

# INSTALLER INSTRUCTIONS

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**FONDERIE SIME S.p.A.** of Via Garbo 27 - Legnago (VR) - Italy declares that its hot water boilers, which bear the CE mark under Gas Directive 90/396/CEE and are fitted with a safety thermostat calibrated to a maximum of 110°C, **are not subject** to application of PED Directive 97/23/CEE as they meet the requirements of article 1 paragraph 3.6 of the Directive.

## IMPORTANT

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

- Make sure that there are no liquids or inflammable materials in the immediate vicinity of the boiler.
- Make sure that the electrical connections have been made correctly and that the earth wire is connected to a good earthing system.
- Open the gas cock and check the soundness of the connections, including that of the burner.
- Make sure that the boiler is set for operation for the type of gas supplied.
- Check that the flue pipe for the outlet of the products of the combustion is unobstructed and/or has been properly installed.
- Make sure that any shutoff valves are open.
- Make sure that the system is charged with water and is thoroughly vented.
- Check that the circulating pump is not locked.
- Purge the system, bleeding off the air present in the gas pipe by operating the pressure relief valve on the gas valve inlet.

# 1 DESCRIPTION OF THE BOILER

## 1.1 INTRODUCTION

The "RX 26 BF" boilers are the ideal solution for heating small and medium houses. They comply with the european directives

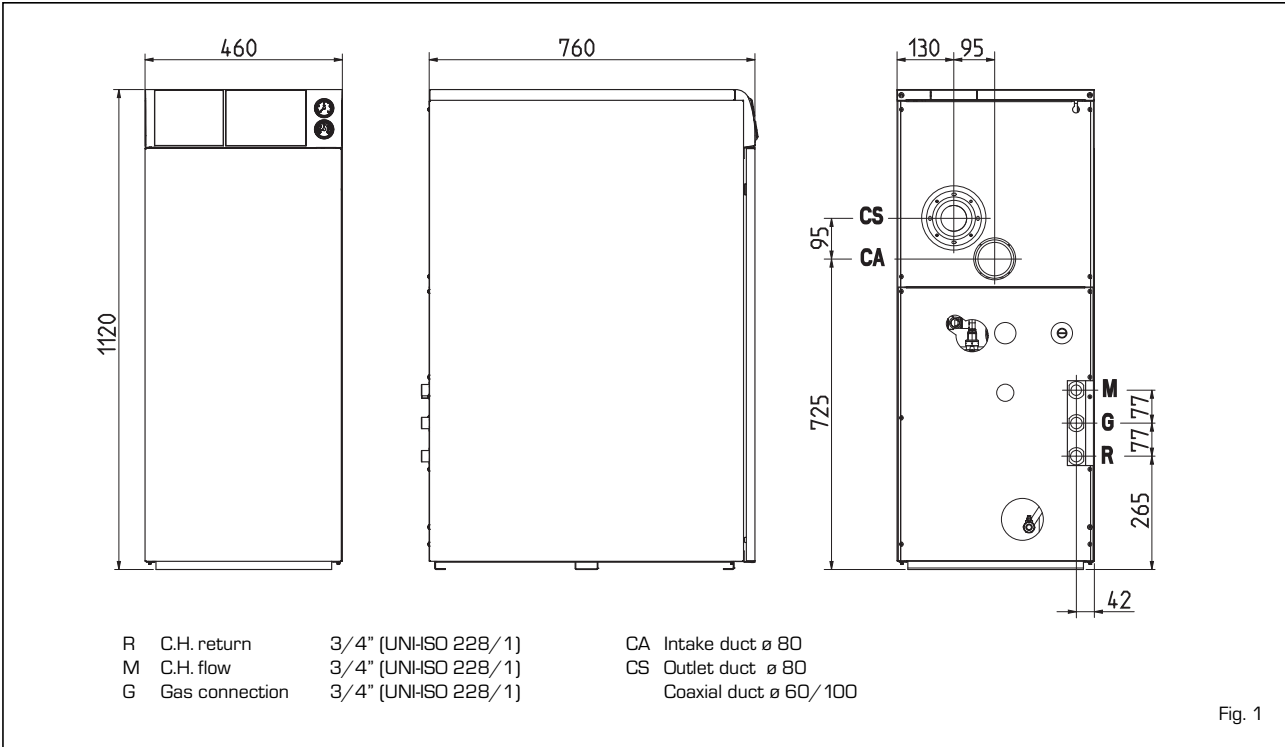
90/396/CEE, 89/336/CEE, 92/42/CEE, 73/23/CEE and the european specification EN 483.

These appliances can be fired by natural gas (G20) and butane gas (G30) or

propane gas (G31).

The instructions given in this manual are provided to ensure proper installation and perfect operation of the appliance.

## 1.2 DIMENSIONS



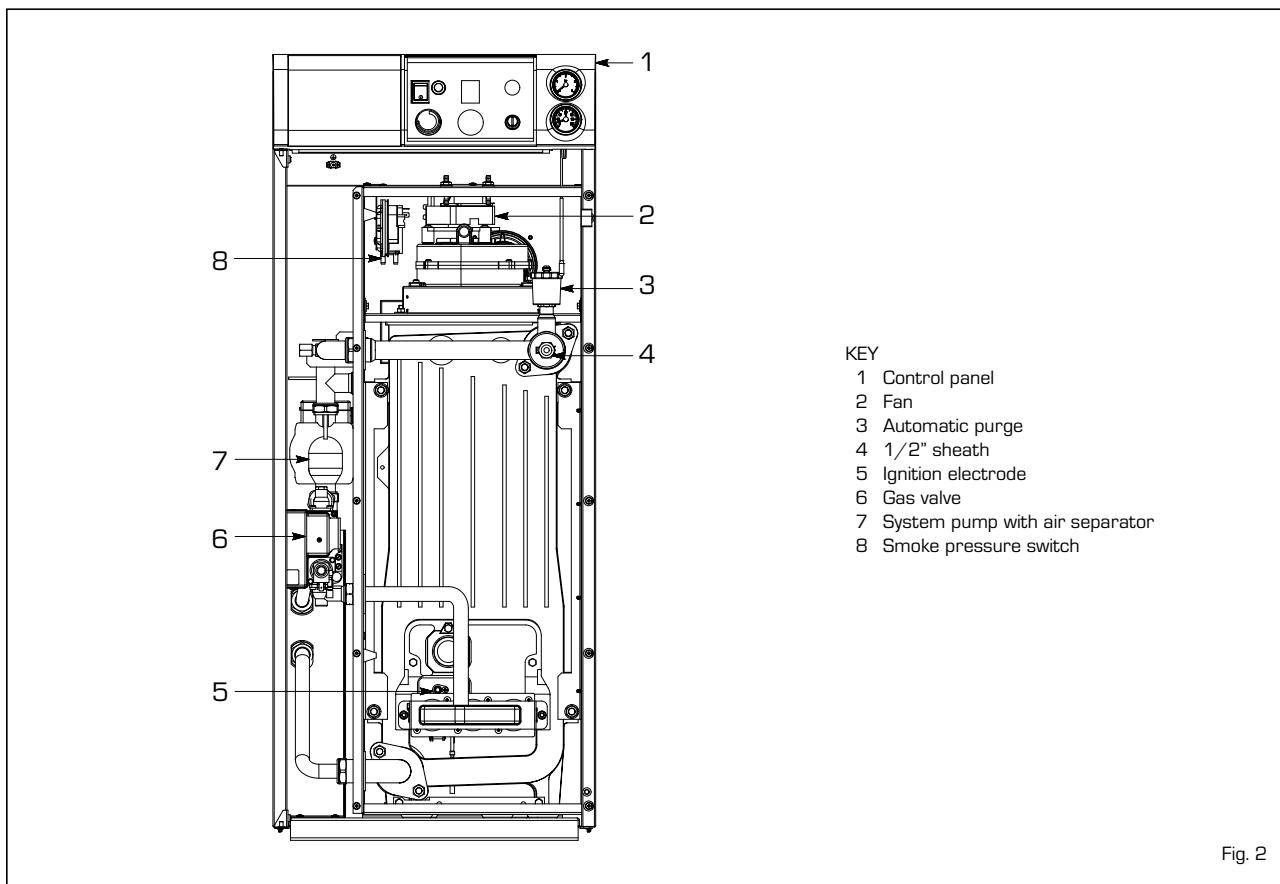
## 1.3 TECHNICAL FEATURES

		RX 26 BF
Heat output (min.-nom.)	kW	23,2 - 31,0
	kcal/h	19.950 - 26.660
Heat input (min.-nom.)	kW	26,2 - 34,0
	kcal/h	22.530 - 29.240
Cast iron sections	n°	4
Water content	l	15
Power consumption	W	155
Maximum water head	bar	4
Maximum temperature	°C	85
<b>Expansion vessel</b>		
Water content	l	10
Preloading pressure	bar	1
Smokes temperature(min.-max)	°C	177 - 200
Smokes flow (min.-max)	gr/s	20,5 - 18,7
Category		II2H3+
Type		C12-32-42-52-82
Weight	kg	165

		RX 26 BF
<b>Main burner nozzles</b>		
Quantity	n°	3
Methane	ø mm	2,90
G30 - G31	ø mm	1,70
<b>Gas consumption (min.-max) *</b>		
Methane	m <sup>3</sup> st/h	2,77 - 3,60
Butane (G30)	kg/h	0,81 - 1,05
Propane (G31)	kg/h	1,07 - 1,39
<b>Burner gas pressure (min.-max)</b>		
Methane	mbar	7,1 - 12,0
Butane (G30)	mbar	17,8 - 28,1
Propane (G31)	mbar	17,8 - 35,9
<b>Gas supply pressure</b>		
Methane	mbar	20
Butane (G30)	mbar	30
Propane (G31)	mbar	37

\* The gas consumptions refer to the calorific value at standard conditions at 15°C - 1013 mbar

## 1.4 MAIN COMPONENTS



## 2 INSTALLAZIONE

The boiler must be installed in a fixed location and only by specialized and qualified firms in compliance with all instructions contained in this manual. Furthermore, the installation must be in accordance with current standards and regulations.

### 2.1 VENTILATION BOILER ROOM

Models "RX 26 BF", with a hermetically sealed combustion chamber and air supply circuit, may be installed in any room in the home.

### 2.2 CONNECTING UP SYSTEM

Wash all system pipes well before hooking them up with the boiler to eliminate any residues which could compromise its functioning. **The discharge pipe of the safety valve must be connected to a collector funnel for channelling away any discharge if the safety valve goes into action.**

When sizing gas piping, from the meter to the boiler, take into account both the volume flow rates (consumption) in  $\text{m}^3/\text{h}$  and the relative density of the gas in question. The sections of the piping making up the system

must be such as to guarantee a supply of gas sufficient to cover the maximum demand, limiting pressure loss between the gas meter and any apparatus being used to not greater than:

- 1,0 mbar for family II gases (natural gas);
- 2,0 mbar for family III gases (butane or propane).

An adhesive data plate is stuck inside the front panel; it contains all the technical data identifying the boiler and the type of gas for which the boiler is arranged.

## 2.2.1 Filter on the gas pipe

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

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

## 2.3 CHARACTERISTICS OF FEEDWATER

To prevent lime scale or deposits on the primary exchanger, the water used to supply the heating circuit should must be treated in accordance with UNI-CTI 8065 standards.

It is absolutely essential that the water is to be treated in the following cases:

- very extensive system (with high contents of feedwater);
- frequent addition of makeup water into the system;
- should it be necessary to empty the system either partially or totally.

## 2.4 SYSTEM FILLING

The charge pressure, with the system cold, must be between **1** and **1.2 bar**.

During system filling you are recommended to keep the main switch turned OFF.

Filling must be done slowly so as to allow any air bubbles to be bled off through the air valves.

At the end of the operation, make sure that the cock has been properly closed.

## 2.5 EMPTYING THE SYSTEM

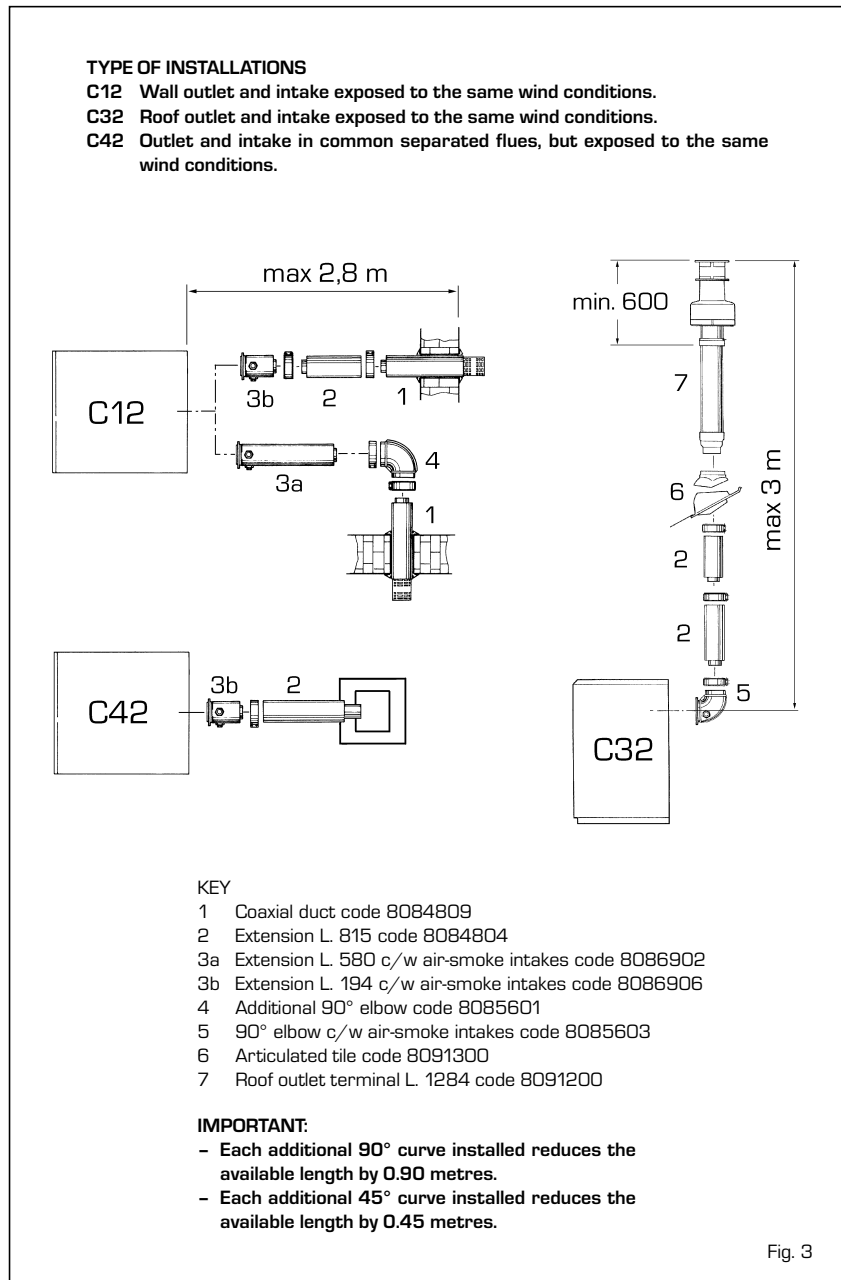
Use the drain tap to empty the system. Turn off the boiler before doing this.

## 2.6 FLUES/CHIMNEYS

The flue or chimney used to release the products of combustion into the atmosphere must comply with the requirements provided by the UNI 10641 regulations relative to forced draught boilers (type C).

### 2.6.1 Passing flue pipes through an existing chimney

When renovating or passing flue pipes through an existing chimney, use only flues which are declared suitable for the purpose by the manufacturer, following the instructions for installation and use provided by the manufacturer and by the prescriptions of the UNI 10845 regulations.



## 2.7 ø 60/100 COAXIAL DUCT INSTALLATION

The boiler is supplied with the connections required for coaxial ducts that can be turned in any direction.

**The maximum horizontal length of the duct must not exceed 2.8 meters. Maximum two extensions can be inserted on the C32 type installation in order to reach the straight vertical length of 3 meters, including the concentric elbow that comes out from the boiler.**

Use only original SIME accessories and make sure that the connection is carried out properly, as indicated in the instructions attached to the accessories. The diagrams of fig. 3 show a few examples of coaxial ducts kind of installations.

## 2.8 ø 80 SEPARATE PIPES INSTALLATION

When installing the pipes, follow closely the requirements of the current standards, as well as the following practical indications:

- With direct intake from outside, when the pipe is longer than 1 m, you are recommended to insulate the piping so as to prevent formation of dew on the outside of the piping during certain periods of the year.
- With the outlet pipe outside the building or in cold indoor environments, insulation is necessary to prevent burner failure while starting. In such cases, provide for a condensate-collector system on the piping.
- If a segment of the flue passes through a flammable wall, this segment must be insulated with a 30 mm thick glass wool

pipe insulator, with a density of 50 kg/m<sup>3</sup>.

**The maximum overall length of the intake and exhaust ducts depends on the head losses of the single fittings installed and must not exceed than 6,00 mm H<sub>2</sub>O.**

During installation use only original SIME accessories and make sure that the connection is carried out properly, as indicated in the accessory instructions.

For head losses in the fittings, refer to **Table 1**.

**TABLE 1**

Accessories ø 80	Load loss (mm H <sub>2</sub> O)		
	Intake	Outlet	Roof out. Intake
90° elbow MF	0,30	0,50	-
45° elbow MF	0,20	0,40	-
Extension L. 1000 (horizontal)	0,20	0,40	-
Extension L. 1000 (vertical)	0,30	0,30	-
Outlet terminal	-	0,40	-
Intake terminal	0,10	-	-
Manifold	0,30	-	-
Roof outlet terminal L. 1390	-	-	0,60
Tee condensation outlet	-	1,10	-

**2.8.1 Separate flue kit (fig. 4)**

The required intake diaphragm is supplied with the separate duct kit code 8089905, according to the maximum load allowed in both ducts, as indicated in fig. 4/a.

**2.8.2 Outlet systems**

The diagrams in fig. 5 illustrate a number of examples of different types of separate outlets.

Example of allowable installation calculation in that the sum of the head losses of the single fittings is less than 6,00 mm H<sub>2</sub>O:

	Intake	Outlet	
6 meter horizontal pipe ø 80 x 0,20	1,20	-	
6 meter horizontal pipe ø 80 x 0,40	-	2,40	
n° 2 90° elbows ø 80 x 0,30	0,60	-	
n° 2 90° elbows ø 80 x 0,50	-	1,00	
n° 1 terminal ø 80	0,10	0,40	
<b>Total head loss</b>	<b>1,90</b>	<b>+ 3,80</b>	<b>= 5,7 mm H<sub>2</sub>O</b>

The intake diaphragm is to be removed with this maximum loss of load.

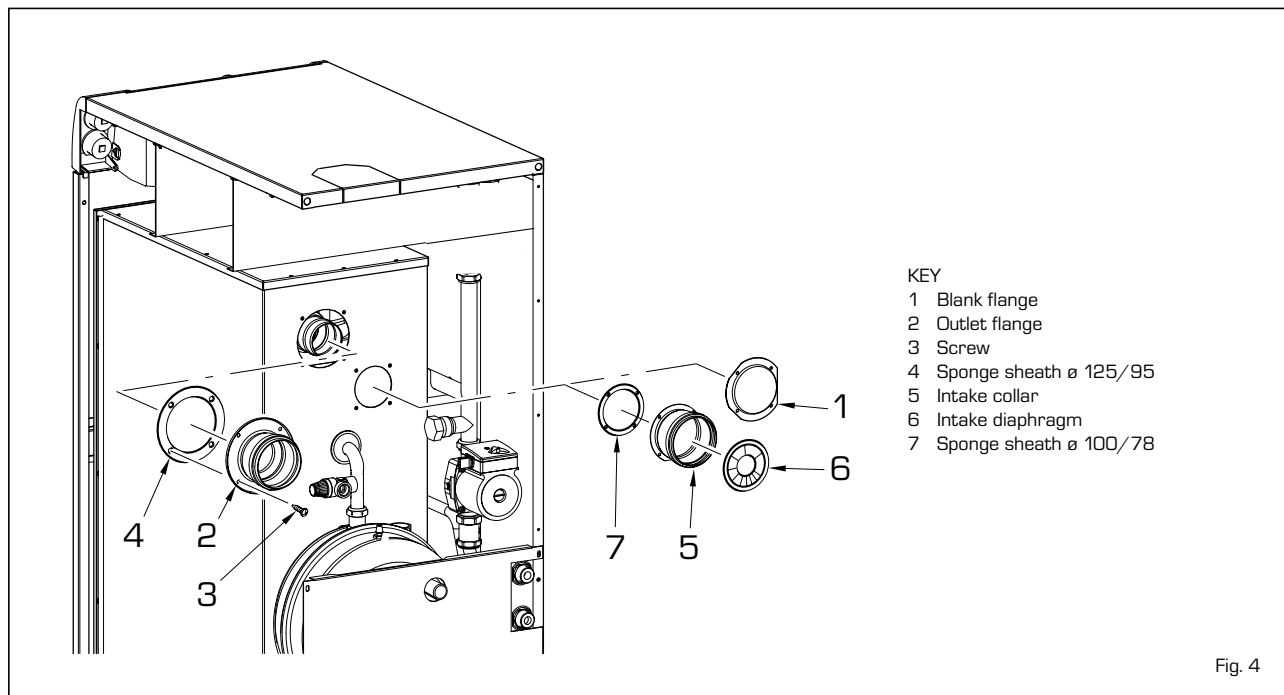


Fig. 4

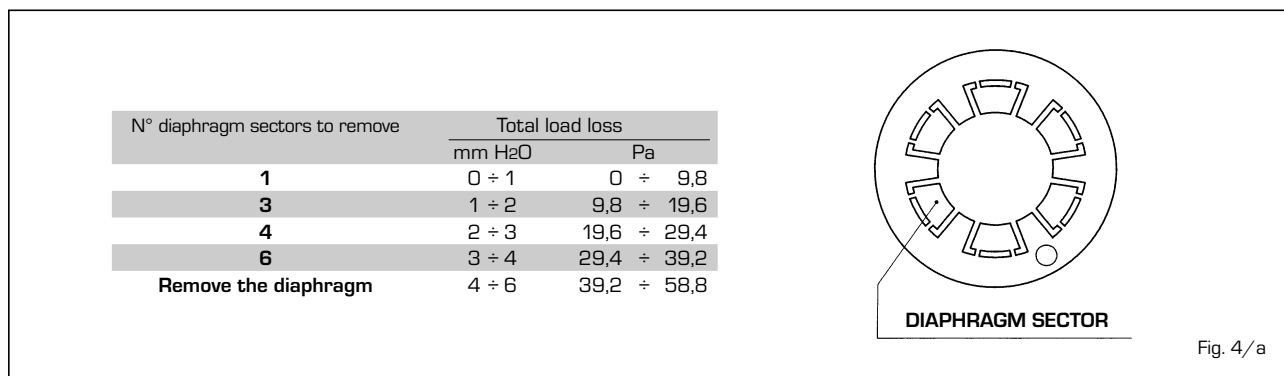


Fig. 4/a

**LIST OF ACCESSORIES THAT ALLOW THE CONFIGURATIONS INDICATED ARE SUPPLIED ON REQUEST:**

- Separate flue kit code 8089905
- 90° elbow MF code 8077404
- 90° insulated elbow MF code 8077408
- Extension L. 1000 code 8077303
- Insulated extension L. 1000 code 8077306
- Outlet terminal code 8089501
- Int.-est. ring kit code 8091500
- Inlet terminal code 8089500
- 45° elbow MF code 8077406
- Condensation outlet L. 135 code 8092800
- Doubler fitting code 8091400
- Tile with articulated joint code 8091300
- Roof outlet terminal L. 1390 code 8091201
- Tee condensation outlet code 8093300

**WARNING:**

The outlet and intake ducts of type C52 cannot be located on opposite walls.

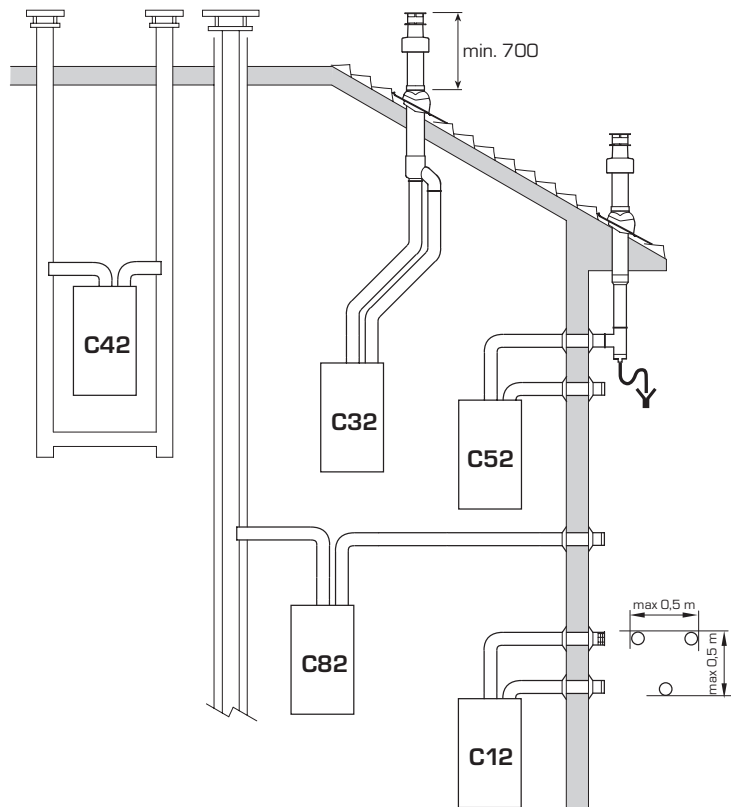


Fig. 5

**2.9 POSITIONING OF OUTLET TERMINALS**

systems may be located on the outer walls of the building.

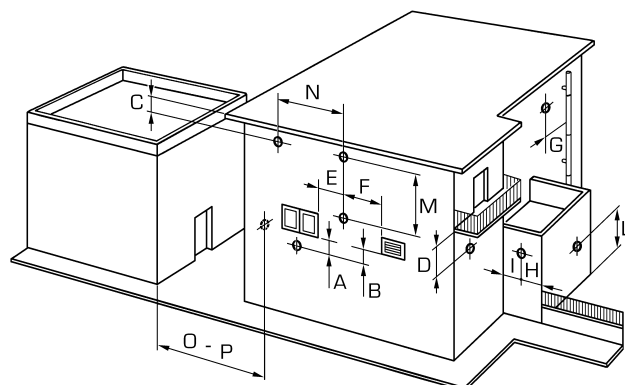
minimum distances to be met for a building of the type shown in fig. 6.

The outlet terminals for forced draught

Table 2 shows approximate, non-binding

**TABLE 2**

Siting of terminal	Appliances from 7 to 35 kW (distances in mm)
A - below openable window	600
B - below ventilation opening	600
C - below eaves	300
D - below balcony (1)	300
E - from adjacent window	400
F - from adjacent ventilation opening	600
G - from horizontal or vertical soil or drain pipes (2)	300
H - from corner of building	300
I - from recess in building	300
L - from ground level or other treadable surface	2500
M - between two terminals set vertically	1500
N - between two terminals set horizontally	1000
O - from a surface facing without openings or terminals	2000
P - as above but with openings and terminals	3000



- 1) Terminals below a practicable balcony must be located in such a way that the total path of the smoke from its outlet point from the terminal to its outlet point from the external perimeter of the balcony, including the height of possible railings, is not less than 2000 mm.(?)
- 2) When siting terminals, where materials that may be subject to the action of the combustion products are present in the vicinity, e.g., eaves, gutters and downspouts painted or made of plastic material, projecting timberwork, etc., distances of not less than 1500 mm must be adopted, unless adequate shielding is provided to guard these materials.

Fig. 6

## 2.10 ELECTRICAL WIRING

If you must replace the electric power cable supplied with the boiler, order it exclusively from Sime.

The power supply must be single-phase 230V - 50 Hz through a main switch protected by a fuse with a distance of at least 3 mm between contacts. Use only class II room thermostats in compliance with the EN 60730 regulations

**NOTE:** Device must be connected to an efficient earthing system. SIME cannot be held liable for damage to people or things that is due to non-earthing of the boiler. Always turn off the power supply before doing any work on the electrical panel.

### 2.10.1 Wiring diagram

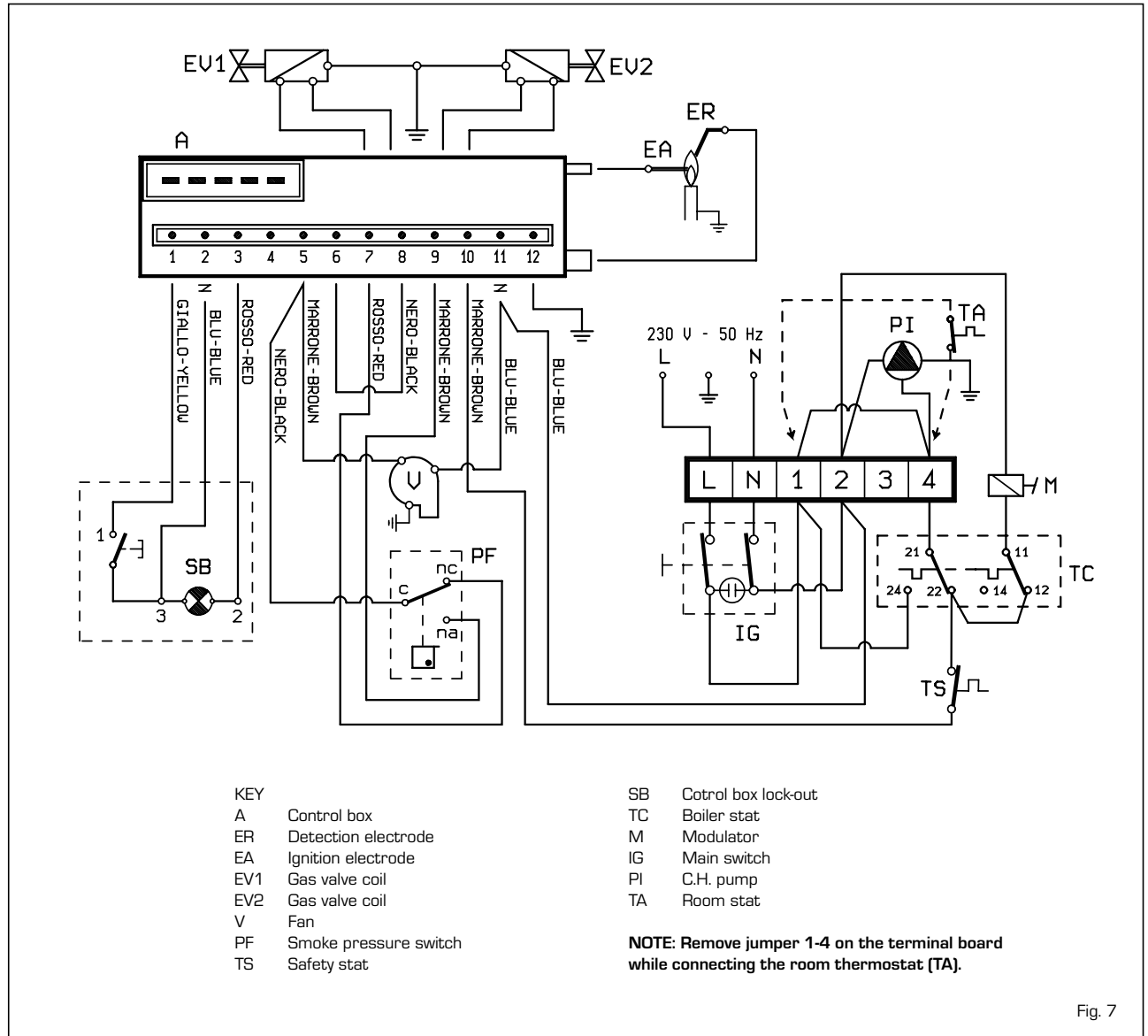


Fig. 7

## 3 CHARACTERISTICS

### 3.1 ELECTRONIC CONTROL BOX

The boiler is supplied with HONEYWELL S4565C electronic control box.

Ignition and flame detection is controlled by an electrode located on the burner; which guarantees maximum safety with intervention times, for accidental switching off or gas failure within one second (fig. 8).

#### 3.1.1 Operating cycle

Normally the burner takes 1 or 2 seconds to light. However; it is possible for ignition failures to occur; with consequent activation of signal indicating that the control box has "locked out".

##### - Gas failure

The control box runs through the cycle normally sending electric power to the ignition electrode. The electrode continues spark discharge for a maximum of 10 sec. If the burner does not ignite, the control box "locks out".

This may occur upon first ignition or after long periods of boiler lay-off when there is air in the pipes. It may be caused by the gas cock being closed or by one of the valve coils having a break in the winding, so that the valve cannot open.

##### - The ignition electrode does not emit the spark

In the boiler you can only see that gas is sent to the burner; after 10 seconds the appliance is stopped. This may be due to an electrode wire that is broken or that has not been properly fixed to the terminal of the equipment; or the transformer of the equipment may be burnt.

##### - No flame is detected

From the time of the starting you can observe the electrode continuous sparking even if the burner is on. After 10 seconds the sparking stops and so does the burner; while the lock-out lamp appears to be on.

It occurs if the phase and neutral position on the terminal board has not been observed. The detection electrode cable is disconnected or the electrode itself is earthed; the electrode is very worn-out and needs replacing.  
The control box is defective.

The sudden lack of voltage causes the immediate shutdown of the burner and when the voltage is restored the boiler will automatically restart.

#### 3.1.2 Operating cycle

During each start-up the programmer carries out self-checking which will not allow start-up in case of default or if a parasitic flame signal is detected. The programmer will not start even if the air pres-

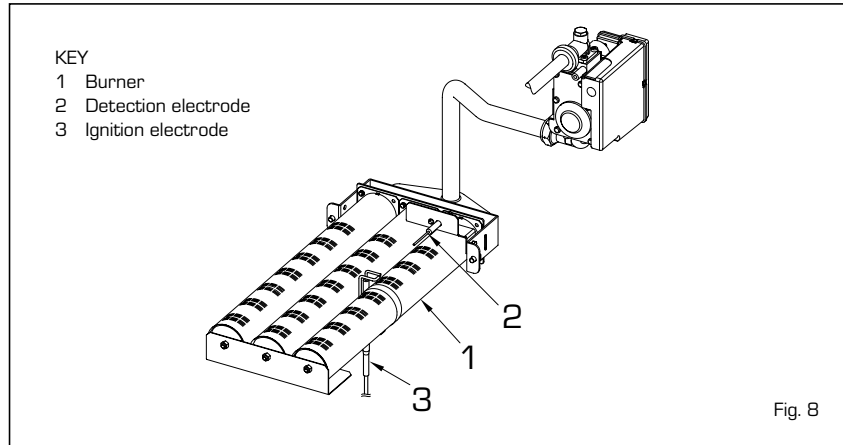


Fig. 8

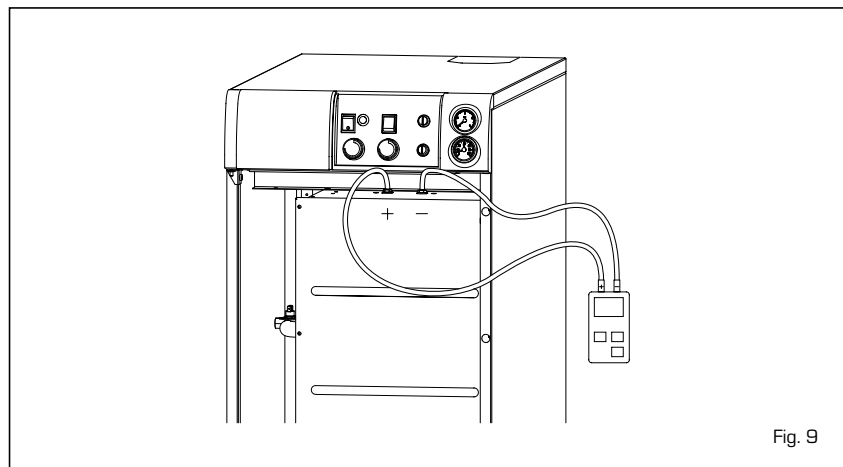


Fig. 9

sure switch is not on the no-ventilation position.

### 3.2 SMOKE PRESSURE SWITCH (fig. 9)

The pressure switch with fixed settings is able to guarantee the boiler operation even with air intake and smoke outlet pipes at the maximum limit of the length allowed. The signal value at the pressure switch is

measured by means of a differential pressure gauge that is connected to the positive and negative pressure intakes located on the hermetically sealed chamber.

### 3.3 HEAD AVAILABLE FOR THE SYSTEM

Residual head for the heating system is shown as a flow rate function in the graph in fig. 10.

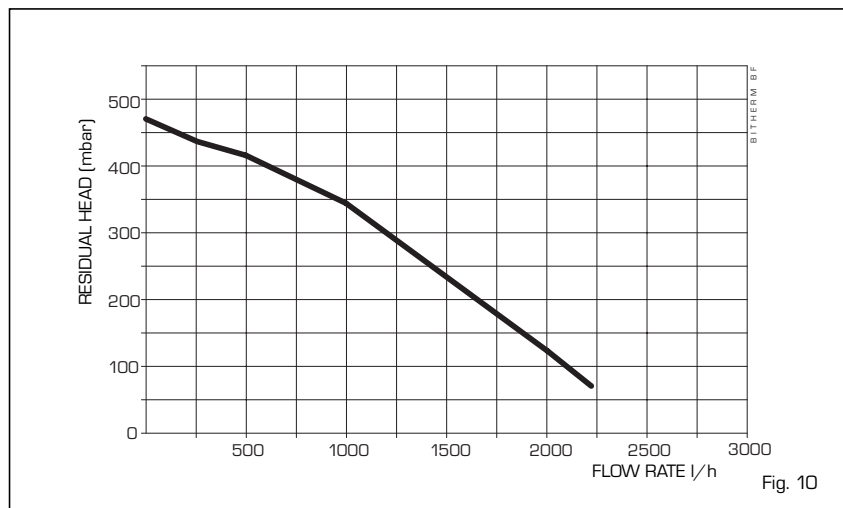


Fig. 10



## 4 USE AND MAINTENANCE

### 4.1 C.H. OUTPUT REGULATION

When the boiler is fuelled with natural gas (G20), it is possible to change the maximum pressure value according to the diagram shown in fig. 13 in order to adjust C.H. output to the thermal requirements of the system.

If the pressures need to be corrected follow the indications in section 4.3.1. In order to avoid the variation of the minimum pressure lock the adjusting screw (2 fig. 11/a).

### 4.2 GAS VALVE (fig. 11)

The boilers are equipped standard with the HONEYWELL VK 4105Q gas valve.

Gas pressure calibration is carried out by SIME on the production line and foresees the minimum C.H.output at 23,2 kW and the maximum C.H.output at 31,0 kW.

If the pressures are checked only at the burner, connect the pressure gauge as indicated in fig. 12. If corrections are required refer to section 4.3.1.

### 4.3 GAS CONVERSION

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

To convert from natural gas to LPG or vice versa, perform the following operations:

- Close the gas cock.
  - Replace the principal nozzles and the  $\varnothing$  10 aluminium washers included in kit (use a 12 wrench in order to carry out this operation).
  - **At start-up change the starting pressure (STEP) of the gas valve by positioning the index of the screw according to the type of gas, as mentioned in fig. 11.**
  - To set the values of maximum and minimum gas pressure, follow the instructions given in section 4.3.1.
- Seal the regulators after the operating pressure values have been changed.
- After have ultimated the conversion of the boiler, please stick onto the casing panel the plate showing the relevant feeding gas which is included into the kit.

**NOTE: When reassembling components which you have removed, replace gas seals; test all gas connections after assembly using soapy water or a product made specifically for the purpose, being sure not to use open flame.**

#### 4.3.1 Adjusting valve pressures

For maximum and minimum pressure calibration follow the procedure listed below (fig. 11/a):

- Connect the column or a manometer to the intake downstream of the gas valve (4 fig. 11).

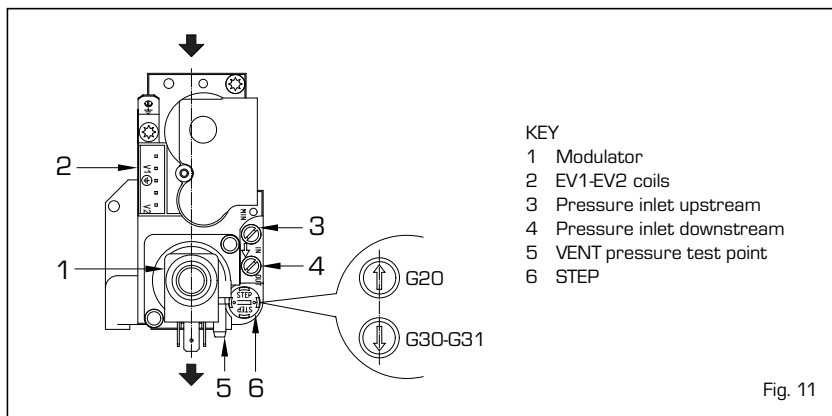


Fig. 11

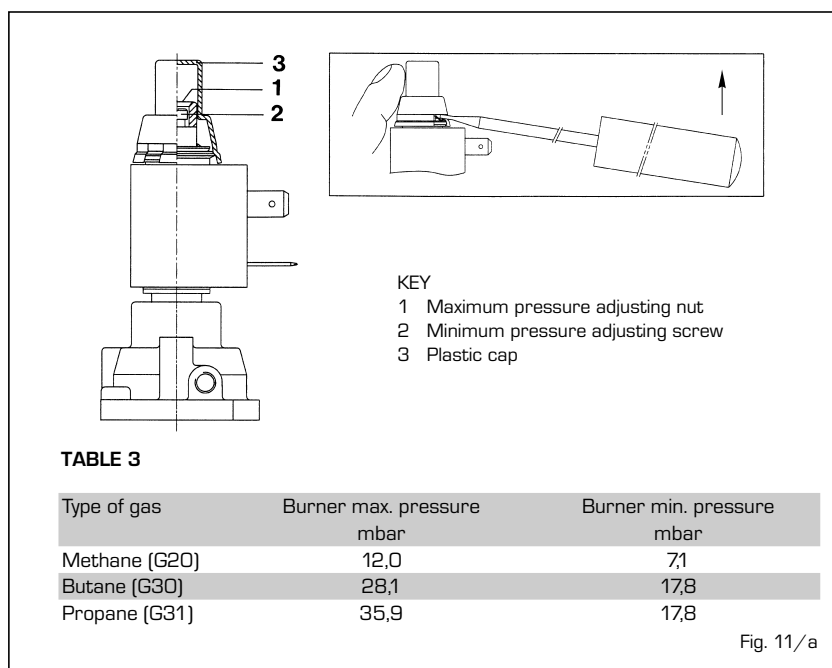


TABLE 3

Type of gas	Burner max. pressure mbar	Burner min. pressure mbar
Methane (G20)	12,0	7,1
Butane (G30)	28,1	17,8
Propane (G31)	35,9	17,8

Fig. 11/a

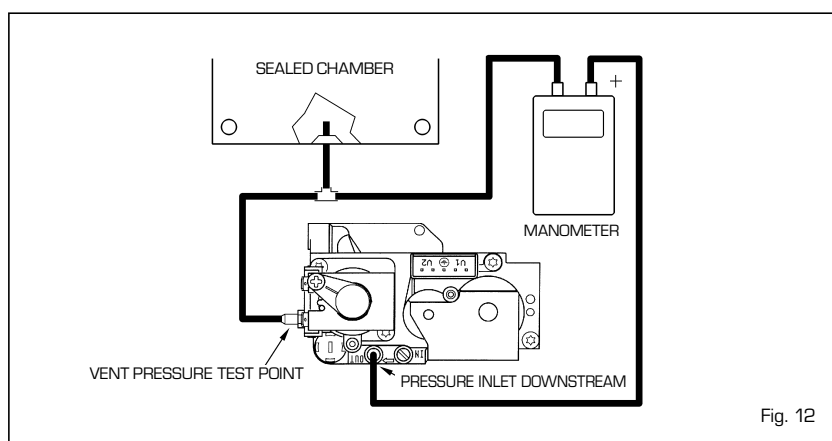


Fig. 12

- **Disconnect the valve VENT pressure test point tube (5 fig. 11).**
- Remove the cap (3) from the modulator.
- Place the boiler stat knob at the maximum position.
- Turn on the boiler.
- Remember that rotating clockwise will increase pressure while rotating anti-clockwise will diminish it.
- Check the gas inlet pressure at the relevant pressure test point (3 fig. 11) with the boiler running at the maximum output.
- Regulate the maximum pressure by turning the nut with a fixed wrench (1) searching for the maximum pressure **Table 3**, or, for the natural gas (G20), if

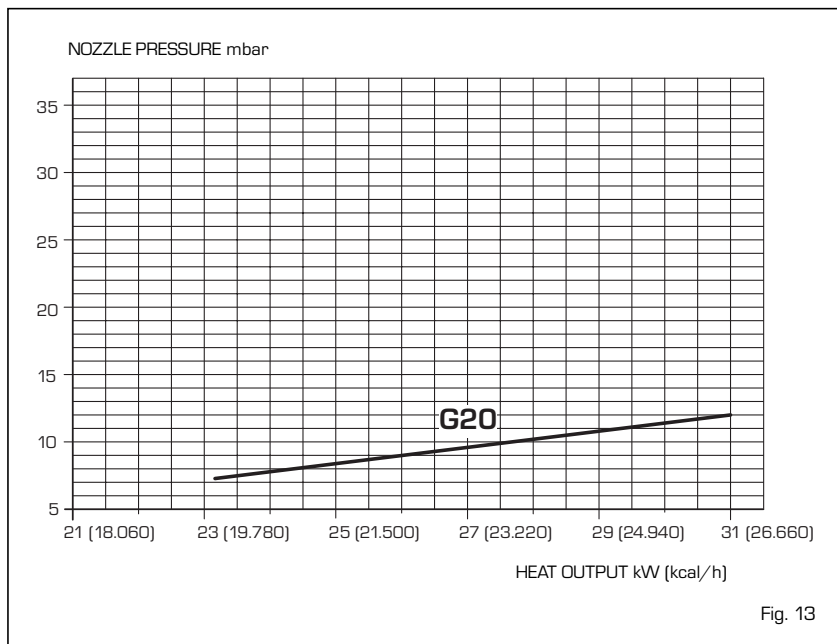


Fig. 13

you want to adjust the maximum capacity of the boiler to the requirements of the thermal system, search for the pressure as indicated on the diagram shown in fig. 13.

- If using LPG (G30/G31), the maximum pressure nut (1 fig. 11/a) must be screwed in almost as far as it will go to turn off gas valve regulation. Adjust the regulator upstream of the boiler to obtain the required supply pressure (point 1.3) and therefore maximum burner pressure.
- Regulate the minimum pressure only after having adjusted the maximum one.
- Turn off the supply power to the modulator.
- Turn the screw (2) in order to search for the minimum pressure indicated in **Table 3**.
- Turn the boiler on and off several times in order to check that the maximum and minimum pressure corresponds to the preset values; correct the regulations if required.
- Adjust, and make sure that you have restored the power to the modulator.
- Put the pipe back on the valve VENT pressure test point.
- Remove the manometer, remembering to tighten the screw for closing the pressure test point (4 fig. 11).
- Put the plastic cap (3) back on the modulator and seal with a drop of coloured sealant if necessary.

#### 4.4 CLEANING AND MAINTENANCE

Scheduled maintenance of the generator is carried out each year by qualified personnel. Follow the procedure listed below:

- Clean the gaps of the boiler casing by moving the relevant swab up and down inside the gaps.
- Clean the principal burner and wipe the

scale off from the electrodes.

- Check the combustion product discharge system.
- Check appliance start-up, shutdown and operation.
- After assembly, all the gas connections must be seal tested by using soapy water or any other suitable product, avoiding the use of open flames.

#### 4.5 FAULT FINDING

##### The principal burner does not start.

- Check if power is supplied to the gas valve enabling device; check its operation and replace it if required.
- Check flue gas pressure switch operation.
- The fan works but with less revolutions and therefore it does not enable the flue gas pressure switch, replace it.

##### The principal burner does not burn properly: flame too high, yellow flame.

- Make sure that the gas pressure of the burner is regular.
- Make sure that the burners are clean.

##### The boiler works at the maximum C.H. output.

- Check the calibration value of the heating pressure.
- Make sure that the coil assembled on the valve is not interrupted, replace it if required.

##### The radiators heat up even during the summer.

- Check that the check valve seat is free from impurities.
- Replace the check valve if faulty.
- Assemble a check valve on the system return pipes.

##### The radiators do not heat up during the

##### winter.

- The room stat has been regulated too low or is faulty and needs to be replaced.
- The electrical connections of the room stat have not been carried out properly.
- The circulation pump of the system is stopped, release it.

##### The safety valve of the boiler intervenes too often.

- Check that the cold system is not filled up too high, refer to the recommended values.
- Check the system valve if it is not-calibrated replace it.
- Check the expansion vessel pre-inflating pressure.
- Replace the expansion vessel if needed.

##### The boiler works but the temperature does not rise.

- Check that gas consumption is not less than the one foreseen.
- Make sure that the boiler is clean.
- Make sure that the capacity of the boiler is suitable for the system.

##### The fan works but the burner does not start.

- Check and if needed remove impurities and condensate from the connection pipes of the flue gas pressure switch.
- Needs to be calibrated again or even it will be even better to replace the flue gas pressure switch with a new one that has been calibrated in the factory.

##### The fan does not start.

- Check if the starting motor terminals are live.
- The electrical winding of the starting motor is burnt and needs to be replaced.

# USER'S INSTRUCTIONS

## WARNING

- Turn off the appliance when default and/or improper operation occurs, do not try to repair it on your own. Contact the local Authorised Customer Service.
- Installation of the boiler or any other service or maintenance operation must be carried out only by qualified personnel. It is absolutely forbidden to tamper the device that has been sealed by the manufacturer.
- This appliance must not be used by children or unskilled persons. Do not touch the door of the combustion chamber and the glass of the inspection hole because they may be very hot.
- The manufacturer cannot be held liable for damages due to non-intended use of the appliance.

## LIGHTING AND OPERATION

### HOW TO START THE BOILER (fig. 14)

Open the gas cock and push the main switch (1).

### HOW TO REGULATE THE HEATING TEMPERATURE (fig. 14)

Regulate the heating temperature with the thermostat (9) between 45 and 85°C. The set value can be checked on the thermometer (6).

We suggest to keep the temperature above

the minimum 60°C temperature in order to guarantee best generator performance.

### HOW TO UNLOCK THE CONTROL BOX (fig. 14)

The red warning signal on the unlock pushbutton will light up if the burner should not turn on (2). Press the unlock pushbutton so that the boiler will automatically start operating again. **This operation cannot be repeated for more than 2-3 times, if the trouble continues it will be necessary to get in touch with the Authorised Customer Service.**

### HOW TO SHUTDOWN THE BOILER (fig. 14)

To shutdown the boiler place the main switch (1) to OFF.

**If the boiler will not be used for a long period of time we recommend to unplug the appliance, close the gas cock, the low temperatures if provided and empty the hydraulic system in order to avoid damages to the pipes if the water should freeze**

### HOW TO FILL UP THE SYSTEM (fig. 14)

Check the hidrometer regularly (5) in order to see that the pressure values range between 1-1,2 bar. Reset the pressure if it is lower than 1 bar. When the operation is over, close the fill up cock.

### GAS CONVERSION

If the gas that is to be used is different than the one that the boiler has been prearranged for, contact a technician authorised by SIME to carry out conversion.

### CLEANING AND MAINTENANCE

Cleaning and checking of the boiler is mandatory at the end of the winter.

**Maintenance and checking of the appliance and of the safety systems must be carried out only by an authorised technician and it is to be requested between April-September. The boiler is supplied with an electrical supply wire that is to be replaced only with the ones that are sold by Sime.**

