

**SIRRUS**



Heating technology since 1959

# INSTALLATION, AND MAINTENANCE MANUAL FOR GAS FIRED, CONDENSING BOILERS

model **RH 28**

**TYPE C** HEATING ONLY - ROOM SEALED

model **RHR 28**

**TYPE C** COMBI - ROOM SEALED

**SEDBUK BAND B**



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

**CE** 0694

**TG05A052.A0205**



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## HEATING TECHNOLOGY SINCE 1959

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).

All RADIANT boilers are constructed according to:

- UNI-CIG 7271 (April 1988)
- UNI-CIG 9893 (December 1991 )
- EUROPEAN STANDARD UNI EN 297 Gas-fired central heating boilers - Type B<sub>11</sub> e B<sub>11BS</sub> boilers fitted atmospheric burners of nominal heat input not exceeding 70 kW;
- EN 483 Gas-fired central heating boilers – Type C boilers of nominal heat input non exceeding 70 kW;
- EUROPEAN STANDARD UNI EN 677 Gas-fired central heating boilers – Specific requirements for condensing boilers with a nominal heat input not exceeding 70 kW;
- GAS DIRECTIVE 90/396 EEC for CE marking - Appliances burning gaseous fuels
- GAS DIRECTIVE 73/23/EEC - Low voltage
- GAS DIRECTIVE 89/336/EEC - Electromagnetic compatibility
- GAS DIRECTIVE 92/42/ECC requirements for new hot-water boilers fired with liquid or gaseous fuels

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 optional 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 extra contractual 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.).

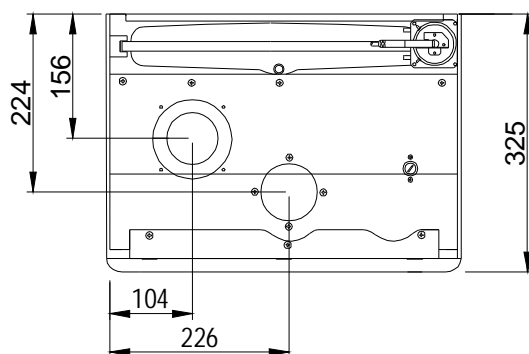
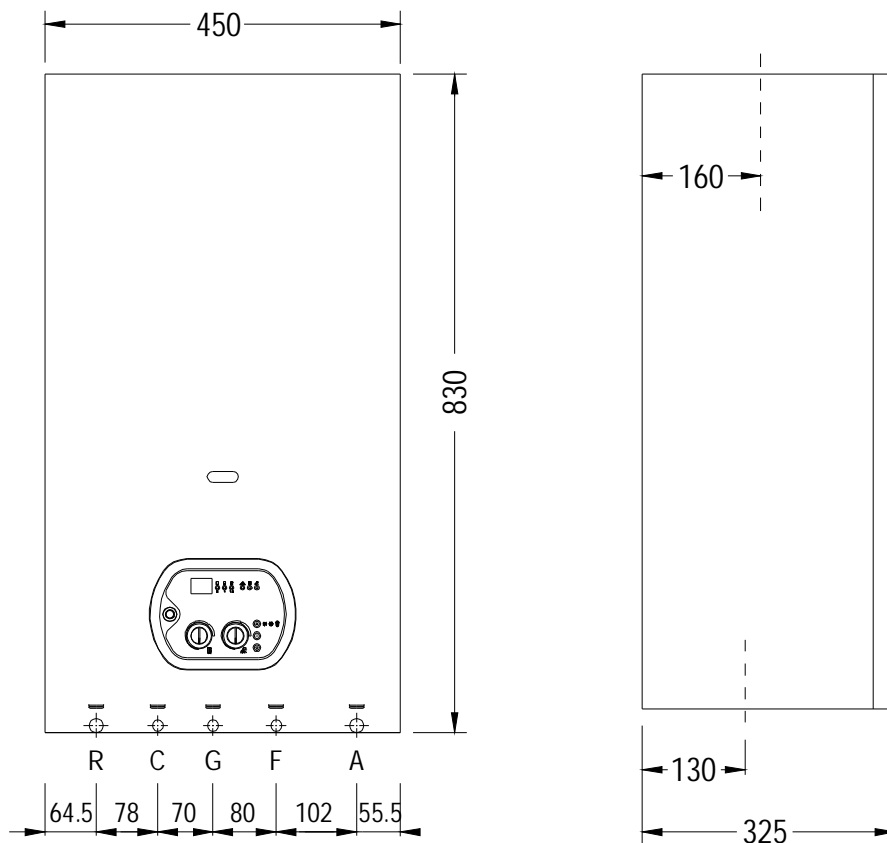
## TECHNICAL DATA

### 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.

		RH 28	RHR 28
CE Approval no.		0694BN3485	0694BN3485
Flue category (UNI10642)		C12 C32 C42 C52 C82	C12 C32 C42 C52 C82
Heat Input max	kW	26.80	26.80
	Btu/h	91495	91495
Heat Input min	kW	20	20
	Btu/h	68280	68280
Heat Output max (50/30°)	kW	27.47	27.47
	Btu/h	93783	93783
Efficiency 100% (50/30°)	%	102.50	102.50
Efficiency 30% (50/30°)	%	100.80	100.80
Heat Output max (80/60°)	kW	25.51	25.51
	Btu/h	87103	87103
Heat Output min (80/60°)	kW	19.02	19.02
	Btu/h	64934	64934
Efficiency 100% (80/60°)	%	95.20	95.20
Efficiency 30% (80/60°)	%	94.70	94.70
GAS DIRECTIVE 92/42/ECC	stars	3	3
NOx class (European Standard UNI EN 297 – pr A5)	class	2	2
NOx	mg/kWh	40	40
SEDBUK	Band	B	B
Max. Heating temperature	°C	80	80
Heating temperature setting (min-max)	°C	30-80	30-80
Max. working pressure (heating)	bar	3	3
Min. working pressure (heating)	bar	0.3	0.3
Expansion vessel capacity (pre-charge 1 bar)	Litres	8	8
Max. working pressure (water)	bar	6	6
Min. working pressure (water)	bar	0.5	0.5
Hot water flow rate $\Delta t$ 30°	lt/min.	-	12.19
Width	mm	450	450
Height	mm	830	830
Depth	mm	325	325
Horizontal-Coaxial Flue Kit K (diameter +max. flue length)	mm	100/60 (3)	100/60 (3)
Twin pipe Flue KIT H (diameter + max. flue length)	mm	80/80 (30)	80/80 (30)
Vertical-Coaxial Flue KIT V (diameter + max. flue length)	mm	110/60 (3)	110/60 (3)
Weight	kg	42	42
Flow/return connections	Ø	¾"	¾"
Cold water connection	Ø	-	½"
Hot water connection	Ø	-	½"
Gas connection	Ø	½"	½"
Power supply - 50 Hz	V	230	230
Electrical power consumption	W	200	200
Electrical protection	IP	X4D	X4D

## OVERALL DIMENSIONS



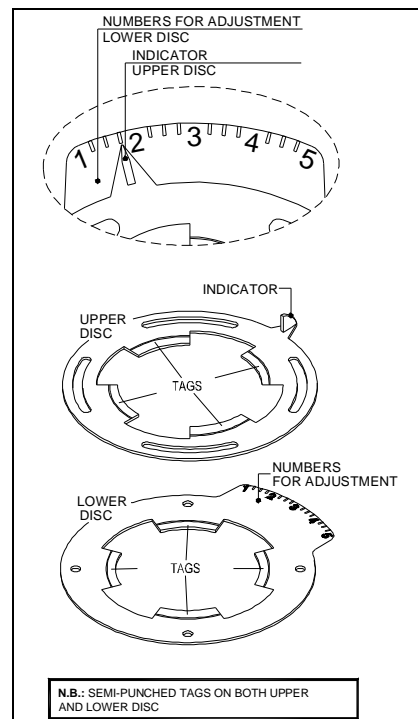
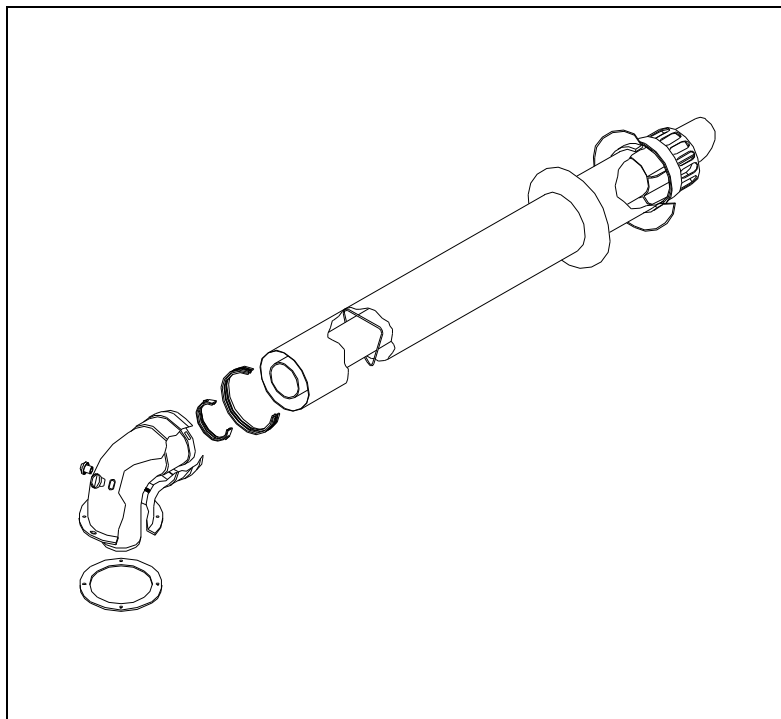
### KEY

- 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  $\frac{3}{4}$ "



## kit K - Horizontal-coaxial flue kit system with intake / exhaust pipes Ø100/60

## Diaphragms system



### Diaphragms system setting – Maximum flue length : 3 mt.

<div><div><div>indicator P</div></div></div>	1	1.1	1.2	1.3	2	2.1	2.2	2.3	3	3.1	3.2	3.3	4	4.1	4.2	4.3	5	No diaphragm
models β	<div><div><div></div></div></div>																	
<div><div><div>RH 28 – RHR 28</div></div></div>	<div><div><div></div></div></div>								from 0.5 to 1 mt			from 1 to 2 mt						

**N.B.** (\*) = remove tags

**Example:** intake/exhaust pipes length (equivalent length): 2.5 metres – set the diaphragm 1 + remove tags

NOTE: 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.

## OVERALL DIMENSIONS - FLUE KIT K

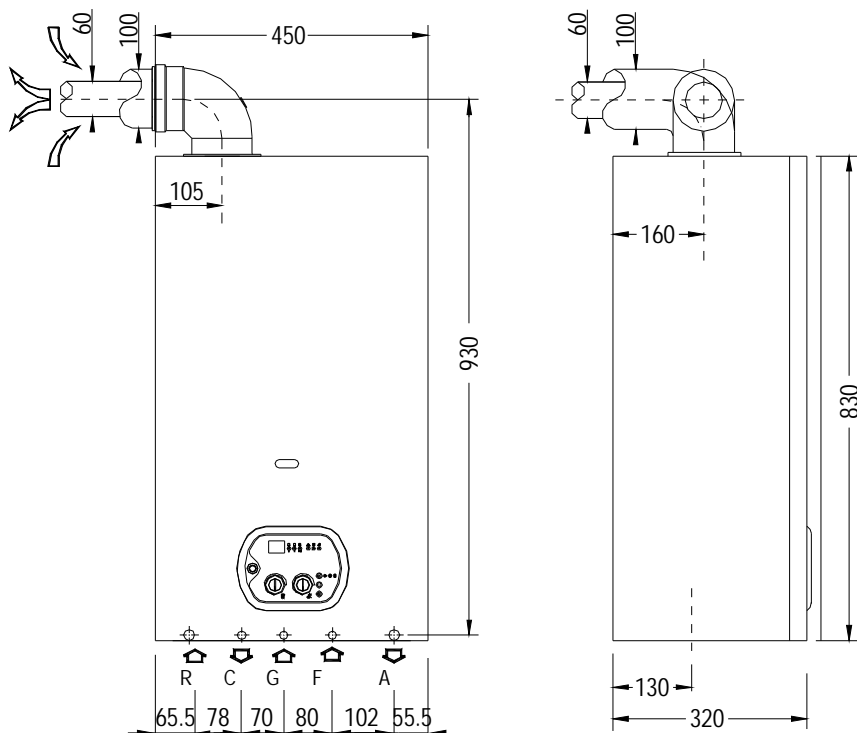
KIT K: for the exhaust of combustion products and air intake through the 2 coaxial pipes, Ø100mm. external pipe (air intake) and Ø60mm. internal pipe (flue exhaust) to an external wall or a combined flue duct (chimney) conforming to UNI 7129/01 standard and D.P.R. 412/93

When deciding the Flue Length, consider the total length of flue starting by the room-seal chamber top connection excluding the first bend.

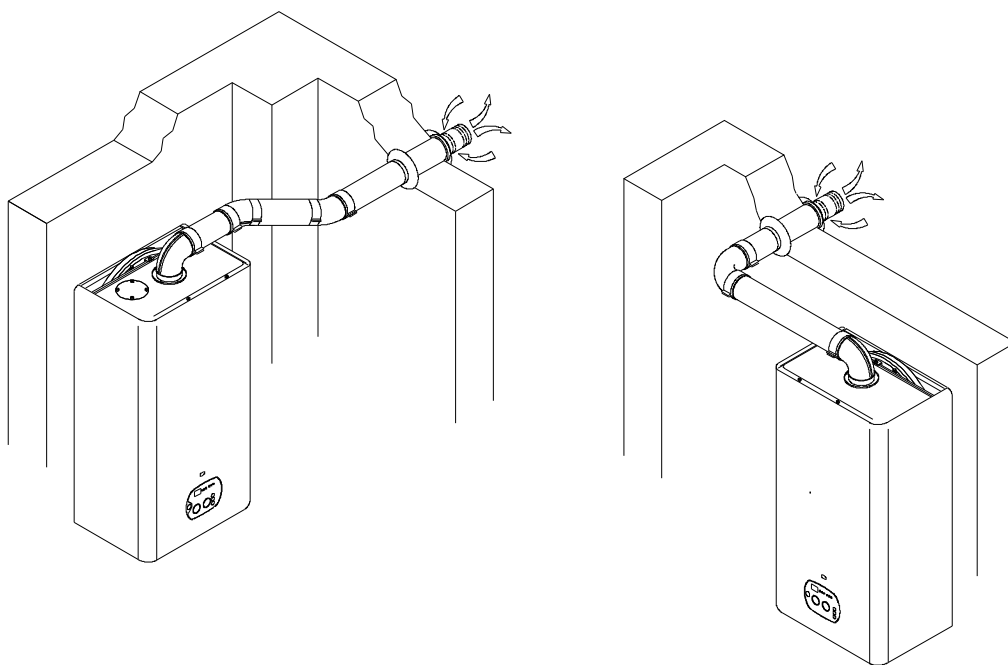
The use of additional bends reduce linear length by the following value:  
 90° flue bend Ø100/60 = 0.8 m.  
 45° flue bend Ø100/60 = 0.5 m.

Total length of flue =

- 1) linear length of flue pipe +
- 2) value of additional bends used

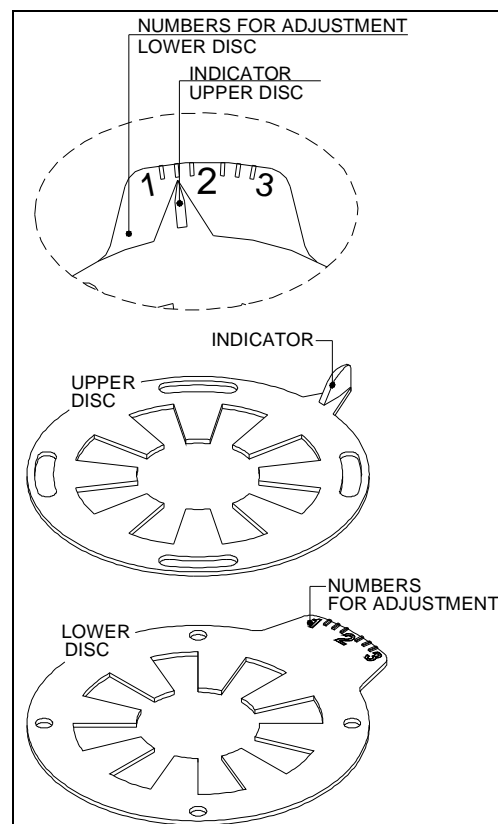
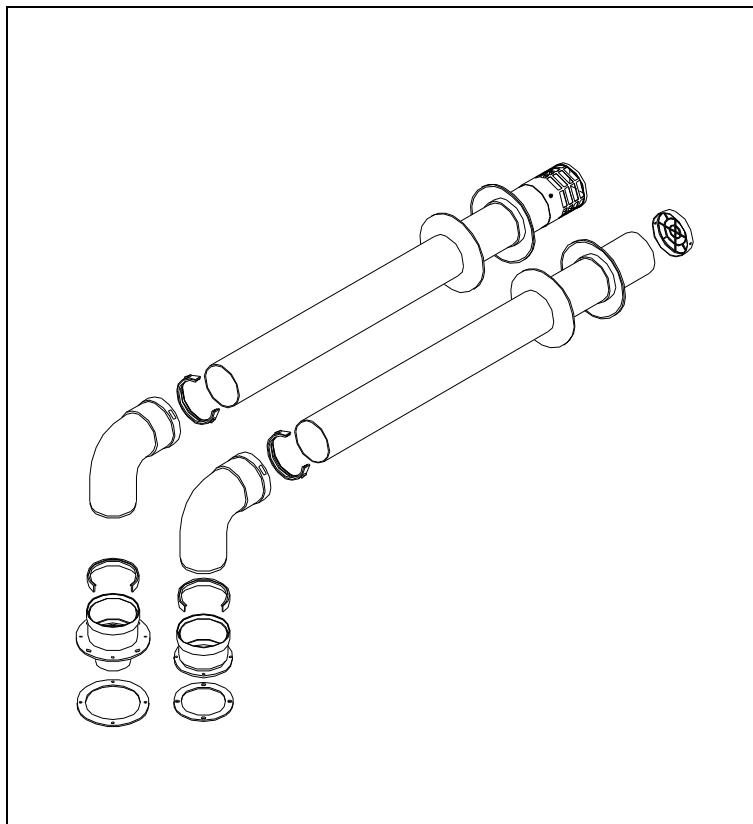


## FLUE INSTALLATION OPTIONS



## kit H - Twin pipe flue kit system with intake/exhaust pipes ø80/80

## Diaphragms system



### Diaphragms system setting – Maximum flue length : 30 mt.

Indicator P	1	1.1	1.2	1.3	2	2.1	2.2	2.3	3	No diaphragm
models B										
RH 28 – RHR 28		from 1 to 8 mt	from 8 to 18 mt		from 18 to 30 mt					

**Example :** intake/exhaust pipes length (equivalent length): 2.5 metres – set the diaphragm 1.1;

NOTE: 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.

## OVERALL DIMENSIONS - FLUE KIT H

KIT H: for the exhaust of combustion products and air intake through the twin pipes Ø80mm/80mm.

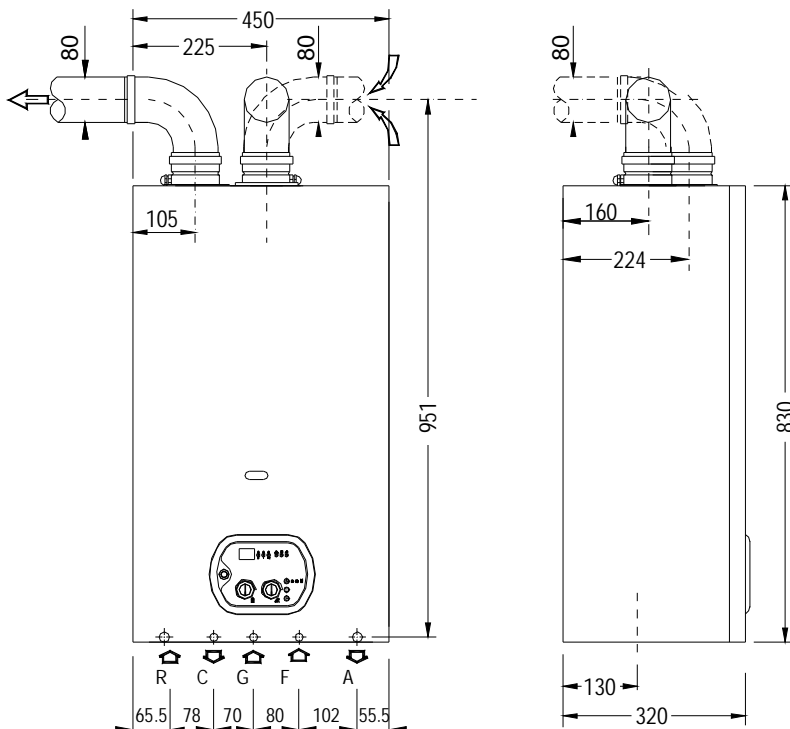
When deciding the Flue Length: consider the total length of flue starting by the room-seal chamber top connection excluding the first bend.

The use of additional bends reduce linear length by the following value:  
 90° flue bend Ø80(wide radius) = 1.5 m.  
 90° flue bend Ø80(narrow radius) = 3 m  
 45° flue bend Ø80 (wide radius)= 1.2 m.

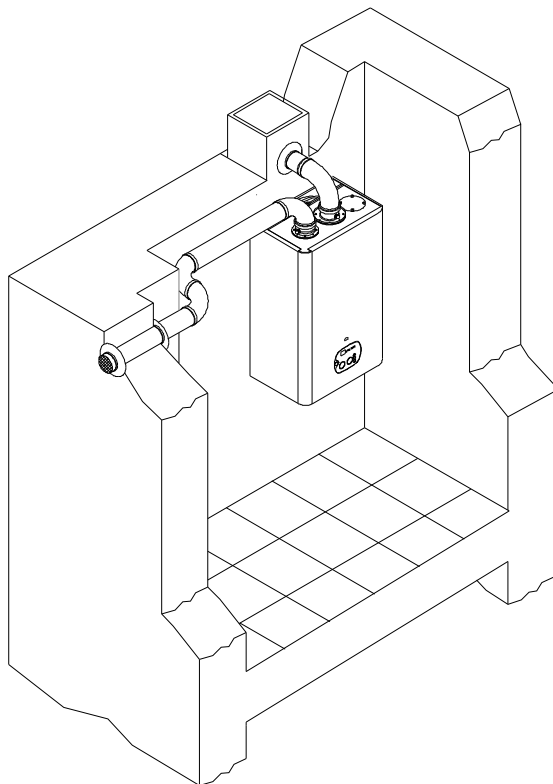
Total length of flue =

- 1) linear length of flue pipes +
- 2) value of additional bends used

N.B.: For the twin pipe flue kit, the maximum length of the exhaust pipe must not exceed 2/3 of the maximum length as shown in the table on page 8.

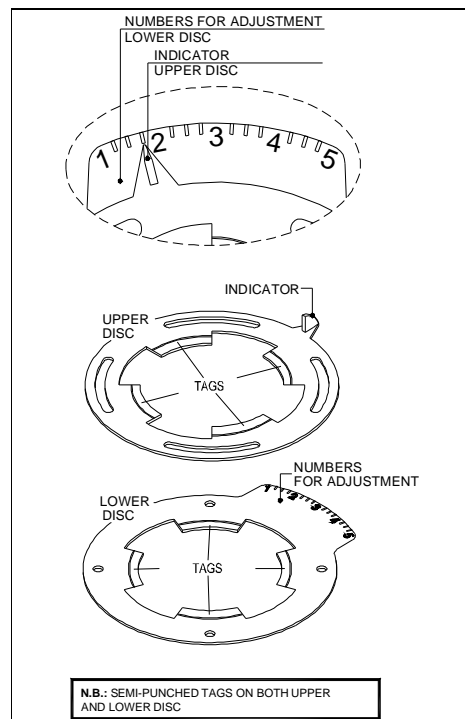
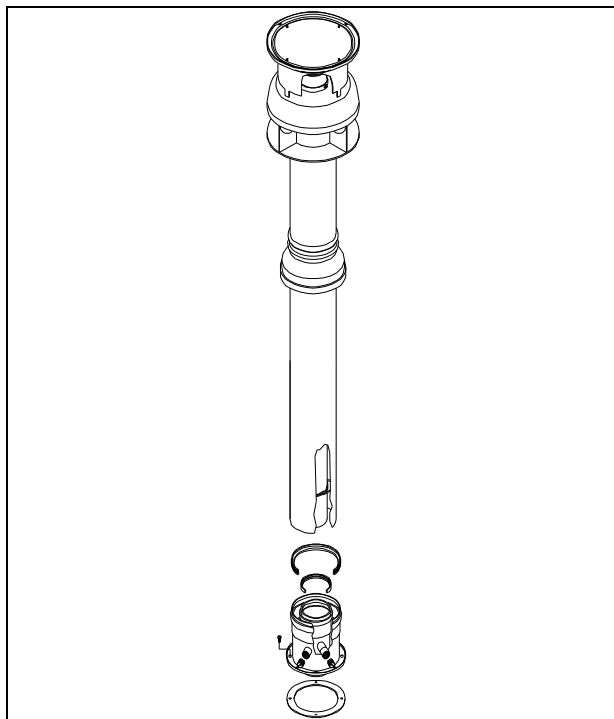


## FLUE INSTALLATION OPTIONS



## kit V - Horizontal-coaxial flue kit system with intake / exhaust pipes Ø100/60

## Diaphragms system



### Diaphragms system setting – Maximum flue length : 3 mt.

indicator P	1	1.1	1.2	1.3	2	2.1	2.2	2.3	3	3.1	3.2	3.3	4	4.1	4.2	4.3	5	No diaphragm
models β																		
RH 28 – RHR 28	(*) from 2 a 3 mt								from 0.5 to 1 mt			from 1 to 2 mt						

**N.B.** (\*) = remove tags

**Example:** intake/exhaust pipes length (equivalent length): 2.5 metres – set the diaphragm 1 + remove tags

NOTE: 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.

## OVERALL DIMENSIONS - FLUE KIT V

KIT V = for the exhaust of combustion products and air intake through the 2 coaxial pipes, Ø100mm. external pipe (air intake) and Ø60mm. internal pipe (flue exhaust) to the roof conforming to UNI 7129/01 standard and D.P.R. 412/93

When deciding the Flue Length, consider the total length of flue starting by the room-seal chamber top connection.

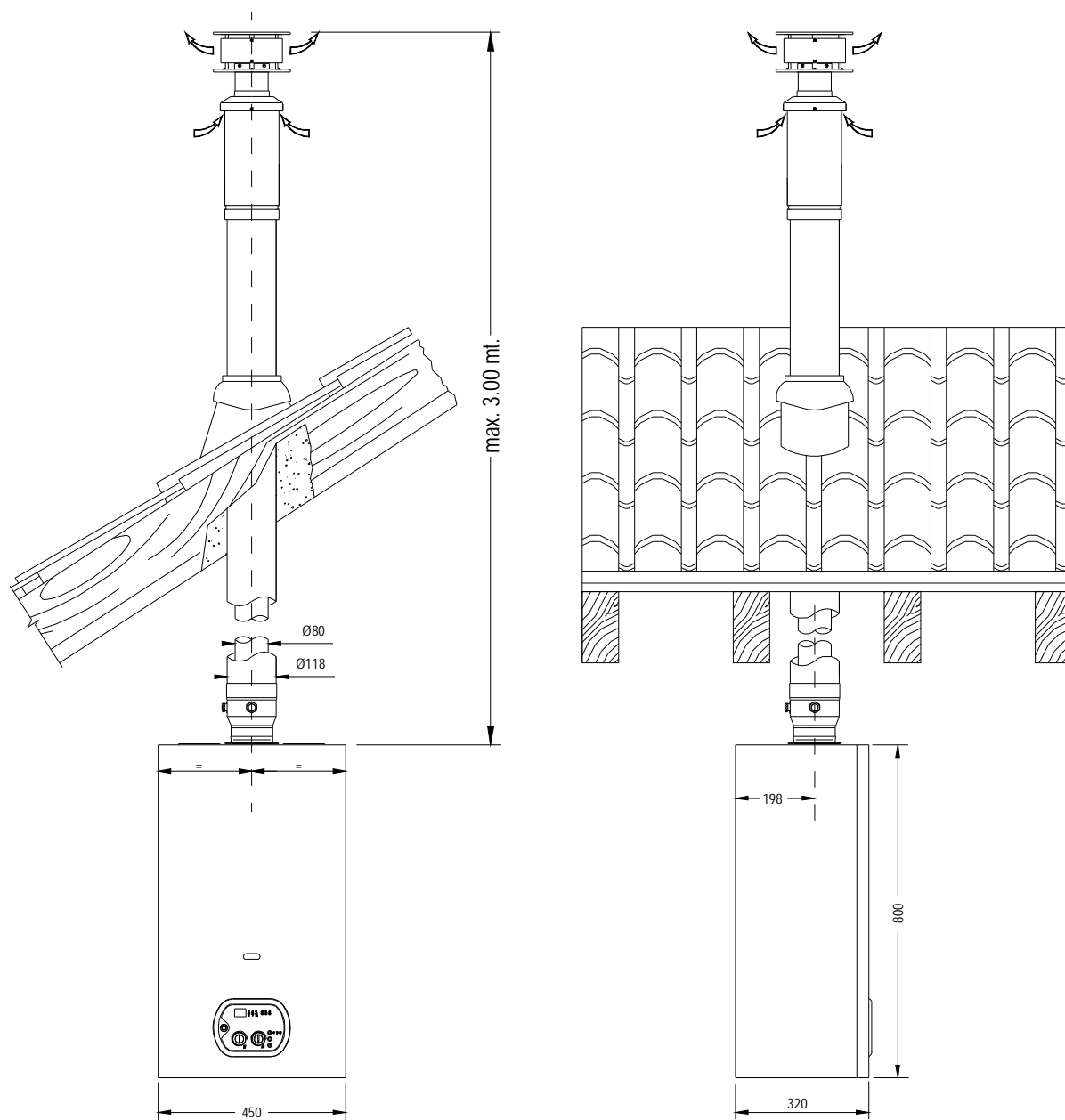
The use of additional bends reduce linear length by the following value:

90° flue bend Ø100/60 = 0.8 m.

45° flue bend Ø100/60 = 0.5 m.

Total length of flue =

- 1) linear length of flue pipe +
- 2) value of additional bends used.



## 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.

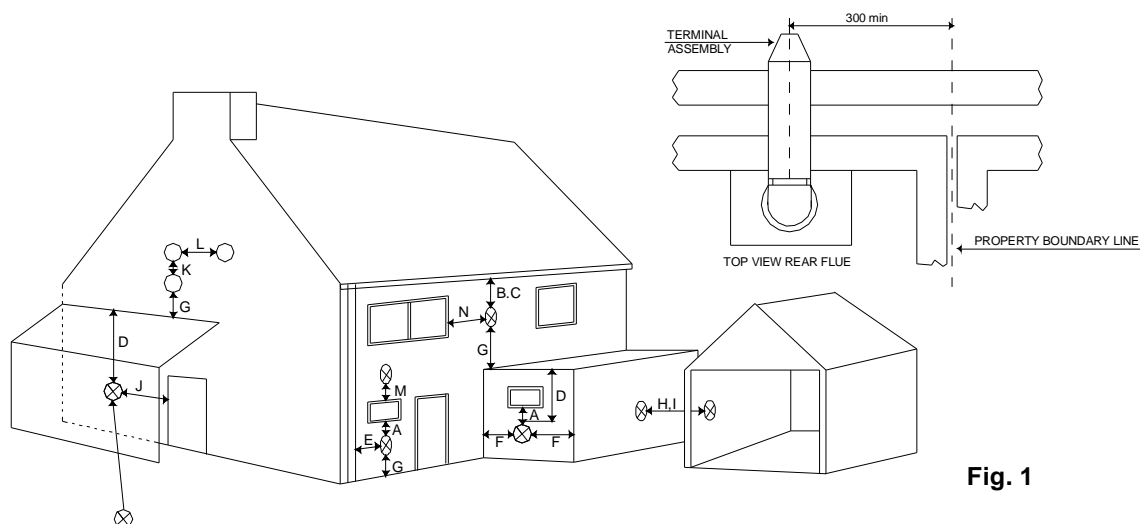
**IMPORTANT REQUIREMENT:** The correct dimensional relationship between the terminal and any obstruction, openable window or ventilator as shown in Fig 1 It is **ESSENTIAL TO ENSURE**, in practice, that products of combustion discharging from the terminal cannot re-enter the building, or any other adjacent 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**

A	Directly below an openable window, air vent or any other ventilation opening.	300 mm
B	Below gutter, drain pipes or soil pipes.	75 mm
C	Below eaves.	25 mm
D	Below balcony or carport roof.	25 mm
E	From vertical drain pipes or soil pipes.	25 mm
F	From internal or external corners.	25 mm
G	Above adjacent ground, roof or balcony level.	300 mm
H	From a surface facing the terminal.	600 mm
I	Facing the terminals.	1200 mm
J	From opening (door, window) in the carport into dwelling.	1200 mm
K	Vertically from a terminal on the same wall	1500 mm
L	Horizontally from a terminal on the same wall	300 mm
M	Above an opening, air brick, opening window etc.	300 mm
N	Horizontally to an opening, air brick, opening window etc.	300 mm



## CENTRAL HEATING SYSTEM -Fig. 1

The boiler is designed for use in a sealed central heating system in accordance with the requirements of BS 5449 and BS 6798.

The system should be designed to operate with flow temperatures of up to 82°C. When designing the system, the pump head, expansion vessel size, mean radiator temperature, etc. must all be taken into account. Refer to the pump performance table for guidelines.

System volume -The expansion vessel incorporated into the boiler is suitable for a sealed heating system

The boiler is supplied with the following components built in:-

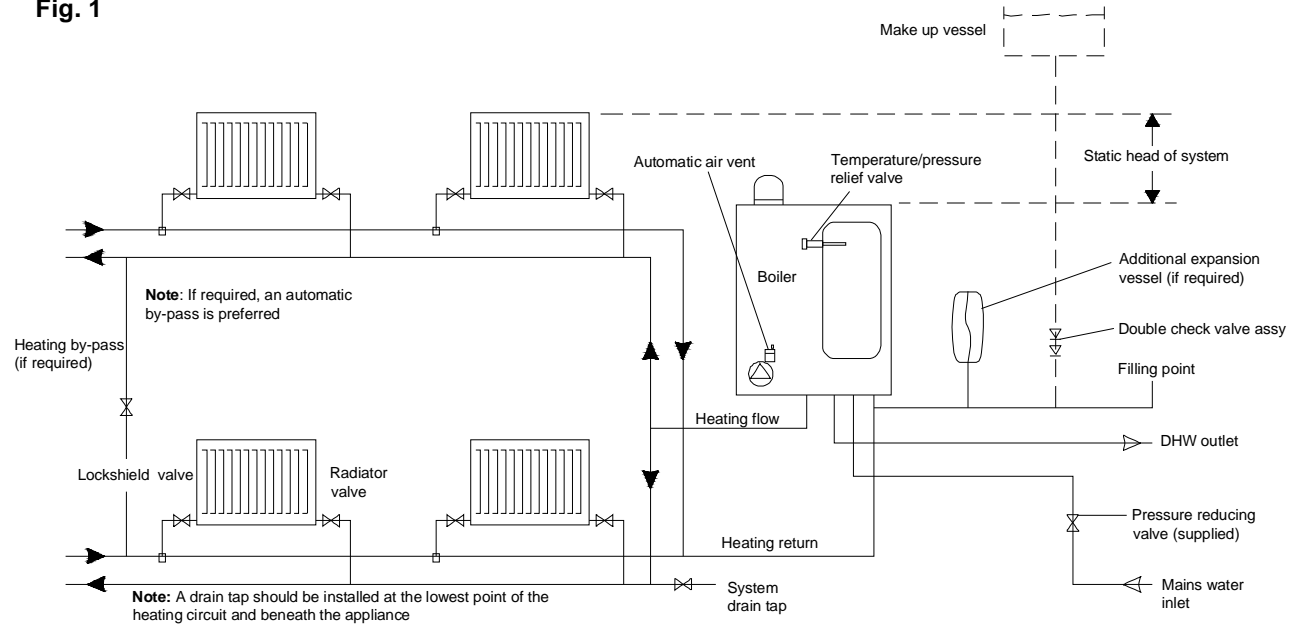
Pressure relief valve -complying with BS 6759 and set to operate at 3 bar. The discharge pipe must be routed clear of the boiler and terminated in such a manner that it can be seen, but cannot cause injury to persons or property.

Pressure gauge -To indicate the system pressure to be maintained.

Expansion vessel .Conforming to BS 4814 with a capacity of 8 litres.

By-pass -The boiler incorporates a by-pass, however where all radiators are fitted with thermostatic radiator valves it is recommended a system by-pass, preferably automatic is fitted.

**Fig. 1**



## FILLING THE CENTRAL HEATING SYSTEM – Figs. 2-3

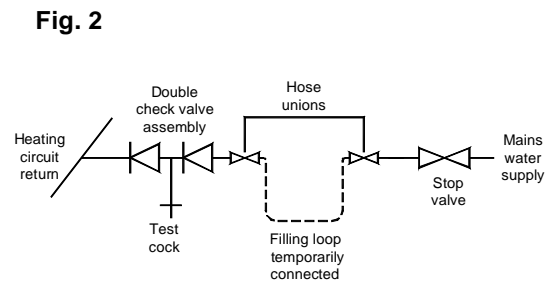
The system design pressure (cold) should be set to 1.5 bar. This pressure is equivalent to a static head of 15.4 metres of water.

Provision should be made to replace water lost from the system. This can be by manual or automatic means. as shown in Figs. 2 and 3. The position for connecting an automatic make-up vessel is indicated in Fig. 1. A double check valve assembly must be used. as shown in Fig. 3. Filling of the system must be carried out in a manner approved by the local Water Undertaking. Where allowed the system may be filled via a temporary connection as shown in Fig. 2. After filling, always disconnect the flexible hose of the filling loop.

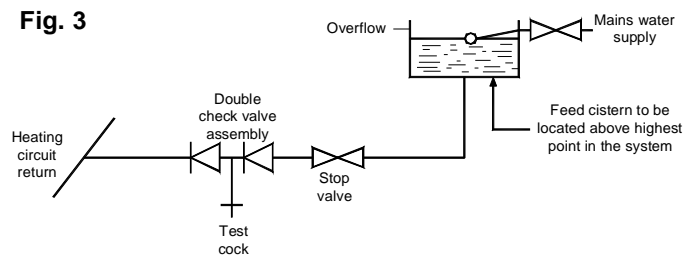
All fittings used in the system must be able to withstand pressures up to 3 bar.

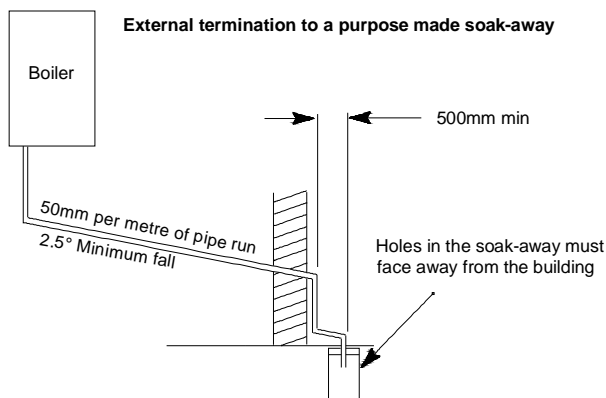
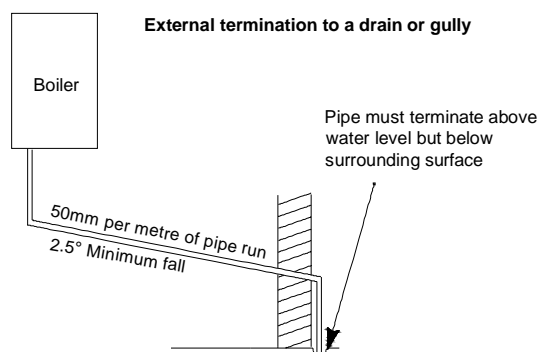
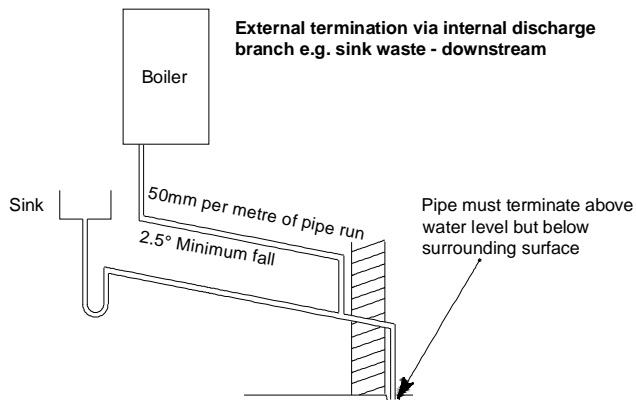
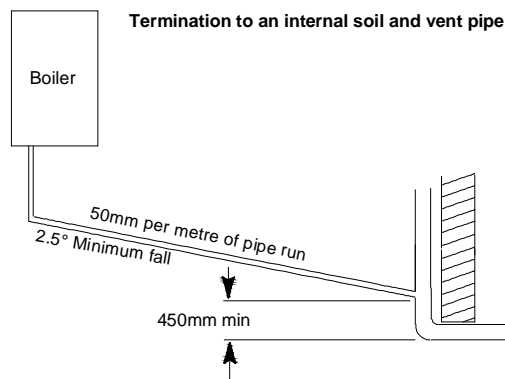
Drain taps (to BS 2879) must be used to allow the system to be completely drained.

**Fig. 2**



**Fig. 3**





## CONDENSATE DRAIN

FAILURE TO INSTALL THE CONDENSATE DISCHARGE PIPEWORK CORRECTLY WILL AFFECT THE RELIABLE OPERATION OF THE BOILER. The condensate discharge pipe **MUST NOT RISE** at any point along its length. There **MUST** be a fall of **AT LEAST 2.5°** (50mm per metre) along the entire run.

1. The condensate outlet terminates in 22 mm nut and seal for the connection of 22 mm (3/4 in) plastic overflow pipe which should generally discharge internally into the household drainage system. If this is not possible, discharge into an outside drain is acceptable.

2. Ensure the discharge of condensate complies with any national or local regulations in force.  
BS 6798:2000 & Part H 1 of the Building Regulations give further guidance.

3. The discharge pipe should be run in a proprietary drain pipe material e.g. PVC, PVC-U, ABS, PVC-C or PP.

4. Metal pipework is **NOT** suitable for use in condensate discharge systems.

5. The pipe should be a minimum of 21.5 mm diameter and must be supported using suitably spaced clips to prevent sagging.

6. Any pipe fitted externally must not exceed 3 metres.

7 Any condensate discharge pipework external to the building (or in an unheated part of it e.g. garage) must be insulated to protect against frost. It is also recommended that the pipe diameter is increased to 32mm.

8. If the boiler is fitted in an unheated location the entire condensate discharge pipe should be treated as an external run.

9. In all cases discharge pipe must be installed to aid disposal of the condensate. To reduce the risk of condensate being trapped, as few bends and fittings as possible should be used.

10. When discharging condensate into a soil stack or waste pipe the effects of existing plumbing must be considered. If soil pipes or waste pipes are subjected to internal pressure fluctuations when WC's are flushed or sinks emptied then back-pressure may force water out of the boiler trap and cause appliance lockout.

Examples are shown of the following methods of termination:-

- i) to an internal soil & vent pipe
- ii) via an internal discharge branch (e.g. sink waste)
- iii) to a drain or gully
- iv) to a purpose made soakaway

## BOILER INSTALLATION 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.

### Installation Instruction

- with a spirit level, draw a line on the wall on which the boiler will be installed (fig. 2);
- 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 or wall anchors for fixing the boiler hanging bracket (choose proper anchors according to the wall type);
- fix the hanging bracket
- 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;
- position the boiler paying attention to hang it to the hanging bracket and make final connections;

### WATER CONNECTIONS

To facilitate installation, the boiler is equipped with a fittings kit (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.

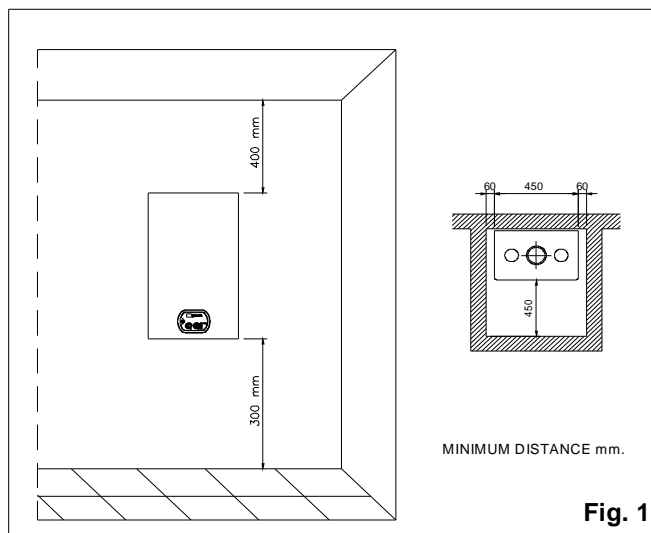


Fig. 1

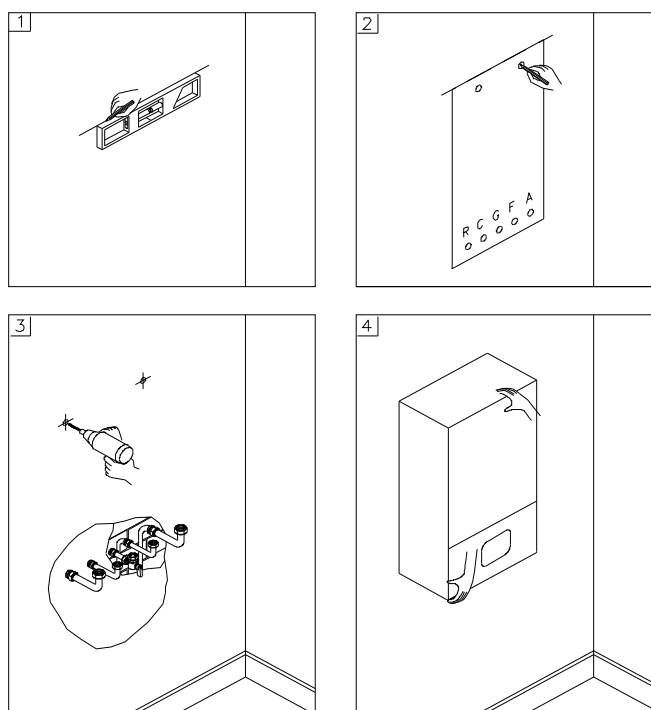


Fig. 2

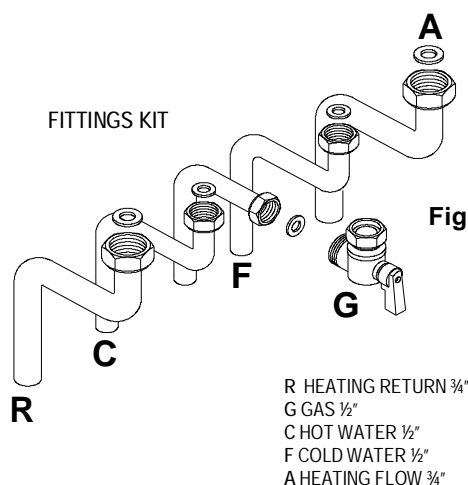


Fig. 3

## 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).

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

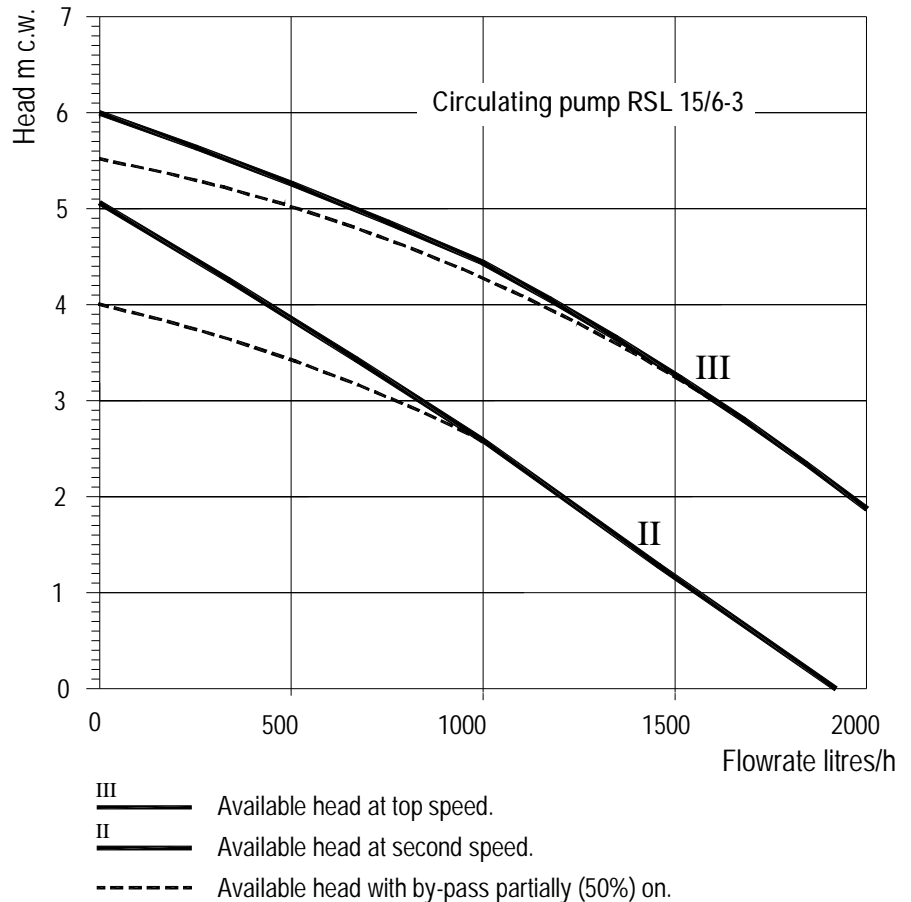
NOTE: The frost system will only come into operation if the boiler is filled with water, and connected to a live gas supply, with electrical supply and boiler controls in the "ON" position (With the Main switch turned to Summer or Winter position) and the gas supply turned on.

### 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.*



## ELECTRICAL CONNECTIONS

For qualified personnel 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.

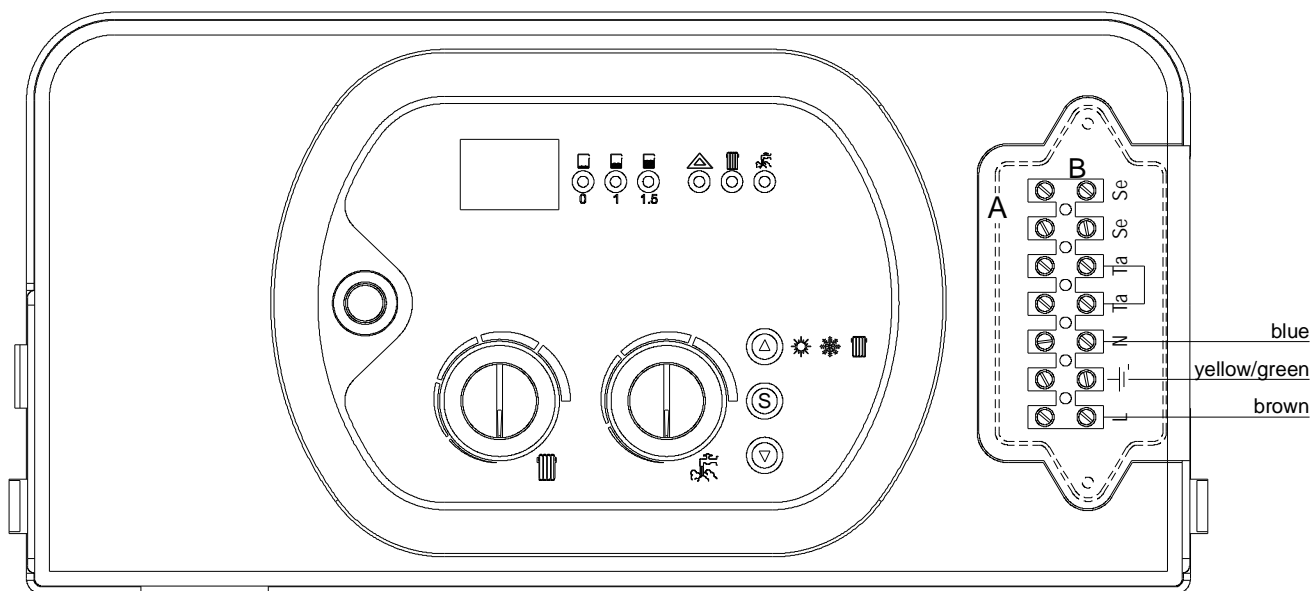
A secure earth connection is compulsory according to national and local regulations.

### IMPORTANT

If you need to replace the power supply cable, use cable having following specifications: (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. Remove the small panel plate A on the right side of the panel as shown in the figure 1.
  - D. With the terminal block B 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

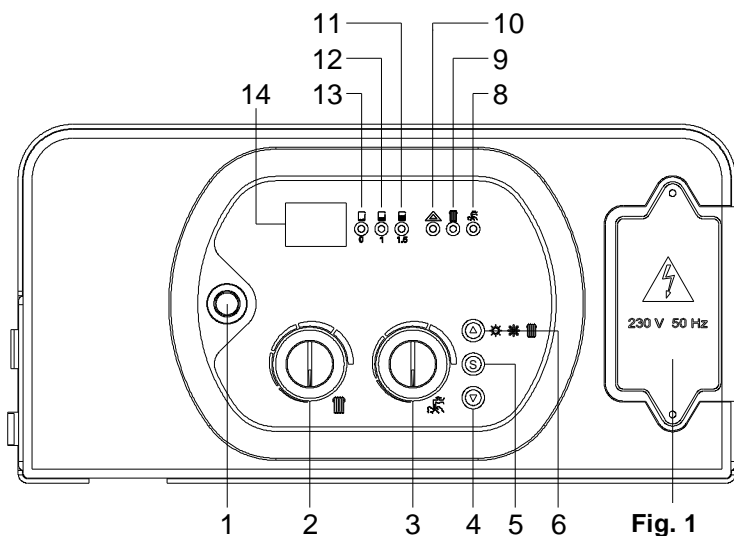
Once all connections have been made, reinstall the small panel plate and the boiler front casing.



## CONTROL PANEL

### KEY TO CONTROLS (fig. 1)

1. ON / OFF POWER BUTTON
2. HEATING TEMPERATURE ADJUSTMENT KNOB
3. DOMESTIC HOT WATER TEMPERATURE ADJUSTMENT KNOB
4. OUTSIDE TEMPERATURE DISPLAY PAD (ONLY IF OPTIONAL OUTSIDE TEMPERATURE SENSOR IS FITTED)
5. SERVICE PAD
6. MODE SELECTION PAD (SUMMER ONLY / WINTER ONLY / SUMMER AND WINTER)
7. EXTERNAL TERMINAL BLOCK (POWER SUPPLY)
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



### ERROR CODES:

1. IONISATION LOCK-OUT
2. HIGH LIMIT THERMOSTAT LOCK-OUT
3. FLUE SAFETY THERMOSTAT LOCK-OUT
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

- 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;





### 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 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) and close the tap on the filling loop.
- set ON/OFF switch in ON position (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 tap on the filling loop (see fig. 2) once this operation is completed;
- remove the P cap and fill the siphon S with water for  $\frac{3}{4}$  of its total capacity (fig.3);

- close the T cap and connect the pipe P to the discharge pipe;

#### Starting up the boiler


- turn on the gas cock situated under the boiler grill;
- set the ON/OFF button (1) (see fig.1 pag. 19) to ON position ;
- make sure that no flashing value is on the display (14); if value 04 is flashing and no.8 light is ON it means water deficiency in the system: open the filling tap on the filling loop and fill the system until a pressure of 1.5 bar has been reached (light no.11 ON) and then close the tap on the filling loop;
- the automatic ignition system will turn the burner on;
- should the boiler fail to ignite: if the display (14) shows value 04 flashing, it is necessary to repeat the procedure of filling the system; if the display (14) shows value 01 flashing wait 3 minutes; set the ON/OFF button (1) to OFF position  and then ON position  (fig.1). It may be necessary to repeat the procedure a few times to purge air from the pipes;
- set ON/OFF switch (1) in OFF position  (fig.1 page 19), insert a gauge into the pressure point no.4 (fig.1 page 32). 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 19);
- wait for the boiler to cool down;

turn the system drain tap RS (see fig. 2) 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.

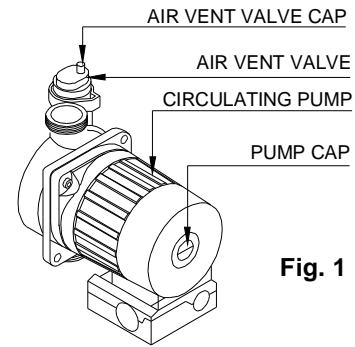


Fig. 1

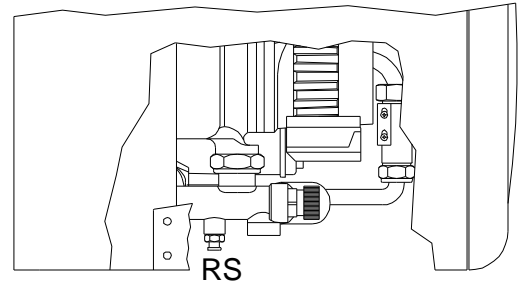


Fig. 2

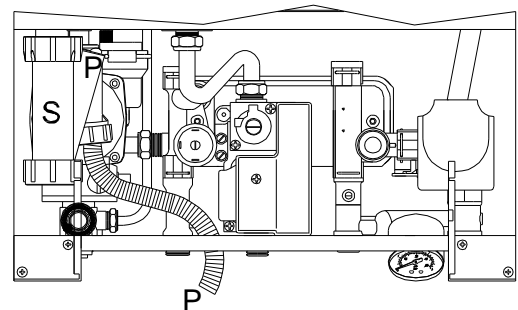


Fig. 3

## CONTROL PANEL



1  
ON / OFF POWER BUTTON



2  
HEATING TEMPERATURE ADJUSTMENT KNOB



3  
DOMESTIC HOT WATER TEMPERATURE ADJUSTMENT KNOB



6  
MODE SELECTION PAD (SUMMER ONLY / WINTER ONLY /  
SUMMER AND WINTER)



5  
SERVICE PAD



4  
OUTSIDE TEMPERATURE DISPLAY PAD (ONLY IF *OPTIONAL*  
*OUTSIDE TEMPERATURE SENSOR IS FITTED*)



14  
TEMPERATURE AND ERROR CODES DISPLAY



13  
WATER DEFICIENCY INDICATOR



12  
WATER PRESSURE LEVEL 1 BAR INDICATOR



11  
WATER PRESSURE LEVEL 1.5 BAR INDICATOR



10  
GENERAL LOCK-OUT WITH FLASHING ERROR CODE ON  
DISPLAY



9  
HEATING MODE (STABLE LIGHT)  
HEATING OPERATION (FLASHING LIGHT)

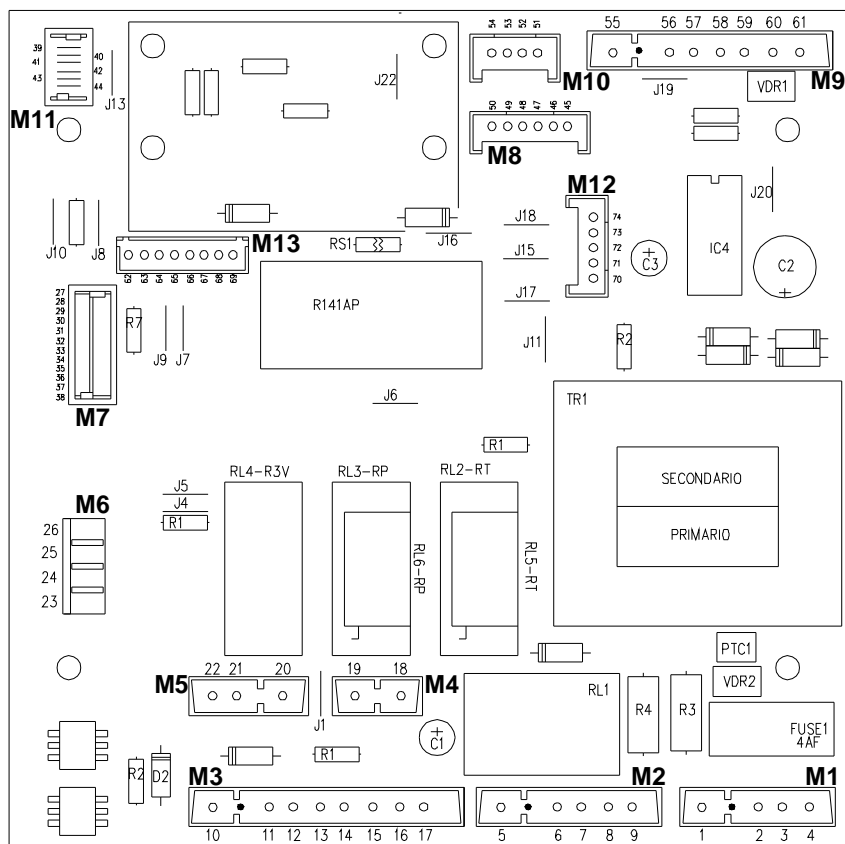


8  
DOMESTIC HOT WATER MODE (STABLE LIGHT);  
DOMESTIC HOT WATER OPERATION (FLASHING LIGHT).



## DIAGNOCODE SM 20015 ELECTRONIC PRINTED CIRCUIT BOARD

cod. 76655LA



### TECHNICAL SPECIFICATION

New generation printed circuit board with easy settings of boiler parameters.

Special features: :

#### Exclusively for technicians settings

- Standard / reduced heating temperature
- Water-Hammer prevention function
- Short cycling function-3 minutes, heating circuit
- Pump overrun function - heating circuit
- Pump overrun function - dom. hot water circuit
- Minimum output setting
- Maximum heating output setting

#### User settings

- On / Off operation
- Heating temperature adjustment from 30 to 80 °C
- Domestic Hot Water adjustment from 35 to 65 °C
- Mode Selection: summer only / winter only / summer and winter
- Lock-out
- Normal water pressure
- Water deficiency safety switch
- Temperature display

## FUNCTIONS CODES
















CODE	TYPE OF FUNCTION	DESCRIPTION
<b>7</b>	CHIMNEY-SWEEPER FUNCTION ON	THE CHIMNEY-SWEEPER FUNCTION IS ACTIVATED BY KEEPING PRESSED "SERVICE" PAD FOR 5 SECONDS. TO CANCEL IT RESET THE UNIT BY PUSHING ON/OFF BUTTON. THIS FUNCTION BRINGS THE UNIT TO THE MAX HEATING GAS PRESSURE FOR 15 MINUTES WITHOUT MODULATING DOWN. IT IS USEFUL WHILE CARRYING ON THE COMBUSTION TEST.
<b>8</b>	ANTI-FROST FUNCTION HEATING CIRCUIT	THIS FUNCTION COMES INTO OPERATION WHEN THE HEATING SENSOR SENSES A 5°C TEMPERATURE. THE BOILER STARTS AT THE MINIMUM GAS PRESSURE, WITH THE 3-WAY VALVE IN WINTER POSITION. THE BOILER STOPS WHEN THE TEMPERATURE TAKEN BY THE SENSOR HAS REACHED 30°C .
<b>9</b>	ANTI-FROST FUNCTION DOMESTIC HOT WATER CIRCUIT	THIS FUNCTION COMES INTO OPERATION WHEN THE HOT WATER SENSOR SENSES A 4 °C TEMPERATURE. THE BOILER STARTS AT THE MINIMUM GAS PRESSURE, WITH THE 3-WAY VALVE IN SUMMER POSITION AND HEATS THE HOT WATER CIRCUIT. THE BOILER STOPS WHEN THE TEMPERATURE TAKEN BY THE HOT WATER SENSOR HAS REACHED 8°C .
<b>13</b>	ANTI-FROST FUNCTION D.H.W. CIRCUIT - STORAGE BOILERS.	SAME OPERATION AS THE ANTI-FROST FUNCTION OF D.H.W. CIRCUIT FOR INSTANTANEOUS BOILERS.
<b>28</b>	LEGIONELLA PREVENTION FUNCTION.	FUNCTION ACTIVE FOR STORAGE BOILERS ONLY. IT COMES INTO OPERATION EVERY 7 DAYS . IT BRINGS THE HOT WATER TEMPERATURE OF THE STORAGE CYLINDER UP TO 60°C WHATEVER TEMPERATURE VALUE IS SET FOR HOT WATER.
<b>31</b>	NOT COMPATIBLE REMOTE CONTROL.	THIS CODE IS DISPLAYED WHEN THE REMOTE CONTROL OR OUTSIDE TEMPERATURE SENSOR CONNECTED ARE NOT ORIGINAL PARTS.

## PARAMETERS TABLE
















PARAMETER NUMBER	TYPE OF OPERATION	PARAMETER VALUE	FUNCTION	page
0	BOILER TYPE SELECTION	00 ✓ 01	WALL MOUNTED OR FLOOR STANDING OIL FLOOR STANDING UNIT	
1	BOILER TYPE SELECTION	00 01 02	INSTANTANEOUS WITH STORAGE CYLINDER WITH STORAGE CYLINDER-COMFORT (+ 7°C)	3
2	GAS TYPE SELECTION	00 01	NATURAL GAS L.P.G.	4
3	HEATING TEMPERATURE SETTING	00 01	STANDARD: from 30 to 80°C REDUCED : from 25 to 40°C	5
4	PUMP SETTING IN HEATING MODE	00 01	STANDARD (PUMP OVERRUN 3") PERMANENT (PUMP ON ALL THE TIME)	6
5	WATER-HAMMER PREVENTION SETTING	00 01	EXCLUDED ACTIVE (2" STANDBY)	7
6	SHORT CYCLING FUNCTION - HEATING CIRCUIT (FACTORY CALIBRATED AT 180" - PARAMETER VALUE "36")	00 - 90	EXPRESSED IN STEPS OF 5 SEC. Ex. 90 x 5 = 450" (7.5 MIN.)	8
7	PUMP OVERRUN - HEATING CIRCUIT (FACTORY CALIBRATED AT 180"- PARAMETER VALUE "36")	00 - 90	EXPRESSED IN STEPS OF 5 SEC. Ex. 90 X 5 = 450" (7.5 MIN.)	9
8	PUMP OVERRUN DOM. HOT WATER CIRCUIT (FACTORY CALIBRATED AT 90")	00 - 90	EXPRESSED IN STEPS OF 5 SEC. Ex. 90 X 5 = 450" (7.5 MIN.)	10
9	MIN. GAS MODULATION SETTING	0 – 50%	FACTORY CALIBRATED (Mechanical minimum)	-
10	MINIMUM HEATING OUTPUT SETTING	0 – 50%	FACTORY CALIBRATED	-
11	MAXIMUM GAS PRESSURE SETTING - MAXIMUM HEATING OUTPUT SETTING	MAX GAS - 99		11

✓ Parameter cancelled starting from June 2003

**Parameter 1 setting: BOILER TYPE SELECTION**To modify the *Parameter value*:
















- Put ON/OFF button **1**  in OFF position (⏻);
- Push pad **6**  and **4**  simultaneously and keep them pressed;
- Put ON/OFF button **1**  in ON position (⏻) and wait until the display shows **P** - **0**;
- Release pad **6**  and **4** ;
- Keeping pad **5**  pressed, press pad **6**  and select parameter no. **1**;
- Release service pad **5** ; press and release service pad **5** ;
- The display  will show the parameter value to be set or modified;
- Press pad **6**  or **4**  to modify (increase or decrease) the parameter value **00** *instantaneous type*, **01** *storage type* or **02** *storage type comfort*;
- Press and release service pad **5**  to confirm setting;
- The display will show parameter no. **1**;
- Position ON/OFF button **1**  first in OFF position (⏻) and back to ON position (⏻);

**Parameter 2 setting: GAS TYPE SELECTION**To modify the *Parameter value*:

- Put ON/OFF button **1**  in OFF position (⏻);
- Push pad **6**  and **4**  simultaneously and keep them pressed;
- Put ON/OFF button **1**  in ON position (⏻) and wait until the display shows **P** - **0**;
- Release pad **6**  and **4** ;
- Keeping pad **5**  pressed, press pad **6**  and select parameter no. **2**;
- Release service pad **5** ; press and release pad service **5** ;
- The display  will show the parameter value to be set or modified;
- Press pad **6**  or **4**  to modify (increase or decrease) the parameter value **0** *NATURAL GAS*, **0** *L.P.G*;
- Press and release service pad **5**  to confirm setting;
- The display will show parameter no. **2**;
- Position ON / OFF button **1**  first in OFF position (⏻) and back to ON position (⏻);
















**Parameter 3 setting: HEATING TEMPERATURE SETTING**

To modify the *Parameter value*:

- Put ON/OFF button **1**  in OFF position (⏻);
- Push pad **6**  and **4**  simultaneously and keep them pressed;
- Put ON/OFF button **1**  in ON position (⏻) and wait until the display shows **P** - **0**;
- Release pad **6**  and **4** ;
- Keeping pad **5**  pressed, press pad **6**  and select parameter no. **3**;
- Release service pad **5** ; press and release service pad **5** ;
- The display  will show the parameter value to be set or modified;
- Press pad **6**  or **4**  to modify (increase or decrease) the parameter value **0** STANDARD from 30 to 80°C, **0** REDUCED from 25 to 40°C ;
- Press and release service pad **5**  to confirm setting;
- The display will show parameter no. **3**;
- Position ON/OFF button **1**  first in OFF position (⏻) and back to ON position (⏻);
















**Parameter 4 setting: PUMP SETTING IN HEATING MODE**

To modify the *Parameter value*:

- Put ON/OFF button **1**  in OFF position (⏻);
- Push pad **6**  and **4**  simultaneously and keep them pressed;
- Put ON/OFF button **1**  in ON position (⏻) and wait until the display shows **P** - **0**;
- Release pad **6**  and **4** ;
- Keeping pad **5**  pressed, press pad **6**  and select parameter no. **4**;
- Release service pad **5** ; press and release service pad **5** ;
- The display  will show the parameter value to be set or modified;
- Press pad **6**  or **4**  to modify (increase or decrease) the parameter value **0** STANDARD (pump overrun), **0** PERMANENT (pump ON all the time);
- Press and release service pad **5**  to confirm setting;
- The display will show parameter no. **4**;
- Position ON/OFF button **1**  first in OFF position (⏻) and back to ON position (⏻);

**Parameter 5 setting: WATER-HAMMER PREVENTION SETTING**
















To modify the **Parameter value**:

- Put ON/OFF button **1**  in OFF position (⏻);
- Push pad **6**  and **4**  simultaneously and keep them pressed;
- Put ON/OFF button **1**  in ON position (⏻) and wait until the display shows **P 0**;
- Release pad **6**  and **4** ;
- Keeping pad **5**  pressed, press pad **6**  and select parameter no. **5**;
- Release service pad **5** ; press and release service pad **5** ;
- The display  will show the parameter value to be set or modified;
- Press pad **6**  or **4**  to modify (increase or decrease) the parameter value **0** EXCLUDED, **0** ACTIVE – 2 sec. Stand by;
- Press and release service pad **5**  to confirm setting;
- The display will show parameter no. **5**;
- Position ON/OFF button **1**  first in OFF position (⏻) and back to ON position (⏻);

**Parameter 6 setting: SHORT CYCLING FUNCTION - HEATING CIRCUIT - adjustable from 0 to 7.5 minutes**


























**Factory calibrated at 3 minutes STANDBY**

To modify the **Parameter value**:

- Put ON/OFF button **1**  in OFF position (⏻);
- Push pad **6**  and **4**  simultaneously and keep them pressed;
- Put ON/OFF button **1**  in ON position (⏻) and wait until the display shows **P 0**;
- Release pad **6**  and **4** ;
- Keeping pad **5**  pressed, press pad **6**  and select parameter no. **6**;
- Release service pad **5** ; press and release service pad **5** ;
- The display  will show the parameter value to be set or modified;
- Press pad **6**  or **4**  to modify (increase or decrease) the parameter value from **0** to **9** (factory calibrated **3** = 3 minutes);
- Press and release service pad **5**  to confirm setting;
- The display will show parameter no. **6**;
- Position ON/OFF button **1**  first in OFF position (⏻) and back to ON position (⏻);


























**Parameter 7 setting:** *PUMP OVERRUN - HEATING CIRCUIT adjustable from 0 to 7.5 minutes.  
Factory calibrated at 3 minutes STANDBY.  
(N.B. DO NOT set the overrun time under 3 minutes)*

To modify the **Parameter value**:

- Put ON/OFF button  in OFF position ();
- Push pad  and  simultaneously and keep them pressed;
- Put ON/OFF button  in ON position () and wait until the display shows ;
- Release pad  and ;
- Keeping pad  pressed, press pad  and select parameter no. ;
- Release service pad ; press and release service pad ;
- The display  will show the parameter value to be set or modified;
- Press pad  or  to modify (increase or decrease) the parameter value from  to  (factory calibrated  = to 3 minutes);
- Press and release service pad  to confirm setting;
- The display will show parameter no. ;
- Position ON/OFF button  first in OFF position () and back to ON position ();

**Parameter 8 setting:** *PUMP OVERRUN - DOMESTIC HOT WATER CIRCUIT adjustable from 0 to 7.5 minutes.  
Factory calibrated at 1.30 minutes STANDBY.  
(N.B. DO NOT set the overrun time under 1.30 minutes)*

To modify the **Parameter value**:

- Put ON/OFF button  in OFF position ()
- Push pad  and  simultaneously and keep them pressed;
- Put ON/OFF button  in ON position () and wait until the display shows ;
- Release pad  and ;
- Keeping pad  pressed, press pad  and select parameter no. ;
- Release service pad ; press and release service pad ;
- The display  will show the parameter value to be set or modified;
- Press pad  or  to modify (increase or decrease) the parameter value from  to  (factory calibrated  = to 90 seconds);
- Press and release service pad  to confirm setting;
- The display will show parameter no. ;
- Position ON/OFF button  first in OFF position () and back to ON position ();

## 9: MECHANICAL MINIMUM GAS PRESSURE SETTING

The mechanical minimum gas pressure is factory calibrated on all boilers at 17/18 mmH<sub>2</sub>O.

When replacing the gas valve adjust the mechanical minimum pressure as follows:

- Using a single cut screwdriver turn D screw (fig.1 ) clockwise and tight it ;
- To adjust the mechanical minimum, turn D screw (fig.1) counter-clockwise for two complete turns.

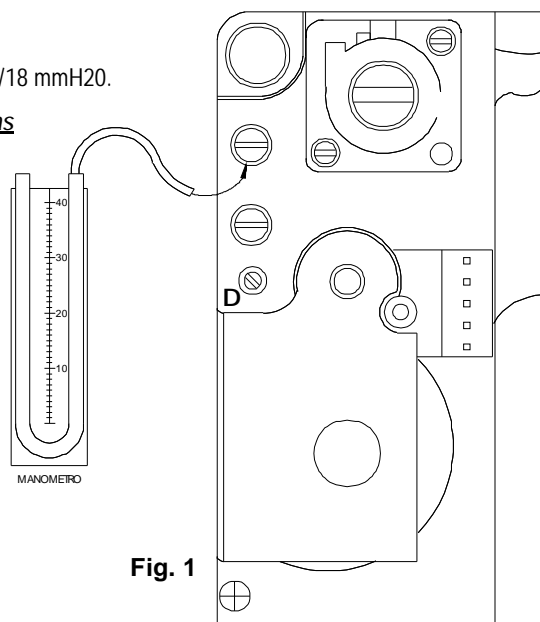


Fig. 1

## Parameter 10 setting: MINIMUM HEATING OUTPUT SETTING

To check or modify the existing pressure value:

- a. insert a manometer into the gas valve pressure point B (fig.1);

- b. Put ON / OFF button **1** in OFF position (⏻);

- c. Push pad **6** and **4** simultaneously and keep them pressed;

- d. Put ON / OFF button **1** in ON position (⏻) and wait until the display shows **P 0**;

Gas valve VK 4105G

- e. Release pad **6** and **4**;

- f. Keeping pad **5** pressed, press pad **6** and select parameter no. **1**;

- g. Release service pad **5**, press and release service pad **5**;

- h. The display will show the parameter value to be set or modified;

- i. The manometer inserted in the pressure point B (fig. 1) will show the minimum gas pressure;

- j. If that value is different than the one stated on the data plate, modify it by pressing pad **6** to increase or pad **4** to decrease gas pressure;

- k. Push service pad **5** to confirm the setting; display will show parameter no. **1**;

- l. Once the minimum gas pressure has been adjusted, switch the boiler OFF by putting ON / OFF button **1** in OFF position (⏻);
















- m. Remove the silicon pipe from the pressure point B (fig.1), close tightly the pressure point screw and make sure there are no gas leaks;

- n. Position the ON / OFF button **1** in ON position (⏻);



## Parameter 11 setting: MAXIMUM GAS PRESSURE SETTING - MAXIMUM HEATING OUTPUT SETTING

To check or modify the existing pressure value:

- a. Insert a manometer into the gas valve pressure point B (fig. 1);
- b. Put ON / OFF button 1  in OFF position (⤵);
- c. Push pad 6  and 4  simultaneously and keep them pressed;
- d. Put ON / OFF button 1  in ON position (⤴) and wait until the display shows **P 0**;
- e. Release pad 6  and 4 ;
- f. Keeping pad 5  pressed, press pad 6  and select parameter no. **1**;
- g. Release service pad 5 , press and release service pad 5 ;
- h. The display **5.18** will show the parameter value to be set or modified;
- i. Press pad 6  to reach value **9** on display;
- j. Once the parameter value "99" has been reached, press and release service pad 5  to confirm the setting; the display will show value **1**;
- k. Position ON/OFF button 1  in OFF position (⤵) and back to ON position (⤴);
- l. Open the hot water tap at the maximum flow and temperature to switch the boiler ON;
- m. The manometer inserted in the pressure point B (fig. 1) will show the maximum gas pressure
- n. If that value is different than the one stated in the data plate (see Gas Pressure adjustment table) modify it as follows:
  - o. Remove the aluminium cap A (fig.1) and, with a screwdriver, turn the plastic screw;
  - p. Turn clockwise to increase gas pressure and counter clockwise to decrease gas pressure;
  - q. Once the maximum gas pressure has been adjusted screw aluminium cap A back to position onto the gas valve;
- r. Switch the boiler OFF by putting ON/OFF button 1  in OFF position (⤵);
- s. Remove the silicon pipe from the pressure point B (fig.1), close tightly the pressure point screw and make sure there are no gas leaks.
- t. Put ON/OFF switch 1  in ON position;

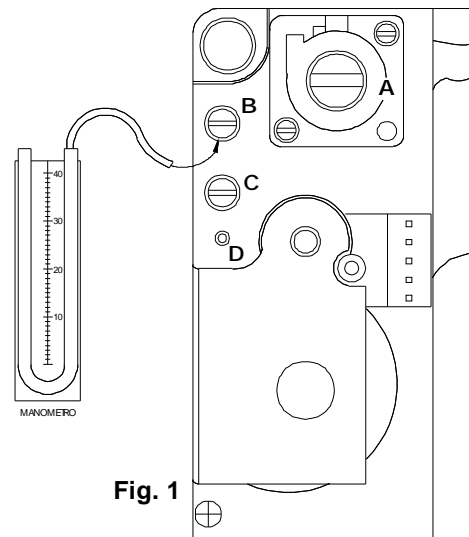
















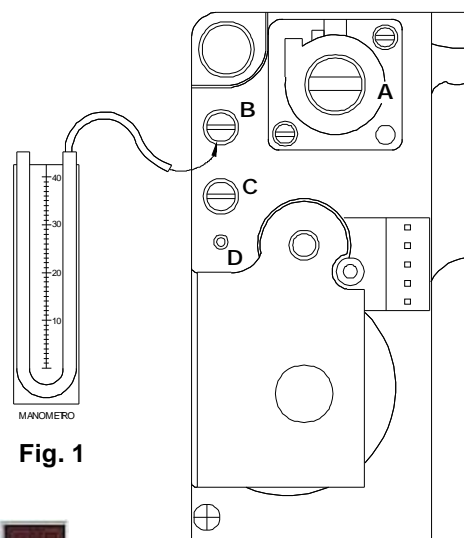
Fig. 1

Gas valve VK 4105G

## Parameter 11 setting: MAXIMUM HEATING OUTPUT SETTING

To check or modify the existing pressure value:

- Insert a manometer into the gas valve pressure point B (fig.1);
- Put ON/OFF button 1  in OFF position (⏻);
- Push pad 6  and 4  simultaneously and keep them pressed;
- Put ON/OFF button 1  in ON position (⏻) and wait until the display shows **P - 0**;
- Release pad 6  and 4 ;
- Keeping service pad 5  pressed, press pad 6  and select parameter no. **1**;
- Release service pad 5  press and release service pad 5 ;
- The display **5.1** will show the parameter value to be set or modified;
- Press pad 6  to increase or pad 4  to decrease gas pressure according to heating system kW (output) requirement as per table 1 (the gas pressure value will be displayed in the manometer);
- Once the required pressure has been reached, press and release service pad 5 , the display will show value **1**;
- Position the ON/OFF button 1  in OFF position (⏻)
- Remove the silicon pipe from the pressure point B (fig.1), close tightly the pressure point screw and make sure there are no gas leaks;
- Put the ON/OFF button in ON position (⏻);



Gas valve VK 4105G

## 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
- #### LEGEND:
1. GAS VALVE MOD. VK4105A
  2. STABILISER
  3. INLET PRESSURE POINT
  4. OUTLET PRESSURE POINT
  5. ELECTRONIC IGNITION BOARD
  6. GAS PIPE
  7. BURNER MANIFOLD
  8. 13 - RAMP GAS BURNER
  9. INJECTORS
  10. IGNITION ELECTRODES
  11. FLAME IONISATION ELECTRODES

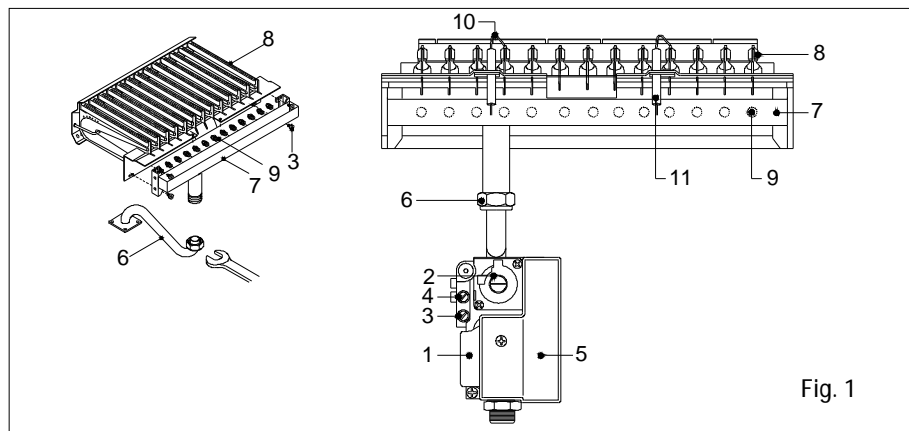


Fig. 1

LEGEND:

1. GAS VALVE MOD. VK4105A
2. STABILISER
3. INLET PRESSURE POINT
4. OUTLET PRESSURE POINT
5. ELECTRONIC IGNITION BOARD
6. GAS PIPE
7. BURNER MANIFOLD
8. 13 - RAMP GAS BURNER
9. INJECTORS
10. IGNITION ELECTRODES
11. FLAME IONISATION ELECTRODES

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mod.

RH 28

RHR 28

## GAS DATA TABLE

models: RH 28 – RHR 28		Natural Gas G 20	Liquid Butane Gas G 30	Liquid Propane Gas G 31
Lower Wobbe index (15°C; 1013 mbar)	MJ/Nm <sup>3</sup>	45.67	80.58	70.69
Rated feed pressure	mbar	20	30	37
Minimum feed pressure	mbar	17	28	28
Main burner: 13 Jets - Ø jet	mm	1.25	0.77	0.77
Consumption (15°C; 1013 mbar)	m <sup>3</sup> /h	2.84	-	-
Consumption (15°C; 1013 mbar)	kg/h	-	1.78	1.71

## GAS PRESSURE SETTING

NATURAL GAS G20		LIQUID BUTANE GAS G 30		LIQUID PROPANE GAS G31	
min.	max.	max	min.	max.	min.
2.15	11.4	27.8	5.45	35.5	7.35

### SLOW IGNITION ADJUSTMENT

This is a slow ignition regulator whose trimmer is factory set to the minimum.

For adjustment proceed as follows:

if turned clockwise the gas pressure at the burner increases on ignition while turning counter-clockwise decreases the gas pressure.

### ANTI CYCLING DEVICE

This allows the various ignitions to be delayed once the boiler has reached the optimum temperature.

The time range goes from 0 up to 7.5 minutes.

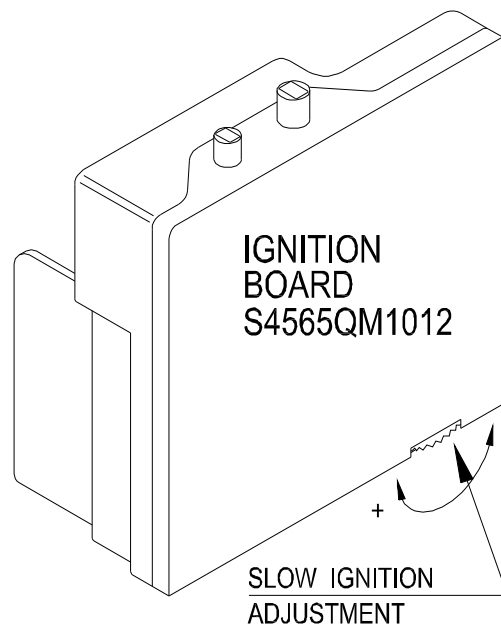
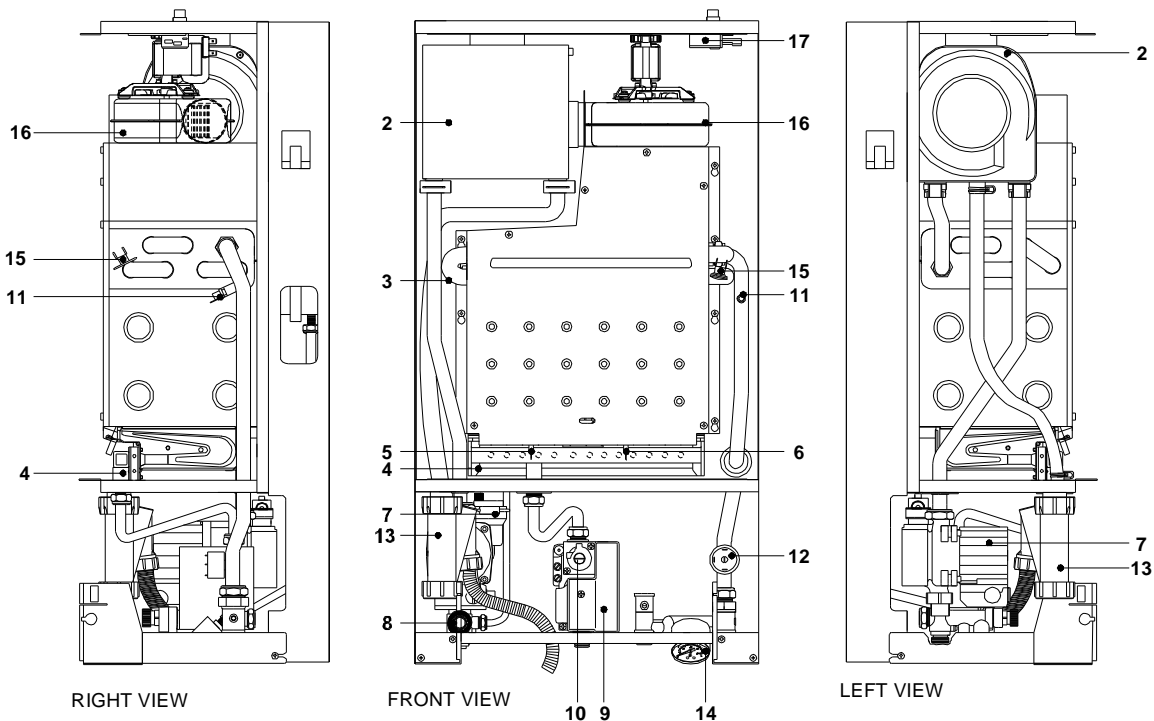
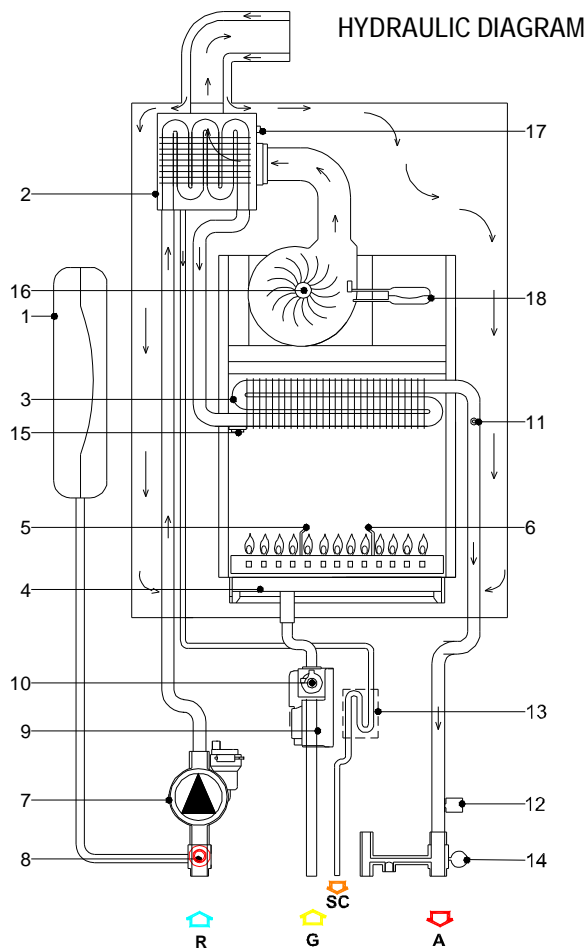


Fig. 1

# MAIN COMPONENTS – mod. RH 28

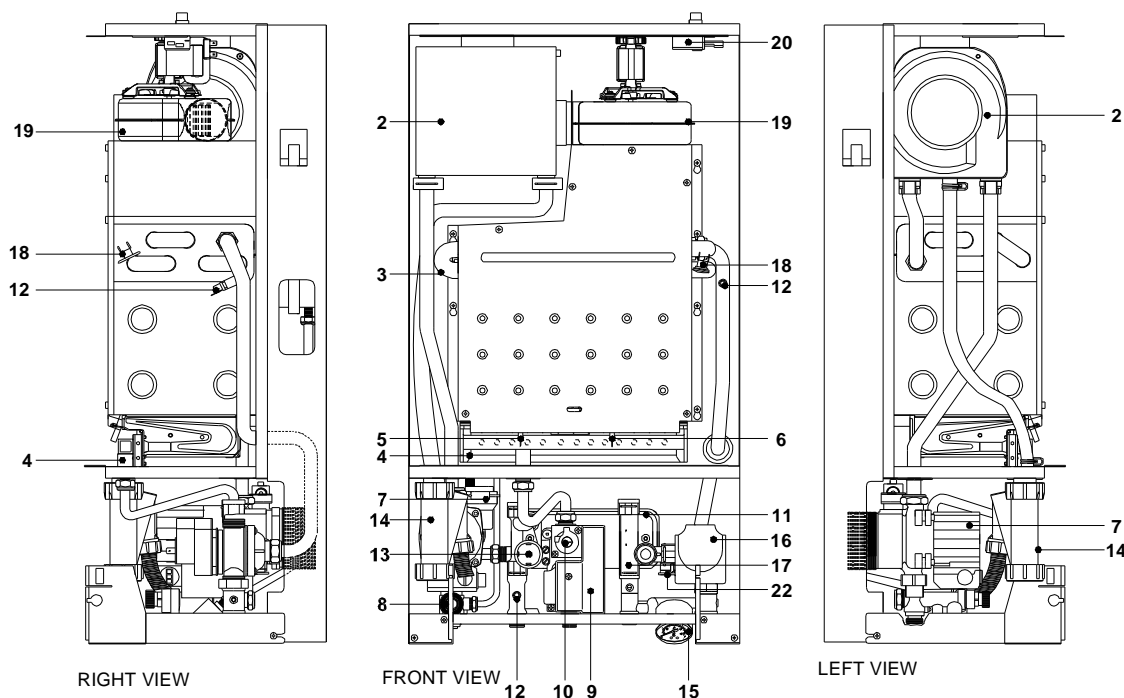


POS.	CODE	DESCRIPTION
1	95019LA	LT.8 EXPANSION VESSEL
2	58022LA	SECONDARY HEAT EXCHANGER
3	58014LP	PRIMARY HEAT EXCHANGER
4	21001LA	GAS BURNER
5	35007LA	IGNITION ELECTRODE
6	35009LA	FLAME IONISATION ELECTRODE
7	24045LA	CIRCULATION PUMP WITH AIR VENT
8	96008LA	HEATING CIRCUIT 3 bar PRESS. RELIEF VALVE
9	36066LA	ELECTRONIC GAS VALVE VK4105
10	76631LA	ELECTRONIC IGNITION BOARD
11	73507LA	HEATING SENSOR
12	59015LA	WATER PRESSURE SWITCH
13	27044LA	CONDENSATE TRAP
14	86014LA	WATER PRESSURE GAUGE
15	86006LA	HEATING SAFETY THERMOSTAT
16	37028LA	FAN
17	86045LA	FLUE SAFETY THERMOSTAT
18	59001LA	AIR PRESSURE SWITCH

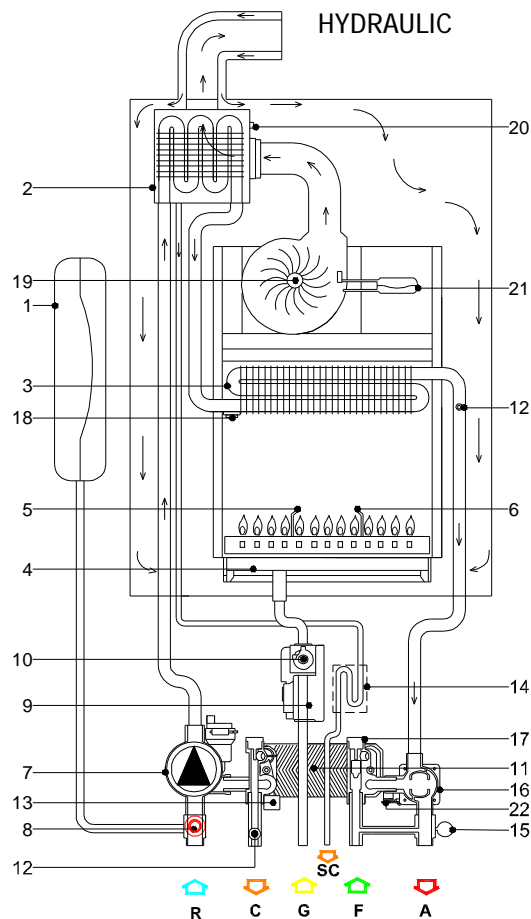


KEY: R Return Ø3/4" A Flow Ø1/2" G Gas Ø1/2"

# MAIN COMPONENTS – mod. RHR 28



POS..	CODE	DESCRIPTION
1	95019LA	.8 LT. EXPANSION VESSEL
2	58022LA	SECONDARY HEAT EXCHANGER
3	58014LP	PRIMARY HEAT EXCHANGER
4	21001LA	MULTI-GAS BURNER
5	35007LA	IGNITION ELECTRODE
6	35009LA	FLAME IONISATION ELECTRODE
7	24045LA	CIRCULATION PUMP WITH AIR VENT
8	96008LA	HEATING CIRCUIT 3 bar PRESS. RELIEF VALVE
9	36066LA	ELECTRONIC GAS VALVE VK4105
10	76631LA	ELECTRONIC IGNITION BOARD
11	20047LA	FLAT PLATE TYPE EXCHANGER
12	73507LA	HEATING SENSOR
13	59015LA	WATER PRESSURE SWITCH
14	27044LA	CONDENSATE TRAP
15	86014LA	WATER PRESSURE GAUGE
16	96032LA	3-WAY DIVERter VALVE
17	64060LA	ELECTRONIC FLOWSWITCH
18	86006LA	HEATING SAFETY THERMOSTAT
19	37028LA	FAN
20	86045LA	FLUE SAFETY THERMOSTAT
21	59001LA	AIR PRESSURE SWITCH
22		BY PASS



## KEY

R Return Ø3/4" F Cold Water Inlet Ø1/2" C Hot Water Outlet Ø1/2"  
G Gas Ø1/2" A Flow Ø1/2"

## LIMITER

The boiler is equipped with a variable flow limiter at the cold water inlet. The flow limiter can be adjusted by turning the screw in order to obtain the correct flow rate of domestic hot water for the specific boiler output.

## FLOWSWITCH

This device gives precedence to domestic hot water and is fitted to boilers which supply instantaneous hot water. It allows conversion to hot water even with a minimum hot water demand (min. 2 litres), using an electromagnetic principle with electrical switching by means of a relay. The device is made of non-toxic, corrosion-proof ZYTEL 101 L plastic material which has type approval with non-toxic characteristics and is unaffected by hard water. In addition, a filter is fitted before the flowswitch and at the cold water inlet which eliminates any water impurities. These features guarantee that the flowswitch operation is highly efficient.

## BY-PASS

*All boilers are fitted with a by-pass. This element is essential in the following cases:*

- if a two-way zone valve is installed
- if thermostat valves are installed in the radiators.

To adjust the by-pass proceed as follows:

fit the screwdriver to the plastic screw of the by-pass, bearing in mind that when the slot of the screw is horizontal the by-pass is totally open, allowing all the water to pass, while when it is vertical the by-pass is totally closed. For partial by-pass flows, use the adjuster screw.

## DIVERTER VALVE

The diverter valve is the device which controls the boiler switching from central heating to d.h. water circuit and vice versa.

the new 3-way valve transparent cover allows to see the operation mode according to the disk colour: red disk ⇒ heating mode; blue disk ⇒ domestic hot water mode.

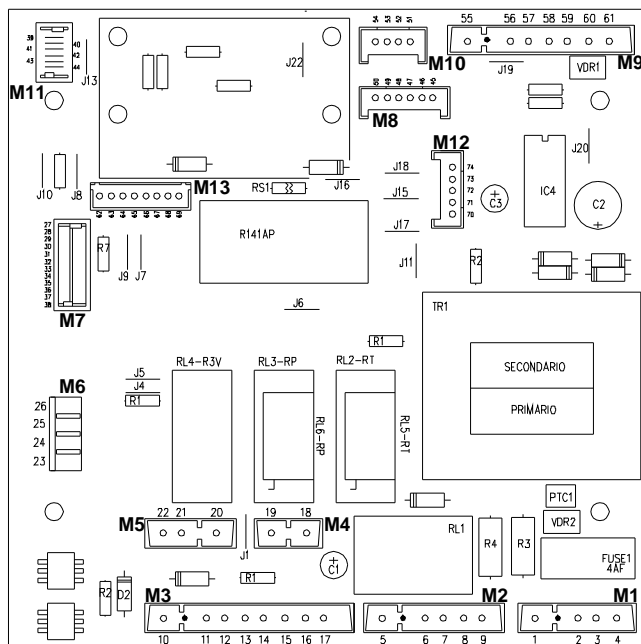
The new 3-way valve does not have the middle position function (in case of motor failure);

## DIFFERENTIAL AIR PRESSURE SWITCH FOR FAN CONTROL

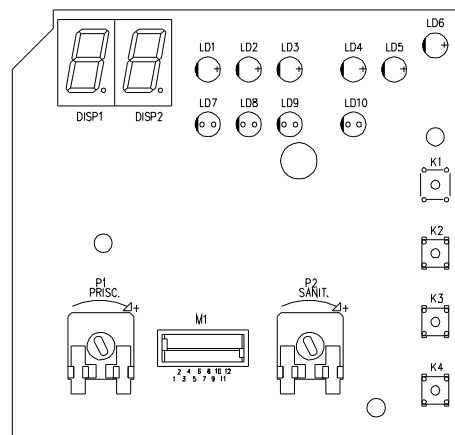
To guarantee maximum safety in flue exhaust, a differential pressure switch is installed on room-sealed boilers and on forced draught boilers. This pressure switch automatically controls perfect functioning of the fan and the passage of both external air and exhaust flue pipes.

## WIRING DIAGRAMS – mod. RH 28

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



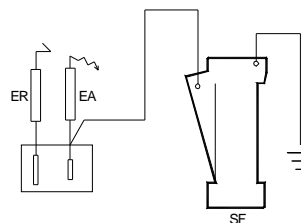
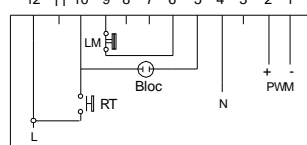
DISPLAY DIGITAL BOARD 2000 SKO6206 (COD. 76654LA)



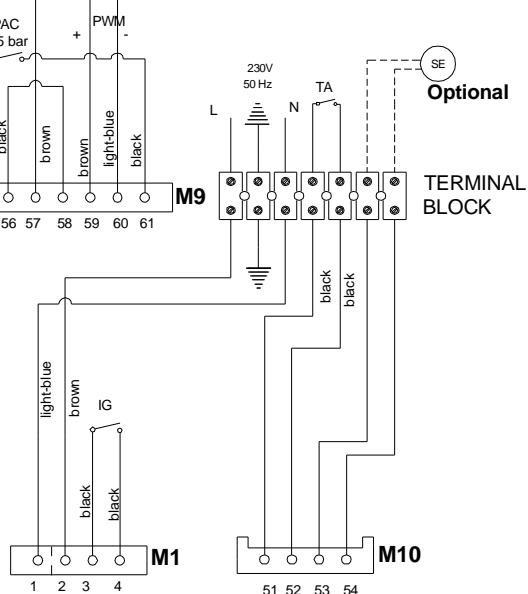
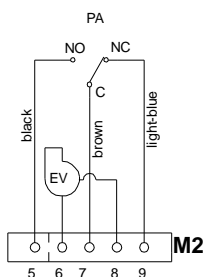
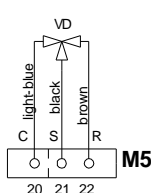
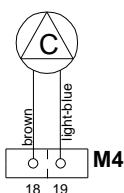
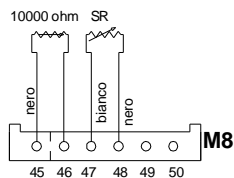
## KEY

- L - LINE
- N - NEUTRAL
- PA - AIR PRESSURE SWITCH
- PAC - WATER PRESSURE SWITCH
- IG - MAIN SWITCH
- SR - HEATING SENSOR
- C - CIRCULATION PUMP
- TS - SAFETY THERMOSTAT
- SE - OUTDOOR SENSOR TEMPERATURE
- TA - ROOM THERMOSTAT
- EA - IGNITION ELECTRODE
- ER - IONISATION ELECTRODE
- EV - FAN
- SF - CONDENSATE TRAP

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



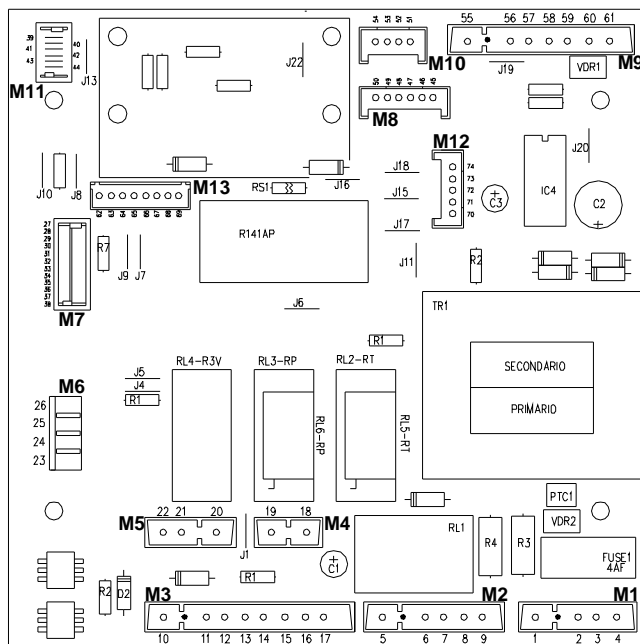
CONNECTOR FOR SM6545QM 1012



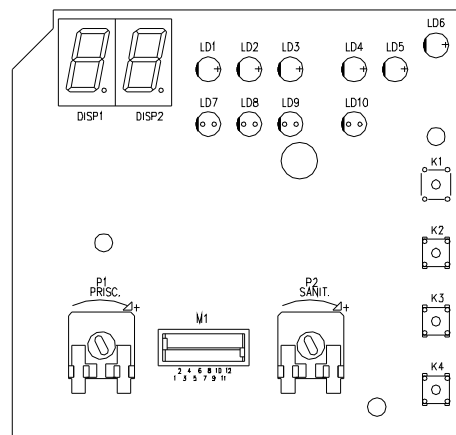


# WIRING DIAGRAMS – mod. RHR 28

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



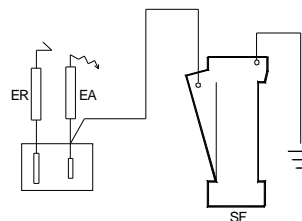
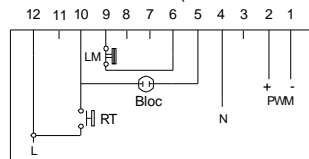
DISPLAY DIGITAL BOARD 2000 SKO6206 (COD. 76654LA)



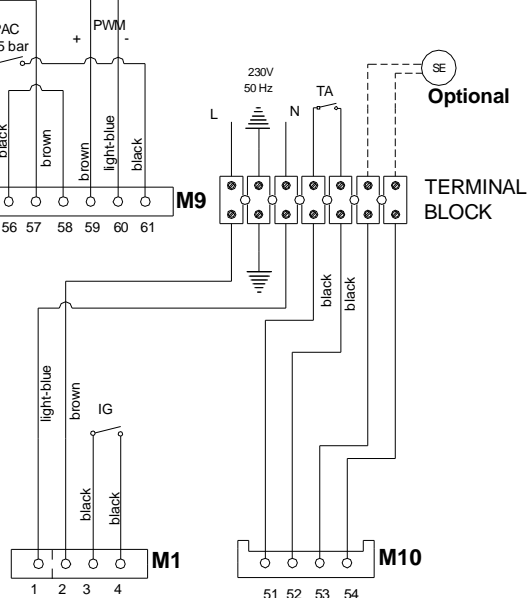
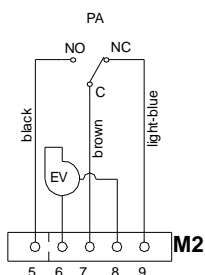
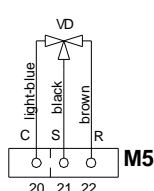
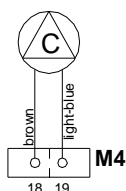
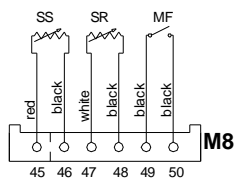
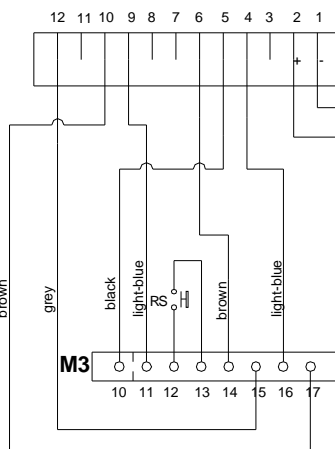
## KEY

- 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
- SF - CONDENSATE TRAP

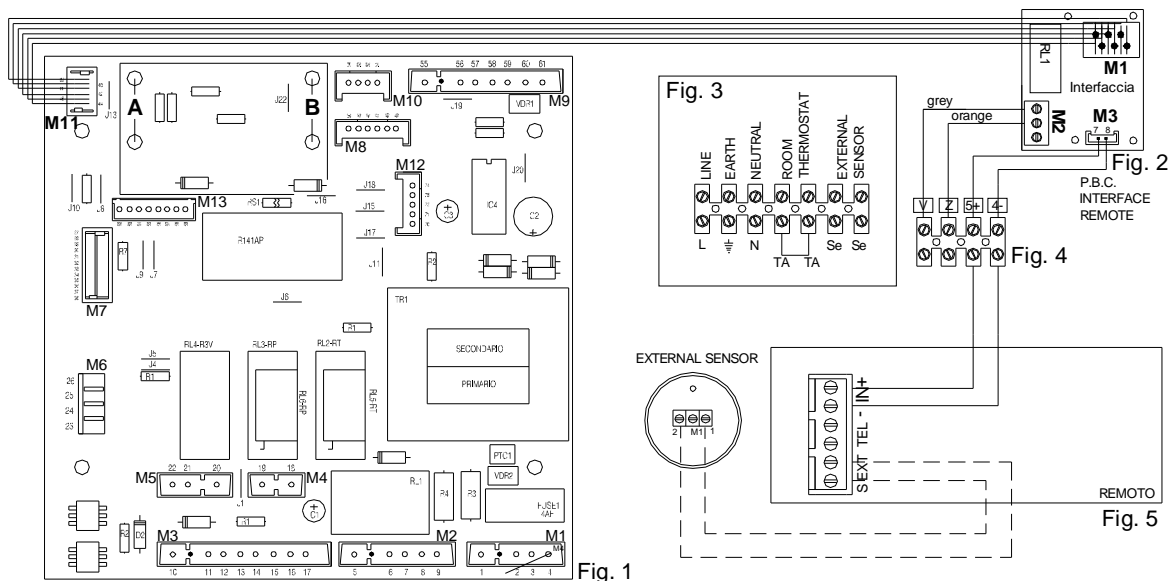
ELECTRONIC IGNITION BOARD CVI S4565 A 2019B (COD. 76631LA)



CONNECTOR FOR SM6545QM 1012



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

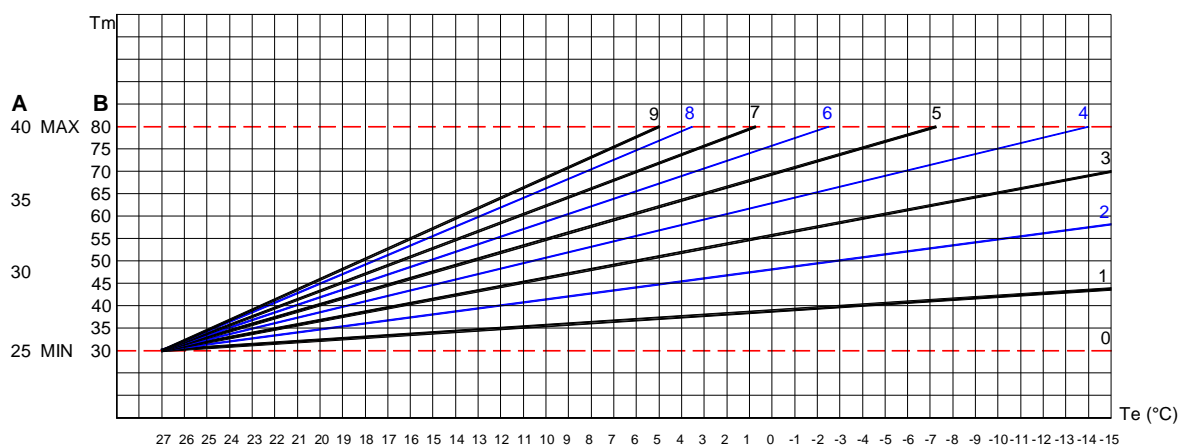


Fit the interface (fig. 2) on the circuit board (fig. 1) into the holes A and B provided (see fig. 1).  
 Connect plug M1 on the interface circuit board (fig. 2) to plug M11 on the modulation circuit board (fig. 1).  
 Connect the grey and orange wires in plug M2 of the interface circuit board (fig. 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 DIAGRAM FOR CORRECTION OF HEATING FLOW TEMPERATURE ACCORDING TO THE EXTERNAL TEMPERATURE AND CURVE SETTING



TM - MAX / MIN = Range of heating flow temperature  
 Te = external temperature  
 Tm = heating flow temperature  
 A = standard heating temperature  
 B = reduced heating 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.

### UNPACKING

- Set the packed boiler (fig. 1) 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.

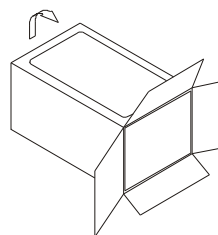
#### IMPORTANT!

The packing materials (cardboard) are recyclable.

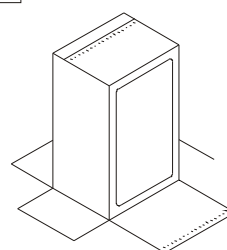
#### IMPORTANT!

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

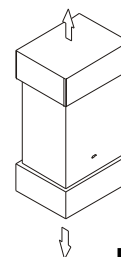
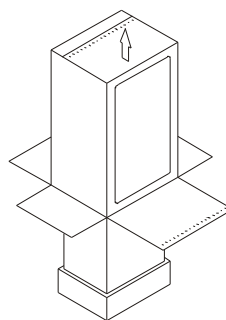
A



B



C



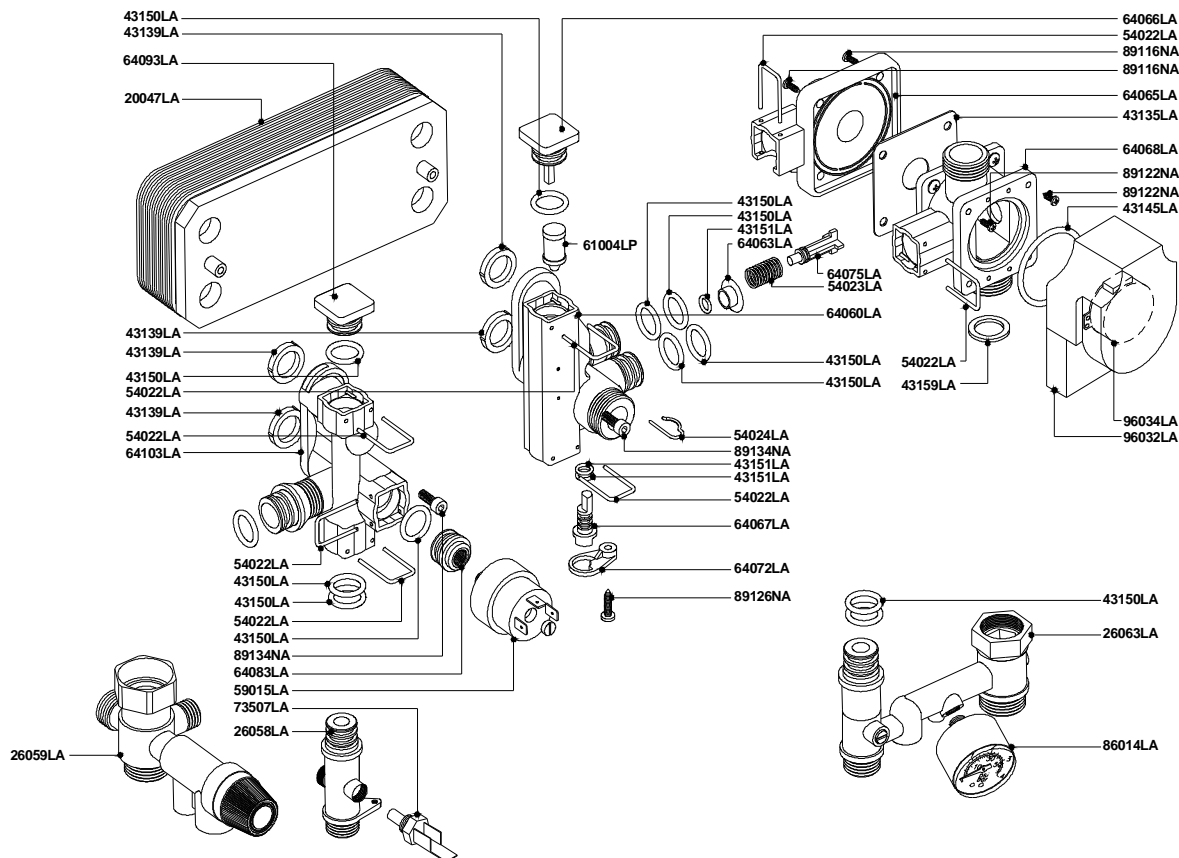
**Fig. 1**

Fault Code	Description	Possible Cause	Solution
01	Flame lock-out	<p>BOILER FAILS TO FIRE</p> <p>a. No gas / gas turned off</p> <p>b. Ignition electrode damaged or earthed</p> <p>c. Electronic ignition board S4565QM faulty</p> <p>d. Gas valve faulty</p> <p>e. Minimum mechanical gas setting too low (onto the gas valve) or slow ignition</p> <p>f. Inlet gas pressure excessive (only for LPG boilers)</p> <p>g. Condensate trap obstructed</p> <p>BOILER FIRES THEN LOCKS OUT</p> <p>h. Reversed polarity (Live - Neutral)</p> <p>i. Ionisation electrode broken</p> <p>j. Ionisation electrode cable disconnected/detached</p> <p>k. Electronic ignition board S4565QM faulty</p>	<p>a. Check gas supply / open the gas cock</p> <p>b. Replace it</p> <p>c. Replace it</p> <p>d. Replace it</p> <p>e. Re-set the mech. min gas pressure or slow ignition</p> <p>f. Check gas supply pressure (gas valve inlet)</p> <p>g. Clean it</p> <p>h. Check and reverse</p> <p>i. Replace it</p> <p>j. Re-connect it</p> <p>k. Replace it</p>
02	Safety Thermostat (95°C)	<p>l. Thermostat broken or out of setting/calibration</p> <p>m. Thermostat cable disconnected</p>	<p>l. Replace it</p> <p>m. Check electric connection</p>
03	Flue safety thermostat (for open chamber boilers only)	<p>n. Insufficient length of flue pipe, or too small diameter or pipe obstruction</p> <p>o. Thermostat cable disconnected</p>	<p>n. Check the flue pipe</p> <p>o. Check cable connection</p>
04	Water deficiency in the system	<p>p. Water pressure in the system insufficient (stop below 0.5 bar)</p> <p>q. Water pressure switch cable disconnected</p> <p>r. Water pressure switch broken</p>	<p>p. Fill the system</p> <p>q. Check cable connection</p> <p>r. Replace it</p>
05	Heating sensor	<p>s. Sensor faulty or out of calibration (resistance value 10kohm at 25°)</p> <p>t. Sensor cable disconnected or wet</p>	<p>s. Replace it</p> <p>t. Check cable connection</p>
06	Domestic Hot water sensor	<p>u. Sensor faulty or out of calibration (resistance value 10kohm at 25°)</p> <p>v. Sensor cable disconnected or wet</p>	<p>u. Replace it</p> <p>v. Check cable connection</p>
12	Domestic Hot water sensor - storage	<p>w. Sensor broken or out of calibration (resistance value 10kohm at 25°C)</p>	<p>w. Check cable connection</p>
14	<p>Air pressure switch</p> <p>Water pressure switch</p>	<p>x. Air pressure switch broken</p> <p>y. Flue exhaust / air intake ducts obstructed</p> <p>z. Exhaust fan venturi pressure point obstructed/dirty</p> <p>aa. Air pressure switch cable disconnected</p> <p>bb. Water pressure switch broken</p> <p>cc. Water pressure switch cable disconnected</p>	<p>x. Replace it</p> <p>y. Check flue exhaust and air intake ducts</p> <p>z. Check it</p> <p>aa. Check electric connection</p> <p>bb. Replace it</p> <p>cc. Check electric connection</p>
22	Parameter setting demand	<p>dd. Microprocessor memory loss</p>	<p>dd. Re-set parameters</p>

## SPARE PARTS SHORT LIST

CODE	DESCRIPTION	RH 28	RHR 28
20047LA	PLATE EXCHANGER 20 P 17B1902006		✓
21001LA	GAS BURNER 13 RAMP 1.25 NATURAL GAS 401.1207.02	✓	✓
21004LA	GAS BURNER 13 RAMP 0,77 L.P.G. 401.1207.05	✓	✓
24029LA	CIRCULATING PUMP MOTOR SHUL CLF6 15/6	✓	✓
24046LA	CIRCULATING PUMP RSL 15/6-3-KUCLF6 W/C1	✓	✓
27044LA	CONDENSATE TRAP	✓	✓
35007LA	IGNITION ELECTRODE E. 0774527	✓	✓
35009LA	IONISATION ELECTRODE P 0772367	✓	✓
36066LA	GAS VALVE VK4105 G1112	✓	✓
37016LA	EXHAUST FAN ES 30-108 G00-0416	✓	✓
43157LP	SEALING + CLIPS KIT FOR MULTIPLEX GROUP		✓
58014LP	MAIN HEAT EXCHANGER 24K 2003	✓	✓
58022LA	SECONDARY HEAT EXCHANGER	✓	✓
59001LA	AIR PRESSURE SWITCH C6065AH1095 CE	✓	✓
59015LA	WATER PRESSURE SWITCH PC5411BRASS	✓	✓
73507LA	D.H.W. - HEATING 1/8" WHITE SENSOR S011001	✓	✓
76631LA	ELECTRONIC IGNITION BOARD CVI S4565QM	✓	✓
76654LA	DIGITAL INDICATORS P.C.B. SK06206	✓	✓
76655LA	MAIN PRINTED CIRCUIT BOARD SM20015	✓	✓
86014LA	WATER PRESSURE GAUGE M3A-ABS 400-4 PB120417	✓	✓
86021LA	FLUE SAFETY THERMOSTAT	✓	✓
86027LA	SAFETY THERMOSTAT 90°FB1A2GF1N T90CV	✓	✓
86045LA	FLOW SAFETY THERMOSTAT	✓	✓
95019LA	8 LT. EXPANSION VESSEL	✓	✓
96032LA	DIVERTER VALVE ATV 300/13		✓
96034LA	DIVERTER VALVE ATV 300/13 MOTOR NYM-16H FOR		✓

## MULTIPLEX - SPARE PARTS SHORT LIST



ACCESSORIES	26058LA	D.H. WATER CONNECTION MULTIPLEX X
	26063LA	COLD WATER-HEATING FLOW CONNECTION MULTIPLEX
	26059LA	PUMP MANIFOLD MULTIPLEX 279 8
	59015LA	WATER PRESSURE SWITCH PC5411 BRASS
	73507LA	D.H.W.-HEATING 1/8" WHITE SENSOR S010056
MULTIPLEX GROUP	86014LA	WATER PRESSURE GAUGE M3A-ABS 400-4 PB120417
	20047LA	PLATE EXCHANGER 20 P. 17B1902006 - RSF 24 E
	43002LA	WASHER D.18.5x10.2x2 1/2" -AFM34
	43135LA	3-WAY VALVE FLANGE WASHER -MPLEX.
	43139LA	PLATE EXCHANGER O-RING MULTIPLEX
	43145LA	3-WAY VALVE MOTOR O-RING MULTIPLEX
	43150LA	EPDM O-RING FOR BRASS CONNECTIONS MULTIPLEX
	43151LA	BY/PASS REGULATOR EPDM O-RING 5x2 MULTIPLEX
	43159LA	WASHER EPDM 80 SH M.PLEX 16x24x2,5
	54022LA	ZINC-PLATED STEEL FIXING CLIP MULTIPLEX
	54023LA	BY PASS SPRING MULTIPLEX
	54024LA	BY PASS-REGULATOR FIXING CLIP MULTIPLEX
	61004LP	FLOWSWITCH PISTON
	64060LA	FLOWSWITCH GROUP MULTIPLEX - 1 NST.BOILER
	64063LA	BY PASS NYLON BUSH MULTIPLEX
	64064LA	PUMP CONNECTION BODY MULTIPLEX
	64065LA	3-WAY VALVE BODY-BACK PIECE MULTIPLEX
	64066LA	FLOWSWITCH/PUMP CONNECTION CAPMULTIPLEX
	64067LA	BY PASS REGULATOR MULTIPLEX
	64068LA	3-WAY VALVE BODY-CENTRAL SECTI ON MULTIPLEX
	64072LA	BY PASS FIXING PLATE MULTIPLEX
	64075LA	BY PASS MULTIPLEX
	64083LA	WATER PRESSURE SWITCH CONNECTION MULTIPLEX
	64093LA	PUMP CONN. PLUG M.PLEX 0206T1
	89025NA	SCREW 5x14 PLATE EXCHANGER
	89116NA	SCREW 5x16
	89122NA	SCREW 5x13
	89126NA	SCREW 3.9x13
	96032LA	DIVERTER VALVE ATV 300/13
	96034LA	DIVERTER VALVE MOTORE 561128 NAMY



# SIRBUS



Heating technology since 1959

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

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**UK – Radiant Helpline – 01329.828555**



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

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**TG05A052.A0205**



# SIRRUS



Heating technology since 1959

## USER MANUAL

model **RH 28**

**TIPO C** ONLY SYSTEM - ROOM SEALED

model **RHR 28**

**TIPO C** SYSTEM - ROOM SEALED



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

CE 0694

TG05B052.A0205

## BOILER OPERATION AND ADJUSTMENT PROCEDURES FOR USER

Before turning on the boiler read the following warnings carefully .

Make sure that the warranty booklet carries the stamp of the CORGI registered technician (you can check this by contacting corgi on 01256.372200) responsible for installing the boiler. Installation, starting up for the first time, adjustments and maintenance operations must all be carried out solely by qualified technicians. Incorrect installation may cause damage to persons, animals or property for which the manufacturer cannot be held liable.

### WARNING!

- ⇒ Do not start the boiler unless you are sure it has been thoroughly tested by an authorised technician.
- ⇒ Check that the regulations regarding air intakes and ventilation of the room where the boiler is installed have been fully complied with.
- ⇒ The anti-freeze system will come into operation only if the ON/OFF switch 1 (see fig.1) is ON and the gas supply turned on. The manufacturer can accept no responsibility for damage to the boiler caused by lack of observation of these requirements.
- ⇒ If the boiler should freeze up, under no circumstances attempt to turn it on but call the RADIANT HELP LINE immediately.

LEGEND (see fig. 1)

1. ON / OFF POWER BUTTON
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. SERVICE PAD
6. MODE SELECTION PAD (SUMMER ONLY / WINTER ONLY / SUMMER AND WINTER)
7. MAIN EXTERNAL TERMINAL BLOCK (POWER SUPPLY)
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

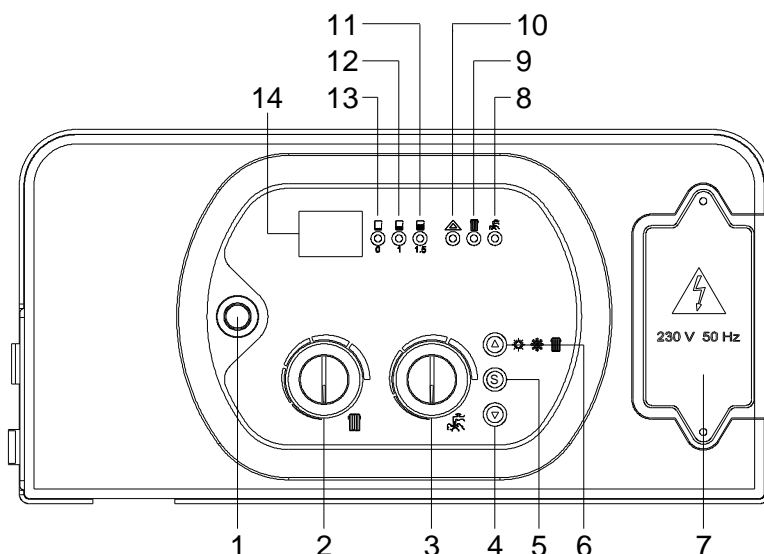





Fig. 1

### Turning on procedure for electronic ignition

- § turn on the gas cock situated under the boiler grill;
- § set the ON/OFF button 1 (see fig.1) to ON position .
- § make sure that no flashing value is on the display (14); if value 04 is flashing and no.8 light is ON it means water deficiency in the system: open the tap on the filling loop and fill the system until a pressure of 1.5 bar has been reached (light no.11 ON) and then close the tap on the filling loop.
- § The automatic ignition system will turn the burner on.
- § Should the boiler fail to ignite: if the display (14) shows value 04 flashing, it is necessary to repeat the procedure of filling the system; if the display (14) shows value 01 flashing wait 3 minutes; set the ON/OFF button (1) to OFF position  and then ON position  (fig.1). It may be necessary to repeat the procedure a few times to purge air from the pipes. Do not repeat the procedure for more than 3 times. If locking-out persists, turn boiler OFF and call an authorised radiant service engineer.

After a regular boiler ignition, push Pad 6 to select heating mode (led 9 ON intermittent) or D.H.W. mode (led 8 ON intermittent);

### Turning off boilers with electronic ignition :

- turn selector switch 1 to the OFF position (see fig. 1 pag. I).;
- if the boiler will not be used for long periods it is recommended that the gas cock under the boiler grill be shut off.

### THE BOILER IN USE

Summer-winter use (see fig. 1 pag. I).

Push Pad 5 (fig. 1) to select WINTER ONLY program – Led 9 ON for heating only Mode or SUMMER ONLY program – Led 8 ON for water only Mode or SUMMER and WINTER program Led 8 – 9 both ON for heating and hot water mode.

### REGULATING THE HEATING TEMPERATURE

The heating temperature is regulated by turning knob 2 (see fig. 1 pag. I).

- turn it counter-clockwise to lower the temperature.
- turn it clockwise to raise the temperature.
- the temperature range can be adjusted from a minimum of 30°C to a maximum of 80°C.

### REGULATING THE HOT WATER TEMPERATURE



The hot water temperature is regulated by turning knob 3 (see fig. 1 pag. I).

- turn it counter-clockwise to lower the temperature
- turn it clockwise to raise the temperature
- the temperature range can be adjusted from a minimum of 35°C to a maximum of 60°C.

### RESETTING THE BOILER

If boiler locks-out (fig. 1 page I, indicator no.10 ON) and intermittent error code on the display :

§ wait approximately 3 minutes from the last shut down

§ Set the ON/OFF switch (1) to OFF position  and then ON position  (see fig.1 page I)

§ once the Led and the error code are OFF, the boiler switch on automatically

If lock-outing persists, turn the boiler OFF and call an authorised service engineer.

### WARNINGS FOR THE USER

To keep the boiler in efficient and safe operating condition, carefully follow the instructions listed below:

- Have normal maintenance performed at least once a year by one of our authorised service centres (a fee will be charged), combustion tests are necessary every two years and should again be carried out by a qualified technician authorized by the manufacturer (in accordance with D.P.R. 412 regulations, 26-08-93).
- Periodically check system pressure on the pressure gauge and check that pressure is between 0.5 - 1.5 bar with the system cold.
- Do not clean the casing or internal parts of the boiler with reducing agents or solvents. Clean only with soap and water.
- Never leave flammable materials in the immediate vicinity of the boiler.
- For greater comfort and more rational use of heat, it is advisable to install a room thermostat connected to a clock timer to turn the boiler on and off during the course of the day or week (in accordance with D.P.R. 412 regulations, 26-08-93).
- The boiler is equipped with an anti-freeze system, which is operative with switch 1 in ON position;
- Please ensure you have a fully completed BENCHMARK BOOKLET and this is kept with your installation instructions.

# SIRBUS



Heating technology since 1959

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