INSTALLER'S INSTRUCTIONS

ENGLISH

CONTENTS

IMPORTANT

It is advisable to check the following before turning on the boiler for the first time:

- Check that there are no liquids or flammable materials in the immediate vicinity of the boiler.
- Check that electrical connections have been made correctly and that the ground wire is connected to a proper grounding system.
- Open the gas cock and check the seal on connections, including the burner connection.
- Check that the boiler is set up to run on the type of gas available.
- Check that the flue through which the products of combustion are eliminated is free.
- Check that gate valves are open, if there are any.
- Check that the heating system has been filled with water and air has been bled out of it.
- Turn on the circulation pump, unless it is commanded by an automatic system.
- Bleed air out of the gas pipe using the pressure intake bleed valve located on the gas valve inlet.
- Check that none of the regulation, control and safety devices have been tampered with.

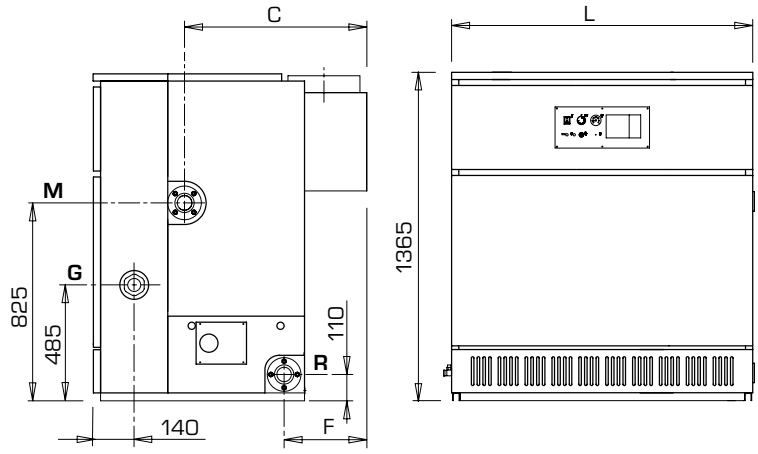
NOTE: When turning the generator back on, or if the boiler has not been used for some time, it is advisable to bleed gas pipes for air. If this is not done, burner ignition may be delayed, possibly causing the boiler to shut down. Wait at least 20 seconds from the time the indicator light comes on before releasing it.
If there is no voltage, the burner will shut down immediately. When the voltage is restored, the boiler will start functioning again automatically. If gas pressure is insufficient, the device will shut down immediately, and the signal for shutting down the equipment and the red gas pressure indicator light will come on.
If this occurs, the boiler cannot be started up using the device's release button, for safety reasons. The boiler will be ignited automatically when the pressure returns to the minimum pressure setting on the gas pressure switch (10 mbar).

1 DESCRIPTION OF THE BOILER

1.1 INTRODUCTION

"RS Mk.II" boilers are hot water generators for mid to high power heating systems. They consist of 7 to 14 cast iron elements grouped in sets covering the thermal power produced by 129,0 kW to 279.1 kW.
They are designed and built in accordance with European directives 90/396/CEE, 89/336/CEE, 73/23/CEE, and 92/42/CEE and European standard EN 656. They can run on natural gas (methane), butane (G30) or propane (G31).
Follow the instructions provided in this manual to ensure correct installation and perfect functioning of the boiler.

1.2 DIMENSIONS



		129	151	172	194	215	237	258	279
L	mm	810	920	1030	1145	1255	1370	1480	1580
P	mm	1110	1110	1110	1140	1140	1190	1190	1190
C	mm	730	730	730	760	760	810	810	810
F	mm	315	315	315	345	345	395	395	395
D	ø mm	250	250	250	300	300	350	350	350

R Return from heating system 2"
M Delivery to heating system 2"
G Gas $1^1/_2$"
S Boiler drain 3/4"

Fig. 1

1.3 TECHNICAL DATA

		129	151	172	194	215	237	258	279
Thermal power	kW	129,0	150,6	172,2	193,7	215,2	236,5	257,8	279,1
Thermal capacity	kW	145,9	170,0	194,2	218,2	242,1	266,0	290,0	313,6
Electric power absorbed	W	50	50	80	80	80	80	80	80
Degree of electrical insulation		IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Heating elements	n°	7	8	9	10	11	12	13	14
Water content	l	67,5	77,0	86,5	96,0	105,5	115,0	124,5	134,0
Max. operating pressure	bar	5	5	5	5	5	5	5	5
Category		II2H3+	II2H3+	II2H3+	II2H3+	II2H3+	II2H3+	II2H3+	II2H3+
Type		B11	B11	B11	B11	B11	B11	B11	B11
Maximum temperature	°C	95	95	95	95	95	95	95	95
Main nozzles									
Quantity	n°	6	7	8	9	10	11	12	13
Methane gas	ø mm	4,30	4,30	4,30	4,30	4,30	4,30	4,30	4,30
G30 - G31	ø mm	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
Gas rate of flow									
Methane gas	m^3/h	15,44	17,99	20,55	23,10	25,63	28,16	30,70	33,20
Butane (G30)	kg/h	11,50	13,41	15,32	17,21	19,10	20,98	22,88	24,74
Propane (G31)	kg/h	11,32	13,19	15,07	16,93	18,79	20,64	22,50	24,34
Gas pressure at burners									
Methane gas	mbar	9,7	9,7	9,7	9,7	9,7	9,7	9,7	9,7
Butane (G30)	mbar	28	28	28	28	28	28	28	28
Propane (G31)	mbar	35	35	35	35	35	35	35	35
Gas supply pressure									
Methane	mbar	20	20	20	20	20	20	20	20
Butane (G30)	mbar	30	30	30	30	30	30	30	30
Propane (G31)	mbar	37	37	37	37	37	37	37	37
Weight	kg	542	612	682	757	829	904	974	1044

1.4 SHIPPING

"RS Mk.II" thermal units are supplied in three separate packs:

PACK N. 1
Cast iron body strapped onto pallet, complete with:
- n° 2 flanges with 2" collar for heating system delivery and return
- n° 1 blind flange
- n° 1 flange with 3/4" connection for drain cock
- n° 2 combustion chamber doors with cast iron indicator door
- n° 2 sheaths for thermostats and thermometer
- n° 1 water distributor located in the boiler return manifold, supplied in two different lengths:
  L = 406 mm vers. **"129÷194"**
  L = 851 mm vers. **"215÷279"**.

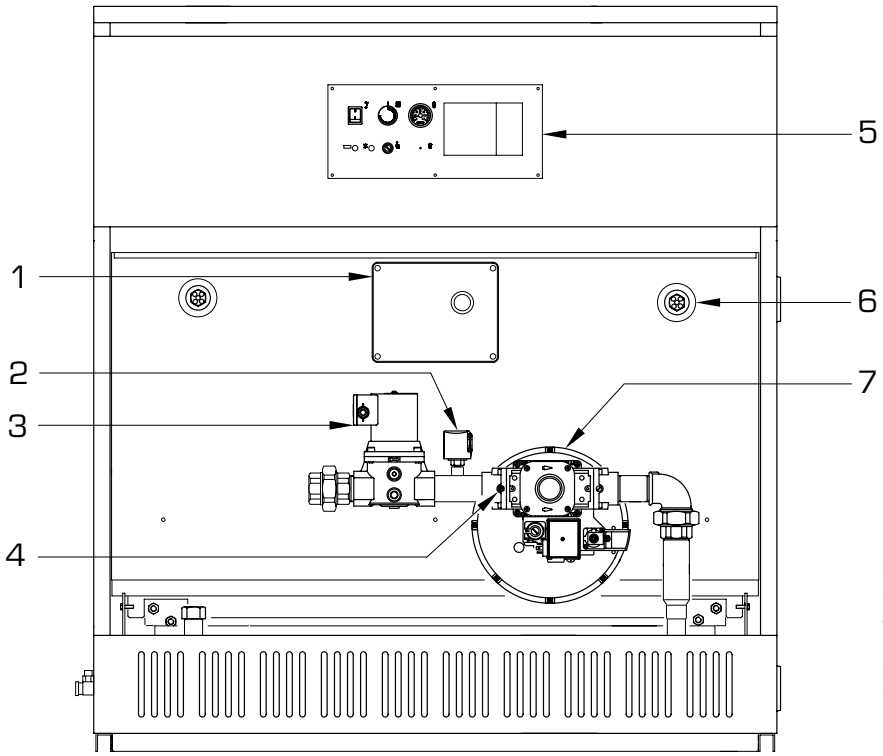
PACK N. 2
Wooden crate containing:
- flue gas chamber to be assembled
- cardboard box containing skirt
- main burners, one for each element in the body minus one
- burner manifold
- plastic bag containing:
  - n° 13 tornillos M5 x 8 screws for anchoring burners to manifold
  - n° 32 self-tapping 12E x 1/2" screws for fastening various parts of the flue gas chamber and skirt
  - n° 4 M8x30 screws with plate, flat washer and M8 nut for anchoring flue gas chamber to boiler body
  - n° 1 3/4" drain cock with cap.

PAQUETE n° 3
Cardboard box containing:
- Gas assembly, comprising:
  - main gas valve with coil unit
  - gas pressure switch
  - pressure intake
  - second gas solenoid valve

- Electric control panel, consisting of:
  - BRAHMA SM 191.1 control device
  - interference filter
  - ignition and detection electrodes
  - sockets for connection with control panel
  - anchoring screws

- Control panel consisting of:
  - two-step control thermostat
  - manually reset safety thermostat
  - thermometer
  - gas pressure indicator light
  - device shutdown indicator light
  - illuminated main switch
  - anchoring screws.

1.5 FRONT INSIDE VIEW



KEY
1 Electrical control panel
2 Gas pressure switch
3 Second gas solenoid valve
4 Pressure intake
5 Control panel
6 Bulb housing sheath
7 Gas valve

Fig. 2

2 INSTALLATION

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 BOILER ROOM AND VENTILATION

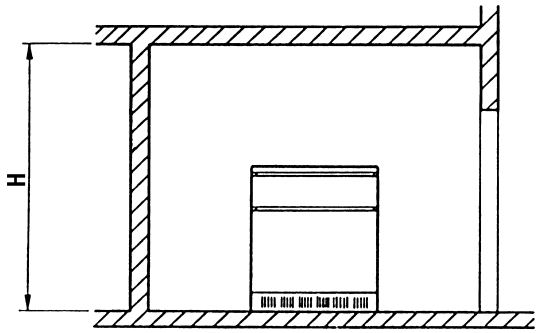
The **"RS Mk.II"** boilers with a rating of more than 35 kW must be equipped with a technical room whose dimensions and requirements correspond to the current safety standards. The minimum height of the boiler room must comply with what is indicated in fig. 3 in relation to the overall thermal capacity. The minimum distance between the walls of the room and the outer points on the boiler (right and left sides and rear) must be no less than 0.60 m. It is possible to place a number of apparatus next to each other, on condition that all the safety and control devices can be easily reached. In addition, to circulate air in the room, air vents must be made on the outside walls for which the surface area must never be less than 3,000 cm^2 and 5,000 cm^2 for gas with a density greater than 0.8. The distance between the boiler and any fuels stored in the area must be sufficient to prevent the fuels from reaching a hazardous temperature, and in no case less than 4 metres.

2.2 CONNECTION WITH HEATING SYSTEM

Connections with the heating system should be easy to disconnect, made with rotating pipe unions. It is always advisable to assemble suitable gate valves on the heating system delivery and return pipes.

WARNING: In order to ensure proper distribution of water in the cast iron body, the heating system delivery and return pipes must be connected to the same side of the boiler. The boiler is supplied with connections on the right side, though they may be moved to the left side by moving the flanges and their collars and the corresponding water distributor.

It is advisable to ensure that the temperature difference between the heating system delivery and return pipes does not exceed 20°C; installation of a mixer valve with an anti-condensation pump is advisable for this purpose.



H on the basis of total thermal capacity:
- no more than 116 kW: 2.00 m
- from 116 to 350 kW: 2.30 m
- from 350 to 580 kW: 2.60 m

Fig. 3

WARNING: The heating system's circulation pump(s) must be turned on when the boiler is on. An automatic precedence system is recommended for this purpose.

The gas connection must be made with seamless galvanised steel pipes (such as Mannesmann pipes), with threaded, sealed joints, excluding three-piece unions except for the start and end connections.
Pipes must pass through walls in a sealed sheath. In determining the size of the gas pipe from the meter to the boiler, take into account both rate of flow in volume (consumption) in m3/c and the density of the gas in question. The section of pipes in the heating system must be sufficient to ensure that the gas supply fulfils maximum demand, limiting pressure drop from the meter to any utility to no more than:
- 1,0 mbar in the case of gases in the second family (methane gas)
- 2,0 mbar in the case of gases in the third family (G30-G31).

On the inside of the skirt is an adhesive plate bearing technical data identifying the boiler and the type of gas which it is set up to burn.

2.2.1 Filter on gas pipe

To prevent poor valve functioning or, in some cases, exclusion of the safety devices provided, assemble an adequate filter on the gas pipe inlet.

2.3 CHARACTERISTICS OF WATER SUPPLY

TREATMENT OF WATER USED IN THE HEATING SYSTEM IS ABSOLUTELY INDISPENSABLE UNDER THE FOLLOWING CONDITIONS:
- Very large heating systems (with large water content)
- Frequent topping up of water in the system
- When the system must be partially or totally emptied.

2.4 FILLING THE HEATING SYSTEM

It is a good idea to circulate water in the pipes before connecting up the boiler in order to eliminate any foreign matter which could affect boiler functioning. Fill the heating system slowly to permit air bubbles to come out through the outlets on the heating system. The pressure at which the heating system is filled with cold water and the pre-inflation pressure of the expansion tank must correspond to, and in no case be less than, the height of the static column on the heating system (for example, in the case of a static column of 5 metres, tank pre-filling pressure and filling pressure must at least correspond to a minimum of 0.5 bar).

2.5 FLUE

The flue for evacuation of the products of combustion of natural draught boilers into the atmosphere must meet the following requirements:

– sealed against products of combustion, waterproof and heat insulated;
– made of materials which can resist normal mechanical stress, heat and the action of products of combustion and condensation produced by them over time;
– vertically oriented and free of choking throughout its length;
– adequately insulated to prevent condensation or cooling of flue gases, especially if located outside the building or in unheated premises;
– separated from combustible or highly flammable materials by an air space or appropriate insulation;
– provided with a chamber at least 500 mm high for collection of solid materials and condensation underneath the entrance to the first channel.
This chamber must be accessible through an opening with a metal door which does not let air in;
– circular, square or rectangular internal section; if square or rectangular, corners must be rounded off with a radium of no less than 20 mm; hydraulically equivalent sections are also permitted;
– fitted with a chimneypot at its top, the outlet of which must be outside of the so-called reflux area to prevent formation of counter-pressure preventing the products of combustion from being freely released into the atmosphere.
The minimum heights shown in fig. 4 must be complied with;
– without mechanical intake devices at the top of the flue;
– if the flue passes through or adjacent to inhabited rooms, there must be no over-pressure.

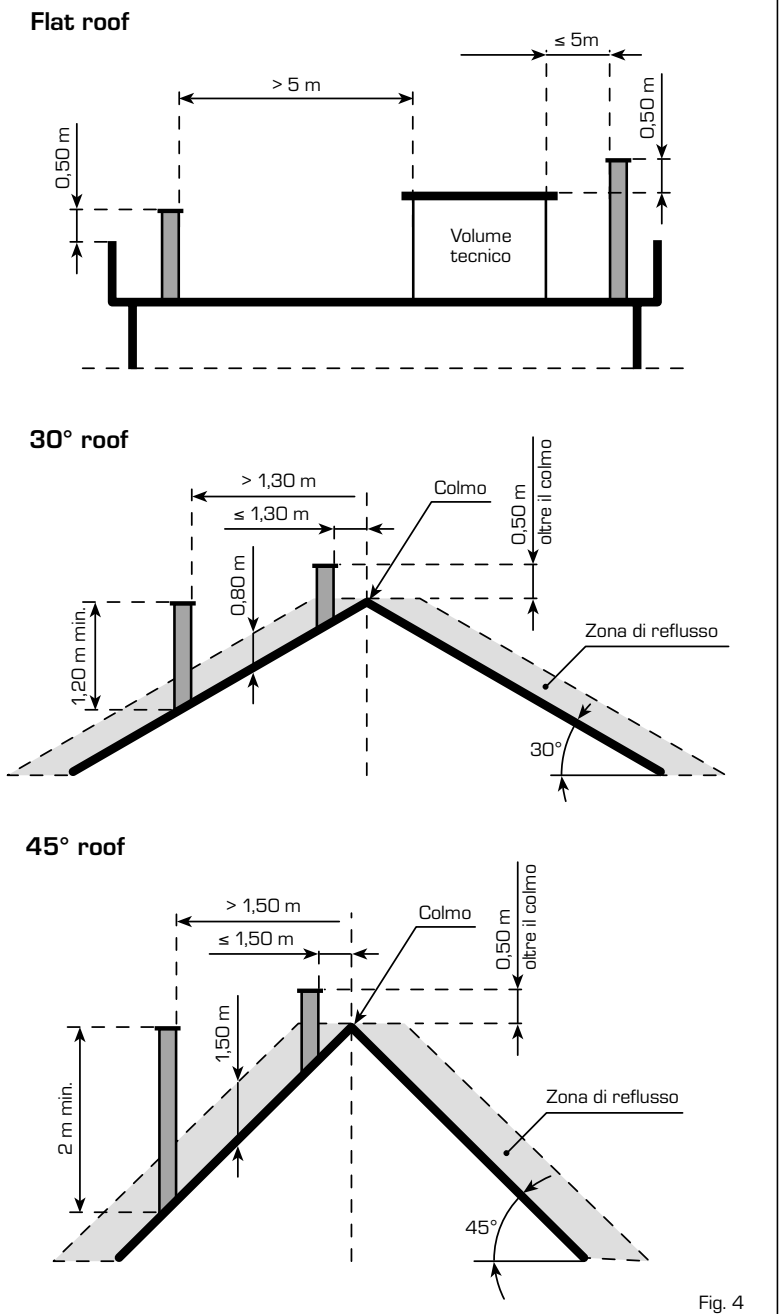


Fig. 4

TABLE 1

	Thermal capacity kW	Flue gas temperature °C	Flue gas rate of flow gr/s
RS 129 Mk.II	145,9	154	109,4
RS 151 Mk.II	170,0	170	111,7
RS 172 Mk.II	194,2	173	118,6
RS 194 Mk.II	218,2	153	160,8
RS 215 Mk.II	242,1	160	164,2
RS 237 Mk.II	266,0	143	206,9
RS 258 Mk.II	290,0	148	213,6
RS 279 Mk.II	313,6	154	212,5

2.5.1 Flue size

The correct sizing of the flue is an essential condition for efficient boiler operation.
The main factors to be taken into consideration for calculating the section are the heat input of the boiler, the type of fuel, the percentage of CO_2, the mass flow of smoke at nominal load, the temperature of the smoke, the roughness of the internal wall, and the effect of gravity on the draught pressure, which must take into account the external temperature and the altitude.
Table 1 shows specific parameters pertaining to **"RS Mk.II"** boilers.

2.6 BOILER BODY

The cast iron body is supplied ready assembled; if it cannot enter the boiler room assembled, it may be supplied dismantled.
Follow the instructions below to assemble the body:

- Prepare components by cleaning the housings of the conical nipples with thinner.
- Introduce the plaster seam into the groove provided for the flue gas seal, pressing gently (fig. 5).
- Prepare one of the two intermediate heating elements with a 1/2" perforated stud, lubricating the conical nipples with boiled linseed oil before introducing them (fig. 5/a).
- Prepare the head, following the same procedure, and bring it into position adjacent to the intermediate element. Add only one element at a time.
- Assemble the heating elements using the pair of tie rods supplied assembled with their accessories, code 6050900 (fig. 6), exerting pressure on the upper hub and on the lower hub simultaneously. In the event that the elements should not move forward in parallel during this operation, introduce the chisel into the tighter part and force the two parts to be joined into parallel. The two elements are properly joined when their outer edges come into contact.
- Introduce the plaster seam into the groove in the element just mounted and proceed to join the other elements until the body is complete.

NOTE: Before making the connection with the heating system, test the cast iron body at a pressure of 7.5 bar.

2.7 ASSEMBLING THE FLUE GAS CHAMBER

The flue gas chamber is supplied in four pieces to be joined with screws supplied (fig. 7). It is assembled by anchoring the right side panel (2) to the upper panel (1) with nine self-tapping TE 12E x 1/2" screws.
The same operation must be performed on the left side panel (3). Lastly, anchor the cleaning panel in place (4). When assembly is complete, position the flue gas chamber above the cast iron body. Anchor the flue gas chamber to the body using the four plates and the four TE M8 x 30 screws supplied (fig. 7/a).

2.8 ASSEMBLING THE WATER DISTRIBUTOR

The water distributor on the return line coming in from the heating system is located on the right side of

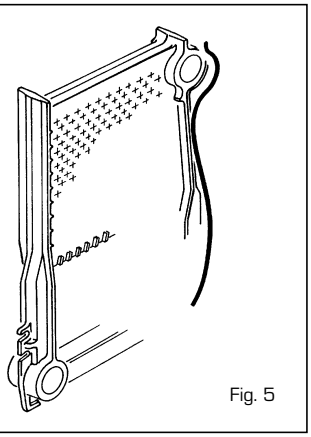


Fig. 5

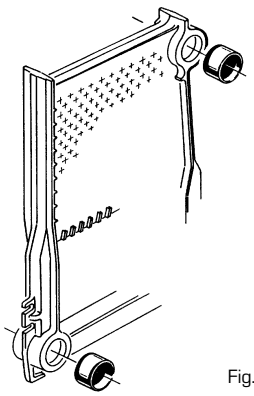
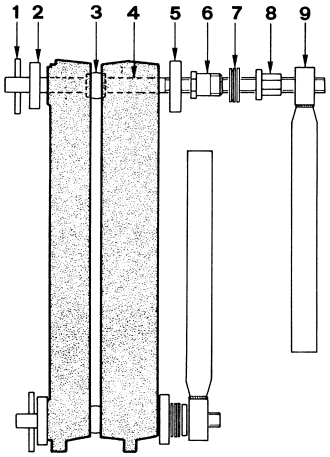


Fig. 5/a



KEY
1 Plug
2 Flange ø 35/87
3 Two-way cone
4 Tie rod L. 900 + tie rod L. 980
5 Flange ø 50/87
6 Pipe segment
7 Thrust bearing
8 Nut
9 Tightening key

Fig. 6

KEY
1 Upper panel
2 Right side panel
3 Left side panel
4 Cleaning panel

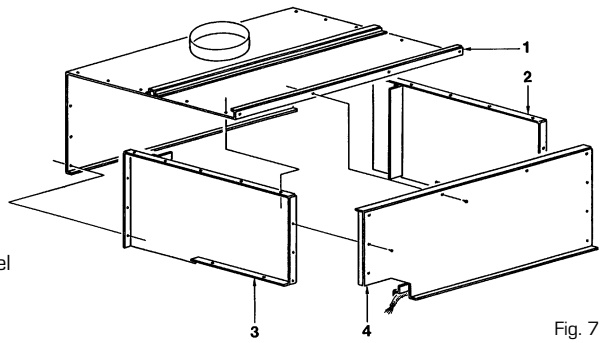
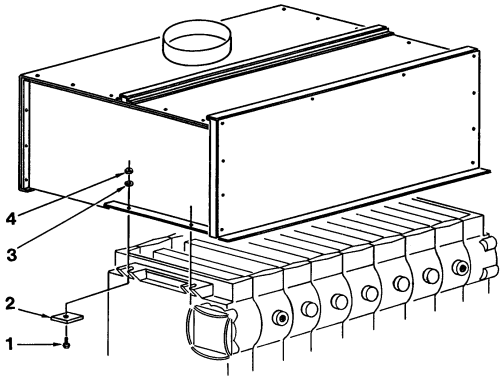


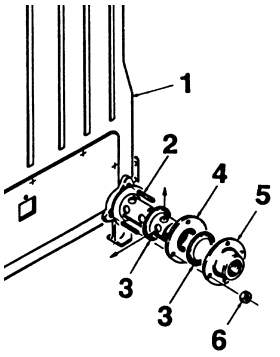
Fig. 7



KEY
1 TE M8 x 30 screw
2 Plate
3 Washer ø 8,4
4 Nut M8

Fig. 7/a

the generator. If it is necessary to move it to the left side, check that the two rows of holes in the distributor are directed upwards and toward the front of the boiler (fig. 8).

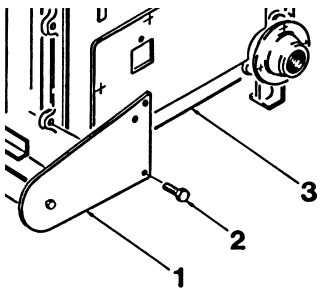


KEY
1 Boiler body
2 M12 x 60 stud bolt
3 Seal ø 65/95 x 2
4 Distributor pipe
5 DN50 2" collar flange
6 Nut M12

Fig. 8

2.9 ASSEMBLING THE BURNER MANIFOLD

To assemble the burner manifold, screw in the four TE M8 x 16 screws on the threaded nibs of the two heads of the boiler body (fig. 9).



KEY
1 Burner manifold
2 TE M8 x 16 screws
3 Right head

Fig. 9

2.10 ASSEMBLING THE BURNERS

Once the burner manifold has been assembled, insert the burners in the combustion chamber one at a time, ensuring that the slits in the burner are turned upward.
Push so that the burner support goes into the hole in the cast iron wall and divides the elements (fig. 10). Anchor the burner to the manifold with a TCB M5 x 8 screw.

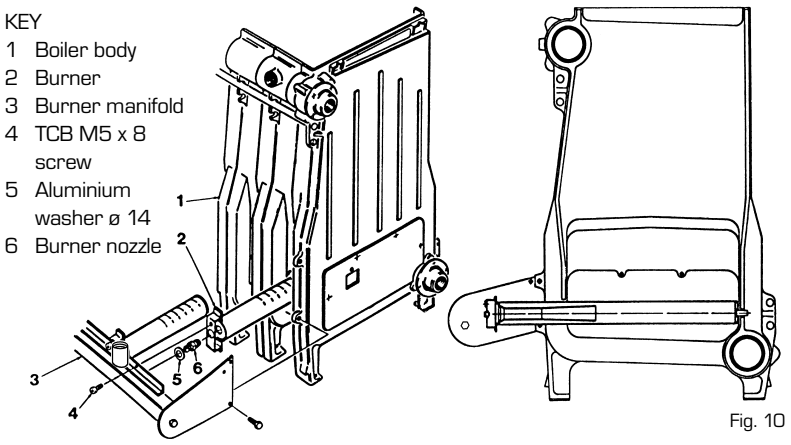
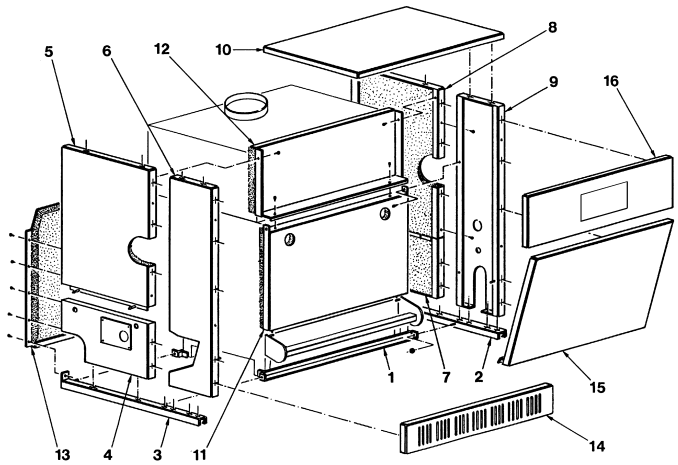


Fig. 10

2.11 ASSEMBLING THE SKIRT

Proceed as follows to assemble the skirt (fig. 11):
- Position the front and back supports of the skirt base (1) between the feet on the two heads.
- Anchor the side supports (2) and (3) to the front and back of the skirt base (1) with the M6 nuts supplied.
- Anchor panel (4) to panel (5) and panel (7) to panel (8) using the connecting pins.
- and panels (7-8) to panel (9) using connecting pins, anchoring them together with two 7SP x 1/2" self-tapping screws.
- Assemble panels (4) and (6) on the base (3) , anchoring them on connecting pins. Proceed in the same way to anchor panels (7) and (9) to the base (2).



KEY
1 Front and rear skirt base support
2 Right skirt base support
3 Left skirt base support
4 Lower left side rear panel
5 Upper right side rear panel
6 Front left side panel
7 Rear lower right side panel
8 Rear upper right side panel
9 Front right side panel
10 Cover
11 Lower front wall
12 Upper front wall (cleaning plate)
13 Rear wall
14 Baseboard
15 Door
16 Upper front panel

NOTE: The position of rings (6) and (9) may be inverted, though the ring with the slit must always be positioned on the side where the gas assembly exits.

Fig. 11

– Position the lower front wall (11) by fitting it in between the screws on the burner manifold support brackets and the cast iron body; anchor the walls to panels (6) and (9) with two 7SP x 1/2" self-tapping screws.
– Position the upper front wall (12) by anchoring it to panels (5-8) and to wall (11) using four 7SP x 1/2" self-tapping screws.
– Anchor the rear wall (13) to panels (4-5) and (7-8) using the eight 7SP x 1/2" self-tapping screws supplied.
– Assemble the baseboard (14), anchoring it to panels (6) and (9) using connecting pins.
– Proceed in the same way to anchor the upper front panel (16) in place.
– Assemble the cover (10) and the door (15).

2.12 ASSEMBLING THE GAS ASSEMBLY

Connect the gas assembly to the burner manifold as shown in fig. 12. The gas assembly may be assembled on the right or left side of the manifold.

WARNING: in case of the gas assembly is mounted on the left side of the manifold, remove and rotate the gas valve of 180° to get access frontally at the regulations.

2.13 ASSEMBLING THE CONTROL PANEL (fig. 12/a)

Remove the control panel's protective cover and insert the wiring guard on the front upper panel, anchoring it in place with the screws provided. Replace the cover. Proceed to assemble the instrument panel, anchoring it in place with the screws provided. Insert the instrument bulbs in their sheaths: first insert the control thermostat bulb, pushing it in until it touches the bottom of the sheath.

WARNING: To ensure correct temperature control in the boiler, the bulbs of the control and safety devices must be inserted in the sheath from the side corresponding to the heating system delivery and return connections. If the heating system delivery and return connections are on the left side of the generator, the gas assembly must also be assembled on the left side to permit this arrangement.

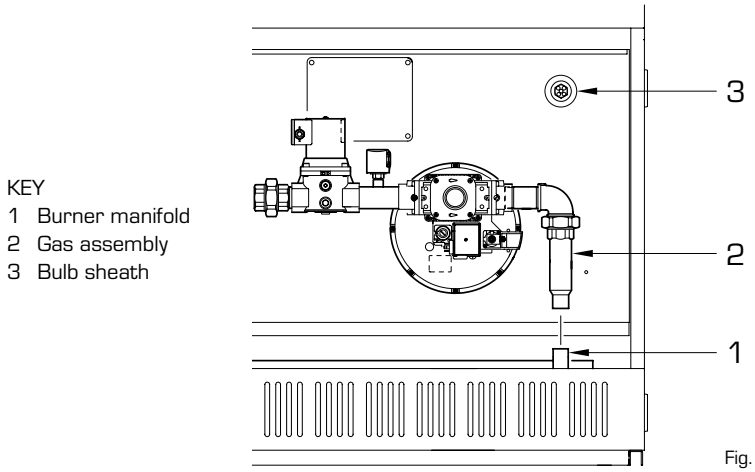
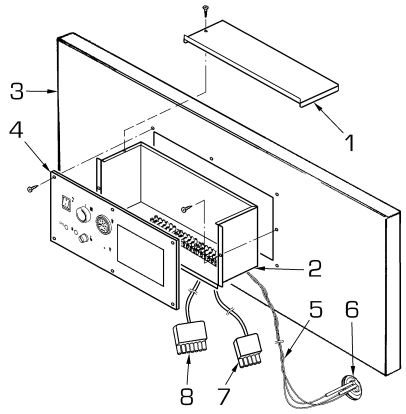
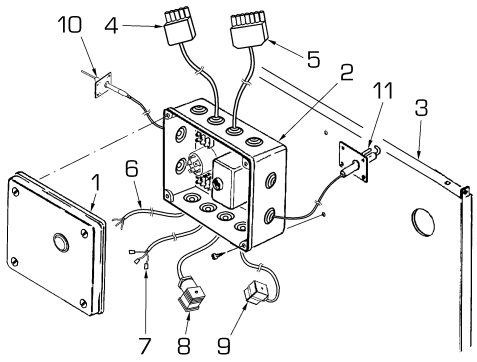


Fig. 12



KEY
1 Protective cover
2 Wiring guard
3 Front upper panel
4 Instrument panel
5 Instrument bulbs
6 Sheath
7 5 pole plug
8 7 pole plug

Fig. 12/a

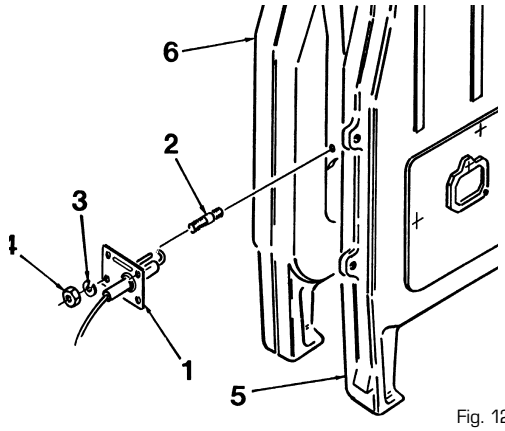


KEY
1 Cover
2 Electrical panel
3 Lower front panel
4 5 pole plug
5 7 pole plug
6 Second gas solenoid valve cable
7 Gas pressure switch cable
8 Gas valve cable
9 Coil cable
10 Detection electrode
11 Ignition electrode

Fig. 12/b

2.14 ASSEMBLING THE ELECTRICAL PANEL (fig. 12/b)

Remove the cover of the electrical panel and anchor the control panel to the lower front wall using the screws provided. Connect the two sockets to the plugs from the control panel. Complete the electrical panel by hooking up the gas valve, the second gas solenoid valve, the gas pressure switch and the coil. Unwind the cables of the ignition and detection electrodes emerging from the electrical panel. Insert the ignition electrode in the hole between the head and the intermediate on the gas assembly side, anchoring it to the two stud bolts (fig. 12/c).
Perform the same operation on the detection electrode, which will go in the hole provided between the head and the intermediary at the other end of the body.



KEY
1 Ignition electrode
2 M5 x 15 stud bolt
3 Washer ø 5.3
4 Nut M5 OT
5 Right head
6 Intermediate element with nib

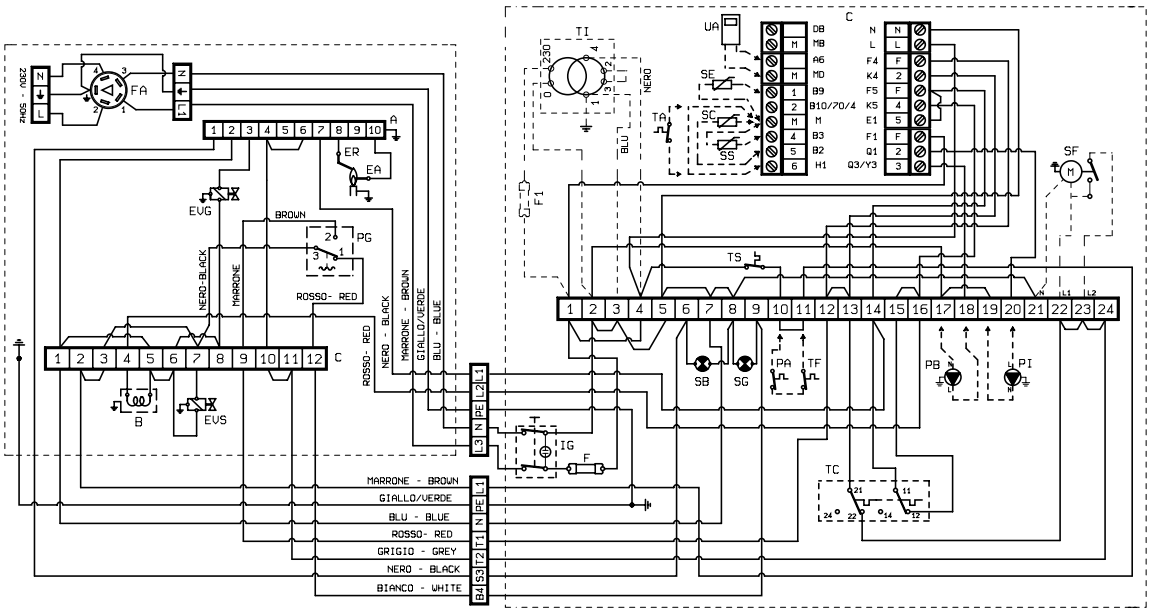
Fig. 12/c

NOTE: When assembling the two electrodes, be very careful not to break their ceramic coating; they must be replaced immediately if it is broken. All gas connections must be tested for seal after assembly using soapy water or products manufactured specifically for the purpose, without using open flame.

2.15 ELECTRICAL CONNECTION

The electrical power supply must be connected to terminals L and N and to the panel complying with all phase and neutral positions as shown in the diagram. If they are not connected properly, the flame detection circuit will not work and the boiler will be shut down. The boiler must be connected up to a single phase 230V-50Hz power supply through a main switch protected by fuses with at least 3 mm between contacts (fig. 13).

NOTE: The device must be connected to an efficient grounding system. SIME shall not accept any liability for damage or injury resulting from failure to ground the boiler. Turn off the power supply before performing any operations on the electrical panel.



KEY
SB Boiler shutdown indicator light
PG Gas pressure switch
EVG Main gas valve
F T 4 fuse
ER Detection electrode
E Ignition electrode
TC Step control thermostat
IG Main switch
SG Gas pressure indicator light
TS Safety thermostat
A SM 191.1 device
P Water pressure switch (not supplied)
B Coil
EVS Second gas solenoid valve
F Interference filter
TF Flue gas thermometer (Poland only)
UA Type Q 70 room thermometer (optional)
SE Outdoor temperature probe (optional)
SC Type Q Z21 boiler immersion probe (optional)
SS Type Q Z21 boiler immersion probe (optional)
PI Heating system pump (not supplied)
PB Boiler pump (not supplied)
C Control unit connectors (black - red - brown)
T Climate control
TI Insulation transformer (Belgium only)
F1 Fuse F800 mA (Belgium only)
SF Flue gas gate (not supplied)

NOTE: When connecting up the RVA 43.222 unit, remove jumpers 12 - 13 and 15 - 16. When connecting up the flue gas gate (SF) remove the jumper between terminals 22 - 23.

Fig. 13

2.16 RVA43.222 CONTROL UNIT (optional)

All boiler functions can be controlled by the optional control unit code 8096303, supplied with an outdoor temperature probe (SE) and boiler immersion probe (SC) (fig. 14). Use of the control unit requires connection of an additional series of low voltage connectors for connection of probes and the room temperature control unit (the connectors are supplied in a bag in the control panel). The bulb of the sensor of the external D.H.W. tank (SS), optional code 6277110, must be inserted in the hot water sheath and the boiler probe (SC) in the boiler sheath. To assemble the outdoor temperature probe (SE), follow the instructions provided on its packaging. Refer to the wiring diagram in fig. 13 for electrical connections.

WARNING: to grant the correct operation of the plant set the boiler thermostat at the maximum value.

2.16.1 Features and functions

"RVA 43.222" is realized as regulator of one boiler mono or bi-stadium or regulator of cascade connections to manage 16 boilers maximum.

Economical operation
- Heat production may be turned on or off in the presence of integration with accumulation.
- Boiler temperature control on the basis of climate, permitting environmental compensation.
- Direct heating circuit management (with pump) for each controller.
- Automatic adaptation to climatic curve on the basis of the building's thermal inertia and the presence of "free heat" sources (with environmental compensation).
- On/off optimisation (accelerated heating and early off feature).
- Daily economy function calculated on the basis of the dynamic characteristics of the building.
- Automatic summer/winter switch.

Protective functions
- Minimum and maximum delivery temperature settings.
- Differentiated anti-freeze protection for boiler, hot water tank and heating system.

KEY
1 Plastic hole cover
2 Optional control unit

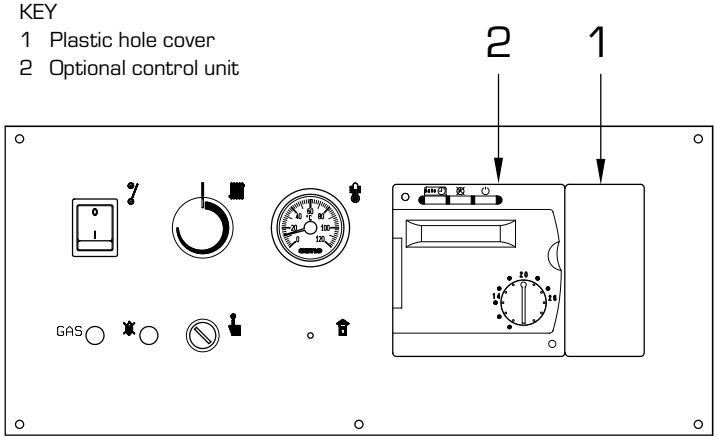


Fig. 14

- Boiler overheating protection.
- Pump seizing up protection.
- Burner protection with minimum operating temperature.

Operative functions
- Simplified start-up.
- All calibration operations are performed on control unit.
- Standard weekly programming.
- All calibration operations and operating settings can be read on leds and display.
- Relay and probe tests.

Hot water production
- Daily scheduling.
- Minimum hot water delivery temperature may be set for reduced time period.
- Control of hot water tank filling pump.
- Selectable priority of hot water circuit.

Other technical features
- Easy connection with digital environmental unit (QAA 70).

2.16.2 Electrical connection

The electrical circuit includes a series of connectors for installation of an optional control unit, marked with different colours: black, red and brown (fig. 14/a). Connectors are polarised so that order cannot be inverted.
To install the control unit, connect these connectors and remove jumpers 13 - 14 and 16 - 17 from the terminal board (fig. 13). The control unit also permits use of room temperature control units and probes; polarised, coloured connectors for these are located in a bag inside the control panel.

KEY
1 Control unit connectors (black - red - brown)
2 Fuse (T 4)
3 Terminal board

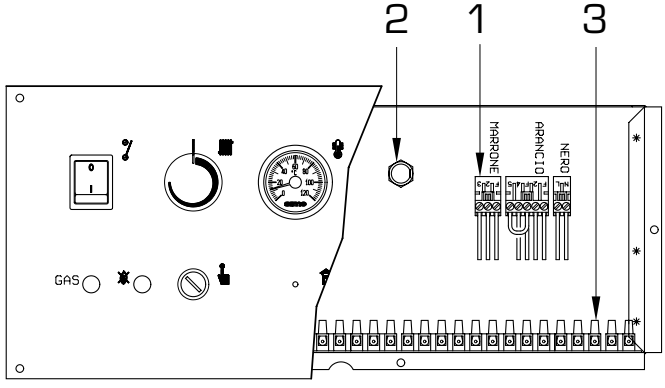


Fig. 14/a