



Heat technology since 1959

# INSTALLATION, AND MAINTENANCE MANUAL FOR GAS FIRED, WALL-HUNG BOILERS

Model **RSF 30 E**

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TYPE C ROOM SEALED

SEDBUK BAND D



*The code of practice for the installation,  
commissioning & servicing of gas fires and wall heaters*

CE 0694



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## THE FRIENDLY POWER OF HEAT

Thank you for choosing RADIANT

*Declaration for purposes of Art. 7 of Law 46 of 5 April 1990.*

RADIANT BRUCIATORI S.p.A. hereby declares that all of its products are constructed to industry standards as required by the Article in question and by Article 5 of the law in effect (D.P.R. no. 447/97).

**RADIANT BRUCIATORI S.p.A.** products are type tested **EC**.

All **RADIANT** boilers are constructed according to UNI - CIG (**EC**) norms. The materials used, such as copper, brass, and stainless steel form a compact, homogeneous, highly functional unit that is easy to install and simple to operate. The wall-mounted boiler is equipped with all of the approved accessories required to make it a true, independent heating plant for home heating and for the production of hot water for domestic needs. All boilers are fully inspected, and come with a certificate of quality signed by the inspector and with a warranty certificate. This booklet must be read carefully and stored in a safe place, accompanying the boiler at all times.

**RADIANT BRUCIATORI S.p.A. declines any and all responsibility for misinterpretations of this booklet deriving from any translations of same. RADIANT BRUCIATORI S.p.A. will not be responsible for non-observance of the instructions contained in this booklet or for the consequences of any action not specifically described herein.**

## INSTALLATION INSTRUCTIONS - WARNINGS

THIS INSTALLATION, USE, AND MAINTENANCE MANUAL IS AN ESSENTIAL AND INTEGRAL PART OF THE PRODUCT, AND MUST ALWAYS BE KEPT NEAR THE DEVICE. THE WARNINGS CONTAINED IN THIS SECTION ARE ADDRESSED BOTH TO THE USER AND TO INSTALLATION AND MAINTENANCE PERSONNEL. THE USER WILL FIND INFORMATION ON OPERATION AND LIMITS OF USE IN THE ACCOMPANYING MANUAL, WHICH SHOULD BE READ VERY CAREFULLY. STORE THE MANUAL CAREFULLY FOR FUTURE REFERENCE.

### 1) GENERAL WARNINGS

**INSTALLATION MUST BE PERFORMED IN OBSERVANCE OF CURRENT NORMS, ACCORDING TO THE CONSTRUCTOR'S INSTRUCTIONS, AND BY PROFESSIONALLY QUALIFIED PERSONNEL.**

**THE INSTALLATION INSTRUCTIONS MANUAL MUST BE ALWAYS ACCOMPANY THE BOILER.**

**PROFESSIONALLY QUALIFIED PERSONNEL ARE THOSE HAVING TECHNICAL COMPETENCE IN THE SECTOR OF APPLICATION OF THE DEVICE (CIVIL OR INDUSTRIAL), AND, IN PARTICULAR, THE CONSTRUCTOR'S AUTHORISED SERVICE CENTRES.**

**INCORRECT INSTALLATION MAY CAUSE DAMAGE TO PERSONS, ANIMALS, OR PROPERTY, FOR WHICH THE CONSTRUCTOR ASSUMES NO LIABILITY.**

- After completely removing the packing, make sure that the contents are in perfect condition.
- In case of doubt, do not use the equipment. Consult the supplier.
- Packing materials (cardboard carton, wooden crate, nails, clips, plastic bags, polystyrene, etc.) are potentially dangerous and must be kept away from children.
- Before performing any cleaning or maintenance operation, turn off the unit by means of the mains switch and/or by means of the appropriate cut-off devices.
- Do not block the air intake or heat dissipation grates.
- In the event of breakdown and/or poor functioning of the device, turn it off and do not attempt to repair it or take any direct action. Refer to professionally qualified personnel only.
- Any repairs must be performed exclusively by a service centre authorised by the constructor, and with original spare parts only.
- Non-observance of the above instruction may compromise the safety of the device. To guarantee efficient and correct operation, the device should undergo period maintenance by professionally qualified personnel according to the constructor's instructions.
- Whenever the device is to be put out of service, secure all potentially hazardous parts to prevent accidents or damage.
- If the device is sold or transferred to another owner, or if you move and leave the boiler, make sure that this booklet stays with the boiler so that it may be consulted by the new owner and/or by the installer.
- Use only original spare parts for all devices with optionals or kits (including electrical ones).

**WARNING:** this device must be used for its intended purpose, i.e., heating and production of domestic hot water. Any other use is improper and therefore dangerous. The constructor will have no contractual or extracontractual liability for damage caused by incorrect installation and/or use or by non-observance of instructions supplied by the constructor.

**This device must be used exclusively with a sealed central heating system equipped with an expansion vessel.**

### 2) WARNINGS REGARDING INSTALLATION

Warranty expires **12 months from date of installation and in all cases no later than 18 months from date of construction**. First start-up must be performed by **authorised personnel only**. For any operation on the hydraulic, gas, or electrical circuit regarding the heating unit, refer to **authorised technicians only and use original spare parts only**. Wall-mounted boilers are not to be installed in damp rooms, and must be protected against sprays or jets of water or other liquids to prevent malfunctions of the electrical and heating devices. They must not be exposed to direct steam from cookers, and nothing must be placed on top of them. This heating unit has been constructed to heat the home and to produce hot water. **The constructor declines all responsibility for incorrect installation and/or use of the device.** Do not leave the device on when it is not being used: **close the gas cock and turn off the mains switch**. If you smell gas in the room in which the device is installed, do not operate any electrical switches, telephones, or any other device that might cause a spark. Immediately open doors and windows to create an air current to clear the room. Close the main gas cock (at the meter) or the cylinder cock, and request immediate technical service.

**Do not tamper with the device.**

### SYSTEMS WITH THERMOSTATS

A by-pass must be installed in heating systems with radiators thermostats.

As required by current norms, these devices must be installed by **qualified personnel only**, who must respect norms **UNI-CIG 7129 and 7131** and revisions, fire department regulations, and requirements of the local gas company. Before installing the boiler, make sure that the water and heating systems are compatible with its output. The room must be properly ventilated by means of an air intake (see UNI 7129/92 and UNI 7129/95 FA).

The air intake must be at floor level open flue only, at a point where it cannot be obstructed, and protected by a grate that does not reduce the useful section of flow.

The use of air flows from adjacent rooms is permitted as long as such rooms are in depression with respect to the outside and as long as there are **no wood-burning fireplaces or fans** installed there. If the boiler is to be installed externally (for example, on balconies or terraces), make sure that it is protected against atmospheric agents to prevent damage to components and voiding of the warranty. In such cases we recommend building a heat compartment to protect the boiler against inclement weather.

**Check the technical data on the packing and on the plate** located inside the front casing. Check that the burner is suitable for use with the type of gas available.

**Make sure that all pipes and connections are perfectly sealed and that there are no gas leaks.**

All pipework should be chemically flushed to remove any residues that might have a negative effect on the operation of the boiler.

### 3) GENERAL WARNINGS BASED ON TYPE OF POWER SUPPLY

#### POWER SUPPLY

Electrical safety is achieved only when the device is correctly and efficiently earthed as per current safety norms (IEC 64-8 Electrical Part).

- This fundamental safety requirement must be checked. In case of doubt, request a check of the electrical system by professionally qualified personnel. The constructor will not be liable for any damage caused by lack of or improper earthing of the system.
- Have professionally qualified personnel check that the electrical system is adequate for the maximum absorbed power of the device (indicated on the plate). In particular, make sure that the section of the system wires is suitable for the maximum absorbed power of the device.
- Do not use adapters, multiple sockets, and/or extension cords to power the device from the electrical mains.
- Provide a unipolar switch as required by current safety regulations to connect the device to the mains.
- The use of any electrical device requires the observance of some fundamental rules, such as:
  - do not touch the device with wet or damp parts of the body and/or with bare feet
  - do not pull on electrical cables
  - do not expose the device to atmospheric agents (rain, sun, etc.) unless specifically provided for
  - do not allow the device to be used by children or anyone unfamiliar with its operation
  - The power cable must not be replaced by the user.
- If the cable becomes damaged, turn off the device and have the cable replaced by professionally qualified personnel only.
- If you decide not to use the device for an extended length of time, turn off the mains switch that feeds all components of the system using electrical energy (pumps, burner, etc.).

**TECHNICAL DATA**

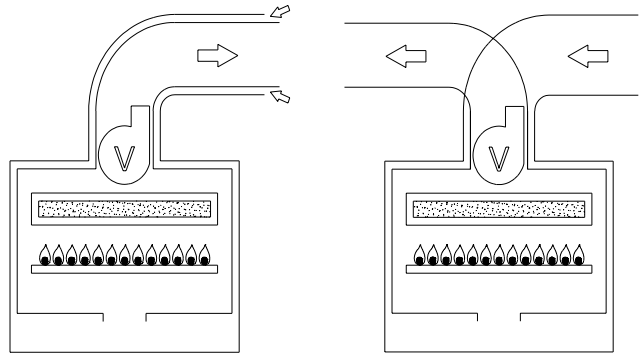
**Type C unit**

Type C devices are devices in which the combustion circuit (air intake, combustion chamber, exchanger, combustion exhaust) is sealed off from the place where they are installed.

**CENTRAL HEATING - DOMESTIC HOT WATER**

*sealed combustion circuit type*

**RSF 30 E** - electronic ignition



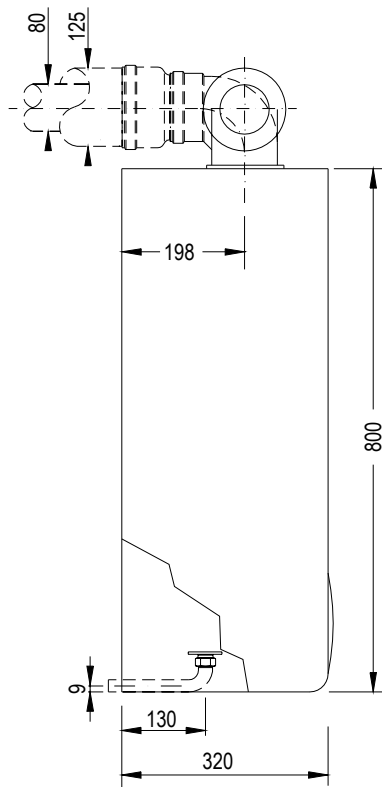
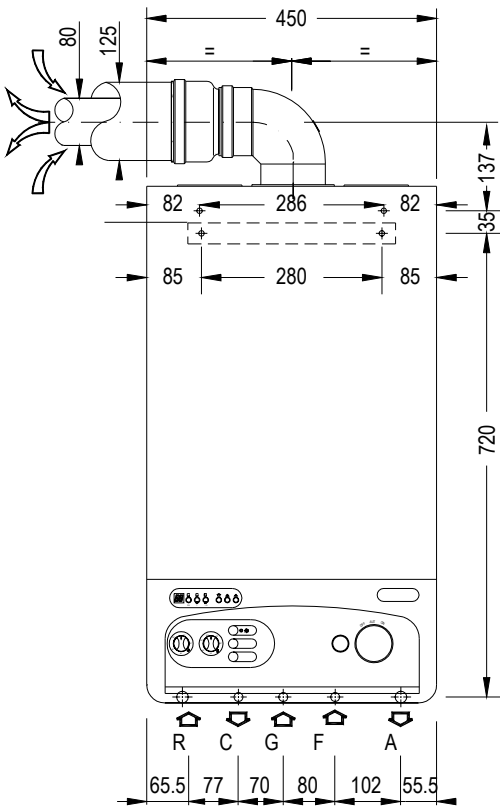
C32 Coaxial vertical  
C12 Coaxial horizontal

C52 Double

**Technical data**

MODEL		RSF 30 E
Maximum rated input	kcal/h	29670
	kW	34.50
	BTU/h	117731
Minimum rated input	kcal/h	16340
	kW	19
	BTU/h	64837
Maximum rated output	kcal/h	27440
	kW	31.90
	BTU/h	108882
Minimum rated output	kcal/h	14560
	kW	16.90
	BTU/h	57774
Heating temperature adjustment	°C	30-80
Max. working pressure (heating)	bar	3
Min. working pressure (heating)	bar	0.3
Expansion vessel capacity (initial pressure 1 bar)	Litres	10
Hot water flow rate $\Delta t$ 30°	Litres	15.24
Max. working pressure (water)	bar	6
Min. working pressure (water)	bar	0.5
Width	mm.	450
Height	mm.	800
Depth	mm.	320
Weight	Kg.	49
Coaxial exhaust flue diameter	Ø	125/80
Double exhaust flue diameter	Ø	80/80
Flow/return connections	Ø	3/4" - 3/4"
Cold water connections	Ø	1/2"
Hot water connections	Ø	1/2"
Gas connections	Ø	1/2"
Electrical connection 50 Hz	V	230
Power supply	W	170
Burner jets NP 17 G20	Ø	1.20
Burner jets NP 17 G30	Ø	0.75
Gas category: IT II2H3	Gas supply pressure: <b>G20</b> 20 mbar / <b>G30/31</b> 29-30/37 mbar	
<b>FORCED CIRCULATION</b>		

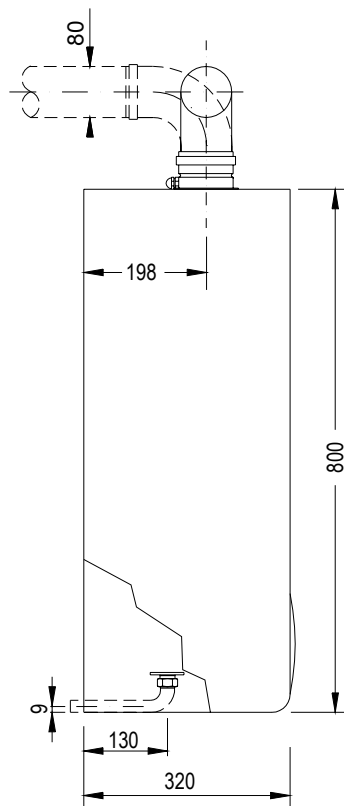
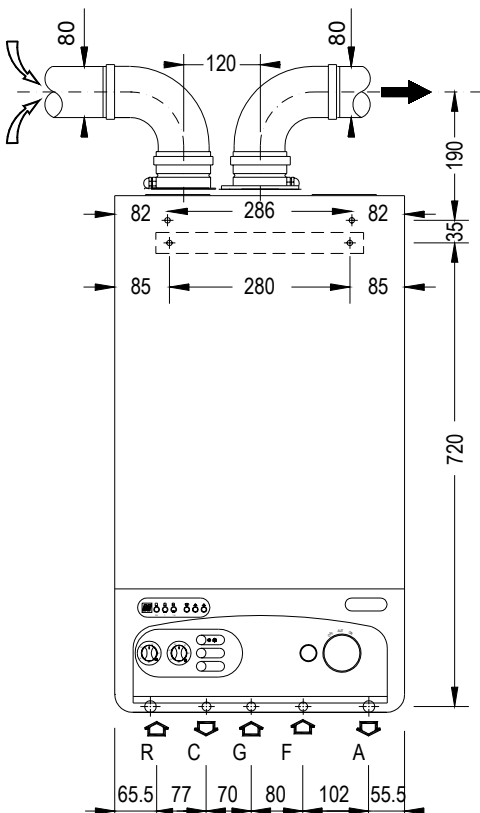
**OVERALL DIMENSIONS - EXHAUST FLUE SYSTEM**



**TYPE C WALL-MOUNTED  
BOILERS  
SEALED COMBUSTION  
CIRCUIT:**

**Kit G**

Horizontal coaxial exhaust flue system with 360° rotation.



**Kit B**

Double exhaust/emission twin flue system with 360° rotation.

**R** RETURN  $\frac{3}{4}$ "  
**G** GAS  $\frac{1}{2}$ "  
**C** HOT WATER  $\frac{1}{2}$ "  
**F** COLD WATER  $\frac{1}{2}$ "  
**A** HEATING FLOW  $\frac{3}{4}$ "

**OTE:** USE ORIGINAL RADIANT APPROVED FLUE KIT SYSTEMS, FLUE ACCESSORIES AND FLUE DIAPHRAGMS ONLY. APPROVED RADIANT FLUE DIAPHRAGMS AND ADJUSTMENT TABLES ARE SUPPLIED WITH RADIANT ORIGINAL FLUE KIT SYSTEMS.

## GENERAL INSTALLATION REQUIREMENTS

### GAS SAFETY

It is the law that all gas appliances are installed by a CORGI registered installer (you can check this by contacting corgi on 01256.372200) in accordance with the regulations listed below. Failure to install appliances correctly could lead to prosecution. It is in your own interest and that of safety to ensure that the law is complied with. Failure to have your appliance installed to comply with the installation instructions and the requirements listed below could invalidate your guarantee.

### RELATED DOCUMENTS

The installation of the boiler must be in accordance with the relevant requirements of the Gas Safety regulations, Building regulations, I.E.E. regulations and the bylaws of the local water authority.

It should be in accordance also with any relevant requirements of the local authority and the relevant recommendations of the following British Standard Codes of Practice:

B.S 6400:	1985 & B.S. 6891 : 1988.
BS 5376:	Selection and Installation of Gas Space Heating ( 1 and 2 family gases) Part 2: Boilers of rated input not exceeding 60 Kw
BS 5449:	Central Heating for domestic premises Part 1: Forced circulation Hot Water System
CP 342:	Centralised Hot Water Supply BS 6700 : 1987 Part 2: Buildings other than individual
BS 5440:	Flues and air supply for Gas Appliances of rated input not exceeding 60 Kw (1 and 2 family gases) Part 1: Flues Part 2: Air Supply
BS 5446:	1990: Installation of Gas Hot Water supplies for domestic purposes

### GAS SUPPLY

**Service Pipes:** The local gas region should be consulted at the installation planning stage in order to establish the availability of supply of gas. An existing service pipe must not be used without prior consultation with the local gas region.

**Meters:** A gas meter is connected to the service pipe by the local gas region or local gas region contractor. An existing meter should be checked to ensure that it is capable of passing an additional 3.4 m<sup>3</sup>/hr (125 ft<sup>3</sup>/hr) before the appliance is installed. The meter outlet governor should ensure a nominal dynamic pressure of 20m Bar, (8 in wg) at the boiler. Installation pipes should be fitted in accordance with BS6891.1988. **Pipework that supplies the boiler must be a 22 mm. uninterrupted supply from meter to the isolation cock of the boiler.** The complete installation must be tested for soundness as described in the above code, BS 6400: 1985 & BS6891.

**IMPORTANT: BOTH THE USER AND THE MANUFACTURER RELY UPON THE INSTALLER, WHOSE JOB IS TO INSTALL THE BOILER AND CONNECT IT TO A CORRECTLY DESIGNED HEATING SYSTEM. THE INSTALLER SHOULD ACQUAINT HIMSELF WITH THE CONTENTS OF THIS PUBLICATION AND THE RELEVANT BRITISH STANDARDS CONCERNING INSTALLATION REQUIREMENTS.**

### LOCATION OF BOILER

In siting the combination boiler, the following limitations **MUST** be observed:

The position selected for installation should be within the building, and **MUST** allow

adequate space for installation, servicing and operation of the combination boiler, and for air circulation around it. The boiler is not suitable for external installation.

This position **MUST** also allow for a suitable flue termination to be made. The boiler must be installed on a flat vertical wall which is capable of supporting the weight of the combination boiler, and any ancillary equipment.

If the boiler is to be fitted in a timber framed building it should be fitted in accordance with the British Gas publication "Guide for Gas Installations in Timber Frame Housing, Reference IGE/UP/6. If in doubt, advice must be sought from the local region of British Gas.

The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. Wiring Regulations, and in Scotland the electrical provisions of the Building Regulations applicable in Scotland, with respect to the installation of the boiler in a room or internal space containing a bath or shower.

Where a room-sealed appliance is installed in a room containing a bath or shower, any electrical switch or appliance control utilising mains electricity must be so situated that it cannot be touched by a person using the bath or shower.

A compartment used to enclose the combination boiler **MUST** be designed and constructed specifically for this purpose. An existing cupboard, or compartment, may be used provided it is modified accordingly.

Where installation will be in an unusual location, special procedures may be necessary. BS 6798 gives detailed guidance on this aspect.

For clearances to be made available for installation and servicing, see Sections 5.2.2. to 5.2.4.

**FLUE POSITION**

**IMPORTANT:** THE FLUE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN BS 5440:1.

The boiler MUST be installed so that the terminal is exposed to the external air.

It is important that the position of the terminal allows free passage of air across it at all times.

If the terminal discharges into a pathway or passageway check that combustion products will not cause nuisance and that the terminal will not obstruct the passageway.

In certain weather conditions a terminal may emit a plume of steam. Positions where this would cause a nuisance should be avoided.

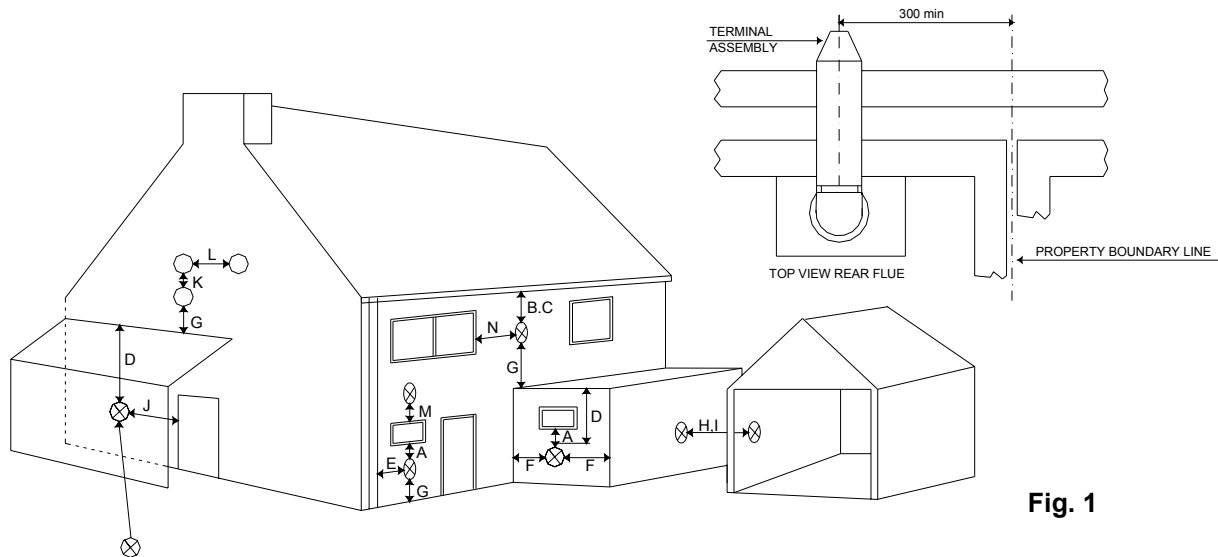
**IMPORTANT REQUIREMENT:** The correct dimensional relationship between the terminal and any obstruction, openable window or ventilator as shown in Fig 1 pag.7 It is **ESSENTIAL TO ENSURE**, in practice, that products of combustion discharging from the terminal cannot re-enter the building, or any other adjacent building, through ventilators, windows, doors, other sources of natural air infiltration, or forced ventilation/air conditioning systems. If this should occur, the appliance **MUST BE TURNED OFF IMMEDIATELY** and the local gas region consulted.

Where the lowest part of the terminal is fitted less than 2m (6.6ft) above a balcony, above ground, or above a flat roof to which people have access, the terminal **MUST** be protected by a purpose designed guard.

Where the terminal is fitted within 850mm (34in) of a plastic or painted gutter, or 450mm (18in) of painted eaves, an aluminium shield of at least 1000 mm (40in) long should be fitted to the underside of the gutter painted surface.

The air inlet/products outlet duct and the terminal of the boiler **MUST NOT** be closer than 25mm (1in) to combustible material.

**TERMINAL POSITION**



**Fig. 1**

- |          |   |         |
|----------|---|---------|
| <b>A</b> | Directly below an openable window, air vent or any other ventilation opening. | 300 mm  |
| <b>B</b> | Below gutter, drain pipes or soil pipes.                                      | 25 mm   |
| <b>C</b> | Below eaves.  | 25 mm   |
| <b>D</b> | Below balcony or carport roof.  | 25 mm   |
| <b>E</b> | From vertical drain pipes or soil pipes.                                      | 25 mm   |
| <b>F</b> | From internal or external corners.  | 25 mm   |
| <b>G</b> | Above adjacent ground, roof or balcony level.                                 | 300 mm  |
| <b>H</b> | From a surface facing the terminal.   | 600 mm  |
| <b>I</b> | Facing the terminals.   | 1200 mm |
| <b>J</b> | From opening (door, window) in the carport into dwelling.                     | 1200 mm |
| <b>K</b> | Vertically from a terminal on the same wall                                   | 1500 mm |
| <b>L</b> | Horizontally from a terminal on the same wall                                 | 300 mm  |
| <b>M</b> | Above an opening, air brick, opening window etc.                              | 300 mm  |
| <b>N</b> | Horizontally to an opening, air brick, opening window etc.                    | 300 mm  |

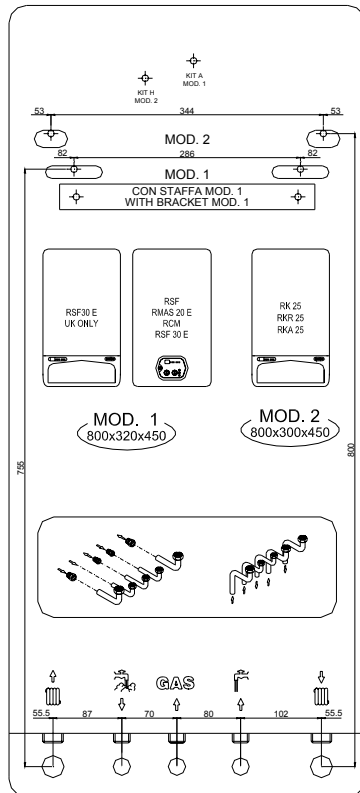
**MINIMUM DISTANCES FOR FIXING TO WALL**

To allow access in the boiler for maintenance operations, the minimum distances shown below must be respected (fig. 1):

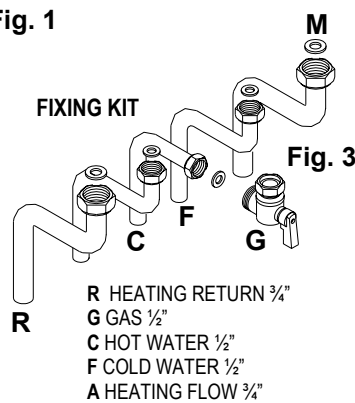
To facilitate installation, the boiler is supplied with a template for advance location of connections to pipes. In this way, you may simply hook up the boiler when wall work is completed (fig.2).

**Installation Instruction**

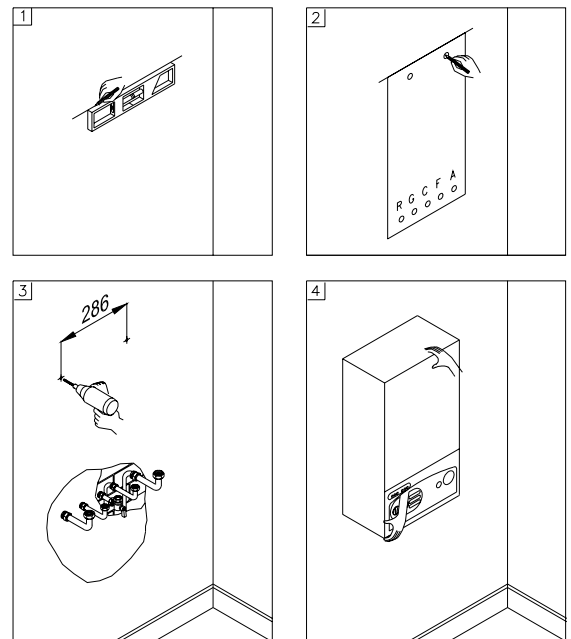
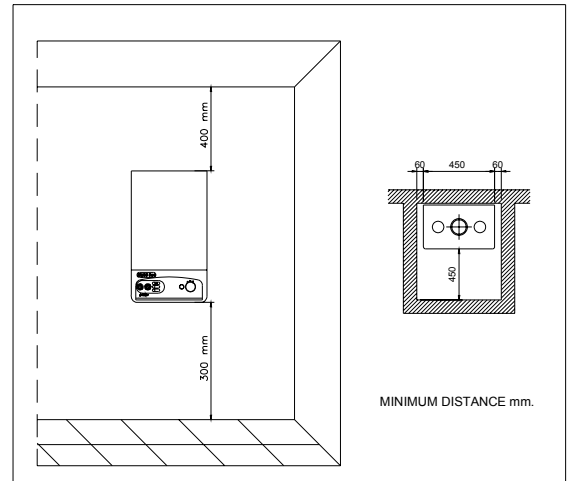
- a) with a spirit level, draw a line on the wall on which the boiler will be installed (fig. 1);
- b) position the top of the template on the line drawn with the spirit level (respecting the distances – see fig. 1) than mark the three points for insertion of the 3 screw anchors for fixing the boiler hanging bracket (choose proper anchors according to the wall type);
- c) fix the hanging bracket
- d) make connections to the hot and cold water supply, to the gas pipe and to the heating system with the fittings. Connect pipes and valves as shown in the picture;
- e) position the boiler paying attention to hang it to the hanging bracket and make final connections;



**Fig. 1**



**Fig. 3**



**Fig. 2**

**WATER CONNECTIONS**

To facilitate installation, the boiler is equipped with a fittings kit (see fig. 3).

**IMPORTANT:**

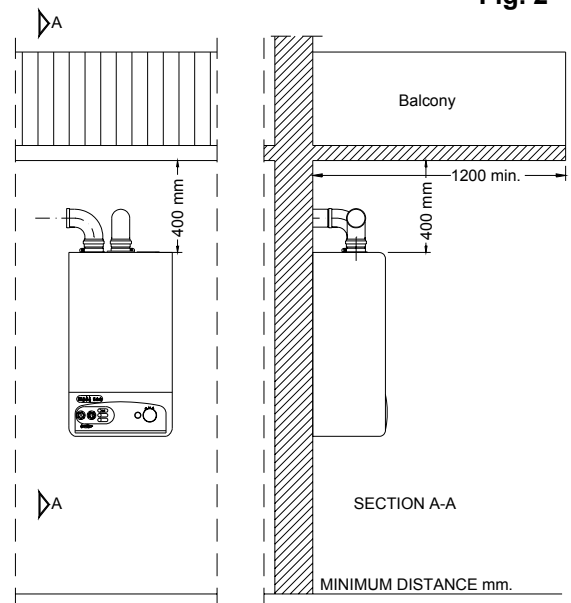
Before connecting the heating system pipes, carefully clean the system to prevent residual dirt from entering into circulation and negatively affecting boiler function. Install a funnel with discharge under the safety valve (calibrated to 3 bar) to collect water in case of leaking due to overpressure. No safety valve is needed for the domestic water circuit, but be sure that pressure does not exceed 6 bar.

- avoid using pipelines of reduced diameter;
- avoid the use of tight bends and adapters in important sections;
- clean out the system thoroughly before connecting up the boiler in order to eliminate any residue left in the pipes and radiators;

**N.B.:** Make sure that the water and heating pipes are not used as earth connections for electrical apparatus.

**WARNINGS**

Boilers can be installed externally, in a partially protected place (balcony – see fig. 4) in conformity with local Building Regulation and if the outside minimum temperature is not lower than –10°C. The manufacturer is not responsible for external installations where the outside temperature is lower than – 10°C or not in conformity with above instructions.



**Fig. 4**

**GAS CONNECTIONS**

The gas supply must be connected up by qualified person.

The following standards must be complied with: UNICIG 7131/72 and UNICIG 7129/92 (of 21/04/93)

Before installing the boiler, make sure of the following:

- the pipeline must be of an adequate section and length to carry the flow required and must be fitted with all safety devices and measures prescribed by current norms;
- before turning on the boiler make sure the type of gas which it is designed to run on is available
- the gas supply pressure must lie within the values shown on the plate it is recommended that the gas supply pipeline should be checked for residual obstructions before installing the boiler;
- where the internal gas supply pipe meets the boiler, a gas shutter cock must be fitted which has the same diameter as the gas inlet pipe;
- check thoroughly that the gas inlets and outlets are properly sealed.
- conversion to allow the boiler to run on LPG to natural gas or vice versa must be carried out by a qualified gas fitter in accordance with law no.46 of 5th March '90 (see p.18).

**ANTI-FREEZE SYSTEM**

**ANTI-FROST SYSTEM**

Radiant boilers are equipped with an Anti-Freeze system which comes into operation when the temperature falls to 5° C (Heating sensor) and 4° C (Hot water sensor) and protects the boiler down to -10°C external temperature.

To protect the internal Radiators, a room thermostat or remote control must be fitted.

NOTE: The frost system will only come into operation if the boiler is filled with water, and connected to a live gas supply, with electrical supply and boiler controls in the "ON" position (With the Main switch turned to Summer or Winter position) and the gas supply turned on.

**N.B.** For external installations, see instructions at page 6.

**FOR THE INSTALLER**

For boilers installed outdoors, where the temperature may drop below -2° degrees Centigrade, the system should be filled with antifreeze liquid by an authorised technician and a set of electrical heating elements should be fitted to protect the domestic hot water heat exchanger.

**ADVICE FOR THE SERVICE TECHNICIAN**

If the boiler is out of service because it is frozen, check that no parts have been locked in position by ice before putting it into operation.

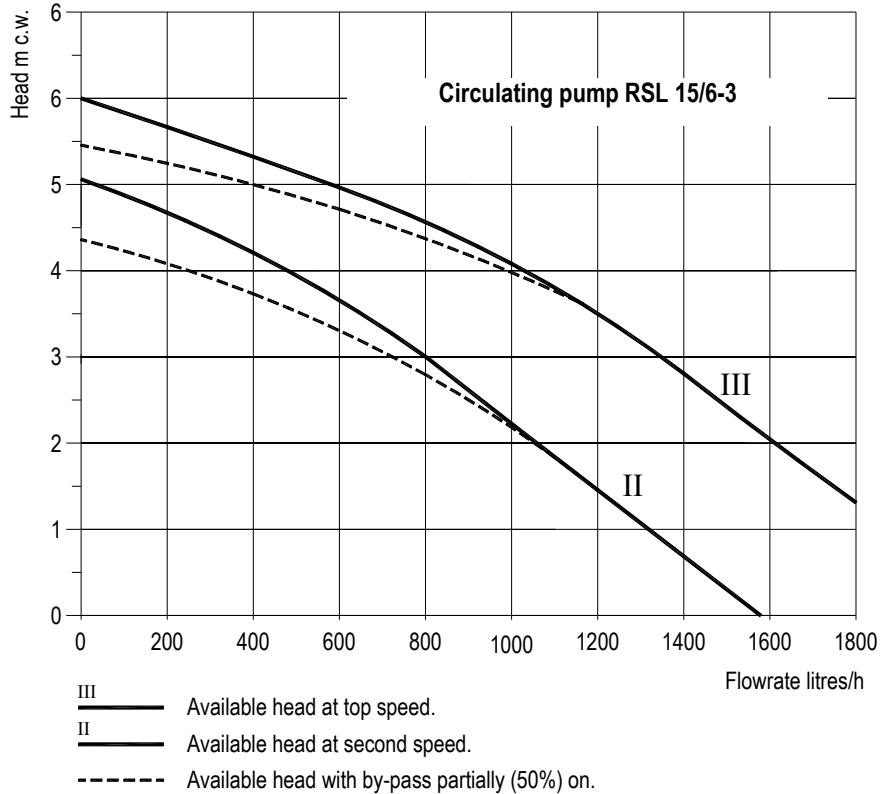
It is advisable to empty the boiler and the system in case of no operation for a long period.

Recommended percentage of glycol for temperatures down to - 8°C is 20%. The antifreeze liquid used must be of a good make and in a solution which has already been diluted to avoid the risk of uncontrolled dilution.

Table n°1

Antifreeze	Temperature	
Ethylene glycol (%) volume	freezing point (°C)	boiling point (°C)
10	- 4	101
20	-10	102

Recommended Glycol 20% percentage for temperatures down to -8°C.



## ELECTRICAL CONNECTIONS

### For qualified personell only:

the boiler works with 230 V 50 Hz AC current and has maximum input of 170 W. Connection to the electrical mains must be performed with a device having an omnipolar opening of at least 3 mm. Make sure the live and neutral connections conform to the diagram.

**A secure earth connection is compulsory according to national and local ragulations.**

### IMPORTANT

If you need to replace the power supply cable, use cable having the same characteristics: (HO5 W-F) 3x1 with maximum external diameter 8 mm.). Connect to the terminal block located in the instrument panel as follows:

- A. Turn off the electrical power supply at the mains.
- B. Remove the boiler front casing.
- C. Undo the two screws on the panel and turn it to the position shown in fig.1 (pos. 1).
- D. After pulling the panel downwards, undo the screws on the housing and open the small rear panel plate as shown in the figure 1.
- E. With the electrical box now open make the following connections.
  - Connect the yellow/green wire to the terminal marked with the earth symbol "⏚" (see fig.1).
  - Connect the blue wire to the terminal marked with the letter "N".
  - Connect the brown wire to the terminal marked with the letter "L".
  - Terminal identified as: Ta ⇒ Room thermostat  
Se ⇒ External sensor

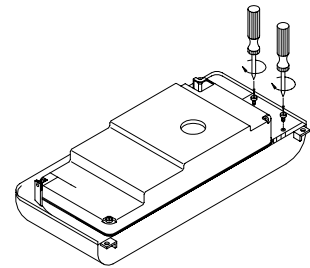
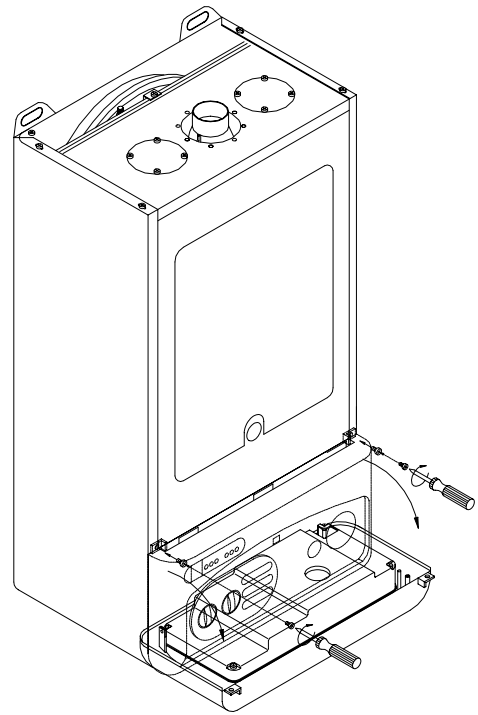


Fig. 1

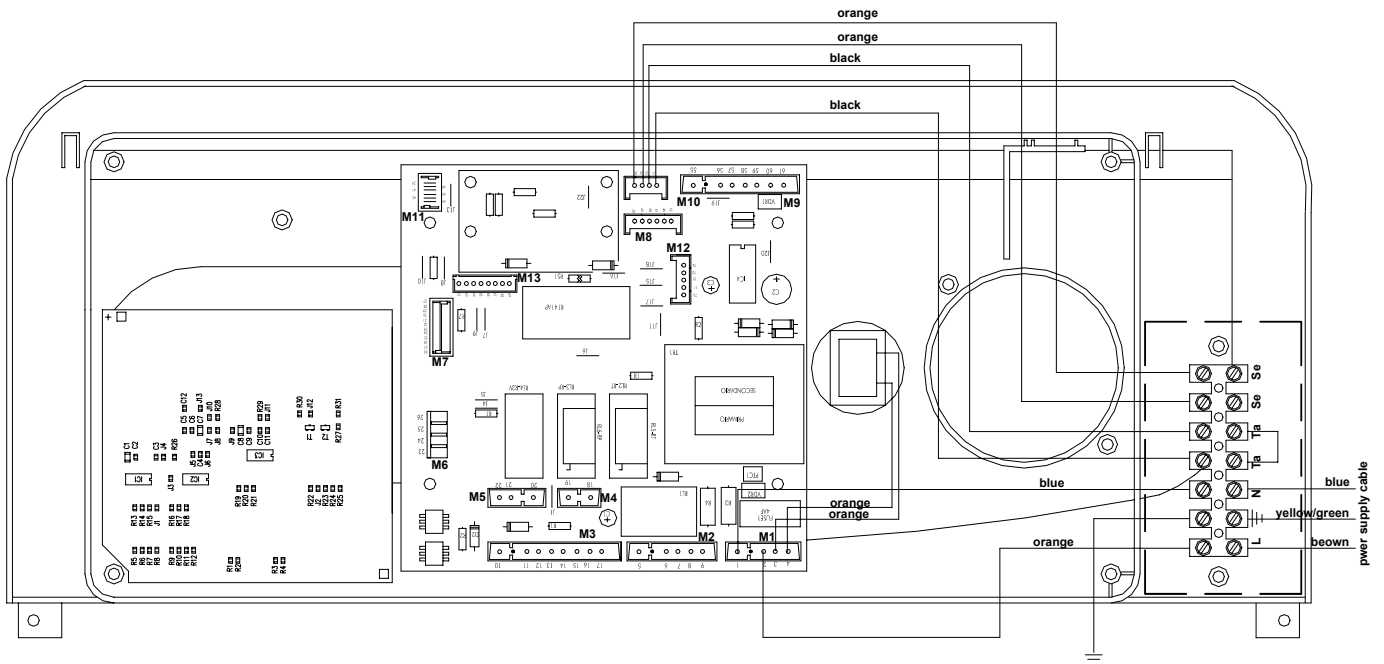


Fig. 2

## CONTROL PANEL

LEGEND (see fig. 1)

1. ON / OFF POWER SWITCH
2. HEATING TEMPERATURE ADJUSTMENT KNOB
3. DOMESTIC HOT WATER TEMPERATURE ADJUSTMENT KNOB
4. OUTSIDE TEMPERATURE DISPLAY PAD (ONLY WITH OPTIONAL OUTSIDE TEMPERATURE SENSOR FITTED)
5. CHIMNEY-SWEEPER SELECTION PAD / PARAMETER SETTING SERVICE PAD
6. MODE SELECTION PAD (SUMMER ONLY / WINTER ONLY / SUMMER AND WINTER)
7. SPACE FOR AN OPTIONAL TIME CLOCK
8. DOMESTIC HOT WATER MODE (STABLE LIGHT) DOMESTIC HOT WATER OPERATION (FLASHING LIGHT)
9. HEATING MODE (STABLE LIGHT) HEATING OPERATION (FLASHING LIGHT)
10. GENERAL LOCK-OUT WITH FLASHING ERROR CODE ON DISPLAY (14)
11. WATER PRESSURE LEVEL 1.5 BAR INDICATOR
12. WATER PRESSURE LEVEL 1 BAR INDICATOR
13. WATER DEFICIENCY INDICATOR
14. TEMPERATURE AND ERROR CODES DISPLAY

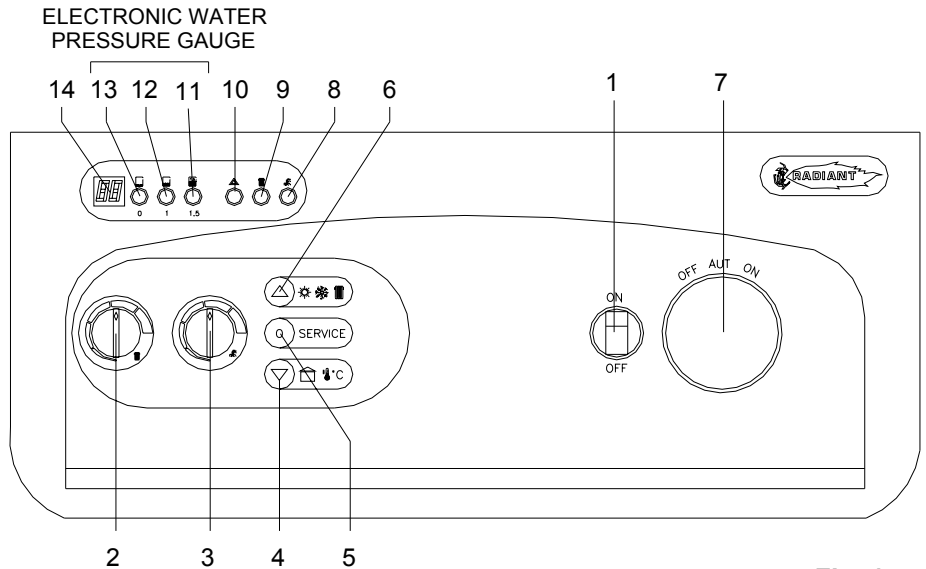


Fig. 1

### ERROR CODES:

1. IONISATION LOCK-OUT
2. HIGH LIMIT THERMOSTAT LOCK-OUT
3. FLUE SAFETY THERMOSTAT LOCK-OUT (Not applicable)
4. WATER PRESSURE SWITCH LOCK-OUT
5. HEATING SENSOR FAILURE
6. DOMESTIC HOT WATER SENSOR FAILURE
12. STORAGE TANK WATER SENSOR FAILURE
14. AIR PRESSURE SWITCH / WATER PRESSURE SWITCH LOCK-OUT
22. REQUEST OF PARAMETERS RE-SETTING

## STARTING UP THE BOILER

After connecting up the water supply, before starting up the boiler, carry out the following procedures:

### Preliminary procedure

- Do as follows:
- make sure the power supply for the boiler is the same as that stated on the plate (230V - 50Hz) and that the live, neutral and earth connections have been properly connected;
- make sure the type of gas being supplied is the same as the type for which the boiler has been tested and approved (see plate data);
- make sure the unit is properly earthed;
- make sure there are no flammable liquids or materials in the immediate vicinity of the boiler;
- make sure that any shut-off valves in the heating circuit are open;
- open the gas cock and check the gas seals, making sure the counter shows no sign of leaks; in any case, double check by using a soapy solution and eliminate all eventual leaks. The checking procedure for the gas burner attachment is carried out with the boiler working;
- make sure the electrical mains switch is OFF;
- remove the front cover by pulling it forwards;
- undo the side screws and rotate the panel downwards

### Filling the system

After making sure the gas cock is closed, fill the heating system as follows;

- fill the system until a pressure of 1.5 bar has been reached (light no. 11 ON; see fig. 1) and then close the filling tap (see fig. 2 pag 10) located under the boiler;
- make sure the cap on the auto air vent valve is slightly loose to allow air to escape from the system (see fig. 1 pag 10);
- undo the cap on the circulation pump to eliminate any eventual air locks; it is a good idea to purge all radiators of air at this point too;
- before starting up the boiler the water pressure must be checked again; if this is seen to be below 0.5 bar, bring it back up to 1.5 bar (light no. 11 ON; see fig. 1) **and then close the filling tap** located under the boiler;

- set ON/OFF switch in ON position (see fig.1), after a few seconds the pump will come into operation;
- once the boiler is working, if any noises are heard in the system, repeat the above air purging procedures until there is no air left in the system;
- check there are no obstructions in the exhaust duct;
- check the pressure in the system: if this has gone down, comes on restore pressure;
- **close the filling tap R (see fig. 2) once this operation is completed;**

### Filling the system

After making sure the gas cock is closed, fill the heating system as follows;

- fill the system until a pressure of 1.5 bar has been reached (light no. 11 ON; see fig. 1 pag. 9) and then close the tap on the filling loop;
- make sure the cap on the auto air vent valve is slightly loose to allow air to escape from the system;
- undo the cap on the circulation pump to eliminate any eventual air locks; it is a good idea to purge all radiators of air at this point too;
- before starting up the boiler the water pressure must be checked again; if this is seen to be below 0.5 bar, bring it back up to 1.5 bar (light no. 11 ON; see fig. 1 pag. 9) **and close the tap on the filling loop**
- set ON/OFF switch in ON position (fig.1 page 9), after a few seconds the pump will come into operation;
- once the boiler is working, if any noises are heard in the system, repeat the above air purging procedures until there is no air left in the system;
- check there are no obstructions in the exhaust duct;
- check the pressure in the system: if this has gone down, comes on restore pressure;
- **close the tap on the filling loop once this operation is completed;**

### Starting up the boiler

- open the gas cock;
- turn on the boiler;
- push Pad 5 and select the SUMMER only – WINTER only or SUMMER and WINTER mode- Led 8-9 ON confirm the selection;

the automatic ignition system will turn the burner on. It may be necessary to repeat the procedure a few times to purge air from the pipes. Set the ON/OFF switch 1 (see fig.1) to OFF and then ON position and try the ignition procedure once again. If the boiler does not start, reset boiler and Set the ON/OFF switch 1 to OFF and then ON position.

**IMPORTANT** should the boiler fail to ignite **wait 3 minutes** before a new ignition procedure.

In case of water deficiency the display shows code 04 intermittent and the Led 8 is ON. To restore water pressure open the tap on the filling loop and fill the system, when led 10 (1.5 bar pressure) is ON, close the tap.

- set ON/OFF switch in OFF position (fig.1 page 9), insert a gauge into the pressure point no.4 (fig.2 page 11). Turn ON the boiler and check the minimum and maximum gas pressure setting in accordance with values stated on the gas data plate (to check maximum gas pressure value, turn ON a hot water tap and check that the maximum pressure is equal to that stated on the gas data plate; to check the minimum gas pressure, close the hot water tap, and select WINTER mode, the pressure gauge will show the minimum gas pressure value for 10 seconds. If the pressure values are not the same as those stated on the gas data plate, calibrate pressure again
- once the calibration procedure has been completed, unplug the mains lead or turn off the mains switch, close the gas cock and remove the gauge from the pressure point; tighten the screw making sure there are no gas leaks;
- after carrying out this operation, return the panel to its correct position and put the front casing back.

**CHECK** the maximum heating power.

For procedure regarding regulation of the heating system thermal capacity see «BOILER ADJUSTMENTS».

### EMPTYING THE CENTRAL HEATING SYSTEM

Whenever it is necessary to empty the system, proceed as follows:

- set ON/OFF switch in OFF position (fig.1 page 9);
- wait for the boiler to cool down;

turn the system drain tap **RS** (see fig. 3) and use a container to collect the water that runs out;

### EMPTYING THE DOMESTIC HOT WATER SYSTEM

Whenever there is danger of freezing, the hot water system should be emptied in the following way:

- shut off the water at the mains;
- open all hot and cold water taps;
- empty from the lowest point (where possible).

### WARNING

Please ensure that the boiler is commissioned in line with all BENCHMARK BOOKLET REQUIREMENTS. Failure to do this may invalidate the guarantee.

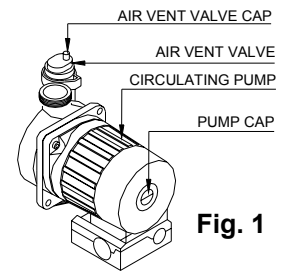


Fig. 1

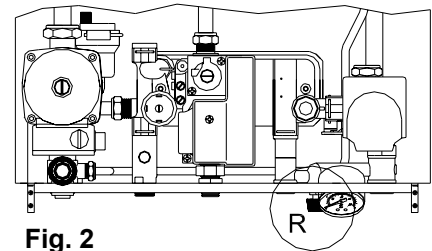


Fig. 2

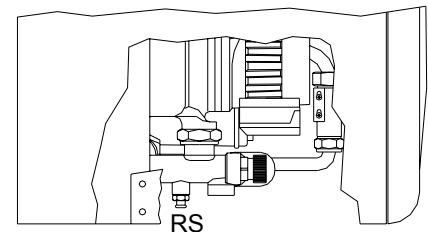


Fig. 3

## CONVERSION OF GAS TYPE

Conversion of the boiler from natural gas to LPG and viceversa must be performed by qualified personnel only. Conversion is performed as follows:

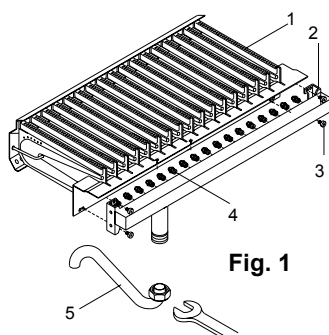


Fig. 1

- a. turn off the main power switch;
- b. close the gas cock;
- c. substitute the jets on the main burner as follows:
  - undo the gas pipe 5 (fig.1) from the burner manifold using a size 24 spanner;
  - separate the burner manifold 2 from the burner ramps 1 by undoing the 4 screws 3 using a Philips screwdriver;
  - fit new jets 4 to the burner suitable for the type of gas the boiler will run on using a no. 7 spanner. The jets must be fitted with new gaskets;
  - reassemble the entire burner unit. Use the soapy water method to check for gas leaks each time gas connections are dismantled and reassembled;
- d. calibrate the new max. and min. settings for the modulator.
- e. *replace the gas setting plate that indicates the type of gas and nominal pressure for the boiler. When converting the boiler to work with a different type of gas, remove the existing plate and replace it with the new one supplied in the conversion kit.*

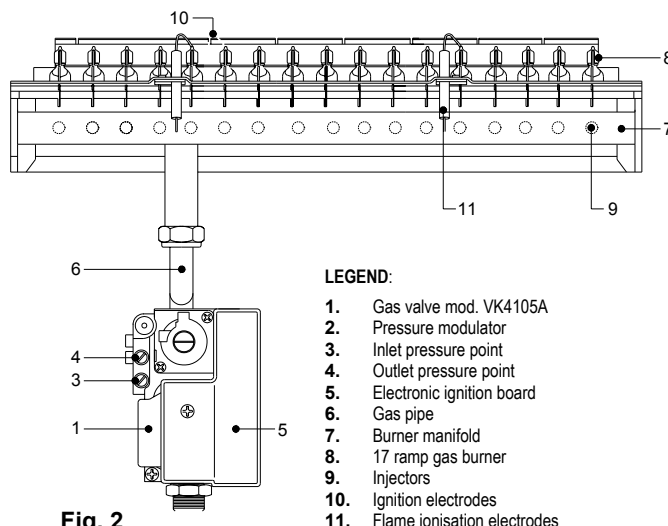


Fig. 2

**LEGEND:**

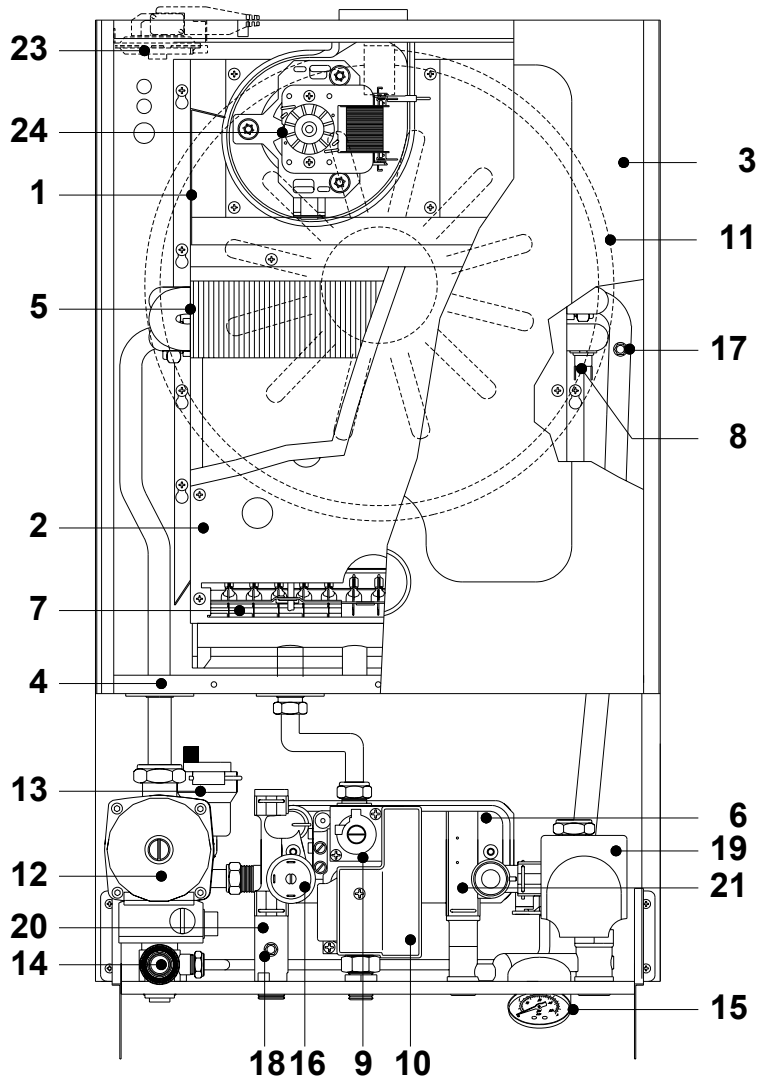
1. Gas valve mod. VK4105A
2. Pressure modulator
3. Inlet pressure point
4. Outlet pressure point
5. Electronic ignition board
6. Gas pipe
7. Burner manifold
8. 17 ramp gas burner
9. Injectors
10. Ignition electrodes
11. Flame ionisation electrodes

## GAS DATA TABLE

Models: <b>RSF 30 E</b>		<b>NATURAL GAS G 20</b>	<b>LIQUID BUTAN GAS G 30</b>	<b>LIQUID PROPANE GAS G 31</b>
Lower Wobbe index (15°C; 1013 mbar)	MJ/m <sup>3n</sup>	45.67	80.58	70.69
Rated feed pressure	mbar(mm c.w.)	20(204)	30(306)	37(377)
Minimum feed pressure	mbar(mm c.w.)	17(173.4)	20(204)	25(255)
Main burner: 17 jets - Ø jet	mm.	1.20	0.75	0.75
Consumption (15°C; 1013 mbar)	mc/h.	3.65		
Consumption (15°C; 1013 mbar)	Kg/h.		2.72	2.68

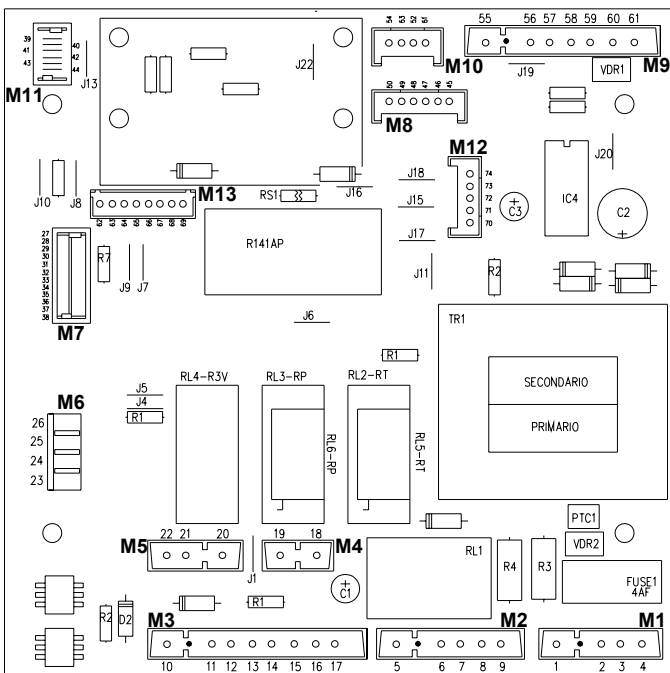
**MAIN COMPONENTS**

- 1. FLUE HOOD – ROOM SEALED COMBUSTION CHAMBER
- 2. COMBUSTION CHAMBER
- 3. ROOM SEALED CHAMBER COVER
- 4. ROOM SEALED CHAMBER BACK
- 5. HEAT EXCHANGER Mod. 30.000
- 6. FLAT PLATE TYPE EXCHANGER
- 7. MULTIGAS BURNER WITH 17 RAMPS
- 8. HEATING SAFETY THERMOSTAT
- 9. ELECTRONIC GAS VALVE VK4105
- 10. ELECTRONIC IGNITION BOARD
- 11. EXPANSION VESSEL
- 12. 3-SPEED CIRCULATION PUMP WITH AIR VENT
- 13. AUTOMATIC AIR VENT
- 14. HEATING CIRCUIT 3 bar PRESSURE RELIEF VALVE
- 15. WATER PRESSURE GAUGE
- 16. WATER PRESSURE SWITCH
- 17. HEATING SENSOR
- 18. HOT WATER SENSOR
- 19. 3-WAY DIVERTER VALVE
- 20. FLOWSWITCH CONNECTION WITH FLOW LIMITER
- 21. ELECTRONIC FLOWSWITCH
- 22. BY-PASS
- 23. AIR PRESSURE SWITCH
- 24. FAN

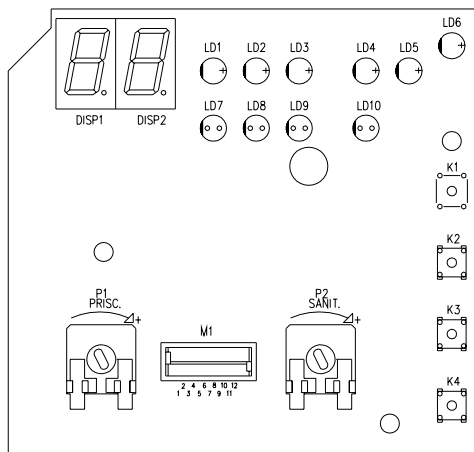


## ELECTRICAL CONNECTION

PRINTED CIRCUIT BOARD CVI-M SM20015 (cod. 76655LA)

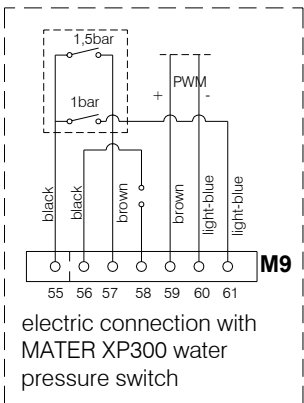


DISPLAY DIGITAL BOARD 2000 SKO6206 (COD. 76654LA)

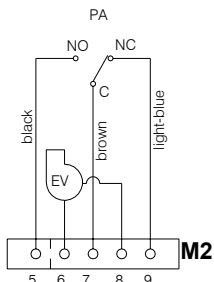
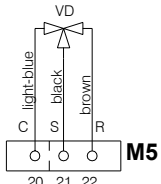
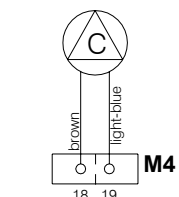
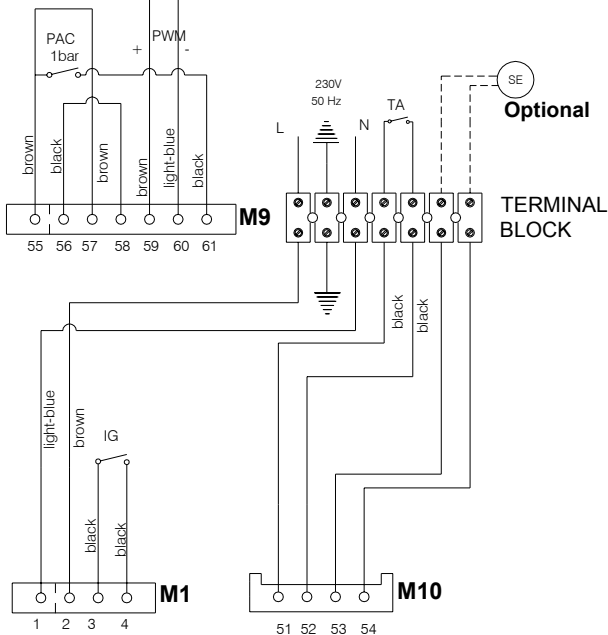
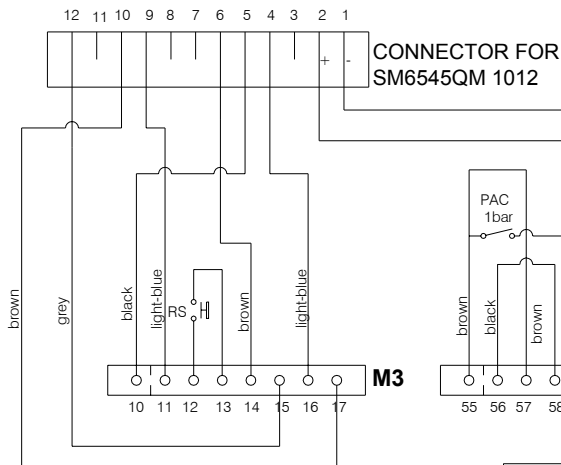
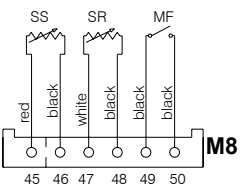
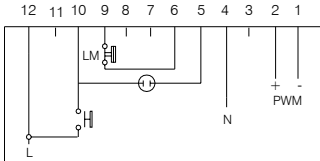


**KEY**

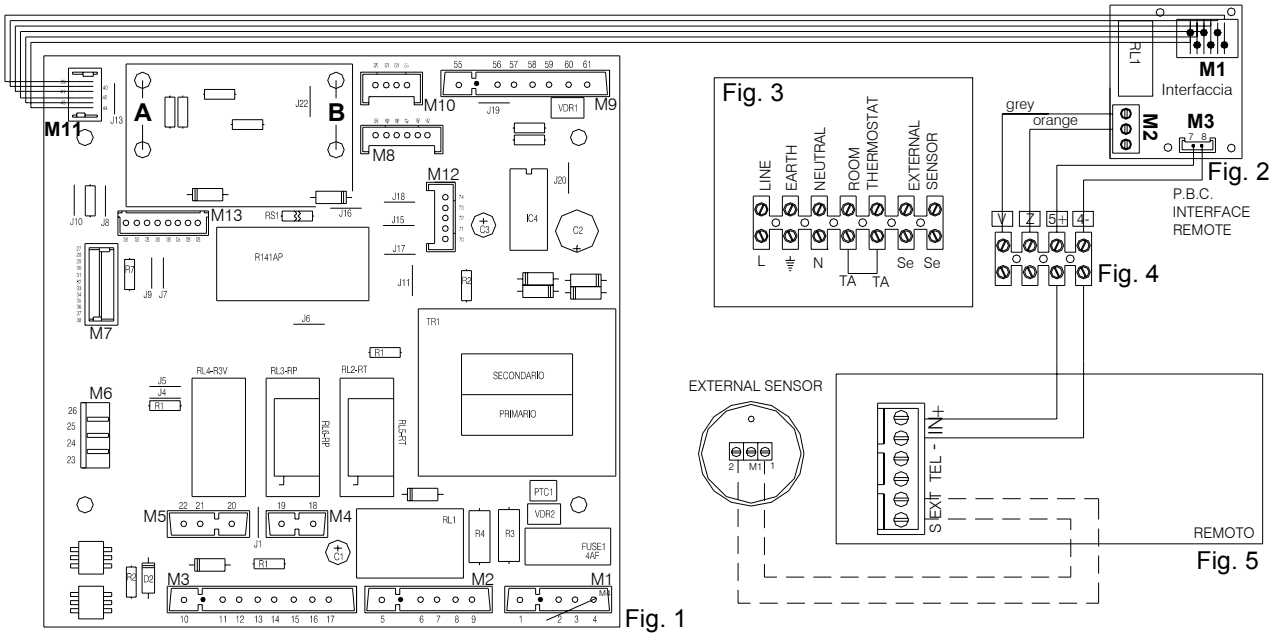
- L - LINE
- N - NEUTRAL
- PA - AIR PRESSURE SWITCH
- PAC - WATER PRESSURE SWITCH
- MF - ELECTRONIC FLOWSWITCH
- IG - MAIN SWITCH
- SS - D.H. WATER SENSOR
- SR - HEATING SENSOR
- C - CIRCULATION PUMP
- TS - SAFETY THERMOSTAT
- SE - OUTDOOR SENSOR TEMPERATURE
- TA - ROOM THERMOSTAT
- VD - 3-WAY DIVERTER VALVE
- EA - IGNITION ELECTRODE
- ER - IONISATION ELECTRODE
- EV - FAN



ELECTRONIC IGNITION BOARD CVI S4565 A 2019B (COD. 76631LA)



**WIRING DIAGRAM FOR REMOTE CONTROL INSTALLATION (no zone valves)**

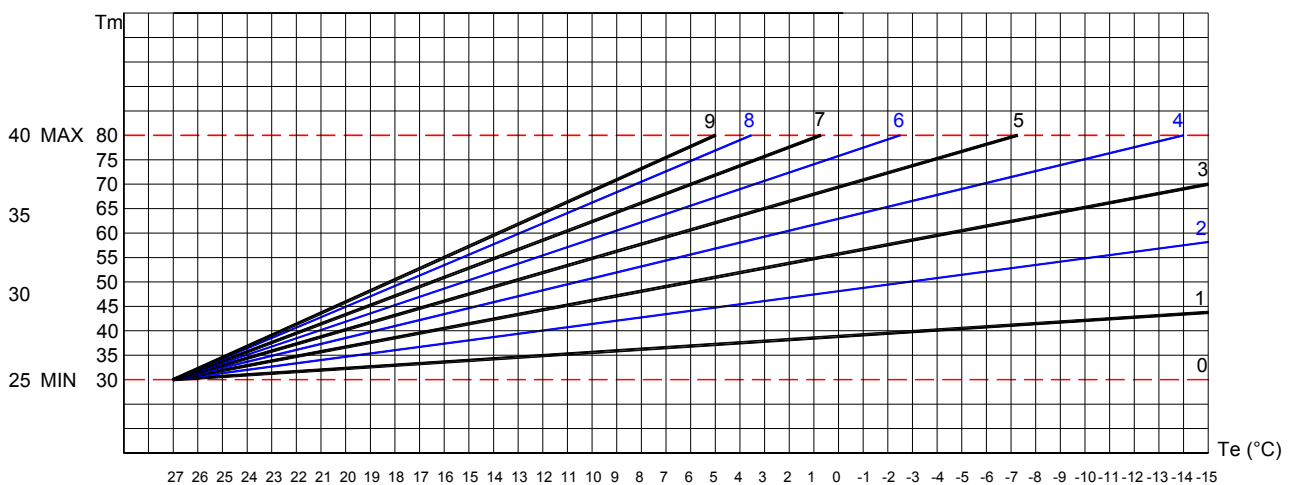


- Fit the interface (fig. 2) on the circuit board (fig. 1) into the holes A and B provided (see fig. 1).
- Connect plug M1 on the interface circuit board (fig. 2) to plug M11 on the modulation circuit board (fig. 1).
- Connect the grey and orange wires in plug M2 of the interface circuit board (fig. 2) and in the terminal block (fig. 4).
- Connect the wires of plug M3 on the interface circuit board (fig. 2) in the terminal (fig. 4).
- Remove the link TA-TA (fig. 3) and set the boiler to SUMMER mode.
- Connect the remote control to the terminal block (fig. 4) using a cable with a minimum section of 2 x 0.5 mm<sup>2</sup> section and max. length of 50 m being careful to observe the +/- polarity.

**THE EXTERNAL SENSOR IS OPTIONAL.** The connection can be made to either the remote control (fig. 5) or to the terminal block (fig. 3 - dotted line) on the terminals marked SE-SE.

**WARNING!** The remote control connection cable must pass through a channel which is separate from any system supplied with power. If this is not possible, fit a screened cable.

**EXTERNAL SENSOR**  
 FLOW TEMPERATURE CORRECTION LAW HOW IN THE RELATION TO THE EXTERNAL TEMPERATURE AND POSITION OF THE USER HEATING TEMP. ADJUSTMENT.



TM - MAX / MIN = Range of flow temperature selected  
 Te = External temperature      Tm = flow temperature

## MAINTENANCE

To keep the boiler in efficient and safe operating condition, we recommend you perform the following checks at least once a year:

- Check all seals on the gas side and replace gaskets to restore perfect seal as required.
- Check all seals on the water side and replace gaskets to restore perfect seal as required.
- Visually check combustion and the combustion chamber; dismantle and clean the chamber if necessary.
- Check the primary exchanger and clean it if necessary.
- Check functioning of gas safety systems: Insufficient gas safety device (flame detection sensor for electronic ignition boilers) thermocouple for pilot light boilers.
- Check functioning of heating safety systems: safety thermostat for temperature limit, safety sensor for pressure limit.
- Check the exhaust flue safety device
- Check the max. and min. modulation pressures and the modulation.
- Check that the electrical connection conforms to the description in the instruction manual for the boiler.
- Check the domestic hot water flow rate and temperature.

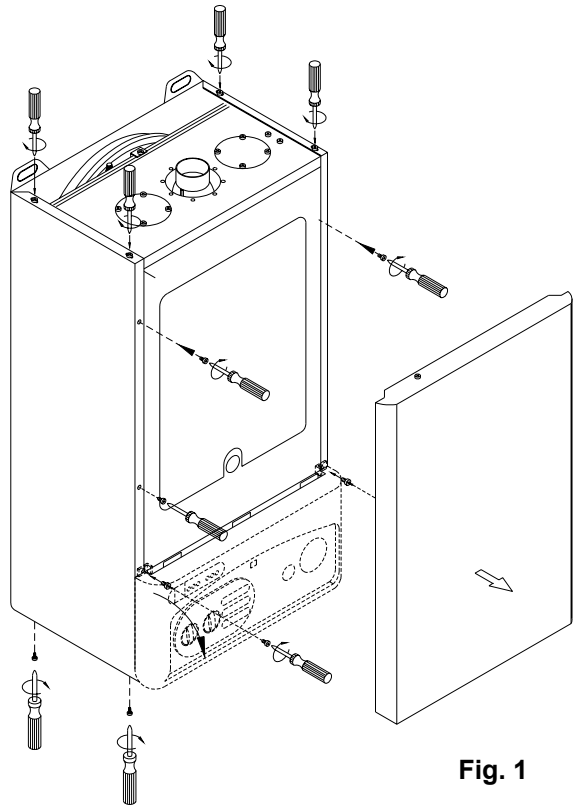


Fig. 1

When dismantling the boiler casing removing as shown in fig.1.

## UNPACKING

- Set the packed boiler (fig. 2) down on the floor making sure that the arrow is pointing upwards and remove the sticking tape. Open the 4 flaps outwards.
- Turn the boiler 180° supporting it by hand.
- Lift the boiler with the packing pieces positioning it vertically in order not to damage the lower corners of the casing and remove the packing pieces. Lift the boiler by holding it at the back and proceed with installation.

**N.B.** It is recommended that the boiler be unpacked before installation. The manufacturer cannot be held responsible for any damage caused to the boiler due to incorrect handling of the boiler.

### IMPORTANT!

The packing materials (cardboard) are recyclable.

### IMPORTANT!

The inner packing materials (plastic bags, polystyrene foam, nails etc.) are potentially dangerous and must not be left within reach of small children.

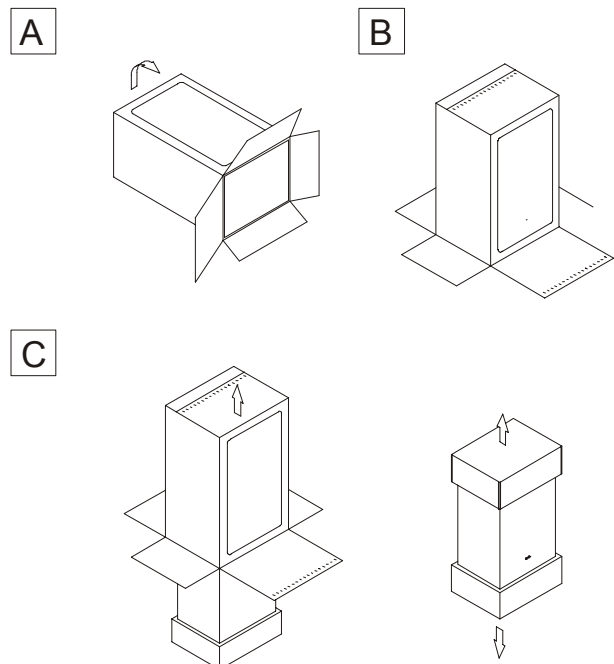


Fig. 2

## SPARE PARTS SHORT LIST

CODE	DESCRIPTION	RSF 30 E
20046LA	24 PLATE EXCHANGER 17B1902406	✓
21032LA	GAS BURNER 17 R. 1,20 NATURAL GAS	✓
21033LA	GAS BURNER 17 R. 0,75 L.P.G.	✓
24040LA	CIRCULATING PUMP GOLD 50V1 SHUL CLF6 15/6 W/ AIR VENT	✓
24041LA	CIRCULATING PUMP MOTOR SHUL CLF6 15/6	✓
31011LA	D.H.W. – HEATING SENSOR WIRE	✓
35007LA	IGNITION ELECTRODE x ELECTRONIC	✓
35009LA	IONISATION ELECTRODE	✓
36066LA	ELECTRONIC GAS VALVE VK4105 G1112	✓
37016LA	EXHAUST FAN 230V ES 30-108 G 00-0416	✓
43157LP	SEALING + CLIPS KIT FOR MULTIPLEX GROUP	✓
58009LP	MAIN HEAT EXCHANGER mod. 30.000 kCal/h	✓
59012LP	AIR PRESSURE SWITCH CE C6065FH1748B	✓
59015LA	WATER PRESSURE SWITCH 1/8" PC 5411	✓
73507LA	HEATING 1/8" SENSOR	✓
73508LA	D.H.WATER 1/8" SENSOR	✓
76631LA	ELECTRONIC IGNITION BOARD CVI S4565 A 2019B	✓
76654LA	DISPLAY DIGITAL BOARD 2000 SKO6206	✓
76655LA	PRINTED CIRCUIT BOARD CVI-M SM 20015	✓
86006LA	SAFETY THERMOSTAT 95°C WATER TB 1NT BN0D095FV	✓
86014LA	WATER PRESSURE GAUGE 40 0-4 G1-8C/DC+	✓
95018LA	LT.10 EXPANSELL VESSEL 13D00010	✓
96008LA	3 BAR PRESSURE RELIEF VALVE 1/2" 2809	✓
96032LA	DIVERTER VALVE ATV-03 M.PLEX 561128	✓
96034LA	DIVERTER VALVE MOTOR 561128	✓



Heat technology since 1959

**RADIANT BRUCIATORI s.p.a.**

Via Pantanelli, 164/166 - 61025 Loc. Montelabbate (PU)

Tel. +39 0721 9079.1 • fax. +39 0721 9079279

e-mail: tecnico@radiant • Internet: <http://www.radiant.it>

**UK – Radiant Helpline – 01329.828555**



***The code of practice for the installation,  
commissioning & servicing of gas fires and wall heaters***

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