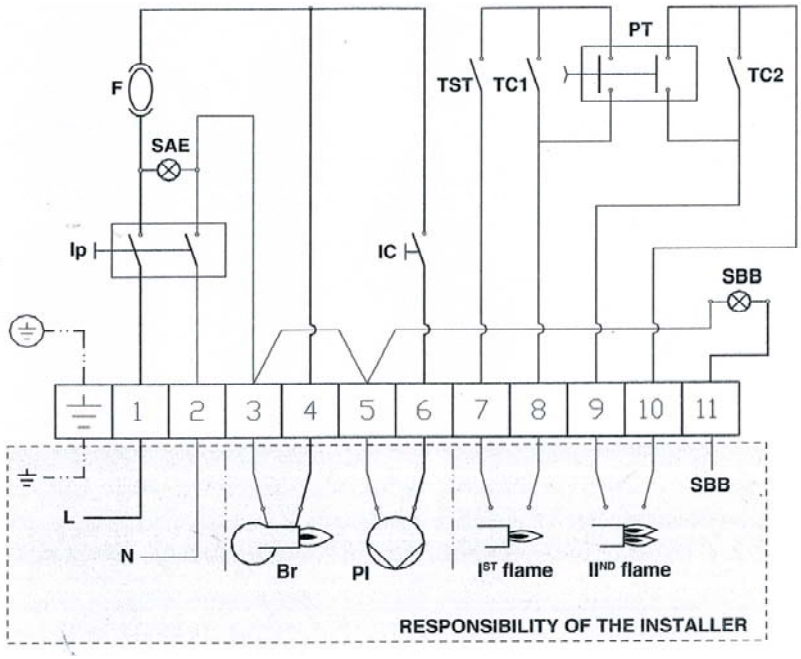
7.0 Control Panel.



#	Description
Ip	Appliance Power Switch
TC1	First Stage Thermostat
TC2	Second Stage Thermostat
PT	Thermostat Override Switch (Limit Thermostat Still Active)
IC	Pump Switch
SAE	Power On Neon
F	Fuse
TST	Limit Thermostat
SBB	Burner Lock-Out Neon



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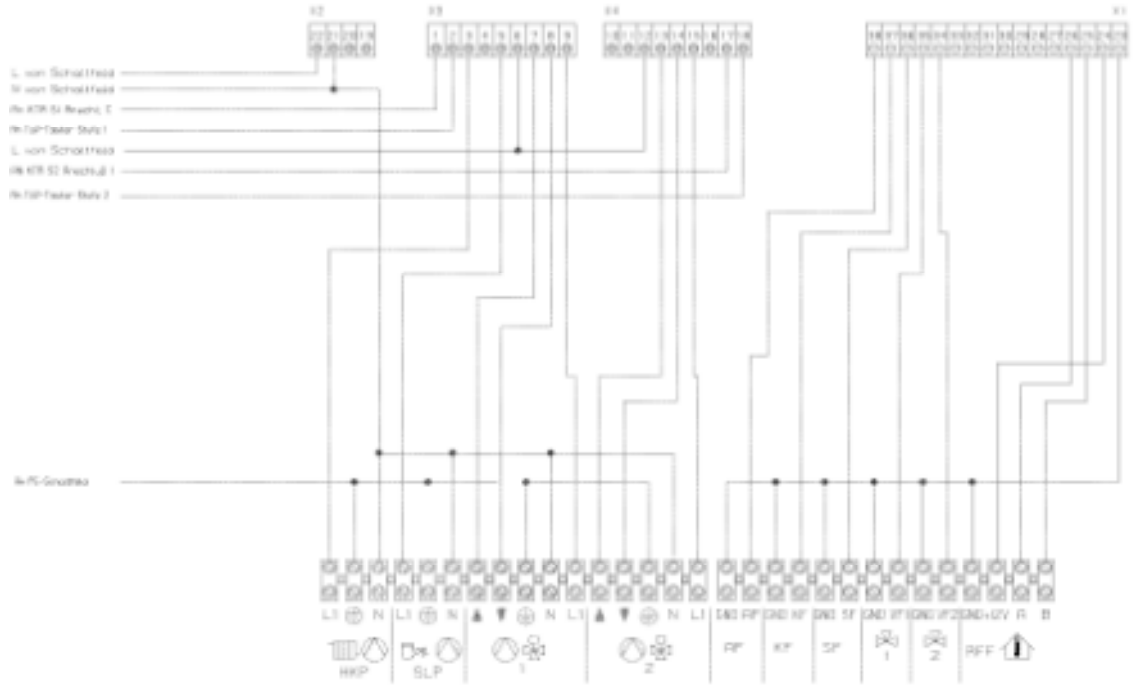
8.0 Theta Control Wiring Details



Ensure that the control and limit thermostat files are inserted into the sensor pocket at the top of the front section

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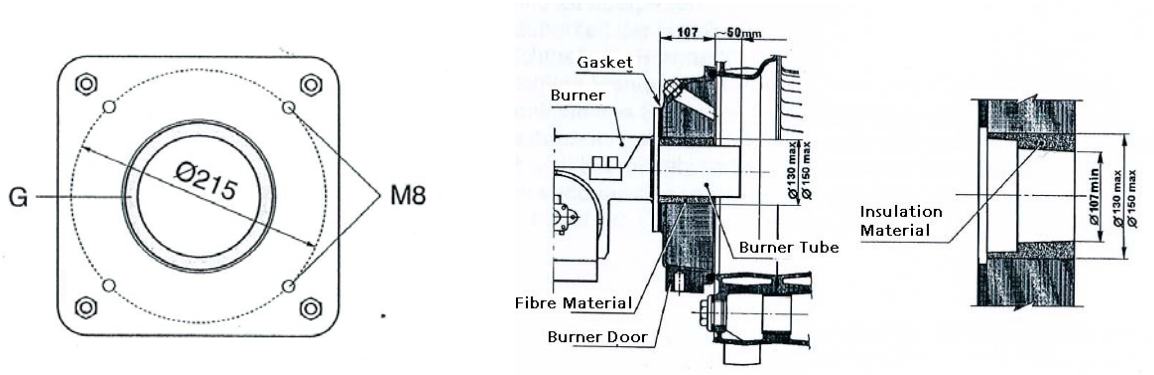
9.0 Burner Mounting.

To obtain the highest efficiency from the Euroline we recommend the use of MHG burners, in particular the Blue Flame Soot Free Oil Rocket Burner.

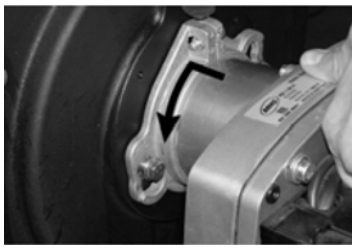
Please contact our sales department for further information.

Burner Moulting Plate. The dimension G should be referenced from the respective burner manual.

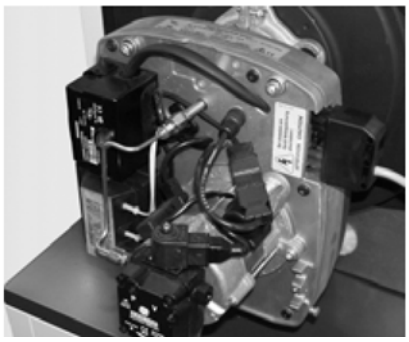


The instruction detailed below are specifically for MHGs Soot Free Rocket Burner.

Mount the door as indicated above. Ensure that the insulation is not damaged.



Mount the Blue Flame Rocket Burner as Indicated.



Additional burner mounting instructions and adjustment can be found within the respective burner manual.

All packaging materials should be disposed of in an environmentally aware way.

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10.0 Fluing Options

The appliance must be flued in accordance with prevailing regulations.

The application of draught stabilizers may be required to prevent excessive draughts from effecting the operation of the applied burner. In the case of the Rocket Burner the maximum draught is 0.3mbar.

11.0 Pressure (Safety) Relief Valve

In accordance with the prevailing British Standard 5440/6644, the installer shall install as suitably sized Pressure (Safety) Relief Valve.

The location of this valve is important with respect to the applied pressure of the boiler circulation pump, it is therefore recommended to locate the Pressure (Safety) Relief Valve on the flow pipe immediately adjacent to the boiler; furthermore, there must not be any means of isolation between the boiler and the Pressure (Safety) Relief Valve.

To assist with the correct positioning of the pressure relief valve hydraulic connector kits are available as an optional extra.

The minimum operating pressure of the system must remain above 0.5bar.

Ensure that the location of the applied circulating pumps do not reduce the pressure within the boiler to below stated minimum.

System Pressure managers and system pressure vessels are available from MHG if required.

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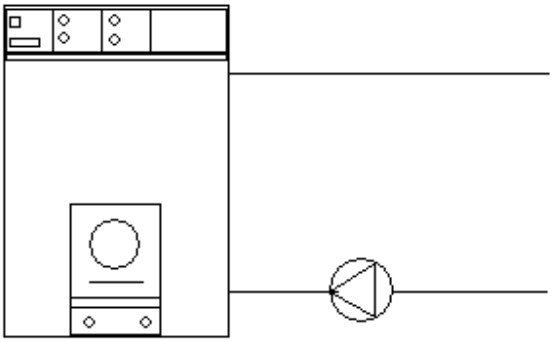
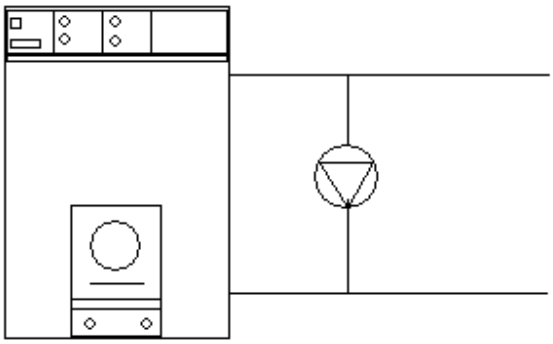
12.0 Hydraulic Configurations (Valves and associated safety devices have been omitted for clarity.)

The EUROLINE range has been designed to suit a vast number of installation hydraulic configurations. In all cases the minimum flow rate detailed in the appliance data table must be achieved through the units when during operational periods.

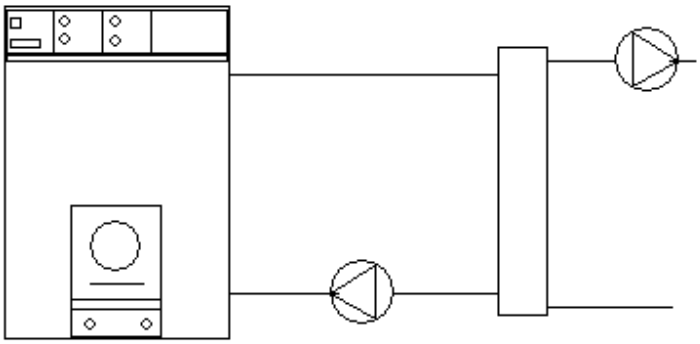
Single Boiler with guaranteed system circulation.



Single Boiler without guaranteed system circulation.



Single Boiler with Low Loss Header



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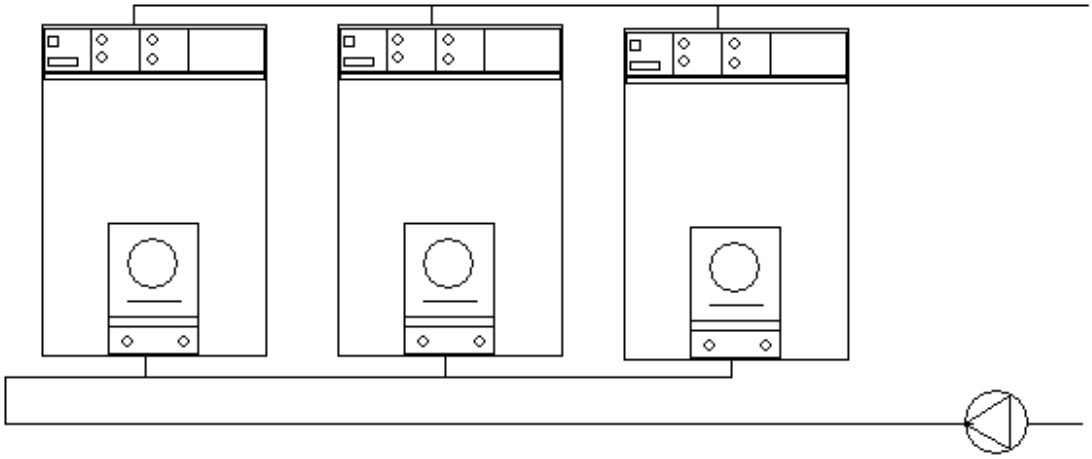
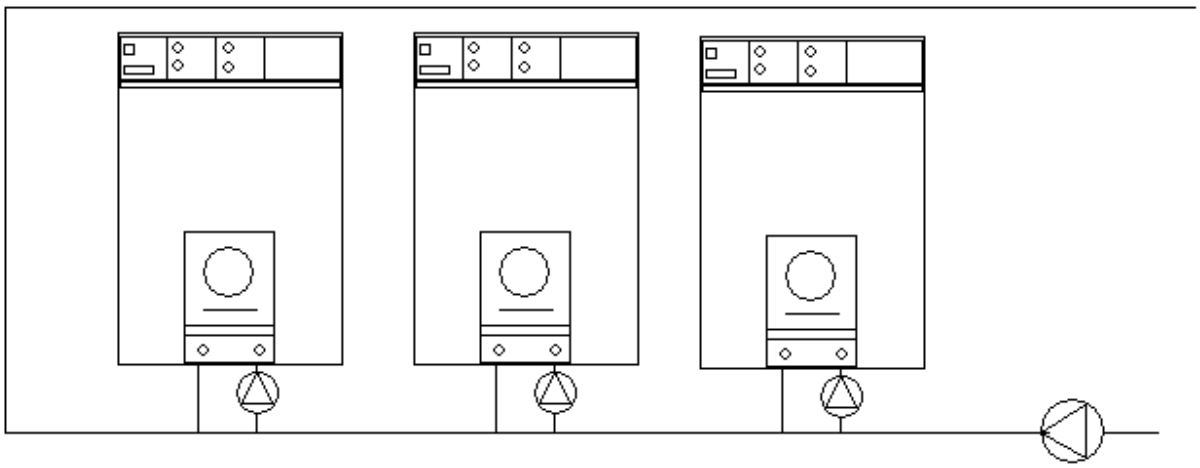
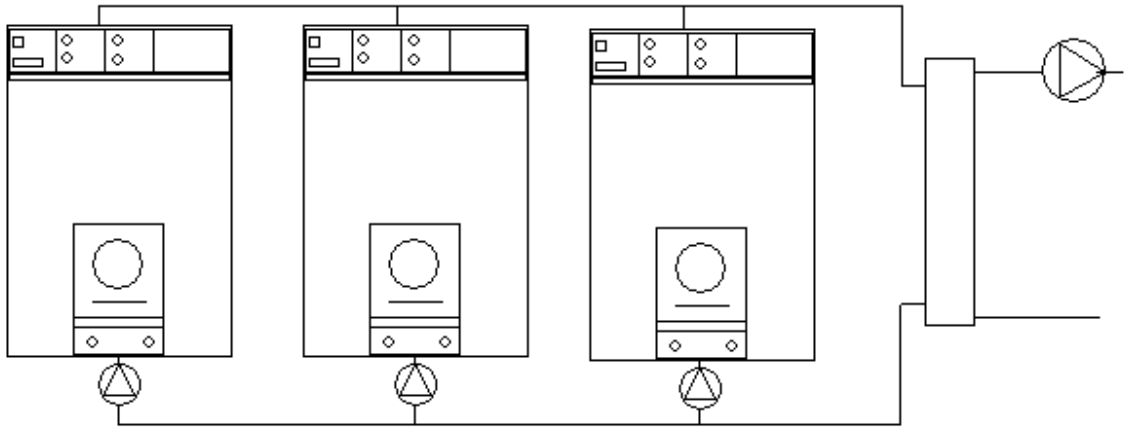
Multiple boilers with reverse return.



Multiple boilers with single pipe header.



Multiple Boilers with low loss header



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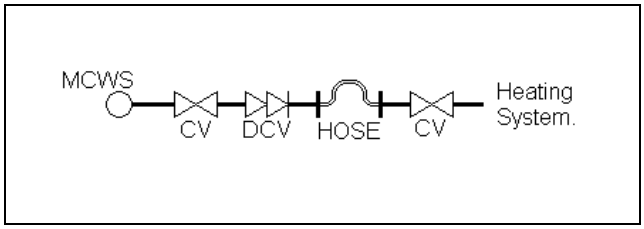
13.0 Filling The System

The Initial filling of a sealed heating system, and subsequent refilling, must be by a method that has been approved by the Water Regulation Advisory Scheme (WRAS) for that type of heating system.

i.e.	Domestic (*In-House*)	Fluid Category 3 (*C-3*)
	Non Domestic (Other than *In-House*)	Fluid Category 4 (*C-4*)

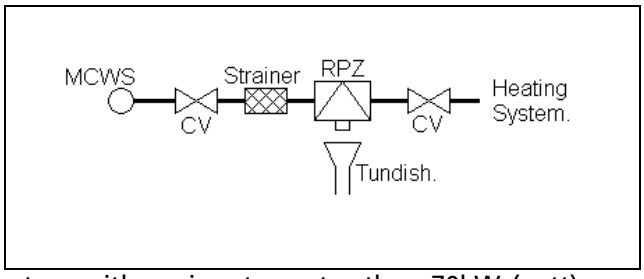
For Category 3 systems, the approved method of filling must comprise of the following components in the arrangement shown;

- Control Valve incorporating a Double Check Valve on the Mains Cold Water pipework.
- Temporary Connecting Hose, which must be disconnected after use.
- Control Valve, on the heating system.



For Category 4 systems, the approved method of filling must comprise of the following components in the arrangement shown;

- Control Valve.
- Strainer.
- Verifiable Backflow Device with Reduced Pressure Zone (RPZ Valve)
- Incorporating a 'Type BA' Air Gap.
- Tundish.
- Control Valve.



Further more, in accordance with BS 6644: 2005 system with an input greater than 70kW (nett), an automatic water replenishment unit shall be installed to automatically replenish any lost or evaporated water.

Please refer to BS 6644: 2005 for allowable water replenishment methods for use with sealed/pressurized heating systems.

For information on a comprehensive range of pressurization units that comply with current British Standards and WRAS Regulations, please contact MHG Heating Ltd Sales.

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14.0 Expansion Vessel

In accordance with BS 6644: 2005, WRAS Regulations, and Local Authority Water Regulations, as applicable, the installer shall install a suitably sized, and approved, Expansion Vessel to ensure that the water capacity of the system has ample expansion capacity.

The location of the expansion vessel shall only be isolatable from the system via a Lockable Type Service Valve, which shall be locked in the *OPEN* position, to prevent accidental isolation.
Furthermore, a drain facility should be provided adjacent to the expansion vessel to aide the routine maintenance, overhaul, of the vessels Air Pressure setting.

For information on a comprehensive range of expansion vessels that comply with current British Standards and WRAS Regulations, please contact MHG Heating Ltd Sales.

15.0 System Water Quality

Water Treatment, System Cleaning (BS 7592: 2006)

The entire primary system MUST be thoroughly cleaned and flushed to remove debris, flux residues, etc. before opening the boiler isolation valves & flooding the boiler. Particular care must be taken where the EUROLINE boiler is being retro-fitted into an old/existing system, as system silt or magnetite can be very damaging to the new boiler.
Following cleaning and flushing the system MUST be dosed with a good quality water treatment to prevent corrosion and the formation of scale. FAILURE TO OBSERVE THESE REQUIREMENTS WILL RENDER THE WARRANTEE ON THE APPLIANCE VOID.
Cleaning, flushing and water treatment must be carried out in accordance with the requirements of BS 7593:1992, prior to commissioning the boiler.
Repeated draining and refilling of the system, without replenishment of water treatment, must be avoided, as this is very damaging to the boiler. The boiler must not operate without the system water being correctly and adequately treated, and maintained, with an appropriate level of corrosion inhibitor.

For specific guidance on water treatment, direct contact is advisable with:-

Betz Dearborn Limited
(Sentiel)
Foundry Lane
Widnes
Cheshire
WA8 8UD
Tel: 0151 424 5351
Fax: 0151 420 5447

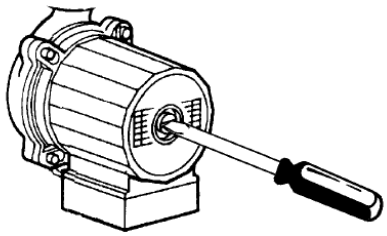
Alpha-Fry Technologies (Fernox)
Cookson Electronics
Forsyth Road
Sheerwater
Woking
Surrey
GU21 5RZ
Tel: 0208 665 6666
Fax: 0208 665 4695

16.0 Commissioning The Appliance

Pre-Commissioning Checks

Prior to undertaking the commissioning of the unit please ensure that the system water has been cleansed and treated with a suitable inhibitor as detailed in Filling the system and system water quality.

Prior to applying power to the appliance its circulation pump should be bled and checked to ensure free rotation of the armature.



Combustion System Commissioning.

Please refer to the respective burner manual to ensure that the burner and boiler are commissioned correctly.

A flue gas analyser must be used to ensure that the correct combustion setting are achieved.

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17.0 Notes

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