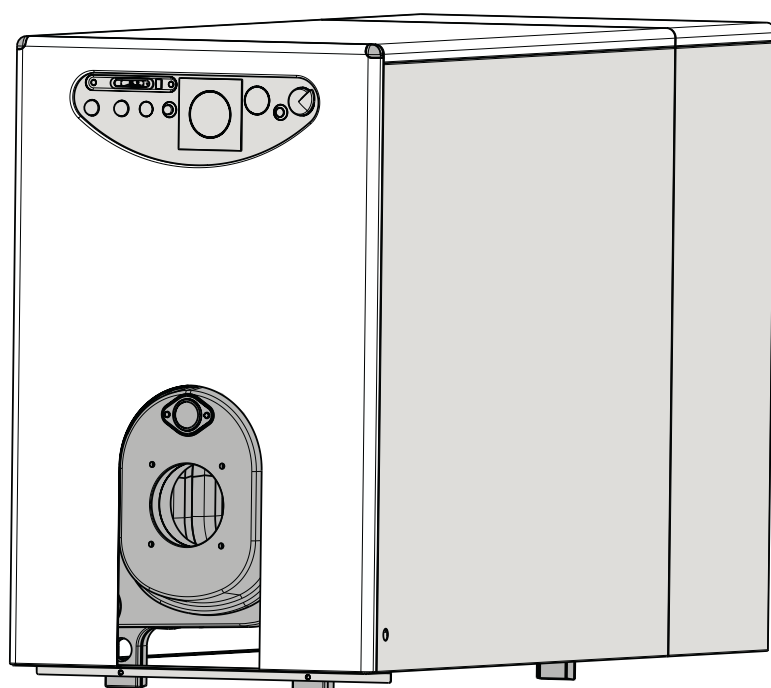
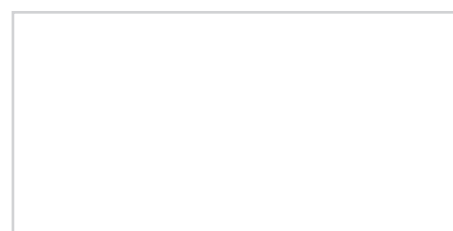


2R HE 6÷13 ErP

ISTRUZIONI PER L'INSTALLAZIONE E LA MANUTENZIONE



IT	NL	
ES	DE	
ENG	RO	
FR	GR	



Gentile Cliente,
metta in funzione la sua nuova caldaia entro 30gg dalla data di installazione da personale professionalmente qualificato. Potrà così beneficiare sia della garanzia legale, sia della garanzia convenzionale Sime che trova alla fine di questo manuale.

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CONFORMITY

Our Company declares that 2R HE ErP boilers comply with the essential requirements of the following directives:

- Boiler Efficiency Directive 92/42/EC
- Ecodesign Directive 2009/125/EC
- Regulation (EU) N. 813/2013 - 811/2013
- Electromagnetic Compatibility Directive 2014/30/UE
- Low Voltage Directive 2014/35/UE



1 BOILER DESCRIPTION

1.1 INTRODUCTION

The new **2R HE ErP** series of cast iron

boilers condensing they use light oil and have a perfectly balanced combustion with a very high thermal efficiency for

economical performance.

1.2 DIMENSIONAL DETAILS (fig. 1)

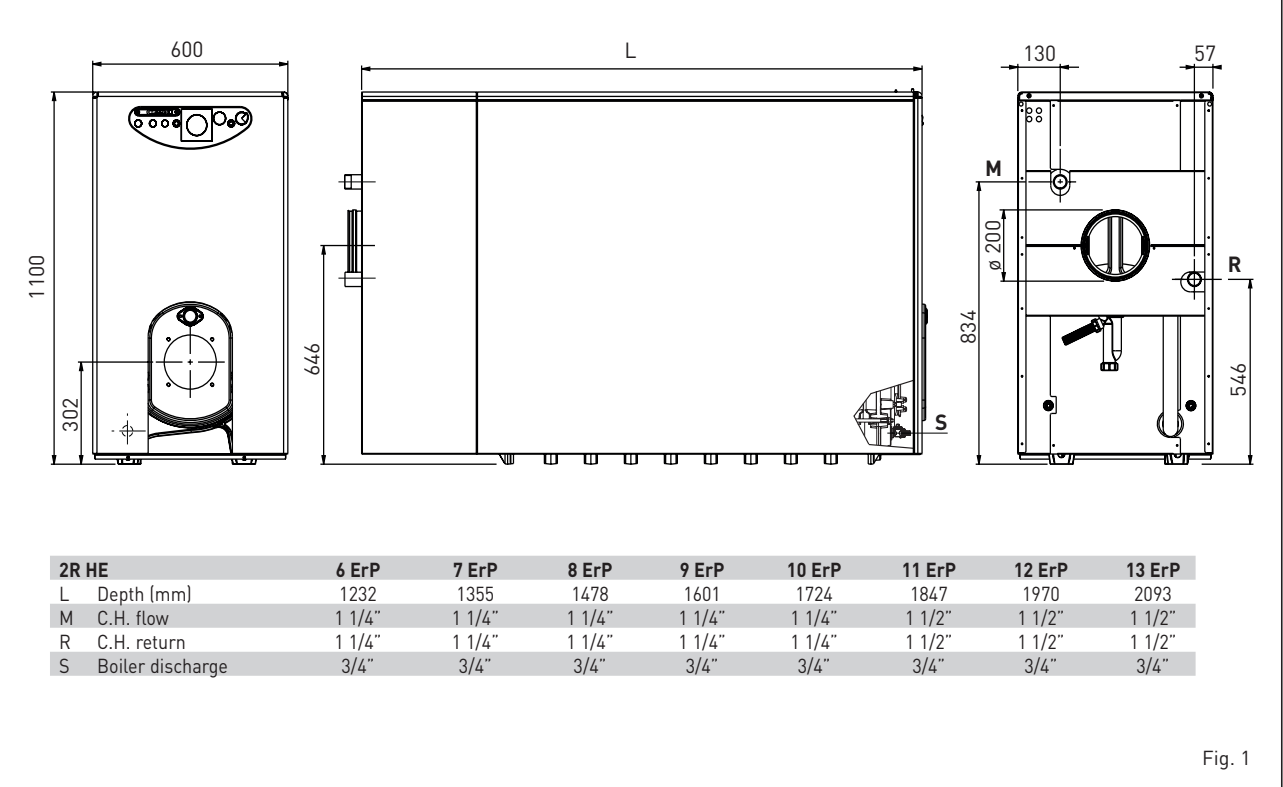


Fig. 1

1.2.1 Technical data plate (fig. 2)

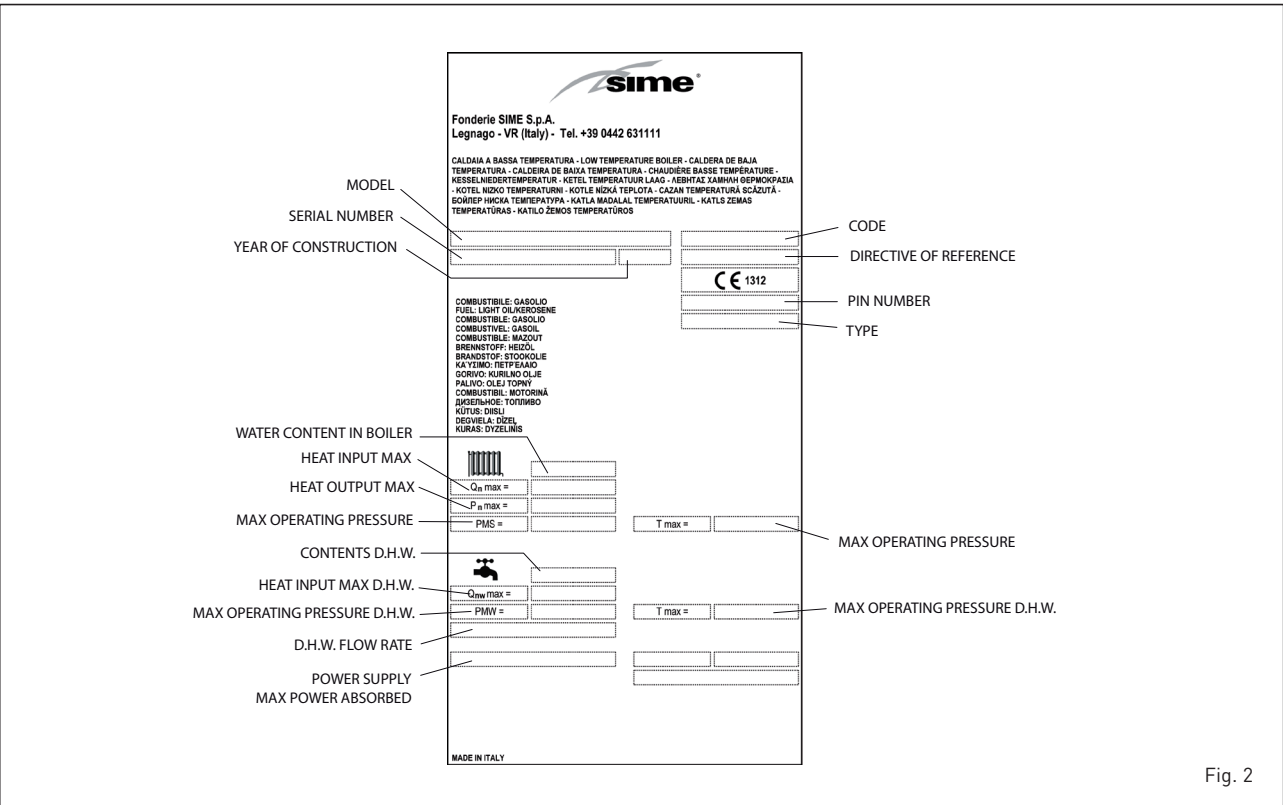


Fig. 2

1.3 TECHNICAL FEATURES

		2R HE 6 ErP	2R HE 7 ErP	2R HE 8 ErP	2R HE 9 ErP	2R HE 10 ErP	2R HE 11 ErP	2R HE 12 ErP	2R HE 13 ErP
Output									
80-60°C	kW	75.0	82.0	98.0	114.0	134.0	151.7	172.0	192.0
50-30°C	kW	80.2	86.6	103.5	120.0	142.1	159.7	180.1	202.0
Input									
	kW	78.0	85.0	101.0	117.0	138.0	158.0	179.0	200.0
Useful efficiency measured at 100%									
80-60°C	%	96.1	96.5	97.0	97.0	97.0	96.0	96.1	96.0
50-30°C	%	102.8	102.0	102.0	102.5	103.0	101.1	101.0	101.0
Useful efficiency measured at 30%									
	%	107.5	106.5	106.0	106.0	106.0	103.9	103.8	104.0
PIN number									
		1312CR194R	1312CR194R	1312CR194R	1312CR194R	1312CR194R	1312CR194R	1312CR194R	1312CR194R
Type									
		B23P	B23P	B23P	B23P	B23P	B23P	B23P	B23P
Sections									
	n°	6	7	8	9	10	11	12	13
Maximum water head									
	bar (kPa)	4 (392)	4 (392)	4 (392)	4 (392)	4 (392)	4 (392)	4 (392)	4 (392)
Water content									
	l	74.2	84.3	94.9	105.5	116.1	126.7	137.4	147.9
Smokes loss of head									
	mbar (kPa)	0.35 (0.034)	0.45 (0.044)	0.50 (0.049)	0.55 (0.054)	0.65 (0.064)	0.75 (0.073)	0.85 (0.083)	0.90 (0.088)
Combustion chamber pressure									
	mbar (kPa)	0.42 (0.041)	0.55 (0.054)	0.65 (0.064)	0.75 (0.073)	0.85 (0.083)	1.10 (0.108)	1.49 (0.146)	1.56 (0.153)
Suggested chimney depression									
	mbar (kPa)	0.15 (0.015)	0.15 (0.015)	0.15 (0.015)	0.15 (0.015)	0.15 (0.015)	0.15 (0.015)	0.15 (0.015)	0.15 (0.015)
Smokes temperature									
80-60°C	°C	92.2	83	87.6	91.5	95.8	95.9	96.0	98.3
50-30°C	°C	70.4	67	69.3	71.6	73.9	74.0	74.0	65.0
Smokes flow									
	m³n/h	132	165	192	222	251	283	310	341
Smokes volume									
	dm³	90.4	108.2	126	143.8	162.6	183.0	201.0	219.0
CO₂									
	%	12.5	12.5	12.5	12.5	12.2	12.4	12.4	12.6
C.H. adjustment range									
	°C	30÷85	30÷85	30÷85	30÷85	30÷85	30÷85	30÷85	30÷85
Weight									
	kg	355	400	445	490	530	570	610	659

1.4 FUNCTIONAL DIAGRAM (fig. 3)

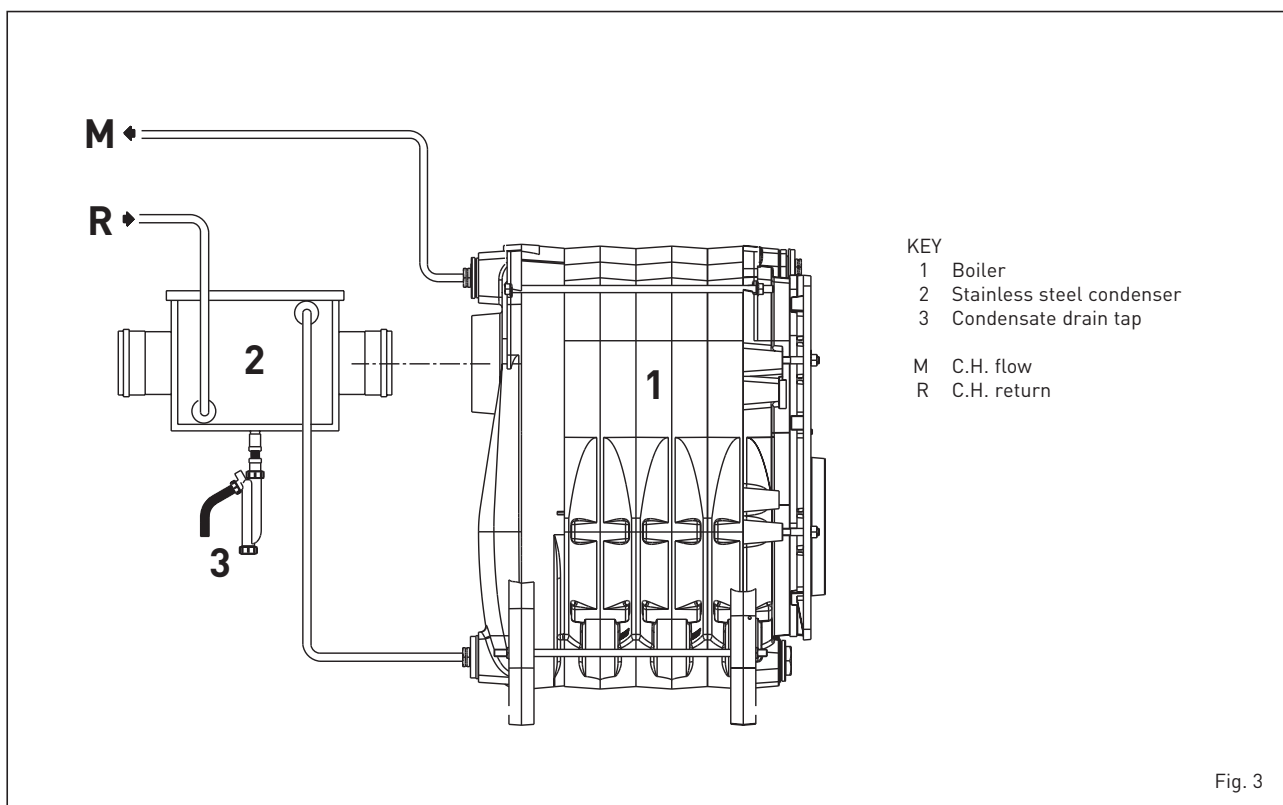


Fig. 3

1.5 COMPATIBLE BURNERS (EN 267)

In general, the oil burner that is compatible with the boiler should use spray of the semi solid type. Sections 1.5.2 shows the matching table of the burners with the boilers have been tested with.

ATTENTION:

Water heater with Nominal Power $P_n > 70\text{kW}$: It is possible to use burners that are not on the list but have the same characteristics, as long as they are conforming to the standard/s, reference techniques and suitable field of work.

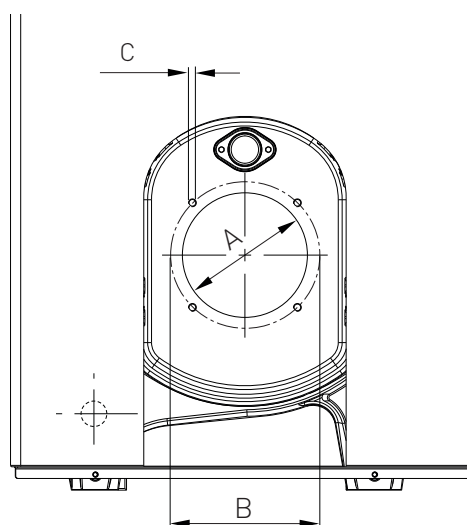
Water heaters with Nominal Power $P_n < 70\text{kW}$: It is possible to use burners that are not on the list but have the same characteristics, as long as they are conforming to the standard/s, reference techniques.

When choosing the burner, pay attention to the max electrical power absorbed by the burner at 30% of the load and in stand-by that should be the same or less that those indicated in the water heater technical data.

1.5.1 Burners assembly (fig. 4)

The boiler door details is shown in figure 3/a for burner mounting.

The burners must be regulated such that the CO_2 value is that indicated in point 1.3, with a tolerance of $\pm 5\%$.



2R HE	A	B	C
	mm	mm	ø
6 ErP	130	170	M8
7 ErP	130	170	M8
8 ErP	130	170	M8
9 ErP	130	170	M8
10 ErP	160	190	M10
11 ErP	160	190	M10
12 ErP	160	190	M10
13 ErP	160	190	M10

Fig. 4

1.5.2 Permanent feeding burners

	Model	Code	Nozzle		Atomising angle	Pump pressure bar	Class NOx	Adsorbed power consumption W
			Type	ø				
2R HE 6 ErP	SIME MACK 6	8099050	DELEVAN	1,65	60°B	12,0	1	151
2R HE 7 ErP	SIME MACK 6	8099050	DELEVAN	1,75	60°B	11,5	1	151
2R HE 8 ErP	SIME MACK 7	8099060	DELEVAN	2,00	60°B	12,0	1	300
2R HE 9 ErP	SIME MACK 7	8099060	DELEVAN	2,50	60°B	12,0	1	300
2R HE 10 ErP	SIME MACK 7	8099060	DELEVAN	3,00	60°B	12,0	1	300
2R HE 11 ErP	FBR G X4.22	8099128	DELEVAN	3,50	60°B	12,6	1	263
2R HE 12 ErP	FBR G X4.22	8099128	DELEVAN	3,50	60°B	12,6	1	263
2R HE 13 ErP	FBR G X4.22	8099128	DELEVAN	3,50	60°B	12,6	1	263

ATTENTION: Use FBR compatible burners for operation with dual-level burner.

1.6 CONNECTION OF CONDENSATION WATER TRAP (fig. 5)

The drip board and its water trap must be connected to a civil drain through a pipe (ø 25) with a slope of at least 5 mm per metre to ensure drainage of condensation water.

The plastic pipes normally used for civil drains are the only type of pipe which is appropriate for conveying condensation to the building's sewer pipes.

1.7 SHELL ASSEMBLY (fig. 5/a - fig. 5/b)

The shell, the control panel and stainless steel condenser kit are supplied separately, in individual carton packs. The shell packaging contains the bag with the water heater documents and the glass wool already prepared to insulate the cast iron body. The shell components must be assembled according to the order shown below:

- fasten the two supports (1) to the cast iron body using hex head screws and nuts;
- fasten the two corner supports (2) to the sides of the shell using four self

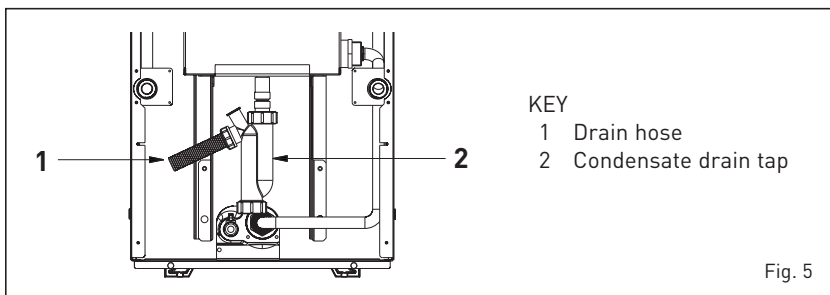


Fig. 5

- tapping screws;
- insulate the cast iron body with the glass wool supplied;
- mount the two reduced delivery-return caps (21) on the cast iron body, supplied with the post-condenser kit;
- mount the rear insulation panel (4);
- fasten the lower cross beam (3) to the cast iron body with two hex head screws;
- fasten the sides (5-6) to the supports (1) with four self-tapping screws and lock them in the back using nuts inserted on the tie-rods;
- install the upper rear panel (7-8) with the four self-tapping screws supplied;
- fasten the control panel (9) to the corners (2) with the four self-tapping screws supplied;
- unwind the capillaries of the two thermostats and of the thermometer by introducing the respective probes in the

- sheath (10), block everything with the capillary stop clip supplied;
- mount the front cover (11) and the front panel (12) on the sides;
- mount the post-condenser kit (14) using the crosspiece (13) to position it on the tie rods, securing it with the two nuts. The post-condenser is fastened to the crosspiece (13) with two brackets (15) and the screws;
- complete the assembly of the casing by mounting the two rear sides (16-17) with the 10 supplied self-tapping screws and the rear cover (18);
- finally mount the two panels (19-20) with the 10 supplied self-tapping screws.

NOTE: Keep the "Test Certificate" inserted in the combustion chamber, with the water heater documents.

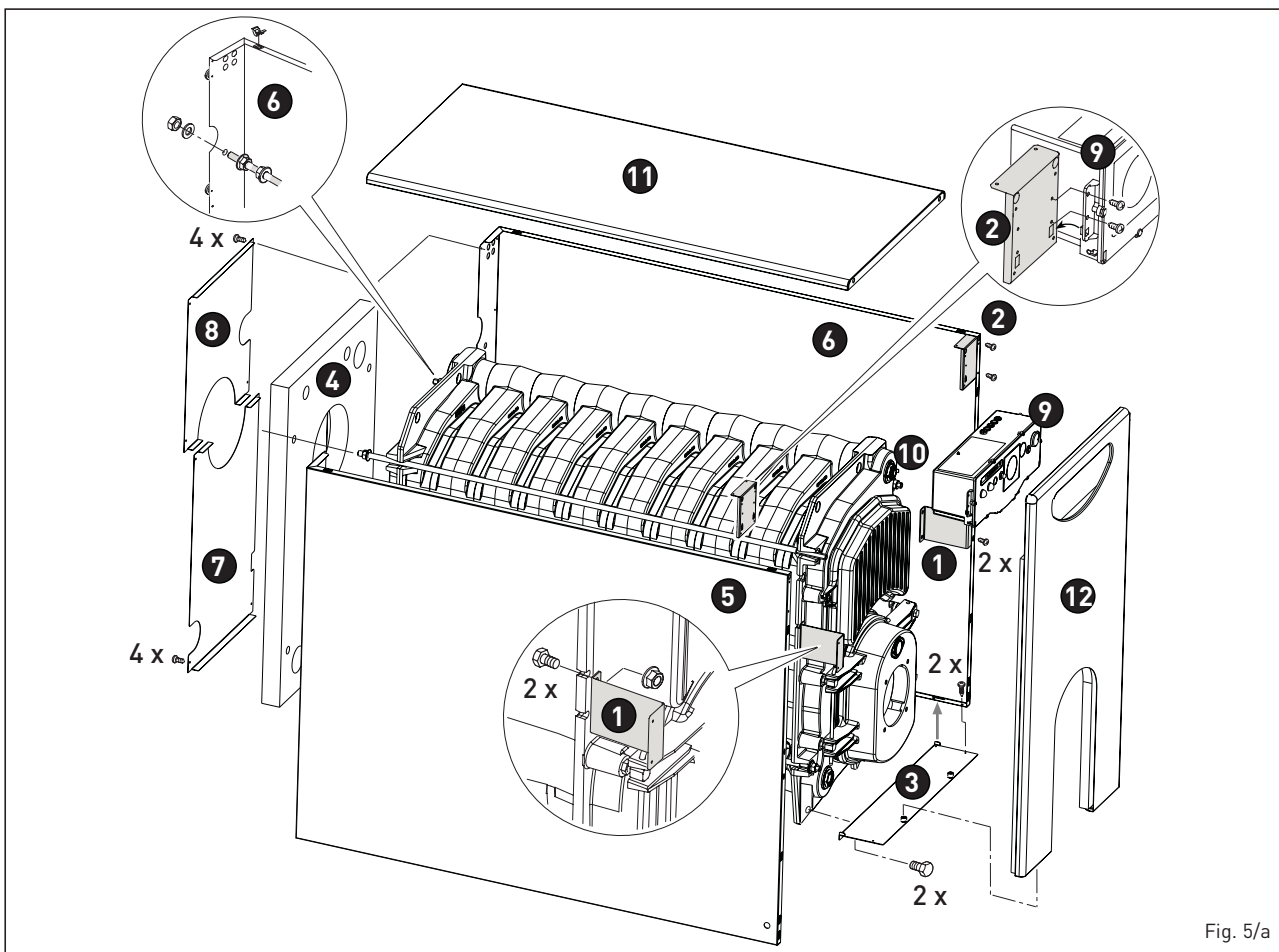


Fig. 5/a

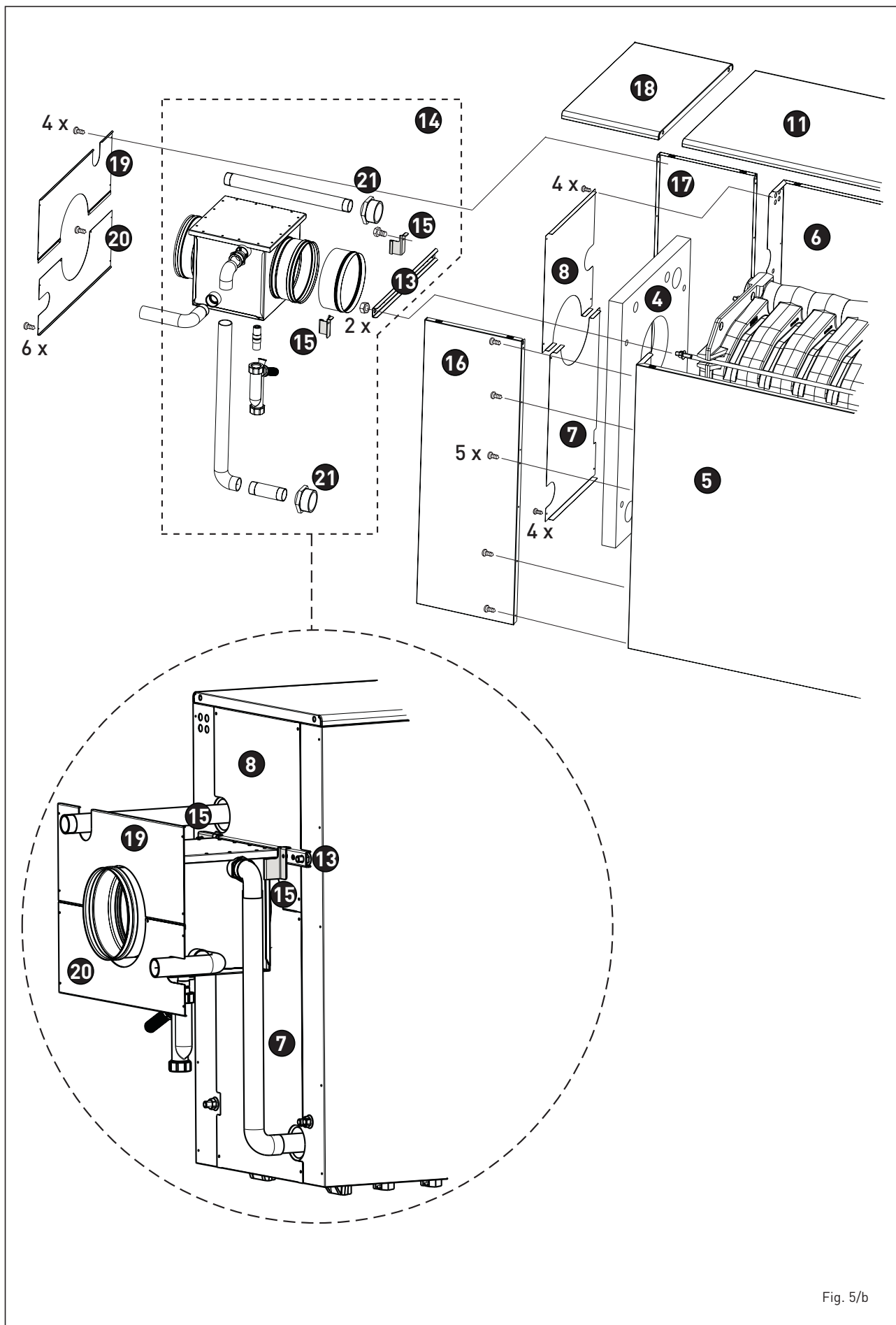


Fig. 5/b

2 INSTALLATION

ATTENTION: Before performing any work on the boiler, make sure that the same and its components have cooled in order to prevent the risk of burns due to high temperatures.

2.1 BOILER ROOM

The boiler room should feature all the characteristics required by standards governing liquid fuel heating systems.

2.2 BOILER ROOM DIMENSIONS

Position the boiler body on the foundation bed, which should be at least 10 cm high. The body should rest on a surface allowing shifting, possibly by means of sheet metal.

Leave a clearance between the boiler and the wall of at least 0.60 m, and between the top of the casing and the ceiling of 1 m (0.50 m in the case of boilers with incorporated D.H.W. tank). The ceiling height of the boiler room should not be less than 2.5 m.

2.3 CONNECTING UP SYSTEM

When connecting up the water supply to the boiler, make sure that the specifications given in fig. 1 are observed. All connecting unions should be easy to disconnect by means of tightening rings. A closed expansion tank system must be used.

2.3.1 Filling the water system

Before connecting the boiler, thoroughly flush the system to eliminate scale which could damage the appliance.

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

In closed-circuit heating systems, the cold water filling pressure and the pre-charging pressure of the expansion vessel should be no less than or equal to the height of the water head of the installation [e.g. for water head of 5 meters, the vessel pre-charging pressure and installation filling pressure should be at least 0.5 bar/49 kPa].

2.3.2 Characteristics of feedwater

Water supplying the heating circuit must be treated in accordance with UNI-CTI 8065 standards. It is absolutely essential to treat water

in the heating system in the following cases:

- For extensive systems (with high contents of water).
- Frequent addition of water into the system.
- Should it be necessary to empty the system either partially or totally.

2.3.3 D.H.W. storage tank

The **2R HE ErP** boilers may be matched with the separate boiler units. The glass enamelled D.H.W. storage tank comes with a magnesium anode to protect the boiler and an inspection flange for checking and cleaning.

The magnesium anode must be checked annually and replaced if it is worn.

Fit a safety valve calibrated to 6 bar (588 kPa) on the tubing of the cold water supply to the boiler unit.

An case the system pressure is excessive fit an appropriate pressure reducer.

If the safety valve calibrated to 6 bar (588 kPa) frequently intercepts, fit an expansion vessel with a capacity of 8 litres and a maximum pressure of 8 bar (784 kPa). The tank should be of the membrane type, made of natural rubber "caoutchouc", which is suitable for foods.

2.4 CONNECTING UP FLUE

The flue is of fundamental importance for the proper operation of the boiler; if not installed in compliance with the standards, starting the boiler will be difficult and there will be a consequent formation of soot, condensate and encrustation. The flue used to expel combustion products into the atmosphere must meet the following requirements:

- be constructed with waterproof materials, and resistant to smoke temperature and condensate;
- be of adequate mechanical resilience and of low heat conductivity;
- be perfectly sealed to prevent cooling of the flue itself;
- be as vertical as possible; the terminal section of the flue must be fitted with a static exhaust device that ensures

constant and efficient extraction of products generated by combustion;

- to prevent the wind from creating pressure zones around the chimney top greater than the uplift force of combustion gases, the exhaust outlet should be at least 0.4 m higher than structures adjacent to the stack (including the roof top) within 8 m;
- have a diameter that is not inferior to that of the boiler union: square or rectangular-section flues should have an internal section 10% greater than that of the boiler union;
- the useful section of the flue must conform to the following formula:

$$S = K \frac{P}{\sqrt{H}}$$

S resulting section in cm²

K reduction coefficient for liquid fuels:

- 0.045 for firewood
- 0.030 for coal
- 0.024 for light oil
- 0.016 for gas

P boiler input in kcal/h

H height of flue in meters, measured from the flame axis to the top of the flue reduced by:

- 0.50 m for each change of direction of the connection union between boiler and flue;
- 1.00 m for each metre of union itself.

2.5 ELECTRICAL CONNECTION (fig. 6)

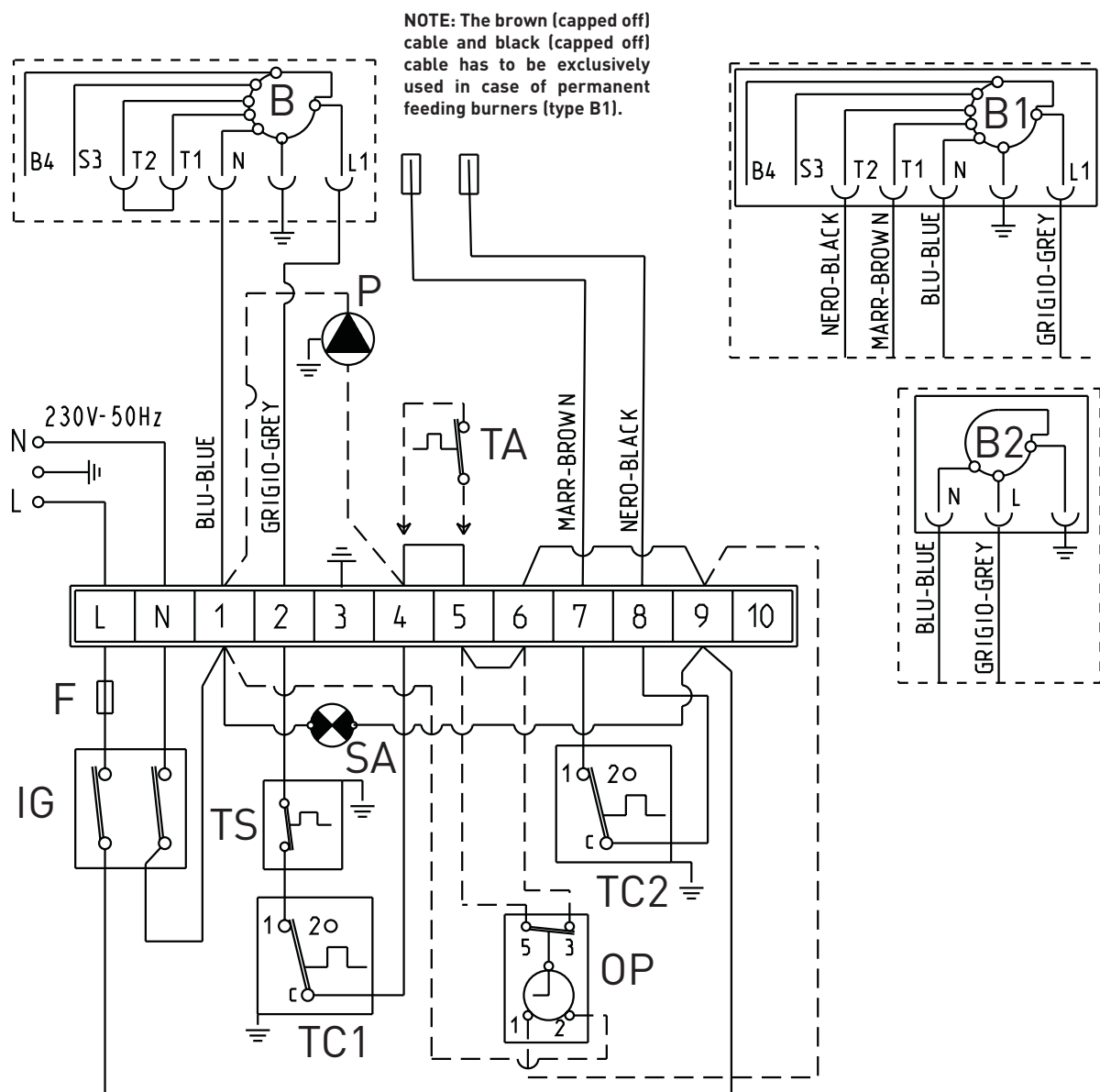
The boiler is fitted with an electricity cable, and requires a 1ph - 230V - 50Hz power supply through the main switch protected by fuses.

The room thermostat (required for enhanced room temperature control) should be installed as shown in fig. 6. Connect the burner with the cable supplied.

NOTE: Device must be connected to an efficient earthing system.

SIME declines all responsibility for injury caused to persons due to failure to earth the boiler.

Always turn off the power supply before doing any work on the electrical panel.



KEY

L Line
N Neutral
F Fuse T2.5A-250V
IG Main switch
TS Safety stat
TC1 Boiler stat
TC2 Second stage modulation thermostat
SA Green voltage LED
P C.H. pump
B Permanent feeding single-level burner (optional)

B1 Permanent feeding dual-level burner (optional)
B2 Direct feeding Burner
TA Room stat
OP Programmer's clock

NOTE:

- When a room stat (TA) is to be fitted remove the link between terminal 4 and 5 on the connector plug.
- To connect the programmer's clock (OP), remove the link between terminals 5 and 6.

Fig. 6

3 USE AND MAINTENANCE

WARNINGS

- In case of failure or malfunction of the equipment, contact authorised technical staff.
- For safety reasons, the User cannot access the internal parts of the appliance. All operations involving the removal of protections or otherwise the access to dangerous parts of the appliance must be performed by qualified personnel.
- The appliance can be used by children under 8 years and by persons with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, provided they are under supervision or after they have been given instructions concerning the safe handling of the appliance and the understanding of the dangers inherent to it. Never let children play with the appliance. Children without supervision must not carry out cleaning and maintenance meant to be carried out by the user.

3.1 COMMISSIONING THE BOILER

When commissioning the boiler always make sure that:

- the system has been filled with water and adequately vented;
- the flow and return valves are fully open;
- the flue and chimney are free from obstructions;
- the electrical connections to the mains and the earthing are correct;
- no flammable liquids or materials are near the boiler;
- check that the circulating pump is not locked.

3.2 LIGHTING AND OPERATION

3.2.1 Lighting the boiler (fig. 7)

To light the boiler proceed as follows:

- check that the "Testing Certificate" has been removed from inside the combustion chamber;
- switch on the main switch and verify that the green LED turns on to confirm

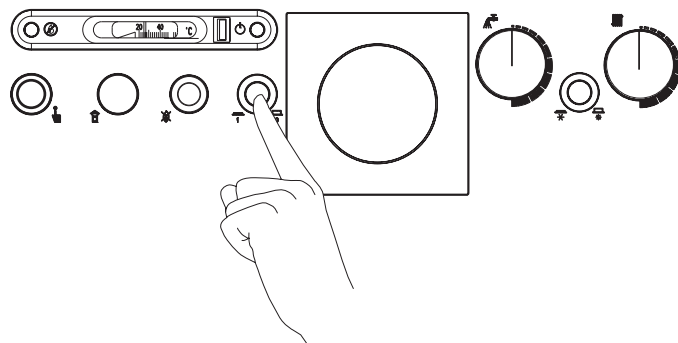


Fig. 7

the presence of voltage. The burner will start.

3.2.2 Boiler stat (fig. 8)

Turn the boiler stat knob to a temperature no lower than 60°C. The set temperature value can be checked on the thermometer.

3.2.3 Safety stat (fig. 9)

The manually reset safety stat trips to switch-off the burners immediately when the boiler temperature exceeds 100°C. To restart the boiler, unscrew the black cover and press the button underneath.

If the problem occurs frequently, call an authorised technical assistance centre for the necessary checks to be carried out.

3.2.4 System filling

Periodically check the pressure values of the hydrometer mounted onto the system, when the system is cold, should range between 1 and 1.2 bar (98 and 117.6 kPa).

If the pressure is less than 1 bar (98 kPa), reset the system.

3.2.5 Turn OFF boiler (fig. 7)

To temporarily turn off the boiler turn off the electricity supply by pressing the main switch.

The following operations must be carried out if the plant will not be in use for a lengthy period of time:

- position the main switch of the plant on off;
- turn the fuel and water taps of the central heating plant off;
- empty the central heating plant if there is danger of frost:

3.2.6 Second stage modulation thermostat (fig. 10)

The thermostat (TC2) is factory set at 50°C. To access calibration, remove the protective plug and act with a suitable screwdriver. The purpose of the thermostat is to switch the burner to minimum power (second stage).

3.3 REGULAR CLEANING

Maintenance of the boiler should be carried out annually by an authorised service engineer.

Disconnect the boiler from the electrical supply before servicing or maintenance is carried out.

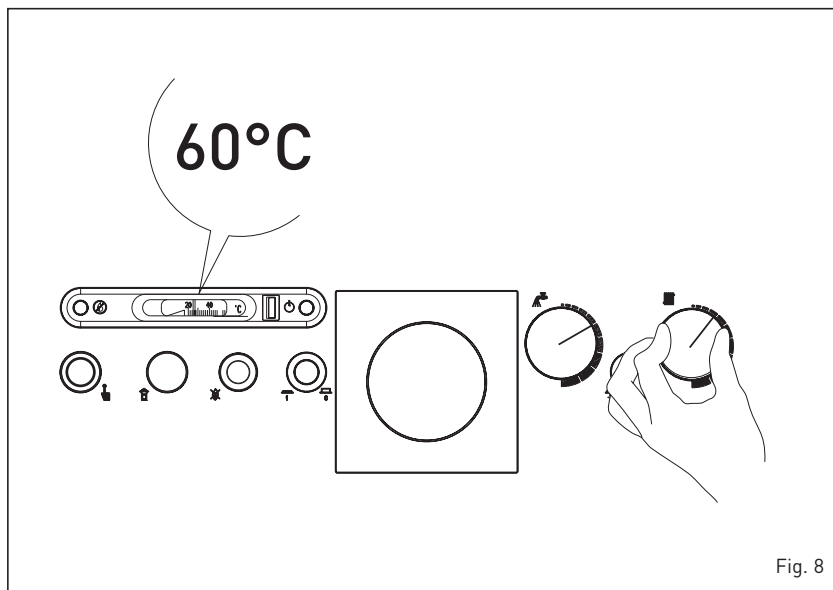


Fig. 8

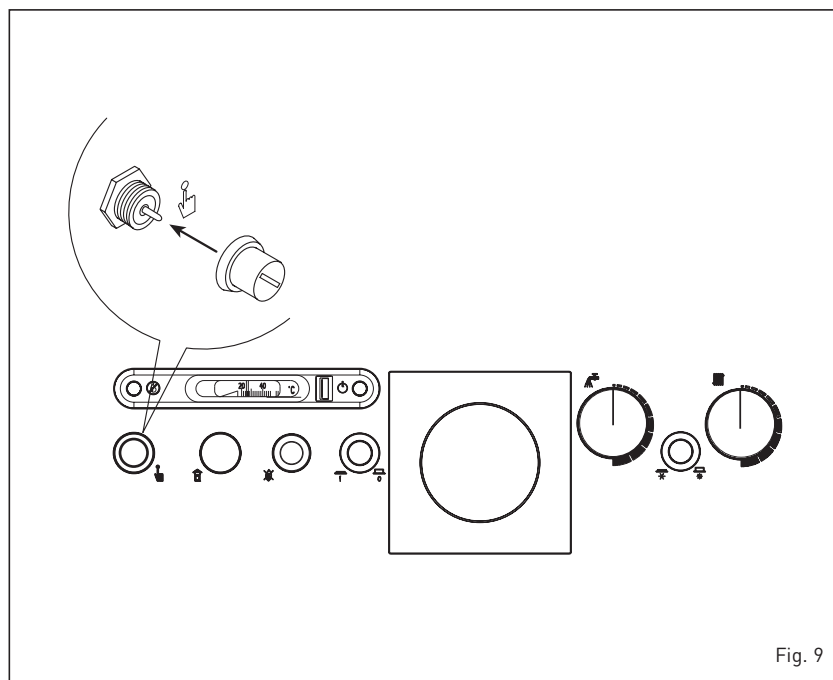


Fig. 9

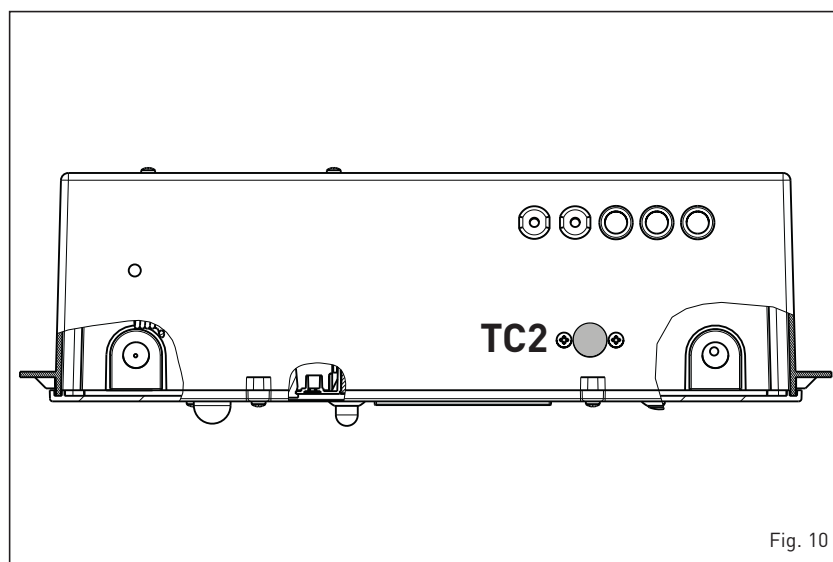


Fig. 10

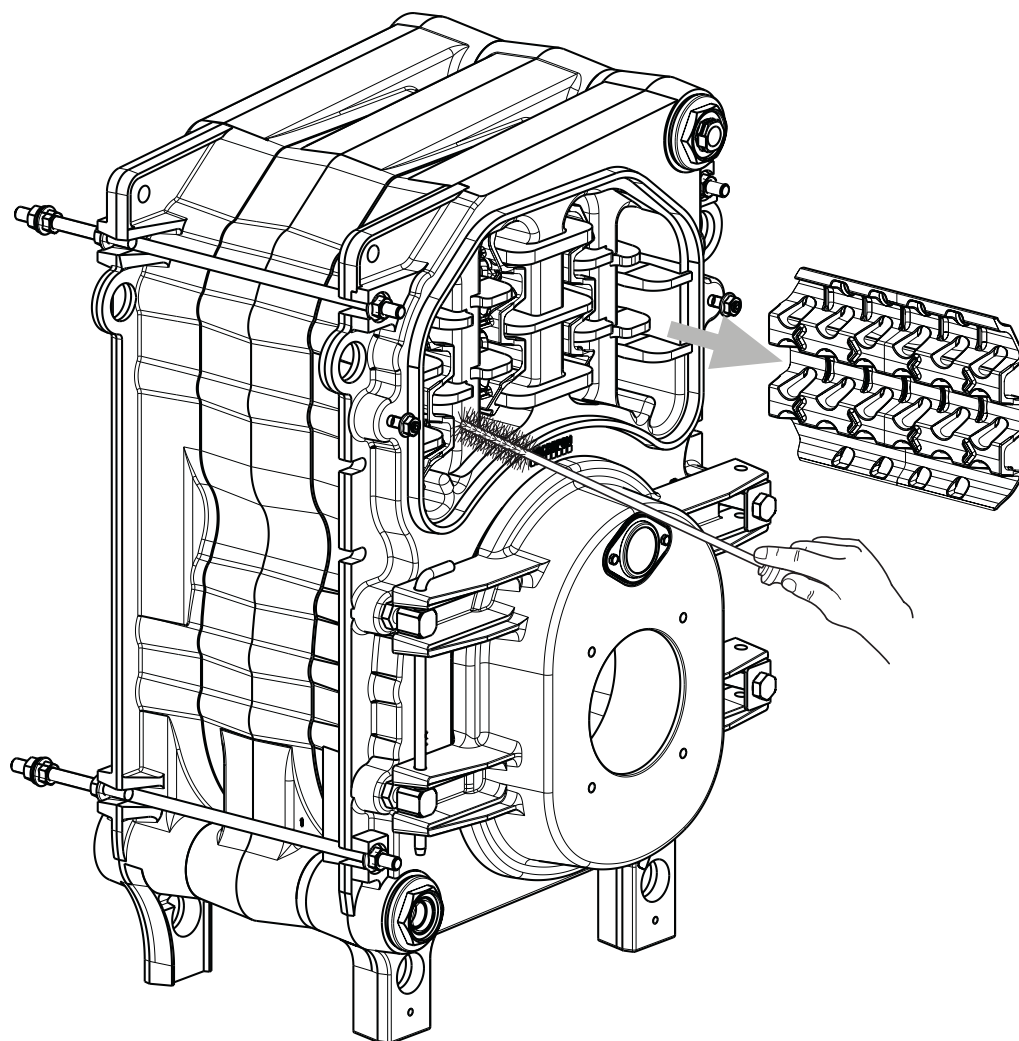


Fig. 11

3.3.1 Smoke side boiler (fig. 11)

To carry out cleaning of the smoke passages remove the screws that fix the door to the body of the boiler and with the special cleaning brush clean the internal surfaces and the smoke evacuation tube well, removing any deposits.

Once the maintenance is completed, the baffles have to be fitted onto the original positions.

The maintenance operations can be carried out without removing the burner.

3.3.2 Fault finding

Hereafter we outline a number of potential problems that may occur on the appliance and the relevant list of actions required.

A working fault, in most cases, provokes the "lock out" signal onto the control panel of the control box.

When this light turns on, the burner can operate again only after the reset button has been pressed; if this has been done and a regular ignition occurs, it means

the failure can be defined momentary and not dangerous.

On the contrary, if the "lock out" stays, the cause of the fault, as well as the relevant action must be made according to the following chart:

The burner does not ignite

- Check the electric connections.
- Check the regular fuel flow, the cleanliness of the filters, of the nozzle and air vent from the tube.
- Check the regular spark ignition and

the proper function of the burner.

The burner ignites regularly but the flame goes out immediately

- Check the flame detection, the air calibration and the function of the appliance.

Difficulty in regulating the burner and/or lack of yield

- Check: the regular flow of fuel, the cleanness of the boiler, the non obstruction of the smoke duct, the real input supplied by the burner and its cleanness (dust).

The boiler gets dirty easily

- Check the burner regulator (smoke analysis), the fuel quantity, the flue obstruction and the cleanness of the air duct of the burner (dust).

The boiler does not heat up

- Control the cleanness of the shell, the matching, the adjustment, the burner performances, the pre-adjusted temperature, the correct function and position of the regulation stat.
- Make sure that the boiler is sufficiently powerful for the appliance.

Smell of unburnt products

- Control the cleanness of the boiler shell and the flue, the airtightness of the boiler and of the flue ducts (door, combustion chamber, smoke ducts, flue, washers).
- Control the quality of the fuel.

Frequent intervention of the boiler shutoff valve

- Control the presence of air in the system, the function of the circulation pumps.
- Check the load pressure of the appliance, the efficiency of the expansion tanks and the valve calibration.

IT MUST NOT be disposed of together with urban waste.

It can be handed over to recycling centres, if there are any, or to retailers that offer this service.

Recycling prevents potential damage to the environment and health. It allows to recover a number of recyclable materials, with considerable savings in terms of money and energy.

3.4 FROST PROTECTION

In the event of frost, ensure that the central heating plant is functional and effective frost protection interlocks are in place to protect against frost damage

3.5 POWER CABLE

It is mandatory that the dedicated power cable is replaced only with a spare cable ordered and connected by professionally qualified personnel.

3.6 DISPOSAL OF THE EQUIPMENT

Once it reaches the end of its operating life, the equipment **MUST BE RECYCLED** in line with current legislation.



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