

MURELLE 70 BOX ErP

USER, INSTALLATION AND SERVICING INSTRUCTIONS



ENSURE THAT THESE INSTRUCTIONS ARE LEFT FOR THE USER AFTER COMPLETION OF THE BENCHMARK SECTION

PLEASE READ THE IMPORTANT NOTICE WITHIN THIS GUIDE REGARDING YOUR BOILER WARRANTY



199839

SAFE HANDLING

This boiler may require 2 or more operatives to move it into its installation site, remove it from its packaging and during movement into its installation location. Manoeuvring the boiler may include the use of a sack truck and involve lifting pushing and pulling.

Caution should be exercised during these operations.

Operatives should be knowledgeable in handling techniques when performing these tasks and the following precautions should be considered:

- Grip the boiler at the base
- Be physically capable
- Use personal protective equipment as appropriate e.g. gloves, safety footwear.

During all manoeuvres and handling actions, every attempt should be made to ensure the following unless unavoidable and/or the weight is light.

- Keep back straight
- Avoid twisting at the waist
- Always grip with the palm of the hand
- Keep load as close to the body as possible
- Always use assistance

WARNING

Caution should be exercised when performing any work on this appliance.

Protective gloves and safety glasses are recommended.

- Avoid direct contact with sharp edges.
- Avoid contact with any hot surfaces.

NOTICE

Please be aware that due to the wet testing of the appliance, there may be some residual water in the hydraulic circuit.

- Protect any surfaces, carpets or floorings.
- Use a suitable container to catch any water that escapes when removing the protective caps from the connections.

MURELLE 70 BOX ErP: Gas Council number 47-283-88

CONFORMITY

Our Company declares that MURELLE 70 BOX ErP boilers comply with the essential requirements of the following directives:

- Boiler Efficiency Directive 92/42/EEC
- Gas Regulation 2016/426/EC
- Electromagnetic Compatibility Directive 2014/30/UE
- Low Voltage Directive 2014/35/UE
- Ecodesign Directive 2009/125/EC
- Regulation (EU) N. 813/2013 - 811/2013
- Energy Labelling 2010/30/EC



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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.

Please refer to commissioning instructions for filling in the checklist at the back of this installation guide.

Note: All Gas Safe registered installers carry a ID Card.

You can check your installer is Gas Safe Registered by calling 0800 408 5577

IMPORTANT

Prior to switching on the boiler for the first time, check the following:

- 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.
- Ensure that tightness and let by test have been conducted, including the internal gas pipe work.
- 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 isolation valves are open.
- Make sure that the system is filled with water and is thoroughly vented.
- Check that the circulating pump is not jammed.
- Purge the gas supply pipe work.
- Ensure that the checklist is filled in when the commissioning has been completed.

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.

1 DEVICE DESCRIPTION

1.1 INTRODUCTION

MURELLE 70 BOX ErP heat modules are

pre-mixed condensing appliances designed for heating only, suitable for outdoor installation thanks to the galvanised sheet metal,

pre-painted, insulated, weather-resistant cabinet.

1.2 DIMENSIONS MODULES (fig. 1)

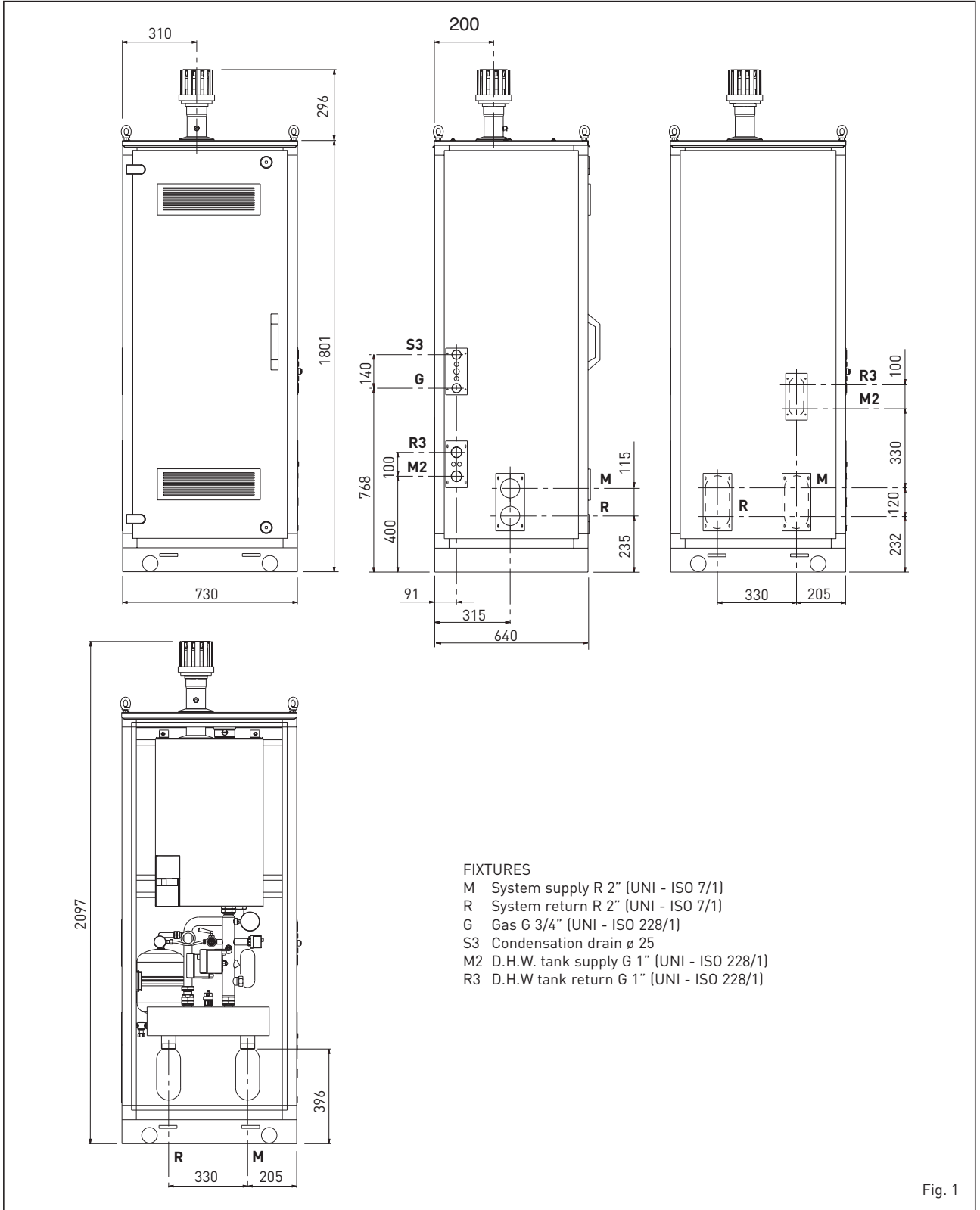


Fig. 1

1.3 TECHNICAL SPECIFICATIONS

MURELLE 70 BOX ErP

Heat output

Nominal (80-60°C) (Pn max)	kW	63.2
Nominal (50-30°C) (Pn max)	kW	68.1
Minimum (80-60°C) (Pn min)	kW	13.4
Minimum (50-30°C) (Pn min)	kW	15.0

Heat input (*)

Nominal (Qn max - Qnw max)	kW	65.0
Minimum (Qn min - Qnw min)	kW	14.0

Min/max operating yield (80-60°C) % 95.7/97.3

Min/max operating yield (50-30°C) % 107.4/104.8

Operating yield at 30% (40-30°C) % 108.1

Losses after shutdown to 50°C (EN 15502) W 156

Supply voltage V-Hz 230-50

Adsorbed power consumption (Qn max) W 186

Adsorbed power consumption (Qn min) W 128

Absorbed power IPX4D

Energy efficiency

Seasonal energy efficiency class of the heating system A

Seasonal energy efficiency of the heating system % 92

Sound power of the heating system dB (A) 65

Single module temperature regulation °C 20/80

Water content modules l 18.2

Max operating pressure (PMS) bar (kPa) 3.5 (343)

Max operating temperature (T max) °C 85

Exhaust temperature at nominal input (80-60°C) °C 86.6

Exhaust temperature at minimum input (80-60°C) °C 61.6

Exhaust temperature at nominal input (50-30°C) °C 55

Exhaust temperature at minimum input (50-30°C) °C 48

Maximum/Minimum exhaust capacity g/s 6.8/31.4

CO₂ at input nominal/minimum (G20) % 9.0/9.0

CO₂ at input nominal/minimum (G31) % 10.0/10.0

NO_x measured (EN 15502-1:2015) mg/kWh 37

Maximum pressure exhaust manifold output Pa 160

PIN number 1312CT6271

Category II2H3P

Type B23-B53-B23P-B53P

NO_x emission class (EN 15502-1:2015) 6 (< 56 mg/kWh)

Weight when empty kg 155

Gas and nozzle pressure

Supply pressure (G20) mbar (kPa) 20 (1.96)

Supply pressure (G31) mbar (kPa) 37 (3.63)

Number of nozzles n° --

Nozzle diameter (G20) ø --

Nozzle diameter (G31) ø --

Consumption at nominal power (G20) m³/h 6.87

Consumption at minimum power (G20) m³/h 1.48

Consumption at nominal power (G31) kg/h 5.04

Consumption at minimum power (G31) kg/h 1.08

(*) Heat input of the heating system measured using lower heating value (LHV)

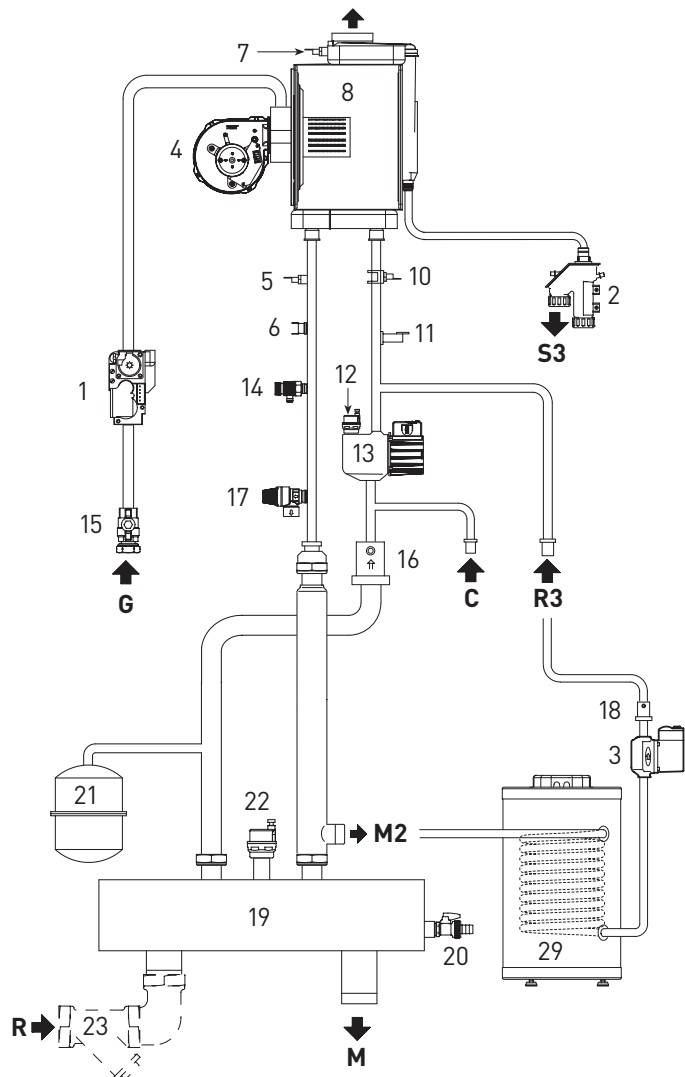
1.4 OPERATING DIAGRAM (fig. 2)

KEY

- 1 Gas valve
- 2 Condensate drain siphon
- 3 Boiler pump (not supplied)
- 4 Fan
- 5 Heating supply probe (SM)
- 6 100°C Safety thermostat
- 7 Flue gas probe (SF)
- 8 Primary exchanger
- 10 Heating return probe (SR)
- 11 Water pressure transducer
- 12 Automatic vent
- 13 High efficiency system pump
- 14 Boiler exhaust
- 15 Gas tap (not supplied)
- 16 Check valve
- 17 3.5 bar safety valve
- 18 Check valve (not supplied)
- 19 Hydraulic compensator
- 20 Drain cock
- 21 8 litre expansion vessel
- 22 Automatic vent
- 23 Y strainer (not supplied)
- 29 D.H.W. tank (not supplied)

CONNECTIONS

- M System supply
- R System return
- G Gas
- S3 Condensate drain
- C System filling
- M2 D.H.W. tank supply
- R3 D.H.W. tank return



WARNING:

The boiler pump (3) to be used must be sized according to the DHW circuit drops (boiler + piping) and minimum flow rate, in order to guarantee (2,200 l/h).

The boiler (29) shall be controlled through the RVS control unit (configure the installer parameter PAR 10).

Only if the Murelle 70 BOX ErP is to be installed indoors when the boiler (29) is connected will it be necessary to:

- configure the installer parameter PAR 2=6.
- electrically connect the boiler pump (3) to terminal 18-20 of connector CN9 on the boiler board.
- move the capillary from the siphon anti-freeze probe (2) to the boiler so that it acts as a boiler probe.

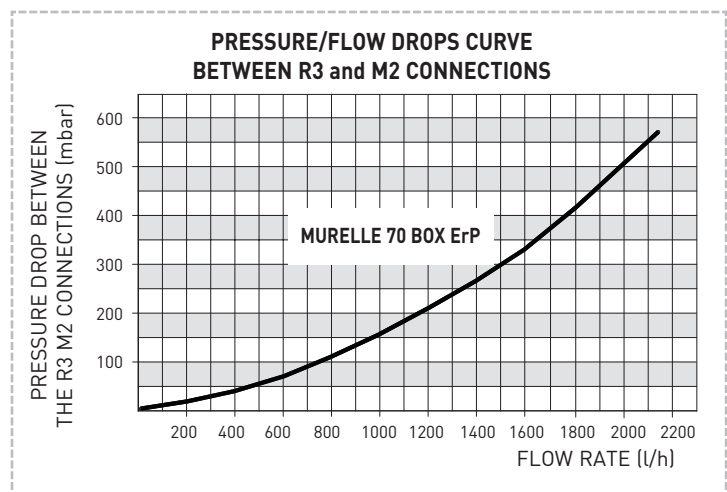


Fig. 2

1.5 MAIN COMPONENTS (fig. 3)

Code 8111234
 Model MURELLE 70 BOX ErP
 Serial n. 9999999999
 PAR 1 = 60 (G20) / 62 (G31)
 PAR 2 = 9

KEY

- 1 Control panel
- 2 100°C Safety thermostat
- 3 Heating supply probe (SM)
- 4 Ignition transformer
- 5 Activation electrode
- 6 Primary exchanger
- 7 Manual vent
- 8 Flue gas probe (SF)
- 9 Detection electrode
- 10 Fan
- 11 High efficiency system pump
- 12 --
- 13 --
- 14 --
- 15 --
- 16 Expansion vessel
- 17 Hydraulic compensator
- 18 --
- 19 Automatic vent
- 20 Drain cock

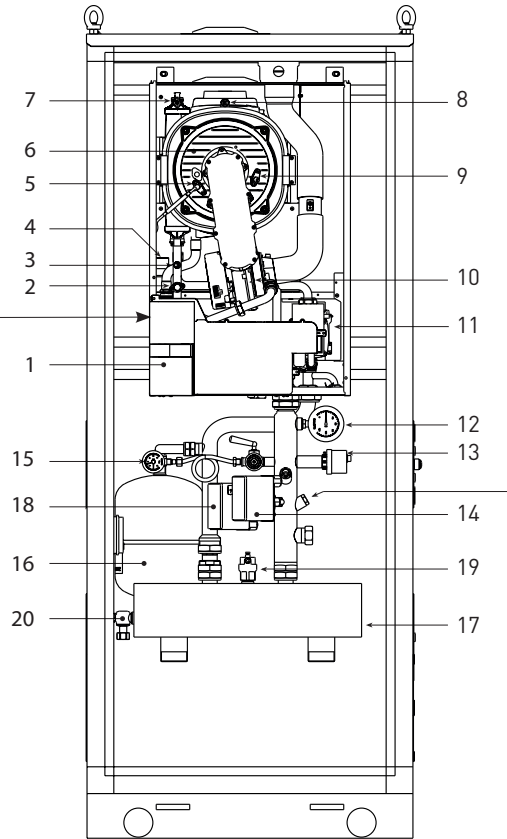


Fig. 3

1.6 TECHNICAL DATA PLATE (fig. 3/a)

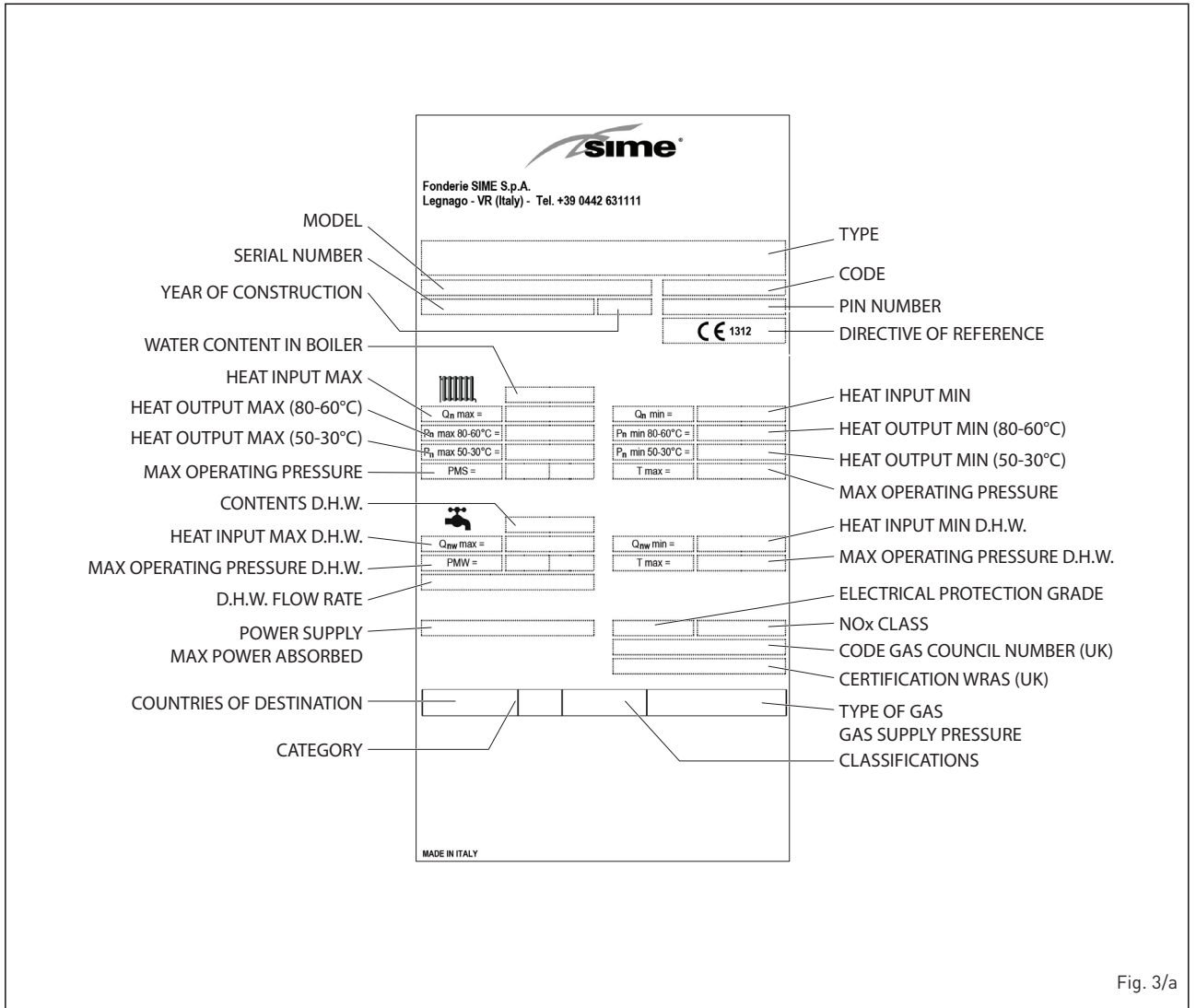


Fig. 3/a

2 INSTALLATION

The unit is suitable for external installation in a fixed location.

It must be installed by qualified engineers in compliance with all instructions contained in this manual. Furthermore, the installation must be in accordance with current standards and regulations.

2.1 SUPPLY

MURELLE 70 BOX ErP heat modules are supplied with galvanised sheet metal, pre-painted outer casing. Optional accessories available:

- Flue gas collector made of polypropylene for indoor installations code 8102510.
- Flue gas exhaust terminal code 8089530 for outdoor installations.

For assembly of the flue gas exhaust for indoor or outdoor installations, see points 2.5 and 2.6 in the manual.

2.2 INSTALLATION

2.2.1 Indoors

MURELLE 70 BOX ErP heat modules can be installed in boiler rooms whose size and requirements meet current regulations.

VENTILATION

The following is provide for your guidance only, and assumes the ventilation air is taken directly from outside. The sizes of the vents may need to be increased in respect of other appliances installed in the same area, and seasonal use. Take care that the position of low level vents would not subject to adverse weather conditions, ie flooding.

BS6644 has a requirement that the temperatures in a room or compartment do not exceed certain levels:

25°C at floor level (0-100 mm)

32°C at mid level (1.5 M above the floor level)

40°C at ceiling level (0-100 mm from ceiling)

Installed as a class B appliance (open flued).

Installed in a room

High level (within 15% of the room height from ceiling) - 2 cm²/KW of net heat input

Low level (low as possible within 1 metre from floor natural gas, 250 mm LPG)- 4 cm²/KW of net heat input

Installed in a compartment or enclosure

High level (within 15% of the room height from ceiling) - 5 cm²/KW of net heat input

Low level (low as possible within 1 metre from floor natural gas, 250 mm LPG) - 10 cm²/KW of net heat input.

2.2.2 Outdoors

MURELLE 70 BOX ErP heat modules can also be installed outdoors with the specific exhaust for single module code 8089530.

2.3 SYSTEM REQUIREMENTS

The heating system should be flushed prior to the connection of the heating modules. The system should be treated in accordance with BS 7593. Sime Ltd recommend only the use of Fernox products for the flushing and final treatment of the system water. This is particularly important in hard water areas.

It is recommended that the inhibitor concentration is checked at installation, system modification and at every service in accordance with the manufacturers instructions. Test kits are available from inhibitor stockist.

WARNING: Failure to clean the heat system or add an adequate inhibitor invalidates the device's warranty.

Gas connections must be made in accordance with current standards and regulations.

When dimensioning gas pipes from the meter to the module, both capacity volume (consumption) in m³/h and gas density must be taken into account.

System pipe sections must be able to guarantee sufficient supply to cover maximum demand, limiting pressure loss between the meter and any utility device no greater than 1.0 mbar for second family gas (natural gas).

A sticker inside the module includes identification and gas type data specific to the module.

2.3.1 Condensation drain connection

The condensate drain must be connected to the civil drain by a pipe with minimum 5 mm per meter gradient for condensation collection.

Only stainless steel or plastic pipes are suitable to convey condensate.

2.3.2 Filter on the gas pipe

The gas valve on each generator 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 FILLING THE SYSTEM

Cold system filling pressure must be **1.5 bar**. The system must be filled slowly so that air bubbles are released through the specific escapes.

2.5 EXHAUST FOR OUTDOOR INSTALLATION (fig. 5)

The exhaust terminal for single module code 8089530 is required for this type of installation. For separately supplied accessory assembly see fig. 5.

2.6 INDOOR INSTALLATION EXHAUST KIT (fig. 6)

Refer to fig. 6 for this type of installation.

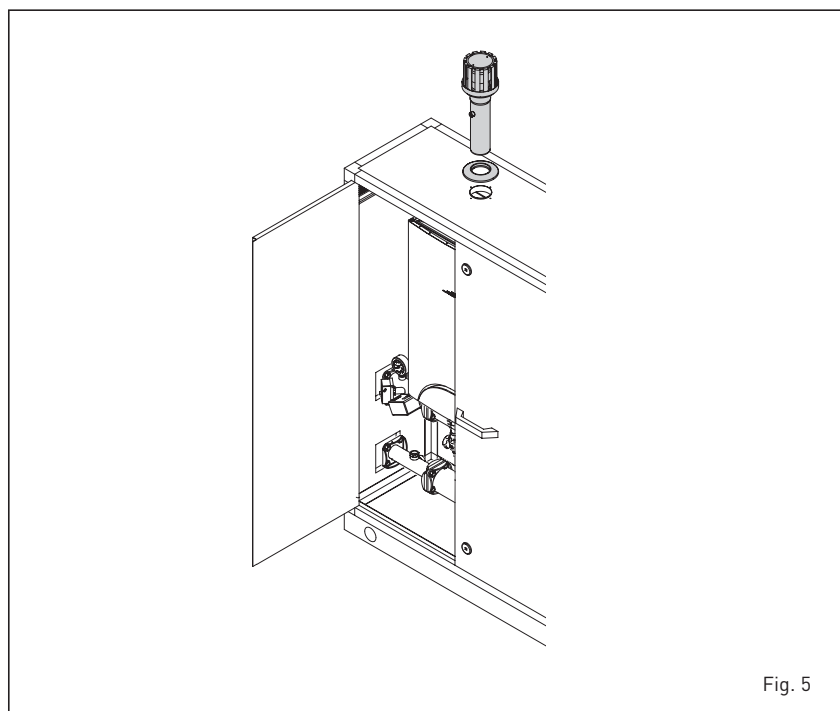


Fig. 5

The indicated solutions have the exhaust manifold positioned both on the modules. It is however possible to move the exhaust of the left by simply rotating the manifold 180°.

NOTE: The kits are purposely treated also to resist weathering when installed outdoors.

2.7 RS-485 BOARD (fig. 7)

Each module is supplied with the **RS-485** board which allows you to manage the boilers in sequence/cascade. The board is placed on the back of the control panel.

2.7.1 MODBUS mode

This mode allows for MODBUS communication of at least two boilers in cascade and is performed by requesting another RS-485 board provided in the kit code 8092278.

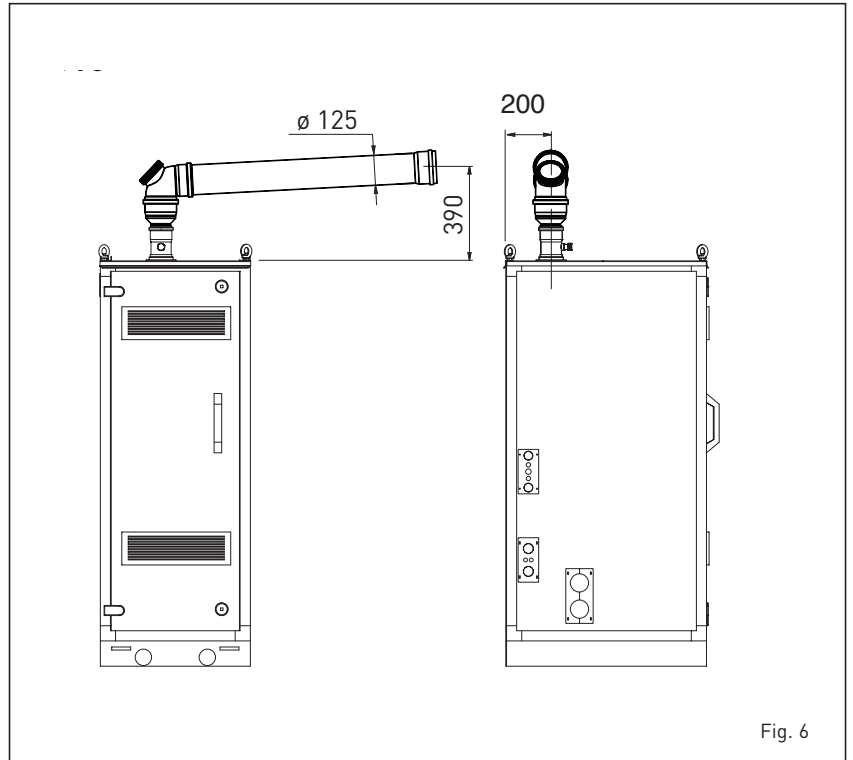


Fig. 6

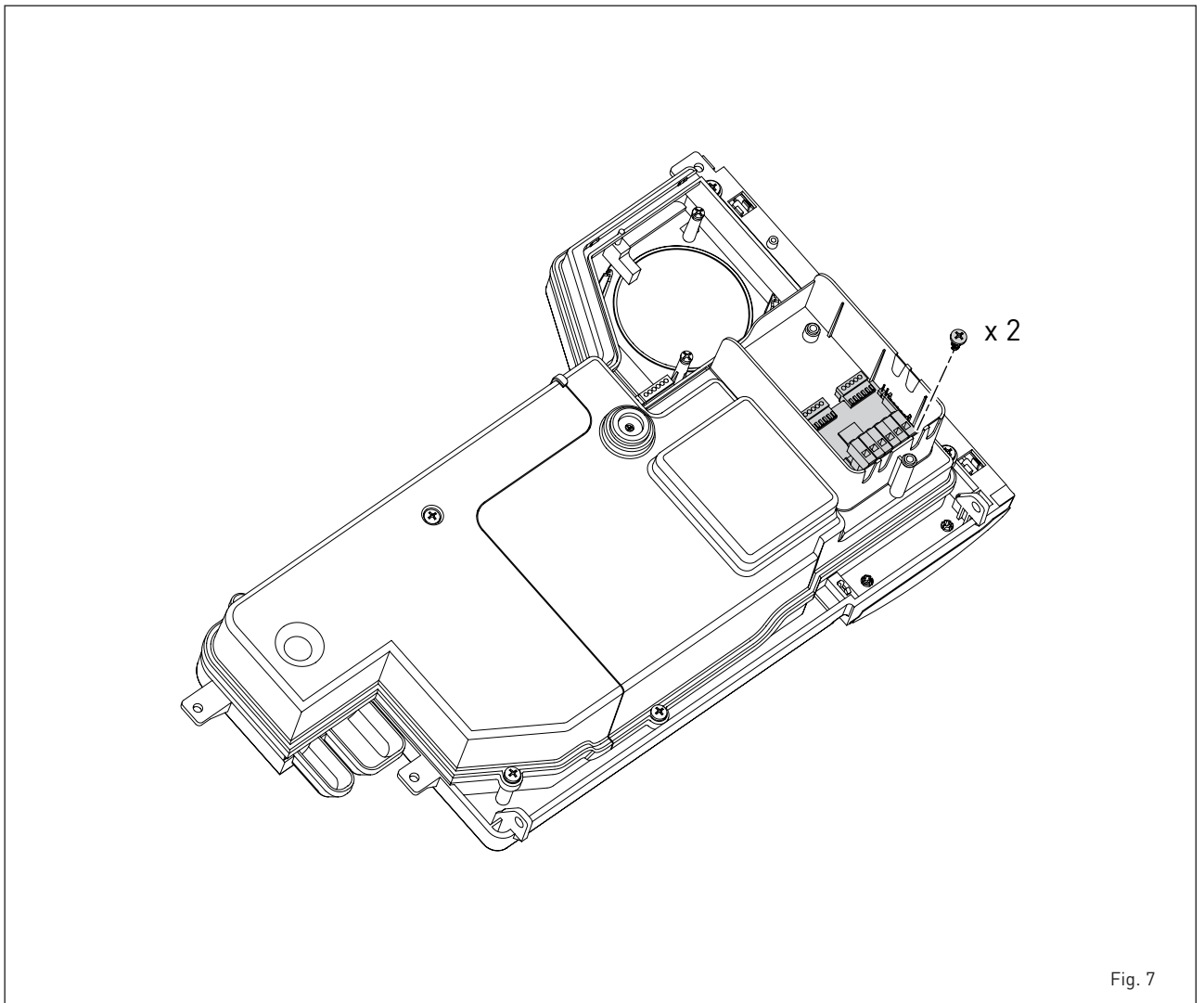


Fig. 7

2.8 LOAD LOSS HYDRAULIC SEPARATOR (fig. 10)

Hydraulic separator load losses are indicated in the diagram in figure 10.

2.9 ELECTRICAL CONNECTIONS

Each module is supplied with a power cord which, if replacement is required, it must be replaced with one of similar type and dimensions. 230V - 50 Hz single phase voltage is required using a fuse protected main switch with at least 3 mm. between contacts.

Observe the L - N polarity and grounding connection. Each generator should be fused at 3 A.

NOTE: Sime declines all responsibility for injury or damage to persons, animals or property resulting from the failure to provide for proper earthing of the appliance.

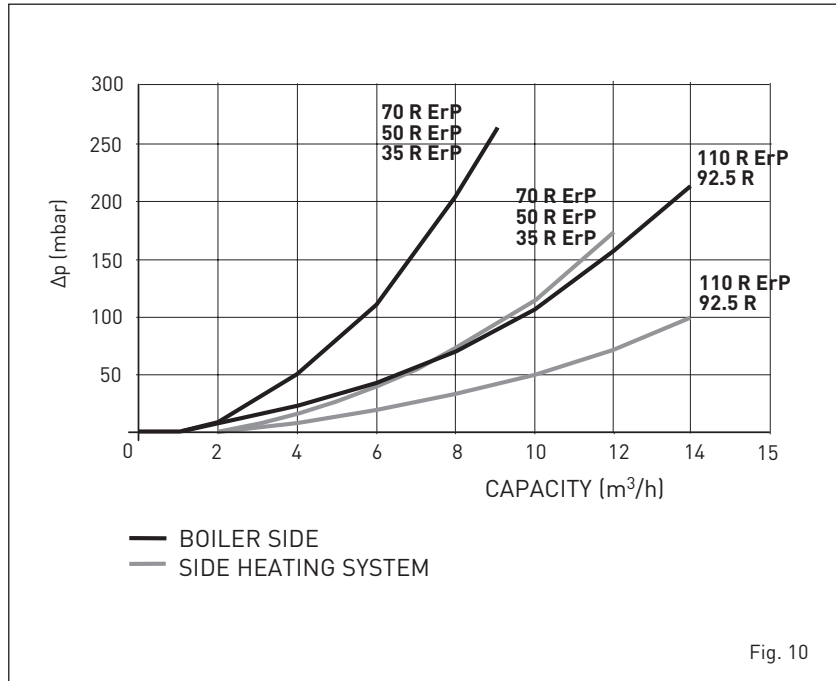


Fig. 10

2.9.1 Wiring diagram single generator (fig. 11)

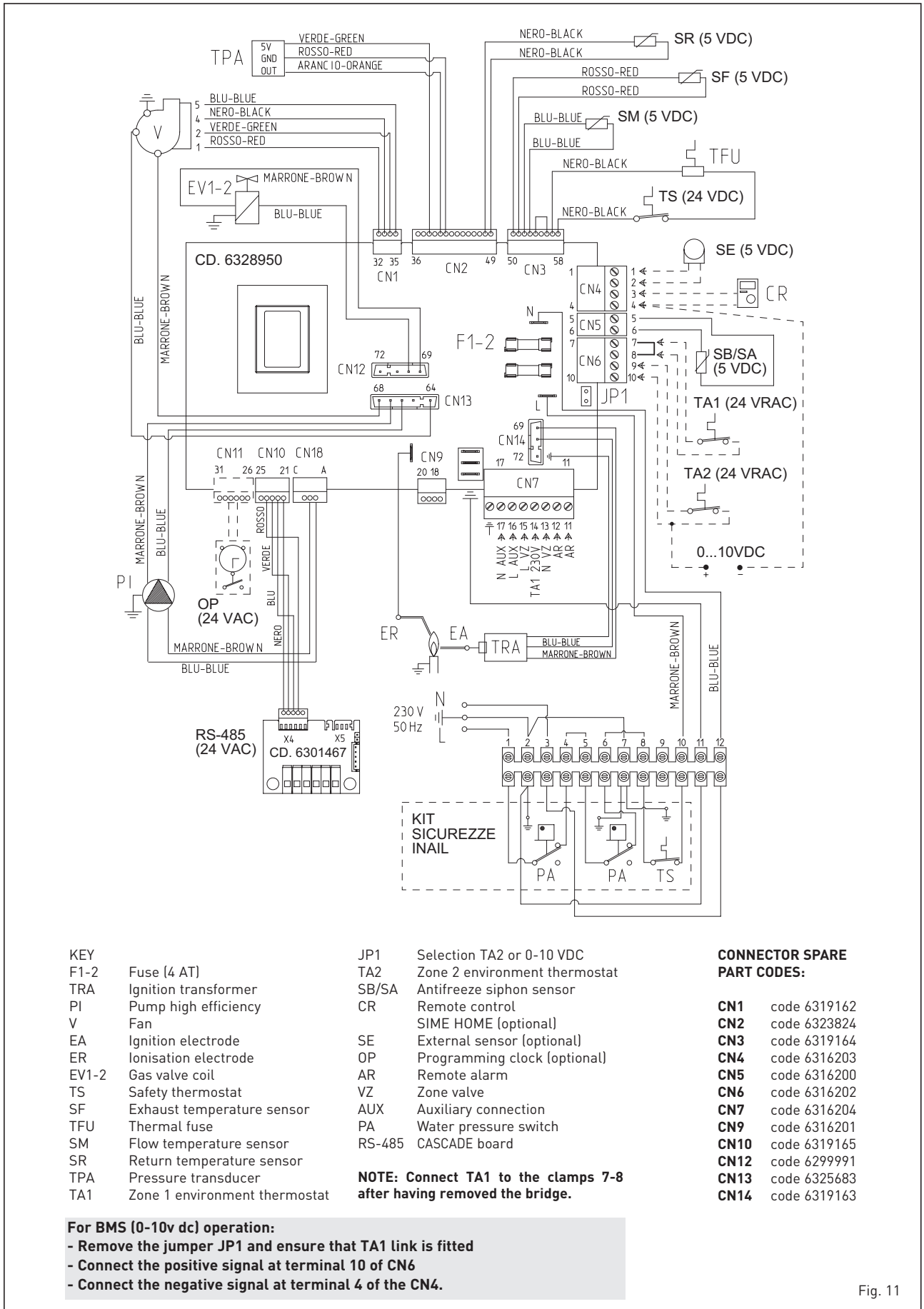


Fig. 11

2.9.2 Room Thermostat and/or Timer (clean contact)

The heating demand can be controlled by a thermostat and/or timer (TA) connected to CN6 terminals 7-8 (see fig 11), after having removed the existing bridge. The control being used must be of a class conforming to the standard EN 607301 (clean electrical contact).

2.9.3 Remote control SIME HOME connection (optional)

The heating demand can be controlled by use of remote control unit SIME HOME (code 8092280/81)

The remote control unit allows for complete control, except lockout reset.

The generator will display CR.

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

NOTE, Ensure PAR 10 set to 1 (PAR 10 = 1)

2.9.4 External Sensor (8094101)

An external sensor (code 8091401) can be connected, which can automatically regulate the flow temperature value of the cascade delivery according to the external temperature.

For installation follow the instructions in the package. It is possible to make corrections to the values by adjustment of PAR 11.

2.9.5 Heat Demand by 230v

The heat demand can be controlled by 230v applied to terminal 14 of CN7, and removal of the bridge on CN6 terminals 7 & 8.

2.9.6 BMS (Building Management Systems)

The cascade of generators can be controlled by a BMS signal, and should be connected as shown in fig 11.

Set PAR 14 according to the maximum (10v) flow temperature required.

3 CHARACTERISTICS

3.1 CONTROL PANEL (fig. 12)

2 - DESCRIPTION OF CONTROLS

ON = Electricity supply to boiler is on
OFF = Electricity supply to boiler is on but not ready for functioning. However, the protection functions are active.

SUMMER MODE KEY
When this key is pressed, the boiler functions only when D.H.W. is requested **(function not available)**

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 **(function not available)**

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.
The third time the key is pressed, the temperature of heating circuit 3 is shown (Three zones).

RE-SET KEY
This allows for restoring functioning after a functioning error.

By pressing this key the set value increases or decreases.

1 - DESCRIPTION OF DISPLAY ICONS

SUMMER MODE ICON

WINTER MODE ICON

D.H.W. MODE ICON

HEATING DEMAND ICON

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

BURNER FUNCTIONING AND LOCKOUT ICON

RESET REQUIRED ICON

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

INTEGRATIVE SOURCES ICON

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

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.) Use a tool to remove the cap and reinsert after use.
Before use, it is advisable to touch an earthed metallic surface to discharge static electricity.

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.

This key changes the default settings.

INCREASE KEY
This key changes the default settings.

4 - LUMINOUS BAR

Blue = Functioning
Red = Functioning error

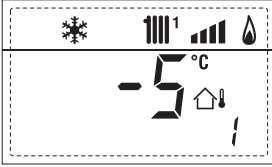


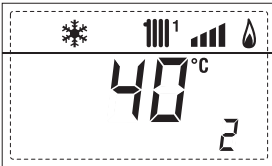


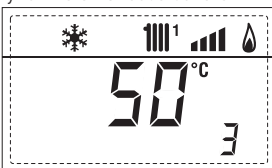


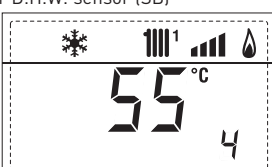
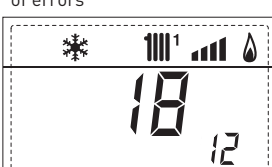

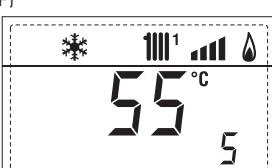


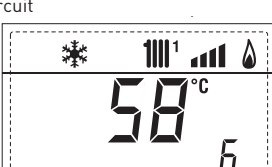


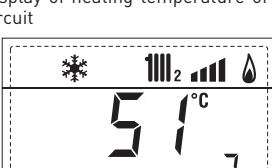
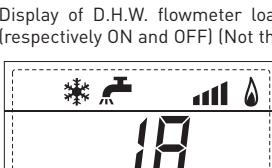
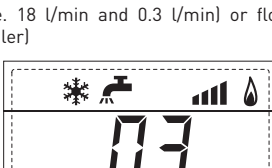
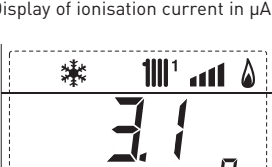
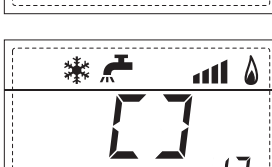

5 - PROGRAMMING CLOCK (optional)

Mechanical clock [code 8092228] or digital clock [code 8092229] to program heating (single zone only).

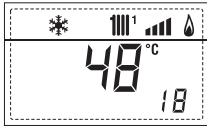
Fig. 12

3.2 ACCESS TO INSTALLER'S INFORMATION

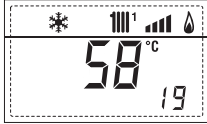
For access to information for the installer, press the key (3 fig. 12). Every time the key is pressed, the display moves to the next item of information. If the key is not pressed, the system automatically quits the function. If there is no expansion board (MIXED ZONE or SOLAR) the relative info will not be displayed. List of information:

- | | | |
|---|--|---|
| <p>1. Display of external temperature, only with external sensor connected</p>  | <p>9. Display of fan speed in rpm x 100 (e.g. 4.800 and 1850 rpm)</p>  |  |
| <p>2. Display of Heating flow sensor (SM)</p>  | <p>10. Display of hours of functioning of the burner in h x 100 (e.g. 14000 and 10)</p>  |  |
| <p>3. Display of D.H.W. temperature sensor (SS) only for instantaneous boilers</p>  | <p>11. Display of number of times the burner has ignited x 1000 (e.g. 97000 and 500)</p>  |  |
| <p>4. Display of auxiliary temperature sensor or D.H.W. sensor (SB)</p>  | <p>12. Display of total number of errors</p>  |  |
| <p>5. Display of exhaust temperature sensor (SF)</p>  | <p>13. Parameter access counter-Installer (i.e. 140 accesses)</p>  |  |
| <p>6. Display of heating temperature of first circuit</p>  | <p>14. Parameter access counter-OEM (i.e. 48 accesses)</p>  | <p>15. Parameter access counter-CASCADE OEM (i.e. 05 accesses)</p>  |
| <p>7. Display of heating temperature of second circuit</p>  | <p>17. Display of D.H.W. flowmeter load (i.e. 18 l/min and 0.3 l/min) or flow switch (respectively ON and OFF) (Not this boiler)</p>  |  |
| <p>8. Display of ionisation current in µA</p>  |  |  |

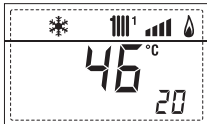
18. Display of Heating return sensor value (SR)



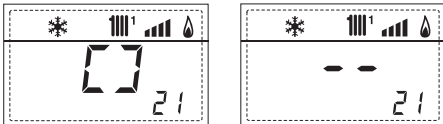
19. Display of cascade delivery sensor (SMC) value



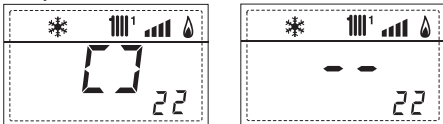
20. Display of delivery probe value mixed with board MIXED ZONE 1 (input S2)



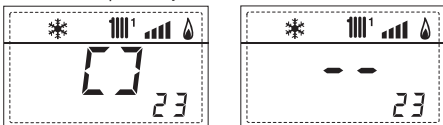
21. Display of safety thermostat MIXED ZONE (input S1) respectively ON and OFF



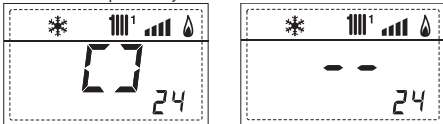
22. Display of pump with board MIXED ZONE 1 (respectively ON and OFF)



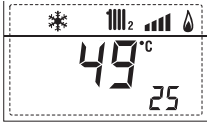
23. Display of valve opening control with board MIXED ZONE 1 (respectively ON and OFF)



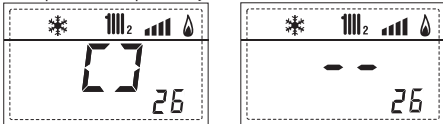
24. Display of valve closing control with board MIXED ZONE 1 (respectively ON and OFF)



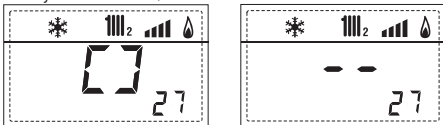
25. Display of the plant delivery probe mixed with board MIXED ZONE 2



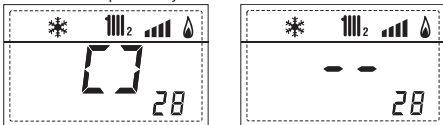
26. Display of safety thermostat with board MIXED ZONE 2 (input S1) respectively ON and OFF



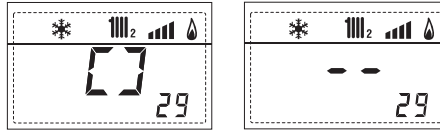
27. Display of pump with board MIXED ZONE 2 (respectively ON and OFF)



28. Display of valve opening control with board MIXED ZONE 2 (respectively ON and OFF)



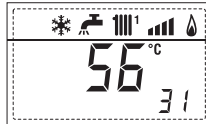
29. Display of valve closing opening control with board MIXED ZONE 2 (respectively ON and OFF)



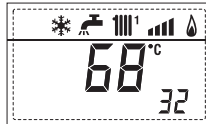
30. Display of solar probe temperature value S1 with SOLAR board



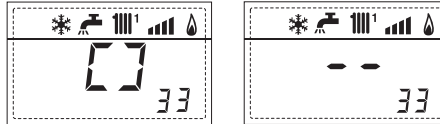
31. Display of solar probe temperature value S2 with SOLAR board



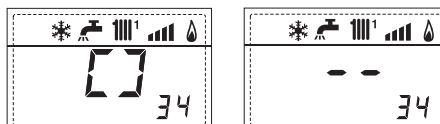
32. Display of solar probe temperature value S3 with SOLAR board



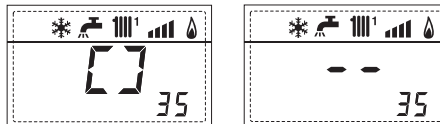
33. Display of solar relay R1 with SOLAR board (respectively ON and OFF)



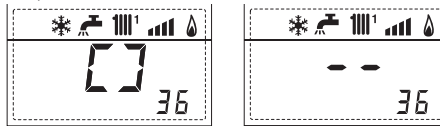
34. Display of solar relay R2 with SOLAR board (respectively ON and OFF)



35. Display of solar relay R3 with SOLAR card (respectively ON and OFF)



36. Display of solar flow meter state (respectively ON and OFF)



40. Display of % value pump control PWM



45. Visualization temperature heating refers to the third circuit



60. Display of code of last error



61. Display of code of penultimate error



70. Code warning



90. Software version on RS-485 (e.g. version 01)



91. Software version on EXP (configuration MIXED ZONE)



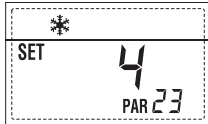
92. Software version on second EXP (configuration MIXED ZONE)



3.3 ACCESS TO INSTALLER'S PARAMETERS

For access to the installer's parameters, press simultaneously the keys and or 2 seconds (3 fig. 12).

For example, the parameter PAR 23 is displayed on the display of the control panel in the following way:



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

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

3.3.1 Replacing the board or RESETTNG parameters

If the PCB is replaced or reset, it is necessary to configure PAR 1 and PAR 2 by associating the following values to each type of boiler to be able to restart the boiler:

GAS	MODEL	PAR 1
METHANE (G20)	70 BOX ErP	60
PROPANE (G31)	70 BOX ErP	62

PARAMETERS INSTALLER

FAST CONFIGURATION

PAR	DESCRIPTION	RANGE	UNIT OF MEASUREMENT	INC/DEC UNIT	DEFAULT SETTING
1	Combustion configuration	-- = ND 1 ... 63	=	=	"- -"
2	Hydraulic configuration	-- = ND 1 ... 14	=	=	"- -"
3	Timetable 2 programmer	1 = DHW + Recirc. pump 2 = DHW 3 = Recirculation pump	=	=	1
4	Pressure transducer disabler	0 = Disabled 1 = Enabled 0-4 BAR 2 = Enabled 0-6 BAR 3 = Enabled 0-4 BAR (NO ALL 09) 4 = Enabled 0-6 BAR (NO ALL 09)	=	=	3
5	Assignment of auxiliary relay AUX	1 = Remote alarm NO 2 = Recirculation pump 3 = Automatic load. 4 = Remote alarm NC 5 = Heat pump 6 = Zone 2 valve	=	=	1
6	Luminous bar indicating presence of voltage	0 = Disabled 1 = Enabled	=	=	1
7	Allocation of SIME HOME channels	0 = Not assigned 1 = Circuit 1 2 = Three-zone circuit	=	=	1
8	Fan rpm Step ignition	0,0 ... 81	rpmx100	0,1 from 0,1 to 19,9 1 from 20 to 81	0,0
9	Long chimneys	0 ... 20	%	1	0
10	Remote control option setting	1 = SIME HOME 2 = CR 53 3 = RVS 43.143 4 = RVS 46.530 5 = RVS 61.843	=	=	1
11	Correction values external sensor	-5 ... +5	°C	1	0
12	Backlighting duration	-- = Always 0 = Never 1 ... 199	sec. x 10	1	3
13	Modulating pump speed	-- = None Au = Automatic mod. 30...100 = % Settable modulation	%	10	Au
14	Setting second input TA	-- = Contact TA 5...160 = Input 0...10VDC	--	--	--
15	Cascade address	-- = Not enabled 0 = Master 1...7 = Slaves	--	1	--
16	ModBus address	-- = Not enabled 1...31 = Slaves	--	1	--
17	ModBus communication configuration	1 ... 30	--	1	25
19	Type circuit	0 = Two zones 1 = Three zones	--	--	0


D.H.W. - HEATING

PAR	DESCRIPTION	RANGE	UNIT OF MEASUREMENT	INC/DEC UNIT	DEFAULT SETTING
20	Minimum heating temperature Zone 1	PAR 64 OEM ... PAR 21	°C	1	20
21	Maximum heating temperature Zone 1	PAR 20 ... PAR 65 OEM	°C	1	80
22	Heating curve slope Zone 1	3 ... 40	--	1	20
23	Minimum heating temperature Zone 2	PAR 64 OEM ... PAR 24	°C	1	20
24	Maximum heating temperature Zone 2	PAR 23 ... PAR 65 OEM	°C	1	80
25	Heating curve slope Zone 2	3 ... 40	--	1	20
26	Minimum heating temperature Zone 3	PAR 64 OEM ... PAR 27	°C	1	20
27	Maximum heating temperature Zone 3	PAR 26 ... PAR 65 OEM	°C	1	80
28	Heating curve slope Zone 3	3 ... 40	--	1	20
29	Δt heating circuit	10 ... 40	°C	1	20
30	Post-circulation heating time	0 ... 199	Sec.	10	30
31	Maximum heating capacity	30 ... 100	%	1	100
32	Zone 1 pump activation delay	0 ... 199	10 sec.	1	1
33	Start-up delay	0 ... 10	Min.	1	3
34	Additional source activation threshold	--, -10 ... 40	°C	1	"- -"
35	Boiler antifreeze	0 ... +20	°C	1	3
36	External sensor antifreeze	-5 ... +5	°C	1	-2
37	Band saturation flowmeter modulation	-- = Disabled 0 ... 100	%	1	100
38	D.H.W. post-circulation time	0 ... 199	Sec.	1	0
39	Anti-legionella (only D.H.W tank)	0 = Disabled 1 = Enabled	--	--	0

BOILER	PAR 2
Instantaneous with diverter valve and flowmeter	1
Instantaneous with diverter valve flowmeter and solar combination	2
Remote control DHW cylinder with diverter valve and cylinder sensor vers. T (LOW INERTIA)	3
On board D.H.W. cylinder with diverter valve and D.H.W. sensor (LOW INERTIA)	4
Remote D.H.W. cylinder with diverter valve and D.H.W. thermostat or heating only vers. T/R boiler (LOW INERTIA)	5
On board D.H.W. cylinder with double pump and D.H.W. sensor vers. T/R boiler (LOW INERTIA)	6
On board D.H.W. cylinder with double pump and D.H.W. thermostat vers. T/R boiler (LOW INERTIA)	8
Heating only with antifreeze sensor (LOW INERTIA)	9

NOTE: the inside of the upper door of the generator panel has a label with the values that have to be set for PAR 1 and PAR 2 (fig. 19).

3.3.2 Warning

Should the generator operation not be optimal but no alarm sets off, press the button  until info 70 and the warning code associated to the ongoing event are displayed.

Once optimal operation is restored, info 70 will display: "--".

Below is the table of warning codes:

CODE	DESCRIPTION
E0	Reduced capacity operation (Δt between delivery and return over 40°C)
E1	Shorted external sensor (SE)
E2	Preheating function active
E3	TBD
E4	TBD
E5	TBD
E6	TBD
E7	TBD
E8	TBD
E9	TBD

PARAMETERS INSTALLER					
EXPANSION CARD					
PAR DESCRIPTION	RANGE	UNIT OF MEASUREMENT	INC/DEC UNIT	DEFAULT SETTING	
40	Number of expansion boards	0 ... 3	=	1	0
41	Mix valve stroke time	0 ... 199	10 sec.	1	12
42	Priority of D.H.W. over mixed zone	0 = Paralle 1 = Absolute	=	=	1
43	Floor drying	0 = No activated 1 = Curve A 2 = Curve B 3 = Curve A+B	=	=	0
44	Type of solar system	1 ... 8	=	1	1
45	Δt solar collector pump 1	PAR 74 OEM - 1... 50	°C	1	8
46	Solar integration delay	"--", 0 ... 199	Min.	1	0
47	Tmin solar collector	"--", -30 ... 0	°C	1	- 10
48	Tmax solar collector	"--", 80 ... 199	°C	1	120
PARAMETERS RESTORATION					
PAR DESCRIPTION	RANGE	UNIT OF MEASUREMENT	INC/DEC UNIT	DEFAULT SETTING	
49 *	Reset default parameters (par 01 - par 02 = "--")	-- , 1	=	=	=
* In case of difficulty in understanding the current setting or in case of an anomalous or incomprehensible conduct of the generator, we suggest to restore the initial values of the parameters setting PAR 49 = 1 and the PAR 1 and PAR 2 as specified at point 3.3.1.					

3.4 EXTERNAL SENSOR (fig. 13)

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 22 for zone 1, PAR 25 for zone 2 and PAR 28 for zone 3).

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 sanitary water circuits (ICE).
- Ignition and flame detection system.
- Control panel setting for the power and the gas for boiler functioning.
- Anti-jamming for the pump which is fed for a few seconds after 24 hours of inactivity.
- Antifreeze protection for boilers with an accumulation boiling unit.
- 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 and 3.
- Management of 3 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: remote control SIME HOME code 8092280/81, thermal regulator RVS, connected to a management card of a MIXED ZONE code 8092275/76, card SOLAR code 8092277 and card MODBUS code 8092278.

NOTE: If using RVS 43 set parameter 10 to 3 (PAR 10 = 3).

3.6 TEMPERATURE DETECTION SENSOR

Table 4 shows the resistance values of the heating, DHW and exhaust fumes thermistors.

If the heating flow sensor (SM), heating return sensor (SR) or the exhaust fumes sensor (SF) is faulty or open circuit, the generator will not function.

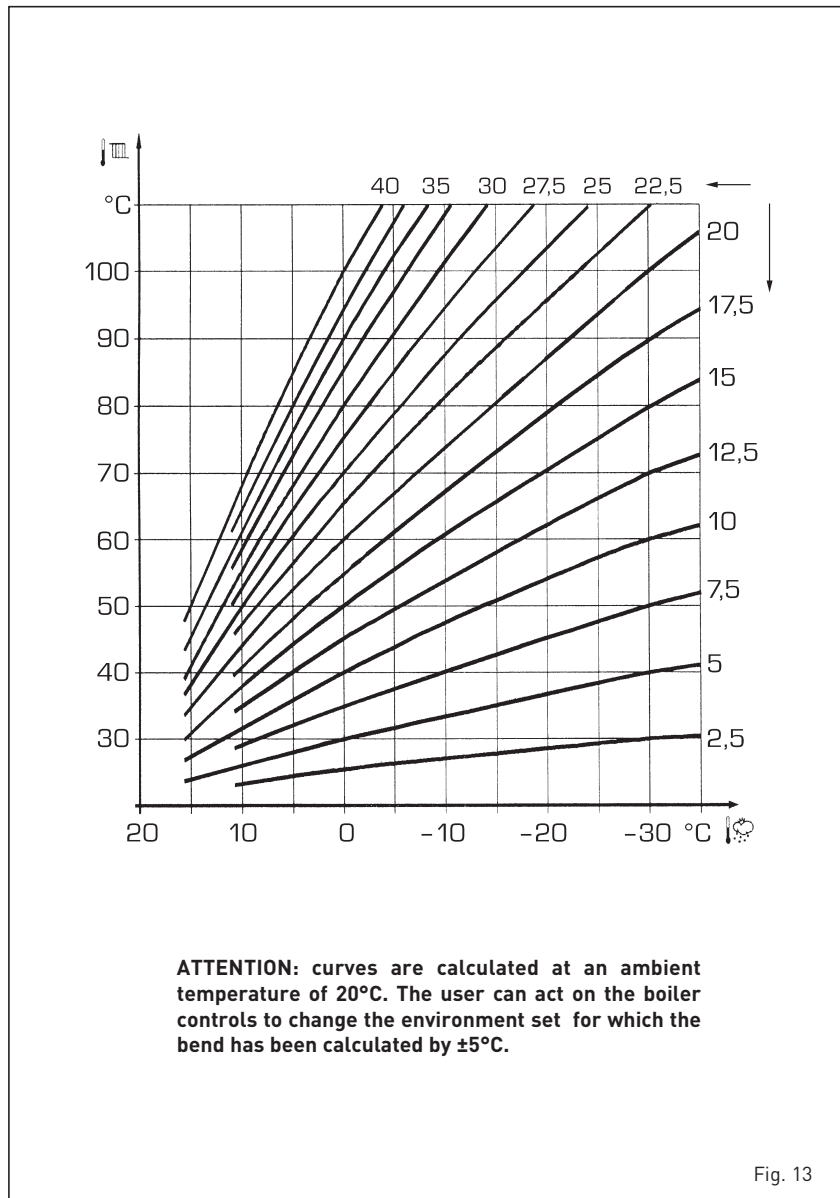


Fig. 13

TABLE 4 (SM - SR - SF sensors)

Temperature (°C)	Resistance (Ω)
20	12.090
30	8.313
40	5.828
50	4.161
60	3.021
70	2.229
80	1.669

3.7 ELECTRONIC IGNITION

Ignition and flame detection is controlled by electrodes on the burner which guarantees reaction in the case of accidental extinction or lack of gas within one second.

3.7.1 Functioning cycle

Burner ignition should occur within max. 10 seconds after the opening of the gas valve.

Ignition failure with consequent activation of block can be due to:

- Lack of gas

The ignition electrode persists in discharging for max. 10 seconds. If after 3 attempts to light the ignition is not detected the generator will lockout.

This can happen the first time the boiler is switched on after a long period of inactivity due to the presence of air in the gas pipes

- No ionisation

The boiler will make three attempts to light. If after the third attempt the flame has no been recognised, the generator will lockout, ALL 06.

This may be due to a disconnected, worn or distorted ionisation electrode.

In the case of a sudden loss of voltage, the burner will immediately switch off.

When voltage returns, the generator will automatically start up again.

4 COMMISSIONING, USE and MAINTENANCE

COMMISSIONING INSTRUCTIONS

A Commissioning checklist is included in this manual and must be completed by the engineer at the time of commissioning.

General

Please note: the combustion for this appliance has been checked, adjusted and preset at the factory for operation on the gas type defined on the appliance data plate. However, it is advisable to check for correct combustion having first checked the following.

- That the boiler has been installed in accordance with these instructions
- The integrity of the flue system and the flue seals
- That PAR 9 has been set according to the calculated flue head losses (single boilers)
- That PAR 1 is set correctly for boilers connected to cascade flues
- The integrity of the boiler combustion circuit

Proceed to put the boiler into operation as follows:

1. Check the operational (working) gas inlet pressure.

Set up the boiler(s) to operate at maximum rate as described in 4.5.1 (chimney sweep)

With the boiler operating in the maximum rate condition check that the operational (working) gas pressure at the inlet gas pressure test point (see fig 16 item 1) complies with the requirements of table 1.3.

Ensure that this inlet pressure can be obtained with all other gas appliances in the property working.

2. Competence to carry out the check of combustion performance

- The person carrying out a

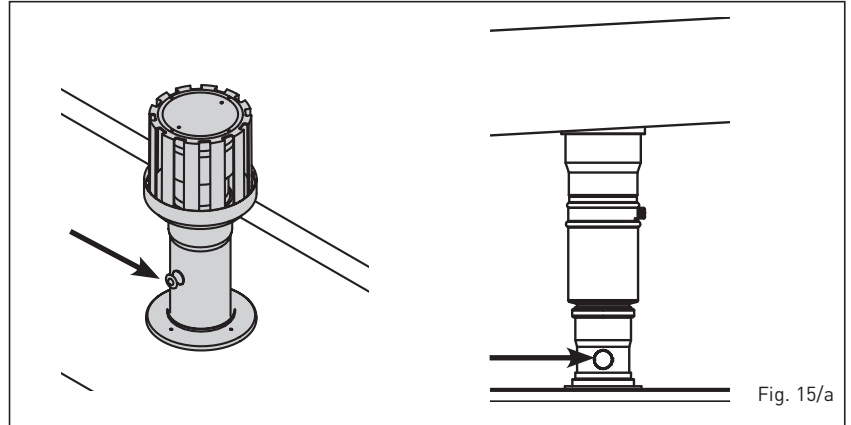


Fig. 15/a

combustion measurement should have been assessed as competent in the use of a flue gas analyser and the interpretation of the results.

- The flue gas analyser used should be one meeting the requirements of BS7927 or BS-EN50379-3 and be calibrated in accordance with the analyser manufacturers requirements, and

- Competence can be demonstrated by satisfactory completion of the CPA1 ACS assessment, which covers the use of electronic portable gas analysers in accordance with BS 7967, parts 1 to 4.

3. Combustion check

Connect the flue gas analyser to the flue gas sampling point as shown in the diagram (fig. 15/a). Procedure for checking the combustion. Operate the boilers in "Chimney Sweep" mode as described in section 4.5.1 and record the measurements from the flue gas analyser on both minimum and maximum output. Compare the results to the following:

- CO less than 200ppm
- CO₂ between 8.9% and 9.7% natural gas, and 9.9% and 10.5% LPG. Ratio less than 0.004.

If the combustion reading is greater than the acceptable value AND the integrity of the complete flue system, combustion circuit seals have been verified, AND the gas inlet pressure has been verified, AND the boiler parameter settings are correct, proceed as shown in 4.2.2. Any adjustments should be done in small steps and adjustments of no more than 1/8th of a turn should be made, waiting at least 1 minute between adjustments to allow the settings to stabilise. Using the CO₂ reading, adjustments should be made to the "OFF-SET" screw (6 fig 16) if it is incorrect at the minimum output, or to the "SHUTTER" (5 fig 16) if it is incorrect at the maximum output.

If an acceptable setting level cannot be achieved, re-confirm that the integrity of the flue system, combustion circuit and working gas supply pressure. If required contact Sime Ltd for further assistance.

4.1 GAS VALVE (fig. 16)

The generator is supplied as standard with a gas valve, model SIT 822 NOVAMIX (fig. 16).

4.2 GAS CONVERSION

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

4.2.1 New fuel configuration

For access to the installer's parameters, press simultaneously keys and for 5 seconds (3 fig. 12).

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 generator is a methane (G20) model, **SET 60** will be displayed:

To change the fuel to propane (G31), it is necessary to set **SET 62**, by pressing the key .

The standard display will automatically return after 10 seconds.

The table below shows the SET settings to enter when the type of gas fuel is changed.

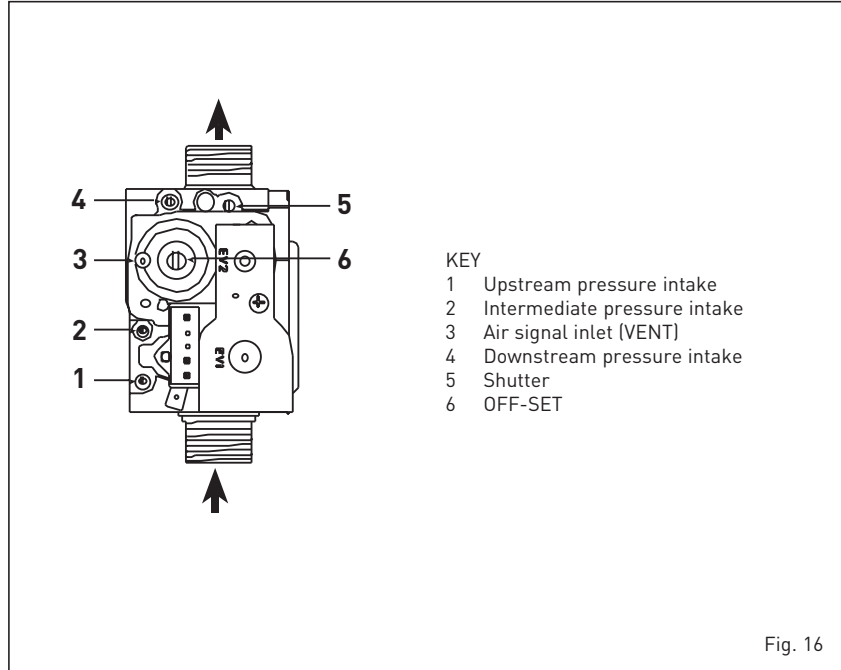
GAS	MODEL	PAR 1
METHANE (G20)	70 BOX ErP	60
PROPANE (G31)	70 BOX ErP	62

4.2.2 Calibrating the gas valve pressures

This can only be done using a flue gas analyser. If the combustion reading is greater than the acceptable value AND the integrity of the complete flue system and combustion seals have been verified AND the inlet working gas pressure has been verified, adjustments to the gas valve can be made as described below. Make only small adjustments (1/8 turn max), and allow time for the combustion analysis to be made before making further adjustments.

Sequence of operations:

- 1) Press and hold the button down for a few seconds .



- KEY
- 1 Upstream pressure intake
 - 2 Intermediate pressure intake
 - 3 Air signal inlet (VENT)
 - 4 Downstream pressure intake
 - 5 Shutter
 - 6 OFF-SET

Fig. 16

- 2) Press the button for a few seconds .

- 3) Identify the CO₂ values at max. power by adjusting the shutter (5 fig. 16):

MAX power	
CO ₂ (Methane)	CO ₂ (Propane)
9,0 ±0,2	10,0 ±0,3

- 4) Press the button for a few seconds .

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

MIN power	
CO ₂ (Methane)	CO ₂ (Propane)
9,0 ±0,2	10,0 ±0,3

- 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.

4.3 CO / CO₂ RATIO

		CO ppm	
		100	400
CO ₂ %	NG 9%	0,0011	0,0044
	LPG 10%	0,0010	0,0040

4.5 MAINTENANCE (fig. 20)

To ensure correct operation and efficiency it is important that the boiler is serviced at regular intervals, at least once a year (this may also be a condition of the warranty).

Servicing must only be done by a qualified technician. During the routine service the condensate drain can be checked, by carefully pouring water into the combustion chamber, while the burner is removed.

Should the boiler not be used for long periods of time, it is important that the condensate trap is checked and filled if required. It can be filled via the filling vent (see fig 20).

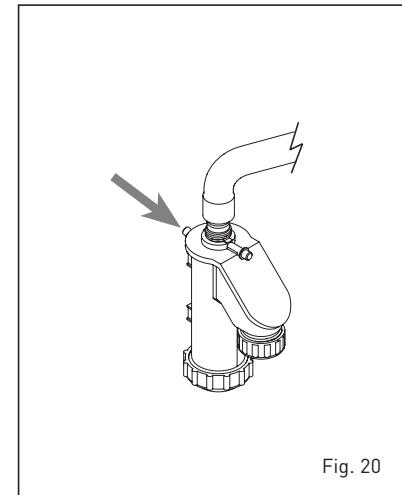


Fig. 20

4.5.1 Chimney sweep function (fig. 21)

To check boiler combustion, press the installer's key for a few seconds. The chimney sweep function will switch on and will continue for 15 minutes.

From that moment, the boiler will start working in heating mode at maximum power, with cut off at 80°C and re-ignition at 70°C (**ATTENTION! Ensure adequate circulation to the heating system is avail-**

able before activating chimney sweep).

If the key and are pressed during the 15 minutes of the chimney sweep function, the boiler will be brought to maximum and minimum power.

The chimney sweep function will automatically switch off after 15 minutes or when the key is pressed again.

4.5.2 Operation floor drying (fig. 22)

The operation floor drying keeps the floor at a pre-established temperature profile and it is **activated only for those systems combined with the mixed zone card MIXED ZONE code 8092275/76**.

The temperature profiles can be selected by means of the installer parameter PAR 43:

- 0 = Not activated function
- 1 = Curve setting A
- 2 = Curve setting B
- 3 = Curve setting A + B

The turning off of the function happens clicking on the button OFF (return of PAR 43 to the value 0) or automatically at the end of the function.

The set of the mixed zone follows the development of the selected curve and reaches a maximum of 55°C.

During the function all the other heating demands are ignored (heating, sanitary, antifreeze and chimney sweep).

During the functioning the display shows the remaining days for the completion of the function (example mains digits -15 = 15 days lack to the end of the function). The diagram fig. 22 reports the development of the curve.

ATTENTION:

- Observe the relevant standards and regulations of the floor manufacturer!
- Proper functioning is ensured only when the plant is correctly installed (hydraulic system, electrical installation, settings)! If not observed, the floor might get damaged!

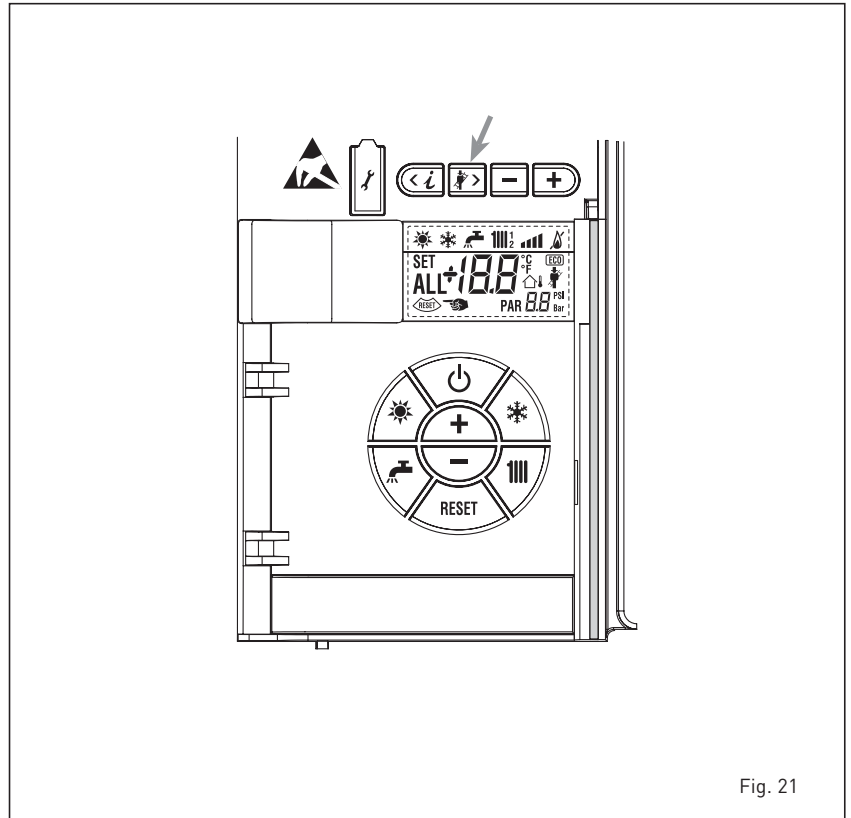
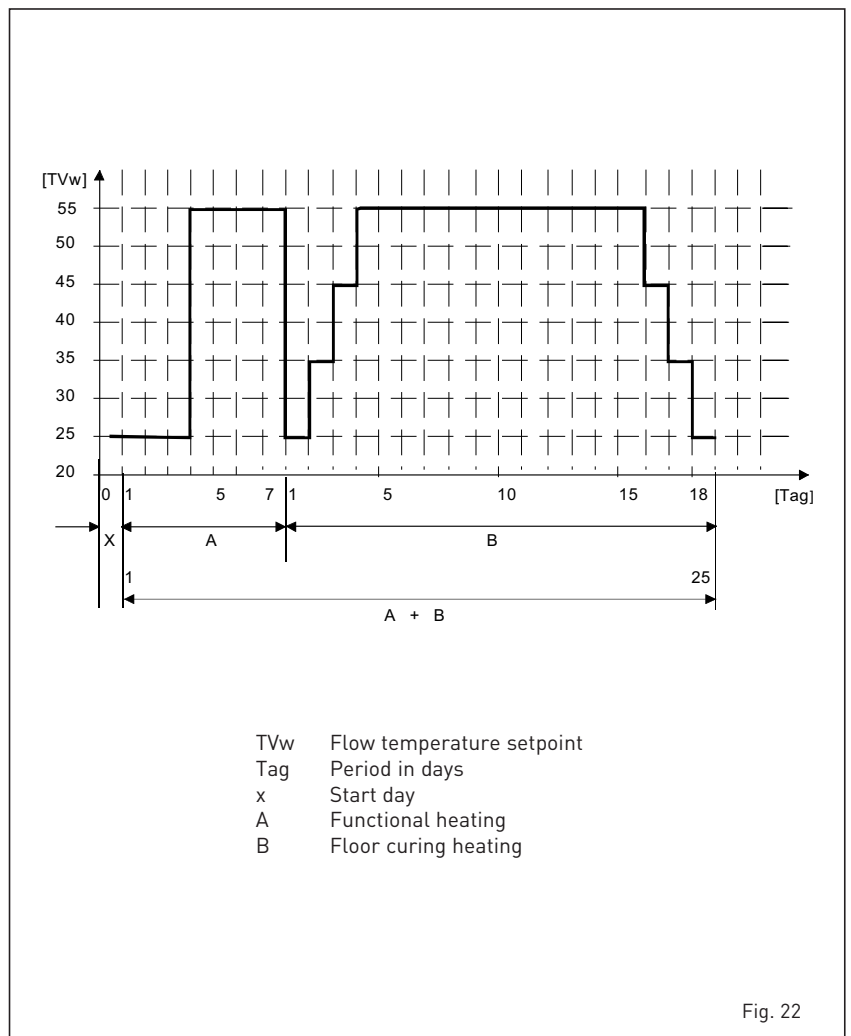


Fig. 21



- TVw Flow temperature setpoint
- Tag Period in days
- x Start day
- A Functional heating
- B Floor curing heating

Fig. 22

4.6 FUNCTIONING ERRORS

When there is a functioning error, an alarm appears on the display **and the blue luminous bar becomes red**.

Descriptions of the errors with relative alarms and solutions are given below:

– **LOW WATER PRESSURE ERROR ALARM 02 (fig. 23/1)**

If the pressure detected by the transducer is lower than 0.5 bar, the generator stops and the display shows the alarm ALL 02. Using the external filling device, fill the system until the pressure indicated by the transducer is between 1 and 1.5 bars.

If the refilling procedure has to be repeated several times, it is advisable to check that the soundness of the heating circuit is intact (check that there are no leaks).

– **HIGH WATER PRESSURE ERROR ALARM 03 (fig. 23/2)**


If the pressure detected by the transducer is more than 2.8 bar, the generator stops and the display shows error ALL 03.

– **HEATING FLOW SENSOR ERROR ALARM 05 (fig. 23/4)**

If the heating flow sensor (SM) is open or short circuited, the generator will not function and the display will show the alarm ALL 05.

– **LOCKOUT ALARM 06 (fig. 23/5)**

If a flame has not been detected after a complete ignition sequence, or for any other reason the card cannot "see" the flame, the generator will stop and the display will show the alarm ALL 06.

Press the key  of the controls [2] to start up the generator again.

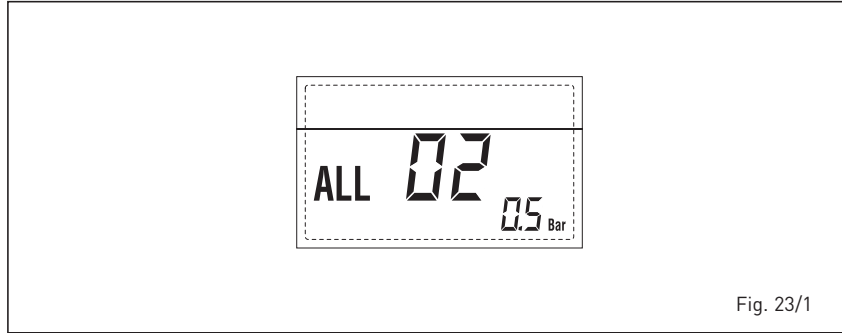


Fig. 23/1

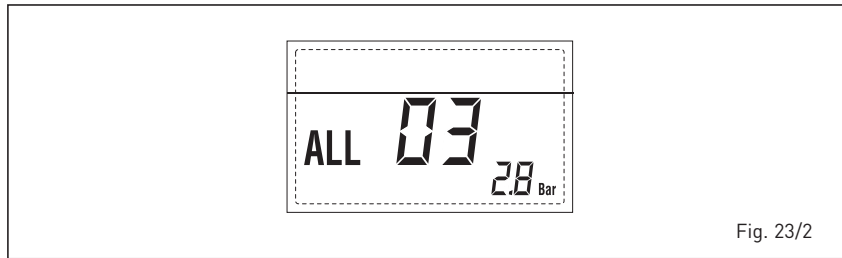


Fig. 23/2



Fig. 23/4

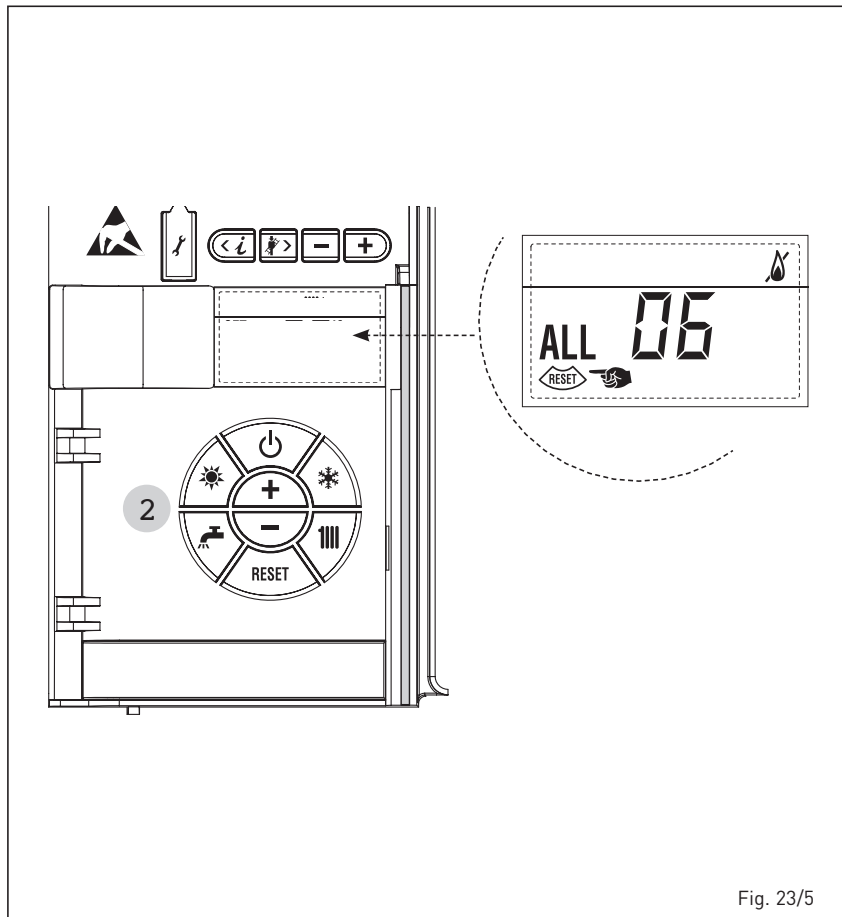



Fig. 23/5

- **SAFETY/LIMIT THERMOSTAT ERROR ALARM 07 (fig. 23/6)**

If either the 95 degree stat or the heat exchanger safety stat opens, the burner will turn off and ALL 07 will be displayed. Press the key  of the controls (2) to start up the boiler again.

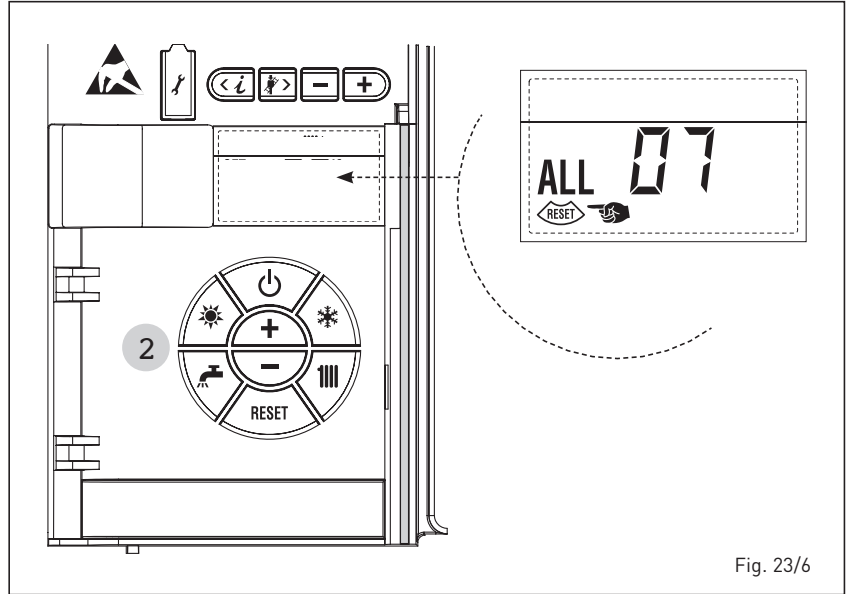


Fig. 23/6

- **PARASITE FLAME ERROR ALARM 08 (fig. 23/7)**

If the flame control section recognises the presence of a flame in phases when one should not be present, it means there is a breakdown in the flame detection circuit; the generator will stop and the display will show error ALL 08.

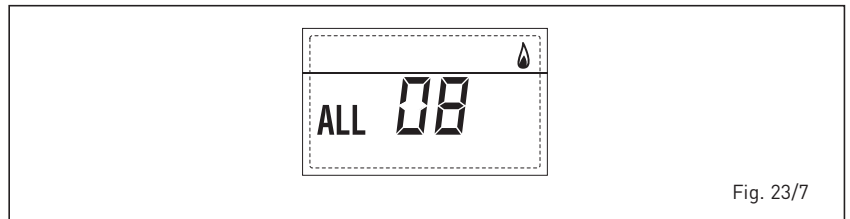


Fig. 23/7

- **WATER CIRCULATION ERROR ALARM 09 (fig. 23/8)**

1. Water circulation has not been detected in the primary (generator) circuit. If this error is detected the generator will make two further attempts. If the circulation is not detected the it will stop and indicate ALL 09.

Note: circulation is detected by a small rise in the system pressure when the pump is energised. In large systems this may not be detected, and can be disabled by alteration of PAR 4.

2. The flow temperature sensor has detected a rise in excess of 5 degrees per second.

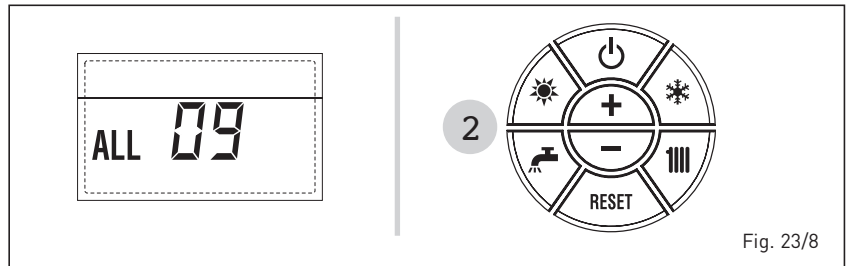


Fig. 23/8

- **AUXILIARY SENSOR ALARM 10 (fig. 23/9)**

When the antifreeze siphon sensor (SA) is open or short circuited, the display will show anomaly ALL 10.

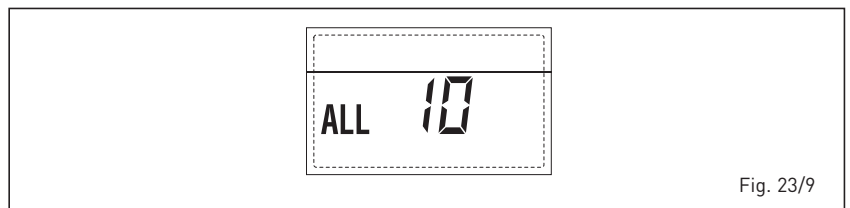


Fig. 23/9

- **ACTIVATION OF THE "ALL 13" EXHAUST TEMPERATURE SENSOR (fig. 23/10)**

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.

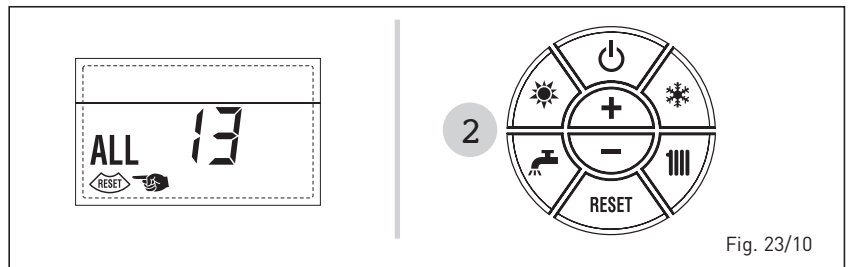


Fig. 23/10

- **"ALL 14" EXHAUST TEMPERATURE SENSOR ERROR (fig. 23/11)**

If the exhaust temperature sensor is open or short-circuited, the boiler stops and error message ALL 14 displays.

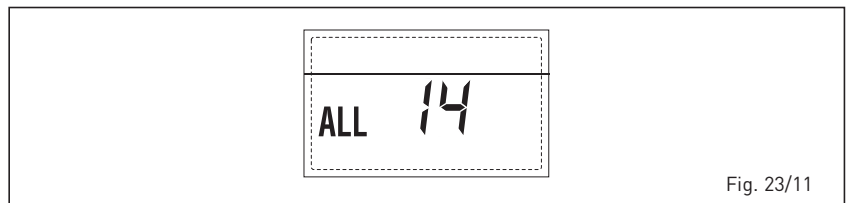


Fig. 23/11

- **“ALL 15” FAN ERROR (fig. 23/12)**

The fan speed does not fall within the rated speed range.

If the error conditions persists for two minutes, the generator activates a forced stop for thirty minutes.

A new start attempt is repeated after the expiry of this interval of time.

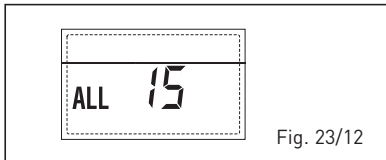


Fig. 23/12

- **EXTERNAL PROBE ERROR “ FLASHING” (fig. 23/13)**

When the external probe (SE) is short-circuited, the display the symbol flashes .

During such error the boiler continues normal functioning.

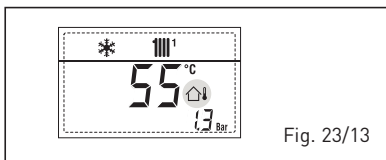


Fig. 23/13

- **SAFETY THERMOSTAT INTERVENTION FIRST MIXED ZONE “ALL 20” (fig. 23/14)**

When it results that the MIXED ZONE board is connected to the boiler the safety thermostat intervention switches the mixed zone plant pump, the mix zone valve closes and on the display the anomaly ALL 20.

During this anomaly the generator continues to function normally.

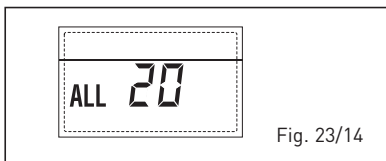


Fig. 23/14

- **DELIVERY PROBE BREAKDOWN ANOMALY FIRST MIXED ZONE “ALL 21” (fig. 23/15)**

When it results that the MIXED ZONE board is connected to the boiler and the delivery probe is open or short circuited on the display the anomaly ALL 21 appears.

During this anomaly, the boiler continues to function normally.

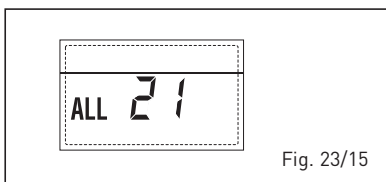


Fig. 23/15

- **SAFETY THERMOSTAT INTERVENTION SECOND MIXED ZONE “ALL 22” (fig. 23/16)**

When it results that the MIXED ZONE board is connected to the boiler

The intervention of the safety thermostat switches the mixed zone plant pump, the mix zone valve closes and on the display the anomaly ALL 22. During this anomaly the boiler continues to function normally.

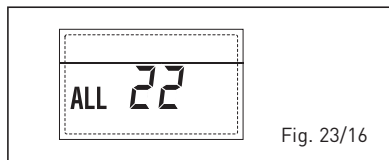


Fig. 23/16

- **DELIVERY PROBE BREAKDOWN ANOMALY SECOND MIXED ZONE “ALL 23” (fig. 23/17)**

When it results that the MIXED ZONE board is connected to the boiler and the delivery probe is open or short circuited on the display the anomaly ALL 23 appears. During this anomaly the boiler continues to function normally.

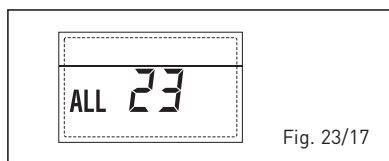


Fig. 23/17

- **SOLAR COLLECTOR SENSOR ANOMALY (S1) “ALL 24” (fig. 23/18)**

When the solar probe is open or short circuited, on the display the anomaly ALL 24 appears. During this anomaly the boiler continues to function normally but loses the solar function that is no longer available.

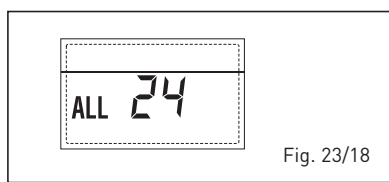


Fig. 23/18

- **SOLAR PROBE ANOMALY STORAGE TANK (S2) “ALL 25” (fig. 23/19)**

When the solar probe is open or short circuited, on the display the anomaly ALL 25 appears. During this anomaly the boiler continues to function normally but loses the solar function that is no longer available.

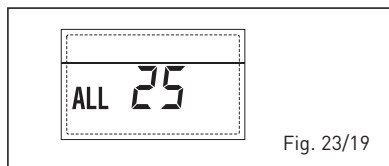


Fig. 23/19

- **AUXILIARY SENSOR ANOMALY (S3) “ALL 26” (fig. 23/20)**

When the solar probe is open or short circuited, on the display the anomaly ALL 26 appears. During this anomaly the boiler continues to function normally but loses the solar function that is no longer available.

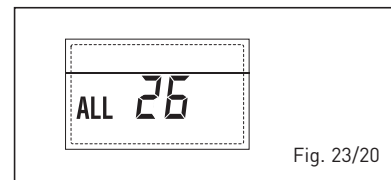


Fig. 23/20

- **ANOMALY SOLAR APPLICATION COMPATIBILITY “ALL 27” (fig. 23/21)**

When the hydraulic configuration is not consistent with the selection solar application, on the display the anomaly ALL 27 appears. During this anomaly the boiler continues to function normally but for the board is active in the solar anomaly, the function is only available antifreeze collector.

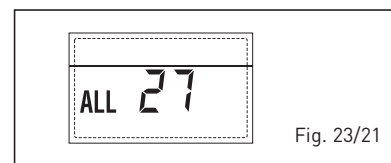


Fig. 23/21

- **COMPATIBILITY INPUT (S3) ANOMALY ONLY FOR SYSTEM 7 “ALL 28” (fig. 23/22)**

When a probe is connected instead of a clean contact on entry S3 the board on display shows the anomaly ALL 28. During this anomaly the boiler continues to function normally but for the board is active in the solar anomaly, the function is only available antifreeze collector.

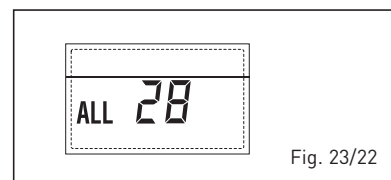


Fig. 23/22

- **ANOMALY NUMBERS RELATED BOARD “ALL 29” (fig. 23/23)**

When one of the board MIXED ZONE/INSOL failure or does not communicate, the display shows anomaly ALL 29. The boiler functional excluding the function MIXED ZONE/SOLAR.

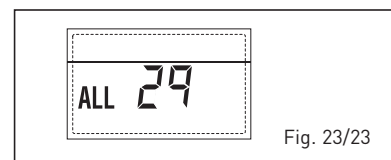
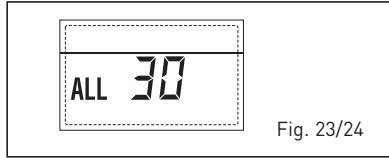


Fig. 23/23

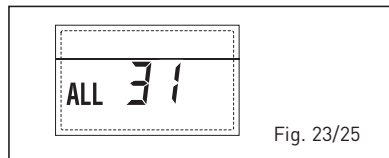
- **HEATING RETURN SENSOR ERROR "ALL 30" (fig. 23/24)**

When the heating return sensor (SR) is open or short-circuited, the display shows anomaly ALL 30. During such anomaly the generator continues normal functioning.



- **CASCADE DELIVERY SENSOR ERROR "ALL 31" (fig. 23/25)**

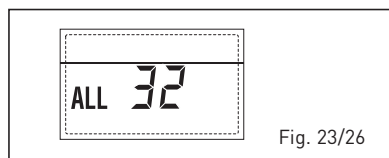
When the cascade delivery sensor (SMC) is open or shorted, ALL 31 will be displayed.



- **THREE-ZONE SYSTEM CONFIGURATION ANOMALY "ALL 32" (fig. 23/26)**

When the boards connected to the RS-485 are not enough and/or at least one of them it is not mixing zone board, the boiler stops and anomaly ALL 32 is displayed.

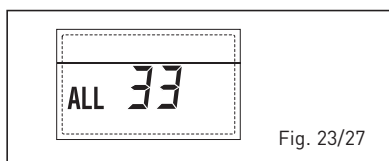
The boiler restarts when the boiler three-zone system configuration is activated.



- **RS-485 BOARD COMMUNICATION ANOMALY IN MODBUS MODE "ALL 33" (fig. 23/27)**

When PAR 16 is different from "--" and there is no communication between the boiler board and the RS-485 board in MODBUS mode for at least four minutes, the boiler stops and anomaly ALL 33 is displayed.

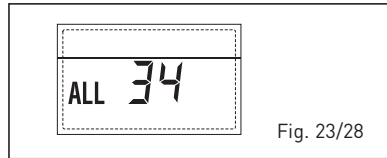
The boiler restarts when communication is restored or when PAR 16 = "--" is set.



- **RS-485 BOARD COMMUNICATION ANOMALY IN CASCADE MODE "ALL 34"**

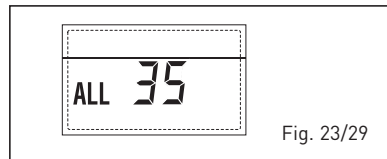
(fig. 23/28)

When PAR 15 is different from "--" and there is no communication between the boiler board and the RS-485 board in CASCADE mode, the boiler stops and anomaly ALL 34 is displayed. The boiler restarts when communication is restored or when PAR 15 = "--" is set.



- **RS-485 AND RS-485 COMMUNICATION ANOMALY "ALL 35" (fig. 23/29)**

When PAR 15 is different from "--" and there is no communication between the two RS-485 boards, the boiler stops and anomaly ALL 35 is displayed. The boiler restarts when communication is restored or when PAR 15 = "--" is set.



CAUTION: In the event of sequence/cascade connection, error codes 70 and 71 will appear on the SIME HOME remote control display:

- **ALARM 70**

When an anomaly affects cascade operation (cascade delivery sensor ALL 31), SIME HOME remote control display will show alarm 70. Verify the anomaly in the cascade.

- **ALARM 71**

When an anomaly occurs in one of the modules and the others keep operating to the extent permitted, the SIME HOME remote control display will show alarm 71. Verify the anomaly in the cascade.

SERVICE & INTERIM BOILER WORK RECORD

It is recommended that your boiler and heating system are regularly serviced and maintained, in line with manufacturers' instructions, and that the appropriate service / interim work record is completed.

Service provider

When completing a service record (as below), please ensure you have carried out the service as described in the manufacturers' instructions. Always use the manufacturers' specified spare parts.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*					yes	
Gas rate:	m ³ /h	OR	ft ³ /h			
Were parts fitted? <small>delete as appropriate</small>	Yes				No	
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *					yes	n/a
Comments:						
Signature:						

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*					yes	
Gas rate:	m ³ /h	OR	ft ³ /h			
Were parts fitted? <small>delete as appropriate</small>	Yes				No	
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *					yes	n/a
Comments:						
Signature:						

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SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*					yes	
Gas rate:	m ³ /h	OR	ft ³ /h			
Were parts fitted? <small>delete as appropriate</small>	Yes				No	
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *					yes	n/a
Comments:						
Signature:						

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SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*					yes	
Gas rate:	m ³ /h	OR	ft ³ /h			
Were parts fitted? <small>delete as appropriate</small>	Yes				No	
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *					yes	n/a
Comments:						
Signature:						

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SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*					yes	
Gas rate:	m ³ /h	OR	ft ³ /h			
Were parts fitted? <small>delete as appropriate</small>	Yes				No	
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *					yes	n/a
Comments:						
Signature:						

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SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*					yes	
Gas rate:	m ³ /h	OR	ft ³ /h			
Were parts fitted? <small>delete as appropriate</small>	Yes				No	
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *					yes	n/a
Comments:						
Signature:						

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* 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.

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It is recommended that your boiler and heating system are regularly serviced and maintained, in line with manufacturers' instructions, and that the appropriate service / interim work record is completed.

Service provider

When completing a service record (as below), please ensure you have carried out the service as described in the manufacturers' instructions. Always use the manufacturers specified spare parts.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	% CO/CO ₂	
Min rate	CO	ppm	CO ₂	% CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*				yes	
Gas rate:	m ³ /h	OR	ft ³ /h		
Were parts fitted? <small>delete as appropriate</small>		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	% CO/CO ₂	
Min rate	CO	ppm	CO ₂	% CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*				yes	
Gas rate:	m ³ /h	OR	ft ³ /h		
Were parts fitted? <small>delete as appropriate</small>		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

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SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	% CO/CO ₂	
Min rate	CO	ppm	CO ₂	% CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*				yes	
Gas rate:	m ³ /h	OR	ft ³ /h		
Were parts fitted? <small>delete as appropriate</small>		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	% CO/CO ₂	
Min rate	CO	ppm	CO ₂	% CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*				yes	
Gas rate:	m ³ /h	OR	ft ³ /h		
Were parts fitted? <small>delete as appropriate</small>		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	% CO/CO ₂	
Min rate	CO	ppm	CO ₂	% CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*				yes	
Gas rate:	m ³ /h	OR	ft ³ /h		
Were parts fitted? <small>delete as appropriate</small>		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER <small>delete as appropriate</small>				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	% CO/CO ₂	
Min rate	CO	ppm	CO ₂	% CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?*				yes	
Gas rate:	m ³ /h	OR	ft ³ /h		
Were parts fitted? <small>delete as appropriate</small>		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

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INSTALLATION CHECKLIST

SINGLE BOILER INSTALLATION

PAR 14 (See section 2.6.6) When BMS input used, and input is 10v, the required flow temperature = °C Set value of PAR 14

BOILERS INSTALLED IN CASCADE

ALL BOILERS IN THE CASCADE

PAR 15 (see fig 4/b) The cascade address must be set in each boiler in the cascade, denoting the master and each slave (Master = 0)

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Boiler 5	Boiler 6
Set value of PAR 15						

PAR 1 (see section 2.2.2) When installed with a cascade flue, incorporating a clappet(non return) valve, PAR 1 must be set accordingly on each boiler in the cascade

	Boiler 1	Boiler 2	Boiler 3	Boiler 4	Boiler 5	Boiler 6
Set value of PAR 1						

MASTER BOILER

OEMA1 (see section 2.2.2) When the number of boilers in the cascade is greater than two, the OEM A1 on the MASTER boiler (boiler with PAR 15=0), must be set to the same value as the number of boilers in the cascade. This can only be done after PAR 15 has been set.

Number of boilers in cascade
 Set value of OEMA1 on boiler number

PAR 14 (See section 2.6.6) When BMS input used, and input is 10v, the required flow temperature = °C Set value of PAR 14 on the master boiler

Commissioning Checklist for Boilers in Cascade

This checklist is for guidance only, and is not a full installation safety check

Address _____ Engineer _____

	1	2	3	4	5	6	7	8
Satisfactory visual check of flue Y/N								
Flue within allowable length and correctly terminated Y/N								
Confirm Tightness of installation pipework downstream of isolating valve using leak detection fluid Y/N								
Check tightness of all valves Y/N								
Carryout ignition test of boiler with gas isolated to ensure boiler fails safe Y/N								
Turn on gas supply to boiler and isolate main burner(disconnect gas valve) and ensure boiler goes to lockout Y/N								
Reset boiler lockout and retry, ensuring boiler again locks out Y/N								
Reconnect gas valve, reset boiler lockout, and ensure boiler lights and is stable Y/N								
Test safety devices Y/N								
Safety stat(TS) - Disconnect - the boiler locks out Y/N								

Flue analysis	Boiler 1		Boiler 2		Boiler 3		Boiler 4		Boiler 5		Boiler 6		Boiler 7		Boiler 8	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Boiler Output																
CO ppm																
CO2 %																
Ratio																
Boiler size																
Serial Number																
Completed By																
Date																

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 \emptyset (ohm) x 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 \emptyset (ohm). If the resistance is greater than 1 \emptyset (ohm) check all earth wires for continuity and all contacts are clean and tight. If the resistance to earth is still greater than 1 \emptyset (ohm) then this should be investigated further.

5.2 SHORT CIRCUIT CHECK

Switches turned FULL ON - meter set on \emptyset (ohms) x 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 \emptyset (ohm) x 100 scale. Repeat it with leads from L to E. If meter reads less than infinity (?) 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/arc-ing 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 \emptyset (ohm) x 100

scale.

All switches including thermostat on test leads from L to E - if meter reads other than infinity (?) 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 and remaking of electrical connections then the checks 5.1 Earth continuity, 5.3 Polarity and 5.4 Resistance to earth must be repeated.

Manufacturers Instructions

Manufacturer's instructions must be followed for the correct connection of the condensate discharge pipe from the boiler as this may vary due to the design of the boiler. For example a visible air break and trap is not required if there is a trap with a minimum condensate seal of 75 mm incorporated into the boiler.

Internal Pipe Run In Unheated Spaces

Condensate discharge pipes that are routed in an unheated space such as a loft or garage should be insulated to prevent freezing.

Internal Condensate Pipe Discharge Termination

Internal condensate discharge pipework must be a minimum of 19mm ID (typically 22mm OD) plastic pipe or as per manufacturer's instructions and this should "fall" a minimum of 45mm per metre away from the boiler, taking the shortest practicable route to the termination point.

(45mm as per BS6798, 52mm per metre as per industry practice is specified in the following diagrams)

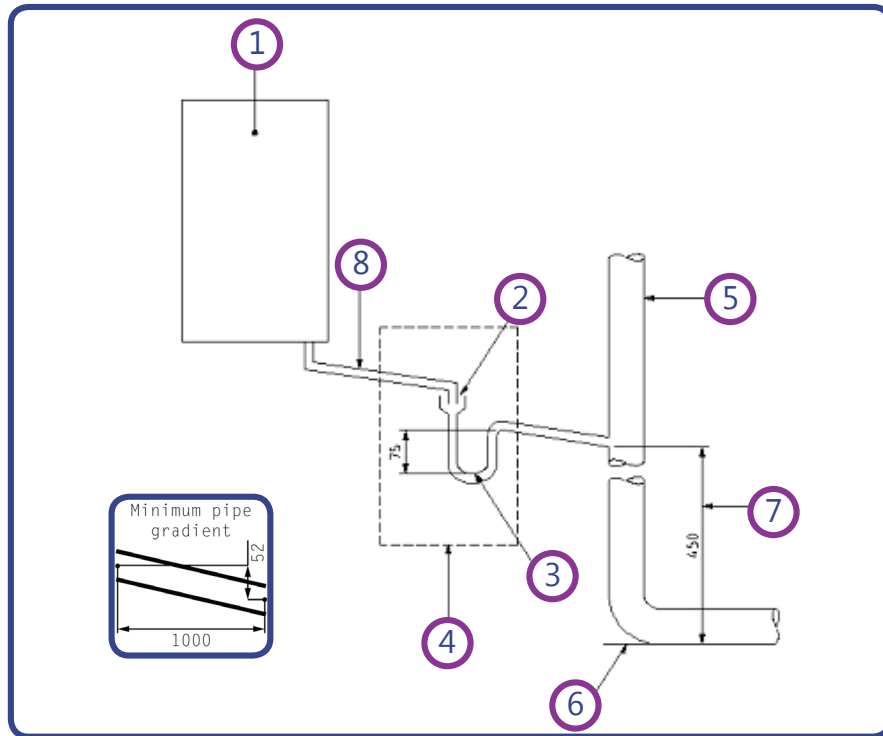
To minimise the risk of freezing during prolonged sub-zero conditions, an internal "gravity discharge point" such as an internal soil stack (preferred method), internal kitchen, utility room or bathroom waste pipe e.g. from a sink, basin, bath or shower should be adopted, where possible.

Note - A suitable permanent connection to the foul waste pipe should be used. Figures 1, 2(a), 2(b) show appropriate connection methods.



Figure 1 – Connection of condensate discharge pipe to internal soil and vent stack.

Note – Check manufacturer’s instructions to see if an air break is required.



Key

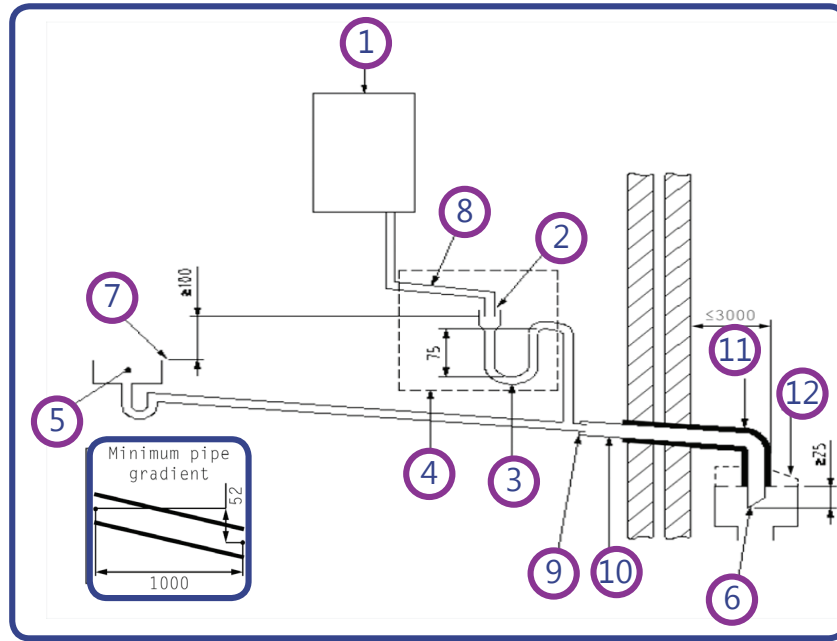
- 1 Boiler
- 2 Visible air break
- 3 75 mm trap
- 4 Visible air break and trap not required if there is a trap with a minimum condensate seal of 75 mm incorporated into the boiler
- 5 Soil and vent stack
- 6 Invert
- 7 450 mm minimum up to three storeys
- 8 Minimum internal diameter 19 mm



Internal Condensate Pipe Discharge Termination

Figure 2(a) – Connection of a condensate discharge pipe downstream of a sink, basin, bath or shower waste trap.

Note – Check manufacturer’s instructions to see if an air break is required.



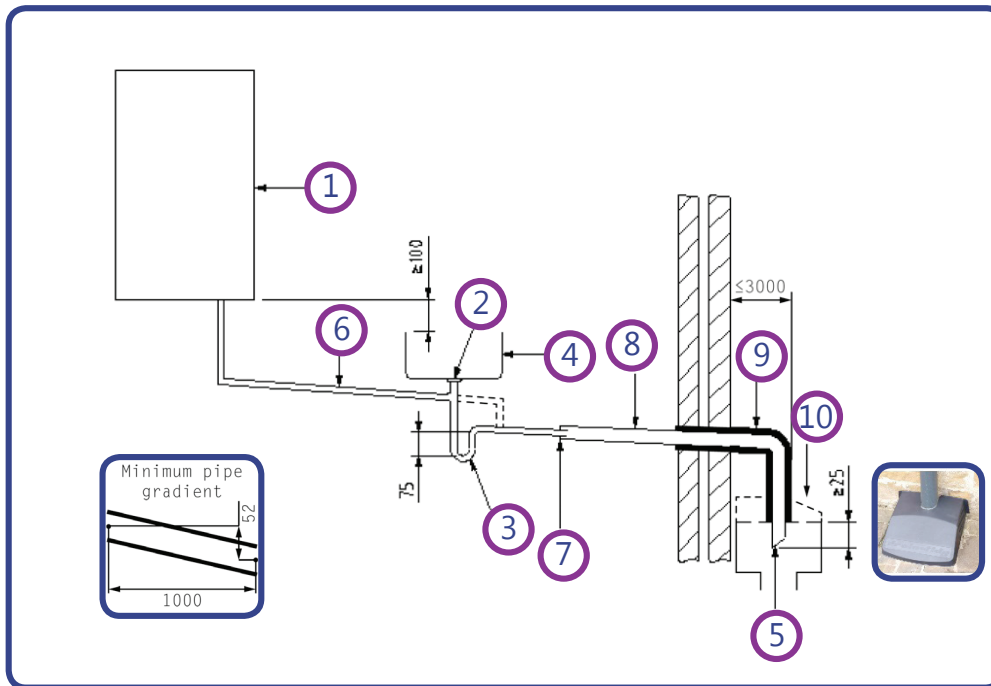
Key

- 1 Boiler
- 2 Visible air break
- 3 75 mm trap
- 4 Visible air break and trap not required if there is a trap with a minimum condensate seal of 75 mm incorporated into the boiler. In this case the 100 mm is measured to the trap in the boiler.
- 5 Sink, basin, bath or shower
- 6 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 °
Note – the maximum external condensate discharge length is 3 metres
- 7 Sink lip
- 8 Minimum internal diameter 19 mm
- 9 Pipe size transition
- 10 Minimum internal diameter 30 mm
- 11 Water/weather proof insulation
- 12 Drain cover/leaf guard



Internal Condensate Pipe Discharge Termination

Figure 2(b) – Connection of a condensate discharge pipe upstream of a sink, basin, bath or shower waste trap



Key

- 1 Boiler
- 2 Visible air break at plug hole – alternative connection can be below sink trap
- 3 75 mm sink, basin, bath or shower waste trap
- 4 Sink, basin, bath or shower with integral overflow
- 5 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 °
Note – the maximum external condensate discharge length is 3 metres
- 6 Minimum internal diameter 19 mm
- 7 Pipe size transition
- 8 Minimum internal diameter 30 mm
- 9 Water/weather proof insulation
- 10 Fit drain cover/leaf guard

Internal Condensate Pipe Discharge Termination

The possibility of waste pipes freezing downstream of the connection point should be considered when determining a suitable connection point - e.g. a slightly longer pipe run to an internal soil stack may be preferable to a shorter run connecting into a kitchen waste pipe discharging directly through the wall to an external drain.

Note - Where "gravity discharge" to an internal termination is not physically possible (e.g. the discharge point is above the appliance location, or access is obstructed by a doorway), or where very long internal pipe runs would be required to reach a suitable discharge point, then a condensate pump should be used.

External waste pipes from kitchens, utility rooms or bathrooms such as sink, basin, and bath or shower waste outlets should be insulated with waterproof UV resistant, class 0 material, terminated below the grid but above the water line and a drain/leaf guard fitted. The waste pipe should be cut at 45 degrees where it terminates into the grid. (See insulation section for guidance on suitable materials).

Condensate Pumps

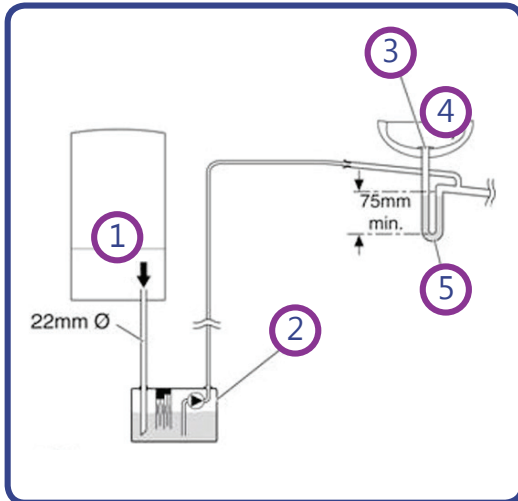
Use of a Condensate Pump to an Internal Termination

Condensate can be removed using a proprietary condensate pump, of a specification recommended by the boiler or pump manufacturer. In order to minimise the risk of freezing during prolonged sub-zero spells, one of the following methods internal to the property for terminating the boiler condensate pump to a foul water discharge point should be adopted such as an internal soil stack (preferred method), internal kitchen, utility room or bathroom waste pipe such as sink, basin, and bath or shower waste. Figure 3 shows a typical connection method.

Internal Condensate Pipe Discharge Termination

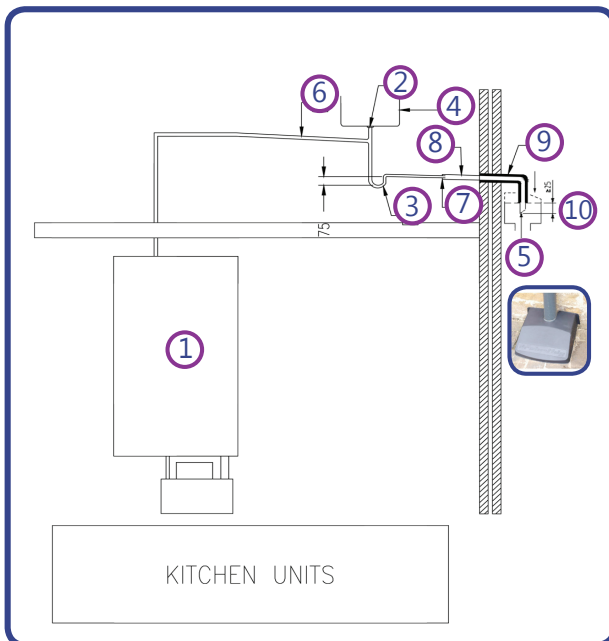
Figure 3 – Connection of a condensate pump - typical method (NB manufacturer's detailed instructions should be followed).

Note – Any external pipe work should be insulated, pipe cut at 45 degrees and a drain/ leaf guard fitted.



Key

- 1 Condensate discharge from boiler
- 2 Condensate pump
- 3 Visible air break at plug hole
- 4 Sink or basin with integrated overflow
- 5 75mm sink waste trap



Key

- 1 Boiler
- 2 Visible air break at plug hole
- 3 75 mm sink, basin, bath or shower waste trap
- 4 Sink, basin, bath or shower with integral overflow
- 5 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 ° Note – the maximum external condensate discharge length is 3 metres
- 6 Minimum internal diameter 19 mm
- 7 Pipe size transition
- 8 Minimum internal diameter 30 mm
- 9 Water/weather proof insulation
- 10 Fit drain cover/leaf guard

External Connections

External Connections

Only fit an external boiler condensate drain connection if an internal gravity or pumped connection is **impractical** to install.

The pipe work from the boiler should be of a minimum 19mm ID or as per manufacturer's instructions and the condensate discharge pipe shall be run in a standard drainpipe material, e.g. poly (vinyl chloride) (PVC), un-plasticized poly (vinyl chloride) (PVC-U), acrylonitrile butadiene-styrene (ABS), polypropylene (PP) or chlorinated poly (vinyl chloride) (PVC-C).

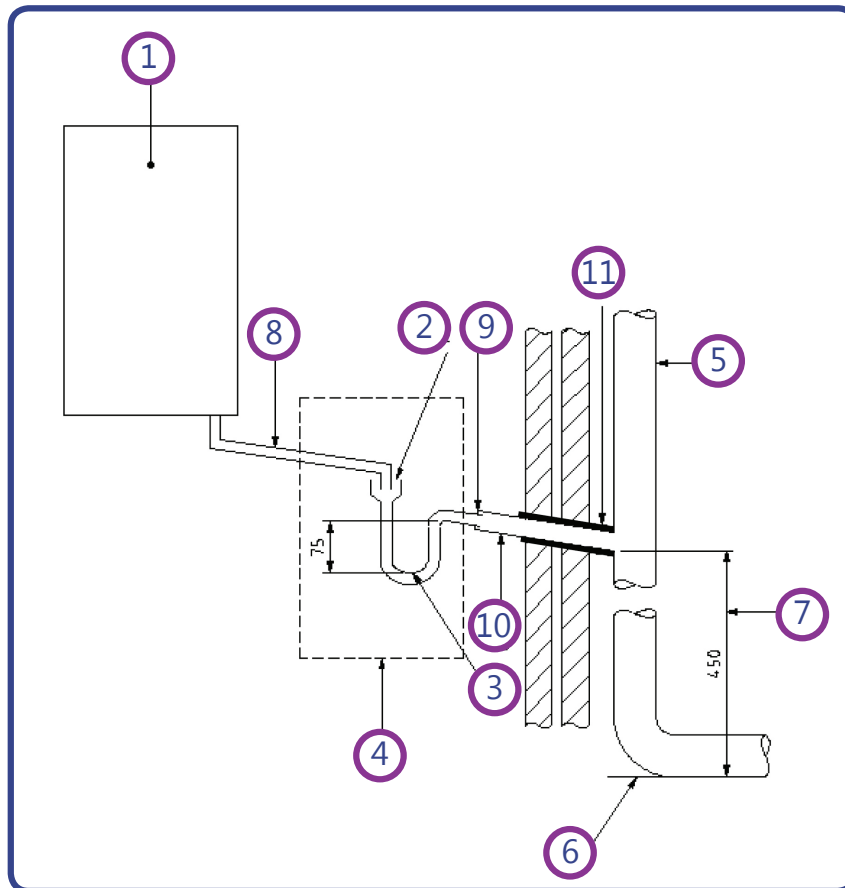
Note - Fixing centres for brackets should be a maximum of 300mm for flexible pipe and 500mm for solid pipe and manufacturer's recommendations should be followed.

The condensate pipe should be run internally as far as possible before going externally and the pipe diameter should be increased to a minimum of 30mm ID (typically 32mm OD) before it passes through the wall. The angle of the pipe should slope downwards by at least 3 degrees as it passes through the wall to assist in maintaining a good velocity as the condensate exits the building.

The external pipe run should be kept as short as possible to a maximum of 3 metres, taking the most direct and "most vertical" route to the discharge point, with no horizontal sections in which condensate might collect.

External Connections

Figure 4 – Connection of condensate discharge pipe to external soil and vent stack



Key

- 1 Boiler
- 2 Visible air break
- 3 75 mm trap
- 4 Visible air break and trap not required if there is a trap with a minimum condensate seal of 75mm incorporated into the boiler.
- 5 Soil and vent stack
- 6 Invert
- 7 450mm minimum upto three storeys
- 8 Minimum internal diameter 19 mm
- 9 Pipe size transition point
- 10 Minimum internal diameter 30mm
- 11 Water/weather proof insulation

External Connections

Alternative Solutions

Cold weather protection methods approved or endorsed by boiler manufacturers and/or service organisations may be adopted if these are considered suitable by the parties involved. It is the responsibility of the manufacturer of these products to ensure they have completed the necessary testing or calculations to ensure the product offers suitable protection to prevent the condensate pipe from freezing. The product manufacturer should provide information as to what level of external temperature and for what time period the product can protect against sub-zero temperatures, i.e. -15°C for 48 hours. BS6798 refers to devices that pump the condensate produced by a condensing boiler to a fine misting nozzle in the boiler flue terminal so that the condensate is discharged with the hot flue gas. (BS6798 section 6.3.8 note 4). The boiler manufacturer's instructions will provide advice regarding fitting and siting of the flue terminal to ensure safe disposal of the condensate.

Additional Measures

At least one of the following measures should be fitted in addition to the measures detailed above for external condensate discharge pipes

- *Insulate external pipe with a minimum thickness of insulation to be 19mm "O" class PVC coated material.*
- *Fit trace heating – with insulation as recommended by manufacturer.*
- *Fit internal auxiliary(additional) high volume syphon unit*

Auxiliary Syphon – Fitted Internally

Auxiliary siphons fitted inside the premises assist with the siting of the boiler where an external condensate pipe **must** be fitted. The storage capacity of the auxiliary siphon increases the volume of condensate discharge reducing the risk of freezing. A further reduction in the potential for the pipe to freeze is achieved when combined with the external insulation requirements.

External Connections

Electric Trace Heating

Trace heating with an external thermostat can be fitted to the external condensate pipe to raise the temperature of the condensate pipe in freezing conditions. Trace heating takes the form of an electrical heating element run in physical contact along the length of the condensate pipe. The pipe is usually covered with thermal insulation to retain heat losses from the pipe. Heat generated by the element then maintains the temperature of the pipe. If such a system is used then the installation instructions of the trace heating manufacturer and any specific recommendations regarding pipe diameter, insulation, etc. should be followed. All other relevant guidance on condensate discharge pipe installation should also be followed.

Insulation Materials

Insulation used for external condensate pipes, sink or washing machine waste pipes should be of class 'O' grade with an outer coating that is weather proof, bird/animal proof, and UV resistant finish. A minimum of 19mm thick insulation is recommended for 32mm external pipes.

Use of Air Breaks In Condensate Discharge Pipes

Heating engineers should follow manufacturer's instructions on the use of air breaks in condensate discharge pipes. A visible air break is not required if the boiler condensate trap has a minimum condensate seal of 75mm incorporated into the boiler.

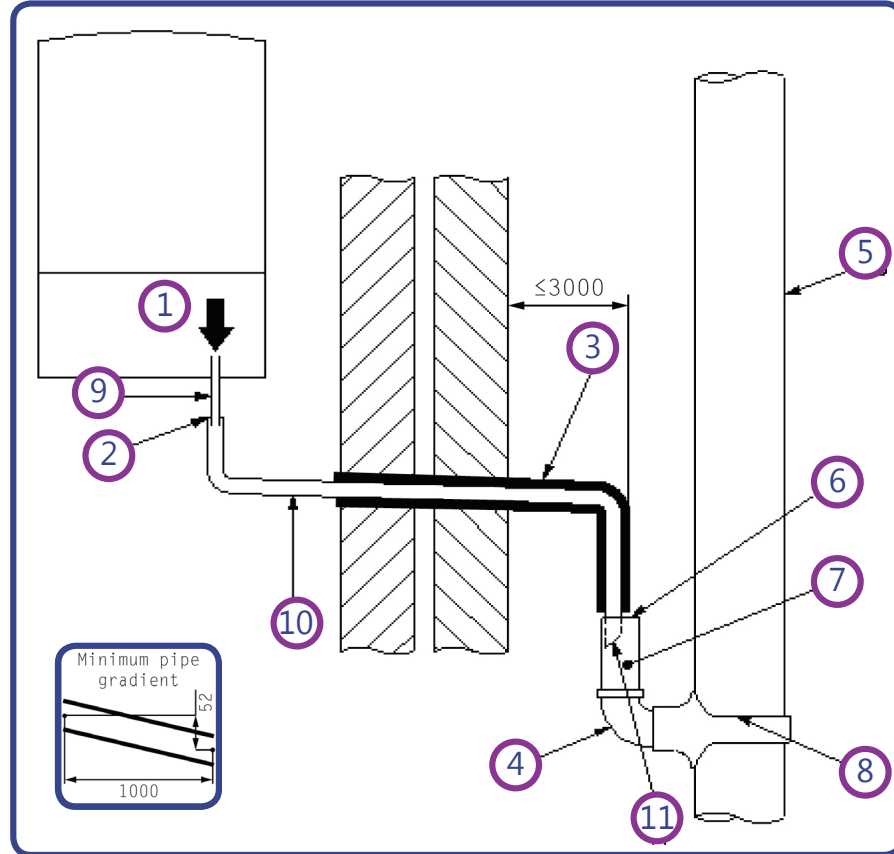
Connecting to a rain water downpipe/External Soil Stack

When an external soil stack or rain water downpipe is used as the termination (NB only permissible if this downpipe passes to a combined foul and rainwater drainage system) an external air break must be installed between the condensate discharge pipe and the downpipe to avoid reverse flow of rainwater/sewage into the boiler should the downpipe itself become flooded or frozen.

Figure 5 shows a suitable connection method. Pipe insulation should be fitted.

External Connections

Figure 5 – External termination to rainwater downpipe (NB only combined foul/rainwater drain)



Key

- 1 Condensate discharge pipe from boiler
- 2 Pipe size transition point
- 3 Water/weather proof insulation
- 4 43mm 90° male/female bend
- 5 External rain water pipe into foul water
- 6 External air break
- 7 Air gap
- 8 68mm PVCu strap on fitting
- 9 Minimum internal diameter 19mm
- 10 Minimum internal diameter 30mm
- 11 End cut at 45°

External Connections

External Termination of the Condensate Pipe

Where the condensate discharge pipe is terminated over an open foul drain or gully, the pipe should terminate below the grating level, but above water level, in order to minimise “wind chill” at the open end. Pipe drainage and resistance to freezing will be improved if the termination end of the condensate pipe is cut at 45 degrees as opposed to a straight cut.

The use of a drain cover (such as those used to prevent blockage by leaves) **must** be fitted to offer further protection from wind chill. Figure 6 (following page) shows a suitable connection method. Where the condensate drain pipe terminates in a purpose-designed soakaway (see BS 6798:2014 or boiler installation manual for soakaway design requirements) any above-ground section of condensate discharge pipe should be run and insulated as described above. Figure 7 (following page) shows a suitable connection method.

Unheated Areas in Buildings

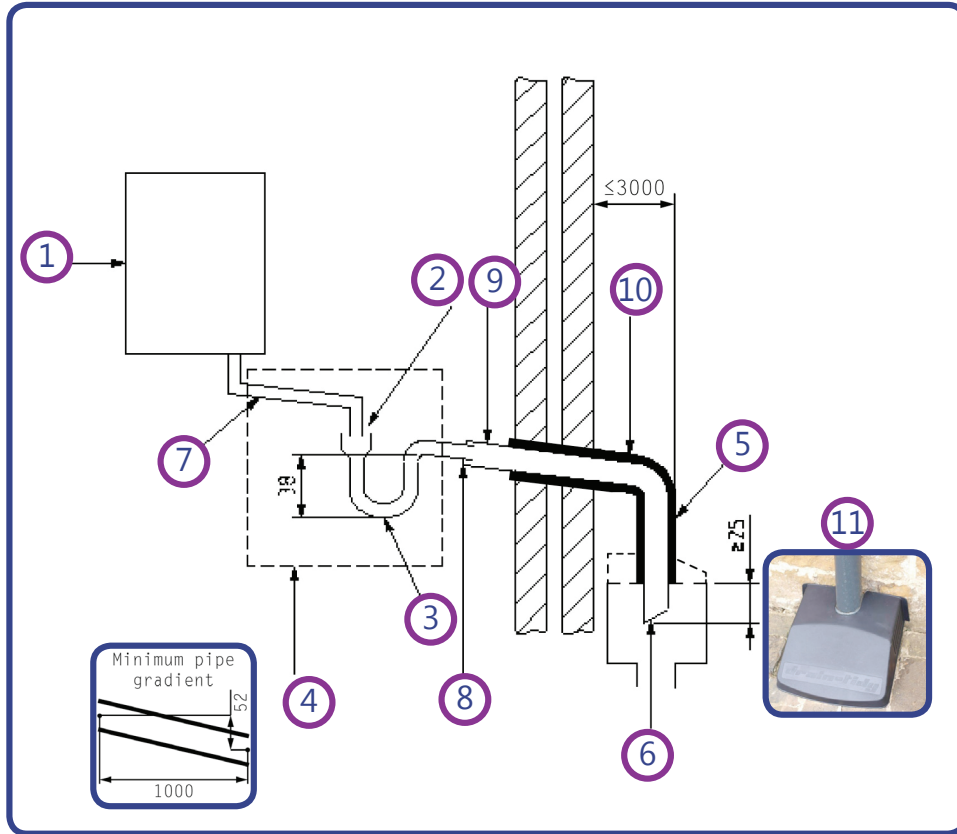
Internal condensate drainage pipes run in unheated areas such as lofts, basements and garages should be treated as external connections and insulated accordingly. Weather proof materials may not be necessary and should be assessed by the heating engineer.

Use of Air Breaks In Condensate Discharge Pipes

Installers should follow the manufacturer’s instructions on the use of air breaks in condensate discharge pipes. A visible air break and trap is not required if the boiler condensate trap has a minimum condensate seal of 75 mm incorporated into the boiler.

External Connections

Figure 6 – External drain, gully or rainwater hopper

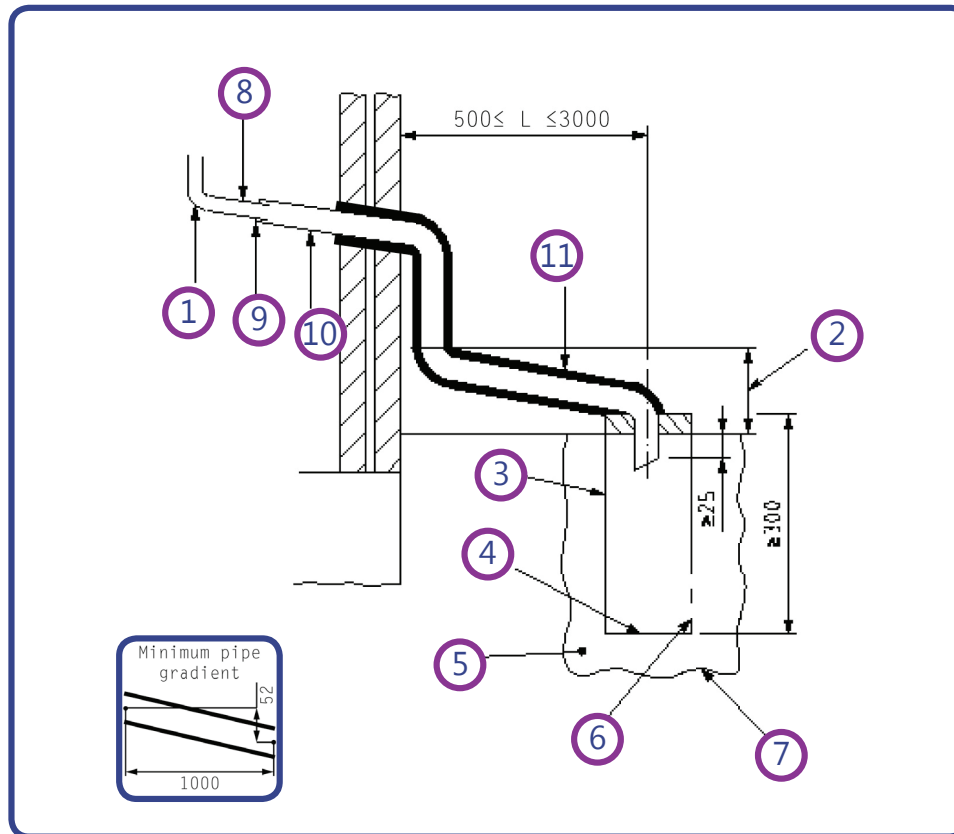


Key

- 1 Boiler
- 2 Visible air break
- 3 38mm minimum trap
- 4 Visible air break and trap not required if there is a trap with a minimum condensate seal of 38 mm incorporated into the boiler – refer to manufacturers instructions
- 5 External length of pipe 3 m maximum
- 6 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 °
- 7 Minimum internal diameter 19 mm
- 8 Pipe size transition point
- 9 Minimum internal diameter 30 mm
- 10 Water/weather proof insulation
- 11 Fit drain cover/leaf guard

External Connections

Figure 7 – Example of a purpose made soakaway



Key

- 1 Condensate discharge pipe from boiler
- 2 Ground (this section of the condensate discharge pipe may be run either above or below round level); End cut at 45°
- 3 Diameter 100 mm minimum plastic tube
- 4 Bottom of tube sealed
- 5 Limestone chippings
- 6 Two rows of three 12 mm holes at 25 mm centres, 50 mm from bottom of tube and facing away from house
- 7 Hole depth 400 mm minimum by 300 mm diameter
- 8 Minimum internal diameter 19 mm
- 9 Pipe size transition point
- 10 Minimum internal diameter 30 mm
- 11 Water/weather proof insulation

USER INSTRUCTIONS

IGNITION (fig. 24)

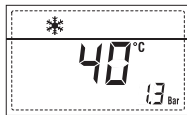
The first ignition of the boiler must be carried out by qualified technical personnel.

Successively, if it is necessary to start up the boiler again, adhere strictly to the following instructions: open the gas tap to allow the flow of the fuel and move the main switch of the system to "ON".

When fuel is fed to the boiler, a sequence of checks will be carried out and the display shows the normal condition of the functioning, always indicating the pressure of the system.

If the blue luminous bar is on, this indicates the presence of voltage.

Press the key of the controls (pos. 2) to activate the winter function. The display will be as shown in the figure.



N.B.: The first key press acts only to illuminate the display, successive key presses will be recognised to alter the mode or value.

REGULATION OF THE WATER TEMPERATURE FOR HEATING (fig. 25)

To set the temperature of the water for heating, press the key of the controls (2). The first time the key is pressed, the SET of heating circuit 1 is selected. The second time it is pressed, the SET of heating circuit 2 is selected.

The display will be as shown in the figure. Change the values with the key and .

Standard visualisation will return to the display by pressing the key again, or after 10 seconds if no key is pressed.

Regulation of the external sensor (fig. 25/a)

If an external sensor is installed, the value of the output temperature is automatically chosen by the system, which quickly adjusts the environmental temperature on the basis of the external temperature.

If you wish to change the value of the temperature, increasing or decreasing that calculated automatically by the electronic card, proceed as indicated in the preceding paragraph.

The level of various correction of a value of temperature proportional calculated. The display will be as shown in fig. 25/a.

TO SWITCH OFF THE BOILER (fig. 24)

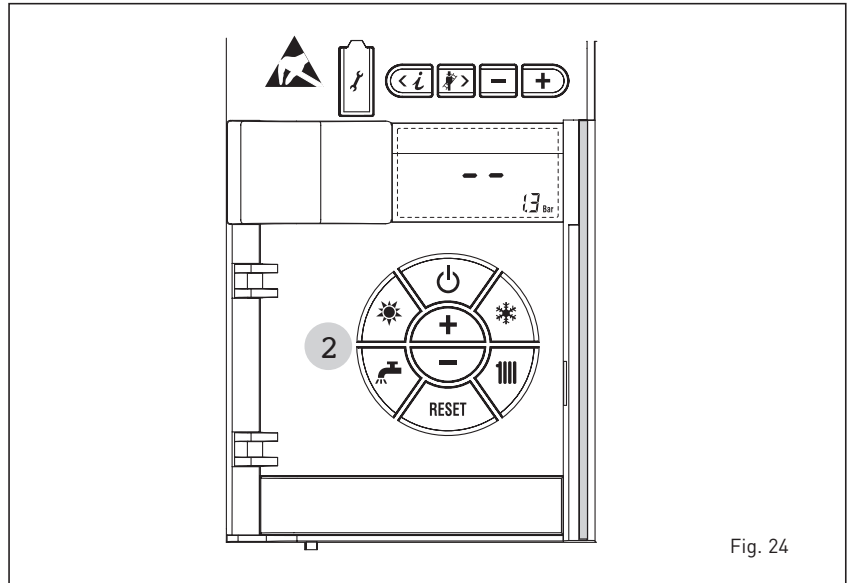


Fig. 24

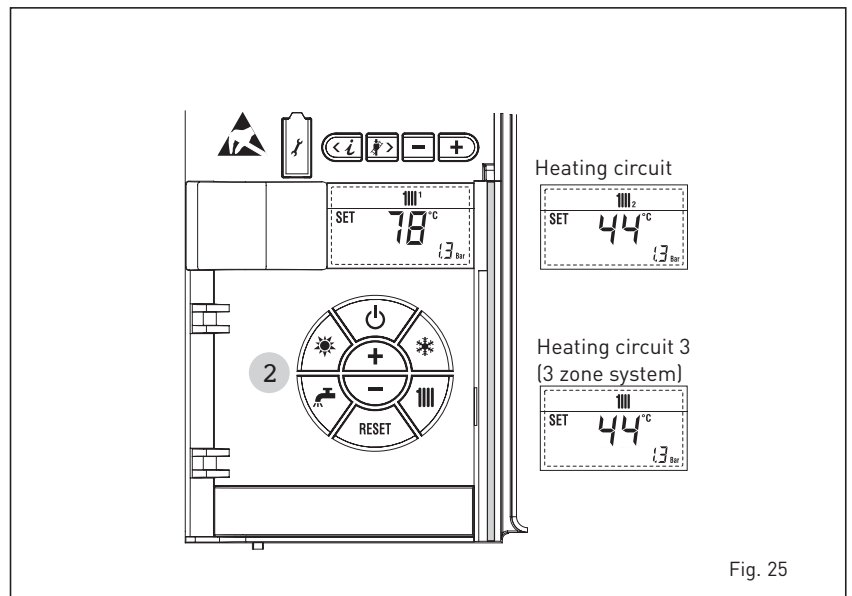


Fig. 25

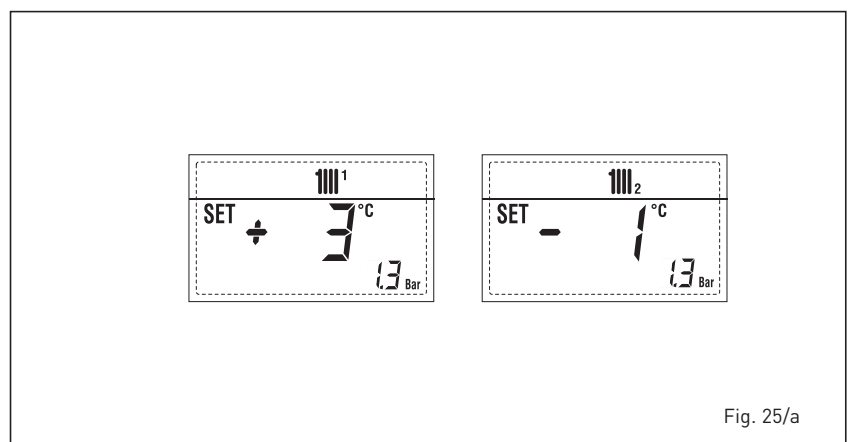


Fig. 25/a

In the case of a short absence, press the key of the controls (pos. 2).

The display will be as shown in the fig. 24. In this way, leaving the electricity and the fuel supply connected, the boiler is pro-

TECTED FROM FROST and from the pump becoming jammed. If the boiler is not used for a prolonged period, it is advisable

to disconnect the electricity supply, by switching off the main switch of the system, and to close the gas isolation valve and, if low temperatures are expected, to completely empty the hydraulic circuits to avoid pipes being damaged by frost.

ERRORS AND SOLUTIONS

When there is a functioning error, the display shows an alarm and the blue luminous bar becomes red.

Descriptions of the errors with the relative alarms and solutions are given below:

- ALARM 02 (fig. 27/a)

If the water pressure detected is lower than 0.5 bar, the boiler will stop and the display will show "ALL 02". Using the external filling device until the pressure indicated by the display is between 1 and 1.5 bars.

If it is necessary to repeat the system refilling procedure, it is advisable to contact qualified technical personnel to check the seal of the heating system (to check whether there are any leaks).

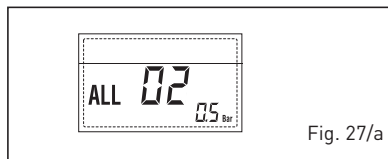



Fig. 27/a

- **ALL 03**
Request assistance from qualified technical personnel.

- **ALL 05**
Request assistance from qualified technical personnel.

- **ALL 06 (fig. 27/c)**
Press the key  of the controls (2) to re-start the boiler.

If the error persists, request assistance from qualified technical personnel.

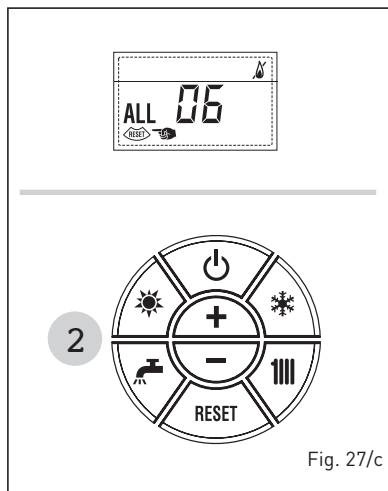


Fig. 27/c

- **ALL 07 (fig. 27/d)**

Press the key  of the controls (2) to re-start the boiler.

If the anomaly persists, request assistance from qualified technical personnel.

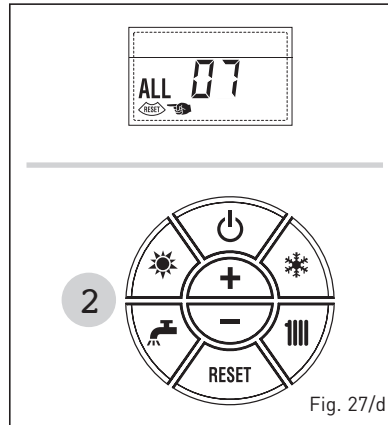


Fig. 27/d

- **From "ALL 08" to "ALL 10"**
Request assistance from qualified technical personnel.

- **ALL 13 (fig. 27/e)**

Press the key  of the controls (2) to re-start the boiler.

If the error persists, request assistance from qualified technical personnel.

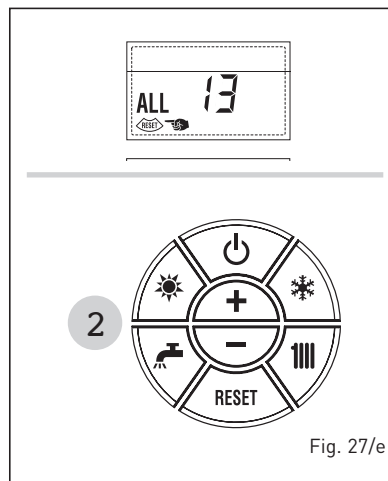


Fig. 27/e

- **ALL 14 and ALL 15**
Request assistance from qualified technical personnel.

- "⏏ FLASHING"

If an external sensor (SE) is fitted should it become short circuited the symbol flashes on the display. During such error the boiler continues to function normally.

Request assistance from qualified technical personnel.

- **From "ALL 20" to "ALL 35"**
Request assistance from qualified

technical personnel.

- **ALL 70 and ALL 71**

These alarms appear on the SIME HOME remote control display. Request assistance from qualified technical personnel.

GAS CONVERSION

If it is necessary to change to a different type of gas, request assistance only from authorised technical personnel.

MAINTENANCE

Annual maintenance of the appliance should be planned sufficiently in advance, requesting the assistance of authorised technical personnel.

The boiler is supplied complete with a mains cable, which should only be replaced with one of similar dimensions.

DEMOLITION AND DISPOSAL OF THE APPLIANCE (2012/19/UE)



At the end of its life cycle the appliance **MUST BE DISPOSED AND RECYCLED**, as required by current law.

It **MUST NOT** be disposed of with domestic waste. It can be taken to waste recycling centres, where they exist, or to a dealer providing this service.

Recycling waste prevents potential damage to the environment and harm to health. It also allows you to recover many recyclable materials with significant economic and energy savings.




PRODUCT DETAILS

IT

ES

PT

EN

		
	Murelle 70 BOX ErP	Murelle Equipe 140 BOX ErP
Classe efficienza energetica stagionale riscaldamento Clase de eficiencia energética estacional en calefacción Classe de eficiência energética do aquecimento ambiente sazonal C.H. energy efficiency class		
Potenza termica (kW) Potencia térmica (kW) Potência calorífica (kW) Heat output (kW)	63	127
Consumo annuo di energia riscaldamento (GJ) Consumo anual de energía en calefacción (GJ) Consumo anual de energia para aquecimento (GJ) C.H. annual energy consumption (GJ)	120	218
Efficienza energetica stagionale riscaldamento (%) Eficiencia energética estacional en calefacción (%) Eficiência energética do aquecimento sazonal (%) C.H. seasonal energy efficiency (%)	92	92
Potenza sonora dB(A) Potencia sonora dB(A) Potência sonora dB(A) Sound power dB(A)	65	--
<p>Specifiche precauzioni da adottare al momento del montaggio, dell'installazione o della manutenzione dell'apparecchio sono contenute all'interno del manuale istruzioni della caldaia</p> <p>En el manual de instrucciones de la caldera se indican las precauciones específicas que se deben adoptar durante el montaje, la instalación o el mantenimiento del aparato</p> <p>Precauções específicas a tomar no momento da montagem, instalação ou manutenção do aparelho estão contidas no manual de instruções do aquecedor</p> <p>Specific precautionary measures to be adopted at the time of assembly, installation or maintenance of the equipment are contained in the boiler instruction manual</p> <p>Conforme all'allegato IV (punto 1) del regolamento delegato (UE) N° 811/2013 che integra la Direttiva 2010/30/UE</p> <p>Con arreglo al anexo IV (punto 1) del Reglamento Delegado (UE) N° 811/2013 que completa la Directiva 2010/30/UE</p> <p>Em conformidade com o anexo IV (ponto 1) do regulamento delegado (UE) N.o 811/2013 que complementa a Diretiva 2010/30/UE</p> <p>Conforming to Annex IV (item 1) of the Delegated Regulations (EU) No. 811/2013 which supplements Directive 2010/30/EU</p>		

ANNEX AA.1

Murelle Equipe 70 BOX ErP (Code 8111234)

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Informazioni da fornire per le caldaie per il riscaldamento d'ambiente e le caldaie miste Información obligatoria para calderas de calefacción de espacios y calderas mixtas Informações a fornecer para aquecedores de ambiente com caldeira e aquecedores combinados com caldeira Information requirements for boiler space heaters, boiler combination heaters							
Modello / Modelos / Modelos / Model:				MURELLE 70 BOX ErP			
Caldaia a condensazione / Caldera de condensación: Caldeira de condensação / Condensing boiler:				Yes			
Caldaia a bassa temperatura / Caldera de baja temperatura: Caldeira de baixa temperatura / Low-temperature boiler:				Yes			
Caldaia di tipo B11/ Caldera de tipo B11/ Caldeira B11 / B11 boiler:				No			
Apparecchio di cogenerazione per il riscaldamento d'ambiente: Equipo de cogeneración para calefacción de espacios: Aquecedor de ambiente com cogeração: Cogenerator space heater:				No		Munito di un apparecchio di riscaldamento supplementare: Equipado con un aparato de calefacción suplementario: Equipado com aquecedor complementar: Equipped with a supplementary heater:	
Apparecchio di riscaldamento misto / Equipo de calefacción mixto: Aquecedor combinado / Combustion heater:				No			
Elemento / Elemento		Symbol		Value		Unit	
Elemento / item		Symbol		Value		Unit	
Potenza termica nominale Potencia térmica nominal Potência calorífica nominal Nominal heat output for space heating		P _n		63		kW	
Efficienza energetica stagionale del riscaldamento d'ambiente Eficiencia energética estacional de calefacción Eficiência energética do aquecimento ambiente sazonal Seasonal space heating energy efficiency		η _s		92		%	
Per le caldaie per il riscaldamento d'ambiente e le caldaie miste: potenza termica utile Para calderas de calefacción de espacios y calderas mixtas: potencia térmica útil Aquecedores de ambiente com caldeira e aquecedores combinados equipados com caldeira: energia calorífica útil For boiler space heaters and boiler combination heaters: useful heat output				Per le caldaie per il riscaldamento d'ambiente e le caldaie miste: efficienza utile Para calderas de calefacción de espacios y calderas mixtas: eficiencia útil Aquecedores de ambiente com caldeira e aquecedores combinados equipados com caldeira: eficiência útil For boiler space heaters and boiler combination heaters: useful efficiency			
Alla potenza termica nominale e a un regime ad alta temperatura ^a A potencia calorífica nominal y régimen de alta temperatura ^a À potência calorífica nominal e em regime de alta temperatura ^a At nominal heat output and high-temperature regime ^a		P ₄		63,2		kW	
Alla potenza termica nominale e a un regime ad alta temperatura (*) A potencia calorífica nominal y régimen de alta temperatura (*) À potência calorífica nominal e em regime de alta temperatura (*) At nominal heat output and high-temperature regime (*)		η ₄		87,6		%	
Al 30% della potenza termica nominale e a un regime a bassa temperatura ^b A 30% de potencia calorífica nominal y régimen de baja temperatura ^b A 30% da potência calorífica nominal e em regime de baixa temperatura ^b At 30% of nominal heat output and low-temperature regime ^b		P ₁		21,1		kW	
Al 30% della potenza termica nominale e a un regime a bassa temperatura (*) A 30% de potencia calorífica nominal y régimen de baja temperatura (*) A 30% da potência calorífica nominal e em regime de baixa temperatura (*) At 30% of nominal heat output and low-temperature regime (*)		η ₁		97,3		%	
Consumo ausiliario di elettricità / Consumos eléctricos auxiliares Consumos eléctricos auxiliares / Auxiliary electricity consumption				Altri elementi / Otros elementos Outros elementos / Other items			
A pieno carico A plena carga Em plena carga At full load		el _{max}		0,098		kW	
Dispersione termica in stand-by Dispersión térmica en stand-by Perdas de calor em modo de vigília Standby heat loss		P _{stby}		0,156		kW	
A carico parziale A carga parcial Em carga parcial At part load		el _{min}		0,040		kW	
Consumo energetico del bruciatore di accensione Consumo energético del quemador de encendido Consumo de energia do queimador de ignição Ignition burner power consumption		P _{ign}		0		kW	
In modo standby / En modo de espera Em modo de vigília / In standby mode		PSB		0,003		kW	
Emissioni di NOx / Emisiones de Nox Emissões de Nox / Emission of nitrogen oxides		NOx		24		mg/kWh	
Per gli apparecchi di riscaldamento misto / Para los calefactores combinados / Aquecedores combinados / For combination heaters:							
Profilo di carico dichiarato Perfil de carga declarado Perfil de carga declarado / Declared load profile		--		--		%	
Efficienza energetica di riscaldamento dell'acqua Eficiencia energética de caldeo de agua Eficiência energética do aquecimento de água Water heating energy efficiency		η _{wh}		--		%	
Consumo quotidiano di energia Consumo diario de electricidad Consumo diário de eletricidade Daily electricity consumption		Q _{elec}		--		kWh	
Consumo quotidiano di combustibile Consumo diario de combustible Consumo diário de combustível Daily fuel consumption		Q _{fuel}		--		kWh	
Recapiti / Datos de contacto Elementos de contacto / Contact details		Fonderie Sime S.p.A. Via Garbo 27, 37045 Legnago (VR) ITALIA					
<p>a. Regime ad alta temperatura: temperatura di ritorno di 60°C all'entrata e 80°C di temperatura di fruizione all'uscita dell'apparecchio</p> <p>b. Bassa temperatura: temperatura di ritorno (all'entrata della caldaia) per le caldaie a condensazione 30°C, per le caldaie a bassa temperatura 37°C e per le altre caldaie 50°C</p> <p>a. Régimen de alta temperatura: temperatura de retorno de 60°C a la entrada y 80°C de temperatura de alimentación a la salida del aparato.</p> <p>b. Baja temperatura: temperatura de retorno (a la entrada de la caldera) de 30°C para las calderas de condensación, de 37°C para las calderas de baja temperatura y de 50°C para las demás calderas.</p> <p>a. Regime de alta temperatura: temperatura de retorno de 60°C à entrada do aquecedor e temperatura de alimentação de 80°C à saída do aquecedor.</p> <p>b. Baixa temperatura: temperatura de retorno de 30°C para as caldeiras de condensação, 37°C para as caldeiras de baixa temperatura e 50°C para os outros aquecedores (à entrada do aquecedor).</p> <p>a. High-temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.</p> <p>b. Low-temperature regime means for condensig boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature.</p>							
<p>(*) Dati di rendimento calcolati con potere calorifico superiore H_s / Datos de rendimiento calculado con el valor calorífico superior H_s Os valores do desempenho calculados com valor calorífico superior H_s / Performance data calculated with gross calorific value H_s</p>							



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