MURELLE HE
25/55-30/55

Installation and servicing instructions
All descriptions and illustrations provided in this manual have been carefully prepared but we reserve the right to make changes and improvements in our products that may affect the accuracy of the information contained in this manual.
Code Of Practice
For the installation, commissioning and servicing of domestic heating and hot water products

Benchmark places responsibilities on both manufacturers and installers.* The purpose is to ensure that customers** are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer’s instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. Installers are required to carry out work in accordance with the following:

Standards of Work

- Be competent and qualified to undertake the work required.
- Install, commission, service and use products in accordance with the manufacturer’s instructions provided.
- Ensure that where there is responsibility for design work, the installation is correctly sized and fit for purpose.
- Meet the requirements of the appropriate Building Regulations. Where this involves notifiable work be a member of a Competent Persons Scheme or confirm that the customer has notified Local Authority Building Control (LABC), prior to work commencing.
- Complete all relevant sections of the Benchmark Checklist/Service Record when carrying out commissioning or servicing of a product or system.
- Ensure that the product or system is left in a safe condition and, whenever possible, in good working order.
- Highlight to the customer any remedial or improvement work identified during the course of commissioning or servicing work.
- Refer to the manufacturer’s helpline where assistance is needed.
- Report product faults and concerns to the manufacturer in a timely manner.

Customer Service

- Show the customer any identity card that is relevant to the work being carried out prior to commencement or on request.
- Give a full and clear explanation/demonstration of the product or system and its operation to the customer.
- Hand over the manufacturer’s instructions, including the Benchmark Checklist, to the customer on completion of an installation.
- Obtain the customer’s signature, on the Benchmark Checklist, to confirm satisfactory demonstration and receipt of manufacturer’s instructions.
- Advise the customer that regular product servicing is needed, in line with manufacturers’ recommendations, to ensure that safety and efficiency is maintained.
- Respond promptly to calls from a customer following completion of work, providing advice and assistance by phone and, if necessary, visiting the customer.
- Rectify any installation problems at no cost to the customer during the installer’s guarantee period.

*The use of the word “installer” is not limited to installation itself and covers those carrying out installation, commissioning and/or servicing of heating and hot water products, or the use of supporting products (such as water treatment or heat equipment).

**Customer includes householders, landlords and tenants.

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The Benchmark Scheme

Sime Ltd is a licensed member of the Benchmark Scheme which aims to improve the standards of installation and commissioning of domestic heating and hot water systems in the UK and to encourage regular servicing to optimise safety, efficiency and performance.

Benchmark is managed and promoted by the Heating and Hotwater Industry Council. For more information visit www.centralheating.co.uk
IMPORTANT

When carrying out commissioning of the boiler, you are highly recommended to perform the following checks:

– Make sure that there are no liquids or inflammable materials in the immediate vicinity of the boiler.
– Make sure that the electrical connections have been made correctly and that the earth wire is connected to a good earthing system.
– Open the gas tap and check the soundness of the connections, including that of the burner.
– Make sure that the boiler is set for operation for the type of gas supplied.
– Check that the flue pipe for the outlet of the products of the combustion is unobstructed and has been properly installed.
– Make sure that any shutoff valves are open.
– Make sure that the system is charged with water and is thoroughly vented.
– Check that the circulating pump is not jammed (CAUTION: protect the control panel from any water lost from the pump.
– Purge the system, bleeding off the air present in the gas pipe by operating the pressure relief valve on the gas valve inlet.
– Ensure that all the controls and safety devices have been demonstrated to the user.
– Ensure that all the manuals and documentation that are supplied with the boiler are left with the user.

Important Information

IT IS A STATUTORY REQUIREMENT THAT ALL GAS APPLIANCES ARE INSTALLED BY COMPETENT PERSONS, IN ACCORDANCE WITH THE GAS SAFETY (INSTALLATION AND USE) REGULATIONS (CURRENT EDITION). The manufacturer’s instructions must not be taken as overriding any statutory requirements, and failure to comply with these regulations may lead to prosecution.

No modifications to the appliance should be made unless they are fully approved by the manufacturer.

GAS LEAKS: DO NOT OPERATE ANY ELECTRICAL SWITCH, OR USE A NAKED FLAME. TURN OFF THE GAS SUPPLY AND VENTILATE THE AREA BY OPENING DOORS AND WINDOWS CONTACT THE GAS EMERGENCY SERVICE ON 0800111999.
1 DESCRIPTION OF THE BOILER

1.1 INTRODUCTION

MURELLE HE 25-30/55 are premixed gas condensation thermal modules that employ a microprocessor-based technology to control and manage all the functions. All modules are compliant with European Directives 90/396/CE, 2004/108/CE, 2006/95/CE and 92/42/CE. For optimum installation and operation, always follow the instructions provided in this manual.

The products manufactured and sold by Sime do not contain any banned materials or substances (i.e. they comply with ISO9000:2000).

1.2 UNPACK AND CHECK THE CONTENTS, AND PACKAGING REMOVAL.

1.2.1 Handling the boiler

Due to the weight of the boiler, take care to avoid personal injury or damage.

1.2.2 Storage Prior to installation

The boiler must be stored horizontally on its pallet prior to installation. Do not stack more than six units.

1.2.3 Unpacking the boiler

The boiler is supplied fully assembled, the kit includes:
- boiler
- Valve pack
- guarantee
- these Installation/Users instructions
- wall mounting template.

Remove the strapping and carefully remove the carton and packaging. Check the contents, instructions, valve pack, and hanging bracket. Remove the two bolts securing the boiler to the pallet.

1.3 DIMENSIONS

1.3.1 Dimensions

**Fig. 1**

<table>
<thead>
<tr>
<th>L (mm)</th>
<th>Murelle HE 25/55 BF</th>
<th>Murelle HE 30/55 BF</th>
</tr>
</thead>
<tbody>
<tr>
<td>286</td>
<td>222</td>
<td></td>
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</table>

**CONNECTIONS**

<table>
<thead>
<tr>
<th></th>
<th>Connections</th>
<th>Diameter (mm)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>C.H. return</td>
<td>22</td>
<td>Compression</td>
</tr>
<tr>
<td>M</td>
<td>C.H. flow</td>
<td>22</td>
<td>Compression</td>
</tr>
<tr>
<td>G</td>
<td>Gas connection</td>
<td>15</td>
<td>Compression</td>
</tr>
<tr>
<td>E</td>
<td>D.H.W. inlet</td>
<td>22</td>
<td>Compression</td>
</tr>
<tr>
<td>U</td>
<td>D.H.W. outlet</td>
<td>15</td>
<td>Compression</td>
</tr>
<tr>
<td>C</td>
<td>Ricirculation</td>
<td>15</td>
<td>Compression</td>
</tr>
<tr>
<td>S3</td>
<td>Condensation outlet ø 20</td>
<td>20</td>
<td>Compression</td>
</tr>
</tbody>
</table>

**SERVICE CLEARANCES**

<table>
<thead>
<tr>
<th>Service Clearances</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above the appliance casing</td>
<td>300</td>
</tr>
<tr>
<td>At the R.H.S.</td>
<td>20</td>
</tr>
<tr>
<td>At the L.H.S.</td>
<td>20</td>
</tr>
<tr>
<td>Below the appliance casing</td>
<td>400</td>
</tr>
<tr>
<td>In front of the appliance</td>
<td>500</td>
</tr>
</tbody>
</table>

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6
### 1.4 TECHNICAL FEATURES

<table>
<thead>
<tr>
<th>Feature</th>
<th>25/55 BF</th>
<th>30/55 BF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat output</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal (80-60°C) kW</td>
<td>23.9</td>
<td>28.9</td>
</tr>
<tr>
<td>Nominal (50-30°C) kW</td>
<td>26.2</td>
<td>31.6</td>
</tr>
<tr>
<td>Reduced G20 (80-60°C) kW</td>
<td>6.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Reduced G20 (50-30°C) kW</td>
<td>7.0</td>
<td>8.5</td>
</tr>
<tr>
<td>Reduced G31 (80-60°C) kW</td>
<td>7.5</td>
<td>8.7</td>
</tr>
<tr>
<td>Reduced G31 (50-30°C) kW</td>
<td>8.5</td>
<td>9.6</td>
</tr>
<tr>
<td><strong>Heat input</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal kW</td>
<td>24.5</td>
<td>29.5</td>
</tr>
<tr>
<td>Reduced G20/G31 kW</td>
<td>6.5/8.0</td>
<td>8.0/9.0</td>
</tr>
<tr>
<td><strong>Max/min useful yield (80-60°C)</strong> %</td>
<td>94/975</td>
<td>95/98</td>
</tr>
<tr>
<td><strong>Max/min useful yield (50-30°C)</strong> %</td>
<td>107/107</td>
<td>107/107</td>
</tr>
<tr>
<td><strong>Useful yield at 30% of the load (50-30°C)</strong> %</td>
<td>107</td>
<td>107</td>
</tr>
<tr>
<td><strong>Termal efficiency (CEE 92/42 directive)</strong></td>
<td>★★★★</td>
<td>★★★★</td>
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<tr>
<td><strong>Losses after shutdown to 50°C (EN 483)</strong> W/h</td>
<td>90</td>
<td>95</td>
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<tr>
<td><strong>Supply voltage</strong> V-Hz</td>
<td>230-50</td>
<td>230-50</td>
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<tr>
<td><strong>Adsorbed power consumption</strong> W</td>
<td>115</td>
<td>115</td>
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<tr>
<td><strong>Electrical protection grade</strong> IP</td>
<td>X4D</td>
<td>X4D</td>
</tr>
<tr>
<td><strong>C.H. setting range</strong> °C</td>
<td>20/80</td>
<td>20/80</td>
</tr>
<tr>
<td><strong>Water content boiler</strong> l</td>
<td>9.6</td>
<td>10</td>
</tr>
<tr>
<td><strong>Maximum water head</strong> bar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Maximum temperature</strong> °C</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td><strong>Capacity / pressure of the heating expansion vessel</strong> l/bar</td>
<td>10/1</td>
<td>10/1</td>
</tr>
<tr>
<td><strong>Normal operating pressure of the system (max)</strong> bar</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>D.H.W. setting range</strong> °C</td>
<td>30/60</td>
<td>30/60</td>
</tr>
<tr>
<td><strong>D.H.W. flow rate (EN 625)</strong> l/min</td>
<td>15.5</td>
<td>17.5</td>
</tr>
<tr>
<td><strong>Continuous D.H.W. flow rate at 30°C</strong> l/min</td>
<td>11.4</td>
<td>13.8</td>
</tr>
<tr>
<td><strong>Continuous D.H.W. flow rate at 35°C</strong> l/min</td>
<td>9.8</td>
<td>11.8</td>
</tr>
<tr>
<td><strong>D.H.W. pressure min/max</strong> bar</td>
<td>0.2/5.5</td>
<td>0.2/5.5</td>
</tr>
<tr>
<td><strong>D.H.W. tank capacity</strong> l</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td><strong>Recuperation time between 15 and 60°C</strong> min</td>
<td>9' 55&quot;</td>
<td>10' 10&quot;</td>
</tr>
<tr>
<td><strong>Recuperation heat of 70% contents</strong> min</td>
<td>3' 40&quot;</td>
<td>3' 30&quot;</td>
</tr>
<tr>
<td><strong>D.H.W. expansion vessel capacity / charge pressure</strong> l/bar</td>
<td>2.5/3.0</td>
<td>2.5/3.0</td>
</tr>
<tr>
<td><strong>Exhaust fumes temperature at max flow rate (80-60°C)</strong> °C</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td><strong>Exhaust fumes temperature at min. flow rate (80-60°C)</strong> °C</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td><strong>Exhaust fumes temperature at max flow rate (50-30°C)</strong> °C</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td><strong>Exhaust fumes temperature at min. flow rate (50-30°C)</strong> °C</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td><strong>CO₂ at max/min flow rate G20 - G31</strong> %</td>
<td>9.0/9.0 - 10.0/10.0</td>
<td>9.0/9.0 - 10.0/10.0</td>
</tr>
<tr>
<td><strong>CE certification</strong></td>
<td>1312885039</td>
<td>1312885039</td>
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<tr>
<td><strong>Category</strong></td>
<td>II2H³P</td>
<td>II2H³P</td>
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<tr>
<td><strong>NOx emission class</strong></td>
<td>5 (&lt; 70 mg/kWh)</td>
<td>5 (&lt; 70 mg/kWh)</td>
</tr>
<tr>
<td><strong>Weight when empty</strong> kg</td>
<td>68</td>
<td>70</td>
</tr>
<tr>
<td><strong>Main burner nozzle</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quantity nozzles</strong> n°</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>G20/G31 nozzle diameter</strong> ø</td>
<td>6.0/4.4</td>
<td>6.0/4.4</td>
</tr>
<tr>
<td><strong>Consumption at maximum/minimum flow rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G20</strong> m³/h</td>
<td>2.59/0.53</td>
<td>3.12/0.66</td>
</tr>
<tr>
<td><strong>G31</strong> kg/h</td>
<td>1.90/0.62</td>
<td>2.29/0.62</td>
</tr>
<tr>
<td><strong>Gas supply pressure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G20/G31</strong> mbar</td>
<td>20/37</td>
<td>20/37</td>
</tr>
</tbody>
</table>
KEY
1 Fan
2 Air/gas mixer
3 Primary exchanger
4 Limit stat
5 Air relief valve
6 Safety thermostat 100°C
7 C.H. sensor (SM)
8 Flow switch
9 C.H. Expansion vessel
10 D.H.W. tank
11 TPR valve 7 BAR 90°C -TPRV
12 Magnesium anode
13 D.H.W. sensor (SB)
14 C.H. Safety valve 3 BAR
15 Gas valve
16 Pump
17 Diverter valve
18 Air bleed valve
19 D.H.W. expansion vessel
20 Water pressure transducer
21 Automatic bypass
22 D.H.W. drain cock
23 Condensate drain tap
24 Gas cock
25 Heating system return cock
26 Heating system delivery cock
27 Pressure reducing valve 3.5 BAR
28 Single check valve
29 Expansion relief valve 8 BAR
30 Expansion relief valve
31 Filling loop
32 Tundish
33 Tundish expansion relief valve
34 Tundish
35 Condensation outlet

CONNECTIONS
R C.H. return
M C.H. flow
G Gas connection
E D.H.W. inlet
U D.H.W. outlet
C Recirculation
S3 Condensation outlet

Fig. 2
1.6 MAIN COMPONENTS

Fig. 3

KEY

1. Control panel
2. Heating system circulator
3. Gas valve
4. Flow switch
5. CH sensor (SM)
6. Condensate drain tap
7. Fan
8. Detection electrode
9. Ignition electrode
10. Primary exchanger
11. Exhaust fumes probe
12. Air relief valve
13. Limit stat 90°C
14. Ignition transformer
15. DHW combined temperature and pressure relief valve
16. Expansion vessel
17. Safety thermostat 100°C
18. DHW sensor (SB)
19. DHW tank
20. DHW expansion vessel
21. Tundish
22. CH safety valve 3 BAR
23. DHW over heating thermostat 85°C
2 INSTALLATION

Where no specific instructions are given, the installation should be in accordance with the relevant recommendations in the current editions of the following British Standards and Codes of Practice: BS 5440-1, BS 5440-2, BS 5449, BS 5462 (propane installations), BS 5546, BS 6700, BS 6798, BS 6891, Institute of Gas Engineer document IGE-UP-7, BS 7074 (expansion vessel), and to other relevant British Standards or code of Practice as necessary. It is a Statutory Requirement that the installation conforms to the appropriate Building Regulations either: The Building Regulations, The Building Regulations (Scotland), Building Regulations (Northern Ireland), the Water Fitting Regulations or Water Byelaws in Scotland, and the current IEE Wiring Regulations. When handling, due consideration should be given to the appliance weight. If the appliance is not to be installed immediately it should be stored in a clean dry place.

2.1 VENTILATION REQUIREMENTS

Detailed recommendations for air supply are given in BS5440:2. The following notes are for general guidance:
- It is not necessary to have a purpose provided air vent in the room or compartment in which the appliance is installed. However, suitable clearances for maintenance and servicing should be provided, see fig. 1.

2.1.1 Anti-freeze function

The boilers are equipped with anti-freeze function which activates the pumps and the burner when the temperature of the water contained inside the appliance drops to below 6°C. The anti-freeze function is ensured, however, only if:
- the boiler is correctly connected to the gas and electricity supply circuits;
- the boiler is constantly fed;
- the essential components of the boiler are all in working order.

In these conditions the boiler is protected against frost down to an environmental temperature of -5°C.

ATTENTION: In the case of installation in a place where the temperature drops below 0°C, the connection pipes must be protected.

2.2 BOILER SUPPORT BRACKET

Ensure that the wall on which the boiler is to be mounted is capable of supporting the weight of the boiler when filled 123kg - 25/55 and 125kg - 30/55.
- Position the bracket ensuring that the boiler is fitted with sufficient clearance to allow for the fitting of the valve connections.
- Fix the bracket level and with fixings capable of supporting the weight.
- Hang the boiler and then tighten the screws indicated in fig. 4.

2.3 HOW TO FIT C.H. AND D.H.W. FITTINGS AND GAS COCK (fig. 5)

- C.H. CONNECTIONS [R & M]
  Fit the two isolation valves [10] using the gasket supplied (8). Fit the C.H. filling loop, between the C.H. and D.H.W. circuits, ensuring the correct position and orientation of the isolation valves.
- D.H.W. CONNECTION [E & U]
  Fit the supplied pressure reducing valve [17], check valve [18], and expansion relief valve assembly [14] with its associated tundish [15], ensure that on completion of the installation that the tundish is visible to the user; in the D.H.W. supply to the appliance, the flow from this assembly should be connected to the cold water inlet (E) via the flow regulator housing supplied. Ensure flow regulator (11) and gasket (1) supplied, are fitted in the flow regulator housing.
  See fig. 5 and fig. 6 for installation details. It is important that no isolating valve is fitted between the expansion relief valve and the inlet to the D.H.W. tank. Any additional D.H.W. drain down tap fitted should be positioned as low as possible to ensure that at least 80% of the D.H.W. tank’s capacity can be drained. If installed in a Hard Water area, then a suitable device should be fitted to treat the mains supply to the appliance (Contact your Water Distribution Company for advice on suitable devices). Fit the quarter bend [2] to the hot water outlet [U] using the gasket supplied (1).
- GAS CONNECTION [C]
  Fit the gas cock [12] to the gas connection [R] using the gasket supplied (6).

2.4 WATER SYSTEMS - GENERAL

This appliance is designed for connection to sealed central heating water systems. Check that the mains water flow is sufficient to produce the required DHW flow rate but does not exceed 4 bar pressure. A expansion relief valve is incorporated within the valve kit. Inlet safety kit and all safety devices must be installed.

For balanced pressures in premises
For balanced pressure to the whole premises an additional pressure reducing valve should be installed at the inlet to the premises set at 3.5 BAR.

The maximum water supply pressures to the pressure reducing must be of 16 BAR.

2.4.1 Treatment of Water Circulating Systems

- All recirculatory systems will be subject to corrosion unless an appropriate water treatment is applied. This means that the efficiency of the system will deteriorate as corrosion sludge accumulates within the system, risking damage to pump and valves, boiler noise and circulation problems.
- For optimum performance after installation this boiler and its associated central heating system must be flushed in accordance with the guidelines given in BS 7593 “Treatment of water in domestic hot water central heating systems”.
- This must involve the use of a proprietary cleanser, such as Sentinel X300 or X400, or Fernox Superfloc. Full instructions are supplied with the products, but for immediate information please contact GE Betz (0151 420 9563) or Fernox (01799 550 811) directly.
- For long term protection against corrosion and scale, after flushing it is recommended that an inhibitor such as Sentinel X100, or Fernox MB-1 or Copal is dosed in accordance with the guidelines given in BS 7593. Failure to flush and add inhibitor to the system may invalidate the appliance warranty.
- It is important to check the inhibitor concentration after installation, system modification and at every service in accordance with the manufacturer’s instructions. (Test kits are available from inhibitor stockists).

2.4.2 Requirements for sealed water systems

The heating system design should be based on the following information:
a) The available pump head is given in fig. 20.

b) The burner starts when the C.H. flow reaches 400÷450 l/h. This safety condition is ensured by the flow switch.

c) The appliance is equipped with an internal bypass that operates with system heads (H) greater than 3 m. The maximum flow through the bypass is about 300 l/h. If thermostatic radiator valves are to be installed, at least one radiator should be without a thermostatic valve (usually the bathroom radiator).

d) A sealed system must only be filled by a competent person using the filling loop as shown in fig 5.

e) To fill the cylinder, open a DHW tap, then turn on the domestic water supply. When water runs from the tap turn it off. Repeat at each DHW tap. NOTE: there should be no isolation valve fitted between the cylinder and the expansion valve.

f) To drain the cylinder see fig. 2 number 23.

2.4.3 Discharge Pipes and fittings

The position of any bemand must be visible to the occupants and any tundish, drain valve and discharge pipe and must be sited away from any electrical components. The 7 and 3 bar PRV's are called out with the number 15 and 22 on fig. 3. The connections to the expansion relief valve and temperature and pressure relief valve should not be used for any other purpose. See fig. 6 for example of the discharge pipe(s) for the temperature and pressure...
relief valve, and expansion relief valve terminations.
Note: it is permitted to connect discharge pipes together provided that the joint pipe is sized to accommodate the combined flow.

### 2.4.4 Expansion Vessel (C.H. only)

C.H. EXPANSION VESSEL – The integral expansion vessel is pre-charged to a pressure of 1.0 bar, which should be checked before the C.H. water system is filled.
This vessel is suitable for correct operation of system capacities up to 82 litre capacity. If the actual C.H. system volume is greater, then an additional vessel must be fitted to the system.
For systems where the volume is greater, the additional expansion vessel volume can be determined by multiplying the volume in excess of that which can be accommodated by the appliance by the factor 0.901. BS 7074 gives further details regarding C.H. expansion vessel sizing.

### 2.4.5 Connection of condensation water trap

The drip board and its water trap must be connected to a civil drain through a pipe with a slope of at least 5 mm per metre to ensure drainage of condensation water.

The plastic pipes normally used for civil drains are the only type of pipe which is appropriate for conveying condensation to the building’s sewer pipes.

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**Fig. 6**

**Fig. 7**

### LIST OF ø 60/100 ACCESSORIES

<table>
<thead>
<tr>
<th>Model</th>
<th>Length of pipe Ø 60/100</th>
<th>Length of pipe Ø 80/125</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H V</td>
<td>H V</td>
</tr>
<tr>
<td></td>
<td>Min Max</td>
<td>Min Max</td>
</tr>
</tbody>
</table>

**IMPORTANT:**
- The insertion of each additional 90° bend with a diameter of 60/100 (code 8095850) reduces the available section by 1.5 meters.
- The insertion of each additional 90° bend with a diameter of 80/125 (code 8095870) reduces the available section by 2 meters.
- Each additional 45° curve installed a diameter of 60/100 (code 8095850) the 80/125 (code 8095970) reduces the available length by 1.0 meters.
- During assembly it is important to make sure that the kit with axial pipes [1] is positioned HORIZONTAL FLUES MUST BE LEVEL.

**NOTE:** Before connecting accessories, it is always advisable to lubricate the internal part of the gaskets with silicon products. Avoid using oils and greases.

**LIST OF ø 60/100 ACCESSORIES**

<p>| | | |</p>
<table>
<thead>
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<tbody>
<tr>
<td></td>
<td>1a-b Coaxial duct kit L. 790 code 8096250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2a Extension L. 1000 code 8096150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2b Extension L. 500 code 8096151</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Vertical extension L. 140 with coupling code 8086950</td>
<td></td>
</tr>
</tbody>
</table>

**LIST OF ø 80/125 ACCESSORIES**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1a-b Coaxial duct kit L. 765 code 8096253</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2a Extension L. 1000 code 8096171</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2b Extension L. 500 code 8096170</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Adapter for a 80/125 code 8093150</td>
<td></td>
</tr>
</tbody>
</table>

---
2.4.6 Filter on the gas pipe

The gas valve is supplied ex factory with an inlet filter; which, however, is not adequate to entrap all the impurities in the gas or in gas main pipes.

To prevent malfunctioning of the valve, or in certain cases even to cut out the safety device with which the valve is equipped, install an adequate filter on the gas pipe.

2.4.7 Discharge Pipe

See fig. 6 for example discharge pipe terminations.

2.5 INSTALLATION OF COAXIAL DUCT
(a 60/100 - ø 80/125)

The axial suction and discharge pipes are supplied in a special kit (that can be purchased separately) along with assembly instructions. The diagrams of fig. 7 illustrate some examples of different types of discharge modalities allowed and the maximum lengths that can be reached.

2.6 INSTALLATION OF SEPARATE DUCTS (ø 80)

Separate duct kit code 8099111 is used to connect twin 80mm pipes. See fig. 8.

The maximum overall length of the flue is determined by the head losses of the individual components and must not exceed 15mm H²O. Additionally the length of either the inlet or exhaust pipe must not exceed 50 m. See Table 1 for information on the load losses of single accessories and Fig. 9 for types of “smoke outlet”-“air inlet”.

2.6.1 Separate ducts kit

The diagrams of Figure 9 show a few examples of the permitted exhausts configurations.

NOTE
Before connecting accessories, it is always advisable to lubricate the internal part of the gaskets with silicon products. Avoid using oils and greases. Horizontal terminals must be level.

LIST OF ø 80 ACCESSORIES

1 Coaxial duct kit code 809911
2 Additional 90° MF curve code 8077450 (6 pz.)
3 Extension L. 1000 code 8077351 (6 pz.)
4 Extension L. 500 code 8077350 (6 pz.)
5 Additional 45° MF curve code 8077451 (6 pz.)
6 Additional 90° MF curve code 8077450 (6 pz.)
7 Manifold, code 8091400
8 Tile for joint code 8091300
9 Terminal for roof exit L. 1381 code 8091204
10 Union suction/exhaust code 8091401
11 Coaxial exhaust ø 80/125 L 885 code 8091210

TABLE 1 - ACCESSORIES ø 80

<table>
<thead>
<tr>
<th>Accessories ø 80</th>
<th>Head loss (mm H²O)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25/55</td>
</tr>
<tr>
<td>Inlet</td>
<td>Outlet</td>
</tr>
<tr>
<td>Coaxial duct kit</td>
<td>-</td>
</tr>
<tr>
<td>90° elbow MF</td>
<td>0.20</td>
</tr>
<tr>
<td>45° elbow MF</td>
<td>0.15</td>
</tr>
<tr>
<td>Extension L. 1000 (horizontal)</td>
<td>0.15</td>
</tr>
<tr>
<td>Extension L. 1000 (vertical)</td>
<td>0.15</td>
</tr>
<tr>
<td>Wall terminal</td>
<td>0.10</td>
</tr>
<tr>
<td>Wall coaxial exhaust *</td>
<td>0.80</td>
</tr>
<tr>
<td>Roof outlet terminal *</td>
<td>0.80</td>
</tr>
</tbody>
</table>

* The losses of the roof terminal on the air intake side, include already the adapter code 8091400/01.
2.7 POSITIONING THE OUTLET TERMINALS

The outlet terminals for forced-draught appliances may be located in the external perimeter walls of the building. To provide some indications of possible solutions, Table 2 gives the minimum distances to be observed, with reference to the type of building shown in fig. 9.

2.8 ELECTRICAL CONNECTION

The boiler is supplied with an electric cable. Should this require replacement, it must be purchased exclusively from SIME. The electric power supply to the boiler must be 230V - 50Hz single-phase through a fused main switch, fused at 3 amps with at least 3 mm spacing between contacts. Respect the L and N polarities and the earth connection.

NOTE: SIME declines all responsibility for

---

### TABLE 2

<table>
<thead>
<tr>
<th>Terminal position</th>
<th>Minimum spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Directly below an openable window, air vent or any other ventilation opening</td>
<td>300 mm 12 in</td>
</tr>
<tr>
<td>B Below guttering, drain pipes or soil pipes</td>
<td>75 mm 3 in</td>
</tr>
<tr>
<td>C/D Below eaves, balconies or carport roof</td>
<td>200 mm 8 in</td>
</tr>
<tr>
<td>E From vertical drain pipes or soil pipes</td>
<td>75 mm 3 in</td>
</tr>
<tr>
<td>F From internal or external corners</td>
<td>300 mm 12 in</td>
</tr>
<tr>
<td>G Above adjacent ground, roof or balcony level</td>
<td>300 mm 12 in</td>
</tr>
<tr>
<td>H From a boundary or surface facing the boiler</td>
<td>600 mm 24 in</td>
</tr>
<tr>
<td>I From a terminal facing the terminal</td>
<td>1,200 mm 48 in</td>
</tr>
<tr>
<td>J From an opening in the carport (eg door, window into dwelling)</td>
<td>1,200 mm 48 in</td>
</tr>
<tr>
<td>K Vertically from a terminal on the same wall</td>
<td>1,500 mm 60 in</td>
</tr>
<tr>
<td>L Horizontally from a terminal on the same wall</td>
<td>300 mm 12 in</td>
</tr>
<tr>
<td>M Horizontally from a vertical terminal to a wall</td>
<td>300 mm 12 in</td>
</tr>
<tr>
<td>N Horizontally from an openable window or other opening</td>
<td>300 mm 12 in</td>
</tr>
<tr>
<td>P Above an openable window or other opening</td>
<td>300 mm 12 in</td>
</tr>
</tbody>
</table>

---

- If the terminal discharges into a pathway or passageway check that combustion products will not cause nuisance and that the terminal will not obstruct the passageway.
- Where the lowest part of the terminal is fitted less than 2 m (78 in) above ground, above a balcony or above a flat roof to which people have access, the terminal MUST be protected by a purpose designed guard. Terminal guards are available from Quinnell, Barrett, and Quinnell, Old Kent Road, London. State model C2. (G.C. Part No 382946).
- Where the terminal is fitted within 850 mm (34 in) of a plastic or painted gutter, or 450 mm (18 in) of painted eaves, an aluminium shield at least 1,500 mm (59 in) long must be fitted to the underside of the painted surface.
- The air inlet/outlet flue duct MUST NOT be closer than 25 mm (1 in) to combustible material.
- In certain weather conditions the terminal may emit a plume of steam. This is normal but positions where this would cause a nuisance should be avoided.
injury or damage to persons, animals or property, resulting from the failure to provide for proper earthing of the appliance.

2.8.6 Use with different electronic systems

Some examples are given below of boiler systems combined with different electronic systems. Where necessary, the parameters to be set in the boiler are given. The electrical connections to the boiler refer to the wording on the diagram (fig. 11).

The zone valve control starts at every demand for heating of the zone 1 (it is from part of the TA or the CR).

Description of the letters indicating the components shown on the system diagrams:

- **M** System output
- **R** System return
- **CR** Remote control CR73
- **SE** External temperature sensor
- **TA1-2-3-4** Zone room thermostat
- **CT1-2** Zone room thermostat internal time clock
- **VZ1-2** Zone valve
- **RL1-2-3-4** Zone relay
- **SI** Hydraulic separator
- **P1-2-3-4** Zone pump
- **IP** Floor system
- **EXP** Expansion card (code 8092233)
- **VM** Three-way mixer valve

1 BASIC SYSTEM

**SYSTEM WITH A DIRECT ZONE AND ROOM THERMOSTAT, OR WITH A CLIMATIC REGULATOR CR 53 (Code 8092227) OR WITH REMOTE CONTROL CR 73 (Code 8092226) AND EXTERNAL SENSOR (Code 8094101)**

**PARAMETERS SETTINGS**

If using CR 53 set parameter 10 to 2 (PAR 10 = 2).

### 2.8.1 Room Thermostat

The heat demand can be by a "clean contact" (conforming to EN607301), room stat or programmer connected to the "TA" connection (fig 11). CN6 terminals 7&8, after removing the link.

Alternatively the heat demand can be by a 230v switched control, connected to terminal 14 on connector CN7 and removal of the TA link.

### 2.8.2 External Control CR53

A CR53 external control (part number 8092227) can be connected to the boiler. This will control the heating function of the boiler. The domestic hot water will continue to be controlled by the boiler keypad.

**NOTE:** Reset parameter 10 to 2 (PAR 10 = 2).

### 2.8.3 Remote control CR 73 connection (optional)

The boiler is designed for connection to a remote control unit, supplied on request (code 8092228). The remote control unit CR 73 allows for complete remote control of the boiler except reset.

The boiler display will show the following message:

```
For installation and use of the remote control, follow the instructions in the package.
```

**NOTE:** Ensure PAR 10 set to 1 (PAR 10 = 1).

### 2.8.4 External sensor connection

The boiler is designed for connection to an external temperature sensor, supplied on request (code 8094101), which can automatically regulate the temperature value of the boiler output according to the external temperature.

For installation, follow the instruction in the package.

### 2.8.5 Remote RF control

The boiler is designed for connection to RF remote controllers (mechanical - code 8092231 or digital - code 8092232), which can control the central heating function.
2 BASIC SYSTEM
MULTI-ZONE SYSTEM WITH PUMP, ROOM THERMOSTAT AND EXTERNAL SENSOR (Code 8094101)

3 BASIC SYSTEM
MULTI-ZONE SYSTEM WITH PUMP, ROOM THERMOSTAT AND EXTERNAL SENSOR (Code 8094101)

4 BASIC SYSTEM
MULTI-ZONE SYSTEM WITH VALVE, ROOM THERMOSTAT, REMOTE CONTROL CR 73 (Code 8092226)
AND EXTERNAL SENSOR (Code 8094101)

PARAMETERS SETTINGS
To use the remote control (CR) as remote control panel for the boiler rather than as room reference, set:
PAR 7 = 0
PARAMETER SETTING

To use the remote control (CR) as room reference for a zone, set: PAR 7 = 1

Set the opening time of the zone valve VZ: PAR 33 = "OPENING TIME"
During night time, the boiler uses a lower output temperature if different times have been set for day and night areas:
- with external sensor: set the climatic curve of the day zone 1 with PAR 25 and the night zone at PAR 26.
- without external sensor: gain access to setting the day zone 1 by pressing the key \( \uparrow \) and change the value with the keys \( \uparrow \) and \( \downarrow \). Gain access to setting the night zone by pressing the key \( \uparrow \) twice and changing the value with the keys \( \uparrow \) and \( \downarrow \).
11 SYSTEM WITH MIXER VALVE
SYSTEM WITH ONE DIRECT ZONE AND ONE MIXED ZONE

PARAMETERS SETTINGS
To use the remote control (CR) as remote control panel for the boiler rather than as room reference, set:
PAR 7 = 0

12 SYSTEM WITH MIXER VALVE
SYSTEM WITH TWO DIRECT ZONES AND TWO MIXED ZONES
KEY
F1-2 Fuse (4 AT)
TRA Ignition transformer
PI Pump
V Fan
EA Ignition electrode
ER Detection electrode
EV1-2 Gas valve coil
TS Safety thermostat
SF Exhaust fumes probe
TL Limit stat
SM Heating sensor
FL Water flow switch
VD Deviator valve
TPA Pressure transducer
TA1 Zone 1 environment thermostat
TA2 Zone 2 environment thermostat
SB D.H.W. sensor
CR Remote control CR 73 (optional)
SE External sensor (optional)
OP Programming clock (optional)
EXP Expansion card
AR/PR Recirculation pump control or remote alarm
VZ Zone valve
AUX Auxiliary connection
TLS D.H.W. over heating thermostat 85°
NOTE: Connect TA1 to the clamps 7-8 after having removed the bridge.

CONNECTOR SPARE
PART CODES:
CN1/CN13 code 6316231
CN2 code 6316233
CN3 code 6316276
CN4 code 6316203
CN5 code 6316220
CN6 code 6316202
CN7 code 6316204
CN8 code 6316201
CN10 code 6316227
CN11 code 6316226
CN12 code 6299991
CN14 code 6316230

Fig. 11
3 CHARACTERISTICS

3.1 CONTROL PANEL

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{control_panel_diagram}
\caption{Control Panel Diagram}
\end{figure}

DESCRIPTION OF DISPLAY ICONS

- **SUMMER MODE ICON**

- **WINTER MODE ICON**

- **D.H.W. MODE ICON**

- **HEATING MODE ICON**
  - 1 = First circuit heating system
  - 2 = Second circuit heating system (optional)

- **GRADED POWER SCALE**
  The segments of the bar light up in proportion to boiler power output.

- **BOILER FUNCTIONING AND LOCKOUT ICON**
  - **RE-SET REQUIRED**

- **CHIMNEY SWEEP ICON**

SECONDARY DIGITS

- **The boiler visualises the value of the pressure of the system [correct value is between 1 and 1.5 bar]**

MAIN DIGITS

- **The boiler visualises the values set, the state of anomaly and the external temperature**

2 - DESCRIPTION OF CONTROLS

- **ON/STANDBY**
  - **ON** = The boiler is on
  - **STANDBY** = The boiler is off, but the protection functions are active.

- **SUMMER MODE KEY**
  When this key is pressed, the boiler functions only when D.H.W. is requested.

- **WINTER MODE KEY**
  When this key is pressed, the boiler provides heating and D.H.W.

- **D.H.W. TEMP KEY**
  When this key is pressed, the temperature of the D.H.W. is shown on the display.

- **HEATING TEMP KEY**
  The first time the key is pressed, the temperature of heating circuit 1 is shown. The second time the key is pressed, the temperature of heating circuit 2 is shown.

- **RE-SET KEY**
  Press to reset a resettable error.

- **INCREASE AND DECREASE KEY**
  By pressing this key the set value increases or decreases.

3 - KEYS RESERVED FOR THE INSTALLER (access to INST and OEM parameters)

- **PC CONNECTION**
  To be used only with the SIME programming kit and only by authorised personnel. Do not connect other electronic devices (cameras, telephones, mp3 players, etc.).
  - **ATTENTION:** Communication port sensitive to electrostatic charges.
  - Before use, it is advisable to touch an earthed metallic surface to discharge static electricity.

- **INFORMATION KEY**
  This key can be pressed several times to view the parameters.

- **CHIMNEY SWEEP KEY**
  This key can be pressed several times to view the parameters.

- **DECREASE KEY**
  This key changes the default settings.

- **INCREASE KEY**
  This key changes the default settings.

4 - LUMINOUS BAR

- **Blue** = Operating normally
- **Red** = Operating error

5 - PROGRAMMING CLOCK (optional)

- Mechanical clock (code 8092228) or digital clock (code 8092229) to program heating and water supply.
3.2 ACCESS TO INSTALLER’S INFORMATION

For access to information for the installer, press the key (3 fig. 14). Every time the key is pressed, the display moves to the next item of information. If the key is not pressed, the system automatically quits the function. List of information:

1. Display of external temperature, only with external sensor connected

2. Display of heating temperature sensor (SM)

3. Display of D.H.W. temperature sensor (SS)

4. Display of auxiliary temperature sensor

5. Display of smoke temperature sensor

6. Display of heating temperature of first circuit

7. Display of heating temperature of second circuit

8. Display of ionisation current in µA

9. Display of fan speed in rpm x 100 (eg 4,800 and 1850 rpm)

10. Display of the number of hours x100 the burner has been alight (eg 14000 and 10)

11. Display of number of times the burner has ignited x 1000 (eg 97000 and 500)

12. Display of code of last error

13. Display of code of penultimate error

14. Display of total number of errors

15. Installer parameter access counter (example = 140 accesses)

16. OEM access counter (example = 48 accesses)
3.3 ACCESS TO INSTALLER’S PARAMETERS

Only qualified persons should alter any of the settings or parameters. Incorrect adjustment would cause defective operation and damage the boiler and would invalidate the warranty.

For access to the installer’s parameters, press simultaneously the keys 4 and 23 or 5 seconds (3 fig. 12). For example, the parameter PAR 23 is visualised on the display of the control panel in the following way:

![Image of the control panel showing the parameter PAR 23]

The parameters scroll forwards and backwards with the key 4 and 23 and the default parameters can be changed with the keys 6 and 23.

The standard visualisation returns automatically after 60 seconds, or by pressing one of the control keys (2 fig. 12).

3.3.1 Replacement of PCB

Should the PCB be changed, PAR 1 and PAR 2 will require resetting as per the following table.

### PARAMETERS INSTALLER

<table>
<thead>
<tr>
<th>FAST CONFIGURATION</th>
<th>PAR DESCRIPTION</th>
<th>RANGE</th>
<th>UNIT OF MEASUREMENT</th>
<th>INC/DEC UNIT</th>
<th>DEFAULT SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Combustion configuration</td>
<td>- = ND 1 ... 26</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td></td>
</tr>
<tr>
<td>2 Hydraulic configuration</td>
<td>- = ND 1 ... 5</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td></td>
</tr>
<tr>
<td>3 Timetable 2 programmer</td>
<td>1 = DHW + Recirc. pump 2 = DHW 3 = Recirculation pump</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4 Pressure transducer disabler</td>
<td>0 = Disabled 1 = Enabled</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5 Assignment of auxiliary relay ALU (D.H.W. tank)</td>
<td>1 = Remote supply 2 = Recirculation pump</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6 Luminous bar indicating presence of voltage</td>
<td>0 = Disabled 1 = Enabled</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7 Allocation of CR 73 channels</td>
<td>0 = Not assigned 1 = Circuit 1 2 = Circuits 1 and 2</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8 Fan rpm Step ignition</td>
<td>0.0 ... 81 rpm 01da 01a19.9 0.0 da 20 a 81</td>
<td>=</td>
<td>=</td>
<td>=</td>
<td></td>
</tr>
<tr>
<td>9 Long chimneys</td>
<td>0 ... 20 %</td>
<td>=</td>
<td>=</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>10 Remote control option setting</td>
<td>1 = CR 73 2 = CR 53 3 = RVS</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11 Correction values external sensor</td>
<td>-5 ... +5 °C</td>
<td>=</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### SANITARY WATER - HEATING

<table>
<thead>
<tr>
<th>GAS MODELS PAR 2</th>
<th>PAR DESCRIPTION</th>
<th>RANGE</th>
<th>UNIT OF MEASUREMENT</th>
<th>INC/DEC UNIT</th>
<th>DEFAULT SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHANE</td>
<td>D.H.W. minimum temperature</td>
<td>10 °C ... PAR 21 °C</td>
<td>=</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>PROPANE</td>
<td>D.H.W maximum temperature</td>
<td>PAR 20 ... PAR 62 °C</td>
<td>=</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anti-legionella (only D.H.W. tank)</td>
<td>0 = Disabled 1 = Enabled</td>
<td>=</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boiler antifreeze</td>
<td>-5 ... +5 °C</td>
<td>=</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>External sensor antifreeze</td>
<td>-15 ... +5 °C</td>
<td>=</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Climatic curve setting Zone 1</td>
<td>3 ... 40</td>
<td>=</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Climatic curve setting Zone 2</td>
<td>3 ... 40</td>
<td>=</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum temperature Zone 1</td>
<td>PAR 64 °C ... PAR 28 °C</td>
<td>=</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum temperature Zone 2</td>
<td>PAR 27 ... PAR 65 °C</td>
<td>=</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum temperature Zone 2</td>
<td>PAR 29 ... PAR 65 °C</td>
<td>=</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum heating power</td>
<td>30 ... 100 %</td>
<td>=</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Postcirculation temperature</td>
<td>0 ... 189 Sec.</td>
<td>=</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump activation delay Zone 1</td>
<td>0 ... 199</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Re-ignition delay</td>
<td>0 ... 10 Mn.</td>
<td>=</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### EXPANSION CHART

<table>
<thead>
<tr>
<th>GAS MODELS PAR 2</th>
<th>PAR DESCRIPTION</th>
<th>RANGE</th>
<th>UNIT OF MEASUREMENT</th>
<th>INC/DEC UNIT</th>
<th>DEFAULT SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assignment to mixed zones</td>
<td>1 = Zone 1 2 = Zone 2</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mix valve stroke time</td>
<td>0 ... 199</td>
<td>=</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority D.H.W. over mixed zone</td>
<td>0 = Paralle 1 = Absolute</td>
<td>=</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Floor drying</td>
<td>0 = No activated 1 = Curve A 2 = Curve B 3 = Curve A+B</td>
<td>=</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reset default parameters</td>
<td>PAR 01 ... PAR 02 = &quot;-&quot;</td>
<td>=</td>
<td>=</td>
<td></td>
</tr>
</tbody>
</table>

### NOTE:

- A label on the inside of the clock cover (fig. 19) will show the correct values of PAR 1 and PAR 2 assigned to the boiler.
3.4 EXTERNAL SENSOR

If there is an external sensor, the heating settings SET can be taken from the climatic curves according to the external temperature and, in any case, limited to with the range values described in point 3.3 (parameters PAR 25 for zone 1 and PAR 26 for zone 2).

The climatic curve to be set can be selected from a value of 3 and 40 [at step 1]. Increasing the steepness of the curves of fig. 13 will increase the output temperature as the external temperature decreases.

3.5 CARD FUNCTIONING

The electronic card has the following functions:
- Antifreeze protection of the heating and D.H.W. circuits (ICE).
- Ignition and flame detection system.
- Control panel setting for the power and the gas for boiler functioning.
- Anti-block for the pump which is fed for a few seconds after 24 hours of inactivity.
- Antifreeze protection for boilers with D.H.W. storage tank.
- Chimney sweep function which can be activated from the control panel.
- Temperature which can be shifted with the external sensor connected. It can be set from the control panel and is active on the heating systems of both circuit 1 and circuit 2.
- Management of two independent heating circuit systems.
- Automatic regulation of the ignition power and maximum heating. Adjustments are managed automatically by the electronic card to guarantee maximum flexibility in use of the system.
- Interface with the following electronic systems: climatic regulator CR 53, remote control CR 73, thermal regulator RVS and connected to a management card of a mixed zone code 8092233.

NOTE: If using CR 53 or RVS set parameter 10 to 2 (PAR 10 = 2).

3.6 TEMPERATURE DETECTION SENSOR

Table 4 gives the values of the electrical element (\( \Omega \)) obtained on the DHW and exhaust fumes sensors according to the variations in temperature.

When the heating sensor (SM) and fumes sensor (SF) is interrupted, the boiler will not function.

With the D.H.W. sensor (SB) interrupted the boiler will function in the CH mode only.

3.7.1 Functioning cycle

Burner ignition should occur within 10 seconds of the opening of the gas valve. If after three attempts the ignition is not detected the boiler will lockout (ALL 06). This can happen the first time a boiler is switched on, or after long periods of inactivity. It can also be caused by a closed gas cock or a gas valve not operating.

- Lack of gas
  The ignition electrode will discharge for a maximum of 10 seconds. If after three attempts the ignition is not detected the boiler will lockout (ALL 06).

ATTENTION: curves are calculated at an ambient temperature of 20°C. It is however possible to use the boiler controls to change them by ±5°C.

Table 4

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Resistance (( \Omega ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>12.090</td>
</tr>
<tr>
<td>30</td>
<td>8.313</td>
</tr>
<tr>
<td>40</td>
<td>5.828</td>
</tr>
<tr>
<td>50</td>
<td>4.161</td>
</tr>
<tr>
<td>60</td>
<td>3.021</td>
</tr>
<tr>
<td>70</td>
<td>2.229</td>
</tr>
<tr>
<td>80</td>
<td>1.669</td>
</tr>
</tbody>
</table>

Fig. 13

In the case of a sudden lack of voltage, the burner will immediately switch off. When voltage returns, the boiler will auto-
matically start up again.

3.8 WATER FLOW SWITCH

The water flow gauge (4 fig. 3) intervenes, blocking burner operation in the case of low pressure or pump failure.

NB: when replacing the flow meter valve, ensure that the arrow printed on its body is pointing in the same direction the water flow.

3.9 HEAD AVAILABLE TO SYSTEM

Residual head for the heating system is shown as a function of rate of flow in the graph in fig. 14.

Fig. 14
4 USE AND MAINTENANCE

4.1 D.H.W. PRODUCTION

Domestic hot water is provided via the internal storage cylinder. This cylinder is fitted with a sacrificial magnesium anode.

The magnesium anode must be checked regularly, at least annually and replaced when required. Failure to replace when required will result in internal damage to the cylinder and void the warranty. See section 6.15 regarding checking and replacement of the anode.

4.2 GAS VALVE

The boiler is supplied as standard with a gas valve, model SIT B48 SIGMA (Fig. 16).

4.3 GAS CONVERSION (fig. 17)

This operation must be performed by authorised personnel using original Sime components.

To convert from natural gas to LPG or vice versa, perform the following operations:
- Close the gas cock.
- Replace the nozzle (1) and the gasket (2) using those supplied in the conversion kit.
- Test all the gas connection using leak detection fluid. Do not use open flames.
- Apply the nameplate with the new gas flow layout.
- Calibrate the maximum and minimum pressures of the gas valve following the instructions provided in paragraph 4.3.2.

4.3.1 New fuel configuration

For access to the installer’s parameters, press simultaneously keys and for 5 seconds (3 fig. 12). Scroll through the parameters using the and buttons. The parameters will scroll up and down with the keys and . The display pane will show the values of the parameter PAR 1. If the boiler is a 25/55 BF methane (G20) model, SET 20 will be displayed.

To change the fuel to propane (G31), it is necessary to set SET 22, by pressing the key .

The standard display will automatically return after 10 seconds.

<table>
<thead>
<tr>
<th>GAS</th>
<th>MODELS</th>
<th>PAR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>METHANE</td>
<td>25/55 BF</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>30/55 BF</td>
<td>21</td>
</tr>
<tr>
<td>PROPANE</td>
<td>25/55 BF</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>30/55 BF</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

4.3.2 Calibrating the gas valve pressures

Measure the CO₂ values with a combustion analyzer.

Sequence of operations:
1) Press and hold the button down for a few seconds .
2) Press the button for a few seconds .
3) Identify the CO₂ values at max. power by adjusting the shutter (5 in Fig. 16):

<table>
<thead>
<tr>
<th>MAX power</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ (Methane)</td>
<td>9,0 ±0,3</td>
<td>10,0 ±0,3</td>
</tr>
</tbody>
</table>

4) Press the button for a few seconds .

5) Identify the CO₂ values at min. power by adjusting the OFF-SET regulation screw (6 in Fig. 16):

<table>
<thead>
<tr>
<th>MIN power</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ (Methane)</td>
<td>9,0 ±0,3</td>
<td>10,0 ±0,3</td>
</tr>
</tbody>
</table>

6) Press the buttons several times to check the pressures and change them if required.

7) Press the button once more to quit the function.
4.4 REMOVING THE COVERS

It is possible to completely remove the covers for easier access as shown in fig. 19. The control panel can be hinged forward after removing the front cover and the retaining screw 3.

4.5 MAINTENANCE

To ensure correct operation and efficiency it is important that the boiler is serviced at least annually and that this is recorded in the Benchmark record sheet (page 31). During the service the condensate drain can be checked. It is important that should the boiler not be used for some time, that the trap is checked and filled if required (see fig. 20).

4.5.1 Chimney sweep function (fig. 21)

To check the boiler combustion (CO2) press...
the Chimney sweep button for a few seconds, the Chimney sweep icon will illuminate. The boiler will ignite and continue for 15 minutes in heating mode. The burner will turn off at 80 degrees and reignite at 70 degrees.

(Warning! Ensure adequate circulation around heating system before activating the Chimney sweep function).

If the and keys are pressed during the 15 minutes the boiler will be brought respectively to max and min output.

The chimney sweep function will automatically cancel after 15 minutes or if the chimney sweep button is pressed again.
4.6 FUNCTIONING ERRORS

Where there is a functioning error an alarm appears on the display. The blue luminous bar may turn red.

Descriptions of the error are given below:

- FLUE TEMPERATURE ALARM 01 (fig. 23)
  Check link on terminals 54-56 at PCB.

- LOW SYSTEM PRESSURE ALARM 02 (fig. 23/a)
  If the system pressure detected by the transducer is lower than 0.5 bar the boiler will stop and display error “ALL 02”. Increase the system pressure to between 1.0 and 1.5 bar using the external filling loop. The boiler will automatically resume operating.

- HIGH SYSTEM PRESSURE ALARM 03 (fig. 23/b)
  If the system pressure detected by the transducer is more than 2.8 bar, the boiler will stop and display “ALL 03”. Drain water from the system until the pressure is between 1.0 and 1.5 bar. Ensure that the filling loop is disconnected. If the problem persists, seek technical advice.

- HEATING SENSOR ALARM 05 (fig. 23/d)
  If the heating sensor (SM) is open or short circuit, the boiler will stop operating and display “ALL 05”.

- LOCKOUT ALARM 06 (fig. 23/e)
  If a flame is not detected after a complete ignition cycle or for any other reason the flame is not detected, the boiler will stop and display “ALL 06”. Press the reset button on the control panel (2) to restart the boiler. Should the problem persist seek technical help.

- SAFETY THERMOSTAT ALARM 07 (fig. 23/f)
  If either the 100 degree stat or the heat exchanger safety stat open, the burner will turn off. If the stat closes within 1 minute, the boiler will resume operation. If the stat remains open for more than 1 minute the display will show “ALL 07”. Press the reset key on the control panel (2) to restart the boiler. If the problem persists seek technical advice.

- FLAME DETECTION ERROR 08 (fig. 23/g)
  If the flame control detects a flame when one should not be detected, the boiler will stop and display “ALL 08”.

- SYSTEM WATER CIRCULATION ERROR 09 (fig. 23/h)
  If the system flow switch detects inadequate circulation, the boiler will stop and the display will show “ALL 09”. If the error persists for more than 1 minute, the boiler will stop and wait for 6 minu-
tes. The boiler will then attempt to restart. Possible causes of this error are faulty or jammed pump, blocked Aqua Guard filter, closed flow or return valve, blocked heating system.

- D.H.W. SENSOR ERROR 10 (fig. 23/l)
  When the D.H.W. sensor is open or short circuited, the display will show error "ALL 10". The boiler will function in central heating mode only.

- ACTIVATION OF THE EXHAUST FUMES THERMOSTAT ERROR 13 (fig. 23/p)
  The activation of this probe causes the boiler to stop and error message "ALL 13" to display. Press the key of the controls (2) to start up the boiler again.

- EXHAUST FUMES THERMOSTAT ERROR 14 (fig. 23/q)
  If the exhaust fumes thermostat is open or short circuit, the boiler will stop and display "ALL 14".

- FAN ERROR 15 (fig. 23/r)
  If the fan speed is not within the rated speed range, the display will show "ALL 15". If the problem persists for more than two minutes the boiler will stop thirty minutes, after which it will attempt to resume operating.

ATTENTION: If error "ALL 04" is displayed, the setting of PAR 2 is incorrect. Ensure that PAR2 is set to value 3 (see section 3.3.1).

4.7 COMMISSIONING AND ROUTINE SERVICE

Commissioning and servicing can only be done by a qualified engineer.

4.7.1 Commissioning

The gas valve is factory set and should require no adjustment. Refer to section 4.3.2 "Calibrating the gas valve", to conduct a confirmation check. The following procedure should be done after installation a gas purge and soundness/drop test have been made. Ensure that the auto air vent on the pump and on top of the main heat exchanger are opened, turn the electrical supply on. With the boiler on standby fill the system and pressurise to 1.5 bar. Ensure that the pump has been manually rotated. Open the gas. Press the "mostat on" the boiler will light and heat the storage cylinder to the desired temperature. Press the "mostat off", ensure that any timer or room thermostat are in the on position. The boiler will light and the system will be heated.

Set the controls to the required values as shown in the user guide. Complete the Benchmark sheet enclosed in this manual. Explain controls and operation to the user.

Leave all documentation with the user.

4.8 ROUTINE SERVICE

To ensure continued efficient operation of the appliance, it is recommended that it is checked and serviced at regular intervals. The frequency of service will depend on the particular installation and conditions of usage, but in general once a year should be adequate, at this service the magnesium anode must be checked, see section 6.15. It is the law that a competent person such as a CORGI registered engineer, must carry out any service work.

4.8.1 Combustion Check

Incorporated into the flue elbow or vertical adaptor is a sampling point. The grey plastic cap should be unscrewed and the flue gas sampled using a flue gas analyser. During the test the boiler can be operated in "chimney sweep mode" see 4.3.2. The correct CO₂ reading can be found in section 1.3.

4.8.2 Burner inspection

Remove the burner as described in section 6.4. Inspect the burner and if necessary clean using a soft brush, taking care not to damage the front insulation. Check the ignition/ionisation electrode, check the ignition spark gap (4 mm +/- 0.5 mm). Check the ionisation electrode, check the distance from the burner (18.7 mm +/- 1 mm). Before reassembly inspect all seals and replace as required.

4.8.3 Combustion Chamber

Remove any loose debris from the combustion chamber using a soft brush and a vacuum cleaner. Take care not to damage the rear insulation panel.

4.8.4 Condensate Trap

The condensate trap would not normally require removal during service, but can be checked whilst the burner assembly is removed. Carefully pour water into the heat exchanger and check that it flows freely to the drain. Should it require removal, firstly remove the two wire clips securing the condensate drain rubber pipe to the heat exchanger and the condensate trap. Remove the pipe.
Remove the 1/2" nut securing the condensate trap to the combustion compartment. Disconnect the drain pipe from the trap. Clean the trap and refit in reverse order.

4.8.5 Flow Switch

The operation of the flow switch should be checked at each service.
Remove small cover retaining screw and remove the cover.
When the pump is running and water is flowing around the boiler, the actuator lifts releases the micro switch.
Check that the operation of the actuator. Ensure that it is free and that it lifts and returns.
If necessary lubricate the pivot point of the actuator.
Isolate the boiler.
Drain it using the drain provided.
Remove the micro switch by carefully pulling it forward off its mounting pins.
Remove the screw securing the mounting plate, then pull off the plate.
Pull out the actuator pin.
Lubricate the centre "O" ring.
Refit the actuator ensuring that the flat side of the round section is to the bottom.
Re-assemble remaining parts.
CHECKLIST

Ensure the following is completed after the boiler has been installed and commissioned:

BOILER SERIAL No. ..................................................... NOTIFICATION No. .................................................................

CONTROLS To comply with the Building Regulations, each section must have a tick in one or other of the boxes

<table>
<thead>
<tr>
<th>Time &amp; temperature control to heating</th>
<th>room t/stat &amp; programmer/timer</th>
<th>Programmable roomstat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time &amp; temperature control to hot water</td>
<td>cylinder t/stat &amp; programmer/timer</td>
<td>Combi boiler</td>
</tr>
<tr>
<td>Heating zone valves</td>
<td>Fitted</td>
<td>Not required</td>
</tr>
<tr>
<td>Hot water zone valves</td>
<td>Fitted</td>
<td>Not required</td>
</tr>
<tr>
<td>Thermostatic radiator valves</td>
<td>Fitted</td>
<td>Not required</td>
</tr>
<tr>
<td>Automatic by-pass to system</td>
<td>Fitted</td>
<td>Not required</td>
</tr>
</tbody>
</table>

FOR ALL BOILERS CONFIRM THE FOLLOWING:

- The system has been flushed in accordance with the boiler manufacturer's instructions? Yes No
- The system cleaner used ........................................................................................................................................
- The inhibitor used ..............................................................................................................................................

FOR CENTRAL HEATING MODE, MEASURE AND RECORD THE FOLLOWING:

- Gas rate m/hr ft/hr
- Burner operating pressure (if applicable) N/A mbar
- Central heating flow temperature °C
- Central heating return temperature °C

FOR COMBINATION BoILERS ONLY

- Has a water scale reducer been fitted? Yes No
- What type of scale reducer has been fitted? ...........................................................................................................

FOR DOMESTIC HOT WATER MODE, MEASURE AND RECORD THE FOLLOWING:

- Gas rate m/hr ft/hr
- Maximum burner operating pressure (if applicable) N/A mbar
- Cold water inlet temperature °C
- Hot water outlet temperature °C
- Water flow rate lts/min

FOR CONDENSING BOILERS ONLY CONFIRM THE FOLLOWING:

- The condensate drain has been installed in accordance with the manufacturer's instructions? Yes

FOR ALL INSTALLATIONS CONFIRM THE FOLLOWING:

- The heating and hot water system complies with current Building Regulations Yes
- The appliance and associated equipment has been installed and commissioned in accordance with the manufacturer's instructions Yes
- If required by the manufacturer, have you recorded a CO/CO₂ ratio reading N/A Yes CO/CO₂ ratio
- The operation of the appliance and system controls have been demonstrated to the customer Yes
- The manufacturer's literature has been left with the customer Yes

COMMISSIONING ENG’S NAME:

Print ................................................................. Gas Safe Register ID No.................................
Sign ............................................................... Date ..............................................................
It is recommended that your heating system is serviced regularly and that you complete the appropriate Service Interval Record below.

**Service Provider:** Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in this instruction manual. Always use the manufacturer’s specified spare parts when replacing all controls.

<table>
<thead>
<tr>
<th>SERVICE 1: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SERVICE 2: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
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<tbody>
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</tbody>
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<table>
<thead>
<tr>
<th>SERVICE 3: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
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<tbody>
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<thead>
<tr>
<th>SERVICE 4: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
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<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 5: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 6: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 7: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 8: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 9: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SERVICE 10: Date</th>
<th>Engineers Name</th>
<th>Company Name</th>
<th>Telephone No.</th>
<th>Gas Safe Register ID card serial No</th>
<th>Comments</th>
<th>Signature</th>
<th>Comments</th>
</tr>
</thead>
</table>
### MAINS PRESSURE HOT WATER STORAGE SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer’s instructions may invalidate the warranty but does not affect statutory rights.

<table>
<thead>
<tr>
<th>Customer Name</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Cylinder Make and Model</td>
<td></td>
</tr>
<tr>
<td>Cylinder Serial Number</td>
<td></td>
</tr>
<tr>
<td>Commissioned by (print name)</td>
<td></td>
</tr>
<tr>
<td>Company Name</td>
<td>Telephone Number</td>
</tr>
<tr>
<td>Company Address</td>
<td></td>
</tr>
<tr>
<td>Commissioning Date</td>
<td></td>
</tr>
</tbody>
</table>

To be completed by the customer on receipt of a Building Regulations Compliance Certificate:

**Building Regulations Notification Number (if applicable)**

---

### ALL SYSTEMS PRIMARY SETTINGS (indirect heating only)

- **Is the primary circuit a sealed or open vented system?**
  - Sealed
  - Open

- **What is the maximum primary flow temperature?**
  - °C

### ALL SYSTEMS

- **What is the incoming static cold water pressure at the inlet to the system?**
  - bar

- **Has a strainer been cleaned of installation debris (if fitted)?**
  - Yes
  - No

- **Is the installation in a hard water area (above 200ppm)?**
  - Yes
  - No

- **If yes, has a water scale reducer been fitted?**
  - Yes
  - No

- **What type of scale reducer has been fitted?**
  - 

- **What is the hot water thermostat set temperature?**
  - °C

- **What is the maximum hot water flow rate at set thermostat temperature (measured at high flow outlet)?**
  - l/min

- **Time and temperature controls have been fitted in compliance with Part L of the Building Regulations?**
  - Yes

- **Type of control system (if applicable) Y Plan S Plan Other**

- **Is the cylinder solar (or other renewable) compatible?**
  - Yes
  - No

- **What is the hot water temperature at the nearest outlet?**
  - °C

- **All appropriate pipes have been insulated up to 1 metre or the point where they become concealed**
  - Yes

### UNVENTED SYSTEMS ONLY

- **Where is the pressure reducing valve situated (if fitted)?**
  - 

- **What is the pressure reducing valve setting?**
  - bar

- **Has a combined temperature and pressure relief valve and expansion valve been fitted and discharge tested?**
  - Yes
  - No

- **The tundish and discharge pipework have been connected and terminated to Part G of the Building Regulations**
  - Yes

- **Are all energy sources fitted with a cut out device?**
  - Yes
  - No

- **Has the expansion vessel or internal air space been checked?**
  - Yes
  - No

### THERMAL STORES ONLY

- **What store temperature is achievable?**
  - °C

- **What is the maximum hot water temperature?**
  - °C

### ALL INSTALLATIONS

- **The hot water system complies with the appropriate Building Regulations**
  - Yes

- **The system has been installed and commissioned in accordance with the manufacturer’s instructions**
  - Yes

- **The system controls have been demonstrated to and understood by the customer**
  - Yes

- **The manufacturer’s literature, including Benchmark Checklist and Service Record, has been explained and left with the customer**
  - Yes

---

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.*
**SERVICE RECORD**

It is recommended that your hot water system is serviced regularly and that the appropriate Service Record is completed.

**Service Provider**
Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer’s instructions.

<table>
<thead>
<tr>
<th>SERVICE 1</th>
<th>Date</th>
<th>Engineer Name</th>
<th>Company Name</th>
<th>Telephone Number</th>
<th>Comments</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVICE 2</td>
<td>Date</td>
<td>Engineer Name</td>
<td>Company Name</td>
<td>Telephone Number</td>
<td>Comments</td>
<td>Signature</td>
</tr>
<tr>
<td>SERVICE 3</td>
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5 FAULT FINDING

If an electrical fault occurs on the appliance the preliminary electrical system checks must be carried out first. When any service or replacement of electrical components which has required the breaking and re-making of electrical connections has taken place, the following tests must be repeated:
- earth continuity;
- short circuit;
- polarity;
- resistance to earth.

5.1 EARTH CONTINUITY CHECK

Appliances must be electrically disconnected, meter set on \( \Omega (\text{ohm}) \times 1 \) scale and adjust zero if necessary. Tests leads from any appliance earth point (e.g. inside control box) see wiring diagrams (section 7) to earth pin on plug. Resistance should be less than 1 \( \Omega (\text{ohm}) \). If the resistance is greater than 1 \( \Omega (\text{ohm}) \) check all earth wires for continuity and all contacts are clean and tight. If the resistance to earth is still greater than 1 \( \Omega (\text{ohm}) \) then this should be investigated further.

5.2 SHORT CIRCUIT CHECK

Switches turned FULL ON - meter set on \( \Omega (\text{ohms}) \times 1 \) scale. Test leads from L to N on appliance terminal block, if meter reads 0 then there is a short circuit. Meter set on \( \Omega (\text{ohm}) \times 100 \) scale. Repeat it with leads from L to E. If meter reads less than infinity (\( \infty \)) there is a fault.

NOTE: Should it be found that the fuse has failed but no fault is indicated, a detailed continuity check (i.e. by disconnecting and checking each component) is required to trace the faulty component. It is possible that a fault could occur as a result of local burning/arcing but no fault could be found under test. However, a detailed visual inspection should reveal evidence of burning around the fault.

5.3 POLARITY CHECK

Appliance reconnected to mains supply and meter set on 300 V ac scale. Test at appliance terminal block.
- Test leads from L to N meter reads approx. 240 V ac.
- Test leads from L to E " " meter reads approx. 240 V ac.
- Test leads from N to E " " meter reads from 0 to 15 V ac.

5.4 RESISTANCE TO EARTH CHECK

Appliance must be disconnected from main supply and meter on \( \Omega (\text{ohm}) \times 100 \) scale. All switches including thermostat on test leads from L to E - if meter reads other than infinity (\( \infty \)) there is a fault which should be isolated. A detailed continuity check is required to trace the faulty component.

IMPORTANT:
These series of checks are the first electrical checks to be carried out during a fault finding procedure. On completion of the service/fault finding task which has required the breaking andremaking of electrical connections then the checks 5.1 Earth continuity, 5.3 Polarity and 5.4 Resistance to earth must be repeated.
6 REPLACEMENT OF PARTS

6.1 EXPANSION VESSEL
- Turn off power supply
- Remove boiler cover see 4.4
- Isolate flow and return valves
- Drain boiler using fitted drain vent
- Disconnect expansion pipe
- Loosen top fixing screw and remove lower expansion vessel locking nut.
- Remove vessel and transfer the fixing bracket to the new vessel.
- Check new vessel for correct pressure 1-1.25 bar
- Refit in reverse order.

6.2 IGNITION ELECTRODE
- Turn off power supply
- Remove boiler cover see 4.4
- Remove sealed chamber cover
- Disconnect electrode from ignition transformer
- Pull lead through grommet
- Remove electrode fixing screw
- Carefully remove electrode from burner
- Replace in reverse order.

6.3 IONISATION ELECTRODE
- Turn off power supply
- Remove boiler cover see 4.4
- Remove sealed chamber cover
- Disconnect electrode
- Disconnect electrode fixing screw
- Carefully remove electrode from burner
- Replace in reverse order.

6.4 MAIN BURNER
- Turn off power supply
- Isolate gas supply
- Remove boiler cover
- Remove sealed chamber cover
- Disconnect gas connection at injector
- Disconnect air sensing tube
- Disconnect gas connection at injector
- Remove sealed chamber cover
- Remove two fixing brackets
- Lift out heat exchanger
- Refit in reverse order
- Recommission boiler
- Test for gas tightness.

6.5 FAN ASSEMBLY
- Remove burner assembly as described in 6.4
- Remove 2 x 8mm bolts and loosen 2 x 8mm securing fan to burner assembly
- Remove restrictor plate and fit to new fan
- Refit in reverse order
- Recommission boiler
- Test for gas soundness.

6.6 MAIN HEAT EXCHANGER
- Turn off power supply
- Isolate gas supply
- Isolate flow and return valves
- Drain boiler using drain vent
- Remove burner assembly as described in 6.4
- Remove flue connection
- Disconnect flue sensor
- Disconnect limit stat
- Remove condense drain connections
- Disconnect flow and return connections
- Remove two fixing brackets
- Lift out heat exchanger
- Refit in reverse order
- Recommission boiler
- Test for gas tightness.

6.7 FLUE SENSOR
- Turn off power supply
- Remove cover
- Remove sealed chamber cover
- Disconnect flue sensor
- Unscrew sensor
- Replace in reverse order.

6.8 100° SAFETY STAT
- Turn off power supply
- Remove cover
- Remove sealed chamber cover
- Disconnect 100° safety stat
- Remove two fixing brackets
- Lift out heat exchanger
- Refit in reverse order.

6.9 HEATING THERMISTOR (SM SENSOR)
- Turn off power supply
- Remove cover
- Remove sealed chamber cover
- Disconnect thermistor
- Unscrew thermistor (catch any water lost)
- Refit in reverse.

6.10 D.H.W. THERMISTOR (SB SENSOR)
- Turn off power supply
- Remove cover see 4.4
- Isolate cold water supply valve
- Drain the cylinder
- Disconnect thermistor
- Unscrew thermistor (catch any water lost)
- Refit in reverse.

6.11 GAS VALVE
- Turn off power supply
- Isolate gas supply
- Disconnect wiring from gas valve
- Disconnect sensing tube
- Remove gas valve
- Refit in reverse order ensuring seals are replaced as required.

6.12 PRINTED CIRCUIT BOARD (PCB)
- Isolate from power supply
- Remove screw securing control panel
- Lower panel to horizontal position
- Remove PCB covers
- Disconnect all wiring
- Remove PCB fixing screws
- Ensure any PCB links are matched to old board
- Reset PAR 1 and PAR 2 as per the table 3.3.1
- Refit in reverse order
- Recommission boiler

6.13 PUMP MOTOR
- Turn off power supply
- Remove boiler cover
- Isolate flow and return valves

---

**NATURAL GAS**

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**LPG**

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Check for gas tightness.
- Drain boiler using drain vent
- Remove plug connection
- Remove 4 x fixing screws, catch any lost water
- Refit in reverse using new gasket.

6.14 DHW EXPANSION VESSEL

- Turn off power supply
- Remove boiler covers
- Isolate DHW supply
- Drain the cylinder
- Disconnect the DHW expansion vessel
- Check the pressure of the new cylinder (3 bar)
- Refit in reverse order

6.15 SACRIFICAL MAGNESIUM ANODE

This is located in the base of the cylinder:
- Turn off the power supply
- Turn off the domestic water supply to the boiler.
- Open a DHW tap.
- Connect a suitable drain hose to the cylinder drain cock.
- Open the drain cock.
- When fully drained, remove and examine the anode.
- If required replace the anode.
- Refit in reverse order
- See section 2.4.2 for refilling instructions.
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*Recommended stock parts - Componenti da tenere a scorta*


Check the correspondence with the boiler data plate.
Dealing with Condensate

Five suitable drainage points
1. Internal drain stack pipe
2. Waste water pipe *
3. External drain or gully *
4. Rainwater hoppers that carry both rain water and foul water *
5. Purpose-made soakaways
   * Care should be taken not to contaminate any “Grey Water Systems”

Pipework
Condensate pipework should be plastic, same as used for standard wastewater plumbing. Similarly the drainage system where the condensate discharges to should also be resistant to the acidic condensate.

Connection to the internal trap in the boiler can be achieved by using a 20mm solvent weld socket.
Pipework should be kept as short as possible.

External runs should be avoided, but when necessary be a minimum of 3 meters in 32mm diameter pipework and lagged to avoid freezing, this also applies to pipe runs in unheated areas such as garages.

To reduce the possibility of condensate being trapped in the pipe, the number of bends should be kept to a minimum. Pipework must be angled down from the boiler with a fall of at least 2.5.
The pipework must be supported at a distance of 0.5m for inclined runs and 1.0m for vertical runs.

Condensate traps
Where the condensate drain is not sealed to the discharge connection a trap will be required. The water seal should be 38mm or more for external discharge and 75mm or more for internal discharge. When connecting to a external stack the trap should be located within the building.

Stack Pipes
Condensate connections should be at least 450mm above any bend at the bottom of a stack pipe in a single or multi-story dwelling up to 3 storeys.

There are specific requirements when connecting to a stack pipe serving multi-storey buildings greater than 3 storeys.

All connections to stack pipes should avoid across flow between other Branch pipes.

Soakaways
Any soakaways have to be purpose-made and located as close to the boiler as possible, but clear of the buildings foundations and any buried services. The best option is to purchase a soakaway from a drainage manufacturer and install it to the manufacturers recommendation.