

Instruction Manual ***for model***

RK 18
RK 25
RK 34

Premix condensing boiler

Installation, operating, commissioning and maintenance instructions

1. General information	
1.1 General warnings	page 1
1.2 Product conformity	3
2. Technical characteristics	
2.1 Technical data	4
2.2 Dimensions	5
2.3 Internal parts of the boiler	7
2.4 Water circuit	8
2.5 Circulation pump head/flow graph	9
2.6 Printed circuit board – Technical characteristics	10
2.7 Control panel	10
3. Installation	
3.1 Reference standard	11
3.2 Boiler room – installation requirements	12
3.3 Unpacking	12
3.4 Installation boiler	13
3.5 Water connections	14
3.6 Central heating circuit	15
3.7 Condensate drain	16
3.8 Gas connection	17
3.9 Electrical connections	18
3.10 Flue connections	20
4. Commissioning the appliance (authorised personnel)	
4.1 General warnings	26
4.2 Filling the system	27
4.3 Filling the condensate trap	28
4.4 Starting up the boiler	29
5. Regulating the appliance (authorised personnel)	
5.1 Parameters table	30
5.2 Setting the parameters	31
5.3 Gas Data	37
5.4 Converting the boiler to a different gas type	40
6. Annual Service and Maintenance (authorised personnel)	
6.1 General warnings	41
6.2 Boiler inspection	41
6.3 Accessing the boiler	42
6.4 Draining the central heating system	43
6.5 Maintenance operations	44
6.6 Wiring diagrams	52
6.7 Troubleshooting	56
6.8 Diagnostics	57
6.9 Parts list	58

1. GENERAL INFORMATION


1.1 General warnings


 Professionally qualified personnel in accordance with current laws and standards and in line with the manufacturer's instructions must install the appliance.

In GB, the installation must be carried out by a Gas Safe Registered Installer. To check for authorised qualified engineers please contact Phone Number 0800 408 5500. It must be carried out in accordance with the relevant requirements of the:


- Gas Safety Regulations;
- The appropriate Building Regulations either The Building Regulation, The Building Regulations (Scotland), Building Regulations (Northern Ireland);
- The Water Fittings Regulations or Water Byelaws in Scotland;
- The current I.E.E. Wiring Regulations.

Where no specific instructions are given, reference should be made to the relevant British Standards Code of Practice.

 The commissioning of the boiler and any subsequent works carried out on the appliance must be effected by a suitably trained Gas Safe Registered Technician. The BENCHMARK record for Commissioning and Annual Service at the back of this book should be completed.

 The appliance must be used solely for the purpose for which it has been designed and manufactured: central heating water production. Any other use is deemed as improper and as such dangerous. Under no circumstances will the manufacturer be held responsible for damage or injury to persons or animals caused by errors in the installation and/or use of the appliance, or through non-compliance with current local and national standards and/or the manufacturer's instructions.

 The installation, operation and maintenance manual form an integral and essential part of the product and must be kept near the appliance always.

 This Manufacturer Installation and Maintenance manual must not be removed on completion of the installation; must be kept in a safe place and made available for future reference. This Manual must be left along with the Benchmark commissioning booklet with the boiler as Regulation 29 of the HSC Gas safety (installation and use) Regulations 1998.

 The warnings contained in this chapter have been written for the appliance user, the installer and the service engineer.

 The "operating instructions" chapter of this manual must be read carefully as it provides information on the operation and the operating limits of the appliance.

 This appliance must be used exclusively in an un-vented central heating system.

- After the removal of all the packaging, check that the appliance has not been damaged. In case of doubt, do not attempt to use the product but refer to the supplier. Packing materials (cardboard box, wooden crate, nails, staples, plastic bags, polystyrene, etc.) must not be left within reach of children in that these items represent a potential hazard and must be disposed of in a responsible manner.
- Before carrying out any cleaning or maintenance operations, disconnect the appliance from the mains electricity supply by switching off at the main switch and/or any other isolating device.
- Do not obstruct the air intake or flue exhaust grills.
- Do not obstruct the air intake or flue exhaust terminals.
- In the case of a fault and/or malfunction in the appliance, shut down the system. Do not interfere with or attempt any repairs. Call for professionally qualified technical assistance only.
- Any repairs to the appliance under the manufacturer's warranty must be carried out exclusively by the manufacturer's authorised technicians. Non-compliance with this requirement may compromise the safety of the appliance and invalidate the warranty. In order to guarantee the efficiency of the appliance and its correct operation, it must be serviced regularly by professionally qualified personnel in line with the manufacturer's instructions.
- When the appliance is no longer required for use, any parts that may constitute potential sources of danger must be rendered harmless.

- Only original accessories or optional extras (including electrical parts) must be used with the appliance.
- Should there be a smell of gas present in the room where the appliance is installed, **DO NOT** attempt to activate any electric switches, telephones or any other equipment that may cause sparks. Open doors and windows immediately to create a current of air and ventilate the room. Shut-off the main gas supply valve (at the meter), or on the cylinder in the case of bottled gas, and call an authorised service centre.
- **Do not attempt to interfere with the appliance in any way.**
- As dictated by current legislation, this appliance **must be installed exclusively by qualified personnel**. Before starting the boiler for the first time, make sure that it is connected to a water supply and central heating system compatible with its performance characteristics.
- **Check the technical data reported on the packing and on the data plate** located on the inside of the front casing. Also check that the burner is appropriate for the type of gas to burn.
- **Make sure that the pipes and fittings used for the gas service are perfectly tight and that there are no gas leaks.**
- Prior to initial start-up, the central heating pipes should be flushed to remove any residues that could compromise the operation of the appliance.
- The appliance can be regarded as being electrically safe when it has been connected to an efficient earth system installed in accordance with the requirements of current safety standards. This fundamental safety requirement must be checked and verified. In case of doubt, have the electrical system checked by a qualified electrician. The manufacturer will not be held liable for any damage or injury caused as a result of an ineffective or non-existent earth system.
- The domestic power supply must be checked by a qualified electrician to ensure that it can support the maximum power absorption of the appliance, as indicated on the appliance data plate (positioned on the inside of the front casing). In particular, make sure that the cable ratings are adequate for the power absorbed.
- Do not use adapters; multiple sockets or extension leads to connect the appliance to the mains power supply.
- The appliance must be connected to the mains power supply through an appropriate electrical isolator in accordance with the current wiring regulations.
- When using an electrical appliance, a few fundamental rules must be observed:
 - Do not touch the appliance with damp or wet parts of the body or when barefoot
 - Do not pull on the electric wires
 - Do not leave the appliance exposed to atmospheric elements (rain, sun, etc.) unless these conditions have been expressly provided for.
 - Do not allow the appliance to be used by children or anyone unfamiliar with its operation.
- The user must not replace the power supply cable.
- If the cable is damaged in any way, switch off the appliance and have the cable replaced by a suitably qualified electrician.
- **When the appliance is no longer required for use, switch off the main power supply, to switch all electrical components off (circulating pump, burner etc.)**

1.2 Product conformity

RADIANT BRUCIATORI S.p.A. declares that all its products are manufactured to a high specification and in compliance with the relevant standards.

All **RADIANT** boilers are **CE** certified and possess technical and functional characteristics that comply with the following standards:

UNI EN 297 for GAS-FIRED CENTRAL HEATING BOILERS TYPE B OF NOMINAL HEAT INPUT ≤ 70 kW

EN 483 for GAS-FIRED CENTRAL HEATING BOILERS TYPE C OF NOMINAL HEAT INPUT ≤ 70 kW

UNI EN 677 for GAS-FIRED CENTRAL HEATING BOILERS. SPECIFIC REQUIREMENTS FOR CONDENSING BOILERS WITH NOMINAL HEAT INPUT ≤ 70 kW

Gas fired boilers also comply with the following directives:

GAS APPLIANCES DIRECTIVE 2009/142/CE

LOW VOLTAGE DIRECTIVE 2006/95 CEE

ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108 CEE

BOILER EFFICIENCY DIRECTIVE 92/42 CEE

The materials used such as copper, brass, stainless steel, etc. form a compact, homogeneous, highly functional unit that is easy to install and simple to operate. In its simplicity, the wall-mounted appliance is equipped with all the appropriate accessories required to make it a fully independent boiler capable of satisfying domestic hot water production and central heating needs. All boilers are fully inspected and are accompanied by a quality certificate, signed by the inspector, and a guarantee certificate. This manual must be kept in a safe place and must **accompany the boiler at all times.**

RADIANT BRUCIATORI S.p.A. will not be held responsible for any misinterpretation of this manual resulting from the inaccurate translation of same.

RADIANT BRUCIATORI S.p.A. will not be held responsible for the consequences in the case of non-observance of the instructions contained in this manual or in the case where actions not specifically described herein are undertaken.

Radiant Bruciatori S.p.A. declare that no substances harmful to health are contained in the appliance or used during appliance manufacture and have not used or intend to use any of the following substances in the manufacture of Radiant heating products.

- Asbestos
- Mercury
- CFC's.

2. TECHNICAL CHARACTERISTICS

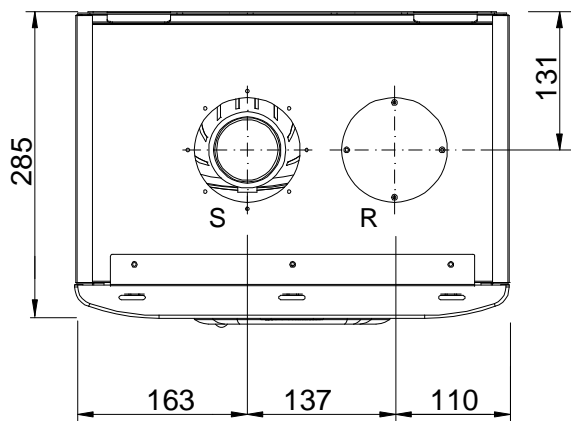
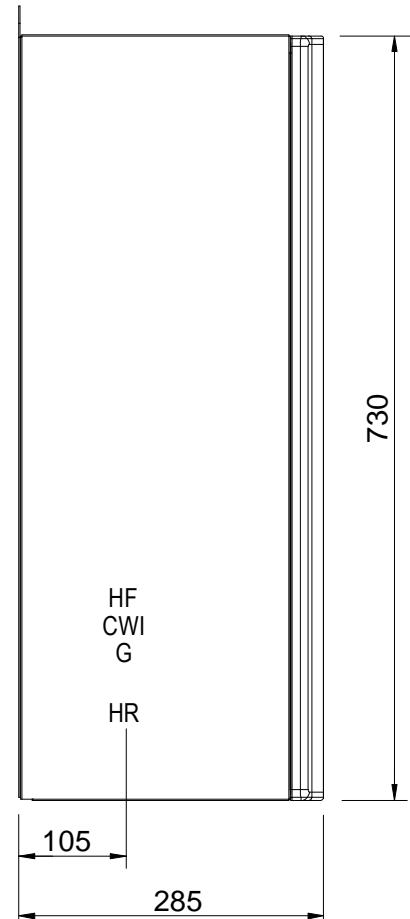
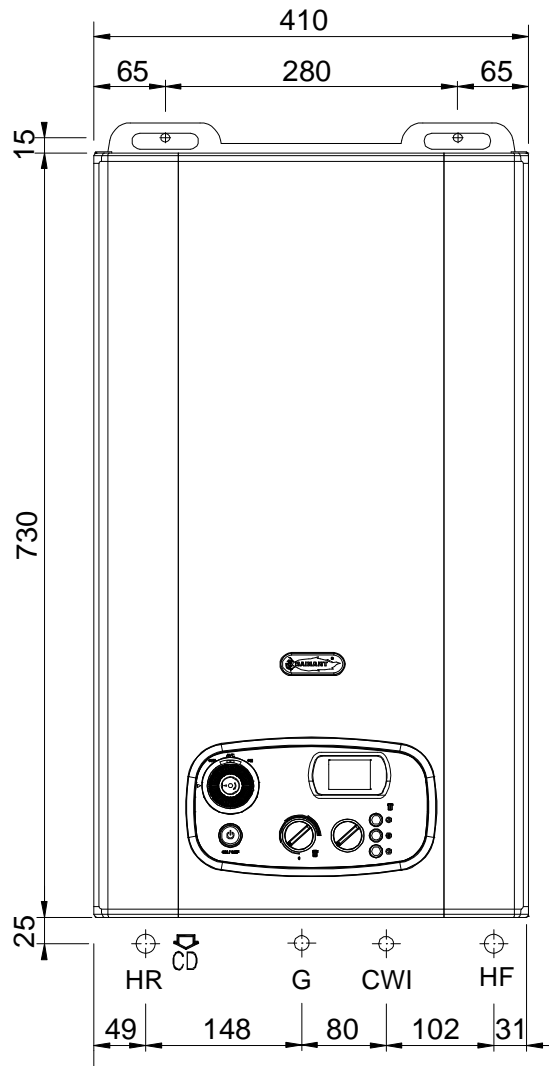
2.1 Technical data

Models		RK 18	RK 25	RK 34
CE Certification	n°	0694BN3485		
Appliance Type		B23p – B33 - C13 - C33 - C43 - C53 - C63 - C83 – C93		
Appliance Category		II2H3B/P		
Heat Input max	kW	18	25	34
Heat Input min	kW	4	9	10
Heat Output max (50/30°)	kW	19.26	26.68	36.24
Heat Output max – 80/60°C (Non condensing)	kW	17.69	24.6	33.42
Heat Output min – 80/60°C (Non condensing)	kW	3.9	8.73	9.73
Full Load Efficiency (SEDBUK EFFICIENCY)	%,net	98.3	98.4	98.3
Part Load Efficiency (SEDBUK EFFICIENCY)	%,net	108.1	106.3	107.9
GAS DIRECTIVE 92/42/ECC – Efficiency marking	stars	4		
Sedbuk	band	A		
Central Heating circuit				
Central Heating water temperature setting (min-max)	°C	30-80 / 25-40		
Max. Heating working temperature	°C	80		
Expansion vessel capacity	litres	7		
Max. Working pressure (heating)	bar	3		
Min. Working pressure (heating)	bar	0.3		
Dimensions (Boiler casing size)				
Width	mm	410		
Height	mm	730		
Depth	mm	285		310
Weight (net)	kg	36	38	40
Hydraulic connections				
Central Heating Flow connection	Ø mm	22		
Central heating Return connection	Ø mm	22		
Cold water mains connection	Ø mm	15		
Gas connection	Ø mm	15		
Condensate Drain	Ø mm	25		
Flue systems				
Horizontal-Concentric flue system	Ø mm	60/100		
Max. Flue length	m	6	6	3
Horizontal-Concentric flue system	Ø mm	80/125		
Max. Flue length	m	12	10	8
Twin pipe flue system	Ø mm	80/80		
Max. Flue length (from terminal to terminal)	m	50		
Twin pipe flue system	Ø mm	60/60		
Max. Flue length (from terminal to terminal)	m	30		
Vertical-Concentric flue system	Ø mm	60/100		
Max. Flue length	m	6	6	3
Vertical-Concentric flue system	Ø mm	80/125		
Max. Flue length	m	12	10	8
Gas Supply				
Natural gas G 20				
Inlet pressure	mbar	20		
Gas consumption	m³/h	1.91	2.65	3.6
Butane G30				
Inlet pressure	mbar	30		
Gas consumption	kg/h	1.42	1.97	2.68
Propane G31				
Inlet pressure	mbar	37		
Gas consumption	kg/h	1.4	1.94	2.64
Electrical specifications				
Power supply	V/Hz	230/50		
Electrical power consumption	W	138		
Electrical protection	IP	X4D		

TECHNICAL CHARACTERISTICS

Models		RK 18	RK 25	RK 34
Efficiency 100% (full load 80/60°)	%	98.3	98.4	98.3
Efficiency 100% (full load 50/30°)	%	107	106.7	106.6
Efficiency 30% (partial load)	%	101.1	100.1	100.7
Flue efficiency losses with burner on (50/30°C) (Pn/Pr)	%	2,51/2,43	2,20/2,10	2,60/2,40
Flue gas temperature (50/30°C) (Pn)	°C	50,8	53	51,7
Flue gas temperature (80/60°C) (Pn)	°C	71	65	73,3
Flue Mass (50/30°C) (Pn/Pr)	Kg/h	29,95/6,65	42,50/15,30	58,95/17,34
Flue Mass (80/60°C) (Pn/Pr)	Kg/h	28,32/6,49	39,32/15,08	54,89/17,15
Air excess (Heat output max/min) (Pn/Pr)	λ	1,25/1,3	1,24/1,33	1,27/1,36
NOx content	mg/kWh	35	40	32
Condensate production	l/h	2	2.2	3
Expansion vessel pre-charge pressure	bar	1		
Fan electrical power consumption	W	75		
Pump electrical power consumption	W	88		93
Fan head	Pa	75	75	120

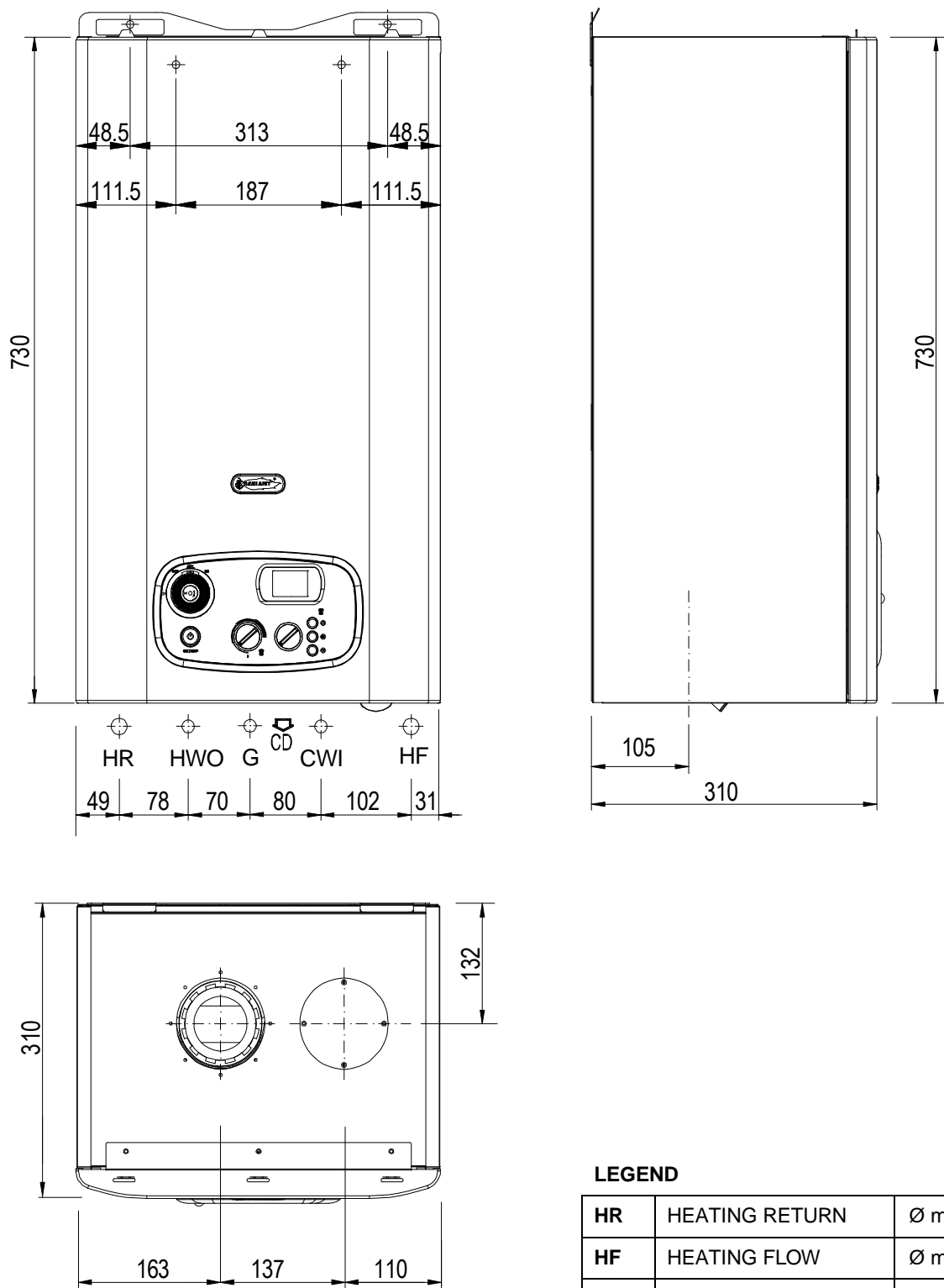
2.2 Dimensions - RK 18 – RK 25



LEGEND

HR	HEATING RETURN	Ø mm	22
HF	HEATING FLOW	Ø mm	22
G	GAS	Ø mm	15
CWI	COLD WATER INLET	Ø mm	15
CD	CONDENSATE DRAIN	Ø mm	25

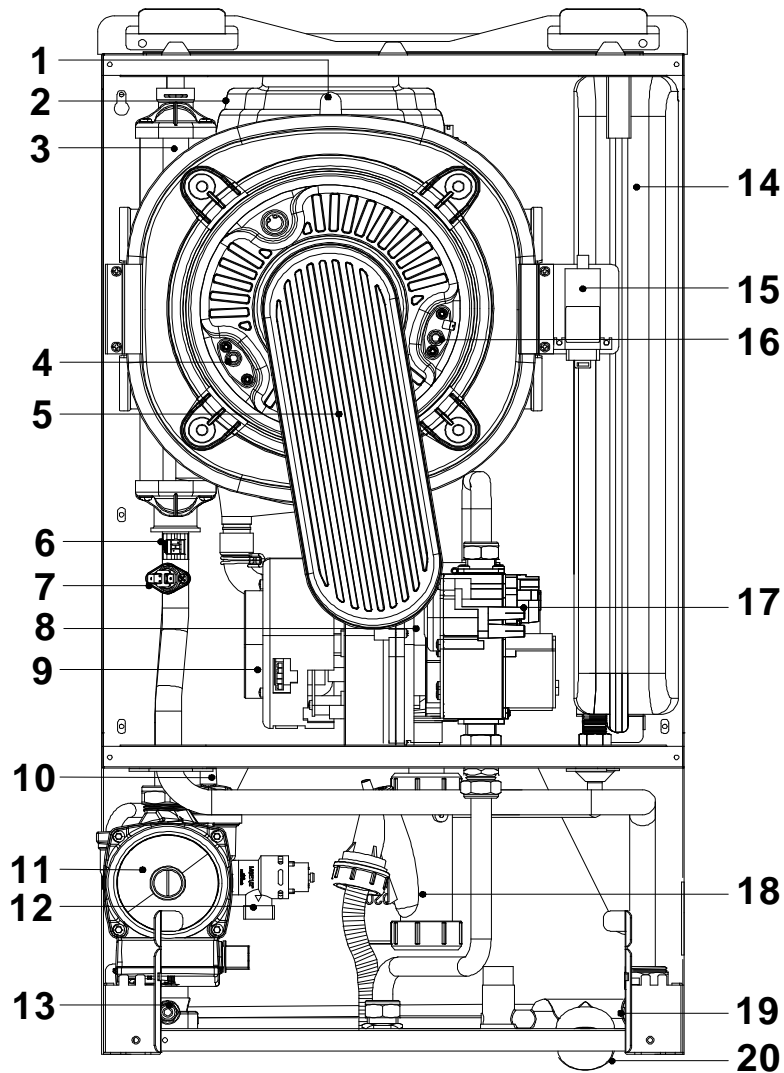
RK 34



LEGEND

HR	HEATING RETURN	Ø mm	22
HF	HEATING FLOW	Ø mm	22
G	GAS	Ø mm	15
CWI	COLD WATER INLET	Ø mm	15
CD	CONDENSATE DRAIN	Ø mm	25

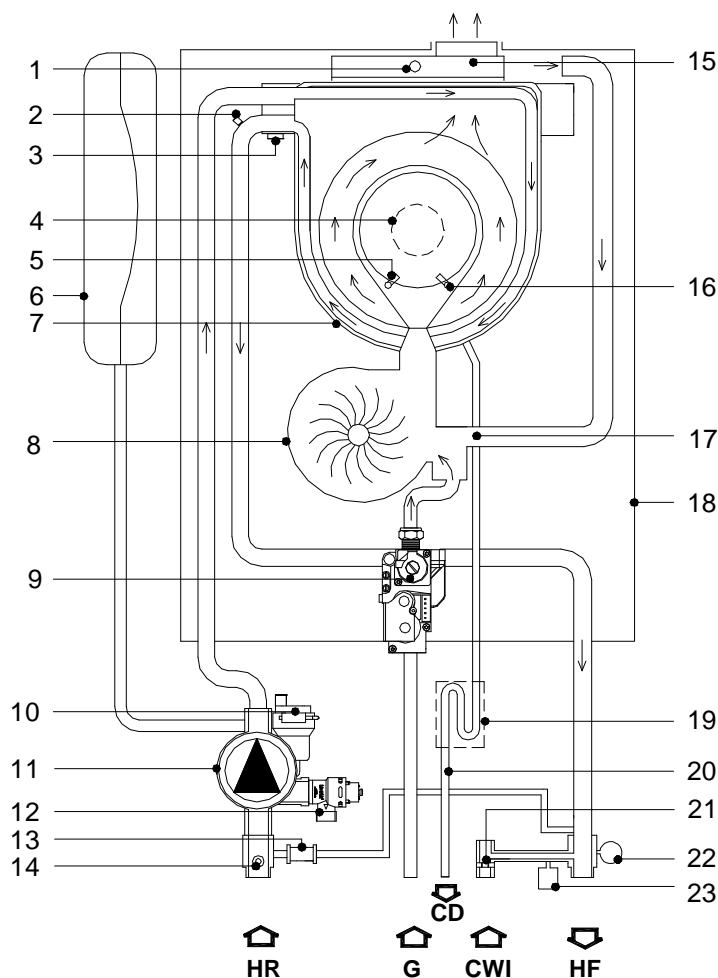
2.3 Internal parts of the boiler



LEGEND

1. SAFETY THERMO FUSE
2. FLUE HOOD
3. PRIMARY CONDENSING HEAT EXCHANGER
4. IONISATION ELECTRODE
5. PREMIX BURNER UNIT (GAS MANIFOLD + BURNER)
6. HEATING SENSOR
7. HEATING SAFETY THERMOSTAT
8. VENTURI
9. FAN
10. AUTOMATIC AIR VENT VALVE
11. PUMP
12. 3 BAR PRESSURE RELIEF VALVE
13. SYSTEM DRAIN VALVE
14. EXPANSION VESSEL
15. IGNITION TRANSFORMER
16. IGNITION ELECTRODE
17. ELECTRONIC GAS VALVE
18. CONDENSATE TRAP
19. WATER PRESSURE SWITCH
20. WATER PRESSURE GAUGE

2.4 Water circuit



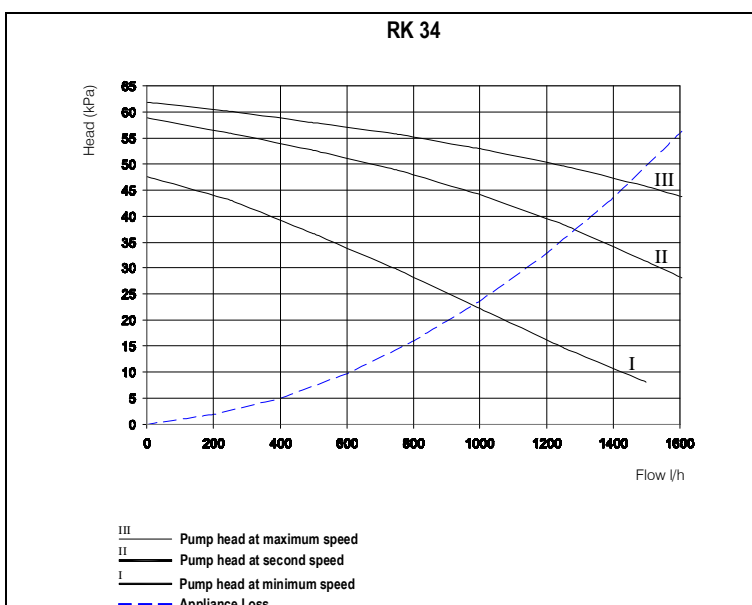
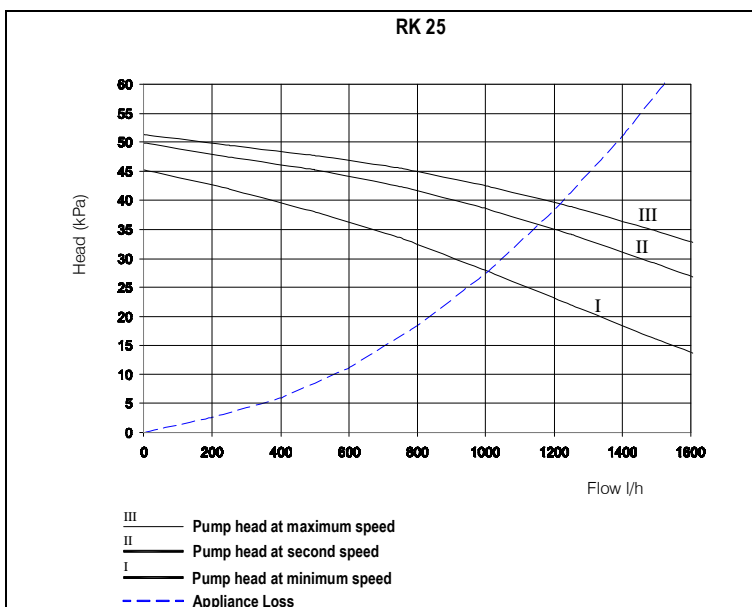
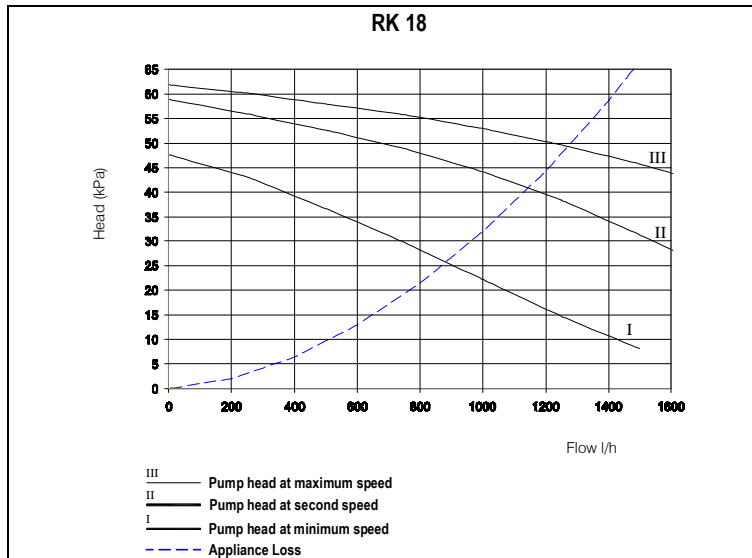
LEGEND

1. SAFETY THERMO FUSE
2. HEATING SENSOR
3. HEATING SAFETY THERMOSTAT
4. PREMIX BURNER UNIT (GAS MANIFOLD+BURNER)
5. IONISATION ELECTRODE
6. EXPANSION VESSEL
7. PRIMARY CONDENSING HEAT EXCHANGER
8. FAN
9. ELECTRONIC GAS VALVE
10. AUTOMATIC AIR VENT VALVE
11. PUMP
12. 3 BAR PRESSURE RELIEF VALVE
13. AUTOMATIC BY-PASS
14. SYSTEM DRAIN VALVE
15. FLUE HOOD
16. IGNITION ELECTRODE
17. VENTURI
18. ROOM SEAL CHAMBER BACK SIDE
19. CONDENSATE TRAP
20. CONDENSATE DRAIN PIPE
21. FLOW LIMITER
22. WATER PRESSURE SWITCH
23. WATER PRESSURE GAUGE

LEGEND

HR	HEATING RETURN	Ø mm	22
HF	HEATING FLOW	Ø mm	22
G	GAS	Ø mm	15
CWI	COLD WATER INLET	Ø mm	15
CD	CONDENSATE DRAIN	Ø mm	25

2.5 Circulation pump head/flow graph



2.6 DIGITECH 2[®] printed circuit board – SM30003

Technical characteristics

Adjustments possible by service personnel only

- Standard (30/80°C) / reduced (25-40°C) central heating temperature
- Water hammer prevention function
- Central Heating timer - (adjustable from 0 to 7,5 minutes)
- Central Heating pump overrun timer
- Minimum Gas pressure setting
- Maximum Heating Load
- Heating output rising time

User settings

- On/Off
- Heating Temperature setting (30-80°C) – (25-40°C)
- Winter only mode

Operation/Functions display

- Lock-Out
- Water deficiency indicator
- Temperature display

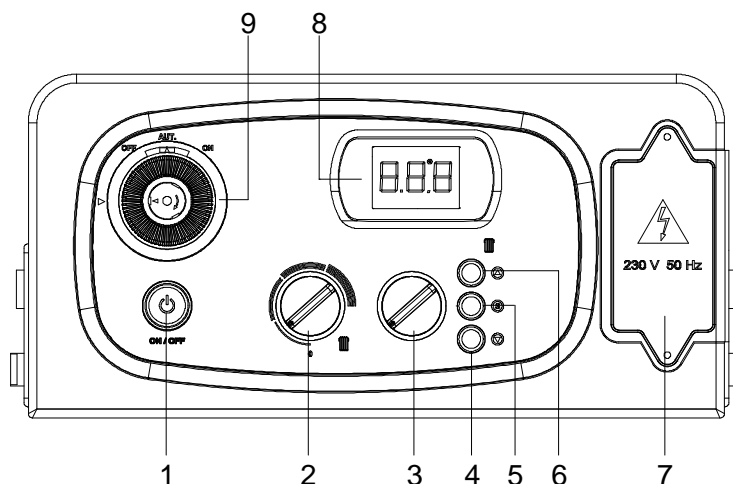
→ When the boiler is switched off at the switch on the control panel, the word OFF appears on the display. The central heating frost protection system, nevertheless, remain enabled. If the boiler was previously on, it is switched off and the post-ventilation protection functions is enabled.

→ The remote control, where fitted, remains active and illuminated.

2.7 Control panel

LEGEND

1. ON/OFF BUTTON
2. HEATING TEMPERATURE CONTROL KNOB
3. NOT OPERATIVE KNOB.
4. OUTSIDE TEMPERATURE DISPLAY (ONLY IF OPTIONAL OUTDOOR SENSOR IS FITTED)
5. SERVICE BUTTON.
6. WINTER MODE SELECTION BUTTON.
7. TERMINAL BOARD FOR EXTERNAL WIRING.
8. TEMPERATURE, ERROR CODE AND OPERATING STATUS DISPLAY .
9. TIME CLOCK (optional)



3. *INSTALLATION* (authorised personnel)

3.1 Reference standard

In GB, the installation must be carried out by a Gas Safe Registered Installer. To check for authorised qualified engineers please contact Phone Number 0800 408 5500. It must be carried out in accordance with the relevant requirements of the:

- **Gas Safety Regulations;**
- **The appropriate Building Regulations either The Building Regulation, The Building Regulations (Scotland), Building Regulations (Northern Ireland);**
- **The Water Fittings Regulations or Water Byelaws in Scotland;**
- **The current I.E.E. Wiring Regulations.**

Where no specific instructions are given, reference should be made to the relevant British Standards Code of Practice.

In GB, the following Codes of Practice apply:

BS 5440:Part1 – Flues

BS 5440:Part2 – Air Supply

BS 5446 Installation of hot water supplies for domestic purposes (1st, 2nd and 3rd family gases)

BS 5449 Forced circulation hot water systems

BS 6700 Installation of cold water supplies for domestic purposes (1st, 2nd and 3rd family gases)

BS 6798 Installation of gas-fired hot water boilers

BS 6891 Gas Installation

BS 7074 Expansion Vessels and ancillary equipment for sealed water systems

BS 7593 Treatment of water in domestic hot water central heating systems

BS 7671 IEE wiring regulations.

This appliance meets the requirements of:

- UNI EN 677 for GAS-FIRED CENTRAL HEATING BOILERS. SPECIFIC REQUIREMENTS FOR CONDENSING BOILERS WITH NOMINAL HEAT INPUT ≤ 70 kW
- IPX4D rating for electrical appliances.
- EMC DIRECTIVE 89/336 CEE
- LVD DIRECTIVE 73/23 CEE
- BOILER EFFICIENCY DIRECTIVE 92/42 CEE

Failure to install a gas appliance correctly and in accordance with the above norms could lead to prosecution. It is in the interest of the installer and safety that the law is complied with.

The manufacturers instructions form an integral part of the installation and should be left with the appliance but do not over ride in anyway statutory obligations.

3.2 Boiler room – Installation requirements

Please refer to local and national standards in force in the Country of destination of the product. In particular the manufacturer recommends:

- ⚠ The presence of threaded connections on the gas line, require that the room in which the appliance is installed is ventilated by means of air intakes.**
- ⚠ A compartment used to house the appliance must be specifically designed and constructed for the purpose. An existing compartment or cupboard may be used providing it is suitably modified. Adequate space for servicing must be provided and it must permit safe installation and termination of the flue. (See 3.4.1 'Compartment Ventilation')**

3.3 Unpacking

- The materials (cardboard) used for packing the appliance are fully recyclable.
- It is recommended that the packing material is only removed prior to installing the boiler. The manufacturer will not be held responsible for damage caused by incorrect storage of the product.
- Packing materials (plastic bags, polystyrene, nails, etc.) must not be left within reach of children, in that these items represent a potential hazard.

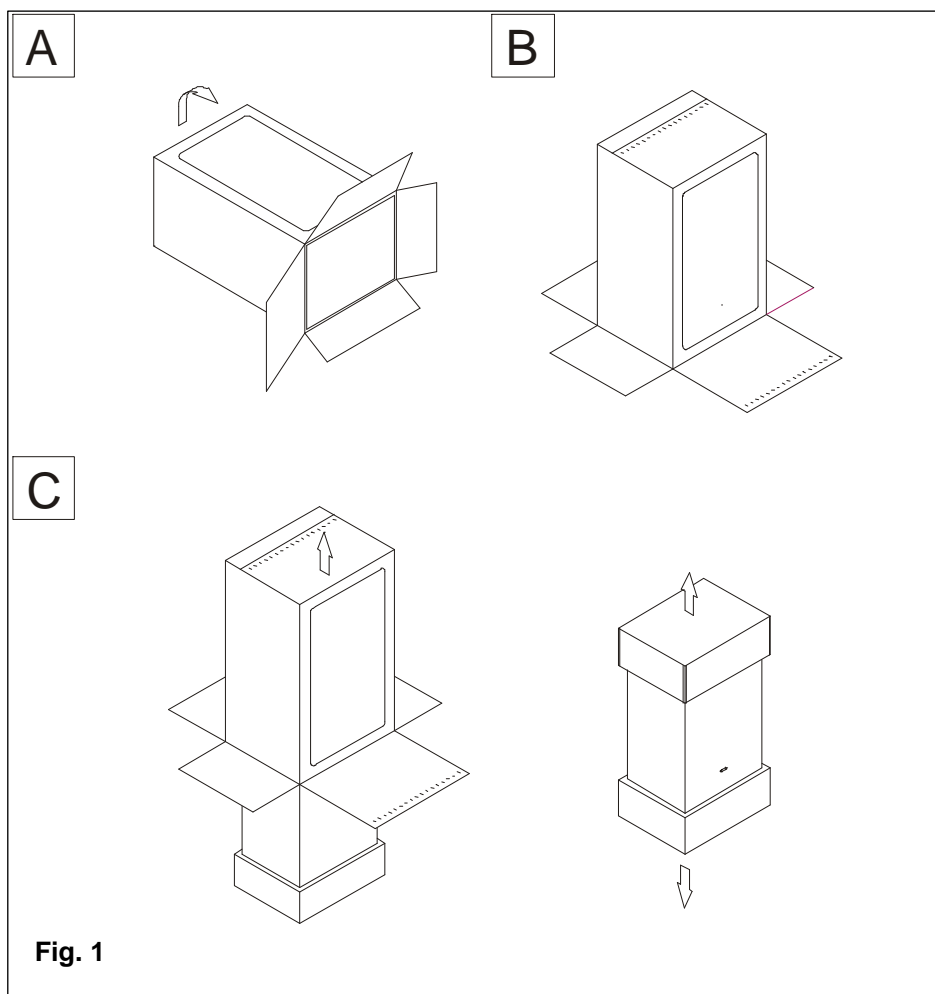
A. Place the packed appliance on the floor (see fig. 1) making sure that the "up" arrow is facing down. Remove the staples and open out the four flaps of the box.

B. Rotate the boiler 90° while manually supporting it from underneath

C. Lift the box and remove the protections. Lift the boiler by grasping the rear part and proceed with the installation.

STORAGE & HANDLING

Please note that prior to installation the Radiant boilers should be stored in the horizontal position with no more than three boilers to a stack; Ensure that the boilers are stored in dry conditions and be aware that the carton is a two man lift;



3.4 Installing the boiler

- **The appliance must be installed exclusively on a flat vertical solid wall capable of supporting its weight.**
- The boiler should be fitted within the building unless otherwise protected by a suitable enclosure i.e. garage or outhouse. (the boiler may be fitted inside a cupboard, (see 3.4.1 "Compartment Ventilation").
- If the boiler is sited in an unheated enclosure then it is recommended to leave the power on to give frost protection (frost protection is active even with On/Off switch in Off position).
- If the boiler is installed in a room containing a bath or shower reference must be made to the relevant requirements. The appliance controls or any related switch or control should not be within reach while using the bath or shower.

In GB this is the current I.E.E. Wiring regulations and Building Regulations;

In order to allow access to the interior of the boiler for maintenance purposes, it is important that the necessary clearances indicated in figure 1 are respected. To make the installation easier, the boiler is supplied with a template to enable the pipe connections to be positioned prior to fixing the appliance to the wall.

To install the boiler, proceed as follows (see fig. 2):

- a. Use a spirit level (of not less than 25 mm long) to mark a horizontal line on the wall where the boiler is to be fitted.
- b. Position the top of the template along the line drawn with the level, respecting the distances indicated. Then mark the centres of the positions of the two wall-plugs or anchors. Finally, mark the positions of the water and gas pipes.
- c. Remove the template and install the domestic hot and cold water pipes, the gas supply pipe and the central heating pipes using the fittings supplied with the boiler.

Fix the boiler to the wall using the wall plugs or bracket and connect the pipes.

Compartment Ventilation

Where the appliance is installed in a compartment, no air vents are required.

BS 5440:Part 2 refers to room sealed appliances installed in compartments. The appliance will run sufficiently cool without ventilation.

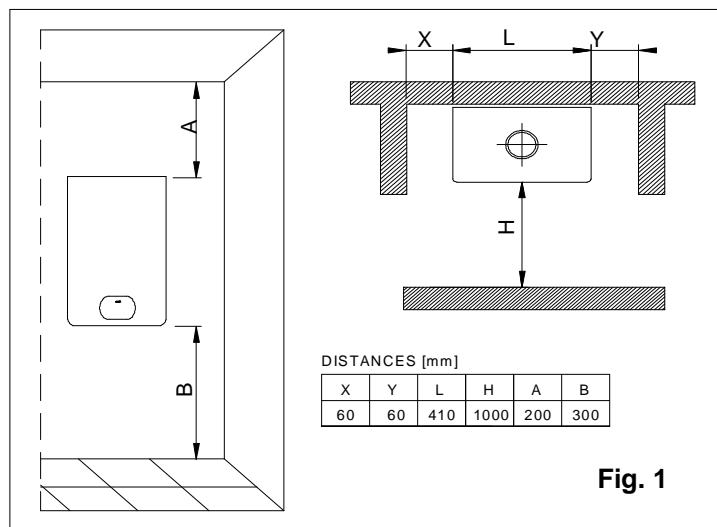


Fig. 1

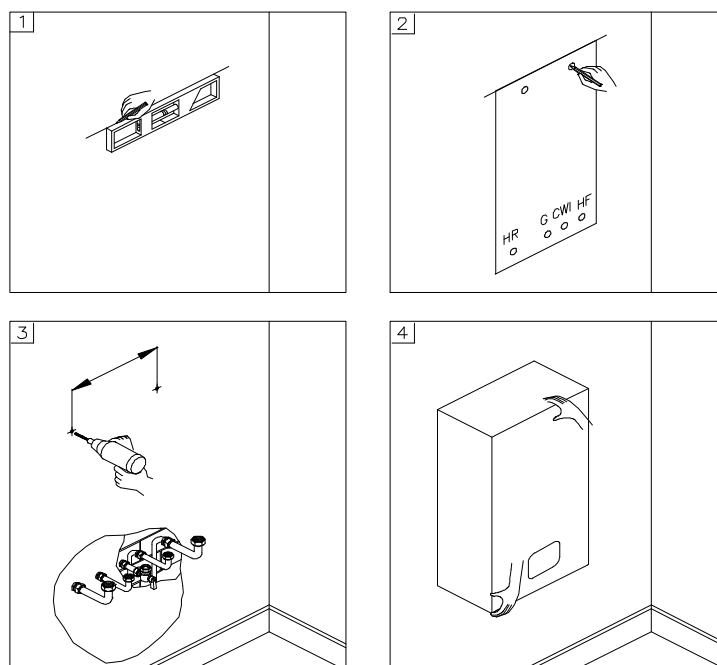
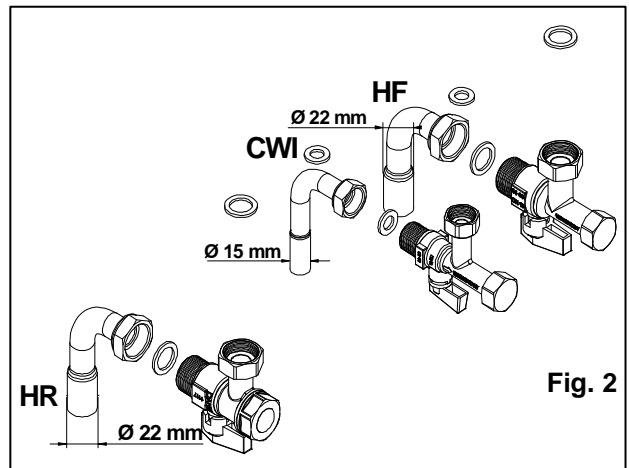
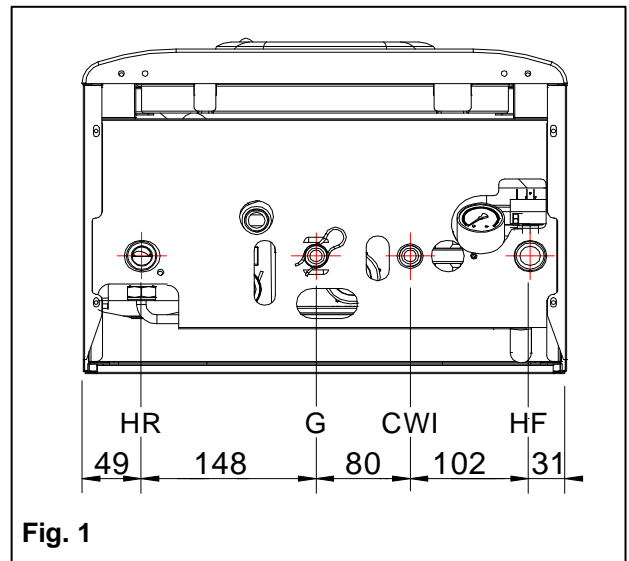


Fig. 2

3.5 Water connections

- ⚠** In order to safeguard the heat exchanger and circulation pump, especially in case of boiler replacement, it is recommended that the system is hot-flushed to remove any impurities (especially oil and grease) from the pipes and radiators.
- ⚠** Make sure that the central heating pipes are not used to earth the electrical system. The pipes are totally unsuitable for this purpose.
- ⚠** The Isolation Valves provided must be installed on the heating circuits. This will facilitate all maintenance and service operations where the boiler needs to be drained.
- To prevent vibration and noise coming from the system, do not use pipes of reduced diameter, short radius elbows or severe reductions in the cross sections of the water passages.
- In order to guarantee the reliability of the boiler and prevent permanent damage in areas with very high water inlet pressure a 2.5 bar pressure reducing valve should be fitted.
- To facilitate the installation, the boiler is supplied with a hydraulic connection kit (see fig.2).



Central heating circuit

In order to prevent scaling or deposits in the primary heat exchanger, the mains supply water to the heating circuit must be treated according to the requirements of local standards.

This treatment is indispensable in the case where the circuit is frequently topped-up or when the system is often either partially or fully drained.

The outlet connection of the boiler safety valve must be connected to a discharge pipe with a continuous fall from the boiler to outside. It must terminate in a safe position where any water, possibly boiling, can discharge without causing a hazard. The manufacturer will not be held responsible for flooding or damage caused by the operation of the safety valve in the case of system overpressure.

Condensate Drain

The condensate drain flexible pipe supplied with the boiler (conforming to UNI EN 677 standard) must be connected to a proper condensate trap. The condensate discharge into the drainage system is allowed providing a condensate trap (siphon) is installed.

Any condensate discharge pipe work external to the building (or in an unheated part of it) must be insulated to protect against frost. Before switching the boiler On, check the correct condensate discharge.

3.6 Central heating circuit

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 7 litre expansion vessel incorporated into the boiler is generally suitable for most sealed heating systems however if the system has a larger volume of water it may be necessary to provide extra capacity for expansion.

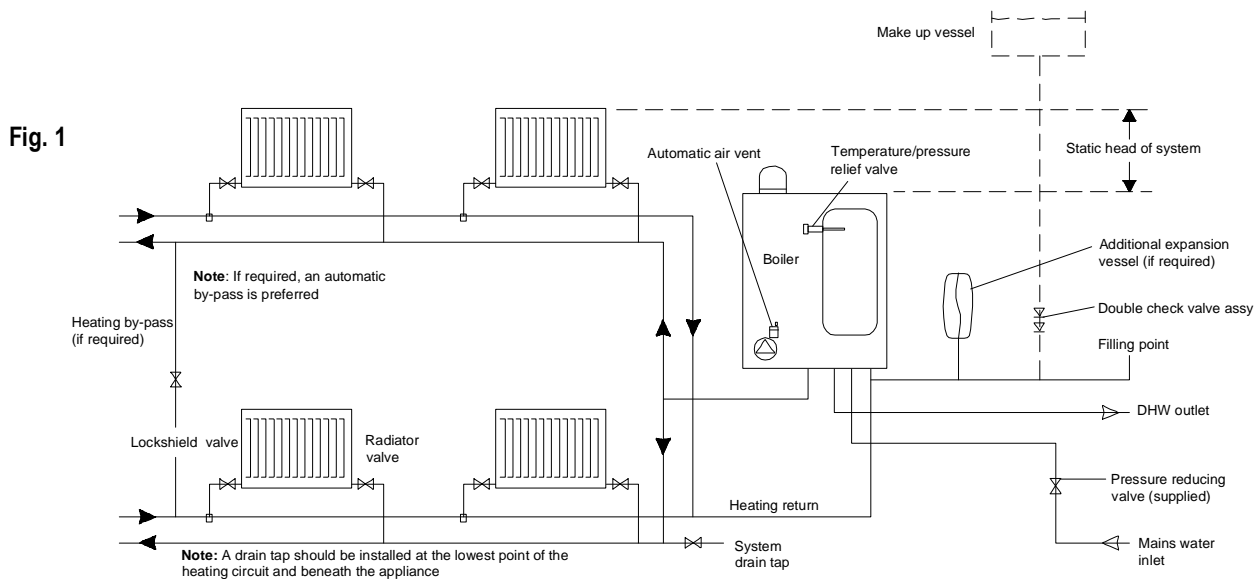
The boiler is supplied with the following components built in:-

Pressure relief valve -complying with BS 6759 and set to operate at 3 bars. The outlet connection of the boiler safety valve must terminate to atmosphere in accordance with current regulations. The manufacturer will not be held responsible for flooding caused by the operation of the safety valve in the case of system overpressure..

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

Expansion vessel – **Volume 7 litre. Conforming to BS 7074:1 for GB,**

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



Filling the central heating system – figs. 2-3

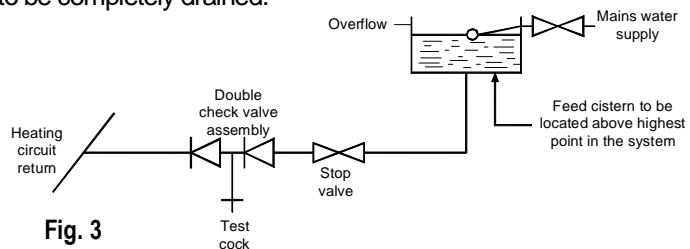
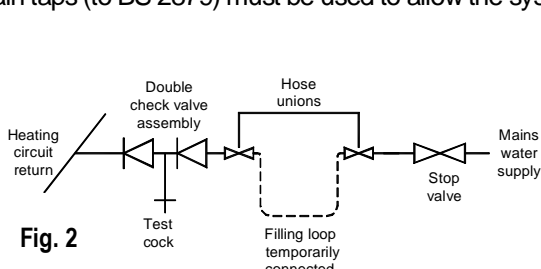
The system design pressure (cold) should be set to 1.5 bar. This pressure is equivalent to a static head of 15.4 metres of water.

Provision should be made to replace water lost from the system during servicing etc. as shown in Figs. 2 and 3. The position for connecting an alternative 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 (GB: Guidance G24.2 and Recommendation R24.2 of the Water Regulation Guide). 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.

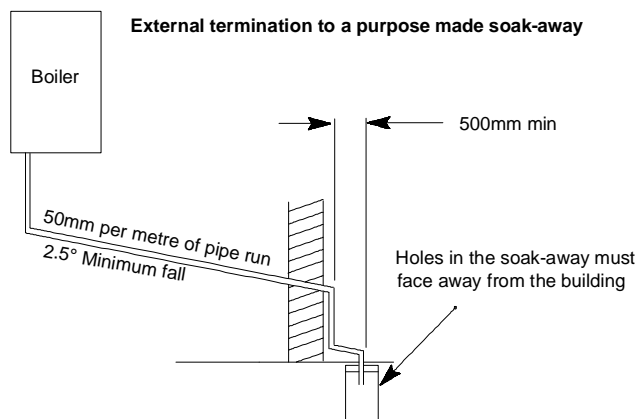
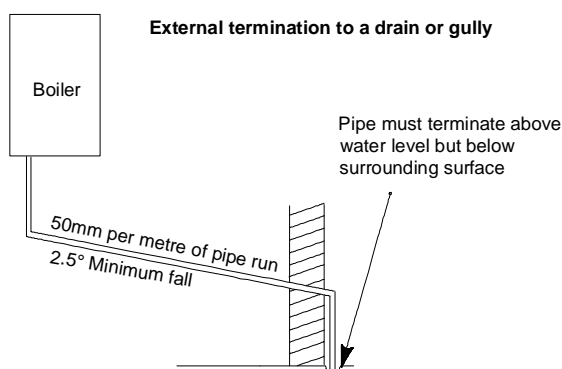
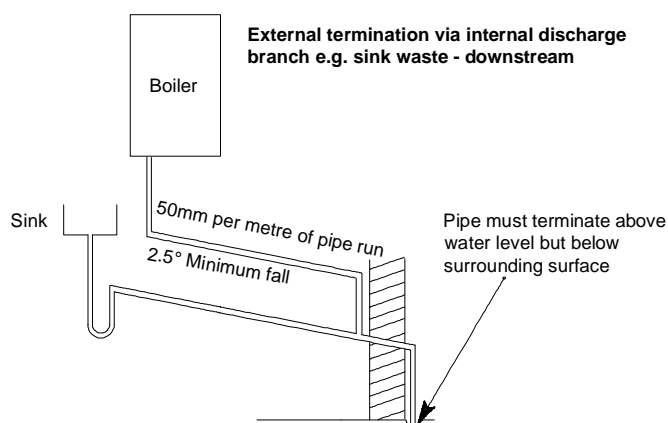
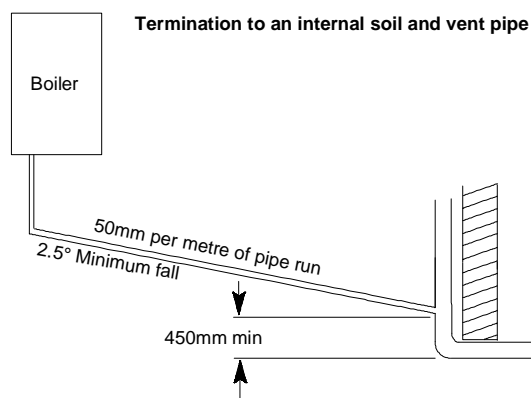
All fittings used in the system must be able to withstand pressures up to 3 bar.

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



In order to prevent scaling or deposits in the primary heat exchanger, the water in the heating circuit must be treated according to the requirements of standard.

This treatment is indispensable in the case where the circuit is frequently topped-up or when the system is often either partially or fully drained. Frequent topping-up of the system should be avoided and normally indicates a leak within the heating system.



3.7 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.

CAREFUL ATTENTION IS REQUIRED TO MINIMISE THE RISK OF FREEZING DURING PROLONGED COLD SPELLS.

1. The boiler condensate outlet terminates in a 25 mm flexible plastic pipe for connection to a plastic pipe which should generally discharge internally into the household drainage system. If this is not possible, discharge into an outside drain or suitable soak-away is acceptable.

2. Ensure the discharge of condensate complies with any national or local regulations in force.

BS 6798:2000 & Part H I 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 and take the shortest practicable route to a termination point.

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

5. The pipe should be a minimum of 22 mm diameter and must be supported using suitably spaced clips to prevent sagging.

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

7 Any condensate discharge pipe work 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 or freezing, 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 soak away

3.8 Gas Connection

 **The connection to the gas supply must be carried out by professionally qualified Gas Safe Registered personnel in accordance with relevant standards:**

In GB this is BS 6891.


 **When connecting the boiler to the gas supply pipe, only use appropriate washers and gas fittings. The use of hemp, Teflon tape and similar materials is not allowed.**


Before installing the boiler, check the following:

- The pipe work must have a section appropriate for the flow rates requested and the pipe lengths installed, and must be fitted with all the safety and control devices provided for by current standards.
- The gas supply line must be a minimum of a 22 mm diameter pipe with an uninterrupted supply from meter to boiler and comply with current standards and regulations.
- ***Check the internal and external seals of the gas supply system.***
- A gas shut-off valve must be installed upstream of the appliance
- The gas pipe work must have and bigger or equal section to the one of the boiler.
- Before starting up the boiler, make sure that the type of gas corresponds to that for which the appliance has been set-up (see gas type label inside the boiler).
- The gas supply pressure must be between the values reported on the rating plate (see gas type label inside the boiler).
- Prior to installation, it is good practice to ensure that there are no machining residues on the gas supply pipe.
- Conversion of the appliance from natural gas to LPG or vice versa must be carried out by qualified personnel ;

3.9 Electrical connections

General warnings

 **The connection to the mains power supply must be carried out by professionally qualified personnel, registered in accordance with current legislation.**

 **Always check to make sure that the appliance has an efficient earth system. This requirement is only satisfied if it has been properly connected to an efficient earth system installed in accordance with the requirements of current safety standards and carried out by professionally qualified personnel. In GB this is I.E.E. Wiring Regulation.**

This basic safety measure must be checked, verified and carried out by professionally qualified personnel.

In case of doubt, have the electrical system checked by a qualified electrician. The manufacturer will not be held liable for any damage or injury caused as a result of an inefficient or inexistent earth system;

- The boiler functions with an alternating current of 230 V and 50 Hz and has maximum power absorption of 180 W. **The appliance should be protected by a 3 A fuse.** The connection to the mains electricity supply must be via a single-pole switch, with at least 3 millimetres gap between open contacts, mounted upstream of the appliance. Make sure that the positions of the live and neutral wires correspond to the wiring diagram;
- Ensure the domestic power supply is checked by a qualified electrician to ensure that it can support the maximum power absorption of the appliance, as indicated on the rating plate. In particular, make sure that the cable sizes are adequate for the power absorbed by the appliance;
- The power supply cable must not be replaced by the user. If the cable is damaged in any way, switch off the appliance and have the cable replaced by a suitably qualified electrician;
- When replacing the power supply cable, only use cables of the same characteristics (HO5 VV-F 3x1) with maximum external Ø 8 mm;

When using an electrical appliance, a few fundamental rules must be observed:

- Do not touch the appliance with damp or wet parts of the body or when barefoot.
- Do not pull on the electric wires.
- Do not leave the appliance exposed to atmospheric elements (rain, sun, etc.) unless these conditions have been expressly provided for.
- Do not allow the appliance to be used by children or anyone unfamiliar with its operation;

Electrical connection

Connect the power supply to the terminal board inside the control panel as follows:

- a. Switch off the power supply at the main switch.
- b. Remove the front case panel of the boiler.
- c. Slacken the screws and remove plate A (see fig. 1).
- d. With the plate removed, connect the wires to the terminal board B as follows:
 - Connect the earth wire (normally coloured green/yellow) to the terminal marked with the earth symbol "⏏".
 - Connect the neutral wire (normally coloured blue) to the terminal marked with the letter "N".
 - Connect the live wire (normally coloured brown) to the terminal marked with the letter "L".
 - Terminals identified by the letters: Ta ⇒ Room thermostat or external timer or control (Voltage 24?)
Se ⇒ Outside temperature sensor (optional)

When the wires have been connected, place plate "A" back to position.

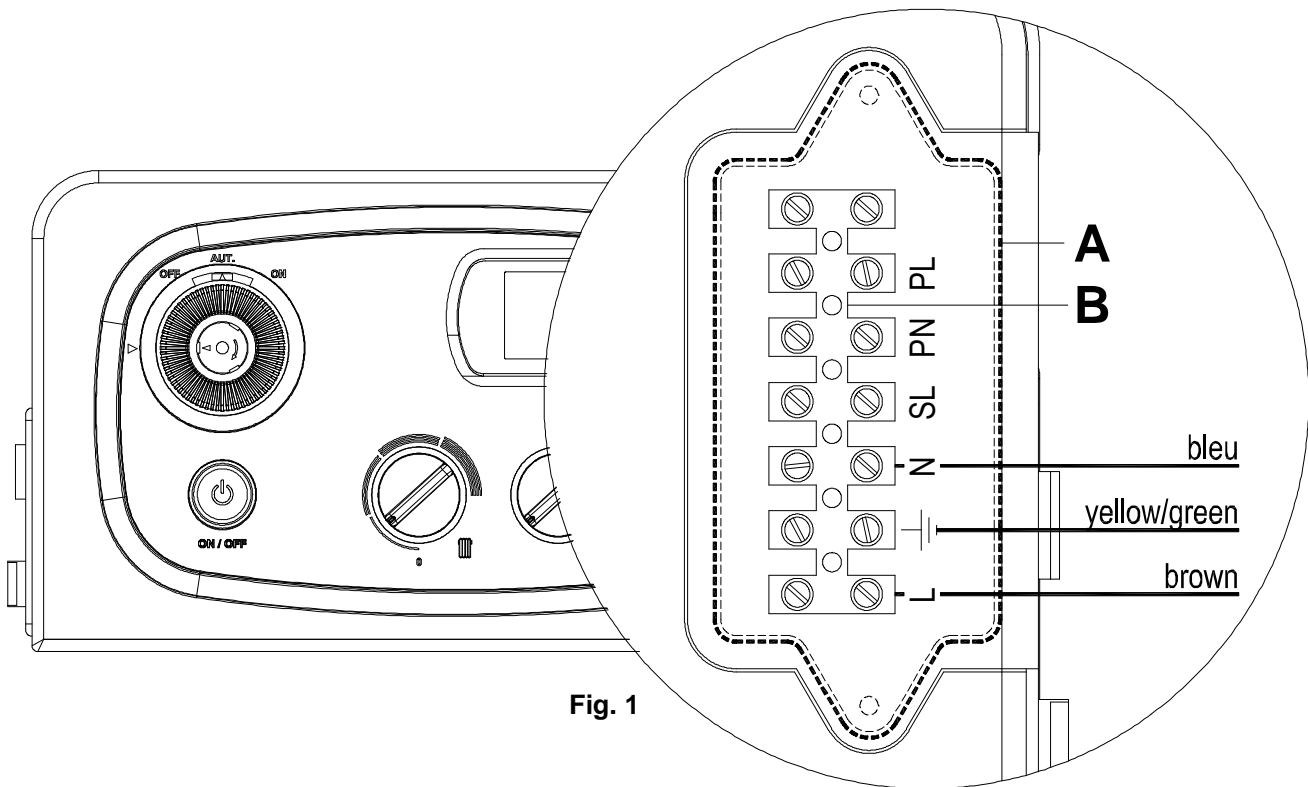


Fig. 1

3.10 Flue connections

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

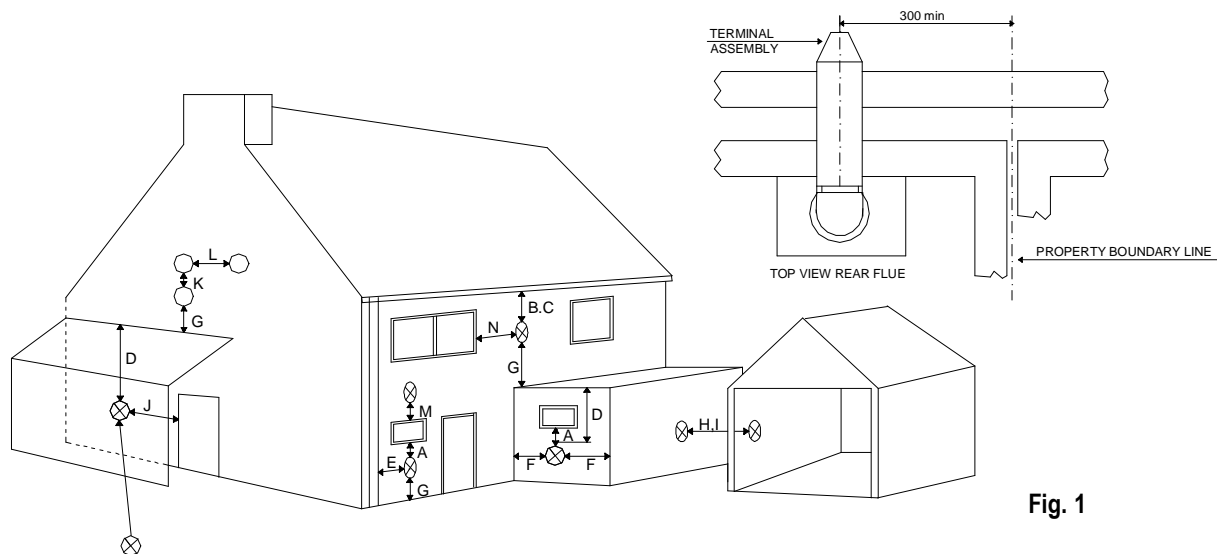


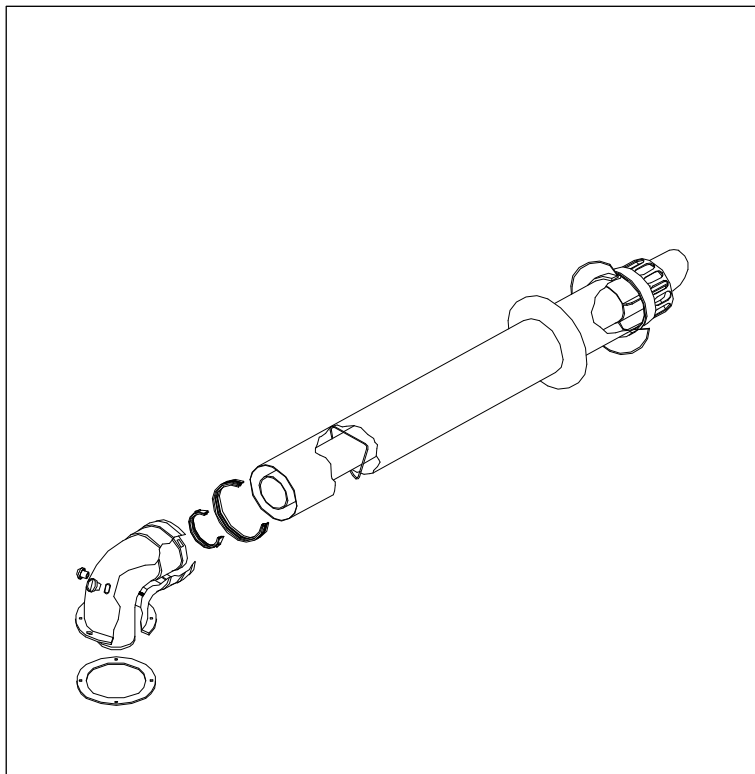
Fig. 1

FROM A CHIMNEY OR STRUCTURE NEXT TO VERTICAL TERMINAL		500mm
A	Directly below an openable window, air vent or any other ventilation opening.	300 mm
B	Below gutter, drain pipes or soil pipes.	25 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

Concentric Flue System- Type K

Horizontal concentric flue kit Ø60/100 mm polypropylene inner pipe.

Adjustable through 360°. Discharges exhaust fumes and draws air from atmosphere.



Suitable for condensing boilers only. Discharges exhaust gases and draws combustion air by means of two concentric ducts. The external Ø100 duct draws the combustion air while the Ø60 plastic inner duct discharges the exhaust fumes.

The discharge duct can be terminated directly to the outside or can be connected to a suitable plume management system.

MAXIMUM FLUE LENGTH:
 RK 18 - 6 m
 RK 25 - 6 m
 RK 34 - 3 m

The *maximum* flue length (linear equivalent) is obtained by totalling the length of linear pipe and the equivalent lengths of each bend fitted.

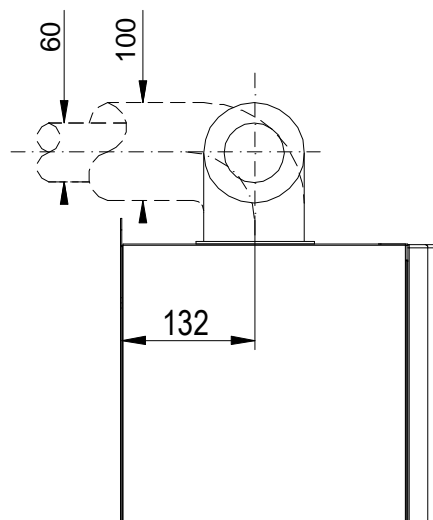
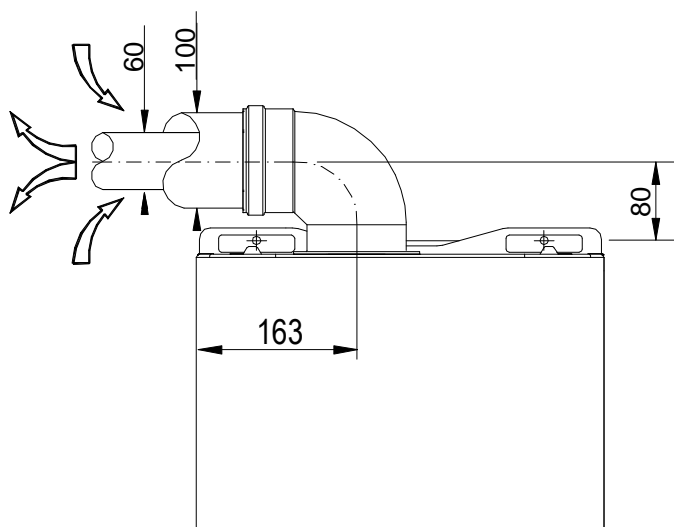
The *linear equivalent* is intended as being the total length of the duct from the connection with the combustion chamber of the appliance, excluding the first bend.

The *linear equivalent* of additional bends is as follows:

Ø 60/100 x 90° bend = 0.8 m.

Ø 60/100 x 45° bend = 0.5 m.

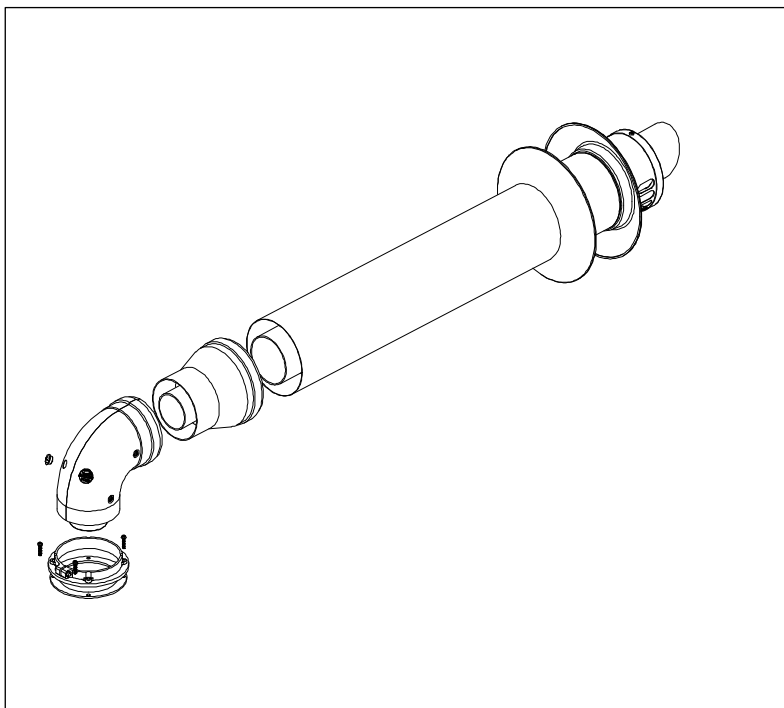
N.B.: USE ONLY RADIANT TYPE-APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND DRAWING COMBUSTION AIR.



Concentric Flue System - Type AK50

Horizontal concentric flue kit Ø80/125 mm polypropylene inner pipe.

Adjustable through 360°. Discharges exhaust fumes and draws air from atmo sphere.



Suitable for condensing boilers only. Discharges exhaust gases and draws combustion air by means of two concentric ducts. The external Ø125 duct draws the combustion air while the Ø80 plastic inner duct discharges the exhaust fumes.

The discharge duct can be terminated directly to the outside or can be connected to a suitable plume management system.

MAXIMUM FLUE LENGTH:
 RK 18 - 12 m
 RK 25 - 10 m
 RK 34 - 8 m

The *maximum* flue length (linear equivalent) is obtained by totalling the length of linear pipe and the equivalent lengths of each bend fitted.

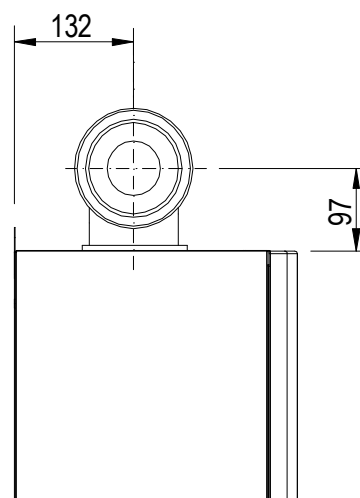
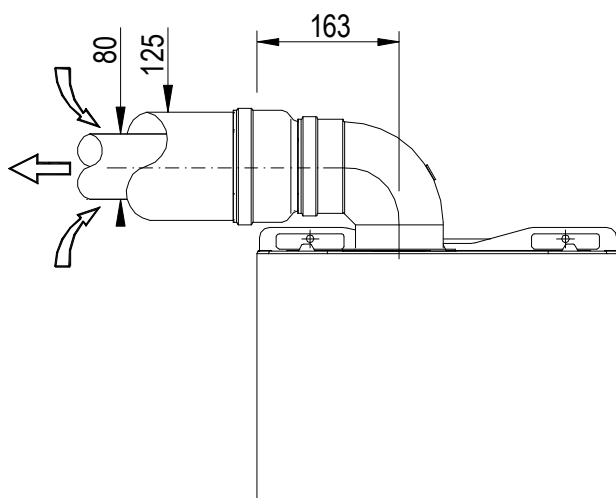
The *linear equivalent* is intended as being the total length of the duct from the connection with the combustion chamber of the appliance, excluding the first bend.

The *linear equivalent* of additional bends is as follows:

Ø 80/125 x 90° bend = 1.6 m.

Ø 80/125 x 45° bend = 0.9 m.

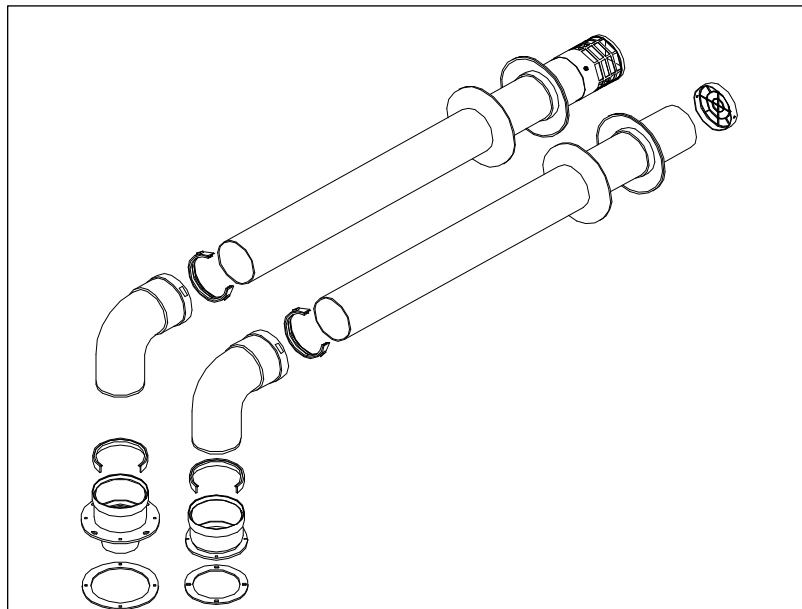
N.B.: USE ONLY RADIANT TYPE-APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND DRAWING COMBUSTION AIR.



Twin Flue System- Type H

Horizontal twin pipe flue kit Ø80/80 in polypropylene adjustable through 360°.

The dual pipe system discharges exhaust fumes and draws air from atmosphere in two separate ducts.



Suitable for condensing boilers only. Discharges exhaust gases and draws combustion air through two separate Ø 80 ducts.

MAXIMUM FLUE LENGTH:

Ø80/80: 50 m

Ø60/60: 30 m

The *maximum* flue length (linear equivalent) is obtained by totalling the length of linear pipe and the equivalent lengths of each bend fitted.

The *linear equivalent* is intended as being the total length of the duct (exhaust discharge + air intake) from the connection with the combustion chamber of the appliance, excluding the first bend.

The addition of a bend has the effect of increasing the linear equivalent length of the duct as follows:

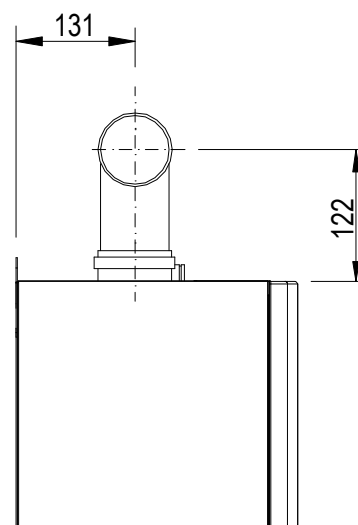
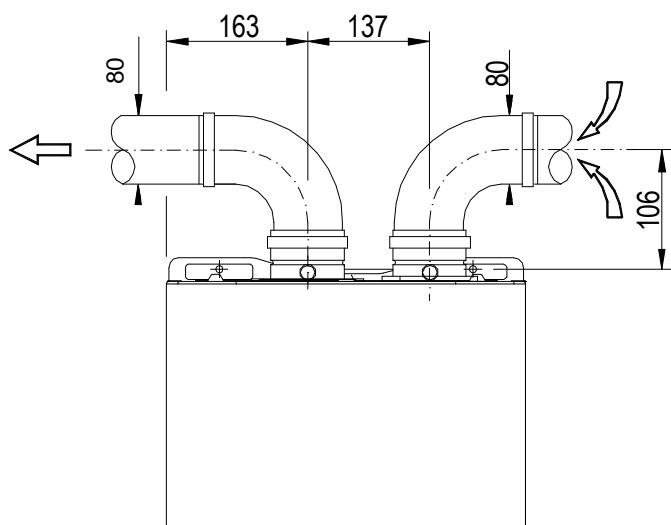
Ø80 x 90° bend = 1.5 m.

Ø80 x 45° bend = 1.2 m.

Ø60 x 90° bend = 1.8 m.

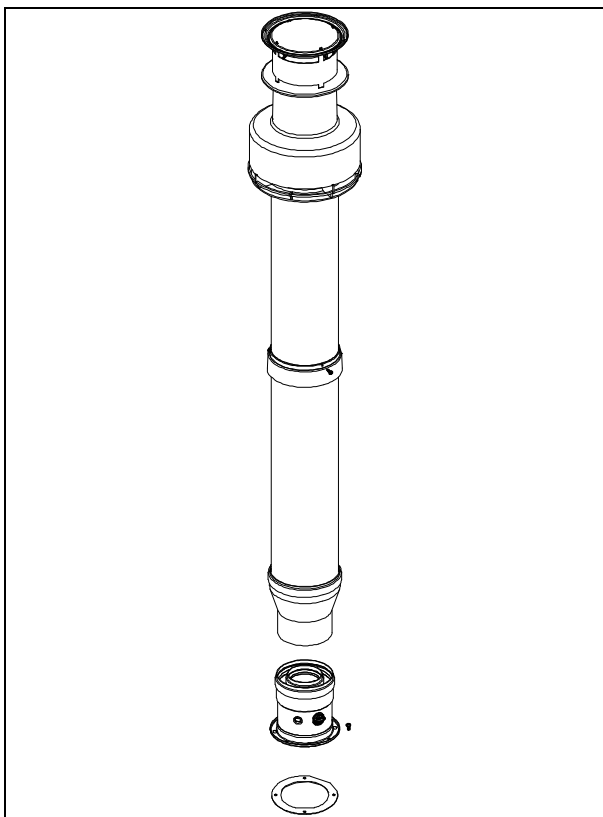
Ø60 x 45° bend = 1.5 m.

N.B.: USE ONLY RADIANT TYPE-APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND DRAWING COMBUSTION AIR.



Vertical Flue System - Type CK50

Vertical concentric flue kit Ø80/125 polypropylene inner pipe.
Discharges exhaust fumes and draws air directly from roof level.



Suitable for condensing boilers only.

Discharges exhaust gases and draws combustion air at roof level by means of two concentric ducts. The external Ø125 duct draws the combustion air while the Ø80 plastic inner duct discharges the exhaust fumes.

MAXIMUM FLUE LENGTH:

RK 18 - 12 m
RK 25 - 10 m
RK 34 - 8 m

The *maximum* flue length (linear equivalent) is obtained by totalling the length of linear pipe and the equivalent lengths of each bend fitted.

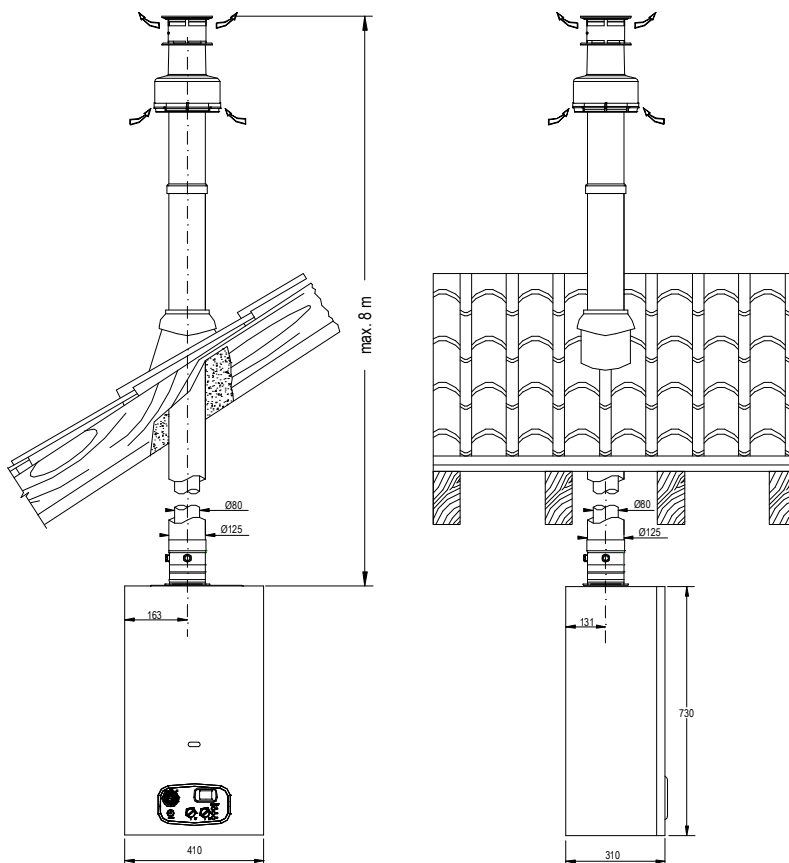
The *linear equivalent* is intended as being the total length of the duct from the connection with the combustion chamber of the appliance .

The *linear equivalent* of additional bends is as follows:

Ø80/ 125 x 90°= 1.6 m.

Ø80/125 x 45°= 0.9 m.

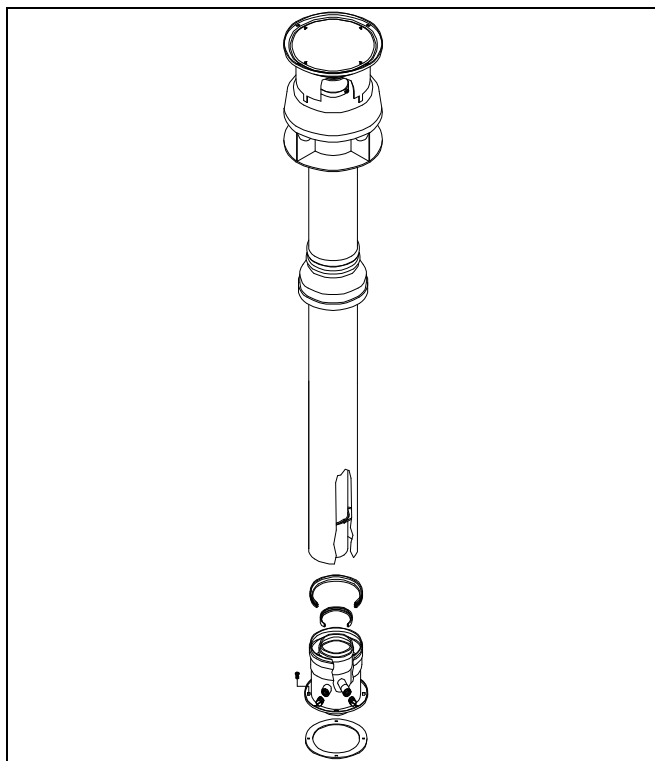
N.B.: USE ONLY RADIANT TYPE-APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND DRAWING COMBUSTION AIR.



Vertical Flue System - Type V

Vertical concentric flue kit Ø60/100 polypropylene inner pipe.

Discharges exhaust fumes and draws air directly from roof level.



Suitable for condensing boilers only.

Discharges exhaust gases and draws combustion air at roof level by means of two concentric ducts. The external Ø100 duct draws the combustion air while the Ø60 plastic inner duct discharges the exhaust fumes.

MAXIMUM FLUE LENGTH:

RK 18 - 6 m
RK 25 - 6 m
RK 34 - 3 m

The **maximum** flue length (linear equivalent) is obtained by totalling the length of linear pipe and the equivalent lengths of each bend fitted.

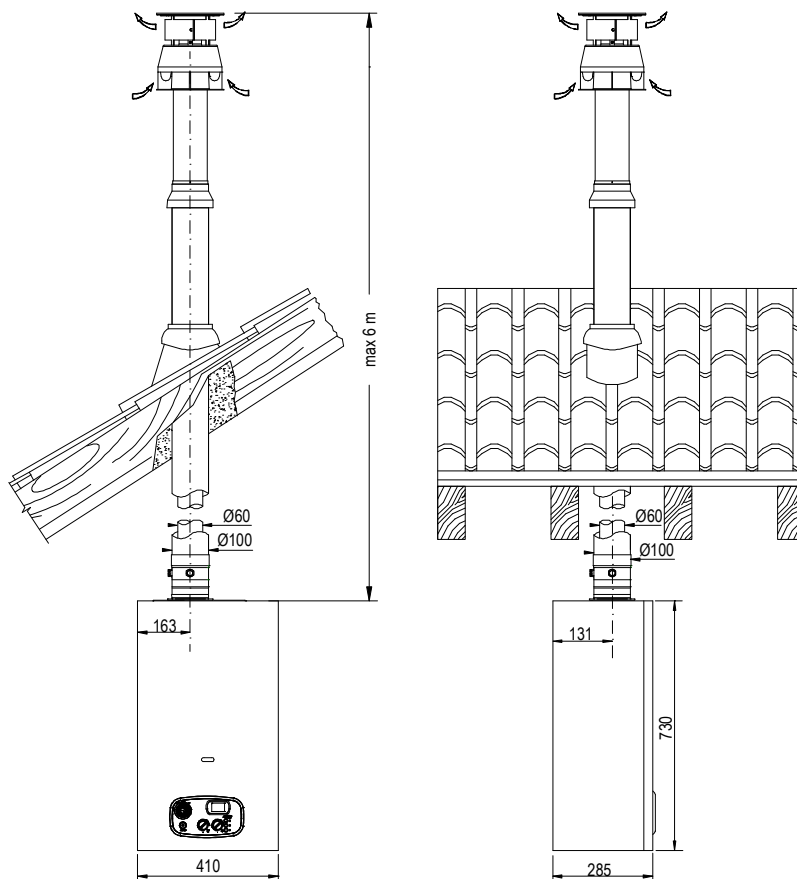
The *linear equivalent* is intended as being the total length of the duct from the connection with the combustion chamber of the appliance, excluding the first bend.

The linear equivalent of additional bends is as follows:

Ø60/100 x 90° = 0.8 m.





Ø60/100 x 45° = 0.5 m.

N.B.: USE ONLY RADIANT TYPE-APPROVED FLUE SYSTEMS FOR DISCHARGING EXHAUST GASES AND



4. COMMISSIONING THE APPLIANCE

4.1 General warnings

-  The following operations must be carried out by professionally qualified personnel and Gas Safe Registered in accordance with current legislation. Reference should be made to BS 5449:5 "Commissioning".
-  The boiler leaves the factory pre-set and tested for burning either natural Gas or LPG. Nevertheless, when starting the boiler for the first time, make sure that the information on the rating plate corresponds to the type of gas being supplied to the boiler and check that the correct CO₂ value is present as stated in Section 4.5.
-  Once the system has been filled and the necessary adjustments made, remember to tighten the screws of the gas valve test point and make sure that there are no gas leaks from the test point and from any pipe fittings upstream of the gas valve.
-  The BENCHMARK commissioning record contained in this book should be completed.

■ Preliminary operations

Switching the boiler on for the first time means checking that the installation, regulation and operation of the appliance are correct :

- If the gas supply system is newly installed, then the air present in the pipes can cause the boiler not to light at the first attempt. A number of attempts may be required in order to light the boiler;
- Check that the data on the data plate corresponds to that of the mains supply networks (gas, electricity, water));
- Check that the power supply voltage to the boiler complies with the data plate (230 V – 50 Hz) and that the live, neutral and earth wires are connected properly. Also make sure that the earth connection is sound;
- Check the seals on the gas supply pipe from the mains, and make sure that the meter does not register any flow of gas;
- Turn the gas supply on and purge according to in GB BS6891.
- Test for gas soundness.
- Check that the gas supply is correctly sized for the flow rate required by the boiler and that it is fitted with all the safety and control devices as lay down by current regulations
- Check that the supply of combustion air and exhaust and condensate discharge systems are functioning correctly and in line with current law and national and local standards;
- Check for the presence of permanent aeration/ventilation openings as required by current law for the type of appliances installed.
- Check that the flue duct and its connections to the terminal/chimney comply with the requirements of current law and national and local standards for the type of appliances installed and are to the manufacturers specification.
- Make sure that any central heating isolation valves are open.
- Check that the condensate drain system, including outside the boiler (flue system condensate collection devices), allows the condensate to flow freely to the collection devices. If the condensate is discharged to the domestic drainage system, install an inspection trap in the condensate system prior to it entering the drainage system to interrupt the continuity between the two systems.
- Check that there are no exhaust fumes discharged into the condensate drain system itself.
- Check that there are no flammable materials or liquids in the immediate vicinity of the boiler;

4.2 Filling the system

⚠ Use only a WRAS approved filling loop for connection and filling of the primary system. This should be disconnected when not in use.

⚠ Use only clean tap water to fill the system.

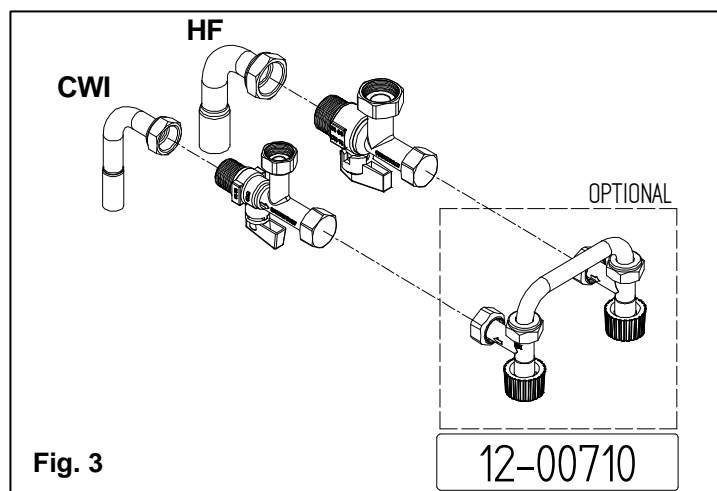
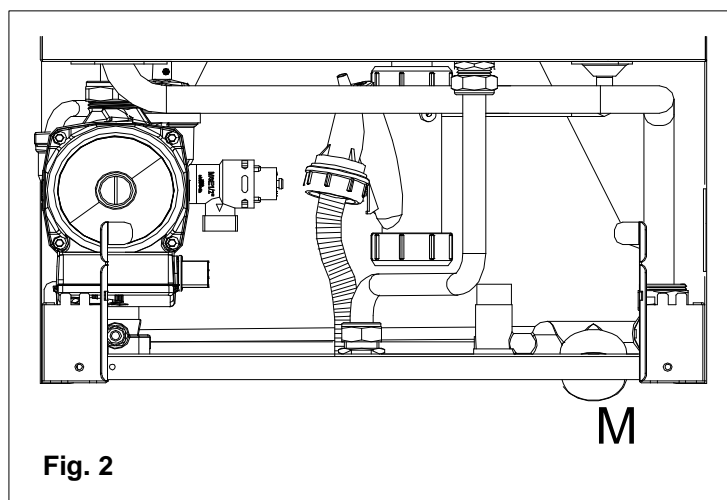
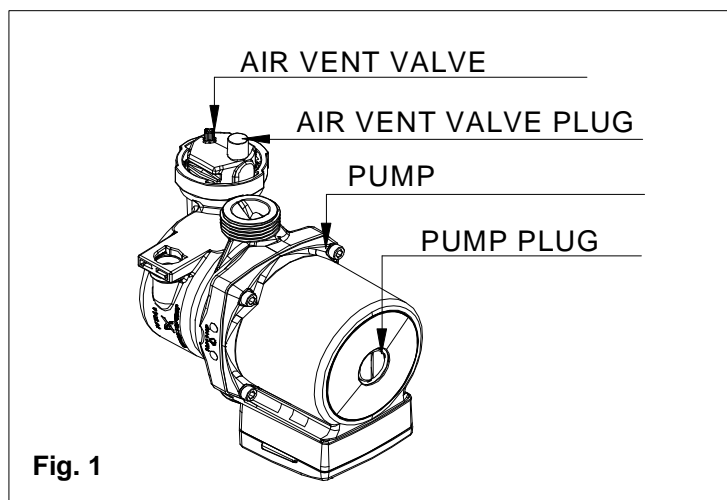
Once the water pipes have been connected, close the gas feed valve and fill the system as follows:

- Check that the circulation pump runs freely;
- Check that the plug of the air vent valve has been slackened slightly to allow air to escape from the system (see fig.1);
- Open the external filling loop (see fig.3);
- Unscrew the plug on the pump to remove any trapped air, check that the pump is free then re-tighten it when water starts to flow out;
- Open the air vents on the radiators and monitor the air evacuation process. When water starts to flow out of the radiators, close the air vents;
- Use the pressure gauge **M** (see fig. 2) to check that the system pressure reaches 1 bar and that the code H₂O does NOT appear on the control panel display (see 2.7 "Control Pane");
- If, after the above operations, there is a reduction in the pressure, re-open the external filling loop until the pressure gauge reads 1 bar and that the code H₂O disappears on the control panel display;
- **On completion, make sure that the external filling loop is completely closed.**

Emptying the central heating system

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

- turn off the main power supply switch;
- 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;



4.3 Filling the condensate trap

The condensation trap must be pre-filled when starting the boiler for the first time in order to prevent flue gases from flowing back through the trap.

The filling operation is carried out as follows (see fig. 1):

- Remove plug **T** and fill the trap **S** three quarters full with water;
- Replace plug **T** and connect the drainpipe **P** into a condensate discharge trap conforming to current legislation;

Attention! It is recommended to clean the condensate trap, after a few months of boiler operation and periodically to remove any deposits/residuals that may interfere with correct operation.

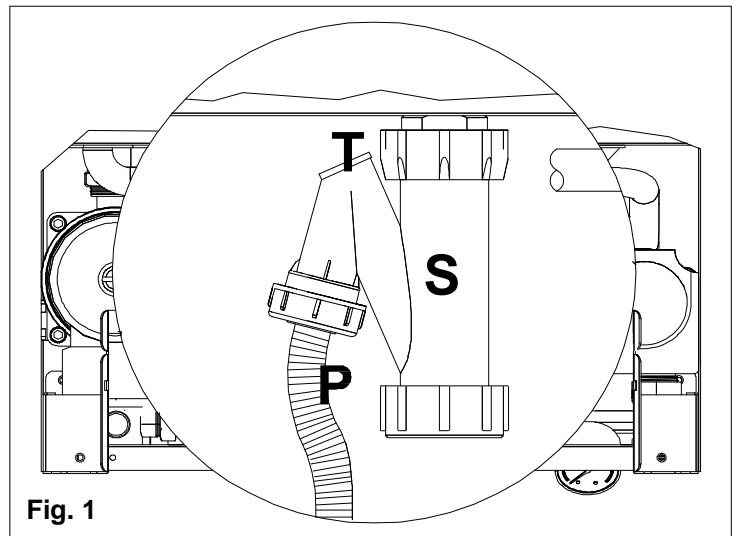


Fig. 1

4.4 Starting up the boiler

Once the system has been filled, proceed as follows:



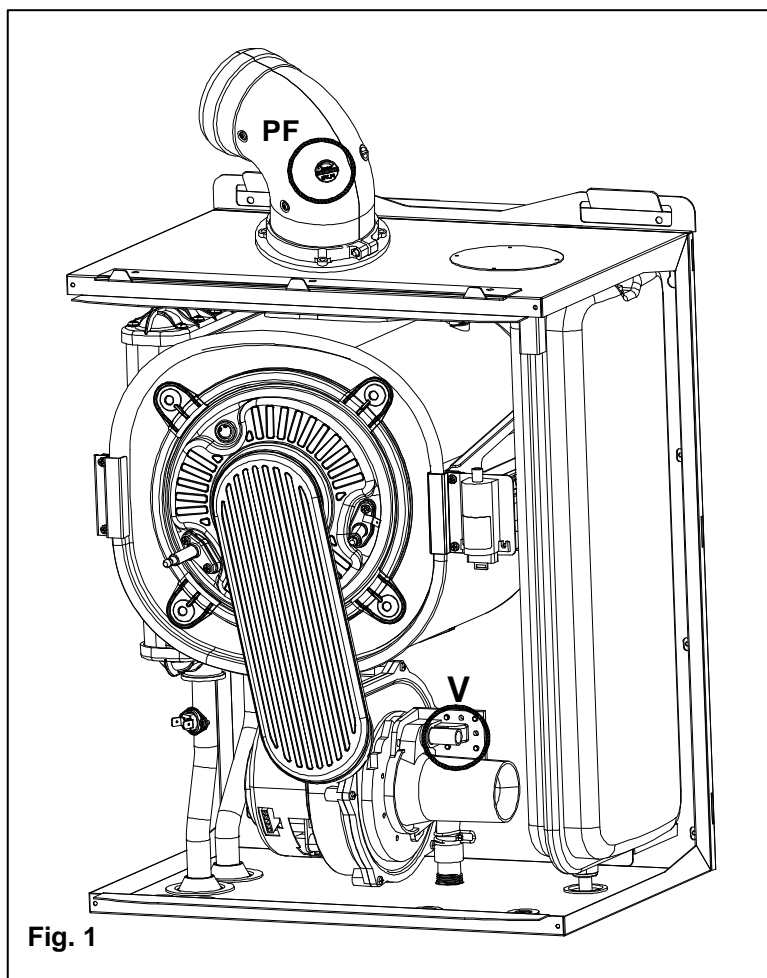
- Check that the exhaust flue is free of obstructions and correctly connected to the boiler;
- Switch on the power supply to the boiler;
- Open the gas isolation valve;
- Place switch **1** in the **ON position** (see 2.7 "Control Panel"), after a few seconds the circulating pump will start to run;
- Use button **6** to set the SUMMER, WINTER or SUMMER/WINTER function. The symbols   will light up (fixed light) to indicate that the boiler is working;
- The automatic ignition system will then light the burner. This operation is repeated for 3 times. It may however be necessary to repeat the operation in order to eliminate all the air from the pipes. To repeat the operation, wait approximately three minutes before re-attempting to light the boiler. To reset the boiler Switch off switch **1** (see 2.7 "Control Panel") and switch it back on again and repeat the lighting procedure;
- With the boiler ignited, if the system still emits noises, the operations must be repeated until all the air has been removed;
- Check the pressure in the system. If the pressure has fallen, re-open the filling tap until the code H2O **disappears on the display** and the pressure gauge reads 1.5 bar, on completion, close the filling tap.
- Unscrew the aluminium plug and insert an analyser in the exhaust sampling point **PF** (see fig. 1) to check the CO₂ value. Make sure that the value complies with that reported in table 1;
- If the CO₂ value does not correspond to the specified value, adjust screw **V** (see fig. 1) on the venturi clockwise to reduce the CO₂ value or anticlockwise to increase it;

Table n°1	RK 18	RK 25	RK 34
Gas type	CO ₂ %	CO ₂ %	CO ₂ %
Methane - G20	9.1	9.4	9.18
Liquid Butan Gas - G 30	11.1	10.9	10.3
Liquid Propane Gas - G 31	10.1	10.96	10.3



5. REGULATING THE APPLIANCE

5.1 Parameters table

PARAMETER N°	TYPE OF OPERATION	PARAMETER VALUE	FUNCTION
P00	Selects the model of boiler	00 01(default) 02 03 04	00 = 18Kw 01 = 25Kw 02 = 29Kw 03 = 34Kw 04 = 50Kw
P01	Selects the type of boiler	00 01 02	00 = Instantaneous 01 = Boiler with storage tank 02 = B. w/storage tank Comfort (+7°C)
P02	Selects the type of gas	00 01	00 = Natural gas 01 = Lpg
P03	Sets the central heating temperature	00 01	00 = Standard (30-80°C) 01 = Reduced (25-40°C)
P04	Heating output rising time	00 01(default) 02 03 04	00 = 0sec 01 = 50 sec 02=100 sec 03=200 sec 04=400 sec
P05	Water hammer prevention function (not applicable)	00 01	00 = Off 01 = On
P06	D.H.W priority function (not applicable)	00 01	00 = Off 01 = On
P07	Central heating timer	00-90 (default = 36)	Delays the heating restart to prevent frequent On/Offs, Expressed in steps of 5 sec (factory set at 36 x 5 = 180")
P08	Central heating pump overrun timer	00-90 (default = 36)	The overrun timer can be modified. Expressed in steps of 5 sec (factory set at 36 x 5 = 180")
P09	D.H.W pump overrun timer (not applicable)	00-90 (default = 18)	The overrun timer can be modified. Expressed in steps of 5 sec (factory set at 18 x 5 = 90")
P10	Minimum fan speed setting (not applicable)	Preset	To set the minimum frequency value (Hz) for the fan operation
P11	Maximum fan speed setting (not applicable)	Preset	To set the maximum frequency value (Hz) for the fan operation
P12	Minimum fan speed setting (Central Heating)	Preset	To set the minimum frequency value (Hz) for the fan operation in heating mode
P13	Maximum fan speed setting (Central Heating)	Adjustable	To set the maximum frequency value (Hz) for the fan operation in heating mode
P14	Ignition sequence setting	33-203	To set the fan frequency value (Hz) at the ignition
P15	Zone management board activation	00 01	00 = Off 01 = On
P16	Telephone control activation	00 01	00 = Off 01 = On
P17	Fan frequency value display	00 01	00 = Off 01 = On

NOTES:

P04 – This parameter allows adjustment of the time taken to reach the maximum heating load. (Heating curve).

P10, P11, P12 – These parameters are automatically adjusted according to the value set in parameter P00.

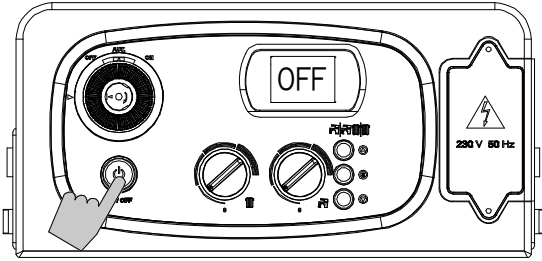
P13 –Range rating of maximum heating load according to the graph "Heating power (Kw) – Fan frequency (Hz)" on Page 39.

P15 - If the heating system has more than one zone, an additional interface board (optional extra) can be installed on the circuit board and parameter 15 set at 01.

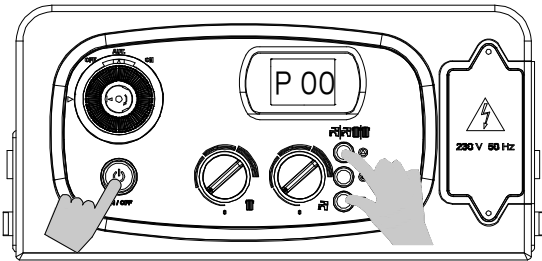
P16 - To install the telephone control, use non-polarised conductors connected to contact TA of the terminal board in parallel with the remote control if fitted. Set the parameter 16 at 01.

5.2 Setting the parameters

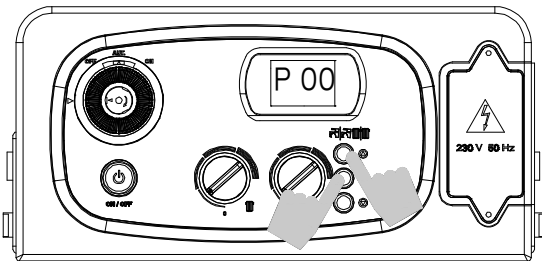
To modify the preset values of the parameters reported in the previous table, open the parameter settings menu as follows:



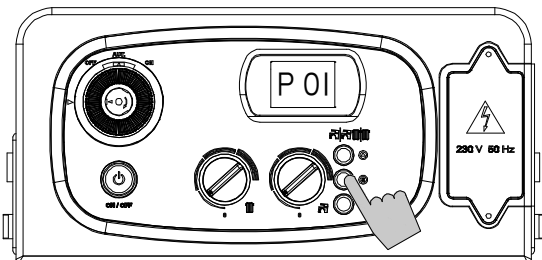
1. Place the On/Off switch in the OFF position.



2. Activate the On/Off switch while keeping buttons '+' and '-' pressed. Wait for "P 00" to appear on the display.
3. Release buttons '+' and '-'.



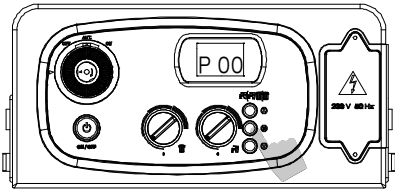
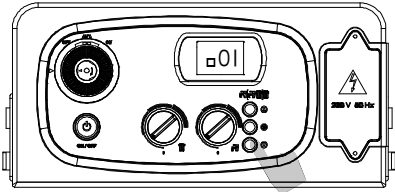
4. Keep button 'S' pressed and use button '+' to select the parameter to modify.



5. Release button 'S', then re-press and release it. The display will indicate the value of the parameter to modify.

Adjust the value of the parameter using the procedure described in the following pages.

To enter the parameters menu, follow the previously described procedure (steps 1-5).



PARAMETER P00 – SELECTS THE MODEL OF BOILER

6. Use buttons '+' and '-' to modify the value of the parameter:

00 = 18 Kw

01 = 25 Kw (default)

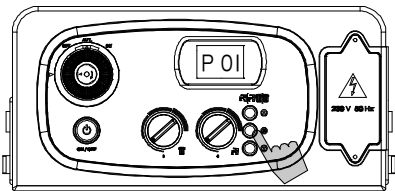
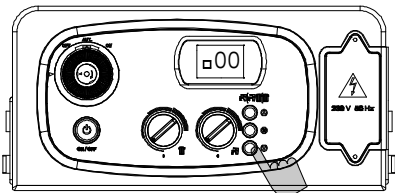
02 = 29 Kw

03 = 34 Kw

04 = 50 Kw

7. Press and release button 'S' to confirm. The parameter number (P00) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER P01 – SELECTS THE TYPE OF BOILER

6. Use buttons '+' and '-' to modify the value of the parameter:

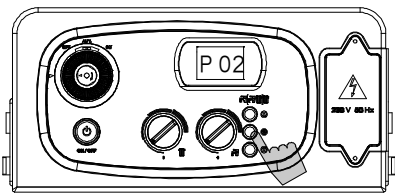
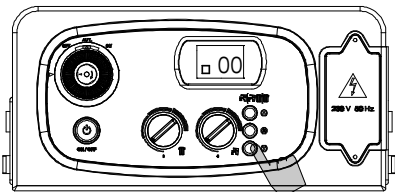
00 = instantaneous boiler

01 = storage boiler

02 = boiler with storage tank Comfort (+7°C)

7. Press and release button 'S' to confirm. The parameter number (P01) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER P02 – SELECTS THE TYPE OF GAS

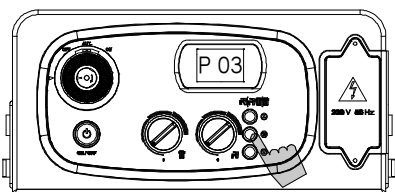
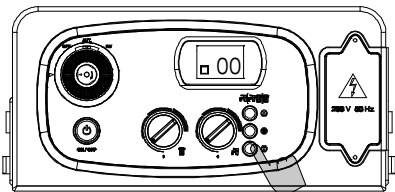
6. Use buttons '+' and '-' to modify the value of the parameter:

00 = Natural Gas

01 = LPG

7. Press and release button 'S' to confirm. The parameter number (P02) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER P03 – SETS THE CENTRAL HEATING TEMPERATURE

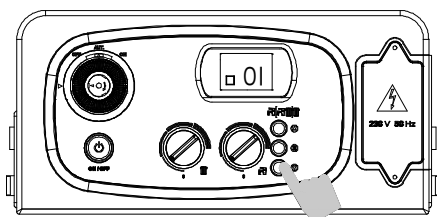
6. Use buttons '+' and '-' to modify the value of the parameter:

00 = standard (30-80°C)

01 = reduced (25-40°C) for under-floor heating.

7. Press and release button 'S' to confirm. The parameter number (P03) will appear on the display.

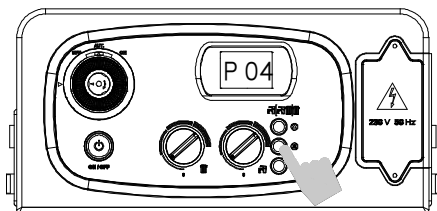
8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER P04 – HEATING OUTPUT RISING TIME

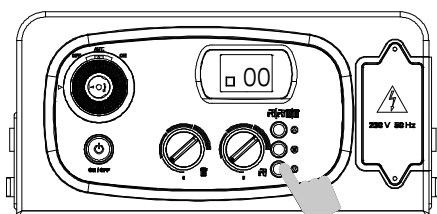
6. Use buttons '+' and '-' to modify the value of the parameter:

- 00 = 0 seconds
- 01 = 50 seconds (default)
- 02 = 100 seconds
- 03 = 200 seconds
- 04 = 400 seconds



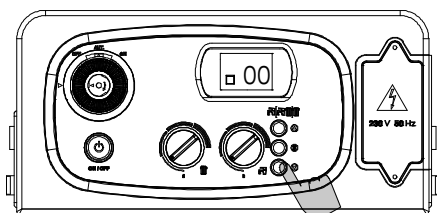
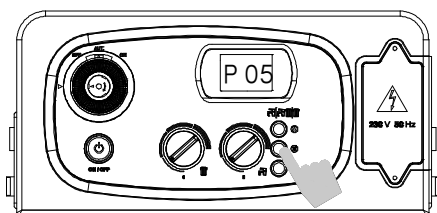
7. Press and release button 'S' to confirm. The parameter number (P04) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



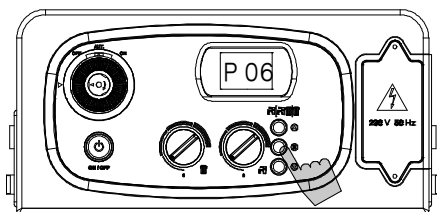
PARAMETER P05 – WATER HAMMER PREVENTION FUNCTION

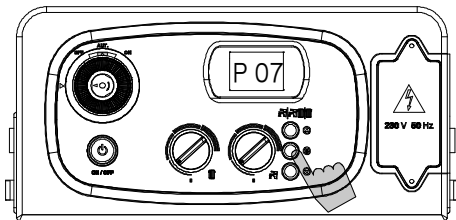
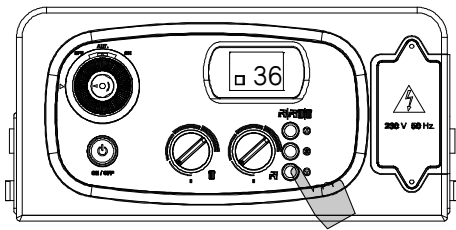
(not applicable)



PARAMETER P06 – D.H.W PRIORITY FUNCTION

(not applicable)





PARAMETER P07 – CENTRAL HEATING TIMER

6. Use buttons '+' and '-' to modify the value of the parameter within the prescribed limits:

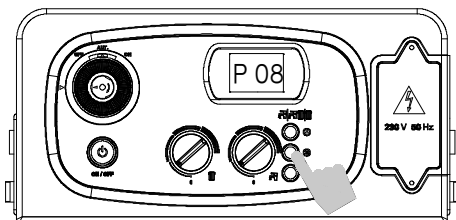
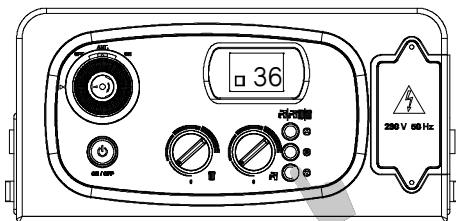
$$00 = 0 \times 5'' = 0''$$

$$90 = 90 \times 5'' = 450'' (7,5 \text{ min})$$

The default value is $36 = 180'' = 3 \text{ min}$

7. Press and release button 'S' to confirm. The parameter number (P07) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER P08 – CENTRAL HEATING PUMP OVERRUN TIMER

6. Use buttons '+' and '-' to modify the value of the parameter within the prescribed limits:

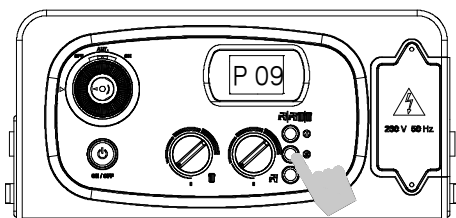
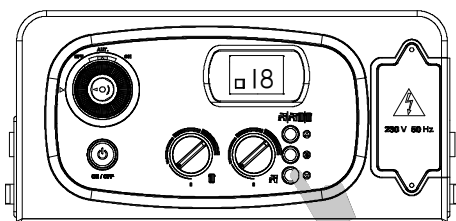
$$00 = 0 \times 5'' = 0''$$

$$90 = 90 \times 5'' = 450'' (7,5 \text{ min})$$

The default value is $36 = 180'' = 3 \text{ min}$

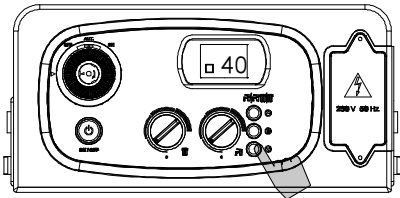
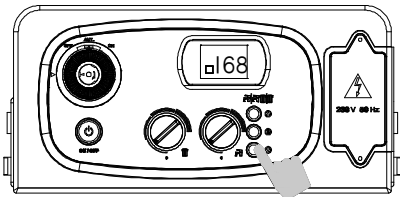
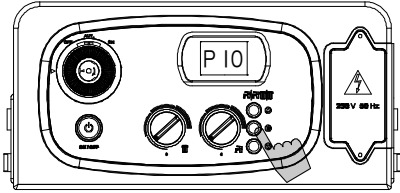
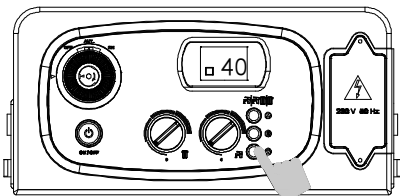
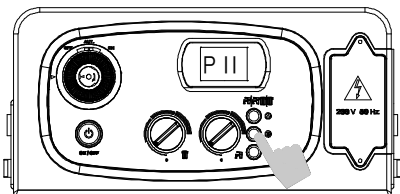
7. Press and release button 'S' to confirm. The parameter number (P08) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



PARAMETER P09 – D.H.W PUMP OVERRUN TIMER

(not applicable)

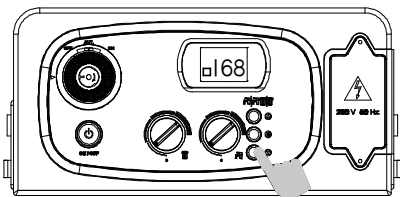
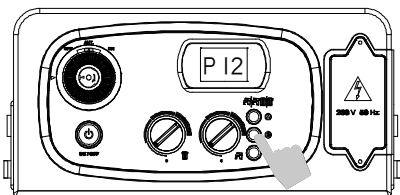
**PARAMETER P10 – MINIMUM FAN SPEED SETTING***(not applicable)***PARAMETER P11 – MAXIMUM FAN SPEED SETTING***(not applicable)***PARAMETER P12 – MINIMUM FAN SPEED SETTING (CENTRAL HEATING)**

6. Use buttons '+' and '-' to modify the value of the parameter between:
min = 33 Hz ; max = 133 Hz.

The default value is adjusted according to the output set in parameter P00.

7. Press and release button 'S' to confirm. The parameter number (P12) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.

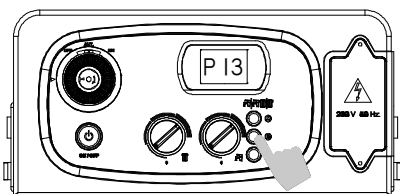
**PARAMETER P13 – MAXIMUM FAN SPEED SETTING (CENTRAL HEATING)**

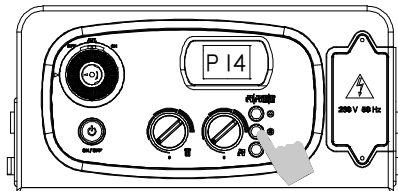
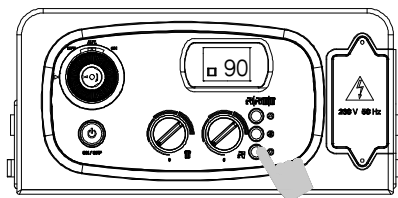
6. Use buttons '+' and '-' to modify the value of the parameter between:
min = value of parameter P12 ; max = 203 Hz.

The default value is adjusted according to the output set in parameter P00.

7. Press and release button 'S' to confirm. The parameter number (P13) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.





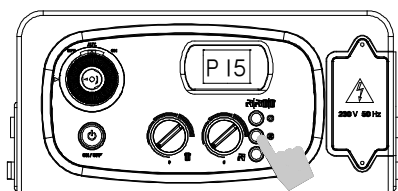
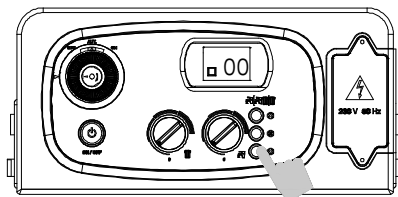
PARAMETER P14 – IGNITION SEQUENCE SETTING

6. Use buttons '+' and '-' to modify the value of the parameter between: min = 33 Hz; max = 203 Hz.

The default value is adjusted according to the output set in parameter P00.

7. Press and release button 'S' to confirm. The parameter number (P14) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.

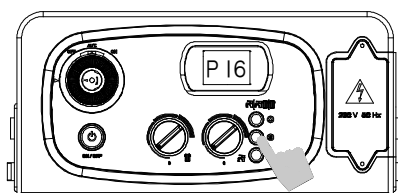
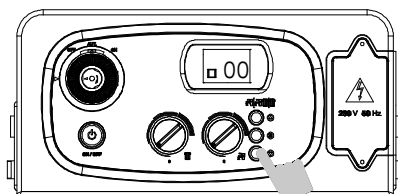


PARAMETER P15 – ZONE MANAGEMENT BOARD ACTIVATION

6. If the system is fitted with zone valves, set the parameter at '01'. If a remote control is installed, an extra interface board must be installed to control the zone valves. Then set the parameter at '01'.

7. Press and release button 'S' to confirm. The parameter number (P15) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.



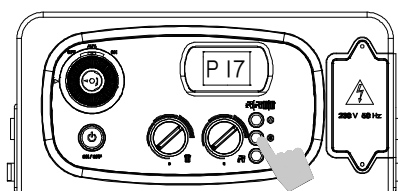
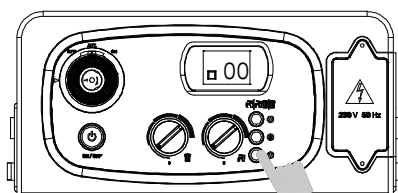
PARAMETER P16 – TELEPHONE CONTROL ACTIVATION

6. If a telephone interface is installed, enable the board by setting parameter P16 at '01'.

7. Press and release button 'S' to confirm. The parameter number (P16) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.

N.B.: The connection of the telephone interface to contact TA of the terminal board must be wired in parallel with the remote control using two non-polarised conductors.



PARAMETER P17 – FAN FREQUENCY VALUE DISPLAY

6. Use buttons '+' and '-' to modify the value of the parameter between:

- 00 = Off;

- 01 = On.

If parameter value 01 is selected, during the boiler operation, the display will show the fan frequency value for 10 min.

7. Press and release button 'S' to confirm. The parameter number (P17) will appear on the display.

8. Switch off the appliance and switch it back on again to render the new parameter operative.

5.3 Gas data

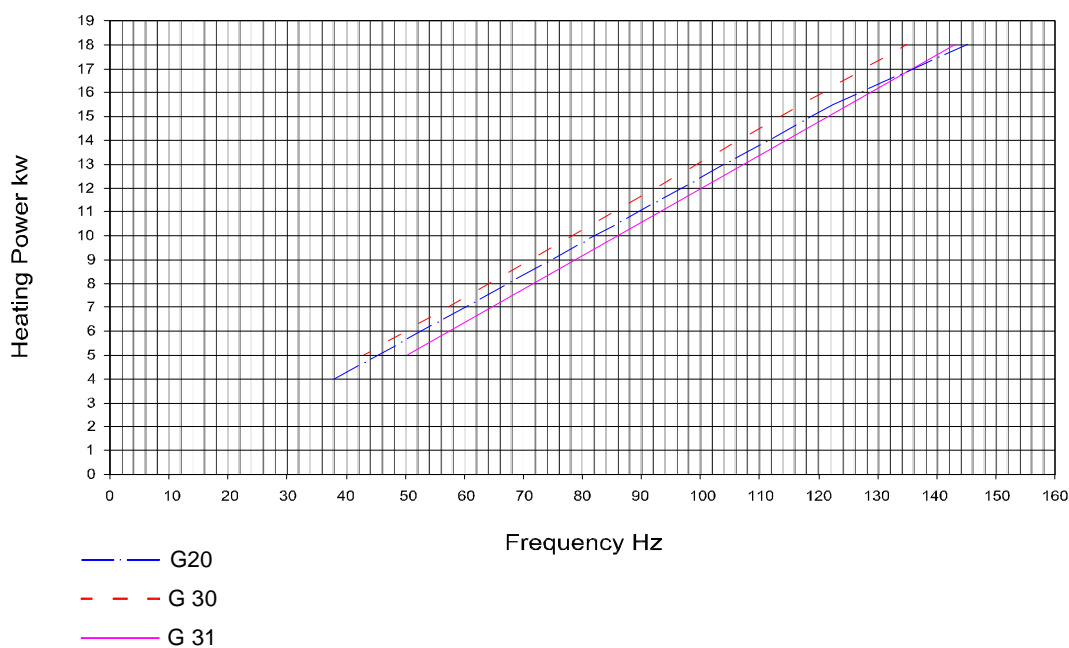
Technical data tables – RK 18

CO ₂ Values	
Gas type	CO ₂ %
Natural gas - G20	9.1
Liquid Butan Gas - G 30	11.1
Liquid Propane Gas - G 31	10.1

Frequency			
Gas type	Minimum (Hz)	Maximum Central Heating (Hz)	
Natural gas - G20	38	145	
Liquid Butan Gas - G 30	43	135	
Liquid Propane Gas - G 31	50	143	

Gas data table				
		NATURAL GAS G20	LIQUID BUTANE GAS G30	LIQUID PROPANE GAS G31
Indice di Wobbe inferiore (15°C; 1013 mbar)	MJ/Nm ³	45.67	80.58	70.69
Pressione nominale di alimentazione	mbar	20	30	37
Consumi (15°C; 1013 mbar)	m ³ /h	1.90	-	-
Consumi (15°C; 1013 mbar)	kg/h	-	1.42	1.4

Heating Power (kW) – Fan frequency (Hz) diagram



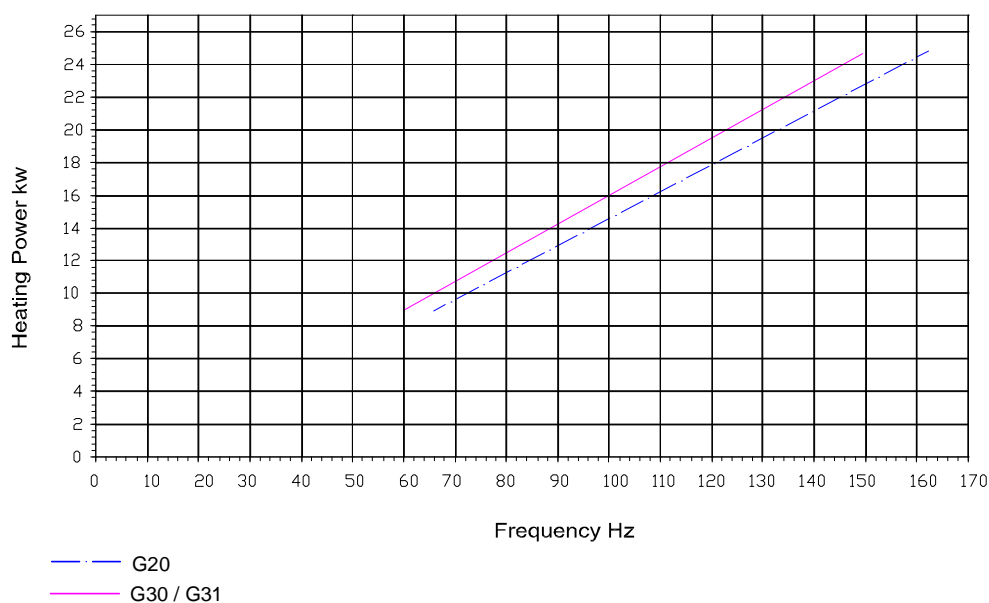
Technical data tables - RK 25

CO ₂ Values	
Gas type	CO ₂ %
Natural gas - G20	9.4
Liquid Butan Gas - G 30	10.9
Liquid Propane Gas - G 31	10.96

Frequency			
Gas type	Minimum (Hz)	Maximum Central Heating (Hz)	
G 20	66	162	
G 30	60	149	
G 31	60	149	

Gas data table				
		NATURAL GAS G20	LIQUID BUTANE GAS G30	LIQUID PROPANE GAS G31
Indice di Wobbe inferiore (15°C; 1013 mbar)	MJ/Nm ³	45.67	80.58	70.69
Pressione nominale di alimentazione	mbar	20	30	37
Consumi (15°C; 1013 mbar)	m ³ /h	2.65	-	-
Consumi (15°C; 1013 mbar)	kg/h	-	1.97	1,94

Heating Power (kW) – Fan frequency (Hz) diagram



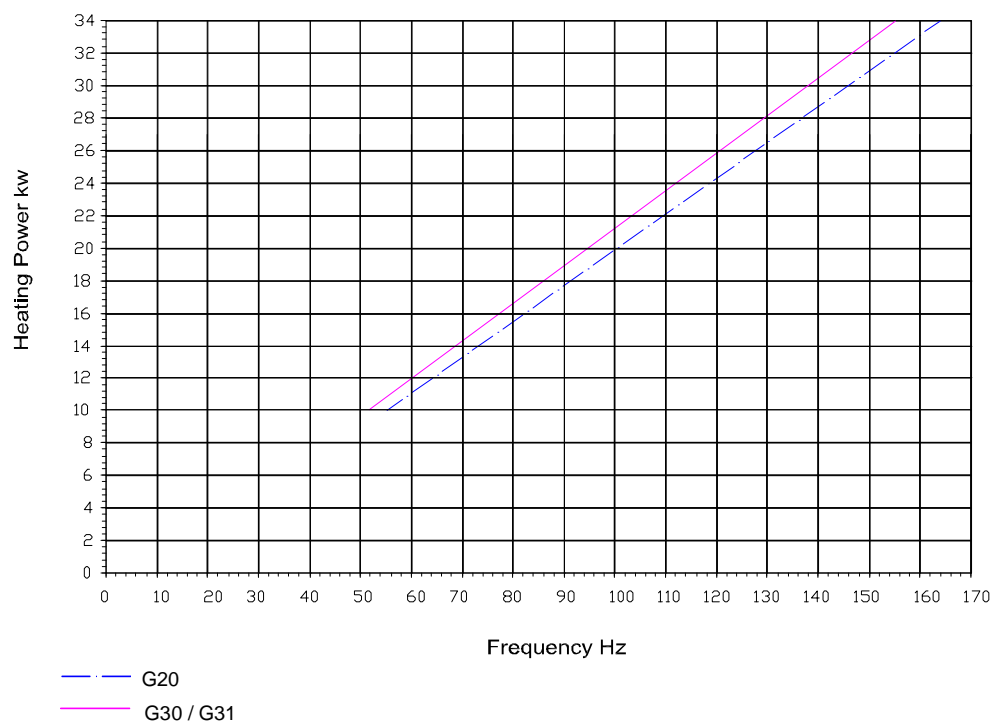
Technical data tables – RK 34

Table no.1 - CO ₂ Values	
Gas type	CO ₂ %
Natural gas - G20	9.18
Liquid Butan Gas - G 30	10.3
Liquid Propane Gas - G 31	10.3

Table no.2 - Frequency		
Gas type	Minimum (Hz)	Maximum (Hz)
Natural gas - G20	55	164
Liquid Butan Gas - G 30	52	155
Liquid Propane Gas - G 31	52	155

Table no.3 - Gas data table				
		NATURAL GAS G20	LIQUID BUTANE GAS G30	LIQUID PROPANE GAS G31
ower Wobbe index (15°C; 1013 mbar)	MJ/Nm ³	45.67	80.58	70.69
Nominal Supply pressure	mbar	20	30	37
Consumption (15°C; 1013 mbar)	m ³ /h	3.6	-	-
Consumption (15°C; 1013 mbar)	kg/h	-	2.68	2.64

Heating Power (kW) – Fan frequency (Hz) diagram



5.4 Converting the boiler to a different gas type

 **All maintenance operations must be carried out by professionally qualified and Gas Safe Registered personnel and the BENCHMARK Annual Service Record completed.**





 **Check that the gas supply pipe is suitable for the new fuel type.**

Conversion is performed as follows:

- Select the new gas type by changing parameter no.P02 (see 'Parameters table' 5.2);
- Unscrew the aluminium plug and insert the analyser in the exhaust sampling point PF (see fig.1 paragraph 4.4) to check the CO value. Make sure that the value complies with that reported in table 1 (paragraph 4.4);
- If the CO₂ value does not correspond to the specified value, adjust screw V (see fig. 1 paragraph 4.4) on the venturi clockwise to reduce the CO₂ value or anticlockwise to increase it;

6. Annual Service and Maintenance

6.1 General Warnings

-  All maintenance operations must be carried out by professionally qualified and Gas Safe Registered personnel and the BENCHMARK Annual Service Record completed.
-  The frequency of boiler maintenance must comply with current law and, nevertheless, should be carried out once a year.
-  In order to guarantee the long life of the appliance and in accordance with the current gas safety regulations, only use Radiant original spare parts.
-  Before carrying out any type of maintenance operation, disconnect the appliance from the mains electricity supply and close the gas valve.

6.2 Boiler inspection

In order to ensure that the boiler operates efficiently and safely, it is recommended that the appliance is inspected by a suitably competent technician at least once a year.

The following operations should be carried out annually

- Check the condition of the gas seals and replace where necessary.
- Check the condition of the water seals and replace where necessary.
- Visually inspect the condition of the combustion chamber and flame.
- When required, check that the combustion is correctly regulated and if necessary proceed in line with section "Commissioning the boiler".
- Remove and clean any oxidation from the burner.
- Check that the seal of the room-sealed chamber is undamaged and positioned correctly.
- Check the primary heat exchanger and clean if necessary.
- Check the maximum and minimum modulation pressures and the modulation itself.
- Check the condition and operation of the ignition and gas safety systems. If necessary, remove and clean the scaling from the ignition and flame detection electrodes, paying particular attention to replace them at the correct distance from the burner.
- Check the heating safety systems: temperature limit safety thermostat, pressure limit safety device.
- Check the pre-fill pressure of the expansion vessel (see expansion vessel data plate).
- For safety reasons, periodically check the integrity and operation of the flue gas exhaust system.
- Check that the connection to the mains electricity supply complies with that reported in the boiler's instruction manual.
- Check the electrical connections inside the control panel.
- Check that the condensate drain system is working correctly, including any parts of the system outside the boiler such as condensate collection devices along the length of the flue and/or any acid neutralising devices.
- Check that the condensate flows freely and that there are no exhaust fumes present within the appliance.

6.3 Accessing the boiler

All maintenance operations require one or more of the boiler casing panels to be removed.

The side panels can only be removed after the front panel has been removed.

Front panel:

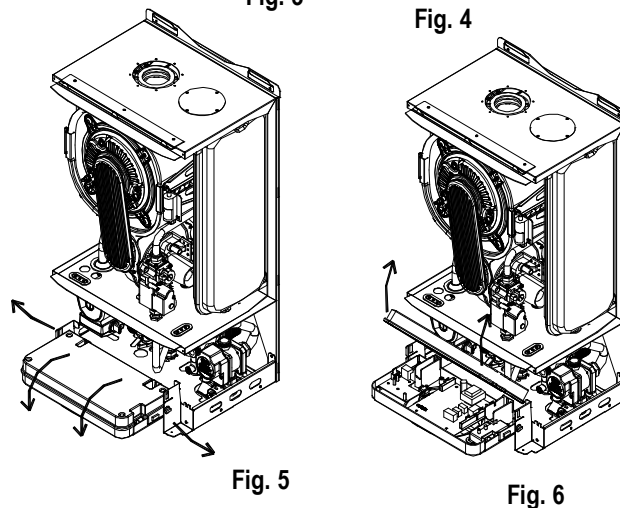
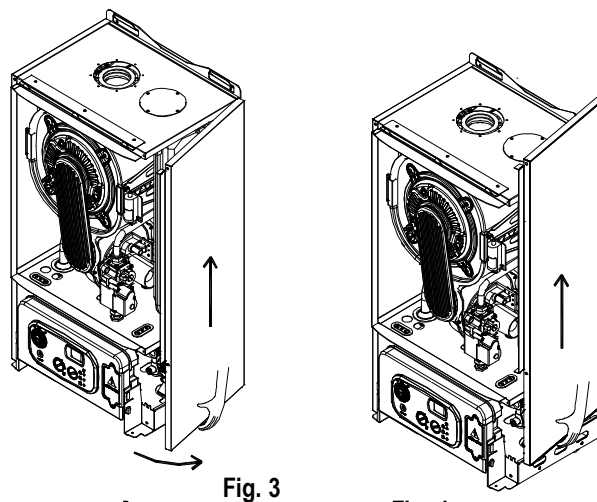
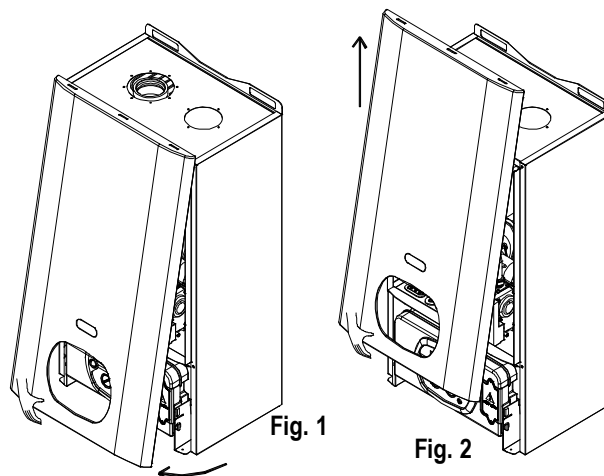
- Remove the fixing screws at the lower edge of the front panel.
- Grasp the lower part of the panel and pull it outwards (see fig. 1) and then up (see fig. 2).

Left and right side panel:

- Remove the fixing screws at the front and lower edge of the side panel to remove.
- Grasp the bottom of the panel, move it sideways and then upwards to remove it.

To access the electrical connections of the control panel, proceed as follows:

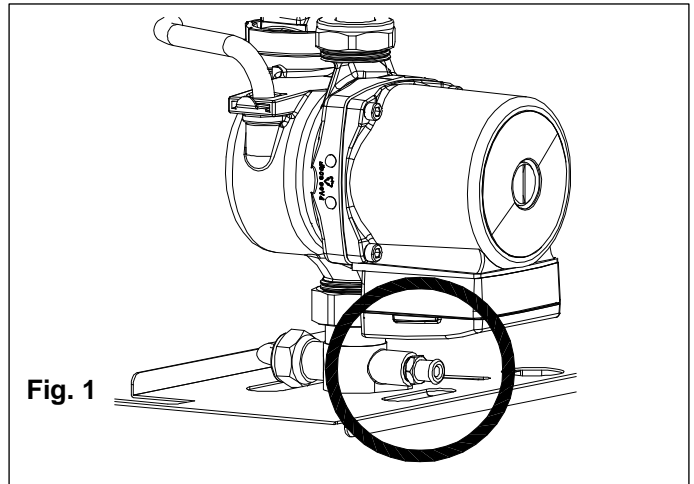
- Remove the front panel (see fig. 1 and fig. 2).
- Grasp the left and right control panel support brackets (see fig. 5) and pull them outwards, at the same time rotating the panel downwards.
- Unscrew the four fixing screws (see fig. 6) and remove the panel back piece.



6.4 Draining the central heating system

If the need arises to drain the system, this can be done as follows:

- Switch the system to “WINTER” mode and ignite the boiler.
- Switch off the power supply to the boiler.
- Wait for the boiler to cool down.
- Connect a hosepipe to the system drain point and locate the other end of the hose in a suitable drainage system.
- Open the system drain valve (see fig. 1).
- Open the air vents on the radiators, starting with the highest and moving down the system to the lowest.
- When the system has been drained, close the radiator breather valves and the drain valve.
- **If only the boiler needs to be drained, close the flow/return isolating valves on the heating circuit and open the drain valve located at the bottom of the boiler on the pump manifold (see fig. 1);**

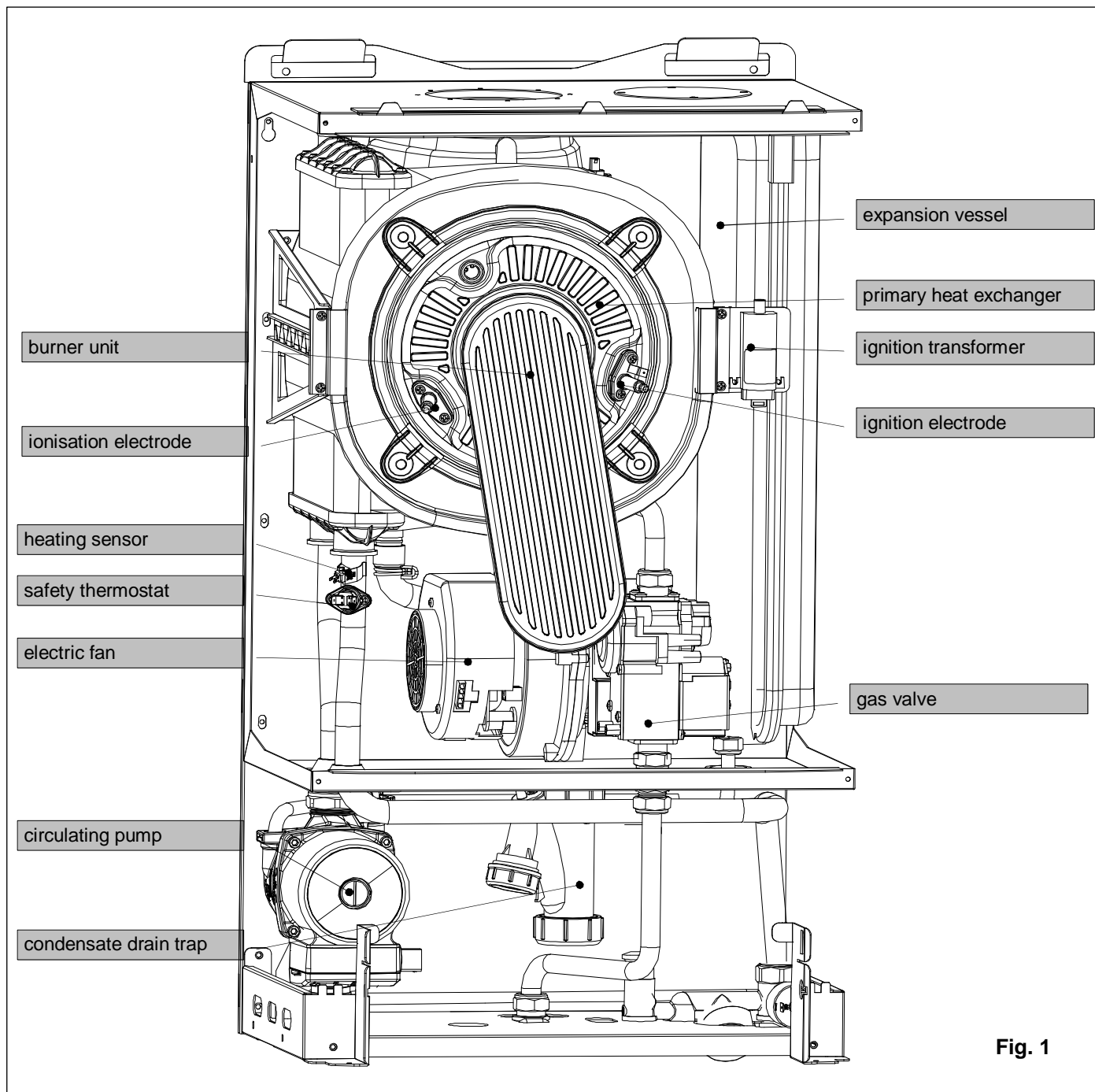


6.5 Maintenance operations

⚠ Before carrying out any cleaning or part replacement operations, **ALWAYS** turn off the **ELECTRICITY**, **WATER** and **GAS** supplies to the boiler.

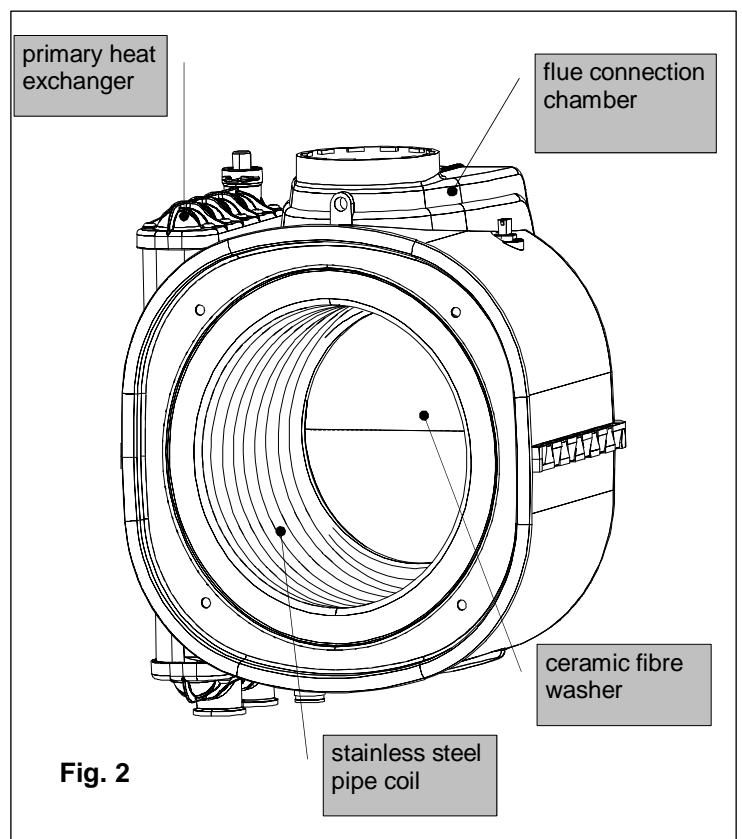
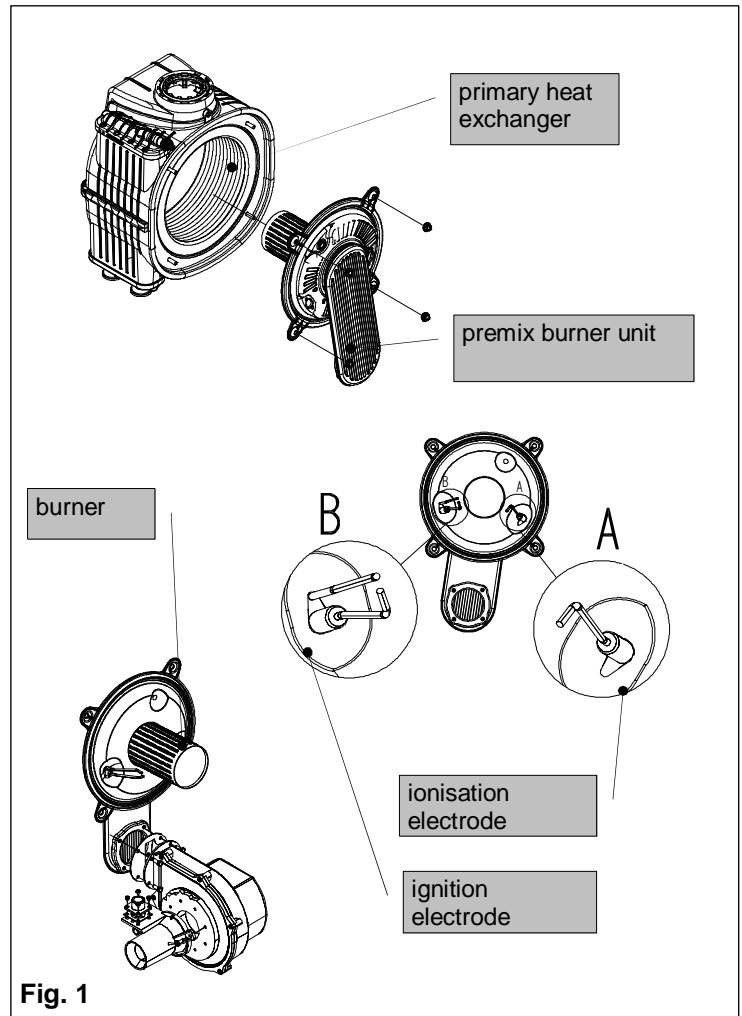
Radiant Bruciatori s.p.a. will not be held responsible for damage to any of the boiler's components caused by non-compliance with this instruction.

For all maintenance operations requiring removal of the boiler casing, refer to the procedures described in paragraph 6.3 "Accessing the boiler".



Cleaning the main exchanger module and combustion unit (see fig. 1)

- Disconnect the electrical connections of the electric fan.
- Disconnect the joint and remove the pipe linking the gas valve to the injector unit (venturi).
- Disconnect the joint and remove the gas feed pipe from the gas valve.
- Un-plug the ignition electrode and flame detection wires from the ignition control unit.
- Unscrew the ring-nut at the bottom of the room-sealed chamber and remove the gas valve.
- Unscrew the nuts securing the burner unit (consisting of a fan, manifold and burner) to the primary heat exchanger.
- Remove the burner unit, paying particular attention not to remove the ceramic fibre protection from the bottom of the heat exchanger.
- Check that the burner is not affected by deposits, scaling or excessive oxidation. Check that all the holes in the burner are free;
- Clean the electrodes carefully without altering their positions with respect to the burner;
- Clean the burner cylinder using a non-metal brush and without damaging the ceramic fibre;
- Check the integrity of the washer on the cover of the burner;
- Clean the heat exchanger (see fig. 2) using a household detergent for stainless steel, distributing the product on the spirals of the exchanger using a brush. Do not wet the ceramic fibre coating. Wait a few minutes then remove the deposits using a non-metal brush. Then remove the residues under running water;
- Remove the pipe clip, remove the condensate drainpipe and clean under running water.
- Unscrew the joint to the condensate trap, remove the trap and wash under running water.
- With the cleaning completed, re-assemble the components following the above procedure in reverse order and replacing washers where necessary.
- Finally, check the soundness to make sure that all gas and exhaust joints are tight.

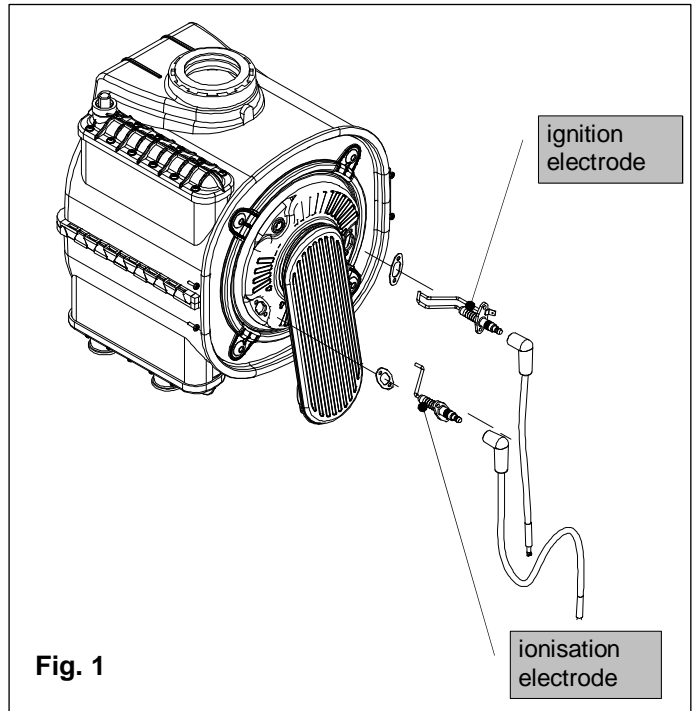


Part replacement:

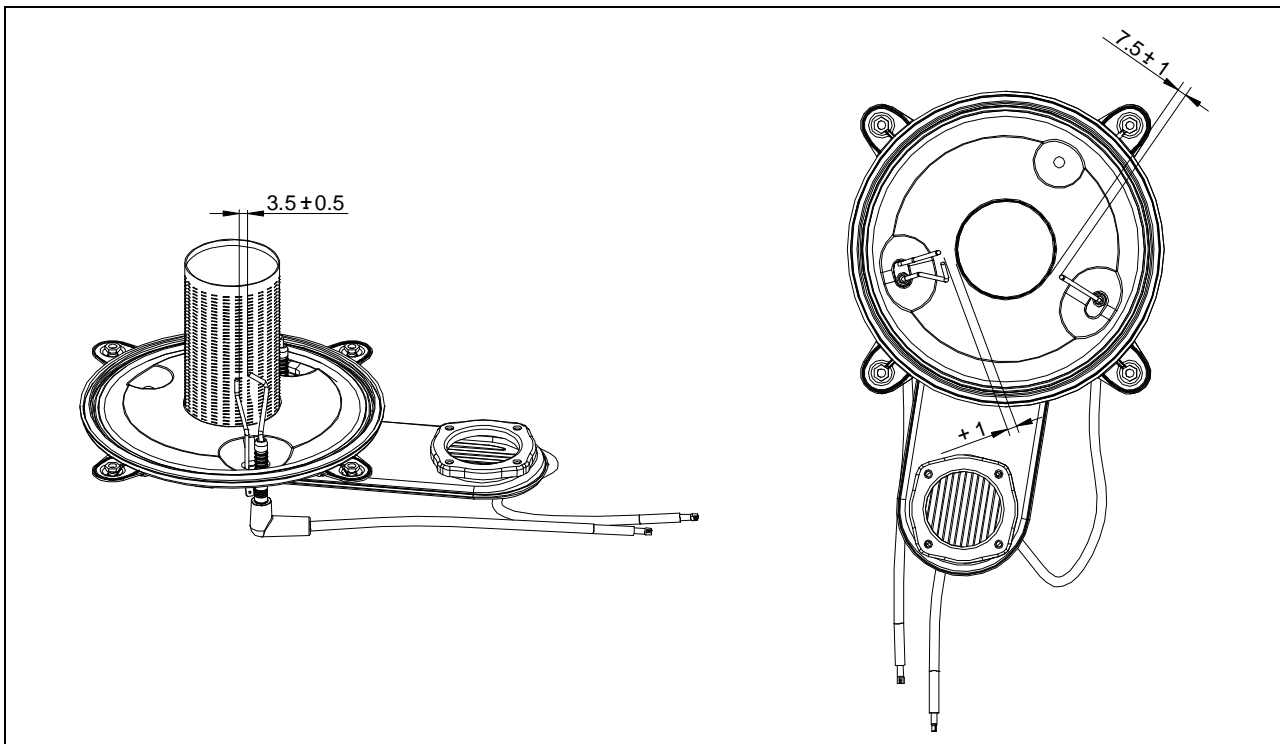
Ignition and/or flame detection electrodes (see fig. 1)

- Un-Plug the electrode wires;
- Slacken the fixing screws;
- Remove the electrodes. When fitting the new ones, check that the seals are not damaged. Replace if necessary;
- Reconnect the wires and re-assemble the components following the above procedure in reverse order;
- Switch on the power supply and restart the appliance;

! *If the boiler does not restart, check the positions of the electrodes (especially the ignition electrode). Make sure that original position and distances between the electrodes and the burner are respected to avoid a boiler malfunction).*



POSITIONING THE IGNITION ELECTRODE AND THE IONISATION ELECTRODE



Safety thermostat (see fig. 1)

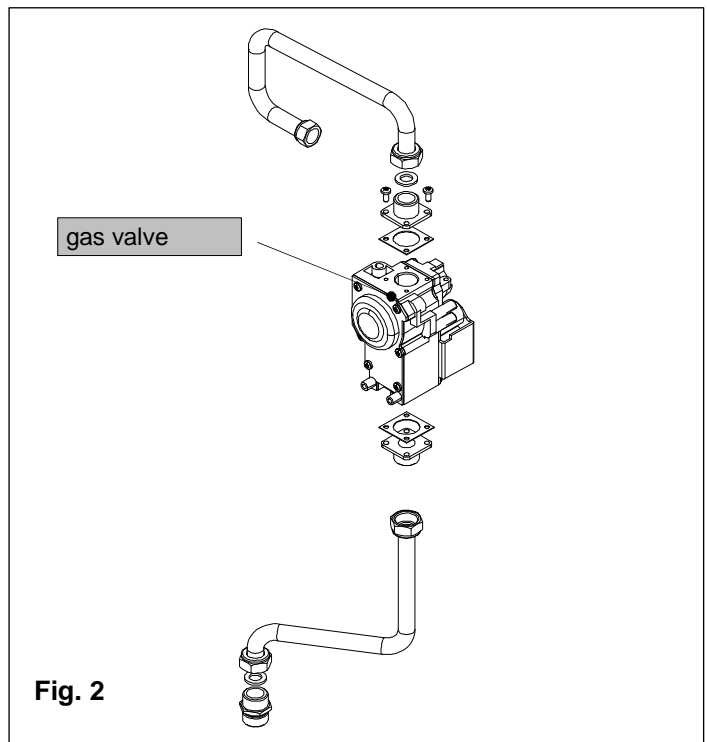
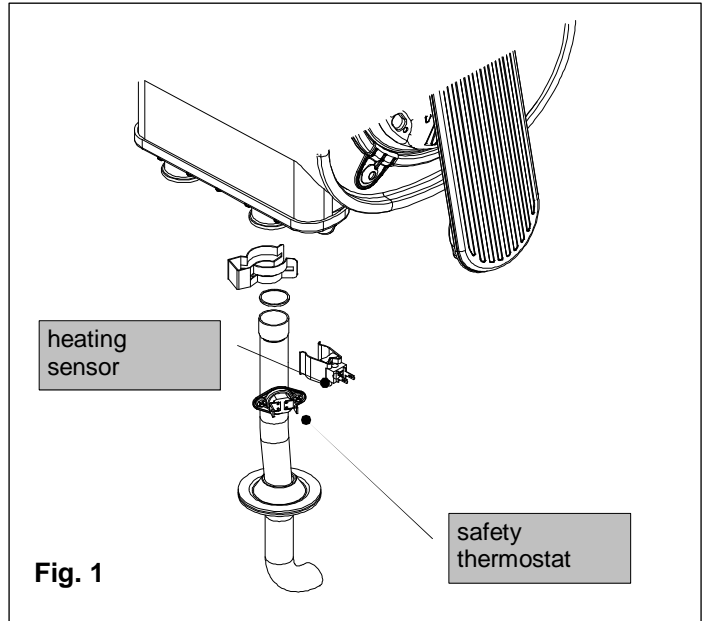
- Disconnect the connecting wire;
- Unscrew the fixing screws and remove the thermostat;
- Replace the thermostat and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and restart the appliance.

Heating sensor (see fig. 1)

- Un-Plug the connecting wire;
- Replace the sensor and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies, open the shut-off valves and fill the central heating circuit. Then restart the appliance, remembering to discharge any air that may be trapped in the system;

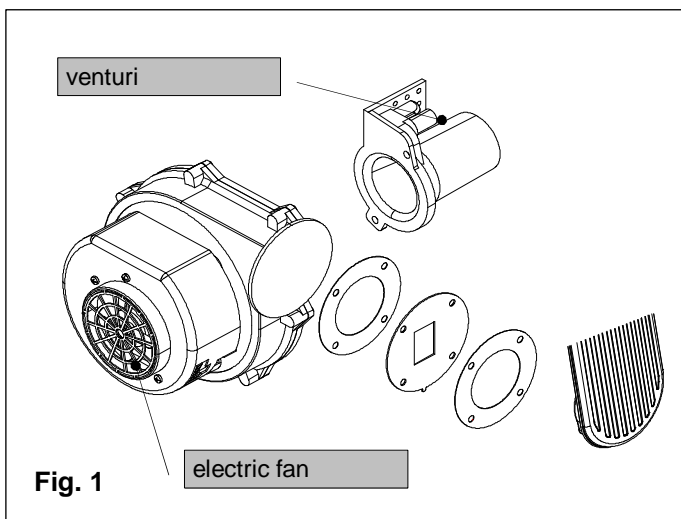
Gas valve (see fig. 2)

- Disconnect the joints and remove the gas pipe connecting the gas valve to the venturi.
- Disconnect the gas feed pipe and valve ring-nut at the bottom of the room-sealed chamber.
- Remove the flanged elbow coupling of the existing valve and fit it to the new valve; also fit a new cork washer.
- Replace the gas valve and re-assemble the components following the above procedure in reverse order.
- Replace all the gas seals.
- Fully tighten the gas connections.
- Switch on the electricity, water and gas supplies and carry out gas soundness test.



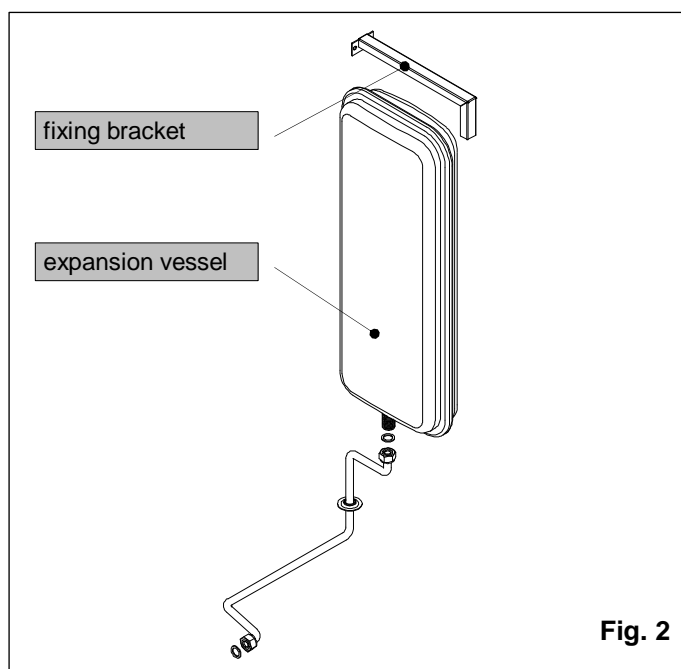
Electric fan (see fig. 1)

- Remove and dismantle the entire burner unit (see 6.6.1 "Cleaning the burner unit").
- Use an 8 mm spanner to unscrew the four nuts securing the electric fan to the gas manifold and then remove the electric fan, noting the positions of the washer and diaphragm.
- Remove the air intake duct, unscrew the two fixing screws from the venturi and remove the electric fan, paying particular attention not to damage the cork gasket.
- Replace the electric fan and re-assemble the components following the above procedure in reverse order.
- Switch on the electricity, water and gas supplies and check the soundness of the joint by measuring the CO₂ levels;



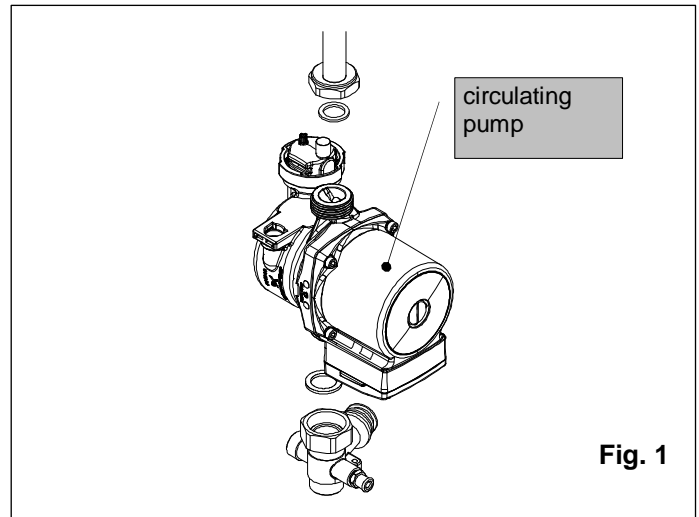
Expansion vessel (see fig. 2)

- Close the shut-off valves and drain the central heating circuit of the boiler.
- Use a 19 mm spanner to unscrew the pipe coupling to the vessel.
- Unscrew the fixing screws and remove the upper mounting bracket. Remove the expansion vessel from the front of the boiler.
- Replace the expansion vessel and re-assemble the components following the above procedure in reverse order.
- Switch on the electricity, water and gas supplies and fill the system with water. Check for any leaks from the joints and bleed off any air from the circuit;



Circulating pump (motor body) (see fig. 1)

- Close the shut-off valves and drain the central heating circuit of the boiler;
- Use a 5 mm Allen key to unscrew the four screws securing the motor body to the impeller body;
- Remove the motor body and check the condition of the washer. If necessary, replace the washer;
- Replace the circulation pump and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and fill the system with water. Check for any leaks from the joints and bleed off any air from the circuit. Restart the boiler.

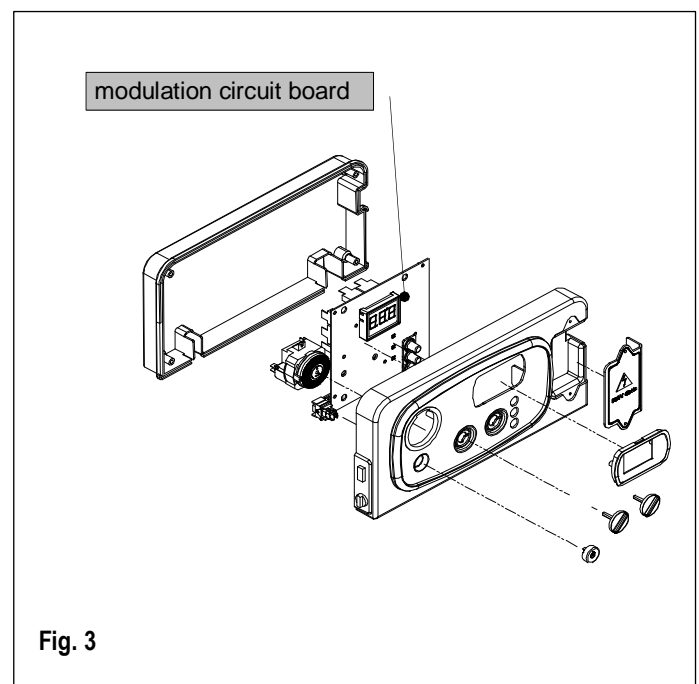
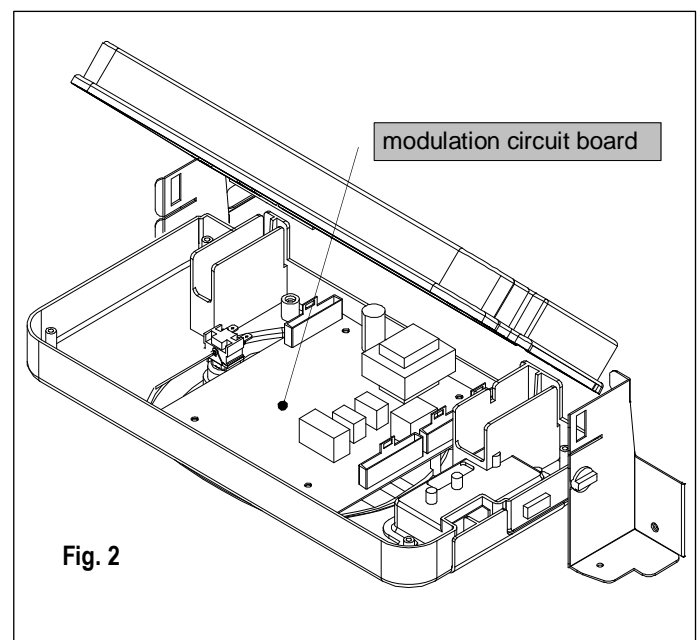


Modulation circuit board (see fig. 2 - 3)

- Open the control panel (see 6.3 "Accessing the boiler");
 - Disconnect all the connectors, remove the regulating knobs, unscrew the four fixing screws and remove the modulation circuit board;
- Replace the circuit board and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and regulate the boiler (see 5.3 "Gas data");

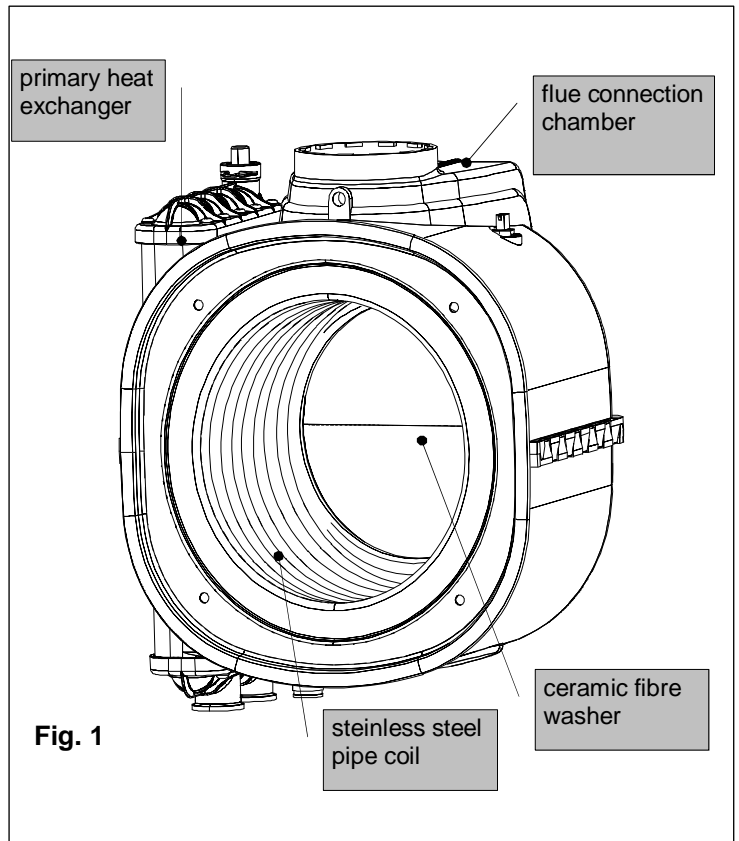


When replacing the modulation circuit board, it's necessary to set parameter P00 according to the boiler model (18-25-29-34-50).



Primary heat exchanger (see fig. 1)

- Close the shut-off valves and drain the central heating circuit of the boiler;
- Switch off the power and gas supply to the boiler;
- Remove and dismantle the entire burner unit (see 6.6.1 *"Cleaning the condensation module and burner unit"*);
- Remove the gas valve;
- Remove the spring and then the condensate drainpipe;
- Remove the fixing springs and then the delivery and return pipes;
- Remove the support brackets and pull out the heat exchanger;
- Remove the regulation sensor from the old heat exchanger and refit it together with the two condensate drainpipes to the new one;
- Replace the heat exchanger and re-assemble the components following the above procedure in reverse order;
- Switch on the electricity, water and gas supplies and fill the system with water. Check for any leaks from the joints and bleed off any air from the circuit. Restart the boiler, making sure that there are no gas leaks;



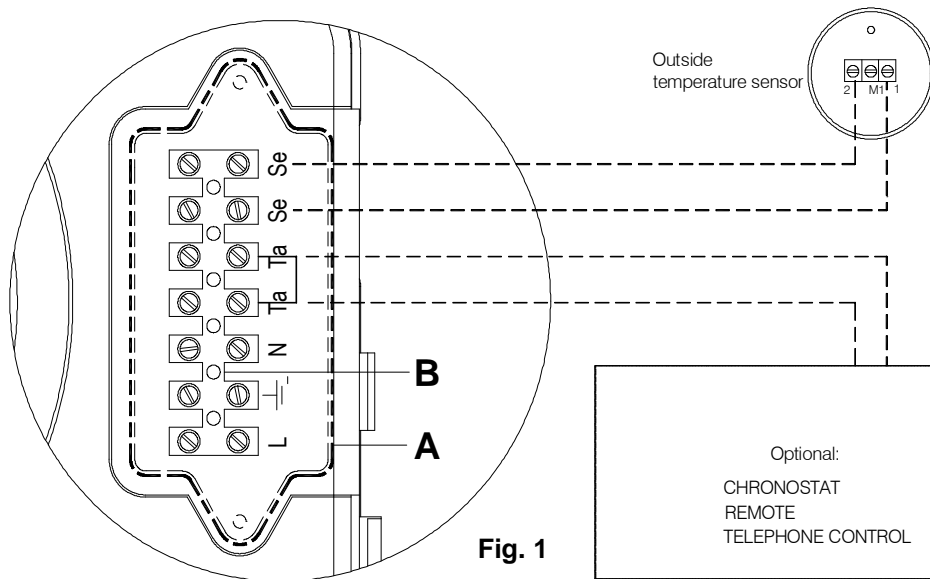
Connecting a room thermostat or external timer/control (Option)

Connect the wires to the terminal board inside the instrument panel as follows:

(Example with WEEK digital weekly chronostat):

- switch off the power supply at the main switch.
- remove the front case panel of the boiler.
- slacken the screws and remove plate A (see fig.1).
- remove jumper TA -TA from the terminal board B;
- connect the room thermostat/chronostat wires;

When the wires have been connected, place plate "A" back to position and then the front case panel.



Connecting the outside temperature sensor (Option)

Connect the wires to the terminal board inside the instrument panel as follows:

- switch off the power supply at the main switch.
- remove the front case panel of the boiler.
- slacken the screws and remove plate A (see fig.1).
- connect the outside temperature sensor on contacts marked as SE-SE on the terminal board B ;

When the wires have been connected, place plate "A" back to position and then the front case panel.

Connecting a remote controller and the outside temperature sensor (option)

Connect the wires to the terminal board

inside the instrument panel as follows:

- switch off the power supply at the main switch.
- remove the front case panel of the boiler.
- slacken the screws and remove plate A (see fig.1).
- remove jumper TA-TA from the terminal board B;
- connect the remote controller wires.

When the wires have been connected, place plate "A" back to position and then the front case panel.

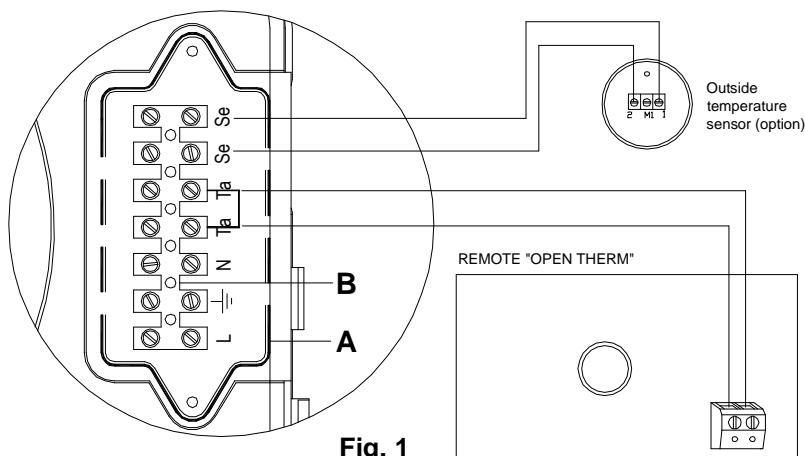


Fig. 1

cod. 40-00017

Connecting a remote controller and the telephone control (option)

Connect the wires to the terminal board inside the instrument panel as follows:

- switch off the power supply at the main switch.
- remove the front case panel of the boiler.
- slacken the screws and remove plate A (see fig.1).
- remove jumper TA-TA from the terminal board B;
- connect the remote controller and the telephone control wires;
- Active the telephone control through the parameter no.16 (see 5.1 "Parameters Table")

When the wires have been connected, place plate "A" back to position and then the front case panel.

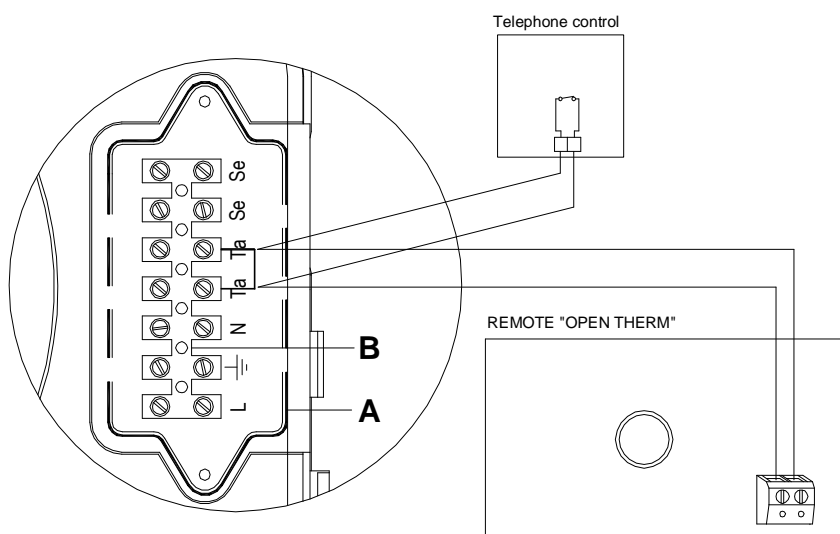


Fig. 2

cod. 40-00017

Regulating the Flow temperature in accordance with the outdoor temperature

The outdoor sensor has to be connected directly to circuit board SM30003. The sensor can thus be managed in one of two ways:

- In case of **RADIANTS** remote controller + outdoor temperature sensor installation, the climatic compensation curve is set by the remote itself (see remote control installation and operating manual).
- In case of outdoor temperature sensor only installation, the climatic compensation curve is set using the central heating control knob. As the knob (see fig. 2) is rotated, the numbers corresponding to the curve shown in figure 1 are displayed

The factors governing the correction is reported in figure 1.

The selection of the compensation curve is determined by the maximum delivery temperature T_m and the minimum outdoor temperature T_e .

N.B. The y-axis values of the delivery temperature T_m refer to standard 80-30 °C appliances or 40-25 °C floor-mounted appliances. The type of appliance can be programmed using parameter 3 (see 5.1 "Parameter programming").

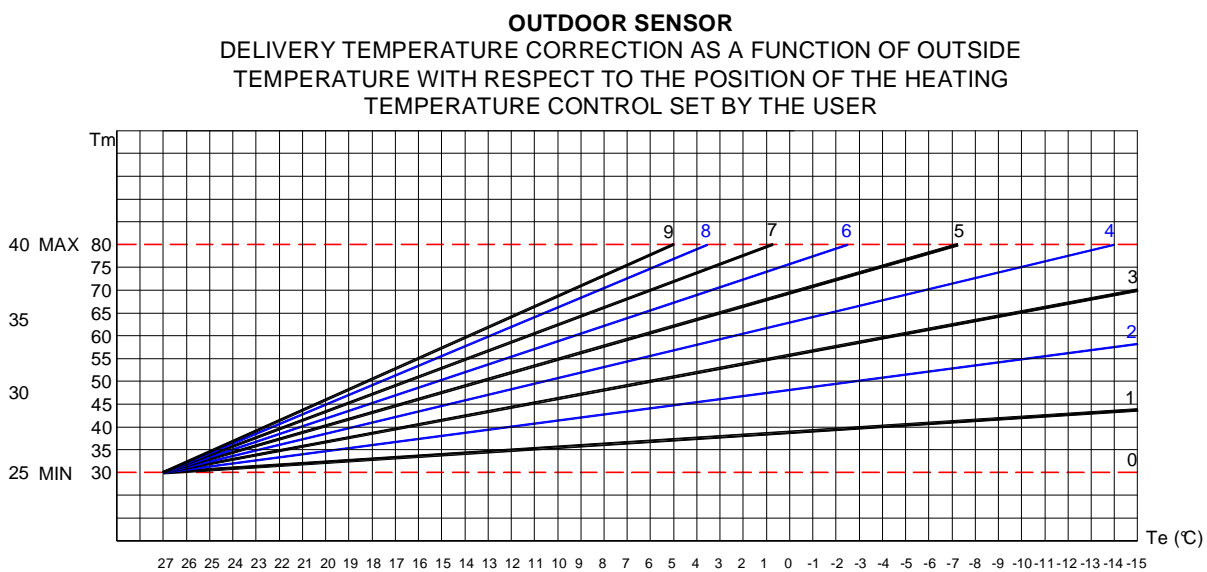


Fig. 1 TM-MAX/MIN = delivery temperature range selected
Te = Outdoor temperature Tm = delivery temperature

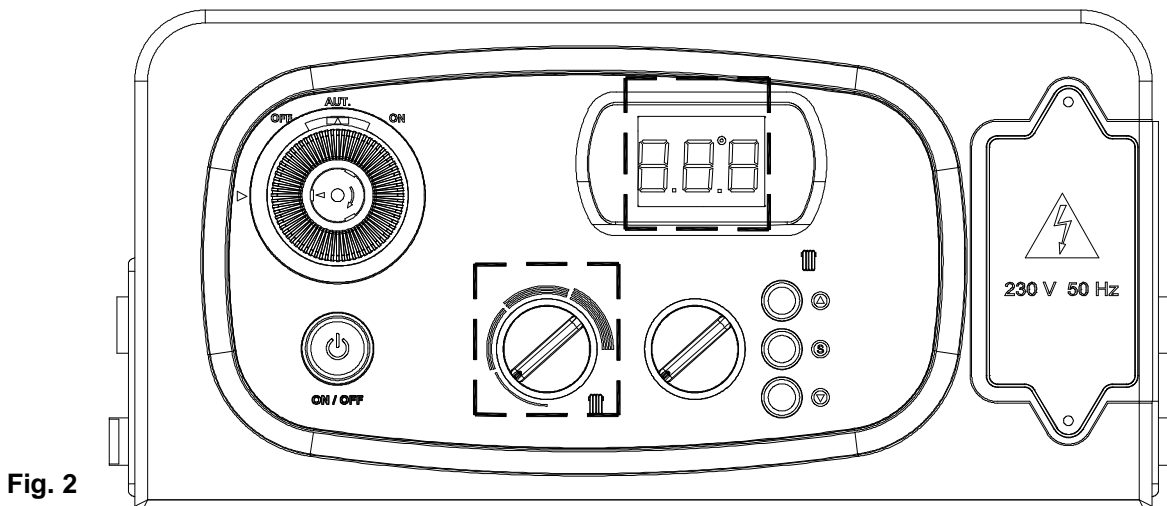


Fig. 2

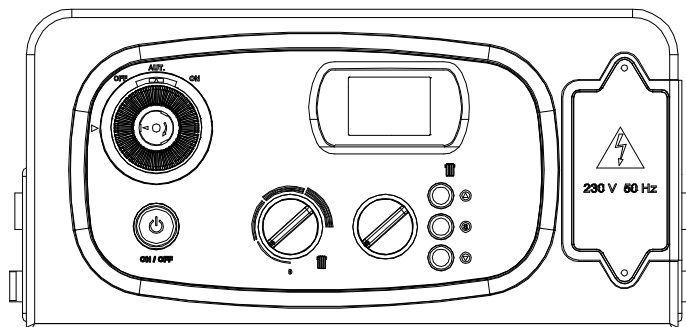
6.7 Troubleshooting

ERROR CODE	PROBLEM	POSSIBLE CAUSE	REMEDY
E01	NO FLAME	<p><i>WITH NO IGNITION</i></p> <p>a. NO GAS. b. IGNITION ELECTRODE BROKEN OR EARTHED. c. GAS VALVE MALFUNCTION d. MECHANICAL MINIMUM ADJUSTMENT (ON GAS VALVE) SET TOO LOW OR SLOW IGNITION ADJUSTMENT SET TOO LOW. e. GAS VALVE INLET PRESSURE TOO HIGH (FOR LPG BOILERS ONLY);</p> <p><i>WITH IGNITION</i></p> <p>f. POWER SUPPLY LIVE AND NEUTRAL WIRES INVERTED. g. IONISATION ELECTRODE MALFUNCTION. h. IONISATION ELECTRODE CABLE DISCONNECTED.</p>	<p>a. CHECK MAINS SUPPLY. b. REPLACE PART. c. REPLACE PART d. REGULATE MECHANICAL MINIMUM OR SLOW IGNITION. e. CHECK THE MAXIMUM PRESSURE SETTING. f. CONNECT THE POWER SUPPLY WIRES CORRECTLY. g. REPLACE PART. h. CONNECT THE IONISATION ELECTRODE WIRE.</p>
E02	SAFETY THERMOSTAT TRIPPED (95°C)	<p>i. THERMOSTAT MALFUNCTION OR OUT OF CALIBRATION. j. THERMOSTAT CABLE DISCONNECTED.</p>	<p>i. REPLACE PART. j. CHECK THE WIRING ;</p>
E03	FLUE SAFETY THERMOSTAT	<p>k. THERMOSTAT BROKEN; l. THERMOSTAT CABLE DISCONNECTED; m. THERMOSTAT LOCK OUT. (HIGH FLUE TEMPERATURE)</p>	<p>k. REPLACE PART; l. CHECK THE ELECTRICAL CONNECTION; m. RESTART AND CHECK THE THERMOSTAT</p>
H20	NO WATER IN THE SYSTEM	<p>n. INSUFFICIENT WATER PRESSURE IN THE SYSTEM (STOPS AT 0.3 BAR). o. WATER PRESSURE SWITCH CABLE DISCONNECTED. p. WATER PRESSURE SWITCH MALFUNCTION.</p>	<p>n. FILL THE SYSTEM; o. CHECK THE WIRING; p. REPLACE PART;</p>
E05	HEATING SENSOR	<p>q. SENSOR MALFUNCTION OR OUT OF CALIBRATION (RESISTANCE VALUE 10 kOhms AT 25 °C). r. SENSOR CABLE DISCONNECTED OR WET.</p>	<p>q. REPLACE PART; r. CHECK THE ELECTRICAL CONNECTION;</p>
E16	FAN	<p>s. BURNT FAN</p>	<p>s. REPLACE PART</p>
E22	PARAMETER PROGRAMMING REQUEST	<p>t. LOSS OF MICROPROCESSOR MEMORY;</p>	<p>t. REPROGRAM PARAMETERS;</p>
E35	FLAME DETECTION MALFUNCTION	<p>u. IONISATION ELECTRODE MALFUNCTION v. IONISATION ELECTRODE CABLE MALFUNCTION w. PRINTED CIRCUIT BOARD MALFUNCTION</p>	<p>u. CLEAN IT OR REPLACE PART v. REPLACE PART w. REPLACE PART</p>

6.8 Diagnostics

■ Error codes:

E01	Ionisation Lock Out
E02	Safety Thermostat Tripped
E03	Flue Gas Thermostat Tripped
H2O	Low Water Pressure Alarm
E05	Heating Sensor Malfunction
E16	Electric Fan Malfunction
E22	Parameter Programming Request
E35	Flame Detection Malfunction



■ Function codes :

Code	Function	Description
07	Flue test function active (Chimney-Sweeper)	Pressing the “service” button for 7 seconds activates the Flue test function. Pressing the boiler off button deactivates the function. The Flue test function operates the boiler at the maximum heating pressure for 15 minutes without any modulation. The function is useful for combustion testing.
08	Frost Protection Central heating circuit	The function is activated when the heating sensor senses a temperature of 5 °C. The boiler operates at minimum gas pressure with the 3-way diverter valve in the winter position. The function is deactivated when the temperature detected by the sensor reaches 30°C.
31	Incompatible Remote Control	Function active when the remote control connected is not compatible with the printed circuit board .

6.9 Parts List

CODE	DESCRIPTION	RK 18	RK 25	RK 34
30-00041	CONDENSING EXCHANGER 3+1 CBD COMPLETE	√		
30-00042	CONDENSING EXCHANGER 4+1 CBD COMPLETE		√	
30-00043	CONDENSING EXCHANGER 5+1 CBD COMPLETE			√
24045LA	PUMP RSL 15/5	√	√	
24046LA	PUMP RSL 15-6-3-KU			√
27044LA	CONDENSATE TRAP	√	√	√
35031LA	IGNITION ELECTRODE	√	√	√
35032LA	IONISATION ELECTRODE	√	√	√
36068LA	VENTURI MINIFOLD	√	√	√
36076LA	ELECTRONIC GAS VALVE	√	√	√
37032LA	FAN	√	√	√
40-00016	PRINTED CIRCUIT BOARD DIGITECH 2 – SM30003	√	√	√
59015LA	WATER PRESSURE SWITCH	√	√	√
73516LA	HTG CLIP SENSOR FOR PIPE 17/18 mm BLUE	√	√	√
73517LA	THERMO FUSE 102°C RED	√	√	√
86006LA	SAFETY THERMOSTAT 95 °C	√	√	√
86014LA	WATER PRESSURE GAUGE	√	√	√
88023LA	TRANSFORMER	√	√	√
95013LA	EXPANSION VESSEL LT.7 3/8"	√	√	√
25-00131	3 BAR PRESSURE RELIEF VALVE -HTG CIRCUIT	√	√	√

Service Record

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

Always use the manufacturer's specified spare part when replacing controls.

Service 1

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 2

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 3

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 4

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 5

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 6

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Operative ID No. _____

Comments: _____

Signature: _____

Service 7

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 8

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 9

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

Service 10

Date: _____

Engineer Name: _____

Company Name: _____

Telephone No. _____

Gas Safe Register No. _____

Comments: _____

Signature: _____

GAS BOILER SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the boiler as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission according to the manufacturer's instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

Customer Name _____ Telephone Number _____

Address _____

Boiler Make and Model _____

Boiler Serial Number _____

Commissioned by (print name) _____ Gas Safe Register Number _____

Company Name _____ Telephone Number _____

Company Address _____

Commissioning Date _____

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:

Building Regulations Notification Number (if applicable) _____

CONTROLS Tick the appropriate boxes

Time and Temperature Control to Heating	Room Thermostat and Programmer/Timer <input type="checkbox"/>	Programmable Room Thermostat <input type="checkbox"/>	Load/Weather Compensation <input type="checkbox"/>	Optimum Start Control <input type="checkbox"/>
Time and Temperature Control to Hot Water	Cylinder Thermostat and Programmer/Timer <input type="checkbox"/>			Combination Boiler <input type="checkbox"/>
Heating Zone Valves	Fitted <input type="checkbox"/>			Not Required <input type="checkbox"/>
Hot Water Zone Valves	Fitted <input type="checkbox"/>			Not Required <input type="checkbox"/>
Thermostatic Radiator Valves	Fitted <input type="checkbox"/>			Not Required <input type="checkbox"/>
Automatic Bypass to System	Fitted <input type="checkbox"/>			Not Required <input type="checkbox"/>
Boiler Interlock				Provided <input type="checkbox"/>

ALL SYSTEMS

The system has been flushed and cleaned in accordance with BS7593 and boiler manufacturer's instructions Yes ☐

What system cleaner was used? _____

What inhibitor was used? _____ Quantity litres

CENTRAL HEATING MODE Measure and Record:

Gas Rate	<input type="text"/> m ³ /hr	OR	<input type="text"/> ft ³ /hr
Burner Operating Pressure (if applicable)	<input type="text"/> mbar	OR	Gas Inlet Pressure <input type="text"/> mbar
Central Heating Flow Temperature	<input type="text"/> °C		
Central Heating Return Temperature	<input type="text"/> °C		

COMBINATION BOILERS ONLY

Is the installation in a hard water area (above 200ppm)? Yes ☐ No ☐

If yes, and if required by the manufacturer, has a water scale reducer been fitted? Yes ☐ No ☐

What type of scale reducer has been fitted? _____

DOMESTIC HOT WATER MODE Measure and Record:

Gas Rate	<input type="text"/> m ³ /hr	OR	<input type="text"/> ft ³ /hr
Burner Operating Pressure (at maximum rate)	<input type="text"/> mbar	OR	Gas Inlet Pressure (at maximum rate) <input type="text"/> mbar
Cold Water Inlet Temperature	<input type="text"/> °C		
Hot water has been checked at all outlets	Yes <input type="checkbox"/>	Temperature	<input type="text"/> °C
Water Flow Rate	<input type="text"/> l/min		

CONDENSING BOILERS ONLY

The condensate drain has been installed in accordance with the manufacturer's instructions and/or BS5546/BS6798 Yes ☐

If the condensate pipe terminates externally has the pipe diameter been increased and weatherproof insulation fitted? Yes ☐

ALL INSTALLATIONS

If required by the manufacturer, record the following CO₂ % OR CO ppm OR CO/CO₂ Ratio

The heating and hot water system complies with the appropriate Building Regulations Yes ☐

The boiler and associated products have been installed and commissioned in accordance with the manufacturer's instructions Yes ☐

The operation of the boiler and system controls have been demonstrated to and understood by the customer Yes ☐

The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer Yes ☐

Commissioning Engineer's Signature _____

Customer's Signature _____

(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.





eXtraheat Limited
Belmayne House
Clarkehouse Road
Sheffield
S10 2LN
South Yorkshire

Phone Number 0844 3814115

Fax Number 01142 309147

E Mail: radiantboilers@extraheat.co.uk

radiantcustomersupport@extraheat.co.uk

Website: www.radiant.eu

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