

ME STANDARD

ELECTRIC BOILER



OPERATING & MAINTENANCE MANUAL

MODELS - 90 - 120 - 150 - 180 - 210 - 245 - 280 - 315 - 350 - 385 - 420
455 - 490 - 525 - 560 - 595 - 630

09/2011 CODE: 560955 CE Directive 2006/95/CEE
British Standard EN 60335-1 (C 73800)



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1.0 INTRODUCTION

1.1 Description

The **ME STANDARD electric boiler** is suitable for a variety of types of space heating and indirect domestic hot water – covering sealed circuits from 0.5BARS to 7.0BARS working pressure.

The **ME STANDARD electric boiler** electric boiler always requires earthing, under protection index IP21/1K 08.

The **ME STANDARD electric boiler** electric boiler is designed and manufactured according to the following :-

- EN Decree 95-1081 – control of boiler materials and electrical supply voltage used in order to conserve the safety of persons and animals which might be in the vicinity
- European Directive 2006/95/CEE covering low voltage system application
- BS EN 60335-1 class C73800, part 1, general rules

THE STANDARD ELECTRIC BOILER

- Outputs from 90kW to 630kW
- Outputs above 630kW to 980kW by special order
- Maximum working pressure 7BARS, Test pressure 10BARS
- Maximum working temperature 100°C, limit 110°C
- 50mm thick glass silk insulation with MO fire classification cladding
- Hand reset limit thermostat at 110°C
- Resistance to earthing shock not less than 1 megohm

INCOLLOY IMMERSION HEATERS – 90kW to 180kW boilers

- Individual heater elements 80-200mm diameter
- Individual elements – 30kW, 415V, 3phase & earth
- Vertical access requirement – 2010mm

INCOLLOY IMMERSION HEATERS – 210kW to 630kW

- Individual heater elements 80-200mm diameter
- Individual elements – 35kW, 415V, 3phase & earth
- Vertical access requirement – 2050mm

CONTROL PANEL

- Control cabinet fixed to the boiler
- Enabling from remote electronic or hand operation
- Three cartridge fuses per each step control
- Three contactors, one per step
- One transformer for the control circuit
- One main isolator with manual lock
- One 'alive' lamp indicating power on
- One 'lock-out' lamp indicating boiler stopped
- One digital controller
- One set of terminal connections
- The control panel can
 - (i) be located in any of three positions on the boiler
 - (ii) have the panel door in either of two hinge positions
 - (iii) be provided with variable control & output

1.2 Performance

MODEL		90	120	150	180	210	245	280	315	350	385	420	455	490	525	560	595	630
Maximum Output	kW	90	120	150	180	210	245	280	315	350	385	420	455	490	525	560	595	630
Efficiency	%	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9
No of Immersion heaters		3	4	5	6	6	7	8	9	10	11	12	13	14	15	16	17	18
Min flow rate	l/sec	0.6	0.8	0.8	1.1	1.7	1.7	1.7	1.7	2.2	2.2	2.2	2.8	2.8	2.8	2.8	3.6	3.6
Max flow rate	l/sec	5.0	5.0	10.0	10.0	11.7	11.7	11.7	11.7	11.7	11.7	11.7	19.4	19.4	19.4	19.4	19.4	19.4
Max pressure drop	kPa	8	8	8	8	16	16	16	16	16	16	16	16	16	16	16	16	16
Flow/return connections	mm	80	80	80	80	100	100	100	100	100	100	100	150	150	150	150	150	150
Dry weight	kgs	117	121	125	129	233	238	243	248	253	258	263	367	372	377	382	387	392
Water content	litres	128	128	128	128	283	283	283	283	283	283	283	395	395	395	395	395	395
Total weight	kgs	280	285	295	320	430	435	450	460	505	510	520	650	650	650	670	670	690

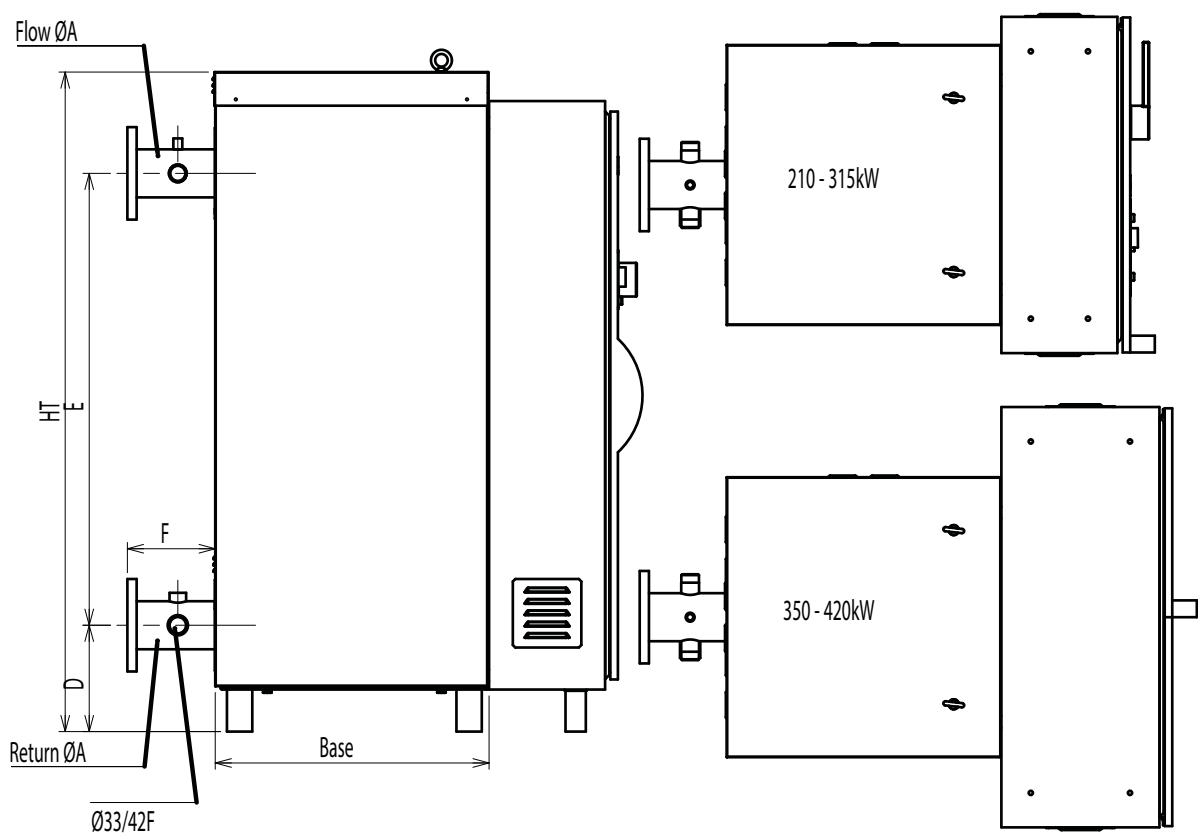
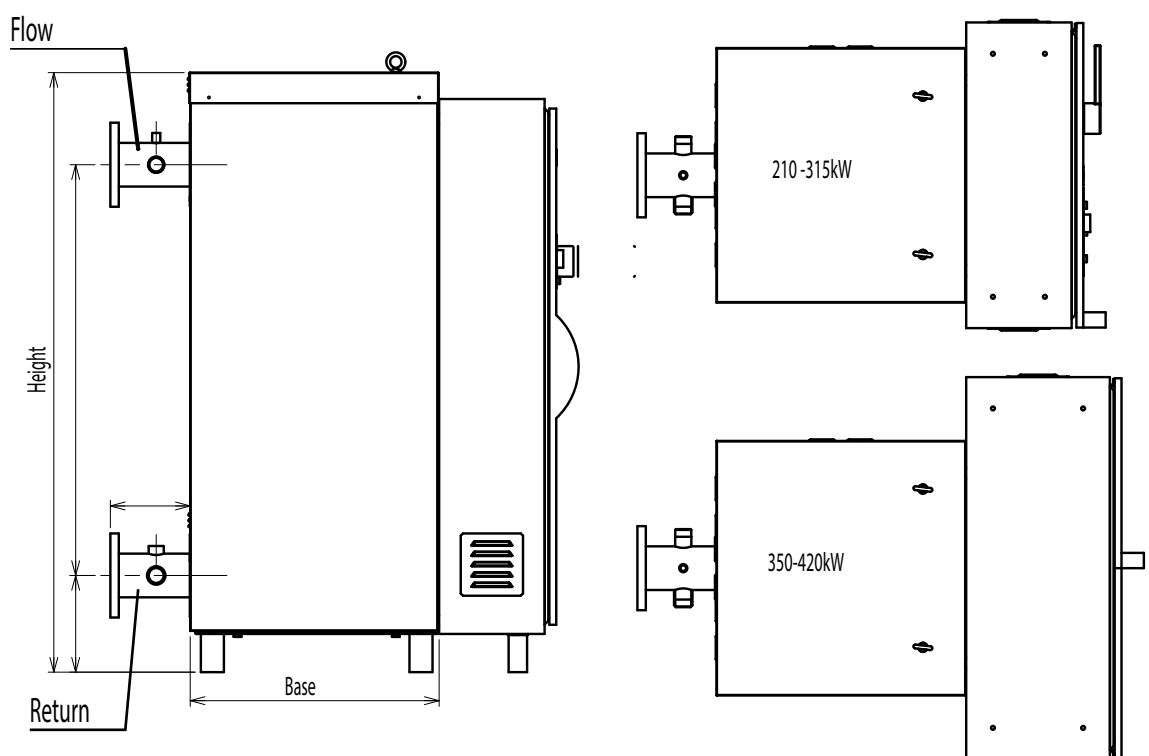
1.3 Dimensions

MODEL		90	120	150	180	210	245	280	315	350	385	420	455	490	525	560	595	630
Depth	mm	1030	1030	1030	1030	1180	1180	1180	1180	1280	1280	1280	1360	1360	1360	1360	1360	1360
Width	mm	600	600	600	600	800	800	800	800	1000	1000	1000	1000	1000	1000	1000	1000	1000
Height	mm	1380	1380	1380	1380	1570	1570	1570	1570	1700	1700	1700	1900	1900	1900	1900	1900	1900
Access above	mm	900	900	900	900	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
Access front	mm	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Access rear	mm	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Access side	mm	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Access other side	mm	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

1.4 Electrical Power Requirements **415 volts, 3 phase, 50Hz**

MODEL		90	120	150	180	210	245	280	315	350	385	420	455	490	525	560	595	630
OUTPUT STEP ONE																		
Power	kW	30	60	60	60	70	105	105	105	140	140	140	175	175	175	210	210	210
Fuse	amps	63	125	125	125	125	160	160	160	250	250	250	315	315	315	400	400	400
OUTPUT STEP TWO																		
Power	kW	30	30	60	60	70	70	105	105	140	140	140	175	175	175	175	175	219
Fuse	amps	63	63	125	125	125	125	160	160	250	250	250	315	315	315	315	315	400
OUTPUT STEP THREE																		
Power	kW	30	30	30	60	70	70	70	105	105	105	140	140	140	175	175	210	210
Fuse	amps	63	63	63	125	125	125	125	160	160	160	250	250	250	315	315	400	400

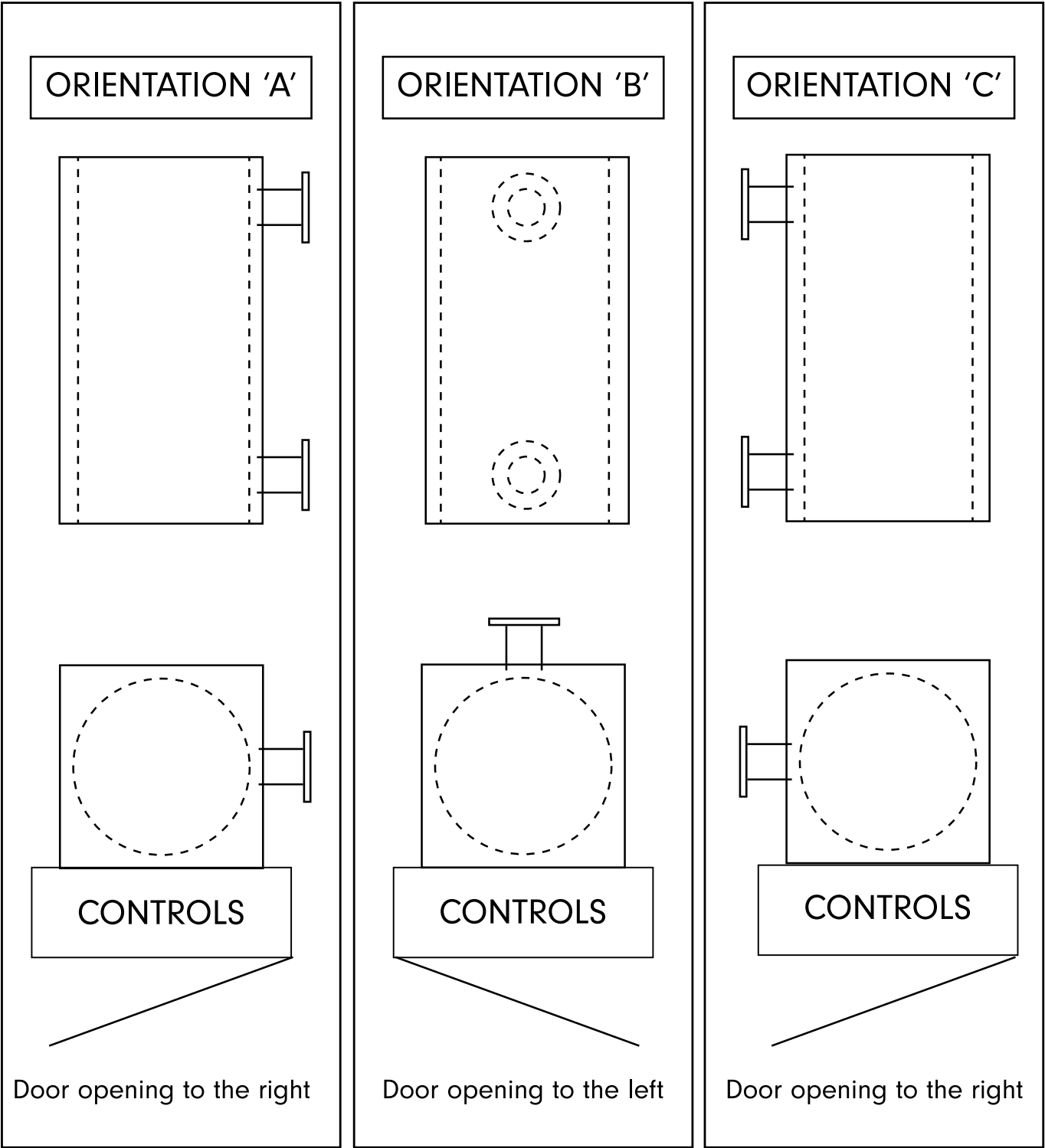
1.5 Drawings



ME STANDARD

ELECTRIC BOILER

INLET/OUTLET ORIENTATION with Control Panel



2.0 INSTALLATION

2.1 Procedure

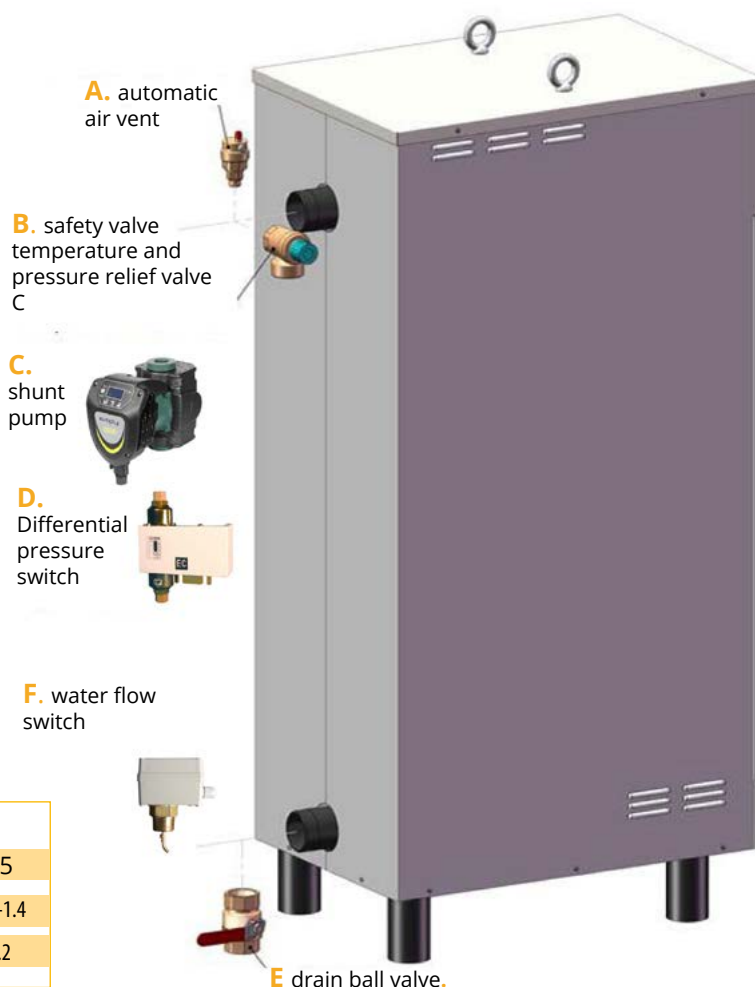
- Position the boiler squarely on the prepared base
- Fit the correct accessories to the boiler connections
- Connect the boiler to the pipework system
- Connect the boiler to the isolated electrical supply
- Fill the boiler with fresh, clean water
- Check that the immersion heaters are electrically isolated from the boiler. If the isolation is less than 2mega-ohms, the bridge must be found and rectified.
- Check the operation of the main control panel isolator, and of the overloads serving the immersion heaters
- Check the operation and the correct direction of rotation of the circulating pump
- Check, with the circulation pump stopped, that the water flow switch over-rides the immersion heaters through their relays and also brings on the relevant alarm light
- Check the setting and operation of the immersion heater step controls
- Switch off the immersion heaters using the main control panel isolator
- Check that all the cartridge fuses are sound
- **Double check that all the immersion heaters receive the common voltage. Repeat the check after several hours run. Any defect in voltage can destroy the heaters and invalidate the guarantee.**

2.2 Essential Accessories

The following items are required :-

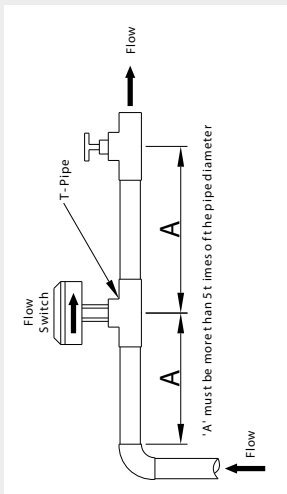
- A.** One automatic air vent with isolating valve
- B.** One 7 BAR safety valve and one 7 BAR temperature and pressure relief valve
- C.** One shunt pump
 - protected by overloads (0.37A to 1.4A adjustable)
 - and run + fault lamps
- D.** Differential pressure switch
- E.** One drain ball valve
- F.** One water flow switch

RECOMMENDED WATER FLOW SETTINGS (l/sec)				
Pipeline sizes: mm	32	40	50	65
Minimum range:	0.35-0.47	0.53-0.72	0.61-0.83	1.0-1.4
Maximum setting	1.0	1.6	1.9	3.2

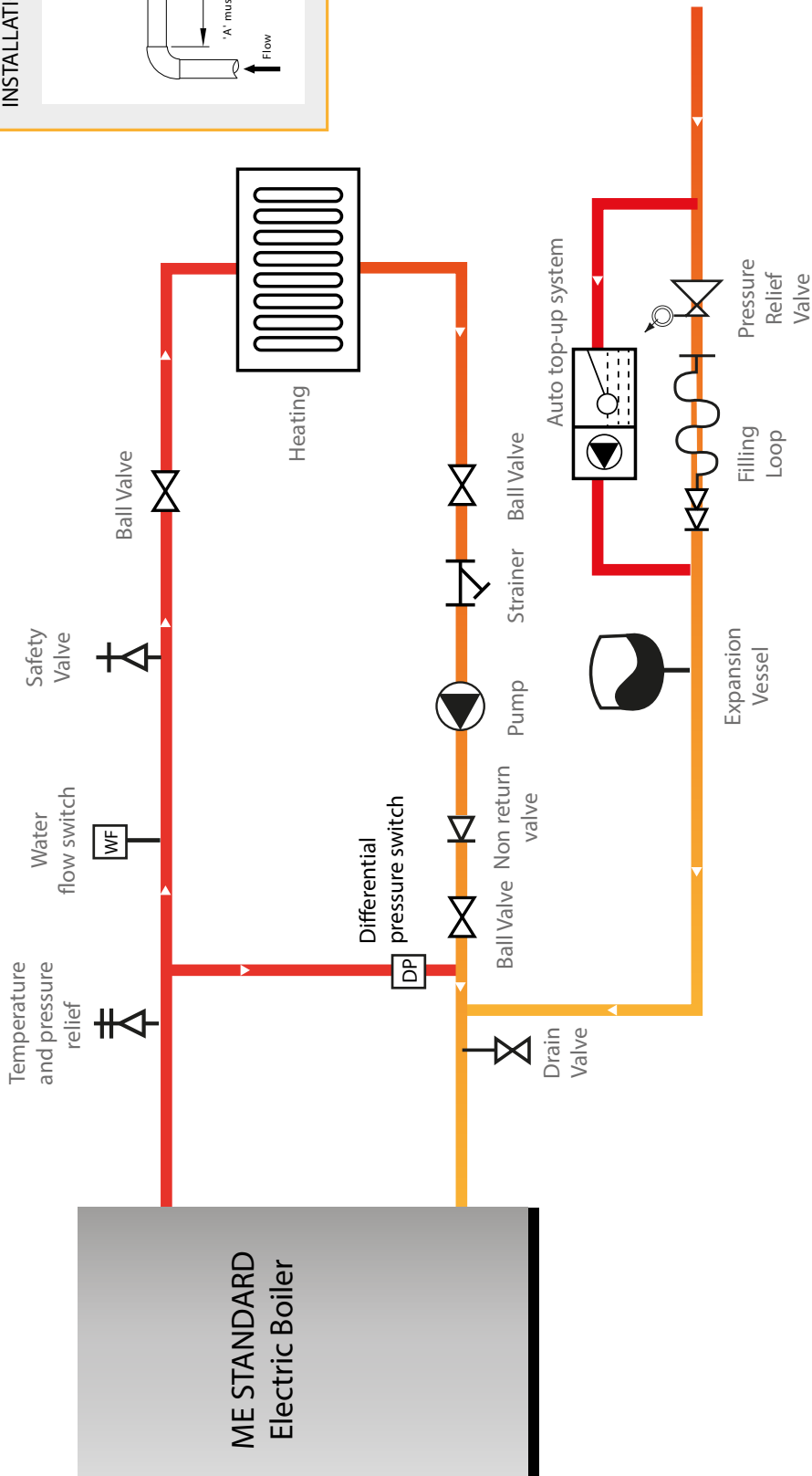


IMPORTANT

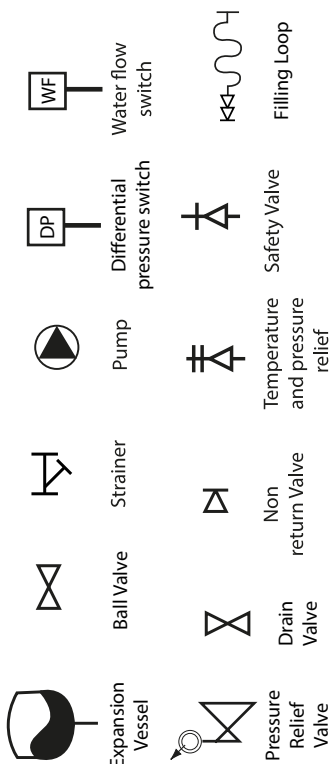
INSTALLATION DETAIL FOR WATER FLOW SWITCH



2.3 Typical Arrangement



ME STANDARD Typical Circuit



2.4 Precautions

The Multi-elec Standard requires an installation conforming to:

- Directive 2009/125/CE (Eco-Design)
- Directive 2010/30/UE (Energy Labelling)
- Directive 2014/35/UE (Low Voltage)
- Directive 2014/30/UE (Electromagnetic compatibility)
- Directive 2014/68/UE (Pressure equipment directive)

- The electric boilers operate at more than 99.5%GCV efficiency
- They require minimal maintenance, are silent & are compact.
- With wind or water electric generation, they use green energy.

To release a large amount of heat to water heating systems:

- A: They need a minimum static water pressure of 1 BAR when cold. When hot, this pressure will rise and must not exceed 6 BARS for the normal boiler (higher pressures available)
- B: They need a minimum water flow rate which is given in the boiler manual. Atlantic Boilers offer a shunt pump set for each boiler which is fitted in the same pipe line as the boiler. The pump will exceed the minimum water flow rate.
- C: They must not exceed maximum water flow rate which is given in the boiler manual.
- D: In case the pump fails or a valve is closed, Atlantic Boilers offer a water flow switch fitted in the same pipeline as the boiler and set to just below maximum flow. If the switch registers maximum flow, the boiler stops
- E: We recommend an automatic pressurisation unit, with low and high pressure limits to safeguard the electric boiler via its control panel. The unit will include a fast-fill loop to initially fill the system.
- F: The system should be isolated, flushed, filled and treated separately from the boiler. Fill the boiler with clean, pure water only.

Detailed water treatment of Multi-elec electric boilers fitted with adjoining balancing * sedimentation vessel

- Filling the outgoing secondary through the BSV pipework, the water can be variable due to its source and it can be aggressive. It may need neutralisation by chemical additives or even the use of Plate Heat Exchanger to divide the system out.
- The secondary water needs to be introduced though the BSV drain point or cold feed point.
- The electric boiler(s) need clean pure water introduced from the boiler drain valves
- The strainers, fitted in the secondary, need to be fitted in returns to the BSV where they capture the most part of the deposits.
- The strainers, fitted in the boiler returns, need to be of fine extended secondary circuits, mesh, to capture any overflow of deposit from the secondary circuits.

2.5 Boiler room arrangements

The Multi-elec Standard must be installed:

- In an adequately-ventilated boiler room with ambient temperature below 30°C and relative humidity maintained between 30% and 80% and where condensation does not occur
- In a non-corrosive atmosphere
- In a non-explosive atmosphere
- Where there is good access to the boiler position for installation and maintenance
- Where there is good access for delivery, off-loading and positioning
- Using similar materials in the in the pipework, and avoiding materials leading to electrolytic action and system deterioration

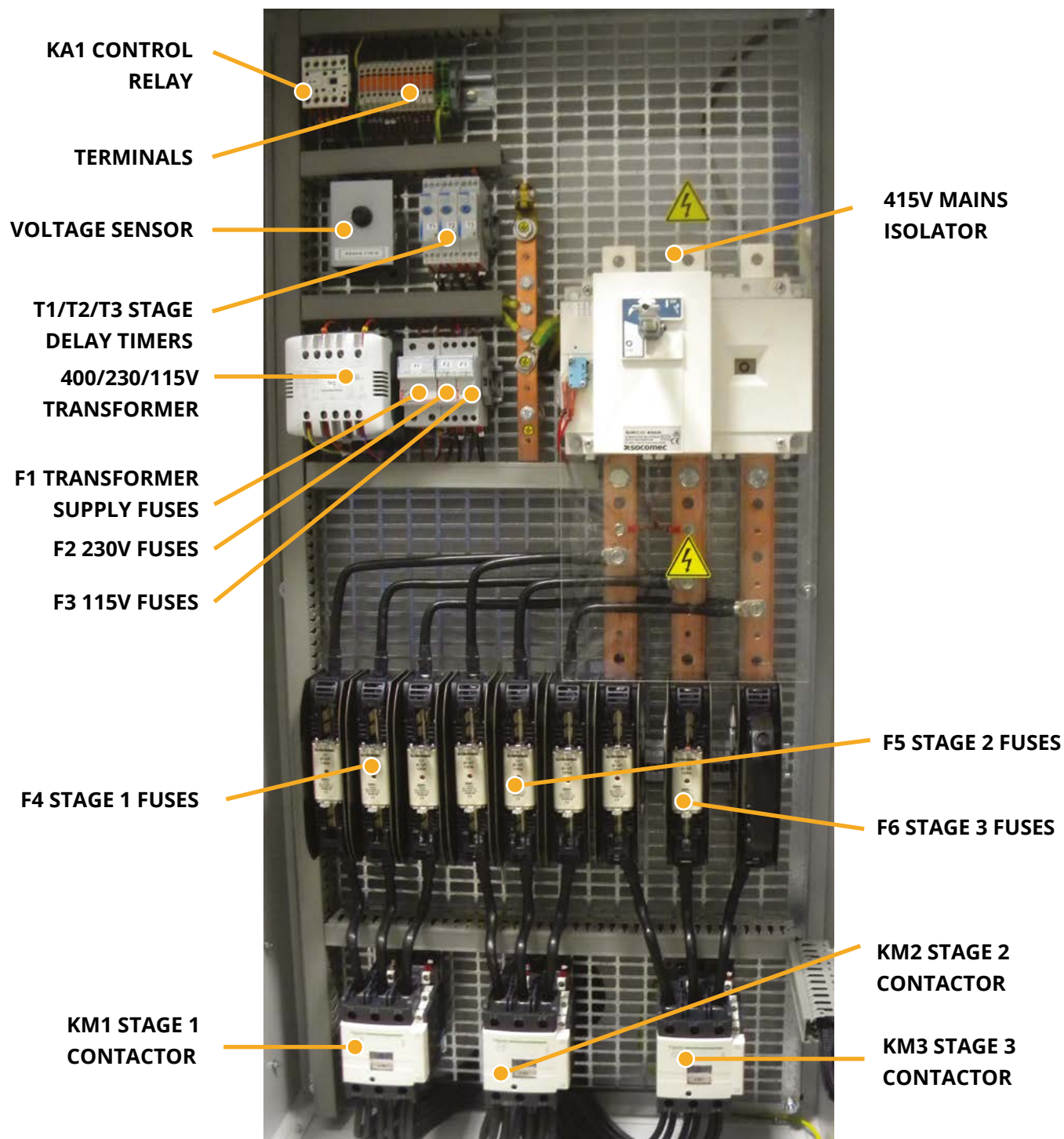
The Multi-elec Compacte is not suitable for external installation

2.6 Commissioning

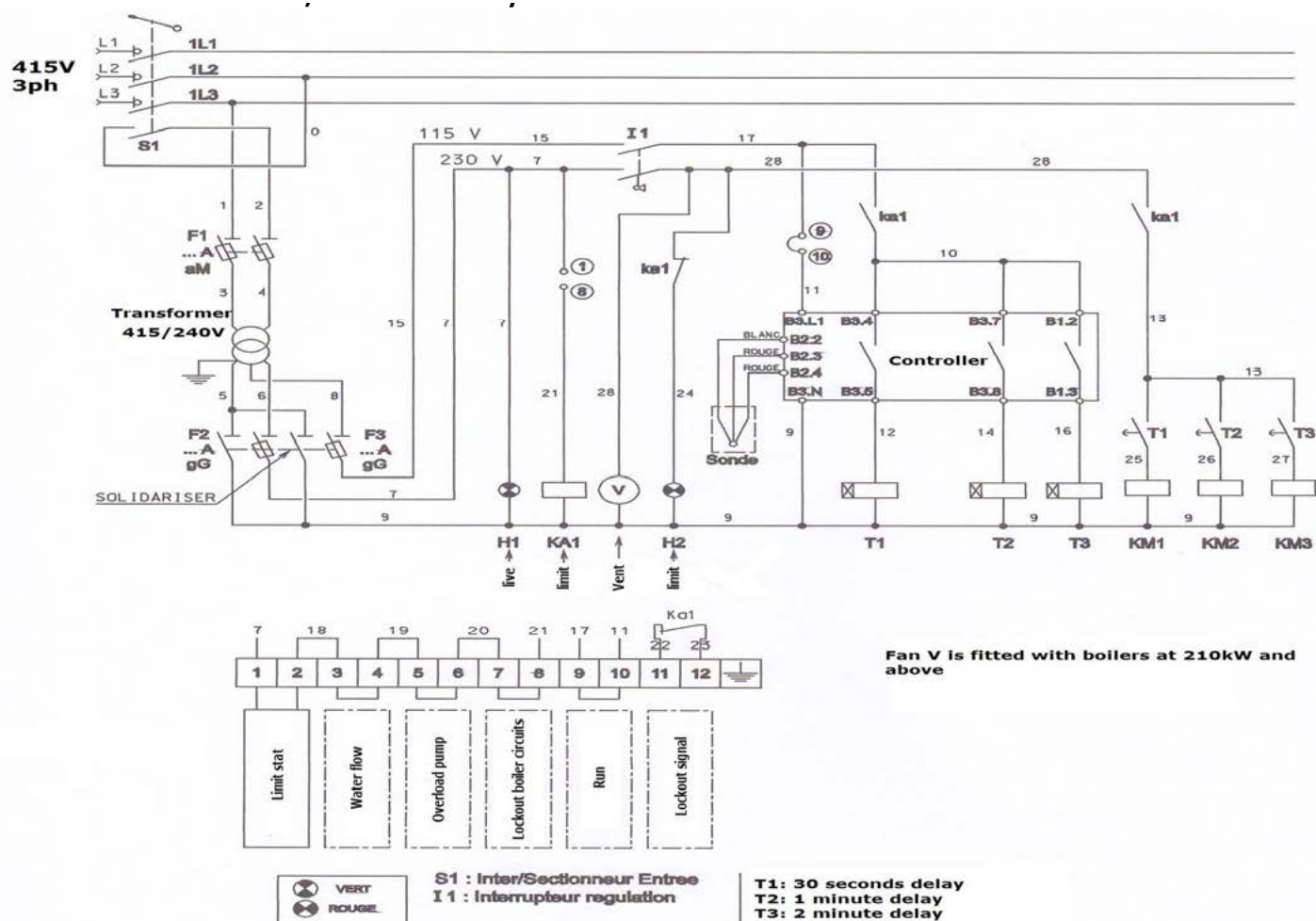
- The boiler must be completely full of water before the heating elements are switched on. To ensure 100% filling, manual and automatic vents must be in effective positions where complete air clearance can be guaranteed.
- The boiler can be filled with water by connecting a fill hose to the boiler drain valve and partly opening the valve.
- The boiler safety valve can also be used firstly to vent the boiler at filling and, secondly, ensuring the blow-down facility of the valve is clear in case of use.
- Commissioning is recommended by Atlantic 2000 or an authorised engineer for Atlantic equipment.

3.0 ELECTRICAL ARRANGEMENTS

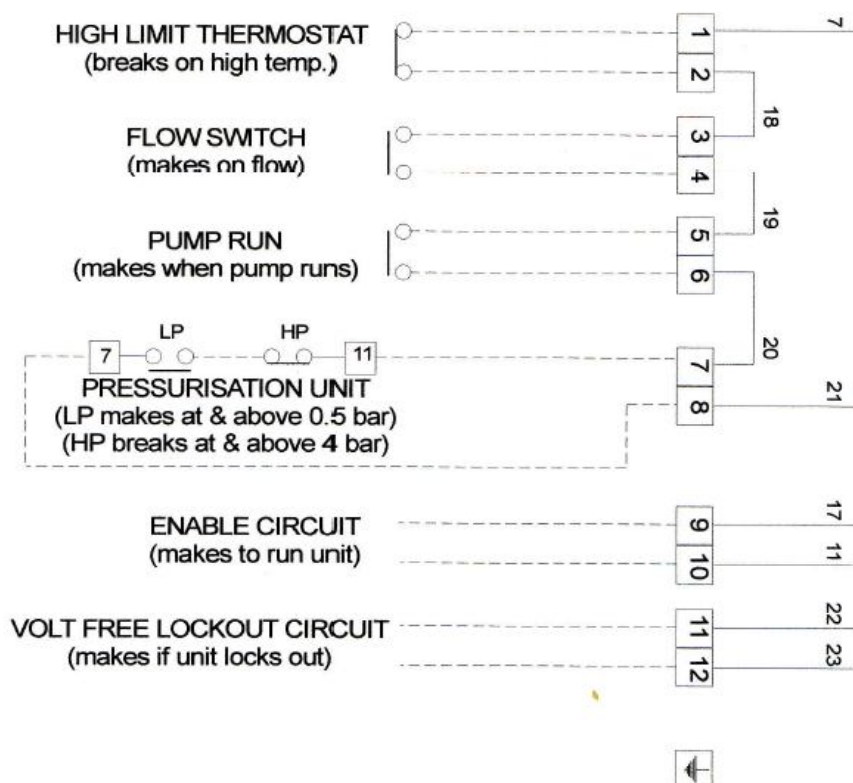
3.1 Control Panel Arrangement



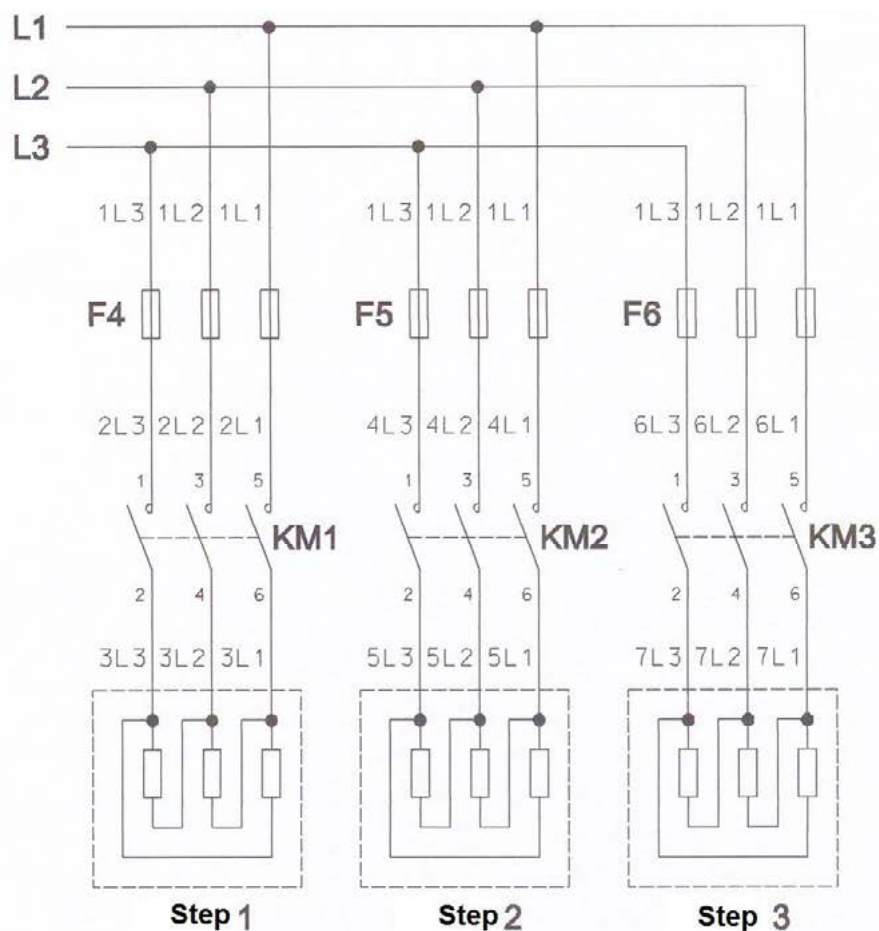
3.2 Control Circuitry



EXTERNAL CONTROLS



3.3 Electrical power circuitry



MODEL	90	120	150	180	210	245	280	315	350	385	420	455	490	525	560	595	630
OUTPUT STEP ONE	30	60	60	60	70	105	105	105	140	140	140	175	175	175	210	210	210
OUTPUT STEP TWO	30	30	60	60	70	70	105	105	140	140	140	175	175	175	175	175	219
OUTPUT STEP THREE	30	30	30	60	70	70	70	105	105	105	140	140	140	175	175	210	210

3.4 Fuse and overload protection

Fuse ratings and type: – industrial cylindrical cartridge

MODEL 90- 280kW

FUSES F1 1A type aM, F2 – 1A type gG, F3 – 0.5A type gG

MODEL 90- 280kW

FUSES F1 1A type aM, F2 – 1A type gG, F3 – 0.5A type gG

FUSES F4-F6 Type 22 x 58 : 63A type gG
Type 0 : 125A type gG
Type 1 : 160A type gG
Type 2 : 250, 315 & 400A type gG

Amperage requirement – insert table from earlier

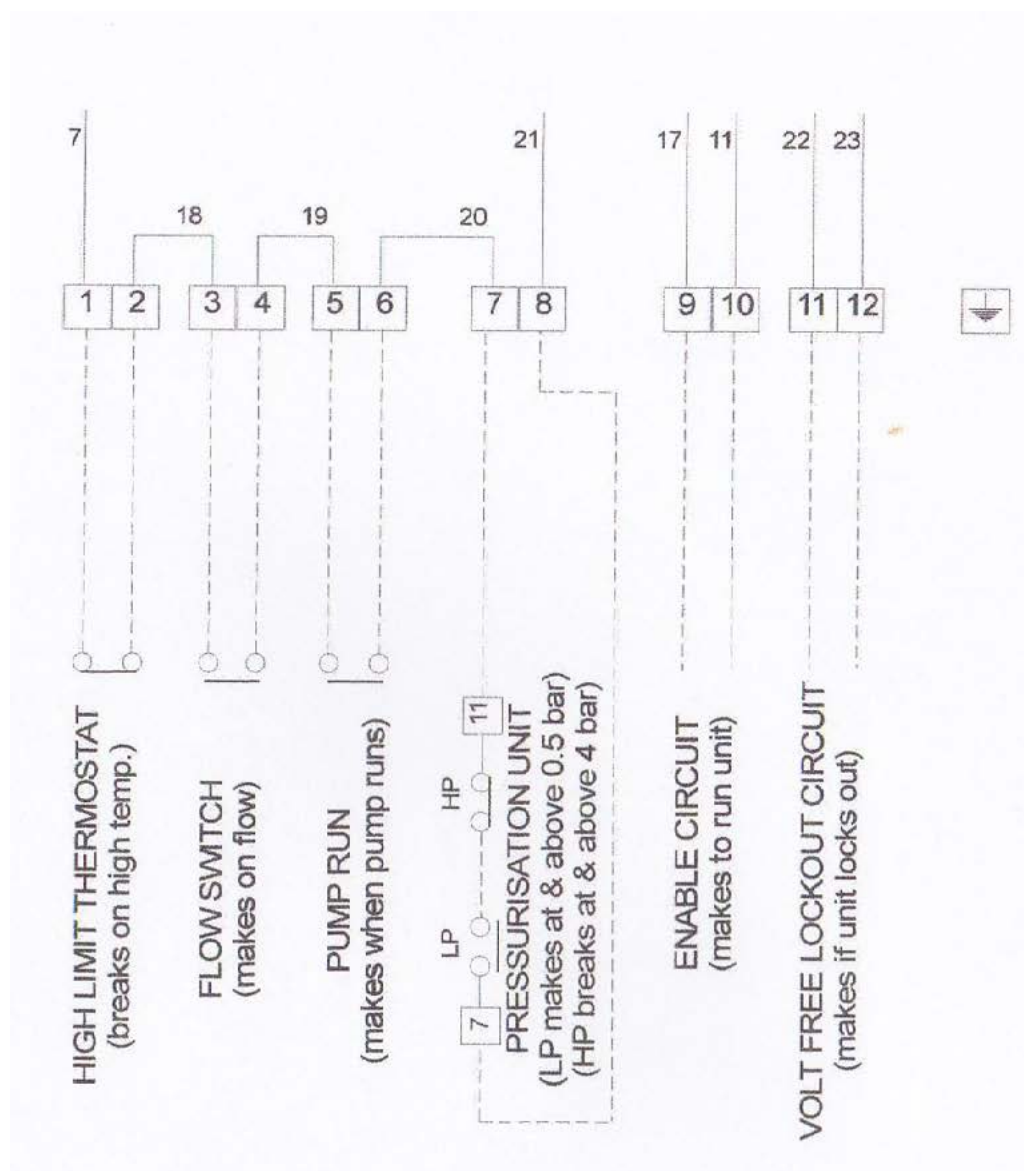
3.5 Electrical Circuit

Electrical circuit

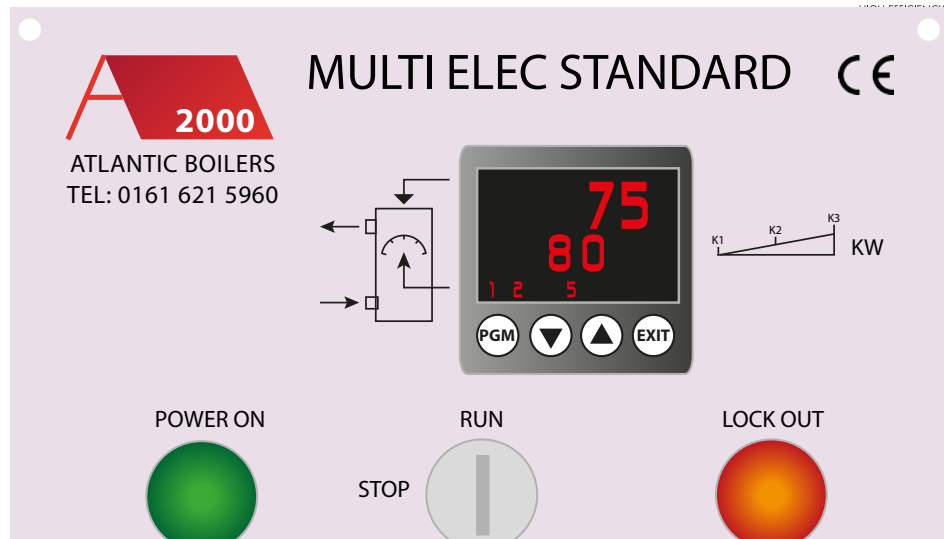
- The Standard electric boiler must be provided with 415volts and without neutral wiring
- The electrical wiring cables must be sized by a qualified electrician in order to conform to BS C 15100 and satisfying load, length of run and prevention of short circuit.
- The installation must be tested for automatic power failure in the event of emergency power cut, heater lock-out or error in the neutral layout.
- All electrical equipment shall satisfy IP21/IK08 Class 1
- The immersion heaters shall only receive electrical power if they are fully immersed in water; otherwise the guarantee on the heaters will not apply

ALL ELECTRICAL WIRING MUST BE CORRECTLY EARTHED

3.6 Terminal connection drawing



3.7 Operation of the digital controller



Factory settings (primary heating circuit)

Flow temperature – 80degC

Maximum flow temperature setting – 95degC

Minimum flow temperature setting - 20degC

Time delay T1 – 30 seconds

Time delay T2 - 1 minute

Time delay T3 - 2 minutes

digital controller has numbers or message, touch settings

+ – touch raise settings, – touch lower settings

1. The Panel has a registration label
2. The wiring is capable of a maximum current of 23kA
3. Neutral panel wiring is not required
4. The Panel is protected by isolators, circuit breakers and fuses.
5. Earth wiring is essential
6. One week after commissioning, all connectors – on immersion heaters and incoming electrical supplies – need to be checked. This should be repeated annually.
7. Manufacturing tests include heat output and control circuitry
8. The boilers should not be installed or operated in corrosive, explosive or humid atmosphere
9. Adequate natural ventilation is required. 550mm² x kW free area at high and low level is recommended

3.8 Alarm Signals

On Alarm, light (7) shows and the following messages appear on (1)

< PFO > Lock-out or power cut

< HA > High temperature lock-out

< LA > Low temperature alarm

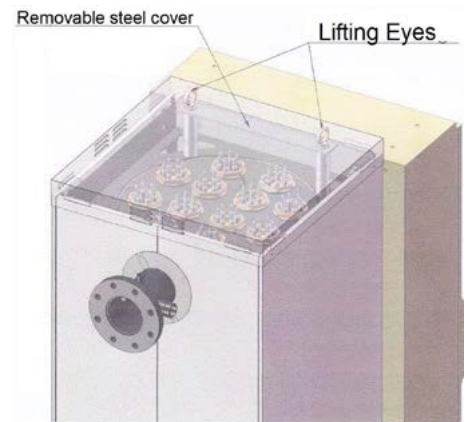
4.0 DELIVERY/OFF-LOADING

It is recommended that the STANDARD electric boiler is transported and, if necessary, stored on the pallet on which it is delivered from the factory.

If temporarily stored, the surroundings should be maintained at temperatures below 80°C, and without condensation at relative humidities between 30% and 80%

Manhandling the STANDARD electric boiler into position requires :-

- (a) Qualified, skilled manpower
- (b) Use of a pallet trolley or a fork lift truck
- (c) Use of the lifting eyes provided on the boiler and tested of lifting beams



5.0 MAINTENANCE

Effective maintenance must aim at preventing :-

- a). a reduction in the movement of water circulation through the boiler - this can result in the formation of sediment or limescale on the boiler immersion heater elements
- b). pockets of high temperature water across the boiler immersion heater elements - resulting in their destruction by overheating
- c). accumulation of sediment or limescale within the boiler, particularly on or around the boiler immersion heater elements - overcoming these developments by the introduction of fresh, clean water without any inhibitor or de-scaling agent

Minimum maintenance periods

A) Monthly maintenance

- i) Check operation of the automatic air vent
- ii) Check operation of the water flow switch
- iii) Check operation of the safety valve

B) Annual maintenance

- i) Carry out the monthly checks
- ii) Check all the electric control functions
- iii) Check all pipework joints are water-tight
- iv) Drain off small amount of boiler water content and check for condition

C). 4-yearly maintenance

- i) Carry out the annual maintenance
- ii) Isolate the boiler safely from all services
- iii) Drain the boiler of water and open up for inspection
- iv) Check for all maintenance requirements and remedy as necessary
- v) Close and seal the boiler, fill with fresh clear water through drain outlet
- vi) Pressure test, then repeat annual maintenance procedure

07 SPARES

Controller	790220
Flow sensor	583027
30kW immersion heater	2534
35kW immersion heater	2536
Limit thermostat	581104
Water flow switch	480230

08 FAULT DETECTION

Before making any physical check, switch off the power

FAULT	CHECK
The 'live' light is out	Check for incoming power Check fuses F1 and F2 Check the 'live' bulb
The controller screen is out	Check fuse F3
Step 1 or Step 2 light is out	Change the bulb
The 'red' light is lit	Check the limit thermostat Check the water flow switch action Check the circulating pump overload
If the fault remains Call in a qualified service engineer	

GUARANTEE



This GUARANTEE is to the PURCHASER of the Boiler(s) who is deemed to be the INSTALLER of the Boiler(s). If the Boiler(s) is(are) purchased by the EVENTUAL USER who then arranges to install the Boiler(s), the EVENTUAL USER is deemed to be the INSTALLER. The details of the GUARANTEE are given to assist the INSTALLER in obtaining effective action within the GUARANTEE and they are in addition to the INSTALLER'S Legal Rights under the relevant statutory enactments for the time being in force in England, Scotland, Wales and Northern Ireland.

GAS, OIL, B100 bio-diesel or ELECTRICAL EQUIPMENT

The Replacement or Repair of the item, including the Cost of its Delivery to the site of the installation or its equal, provided that the Defect or Flaw occurs within one Calendar Year of the Commissioning Date.

REMOVABLE COMPONENTS OF THE BOILER ASSEMBLY

(other than the gas, oil or electrical equipment)

The Replacement or Repair of the item, including the Cost of its Delivery to the site of the installation, provided that the Defect or Flaw occurs within one Calendar Year of the Commissioning Date.

THE MAIN BODY OF THE BOILER

The repair of any Defect or Flaw in the Main Body of the Boiler including any necessary removal or replacement of that part of the Boiler on site if the Defect or Flaw occurs within five calendar years of the Commissioning Date

DEFINITIONS

The effective actions stipulated in this guarantee are subject are subject to the PURCHASER complying completely with the following :-

1. The Boiler(s) is(are) installed according to the Recommendations of the Atlantic Boilers' Manual, the Recommended Codes of Practice of the CIBSE, the BSI, the BSRIA. and the Atlantic Boilers' Commissioning Check List.
2. The Commissioning of the Boiler(s) by an Atlantic Engineer employed or authorised by Atlantic Boilers, and regular servicing & maintenance according to the Atlantic Boilers' Manual & Service Booklet.
3. The Payment in Full by the Purchaser, unless otherwise agreed, of the invoices for the Supply of the Boiler(s) as agreed, and the invoices for commissioning and any correction of installation error, all to be made within agreement terms.
4. The Presentation at the time of a Claim under the Guarantee, of the Boiler Registration number, the Commissioning Record and the necessary information for defining any Replacement Part.
5. When a Replacement Part is supplied for a Defective Item, the Defective Item must be returned to Atlantic Boilers at their Head Office within 6 weeks of the Date of Notification of the Defect and must be carefully labelled with Registration Number of the Boiler together with the Name and Order Reference of the Purchased of the Boiler. If this is not complied with, the Purchaser will be charged with the Cost of the Item and its Delivery.

DECLARATION OF CONFORMITY



We Harry Taylor Artefacts Ltd trading as Atlantic 2000

Address PO Box 11, Ashton Under Lyne, OL7 7TR

Email: technicalsales@atlanticboilers.com

Declare under our own responsibility that the following product/s

Atlantic RX Digitale

Range: 24kW

Atlantic ME Compacte

Range: 36kW / 48kW / 60kW / 72kW

Atlantic ME Standard

Range: 90 kW / 120 kW / 150kW / 180 kW / 210kW
245kW / 280kW 315kW / 350kW / 385kW / 420kW
455kW / 490kW / 525kW 560kW / 595kW / 630kW
665kW / 700kW / 735kW / 770kW / 805kW / 840kW
875kW / 910kW / 945kW / 980kW

are in compliance with European directives:

Directive 2009/125/CE (Eco-Design)

Directive 2010/30/UE (Energy Labelling)

Directive 2014/35/UE (Low Voltage)

Directive 2014/30/UE (Electromagnetic compatibility)

Directive 2014/68/UE (Pressure equipment directive)

are in compliance with European norm(s):

NF EN 60335 - 1 (Ranking index C 73800)

Name: Harry Howard MA CEng MCIBSE

Position: Director

Signature:

Date:

11/11/20



FOR TECHNICAL HELP/ADVICE Call 0161 621 5960
or email technical@atlanticboilers.com

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