Lamborghini CALORECLIMA

AZIENDA CERTIFICATA ISO 9001

CALDAIA MURALE A GAS CAMERA STAGNA, PER SANITARIO E RISCALDAMENTO
WALL-MOUNTING GAS BOILER AIRTIGHT CHAMBER, FOR HOT WATER AND HEATING
CHAUDIÈRE MURALE À GAZ CHAMBRE DE COMBUSTION ÉTANCHE, POUR LA PRODUCTION D'EAU CHAUDE SANITAIRE ET LE CHAUFFAGE
CALDERA MURAL DE GAS CON CÁMARA ESTANCA PARA AGUA SANITARIA Y CALEFACCIÓN
CALDEIRA MURAL A GÁS CÂMARA ESTANQUE, PARA PRODUÇÃO DE ÁGUA QUENTE SANITÁRIA E AQUECIMENTO
ΕΠΙΤΟΙΧΟΣ ΛΕΒΗΤΑΣ ΑΕΡΙΟΥ ΣΤΕΓΑΝΟΎ ΘΑΛΆΜΟΥ, ΓΙΑ ΖΕΣΤΌ ΝΕΡΌ ΚΑΙ ΘΈΡΜΑΝΣΗ

TAURA 24 MCS W TOP

cod. 3540D95/0 ediz. 06/2006

ISTRUZIONI PER L'USO L'INSTALLAZIONE E LA MANUTENZIONE

INSTRUCTIONS FOR USE, INSTALLATION AND MAINTENANCE

INSTRUCTIONS D'UTILISATION, D'INSTALLATION ET D'ENTRETIEN

INSTRUCCIONES PARA EL USO, LA INSTALACIÓN Y EL MANTENIMIENTO

INSTRUÇÕES DE UTILIZAÇÃO INSTALAÇÃO E MANUTENÇÃO

ΟΔΗΓΙΕΣ ΧΡΗΣΗΣ ΕΓΚΑΤΑΣΤΑΣΗΣ ΚΑΙ ΣΥΝΤΗΡΗΣΗΣ

- This instruction booklet is an integral part of the product and must be carefully kept by the user for future reference.
- Installation and maintenance must be carried out by professionally qualified personnel, according to current regulations and the manufacturer's instructions.
- Incorrect installation or poor maintenance can cause damage or physical injury. The manufacturer declines any responsibility for damage caused by errors in installation and use or by failure to follow the manufacturer's instructions
- In case the unit breaks down and/or functions poorly, deactivate it, do not make any attempt to repair it or directly intervene. Contact professionally qualified personnel.
- Any repair/replacement of products must only be carried out by qualified professional personnel using exclusively genuine parts. Failure to comply with the above could affect the safety of the unit.
- This unit must only be used for the purpose for which it was designed. Any other use is considered improper and therefore hazardous.
- Packing materials must not be left within the reach of children as they are potentially hazardous.

Declaration of conformity

The manufacturer declares that this unit complies with the following EU directives:

- Gas Appliance Directive 90/396
- Efficiency Directive 92/42
- Low Voltage Directive 73/23 (amended by 93/68)
- Electromagnetic Compatibility Directive 89/336 (amended by 93/68)

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1. OPERATING INSTRUCTIONS

1.1 Introduction

Dear Customer,

Thank you for choosing **Taura 24 MCS W TOP**, a LAMBORGHINI wall-mounting boiler featuring advanced design, cutting-edge technology, high reliability and quality construction. Please read this manual carefully since it provides important information on safe installation, use and maintenance.

TAURA 24 MCS W TOP is a **high-efficiency** heat generator for heating and hot water production running on natural or liquefied petroleum gas, equipped with an open-flue burner with electronic ignition, airtight chamber with forced ventilation and a microprocessor control system.

1.2 Control panel

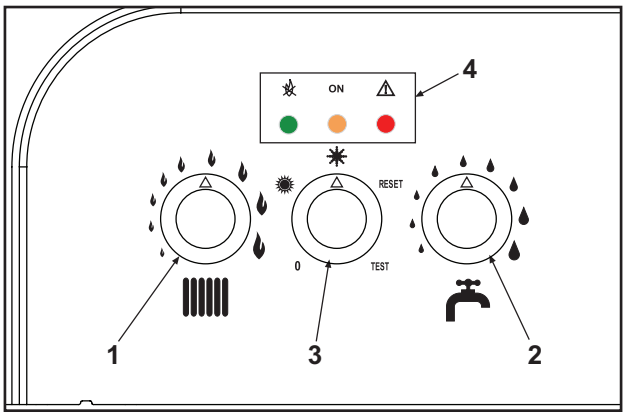


Fig. 1

1 System temperature adjustment
2 Hot water temperature adjustment
3 Selector:

0	Off
☀	Summer (hot water only)
❄	Winter (heating + hot water)
RESET	Boiler restore
TEST	Operation in TEST mode

4 LEDs indicating functional status and signalling trouble

☞ If the boiler is hooked up with the optional remote timer control, the system and hot water temperature adjustments can be made solely with the remote control.

Information during operation

During normal operation, the boiler diagnostics control sends information on the state of the boiler via the LEDs (4 - fig.1):

LED key

○ On ● Off ☼ Blinking (fast for trouble)

Red	ON Green	Yellow	
●	●	●	Boiler off
●	☼	●	Boiler on stand-by
●	○	●	Heating operation (burner on)
●	○	☼	Operation in hot water mode (burner on)
☼	☼	☼	TEST mode operation

For other combinations, see chap. 3.4.

1.3 Turning on and off

Ignition

- Open the gas valve ahead of the boiler.
- Supply the unit with electricity.
  Turn the selector 3 onto ✳ (winter) or onto ☀ (summer)
- Turn the heating and hot water knob onto the required temperatures.
- The boiler is ready to function automatically whenever hot water is drawn or the room thermostat calls for heating.

⚠ If after the ignition cycle the burners fail to ignite and the red LED comes on, turn the selector onto RESET for 1 second and then back onto ☀ or onto ✳. The controller will repeat the ignition cycle in the next 30 seconds. If the burners fail to ignite even after the third attempt, refer to chap. 3.1.

☞ In case of an electrical power failure while the boiler is working, the burners will go out and re-ignite automatically when power is restored.

Turning off

Turn the selector onto 0.
When the boiler is turned off, the electronic card is still powered.
Hot water and heating operation are disabled, all the LEDs are off; but the antifreeze function stays on

⚠ The antifreeze system will not work if the electricity and/or gas supply to the unit are cut off.
To avoid damage caused by freezing during long shutdowns in winter, it is advisable to drain all water from the boiler, the tap water and the system water; or drain off just the tap water and add a suitable antifreeze to the heating system, as prescribed in chap. 2.3.

1.4 Adjustments

Water system pressure adjustment

The filling pressure with the system cold, read on the boiler water gauge, must be about 1.0 - 1.5 bar. If the system pressure falls to values below the minimum, bring it back to the initial value by operating the filling cock (see fig. 7 part 74). At the end of the operation always close the filling cock.

2. INSTALLATION

2.1 General Instructions

BOILER INSTALLATION MUST ONLY BE PERFORMED BY QUALIFIED PERSONNEL, IN ACCORDANCE WITH ALL THE INSTRUCTIONS GIVEN IN THIS TECHNICAL MANUAL, THE PROVISIONS OF CURRENT LAW, THE PRESCRIPTIONS OF NATIONAL AND LOCAL STANDARDS AND THE RULES OF PROPER WORKMANSHIP.

2.2 Place of installation

The unit's combustion circuit is sealed off from the installation room and therefore the unit can be installed in any kind of room. However, the installation room must be sufficiently well ventilated to prevent any dangerous conditions from forming in the event of even slight gas leakage. This safety standard is required by the EEC Directive no. 90/396 for all gas units, including those with a so-called sealed chamber.

Therefore the place of installation must be free of dust, flammable materials or objects or corrosive gases. The room must be dry and not subject to freezing.

The boiler is fitted to be installed on a wall and is equipped as standard with a set of brackets. The LEJ LINE plumbing kits also include a paper template to mark the drilling points on the wall if these kits are used. Secure the bracket to the wall and hook on the boiler. The wall fixing must ensure a stable and effective support for the generator.

If the unit is enclosed in furniture or mounted alongside, there must be space for removing the casing and for normal maintenance work.

2.3 Plumbing connections

The heating capacity of the unit should be previously established by calculating the building's heat requirement according to current regulations. The system must be equipped with all its components for it to work properly. It is advisable to install on-off valves between the boiler and heating system allowing the boiler to be isolated from the system if necessary.

The safety valve outlet must be connected to a funnel or collection pipe to prevent water flowing out onto the ground in the event of over-pressure in the heating circuit. If this is not done, and the drain valve trips and floods the room, the boiler manufacturer is not to be held responsible.
Do not use the water system pipes to earth electrical appliances.

Before installation, carefully wash all the pipes of the system to remove residues or impurities that could affect the unit's good working.

Make the connections to the corresponding connections as shown in fig. 6 in chap. IV and with the symbols on the unit. A plumbing kit is available on request.

Characteristics of the water system

In the presence of water harder than 25° Fr, we recommend the use of suitably conditioned water in order to avoid possible scaling in the boiler. Water treatment is indispensable in the case of very large systems or with frequent introduction of replenishing water in the system. If partial or total emptying of the system becomes necessary under these conditions, it is advisable to refill it with treated water.

Antifreeze system, antifreeze fluids, additives and inhibitors.

The boiler is equipped with an antifreeze system that turns on the boiler in heating mode when the system delivery water temperature falls under 6°C. The device will not come on if the electricity and/or gas supply to the unit are cut off. If it becomes necessary, it is permissible to use antifreeze fluid, additives and inhibitors only if the manufacturer of these fluids or additives guarantees they are suitable for this use and cause no damage to the heat exchanger or other components and/or materials of the boiler unit and system. It is prohibited to use generic antifreeze fluid, additives or inhibitors that are not expressly suited for use in heating systems and compatible with the materials of the boiler unit and system.

2.4 Gas connection

Before making the connection, ensure that the unit is arranged for operation with the type of fuel available and carefully clean all the pipes of the gas system to remove any residues that could affect good functioning of the boiler.

The gas must be connected to the relative connector (see fig. 7) in conformity with current standards, with rigid metal pipes or with continuous flexible s/steel wall tubing, placing a gas cock between the system and the boiler. Make sure that all the gas connections are tight.

The capacity of the gas meter must be sufficient for the simultaneous use of all equipment connected to it. The diameter of the gas pipe leaving the boiler does not determine the diameter of the pipe between the unit and the meter; it must be chosen according to its length and loss of head, in conformity with current standards.

Do not use the gas pipes to earth electrical appliances.

2.5 Electrical Connections

Connection to the electrical grid

The boiler must be connected to a single-phase, 230 Volt-50 Hz electric line.

⚠ The unit's electrical safety is only guaranteed when correctly connected to an efficient earthing system executed according to current safety standards. Have the efficiency and suitability of the earthing system checked by professionally qualified personnel. The manufacturer is not responsible for any damage caused by failure to earth the system.

The boiler is prewired and provided with a Y-cable and plug for connection to the electricity line. The connections to the grid must be made with a permanent connection and equipped with a bipolar switch whose contacts have a minimum opening of at least 3 mm, interposing fuses of max. 3A between the boiler and the line. It is important to respect the polarities (LINE: brown wire / NEUTRAL: blue wire / EARTH: yellow-green wire) in making connections to the electrical line. During installation or when changing the power cable, the earth wire must be left 2 cm longer than the others.

⚠ The user must never change the unit's power cable. If the cable gets damaged, switch off the unit and have it changed solely by professionally qualified personnel. When changing the cable use solely **"HAR H05 VV-F"** 3x0.75 mm2 cable with a maximum outside diameter of 8 mm.

Room thermostat

⚠ CAUTION: THE ROOM THERMOSTAT MUST HAVE CLEAN CONTACTS. CONNECTING 230 V. TO THE TERMINALS OF THE ROOM THERMOSTAT WILL IRREPARABLY DAMAGE THE ELECTRONIC CARD.
When connecting a remote timer control or a timer switch, do not take the power supply for these devices from their cut-out contacts. Their power supply must be taken with a direct connection from the mains or with batteries, depending on the kind of device.

Access to the electrical terminal board

The terminal block is at the bottom of the boiler (see fig. 2)

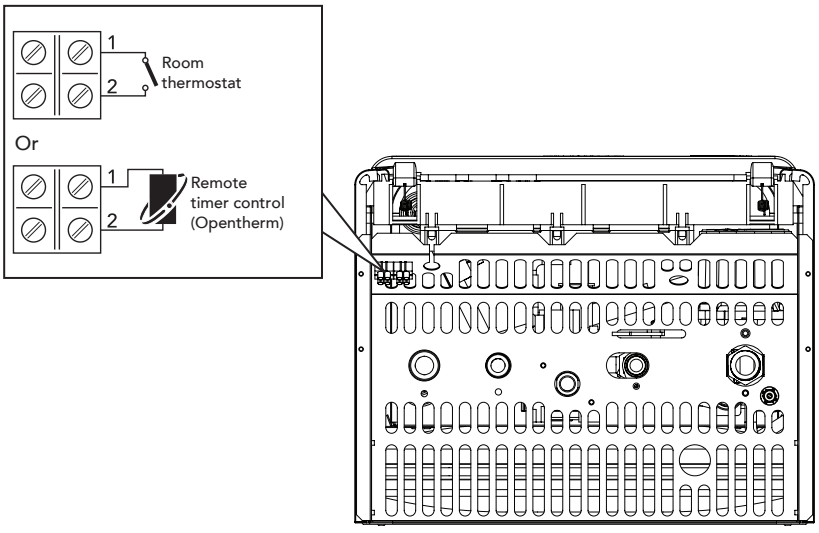


Fig. 2

2.6 Fume ducts

The unit is "type C" with an **airtight chamber** and forced draught, the air inlet and fume outlet must be connected to one of the following extraction/suction systems. Before commencing installation, it is first necessary to check that the fume ducts do not exceed the maximum permissible lengths.

⚠ This C-type unit must be installed using the fume extraction and outlet ducts supplied by the manufacturer in accordance with UNI-CIG 7129/92. Failure to use them automatically forfeits all warranty and liability of the manufacturer.

Diaphragms

Boiler operation requires fitting the diaphragms supplied with the unit as instructed in the following tables and drawings.

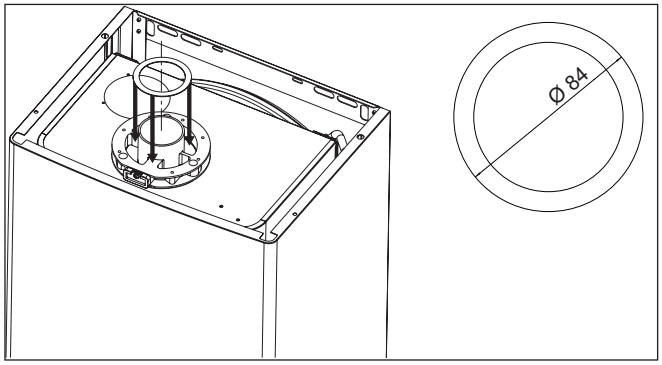
Choosing the diaphragm using coaxial pipes

Type	Length up to:	Diaphragm to use
Coaxial 60/100	1 bend + 1 metre	Ø84 external
	1 bend + 3 metres	No diaphragm

Choosing the diaphragm using separate pipes

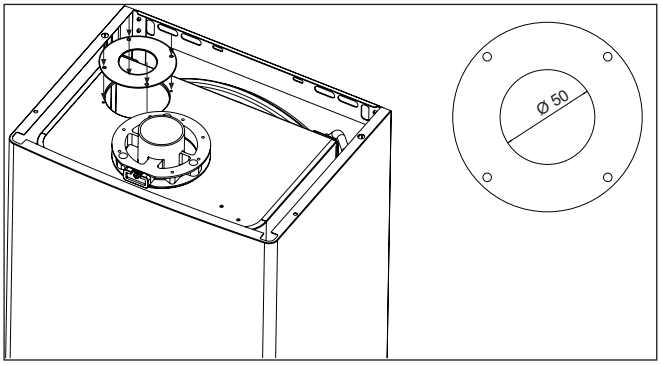
Pipe length calculated in linear metres		Diaphragm to use
Min	Max	
0 m	20 m	Ø50 internal
20 m	35 m	No diaphragm

To change the diaphragm:



Diaphragm for coaxial pipes

Insert the diaphragm on the aluminium section Ø60 of the upper flange of the boiler



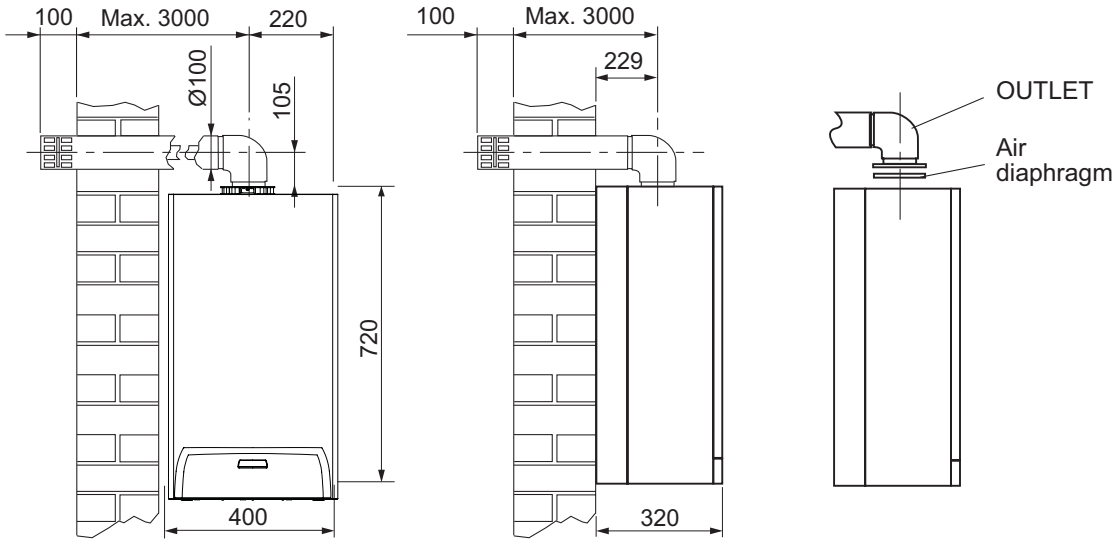
Diaphragm for separate pipes

Insert the diaphragm under the flanged air inlet section Ø80

Connection with coaxial pipes

Fit the concentric pipe, positioning it in the required direction, and insert the seal onto it and install the diaphragm (when necessary). Fit the fume outlet and suction pipes observing the distances given on the respective installation diagram. It is necessary to keep the fume outlet sloping slightly outwards.

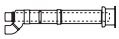
CONCENTRIC OUTLET max length 3 m + bend



Connection with separate pipes

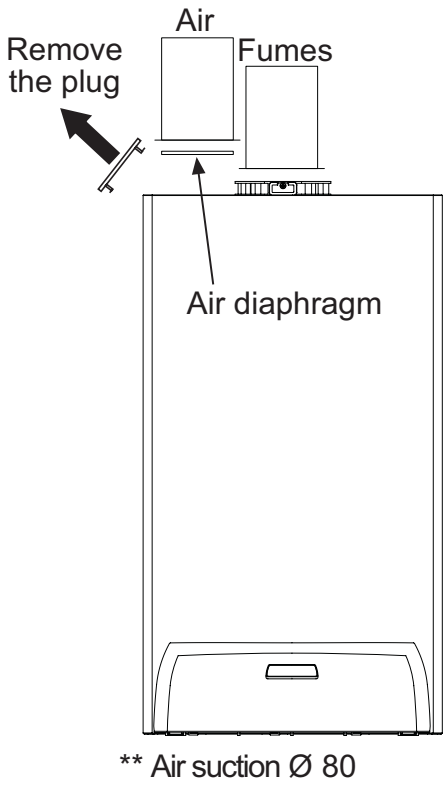
1. Completely define the layout of the system of split flues, including accessories and outlet end pieces.
2. Refer to the following table and identify the losses in $_{eq}$m of each component according to the position of installation.
3. Check that the total sum of the losses is less than or equal to the maximum permissible value: **35** $_{eq}$m.

Table of pipe and accessory losses

		Losses eq_m		
Component	**Drawing**	**Suction**	**Outlet Vertical**	**Outlet Horizontal**
Accessories Ø 80				
Pipe Ø 80 male-female		1	1	2
Bend 45° Ø80		1,2	2,2	
Bend 90° Ø80 male-female		1,5	2,5	
Condensate collection cup coupling		/	3	/
Windproof end piece for products of combustion Ø 80 mm		/	/	5
Suction protection air end piece Ø 80		2	/	/
Rooftop outlet 80/125 + TEE reduction for separate ducts		/	12	

Connection with separate pipes

Remove the air inlet closing cap. Fit the two flanged sections Ø80, with their seals. If necessary, install the diaphragm under the air inlet section



Caution: use solely Lamborghini Caloreclima fume suction/outlet kits

3. SERVICE AND MAINTENANCE

All adjustment, conversion, system start-up and maintenance operations described hereunder must be carried out solely by Qualified Personnel such as the personnel of the Local After-Sales Technical Service.

LAMBORGHINI declines any responsibility for damage or physical injury caused by unqualified and unauthorized persons tampering with the device.

⚠ The first ignition is free of charge and must be requested as directed on the sticker on the boiler.

3.1 Adjustments

Gas supply conversion

The unit can function with either Natural Gas or LPG and is factory-set for use with one of the two gases, as clearly shown on the packing and on the unit's dataplate. Whenever a different gas to that for which the unit is preset has to be used, a conversion kit will be required, proceeding as follows:

1. Replace the nozzles at the main burner, inserting the nozzles specified in the technical data table in chap. 4, according to the type of gas used
2. Adjust the burner minimum and maximum pressures (ref. relevant paragraph), setting the values given in the technical data chart for the type of gas used.
3. Edit the parameter for the type of gas:
- turn the boiler onto standby
- select RESET for 10 seconds: LEDs blinking fast for two seconds
- select WINTER: red LED on
- select RESET for 1 second
- select WINTER: yellow LED on
- select RESET for 5 seconds: LEDs blinking fast for two seconds
- select WINTER
- turn the hot water knob (ref. 2 - fig 1) onto minimum (for Natural Gas operation) or onto maximum (for LPG operation)
- red LED blinking (LPG operation) or red LED off (Natural Gas operation)
- select RESET for 5 seconds: LEDs blinking fast for two seconds
- select WINTER: yellow LED and red LED on
- turn the heating knob (ref. 1 - fig 1) onto minimum and then onto maximum
- the boiler will go back onto standby
- turn the knobs onto the set temperatures.

4. Apply the sticker contained in the conversion kit, near the dataplate as proof of the conversion.

Turning on TEST mode

Select TEST.

TEST mode is turned off by selecting another mode or automatically after 15 minutes.

Adjusting burner pressure

Since this unit has flame modulation, there are two fixed pressure settings: the minimum and maximum, which must be as stated in the technical data chart according to the type of gas.

- Connect a suitable pressure gauge to pressure point **"B"** downstream from the gas valve.
- Disconnect the pressure compensation tube **"H"** and take off the protective cap **"D"**.
- Run the boiler in TEST mode (selector on TEST):
- Adjust the maximum pressure with the screw **"G"**, clockwise to increase it and anticlockwise to decrease it.
- Disconnect one of the two faston connectors from the modureg **"C"** on the gas valve.
- Adjust the minimum pressure with the screw **"E"**, clockwise to decrease it and anticlockwise to increase it.
- Reconnect the faston connector disconnected from the modureg on the gas valve.

- Check that the maximum pressure has not changed.
- Reconnect the pressure compensation tube **"H"**.
- Put the protective cap **"D"** back on.
- To end TEST mode, select another mode.

Key

B Pressure point
C Modureg cable
D Protective cap
E Minimum pressure adjustment
G Maximum pressure adjustment

After checking or adjusting the pressure, it is mandatory to seal the adjustment screw with paint or a specific seal.

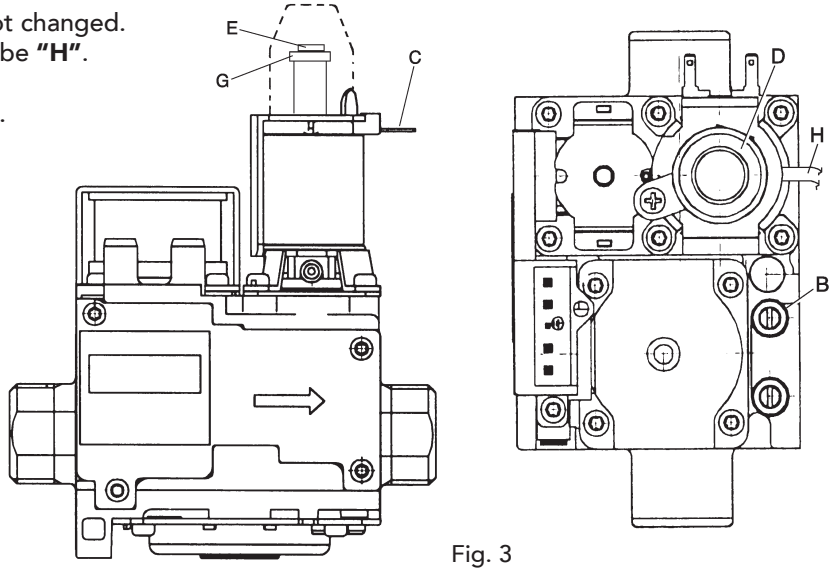


Fig. 3

Adjusting the maximum heating output

Refer to the Installer parameters menu section

Ignition power adjustment

Refer to the Installer parameters menu section

Installer Parameters menu

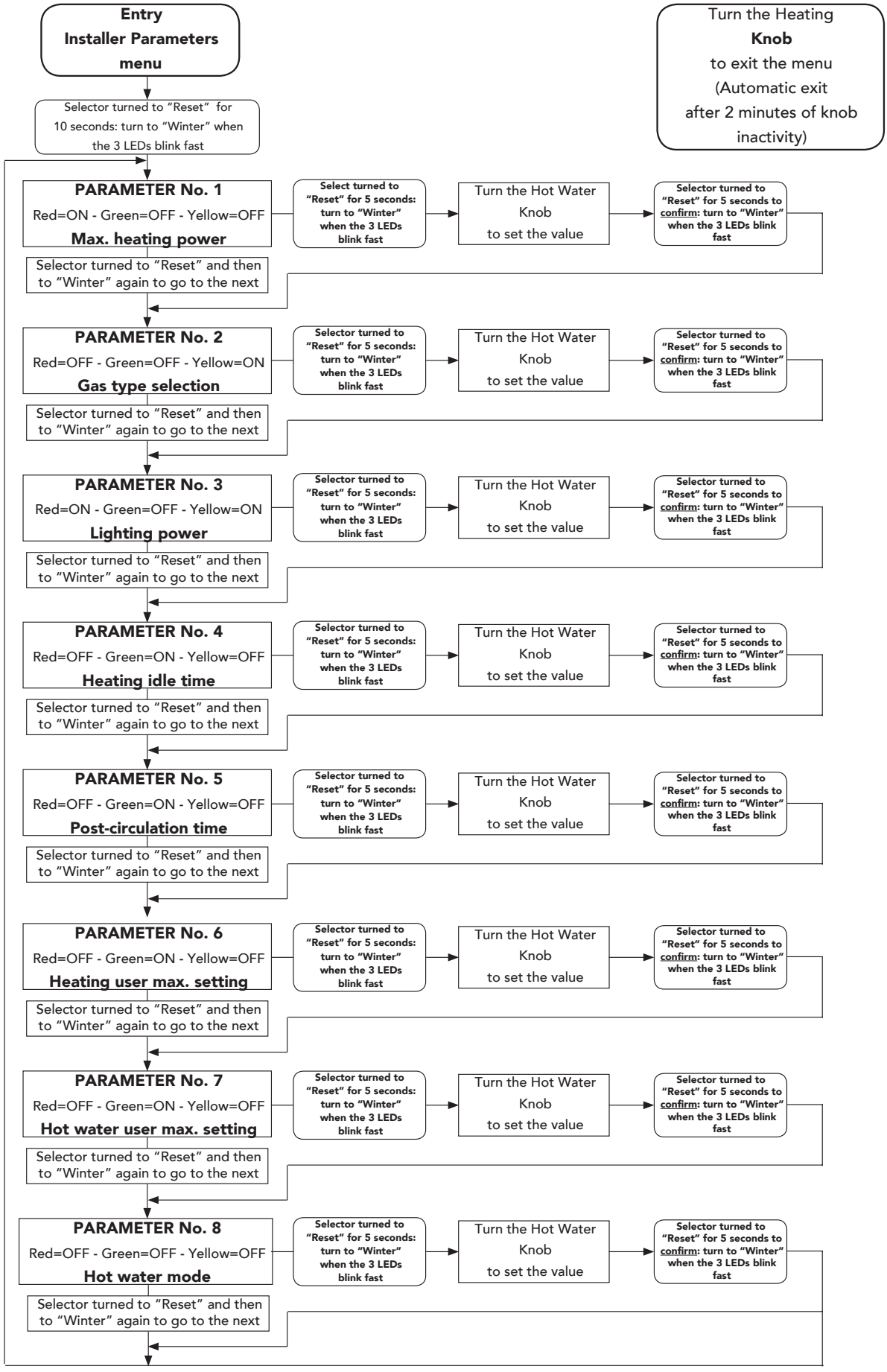
The card is equipped with 10 transparent parameters: modifiable from Remote Control (Service parameters menu) and from the same (Installer Parameters Menu except the last two, 9 and 10):

Num.	Parameters menu	Range	Default
1	Max. heating power	0-100%	100%
2	Gas type selection	0=Natural gas,1=LPG	0=Natural gas
3	Lighting Power	0-60%	50%
4	Heating idle time	0=0minutes, 1=2.5 minutes	1=2.5 minutes
5	Heating pump Post-Circulation	0=0minutes, 1=2.5 minutes	1=2.5 minutes
6	Heating user max. setpoint	30°C, 40°C, 85°C	85°C
7	Hot water user max. setpoint	0=55°C, 1=65°C	0=55°C
8	Boiler shutdown in hot water mode	0=Fixed,1=Tied to setpoint	1=setp.
9	Heating ramp	1-20°C/min	10°C/min
10	Mains Voltage Frequency	0=50Hz,1=60Hz	0=50Hz

Remote Timer Control modification occurs by entering its Service parameters menu (refer to the relevant manual): the order and range correspond exactly to that given in the table.

Modification from card occurs as follows.

The parameters, named in the previous table P1÷P8, can be displayed and possibly modified from the Installer Parameters menu by decoding of the LEDs and position, for different time intervals, of the selector. The method for accessing, displaying and/or modifying a number of parameters and exiting the menu is described by means of the following flow chart.


Entry
Installer Parameters menu
Selector turned to "Reset" for 10 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Heating Knob to exit the menu (Automatic exit after 2 minutes of knob inactivity)
PARAMETER No. 1
Red=ON - Green=OFF - Yellow=OFF
Max. heating power
Select turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 2
Red=OFF - Green=OFF - Yellow=ON
Gas type selection
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 3
Red=ON - Green=OFF - Yellow=ON
Lighting power
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 4
Red=OFF - Green=ON - Yellow=OFF
Heating idle time
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 5
Red=OFF - Green=ON - Yellow=OFF
Post-circulation time
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 6
Red=OFF - Green=ON - Yellow=OFF
Heating user max. setting
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 7
Red=OFF - Green=ON - Yellow=OFF
Hot water user max. setting
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next
PARAMETER No. 8
Red=OFF - Green=OFF - Yellow=OFF
Hot water mode
Selector turned to "Reset" for 5 seconds: turn to "Winter" when the 3 LEDs blink fast
Turn the Hot Water Knob to set the value
Selector turned to "Reset" for 5 seconds to confirm: turn to "Winter" when the 3 LEDs blink fast
Selector turned to "Reset" and then to "Winter" again to go to the next

After establishing the parameter to be set, use the following conversion tables to understand the value being set, according to the blinking of the LEDs. OFF means LED off, ON means LED on, whereas ON BL means LED blinking.

Red	Green	Yellow	Max. heating power
OFF	OFF	OFF	00-11%
ON BL	OFF	OFF	11-23%
OFF	OFF	ON BL	23-36%
ON BL	OFF	ON BL	36-49%
OFF	ON BL	OFF	49-61%
ON BL	ON BL	OFF	61-74%
OFF	ON BL	ON BL	74-85%
ON BL	ON BL	ON BL	85-100%

Red	Green	Yellow	Gas type selection
OFF	OFF	OFF	Natural gas
ON BL	OFF	OFF	LPG

Red	Green	Yellow	Lighting power
OFF	OFF	OFF	00-06%
ON BL	OFF	OFF	06-13%
OFF	OFF	ON BL	13-21%
ON BL	OFF	ON BL	21-29%
OFF	ON BL	OFF	29-36%
ON BL	ON BL	OFF	36-44%
OFF	ON BL	ON BL	44-51%
ON BL	ON BL	ON BL	51-60%

Red	Green	Yellow	Heating idle time
OFF	OFF	OFF	00 minutes
ON BL	OFF	OFF	2.5 minutes

Red	Green	Yellow	Pump post-circulation
OFF	OFF	OFF	00 minutes
ON BL	OFF	OFF	2.5 minutes

Red	Green	Yellow	Heating max. setpoint
OFF	OFF	OFF	30°C
ON BL	OFF	OFF	40°C
OFF	OFF	ON BL	85°C

Red	Green	Yellow	Hot water max. setpoint
OFF	OFF	OFF	55°C
ON BL	OFF	OFF	65°C

Red	Green	Yellow	Hot water burner shutdown
OFF	OFF	OFF	Fixed shutdown
ON BL	OFF	OFF	Tied to user setpoint

3.2 System start-up

Checks to be made at first ignition, and after all maintenance operations that involved disconnecting from the systems or an intervention on safety devices or parts of the boiler:

Before lighting the boiler:

- Open any on-off valves between the boiler and the systems.
- Check the airtightness of the gas system, proceeding with caution and using a soap and water solution to detect any leaks in connections.
- Fill the water system and make sure that all air contained in the boiler and the system has been vented by opening the air vent valve on the boiler and any vent valves on the system.
- Make sure there are no water leaks in the system, hot water circuits, connections or boiler.
- Make sure the electrical system is properly connected and the earth system works properly.
- Make sure that the gas pressure is as required for heating.
- Make sure there are no flammable liquids or materials in the immediate vicinity of the boiler.

Checks during operation

- Ignite the appliance as described in chap. 1.3.
- Check the airtightness of the fuel circuit and water systems.
- Check the efficiency of the flue and air-fume ducts while the boiler is working.
- Check that the water is circulating properly between the boiler and the systems.
- Make sure that the gas valve modulates correctly in both the heating and hot water production phases.
- Check the proper ignition of the boiler by performing various tests, turning it on and off with the room thermostat or remote control.
- Make sure that the fuel consumption indicated on the meter corresponds to that given in the technical data table in chap. 4.
- Make sure that with no call for heating the burner correctly ignites on opening a hot water tap. Check that during heating operation, on opening a hot water tap, the heating circulator stops and there is a regular production of hot water.
- Check the parameters are programmed correctly and perform any required customization (compensation curve, power, temperatures, etc.)

3.3 Maintenance

Seasonal inspection of the boiler and flue

To make sure that operating efficiency and safety are maintained over time, it is necessary to have the appliance and system checked regularly by qualified personnel. For the frequency of these operations, scrupulously observe the requirements of national and local regulations. In any case, it is advisable to carry out the following checks at least once a year:

- The control and safety devices (gas valve, flow meter, thermostats, etc.) must function correctly.
- The air-fume end piece and ducts must be free of obstructions and leaks.
- The gas and water systems must be airtight.
- The burner and exchanger must be clean and free of scale. When cleaning, do not use chemical products or wire brushes.
- The electrode must be free of scale and properly positioned.
- The water pressure in the cold water system must be about 1-1.5 bar; otherwise, bring it to that value.
- The expansion tank must be filled.
- The gas flow and pressure must correspond to that given in the respective tables.
- The circulation pump must not be blocked.
- The airtight chamber must be sealed (gaskets, cable clamps, etc.).
- The boiler casing, panel and aesthetic parts can be cleaned with a soft damp cloth, possibly soaked in soapy water. Do not use any abrasive detergents and solvents.

Opening the casing

To open the boiler casing:

1 Unscrew the four screws **A**
2 Lower the inspection door
3 Raise and remove the casing **B**

Before carrying out any operation inside the boiler, disconnect the electrical power supply and close the gas cock upstream.

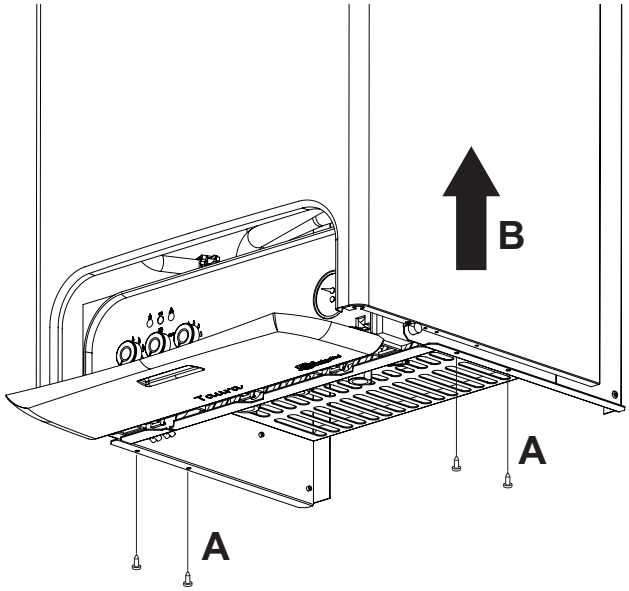


Fig. 4

Combustion analysis

Two sampling points have been included at the top of the boiler, one for fumes and the other for air.

To take the samples:

1) Insert the probes as far as the stop;
2) Open a hot water tap;
3) Adjust the hot water temperature to maximum.
4) Wait 10-15 minutes for the boiler to stabilize*
5) Take the measurement.

Analyses made with an unstabilized boiler can cause measurement errors.

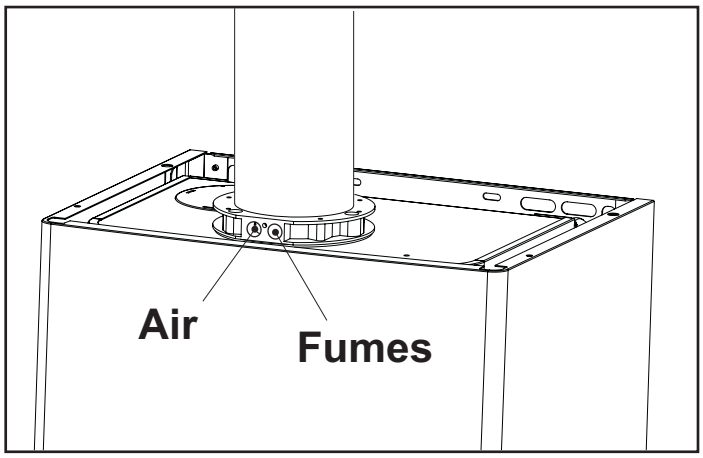


Fig. 5

3.4 Troubleshooting

Fault Diagnosis

The boiler is equipped with an advanced self-diagnosis system. In the event of trouble with the boiler, the 3 LEDs will indicate the code of the fault.

There are faults that cause shutdown: in order to restore operation it suffices to turn the selector (ref. 3 - fig. 1) onto RESET for 1 second and then back onto ☀ (summer) or onto ❄ (winter) or with the RESET on the optional remote timer control if this is installed; if the boiler fails to start, it is necessary to resolve the fault indicated by the operating LEDs.

Other faults cause temporary shutdowns that are automatically reset as soon as the value comes back within the boiler's normal working range.

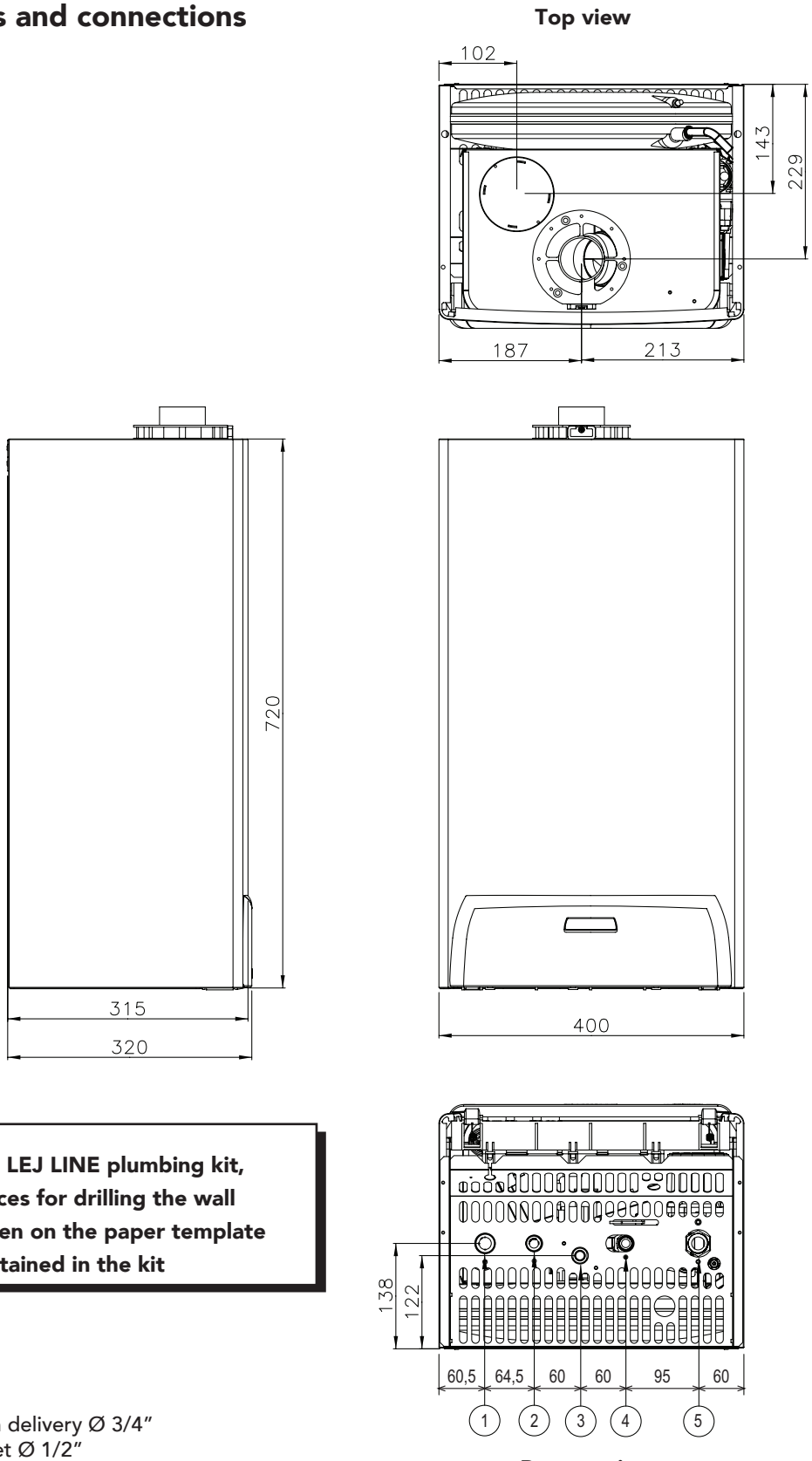
Fault	Red	ON Green	Yellow	Possible cause	Cure
No burner ignition	○	●	●	• No gas • Detection/ignition electrode fault • Defective gas valve • Ignition power too low	• Check the gas flow to the boiler is regular • Check the wiring of the electrode and that it is correctly positioned and free of any deposits • Check and change the gas valve • Adjust the ignition power
Safety thermostat trips	☼	●	●	• Heating sensor damaged • No circulation of water in the system • Air in the system	• Check the correct positioning and operation of the heating sensor • Check the circulator • Vent the system
Flame present with burner off signal	●	○	●	• Electrode fault • Card trouble	• Check the ionizing electrode wiring • Check the card
Air pressure switch (fails to close the contacts within 60 sec. of turning on the fan)	●	☼	●	• Air pressure switch contact open • Incorrect wiring to the air pressure switch • Wrong diaphragm • Flue not correctly sized or obstructed	• Check the wiring • Check the fan • Check the pressure switch • Change the diaphragm
Low system pressure	●	●	○	• System empty • Water pressure switch not connected or damaged	• Fill the system • Check the sensor
Delivery sensor fault	☼	●	☼	• Sensor damaged • Wiring shorted • Wiring broken	• Check the wiring or change the sensor
Tap water sensor fault	●	☼	☼	• Sensor damaged • Wiring shorted • Wiring broken	• Check the wiring or change the sensor

LED key

○ On ● Off ☼ Blinking (fast)

4 TECHNICAL CHARACTERISTICS AND DATA

4.1 Dimensions and connections



If using the LEJ LINE plumbing kit, the distances for drilling the wall are those given on the paper template contained in the kit

Key

1 Heating system delivery Ø 3/4"
2 Hot water outlet Ø 1/2"
3 Gas inlet 1/2"
4 Tap water inlet Ø 1/2"
5 Heating system return Ø 3/4"

Fig. 6

4.2 General view and main components

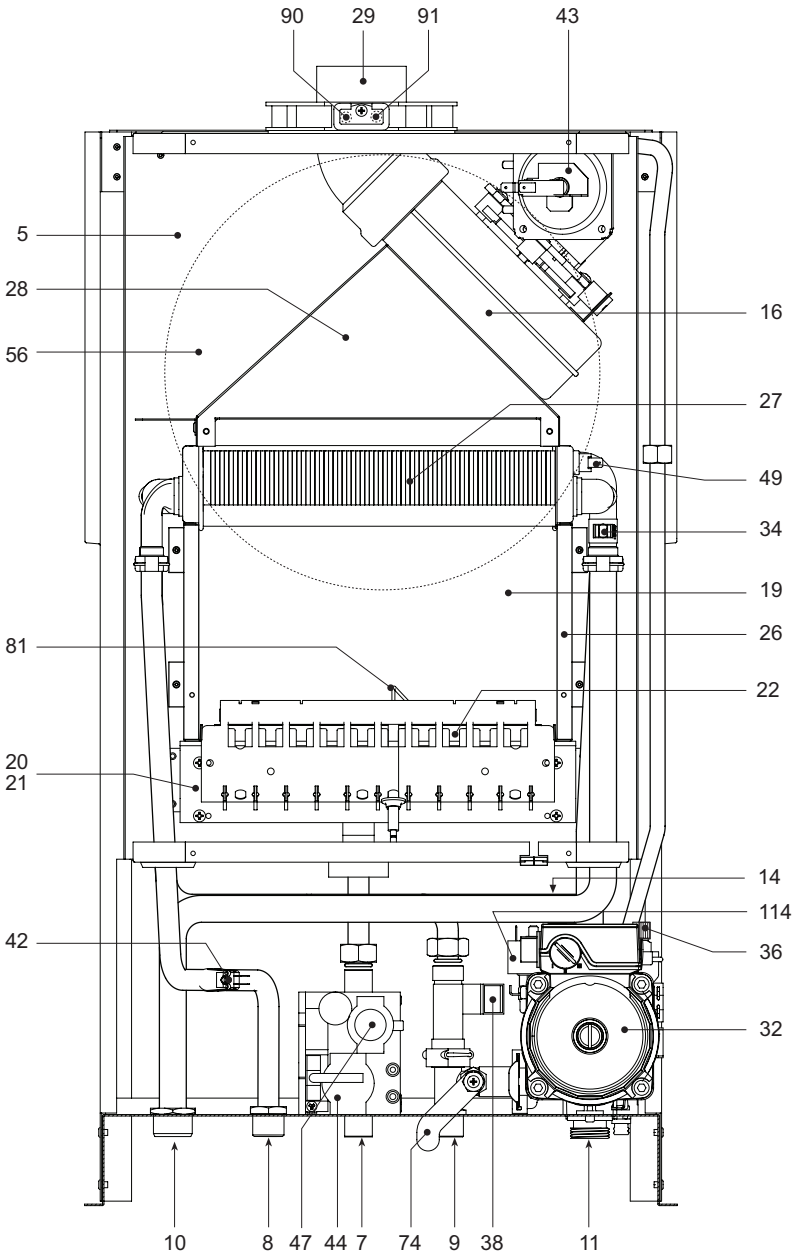


Fig. 7

Key

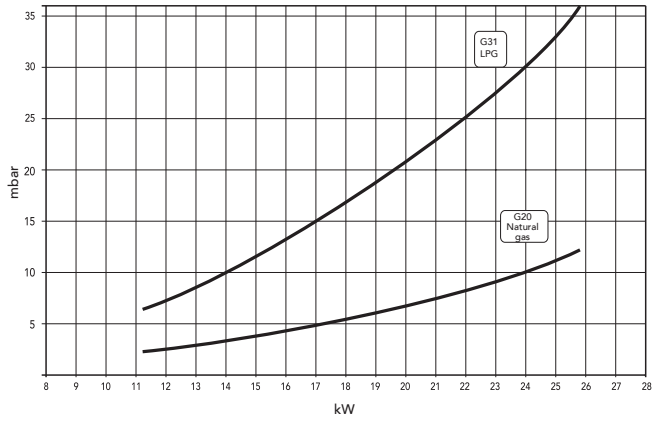
5 Airtight chamber
7 Gas inlet
8 Tap water outlet
9 Tap water inlet
10 System delivery
11 System return
14 Safety valve
16 Fan
19 Combustion chamber
20 Burner assembly
21 Main nozzle
22 Burner
26 Combustion chamber insulation
27 Copper exchanger for heating and hot water
28 Fume manifold
29 Fume outlet manifold
32 Heating circulator
34 Heating temp. sensor
36 Automatic air vent
38 Flow switch
42 Tap water temperature sensor
43 Air pressure switch
44 Gas valve
47 Modureg
49 Safety thermostat
56 Expansion tank
74 Heating system cock
81 Ignition and detection electrode
90 Fume detection point
91 Air detection point
114 Water pressure switch

4.3 Technical data table

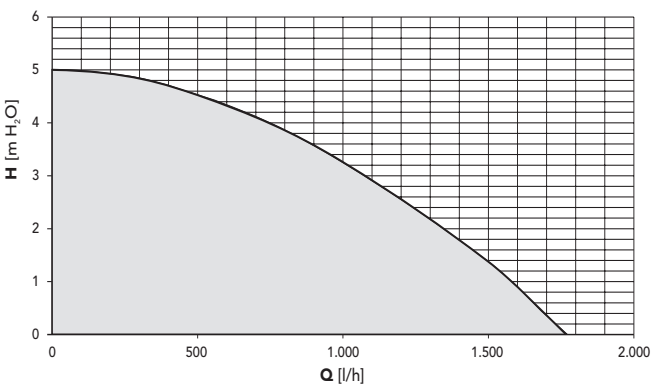
Powers		**Pmax**	**Pmin**
Heating Power (Net Heat Value - Hi)	kW	25,8	8,3
Available Thermal Power 80°C - 60°C	kW	24,0	7,2
Hot Water Heating Power	kW	24,0	7,2
Energy marking (92/42EEC directive)		★★★	
NOx emission class		3	
Gas supply		**Pmax**	**Pmin**
Natural Gas main nozzles (G20)	mm	11x1.35	
Natural Gas supply pressure (G20)	mbar	20,0	
Pressure at Natural Gas burner (G20)	mbar	12,0	1,5
Natural Gas delivery (G20)	nm3/h	2,73	0,88
LPG main nozzles (G31)	mm	11x0.79	
LPG supply pressure (G31)	mbar	37,0	
Pressure at LPG burner (G31)	mbar	35,0	5,0
LPG delivery (G31)	kg/h	2,00	0,65
Heating			
Maximum working temperature in heating	°C	90	
Maximum working pressure in heating	bar	3	
Minimum working pressure in heating	bar	0,8	
Expansion tank capacity	litres	8	
Expansion tank pre-filling pressure	bar	1	
Boiler water content	litres	1,0	
Hot water			
Maximum hot water production Δ 25°C	l/min	13,7	
Maximum hot water production Δ 30°C	l/min	11,4	
Maximum working pressure in hot water production	bar	9	
Minimum working pressure in hot water production	bar	0,25	
Hot water content	litres	0,3	
Electrical power supply			
Electrical power absorbed	W	110	
Hot water electrical power absorbed	W	40	
Power voltage/frequency	V/Hz	230/50	
Electrical protection rating	IP	X5D	
Weight	kg	30	

4.4 Diagrams

Pressure - power diagrams



Head available for the system



4.5 Wiring diagram

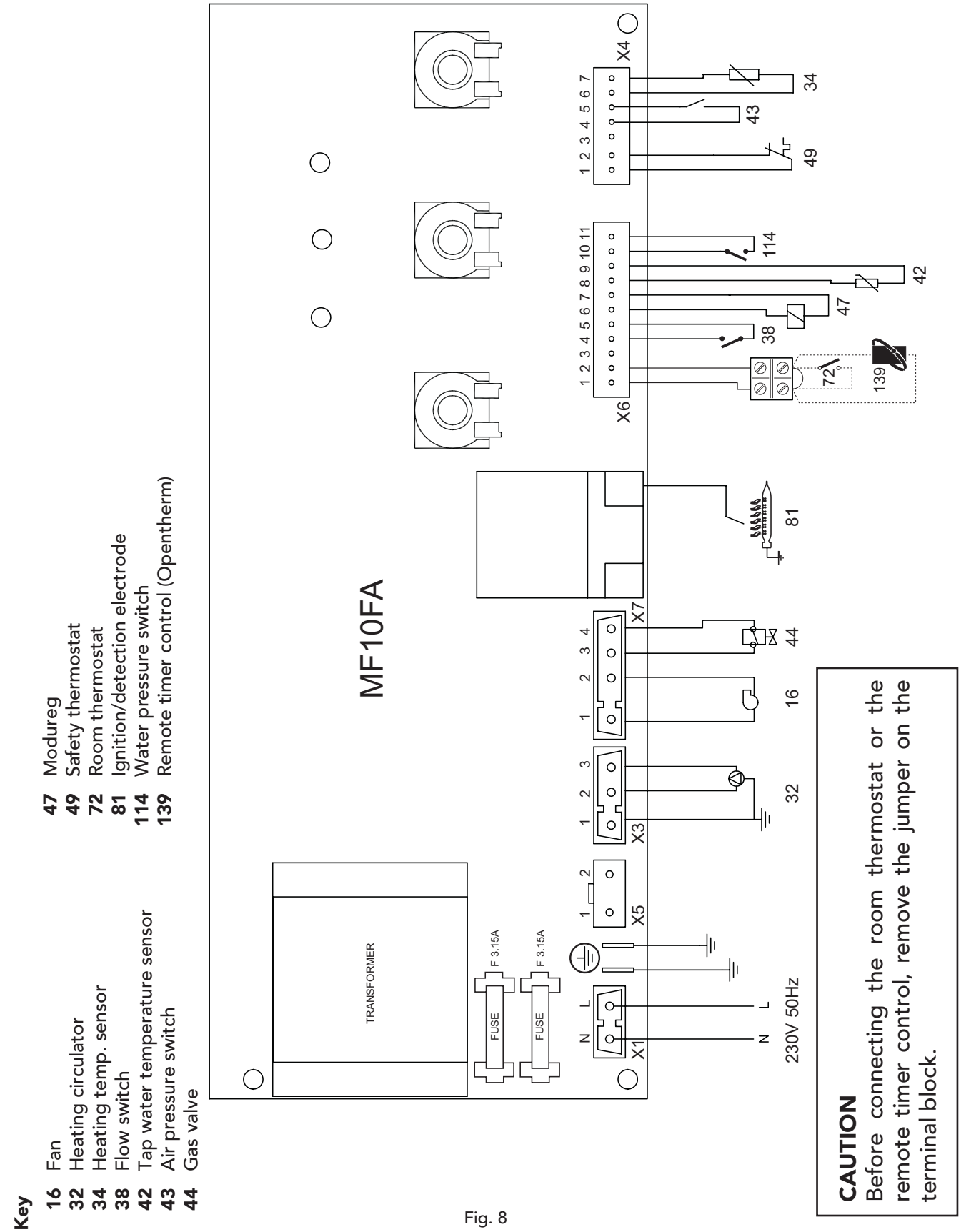


Fig. 8

BRUCIATORI
CALDAIE MURALI E TERRA A GAS
GRUPPI TERMICI IN GHISA E IN ACCIAIO
GENERATORI DI ARIA CALDA
TRATTAMENTO ACQUA
CONDIZIONAMENTO

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