Lamborghini
CALORECLIMA

AZIENDA CERTIFICATA ISO 9001

cod. 3540G380 – 02/2007 (Rev. 00)

NINFA 32 MC

ISTRUZIONI PER L'USO L'INSTALLAZIONE E LA MANUTENZIONE
INSTRUCTIONS FOR USE, INSTALLATION AND MAINTENANCE
INSTRUCTIONS D'UTILISATION, D'INSTALLATION ET D'ENTRETIEN
INSTRUCCIONES DE USO, INSTALACIÓN Y MANTENIMIENTO
INSTRUÇÕES DE INSTALAÇÃO, UTILIZAÇÃO E MANUTENÇÃO
ΟΔΗΓΊΕΣ ΧΡΉΣΗΣ, ΕΓΚΑΤΆΣΤΑΣΗΣ ΚΑΙ ΣΥΝΤΉΡΗΣΗΣ

- Carefully read the warnings in this instruction booklet since they provide important information on safe installation, use and maintenance.
- This instruction booklet is an integral part of the product and must be carefully kept by the user for future reference.
- If the unit is sold or transferred to another owner or if it is to be moved, always make sure that the booklet accompanies the boiler so that it can be consulted by the new owner and/or installer.
- 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.
- Before carrying out any cleaning or maintenance operation, disconnect the unit from the electrical power supply using the switch and/or the special cut-off devices.
- 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.
- Periodical maintenance carried out by qualified personnel is essential for guaranteeing good operation 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.
- After removing the packing, check the integrity of the contents. Packing materials must not be left within the reach of children as they are potentially hazardous.
- In case of doubt do not use the unit, and contact the supplier.
- The images shown in this manual are a simplified representation of the product. In this representation there may be slight, unimportant differences with the supplied product.

⚠	This symbol indicates **"Caution"** and is placed next to all safety warnings. Strictly follow these instructions in order to avoid danger and damage to persons, animals and things.
☞	This symbols calls attention to a note or important notice.

Declaration of conformity

CE

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)

President and Legal Representative
Cav. del Lavoro
Dante Ferroli

1. Operating instructions

1.1 Introduction

Dear Customer,

Thank you for choosing a **LAMBORGHINI**wall-mounted 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.

NINFA 32 MC is a high-efficiency heat generator for heating and domestic hot water production, running on natural gas or LPG, equipped with an atmospheric burner with electronic ignition and microprocessor control system, and designed for installation indoors or outdoors in a partially protected place (in compliance with EN 297/A6) for temperatures as low as -5°C (-15°C with optional antifreeze kit).

1.2 Control panel

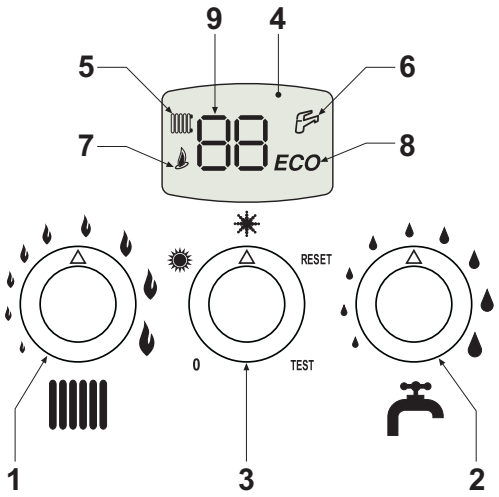


fig. 1 - Control panel

Key

1 = System temperature adjustment
2 = DHW temperature adjustment
3 = Selector

0	Off
☼	Summer (DHW only)
✳	Winter (Heating + DHW)
RESET	Boiler reset
TEST	Operation in TEST mode

4 = Display
5 = Heating mode
6 = DHW mode
7 = Burner On
8 = Economy/Comfort mode
9 = Multifunction

Indication during operation

Heating

A heating demand (generated by the Room Thermostat or Remote Timer Control) is indicated by lighting up of the radiator (detail 5 - fig. 1).

The multifunction display (detail 9 - fig. 1) shows the heating sensor temperature.

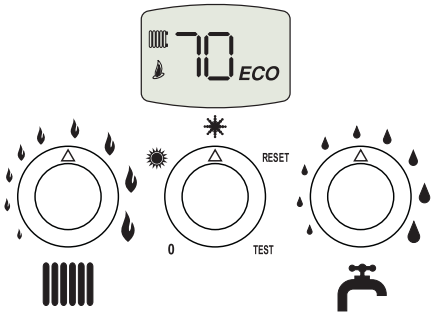


fig. 2

Domestic hot water (DHW)

A DHW demand (generated by drawing domestic hot water) is indicated by lighting up of the tap (detail 6 - fig. 1).

The multifunction display (detail 9 - fig. 1) shows the DHW sensor temperature.

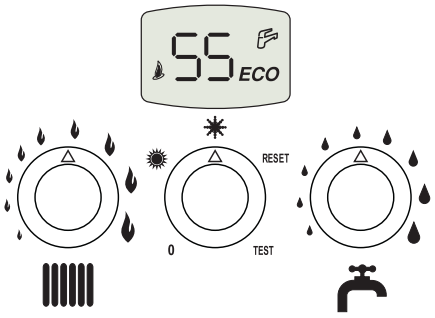


fig. 3

Comfort

A Comfort demand (restoring the temperature inside the boiler) is indicated by lighting up of the tap (detail 6 - fig. 1).

The multifunction display (detail 9 - fig. 1) shows the heating sensor temperature.

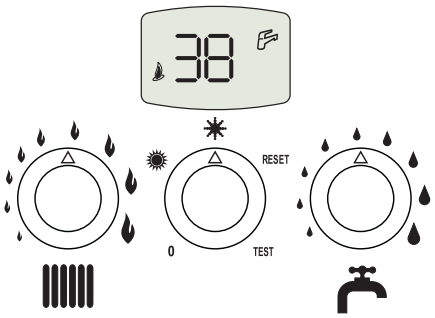


fig. 4

1.3 Turning on and off

Boiler not electrically powered

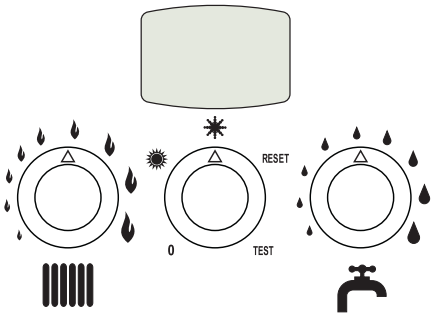


fig. 5 - Boiler not electrically powered

The antifreeze system does not work when the power and/or gas to the unit are turned off. To avoid damage caused by freezing during long idle periods in winter, it is advisable to drain all water from the boiler, DHW circuit and system; or drain just the DHW circuit and add a suitable antifreeze to the heating system, complying with that prescribed in sec. 2.3.

Boiler lighting

Switch on the power to the unit.

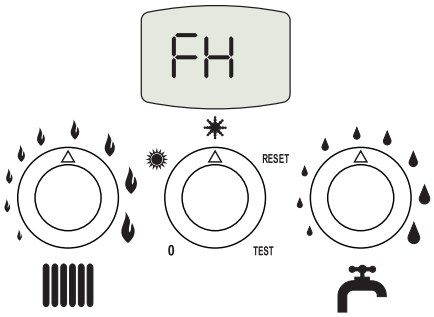


fig. 6 - Boiler lighting

- For the following 120 seconds the display will show FH which identifies the heating system air venting cycle (AIR PURGE function).
- During the first 5 seconds the display will also show the card software version.
- Open the gas cock upstream of the boiler.
- When the message FH disappears, the boiler is ready to operate automatically whenever domestic hot water is drawn or in case of a room thermostat demand.

Turning the boiler off

Turn the selector (detail 3 - fig. 1) to 0.

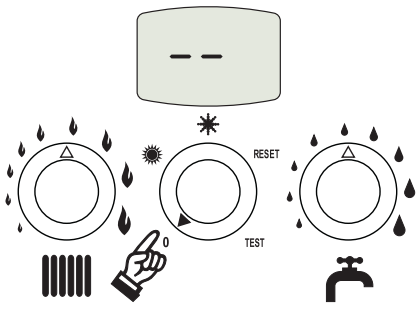


fig. 7 - Turning the boiler off

When the boiler is turned off, the electronic board is still powered.

Domestic hot water and heating operation are disabled. The antifreeze system stays on.

To re-light the boiler, turn the selector (detail 3 fig. 1) to ✱ (winter) or ✹ (summer).

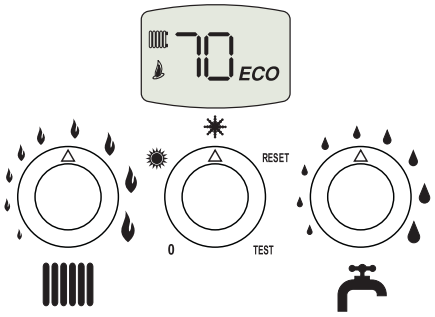


fig. 8

The boiler will be immediately ready to operate whenever domestic hot water is drawn or in case of a room thermostat demand.

1.4 Adjustments

Summer/Winter changeover

Turn the selector (detail 3 - fig. 1) to ✹ (summer).

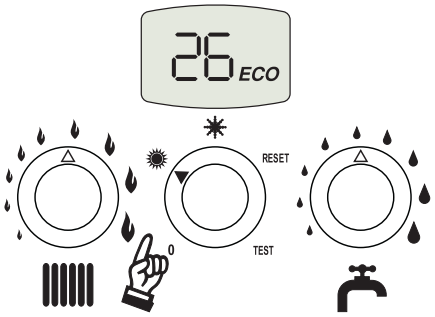


fig. 9

The boiler will only deliver domestic hot water. The antifreeze system stays on.

To deactivate Summer mode, turn the selector (detail 3 - fig. 1) to ✱ (winter).

Heating temperature adjustment

Operate the heating knob (detail 1 - fig. 1) to set the temperature between 30°C (min.) and 85°C (max.); it is advisable not to operate the boiler below 45°C.

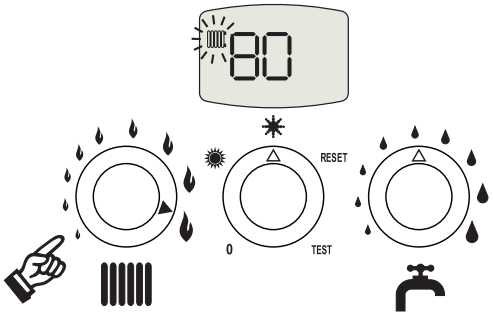


fig. 10

Domestic hot water (DHW) temperature adjustment

Operate the DHW knob (detail 2 - fig. 1) to set the temperature between 40°C (min.) and 55°C (max.);

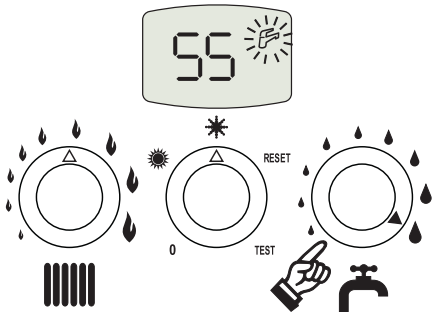


fig. 11

Room temperature adjustment (with optional room thermostat)

Using the room thermostat, set the temperature desired in the rooms. If the room thermostat is not installed the boiler will keep the heating system at its setpoint temperature.

Room temperature adjustment (with optional remote timer control)

Using the remote timer control, set the temperature desired in the rooms. The boiler unit will set the system water according to the required room temperature. For information on the remote timer control, please refer to its user's manual.

ECO/COMFORT selection

The unit is equipped with a function that ensures a high domestic hot water delivery speed and maximum comfort for the user. When the device is activated (COMFORT mode), the water contained in the boiler is kept hot, therefore ensuring immediate availability of hot water from the boiler on opening the tap, thus avoiding waiting times.

The device can be deactivated by the user (ECO mode) by turning the selector (detail 3 - fig. 1) to the RESET position for 2 seconds and then to ✳ (winter) or ✹ (summer). To activate COMFORT mode, turn the selector (detail 3 - fig. 1) to RESET again for 2 seconds and then to ✳ (winter) or ✹ (summer).

Sliding temperature

When the optional outdoor sensor is installed, the boiler adjustment system works with "Sliding Temperature". In this mode, the temperature of the heating system is adjusted according outside weather conditions, in order to ensure high comfort and energy saving throughout the year. In particular, as the outside temperature increases the system delivery temperature decreases according to a determinate “compensation curve”.

With the Sliding Temperature adjustment, the temperature set with the heating knob (detail 1 - fig. 1) becomes the maximum system delivery temperature. It is advisable to set a maximum value to allow system adjustment throughout its useful operating range.

The boiler must be adjusted at the time of installation by qualified personnel. Possible adjustments can in any case be made by the user to improve comfort.

Compensation curve and curve shift

Turn the selector (detail 3 - fig. 1) to RESET for 5 seconds and then to ✳ (winter) or ✹ (summer) and “CU” will be displayed.

Operate the DHW knob (detail 2 - fig. 1) to adjust the required curve from 1 to 10 according to the characteristic (fig. 14).

By setting the curve to 0 sliding temperature adjustment is deactivated.

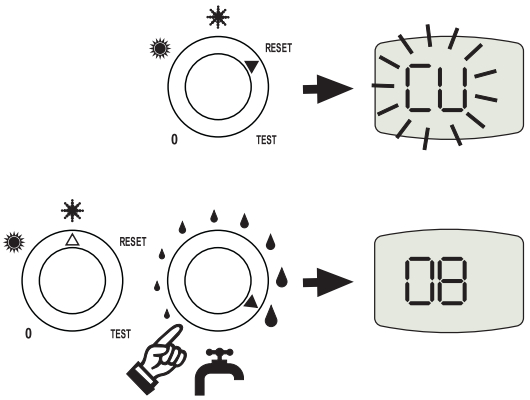


fig. 12 - Compensation curve

Turn the selector (detail 3 - fig. 1) to RESET for 1 second and then to ✳ (winter) or ✹ (summer) to exit compensation curve setting and “CU” will be displayed again.

Turn the heating knob (detail 1 - fig. 1) clockwise and “OF” will be displayed.

Operate the DHW knob (detail 2 - fig. 1) to adjust the curve shift (fig. 15).

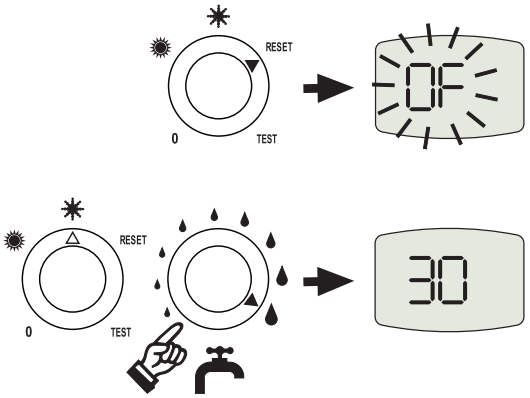


fig. 13 - Parallel curve shift

Turn the selector (detail 3 - fig. 1) to RESET for 5 seconds and then to ✳ (winter) or ✹ (summer) to exit parallel curve adjustment mode.

If the room temperature is lower than the required value, it is advisable to set a higher order curve and vice versa. Proceed by increasing or decreasing in steps of one and check the result in the room.

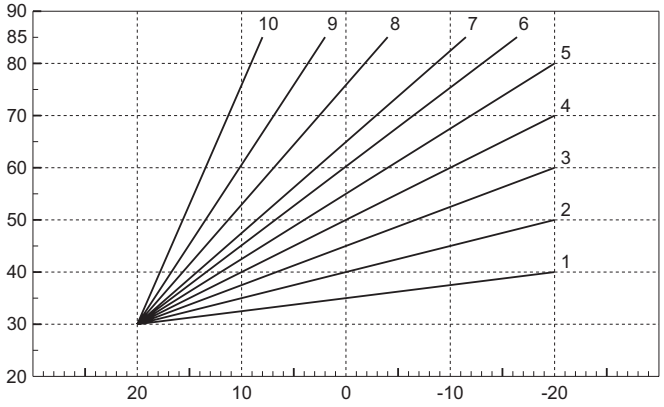


fig. 14 - Compensation curves

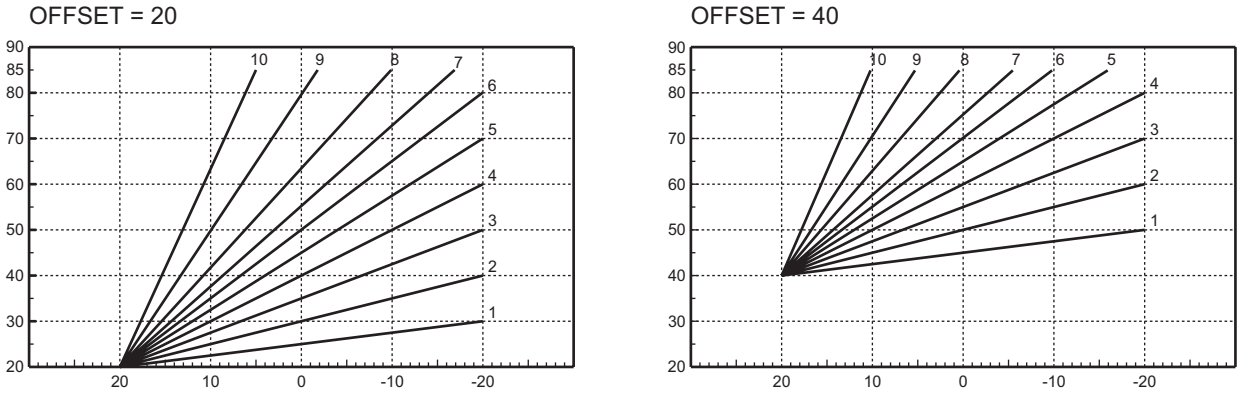


fig. 15 - Example of parallel compensation curve shift

If the Remote Timer Control (optional) is connected to the boiler, the above adjustments are managed according to that given in table 1.

Table. 1

Heating temperature adjustment	Adjustment can only be carried out from the Remote Timer Control menu.
DHW temperature adjustment	Adjustment can only be carried out from the Remote Timer Control menu.
Summer/Winter changeover	Summer mode has priority over a possible heating demand from the Remote Timer Control.
Eco/Comfort selection	On disabling DHW from the Remote Timer Control menu, the boiler selects Economy mode. In this condition, selection from the boiler panel is not possible.
	On enabling DHW from the Remote Timer Control menu, the boiler selects Comfort mode. In this condition, selection from the boiler panel is possible.
Sliding Temperature	Both the Remote Timer Control and the boiler card manage Sliding Temperature adjustment: the boiler card Sliding Temperature has priority.

Water system pressure adjustment

The filling pressure with system cold, read on the boiler water gauge, must be approx. 1.0 bar. If the system pressure falls to values below minimum, the boiler card will activate fault F37 (fig. 16).

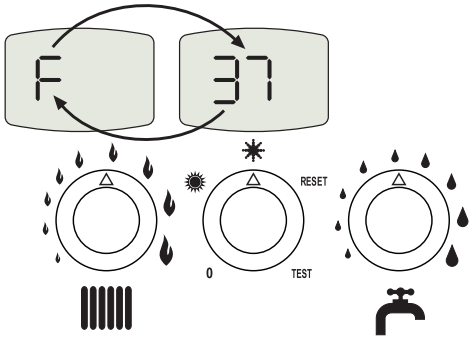


fig. 16 - Low system pressure fault

Operate the filling cock (detail 1 - fig. 17) and bring the system pressure to a value above 1.0 bar.

A pressure gauge (detail 145 - fig. 25) on the bottom front panel of the boiler displays the pressure even if the unit is not powered.

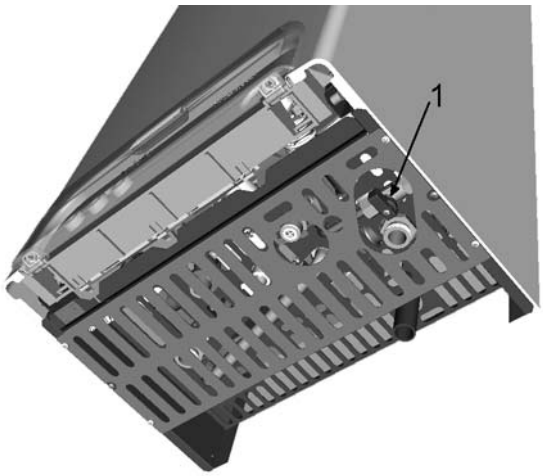


fig. 17 - Filling cock

Once the system pressure is restored, the boiler will activate the 120-second air venting cycle (AIR PURGE function) indicated on the display by FH.

At the end of the operation always close the filling cock (detail 1 - fig. 17)

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 Installation place

This unit is an “open chamber” type and can only be installed and operated in permanently ventilated rooms in compliance with Standard UNI-CIG 7129.

If provided with an antiwind grille, the unit is suitable for operation in a partially protected place in compliance with EN 297 pr A6, with min. temperature -5°C. If provided with the special antifreeze kit it can be used with min. temperature as low as -15°C. It is advisable to install the boiler under the slope of a roof, inside a balcony or in a sheltered recess.

In any case, the place of installation must be free of dust, flammable materials or objects and corrosive gases.

The boiler is arranged for wall mounting and comes standard with a hooking bracket. The LEJ LINE water connection kits also come with a paper template for marking the drilling points on the wall in case the kits are used. Fix the bracket to the wall and hook the boiler onto it. The wall fixing must ensure stable and effective support for the generator.

If the unit is enclosed in a cabinet or mounted alongside, a space must be provided for removing the casing and for normal maintenance operations.

2.3 Plumbing connections

The heating capacity of the unit must be previously established by calculating the building's heat requirement according to current regulations. The system must be provided with all the components for correct and regular operation. 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 spurting onto the floor in case of overpressure in the heating circuit. Otherwise, if the discharge valve cuts in and floods the room, the boiler manufacturer cannot be held liable.

Do not use the water system pipes to earth electrical appliances.

Before installation, carefully wash all the pipes of the system to remove any residuals or impurities that could affect proper operation of the unit.

Carry out the relevant connections according to the diagram in sec. 4.1 and the symbols given on the unit.

The connection kits shown in the figure below (fig. 18) are supplied standard

A - Female sleeve
B - OT 58 nipple
C - O-ring
D - OT 58 retaining ring
E - Copper washer
F - OT 58 coupling
G - Ball cock

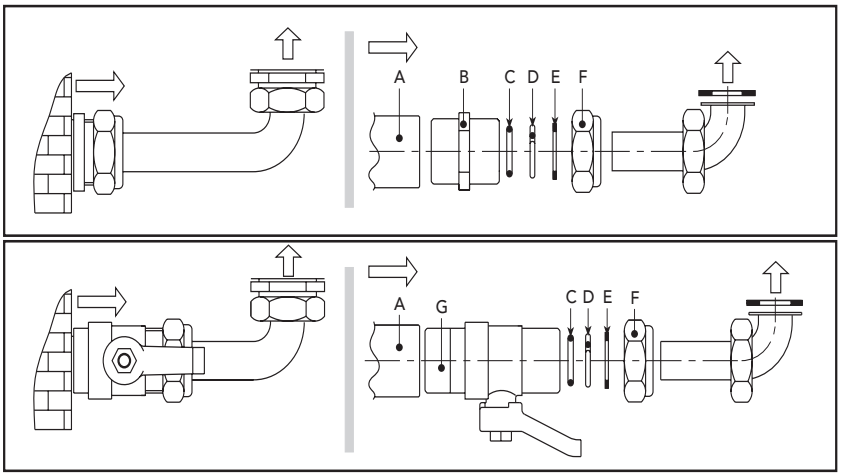


fig. 18 - Connection kits

System water charcteristics

In the presence of water harder than 25° Fr (1°F = 10ppm $CaCO_3$), the use of suitably treated water is advisable in order to avoid possible scaling in the boiler. The treatment must not in any case reduce the hardness to values below 15°F (Decree 236/88 for uses of water intended for human consumption). Water treatment is indispensable in the case of very large systems or with frequent replenishing of water in the system. If partial or total emptying of the system becomes necessary in these cases, 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.

Antifreeze kit for outdoor installation (optional)

In case of installation in a partially protected place, the boiler must be equipped with the special antifreeze kit for protecting the DHW circuit. The kit comprises a thermostat (A fig. 19) and four electric heaters (R... fig. 19). Connect the kit to the electronic board as given in the wiring diagram (see fig. 27). Position the thermostat and heaters on the DHW circuit pipes as shown in the following diagram.

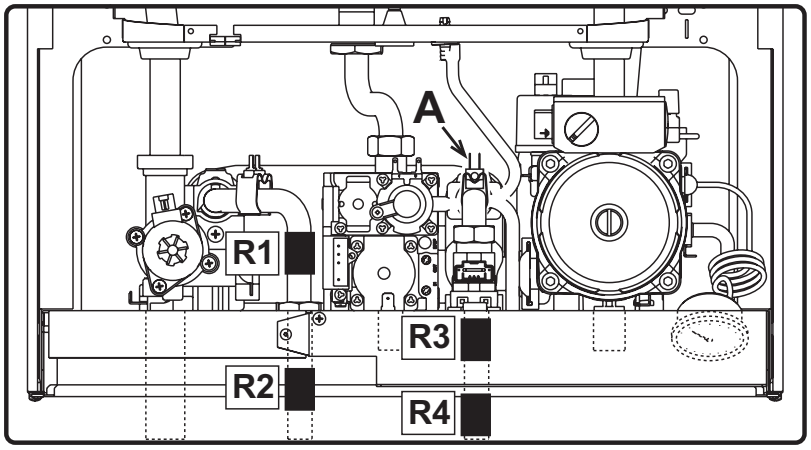


fig. 19 - Positioning of antifreeze thermostat and heaters

External antiwind grille (optional)

If the boiler is installed outside in a partially protected place, after carrying out the water and gas connections the special antiwind protection grille must be fitted according to the instructions given in the kit.

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. 24) 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 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. Also make sure that the electrical system is adequate for the maximum power absorbed by the unit, as specified on the boiler dataplate.

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. If changing the electric power cable, use solely **"HAR H05 VV-F"** 3x0.75 mm2 cable with a maximum outside diameter of 8 mm.

Room thermostat (optional)

IMPORTANT: THE ROOM THERMOSTAT MUST HAVE VOLTAGE-FREE CONTACTS. CONNECTING 230 V TO THE ROOM THERMOSTAT TERMINALS WILL PERMANENTLY DAMAGE THE ELECTRONIC BOARD.

When connecting time controls or a timer, do not take the power supply for these devices from their breaking contacts Their power supply must be by means of direct connection from the mains or with batteries, depending on the kind of device.

Accessing the electrical terminal board

The terminal board is located at the bottom of the boiler and can be accessed after removing the protection grille (see fig. 20)

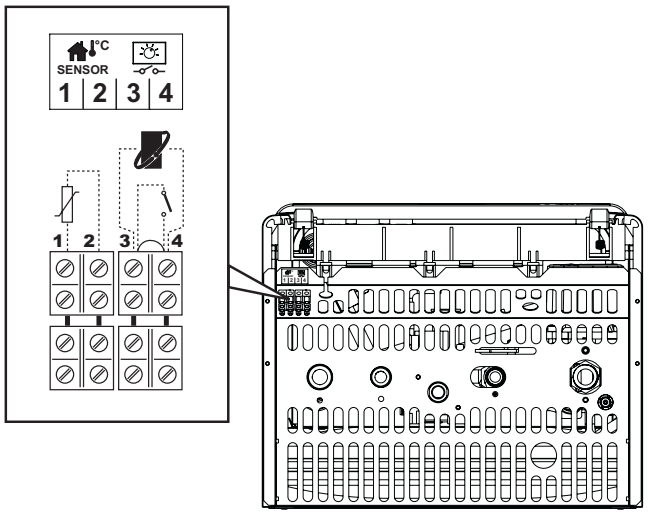


fig. 20 - Accessing the terminal board

1-2 External sensor
3-4 Room thermostat / Remote timer control (Opentherm)

2.6 Connection to the flue

The diameter of the flue connection pipe must not be less than that of the connection on the anti-backflow device. Starting from the anti-backflow device it must have a vertical section at least 50 cm long. Current standards must be complied with regarding the size and installation of the flues and connection pipe.

3. Service and maintenance

All adjustment, conversion, start-up and maintenance operations described below must only be carried out by Qualified Personnel (meeting the professional technical requirements prescribed by current regulations) such as those of the Local After-Sales Technical Service.

LAMBORGHINI declines any liability for damage and/or injury caused by unqualified and unauthorised persons tampering with the unit.

3.1 Adjustments

Gas supply conversion

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

1. Replace the nozzles at the main burner, fitting the nozzles specified in the technical data table in sec. 4.4, according to the type of gas used
2. Modify the parameter for the type of gas:
   - Switch the boiler to standby mode
   - Turn the selector (detail 3 - fig. 1) to RESET for 10 seconds: the display shows "**TS**" flashing.
   - Turn the selector (detail 3 - fig. 1) to RESET for 1 second: the display shows "**P01**"
   - Turn the DHW knob (detail 2 - fig. 1) to set the parameter 00 (for operation with natural gas) or 01 (for operation with LPG).
   - Turn the selector (detail 3 - fig. 1) to RESET for 10 seconds
   - The boiler will return to standby mode
3. Adjust the minimum and maximum pressures at the burner (refer to the relevant section), setting the values given in the technical data table for the type of gas used
4. Apply the sticker contained in the conversion kit, near the dataplate as proof of the conversion.

TEST mode activation

Turn the selector (detail 3 - fig. 1) to the **TEST** position to activate **TEST** mode. The boiler lights up at maximum power.

The heating (detail 5 - fig. 1) and DHW symbols (detail 6 - fig. 1) flash on the display; the temperature of the heating sensor will be displayed.

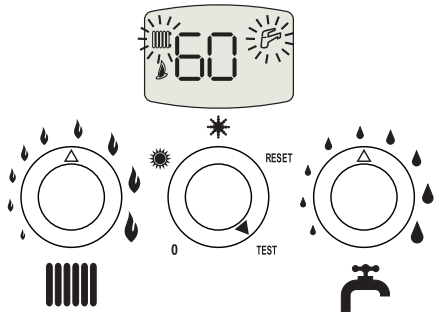


fig. 21 - TEST mode (heating power = 100%)

To deactivate TEST mode, turn the selector (detail 3 - fig. 1) to a different position from **TEST**.

In any case, the TEST mode is automatically deactivated after 15 minutes.

Burner pressure adjustment

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

- Connect a suitable pressure gauge to the pressure point “B” located downstream of the gas valve.
- Remove the protection cap “D”.
- Operate the boiler in TEST mode by turning the selector to the TEST position.
- Adjust the maximum pressure by turning the screw "G" clockwise to increase the pressure and anticlockwise to decrease it.
- Disconnect one of the two faston connectors from the modureg "C" on the gas valve.
- Adjust the minimum pressure by turning the screw "E" clockwise to decrease the pressure and anticlockwise to increase it.
- Reconnect the faston detached from the modureg on the gas valve.
- Check that the maximum pressure has not changed.
- Refit the protection cap “D”.
- To end TEST mode, turn the selector to a different position from TEST or wait 15 minutes.

After checking or adjusting the pressure, seal the adjustment screw with paint or a special seal.

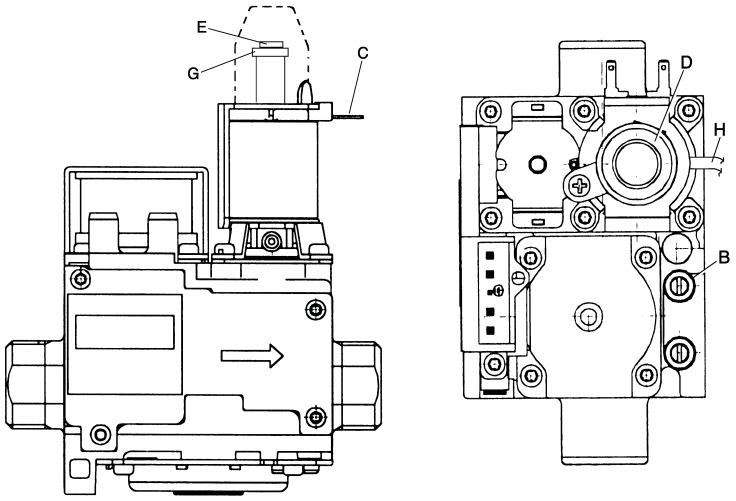


fig. 22 - Gas valve

B Pressure point downstream
E Min. pressure adjustment
C Modureg cable
G Max. pressure adjustment
D Protection cap

Heating power adjustment

Refer to the Service Menu section.

Lighting power adjustment

Refer to the Service Menu section.

Service Menu

The card Service Menu is accessed by turning the selector (detail 3 - fig. 1) to RESET for 10 seconds and then to ✳ (winter) or ✹ (summer). Use the heating knob (detail 1 - fig. 1) to select “tS”, “In”, “Hi” or “rE”. “tS” means Transparent Parameters Menu, “In” means Information Menu, “Hi” means History Menu, “rE” means History Menu Reset. After selecting the Menu, to access it turn the selector (detail 3 - fig. 1) to RESET for 1 second and then to ✳ (winter) or ✹ (summer).

“tS” - Transparent Parameters Menu

The card has 24 transparent parameters modifiable also from Remote Timer Control (Service Menu):

Table. 2

Remote Control	Card	Description of Transparent Parameters	Range	Default
01	P01	Type of gas selection	0=Natural Gas, 1=LPG	0=Natural Gas
02	P02	Not used	Not modifiable	1
03	P03	Absolute min. power	0-100%	0%
04	P04	Lighting power	0-60%	50%
05	P05	Not used	Not modifiable	0
06	P06	Heating system train	1-20°C/min	5°C/min
07	P07	Post Circulation heating system pump	0-20 minutes	6 min
08	P08	Heating wait time	0-10 minutes	2 minutes
09	P09	Max. heating power	0-100%	100%
10	P10	Pump operation	0=Post Circulation 1=Continuous	0=Post Circulation
11	P11	Pump switching off temperature during Post Circulation	0-100°C	33°C
12	P12	Max. user setpoint in heating	31-85°C	85°C
13	P13	Post Circulation DHW circuit pump	0-255 seconds	30 seconds
14	P14	DHW circuit wait time	0-255 seconds	120 seconds
15	P15	Max. power in hot water production	0-100%	100%
16	P16	Max. user setpoint in hot water production	55-65°C	55°C
17	P17	Comfort activation temperature	0-80°C	40°C
18	P18	Comfort deactivation hysteresis	0-30°C	20°C
19	P19	Burner turning off in hot water production	0=Fixed, 1=Linked to setp., 2= For solar system1, 3= For solar system2	1=Linked to setp.
20	P20	Not used	Not modifiable	4
21	P21	Not used	Not modifiable	8
22	P22	Not used	Not modifiable	0
23	P23	Not used	Not modifiable	0
24	P24	Mains Voltage Frequency	0=50Hz, 1=60Hz	0=50Hz

With the heating knob (detail 1 - fig. 1) it is possible to scroll the list of parameters, in increasing or decreasing order respectively. To modify the value of a parameter just turn the DHW knob (detail 2 - fig. 1): the modification will be automatically saved.

To go back to the Service Menu turn the selector (detail 3 - fig. 1) to RESET for 1 second and then to ✳ (winter) or ✹ (summer). To exit the card Service Menu turn the selector (detail 3 - fig. 1) to RESET for 10 seconds and then to ✳ (winter) or ✹ (summer).

“In” - Information Menu

The card can display the following information:

Table. 3

	t01	Heating NTC sensor (°C)	between 05 and 125 °C
	t02	DHW NTC sensor (°C)	between 05 and 125 °C
	t03	Not used	--
	t04	External NTC sensor (°C)	between -30 and 70 °C (Negative values flash)
	t05	Safety NTC sensor (°C)	between 05 and 125 °C
	t06	Actual burner power (%)	00%=Min., 100%=Max.
	t07	Actual drawing of DHW (Lt_min/10)	00-99 Lt_min/10
	t09	Actual system water pressure (bar/10)	00-99 bar/10
	t10	Actual ionisation current (uA)	00=burner off

The list of information can be scrolled with the heating knob (detail 1 - fig. 1). In case of a damaged sensor, the card will display the hyphens.

To go back to the Service Menu turn the selector (detail 3 - fig. 1) to RESET for 1 second and then to ✳ (winter) or ✺ (summer). To exit the card Service Menu turn the selector (detail 3 - fig. 1) to RESET for 10 seconds and then to ✳ (winter) or ✺ (summer).

“Hi” - History Menu

The microprocessor can store the last 10 boiler faults.

The Historical datum H1 represents the most recent fault occurring whereas the Historical datum H10 represents the least recent. The codes of the faults saved are also displayed in the relevant menu of the Opentherm remote control.

The list of faults can be scrolled with the heating knob (detail 1 - fig. 1).

Table. 4

	H1	Fault code
	H2	Fault code
	H3	Fault code
	H4	Fault code
	H5	Fault code
	H6	Fault code
	H7	Fault code
	H8	Fault code
	H9	Fault code
	H10	Fault code

To go back to the Service Menu just turn the selector (detail 3 - fig. 1) to RESET for 1 second and then to ✳ (winter) or ✺ (summer). To exit the card Service Menu turn the selector (detail 3 - fig. 1) to RESET for 10 seconds and then to ✳ (winter) or ✺ (summer).

“rE” - Reset History

Turn the selector (detail 3 - fig. 1) to RESET for 3 seconds and then to ✳ (winter) or ✺ (summer) to cancel all the faults stored in the History Menu: the card will automatically exit the Service Menu, in order to confirm the operation.

To go back to the Service Menu just turn the selector (detail 3 - fig. 1) to RESET for 1 second and then to ✳ (winter) or ✺ (summer).

3.2 Start-up

Checks to be made at first lighting, and after all maintenance operations involving disconnection 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 tightness of the gas system, proceeding with caution and using a soap and water solution to detect any leaks in connections.
- Check the pre-filling of the expansion tank (ref. “Tap water expansion tank pre-filling pressure” sec. 4.4)
- 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 value 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 sec. 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 sec. 4.4.
- 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

Periodical check

To ensure correct appliance operation over time, have qualified personnel perform a yearly check, providing for the following:

- The control and safety devices (gas valve, flow meter, thermostats, etc.) must function correctly.
- The unit's fume exhaust system must be perfectly efficient.
  (Sealed chamber boiler: fan, pressure switch, etc. - The sealed chamber must be tight: gaskets, cable glands, etc.)
  (Open chamber boiler: anti-backflow device, fume thermostat, etc.)
- The air/fume terminal and ducts must be free of obstructions and leaks
- The burner and exchanger must be clean and free of deposits. Do not use chemical products or wire brushes to clean.
- The electrodes must be free of scale and properly positioned.
- The gas and water systems must be tight.
- The water pressure in the cold water system must be about 1 bar; otherwise bring it to that value.
- The circulating pump must not be blocked.
- The expansion tank must be filled.
- The gas flow and pressure must correspond to that given in the respective tables.

The boiler shell, control panel and aesthetic parts can be cleaned with a soft damp cloth, possibly soaked in soapy water. Do not use abrasive detergents or solvents.

Opening the casing

To open the boiler casing:

1 Undo the four screws **A**
2 Lower the door
3 Lift and remove the casing **B**

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

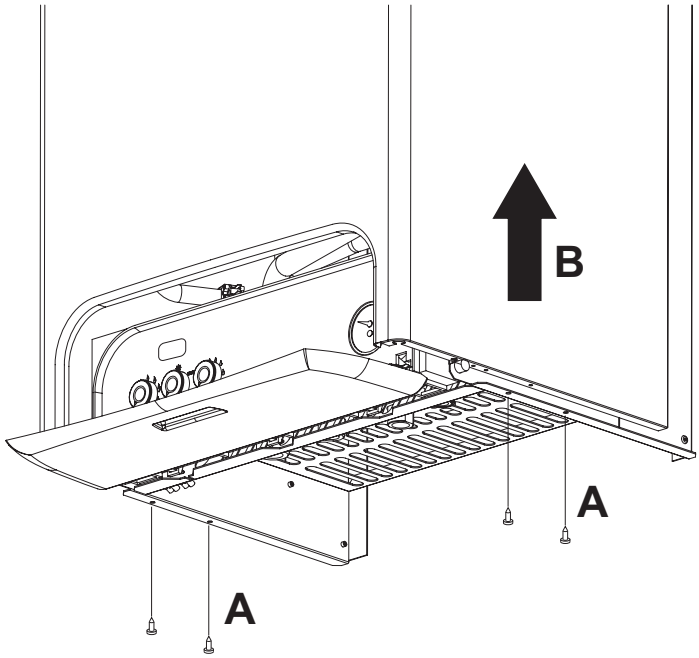


fig. 23

Combustion analysis

To analyse the combustion:

1 Insert the probe in the flue;
2 Open a hot water tap;
3 Adjust the DHW temperature to maximum;
4 Wait 10-15 minutes for the boiler to stabilise;
5 Take the measurement.

Analyses made with an unstabilised boiler can cause measurement errors.

3.4 Troubleshooting

Diagnostics

The boiler is equipped with an advanced self-diagnosis system. In case of a boiler anomaly, the display will flash together with the fault symbol (detail 22 - fig. 1) indicating the fault code.

There are faults that cause permanent shutdowns (marked with the letter "**A**"): to restore operation just turn the selector (detail 3 - fig. 1) to RESET (detail 8 - fig. 1) for 1 second or by means of the RESET on the Remote Timer Control (optional) if installed; if the boiler fails to start, it is necessary to eliminate the fault indicated by the operation LEDs.

Faults marked with the letter "**F**" cause temporary shutdowns that are automatically reset as soon as the value returns within the normal boiler operation range.

Table. 5 - Fault list

Code fault	Fault	Possible cause	Cure
A01	Burner does not light	No gas	Check the regular gas flow to the boiler and that the air has been eliminated from the pipes
		Ignition/detection electrode fault	Check the wiring of the electrode and that it is correctly positioned and free of any deposits
		Faulty gas valve	Check and replace the gas valve
		Lighting power too low	Adjust the lighting power
A02	Flame present signal with burner off	Electrode fault	Check the ionisation electrode wiring
		Card fault	Check the card
A03	Overtemperature protection intervention	Heating sensor damaged	Check correct positioning and operation of the heating sensor
		No water circulation in the system	Check the circulating pump
		Air in the system	Vent the system
F04	Fume thermostat intervention (after intervention of the fume thermostat, boiler operation is inhibited for 20 minutes)	Fume thermostat contact open	Check the thermostat
		Wiring disconnected	Check the wiring
		Flue not correctly sized or obstructed	Replace the flue
A06	No flame after the ignition phase	Low pressure in the gas system	Check the gas pressure
		Burner minimum pressure setting	Check the pressures
F10	Delivery 1 sensor fault	Sensor damaged	Check the wiring or change the sensor
		Wiring shorted	
		Wiring disconnected	
F11	DHW circuit sensor fault	Sensor damaged	Check the wiring or change the sensor
		Wiring shorted	
		Wiring disconnected	
F14	Delivery 2 sensor fault	Sensor damaged	Check the wiring or change the sensor
		Wiring shorted	
		Wiring disconnected	
F34	Supply voltage under 170V.	Electric mains trouble	Check the electrical system
F35	Mains frequency fault	Electric mains trouble	Check the electrical system
F37	Incorrect system water pressure	System empty	Fill the system
		Water pressure switch not connected or damaged	Check the sensor
F39	External sensor fault	Probe damaged or wiring shorted	Check the wiring or change the sensor
		Sensor disconnected after activating the sliding temperature	Reconnect the external sensor or disable the sliding temperature
A41	Sensor positioning	Delivery sensor disconnected from the pipe	Check correct positioning and operation of the heating sensor
F42	Heating sensor fault	Sensor damaged	Change the sensor
F43	Exchanger protection intervention.	No H_2O circulating in system	Check the circulating pump
		Air in the system	Vent the system
F50	Modureg fault	Wiring disconnected	Check the wiring

4. Technical data and characteristics

4.1 Dimensions and connections

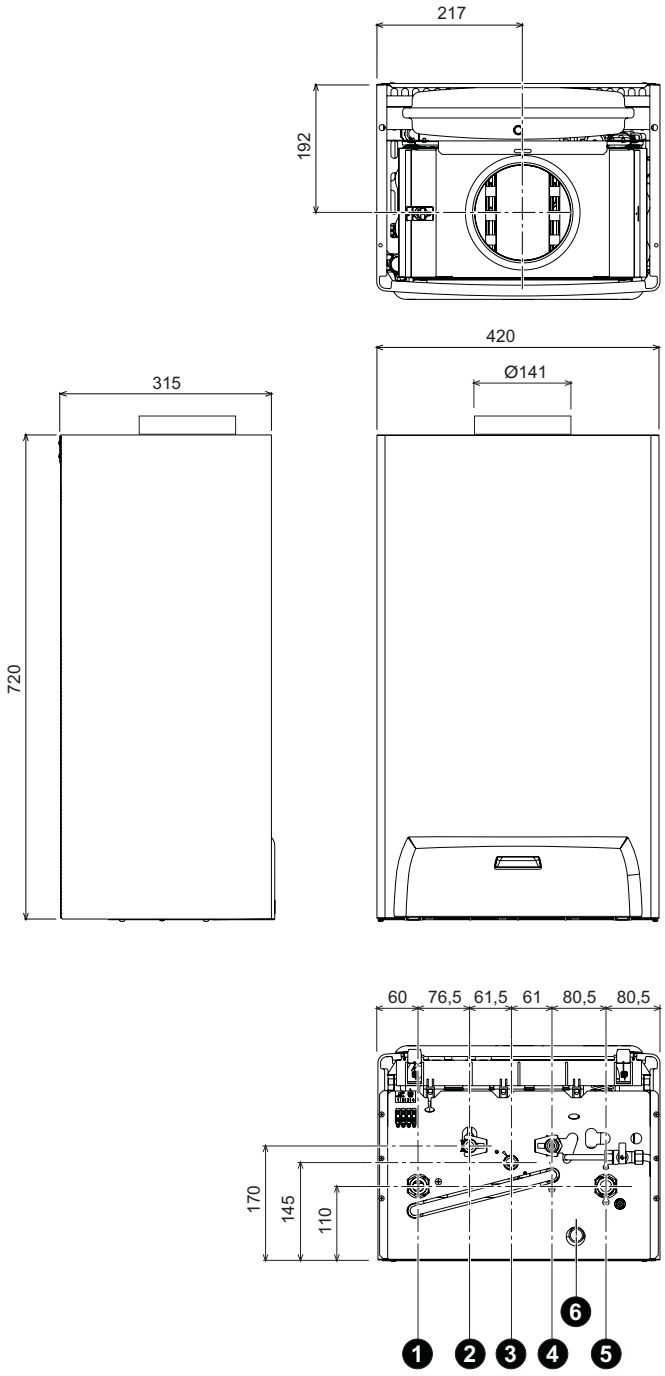


fig. 24 - Dimensions and connections

1 = Heating system delivery
2 = DHW outlet
3 = Gas inlet
4 = DHW inlet
5 = Heating system return
6 = Safety valve drain

4.2 General view and main components

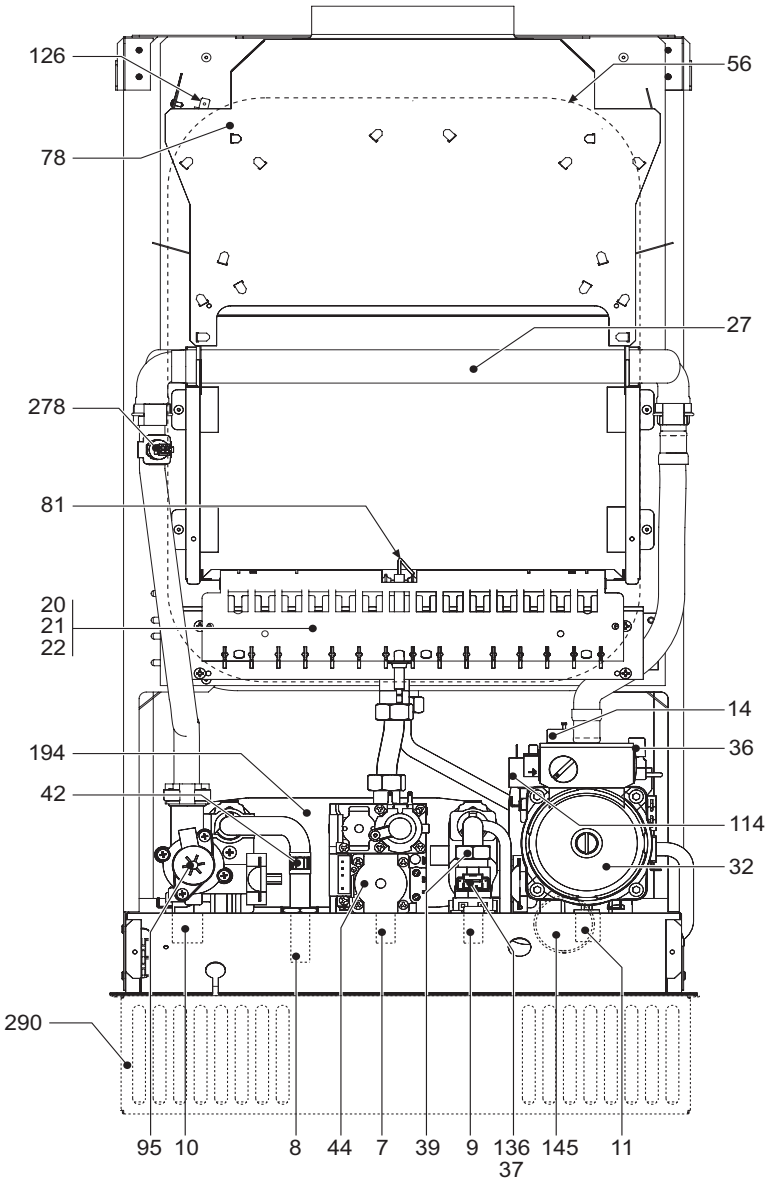


fig. 25 - General view

7 Gas inlet
8 DHW outlet
9 DHW inlet
10 System delivery
11 System return
14 Safety valve
20 Burner assembly
21 Main nozzle
22 Burner
27 Copper exchanger for heating and domestic hot water
32 Heating circulating pump
36 Automatic air vent
37 Water inlet filter
39 Flow regulator
42 DHW temperature sensor
44 Gas valve
56 Expansion tank
78 Anti-backflow device
81 Ignition and detection electrode
95 Diverter valve
114 Water pressure switch
126 Fume thermostat
136 Flow meter
145 Pressure gauge
194 Exchanger
278 Double sensor (Safety + Heating)
290 Antiwind grille (optional)

4.3 Plumbing circuit

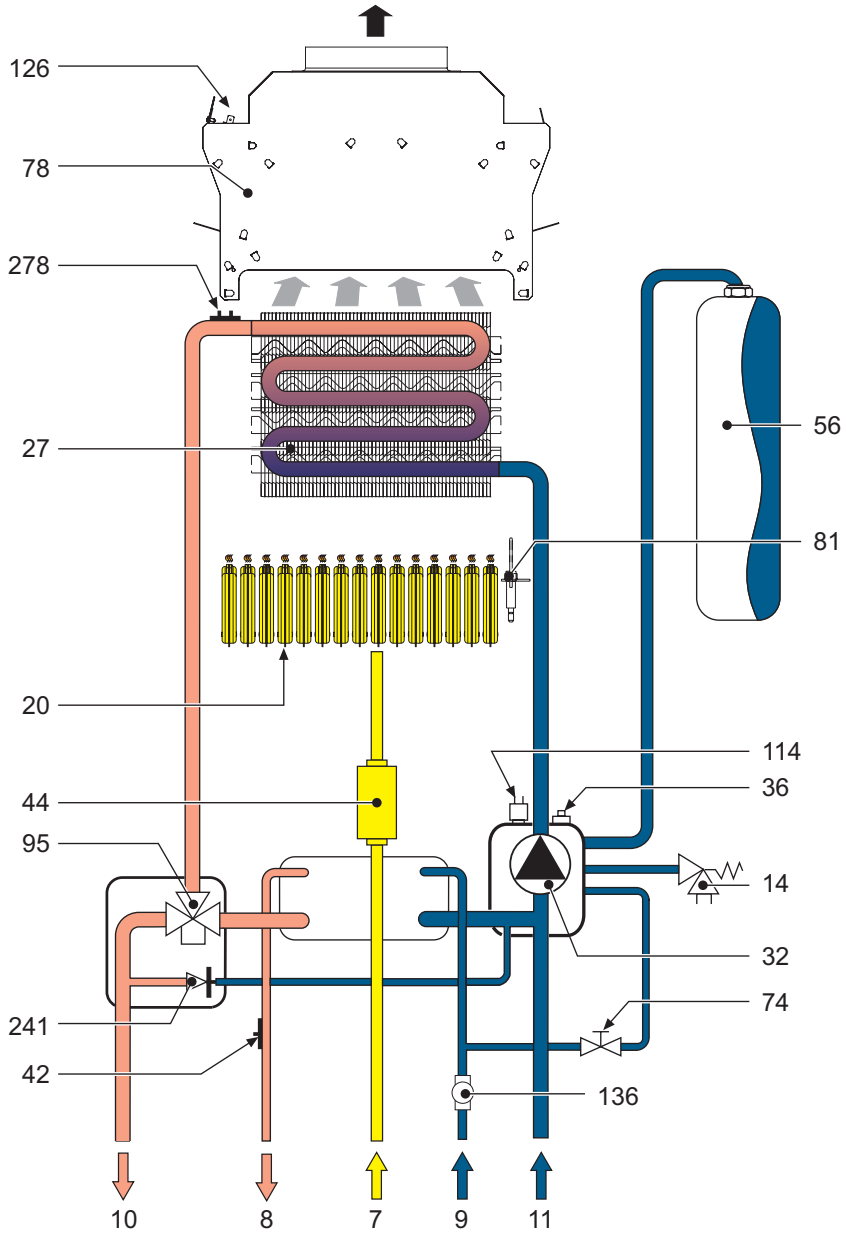


fig. 26 - Plumbing circuit

7	Gas inlet
8	DHW outlet
9	DHW inlet
10	System delivery
11	System return
14	Safety valve
20	Burner assembly
27	Copper exchanger for heating and domestic hot water
32	Heating circulating pump
36	Automatic air vent
42	DHW temperature sensor
44	Gas valve
56	Expansion tank
74	Heating system cock
78	Anti-backflow device
81	Ignition and detection electrode
95	Diverter valve
114	Water pressure switch
126	Fume thermostat
136	Flow meter
241	Automatic by-pass
278	Double sensor (Safety + Heating)

4.4 Technical data table

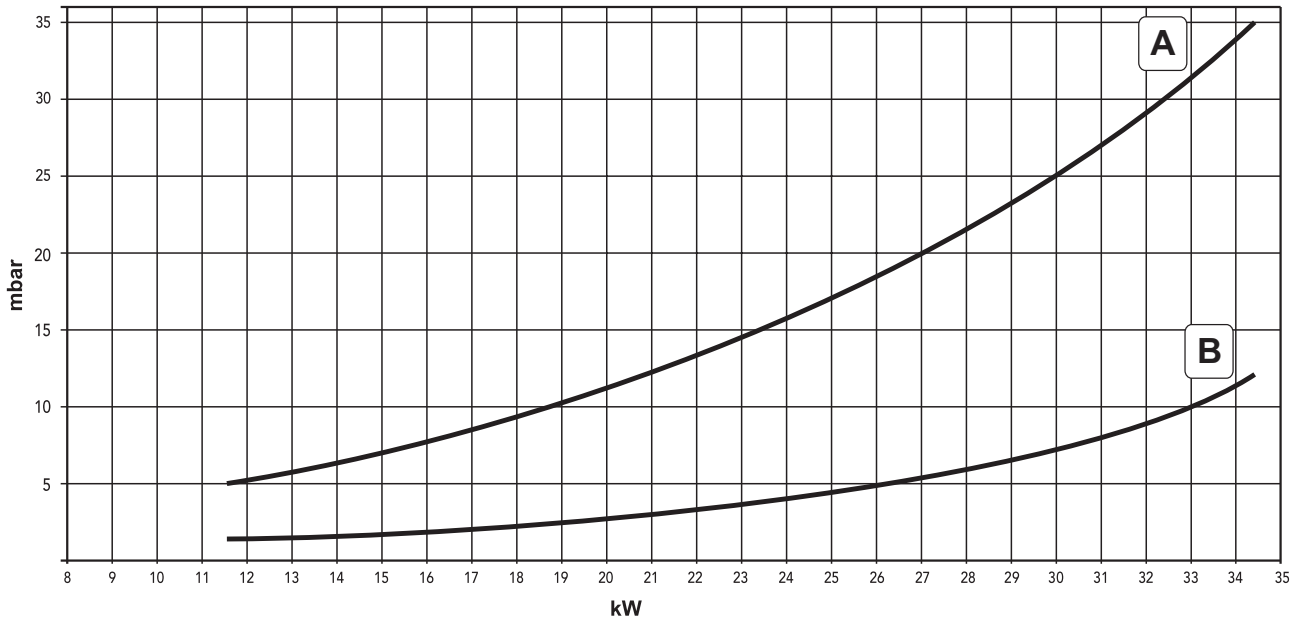
The column on the right gives the abbreviation used on the technical data plate.

Data	Unit	Setting	
Max heating power	kW	34.4	(Q)
Min heating power	kW	11.5	(Q)
Max heating system heating power	kW	31.3	(P)
Min heating system heating power	kW	9.7	(P)
Max hot water heating power	kW	31.3	
Min hot water heating power	kW	9.7	
Burner nozzles G20	no. x Ø	15 x 1.35	
Gas feed pressure G20	mbar	20	
Maximum pressure downstream from the gas valve (G20)	mbar	12.0	
Minimum pressure downstream from the gas valve (G20)	mbar	1.5	
Max gas delivery G20	m^3/h	3.64	
Min gas delivery G20	m^3/h	1.22	
Burner nozzles G31	no. x Ø	15 x 0.79	
Gas feed pressure G31	mbar	37	
Maximum pressure downstream from the gas valve (G31)	mbar	35.0	
Minimum pressure downstream from the gas valve (G31)	mbar	5.0	
Max gas delivery G31	kg/h	2.69	
Min gas delivery G31	kg/h	0.90	

Efficiency class directive 92/42 EEC	-	★★	
NOx emission class	-	3 (<150 mg/kWh)	(NOx)
Max working pressure in heating	bar	3	(PMS)
Min working pressure in heating	bar	0.8	
Max heating temperature	°C	90	(tmax)
Heating water content	litres	1.2	
Heating expansion tank capacity	litres	10	
Heating expansion tank pre-filling pressure	bar	1	
Max working pressure in hot water production	bar	9	(PMW)
Min working pressure in hot water production	bar	0.25	
Hot water content	litres	0.3	
Hot water flow rate Δt 25°C	l/min	17.9	
Hot water flow rate Δt 30°C	l/min	14.9	(D)
Protection class	IP	X5D	
Supply voltage	V/Hz	230V/50Hz	
Electrical power input	W	90	
Electrical power input in hot water production	W	90	
Weight with no load	kg	31	
Type of unit		B_{11BS}	
PIN CE		0461BR0843	

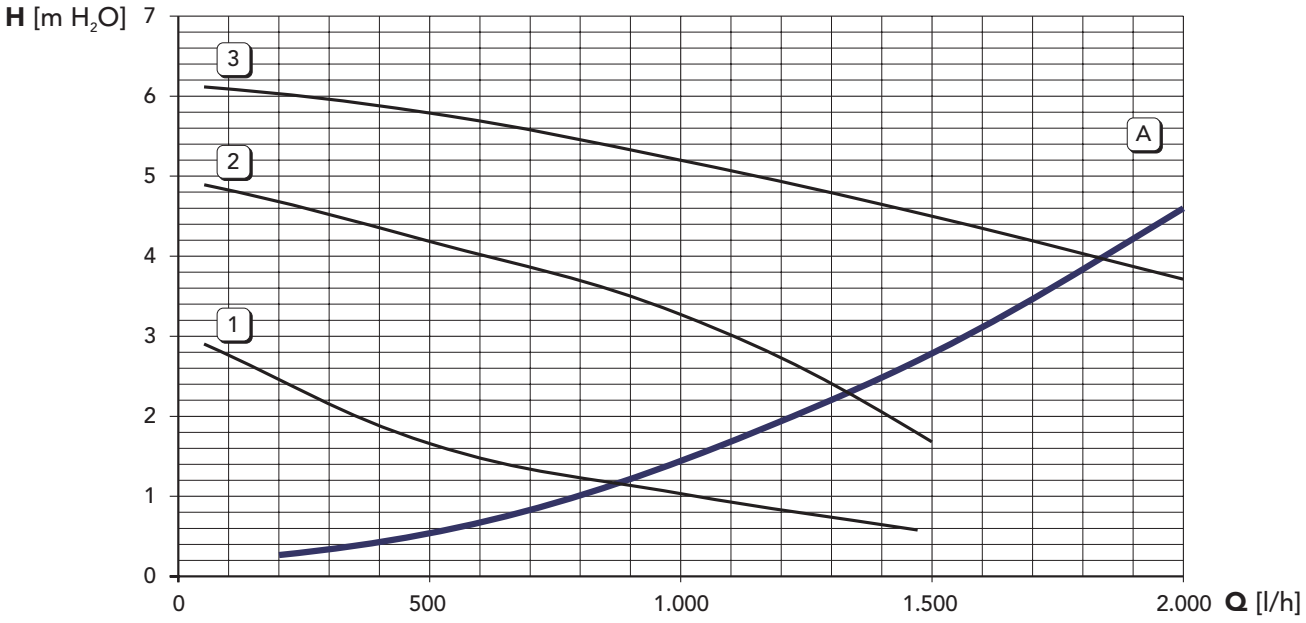
4.5 Diagrams

Pressure - power diagrams



A LPG
B NATURAL GAS

Losses of load / head of circulators



A Boiler losses of head
1 - 2 - 3 Circulator speed

4.6 Wiring diagram

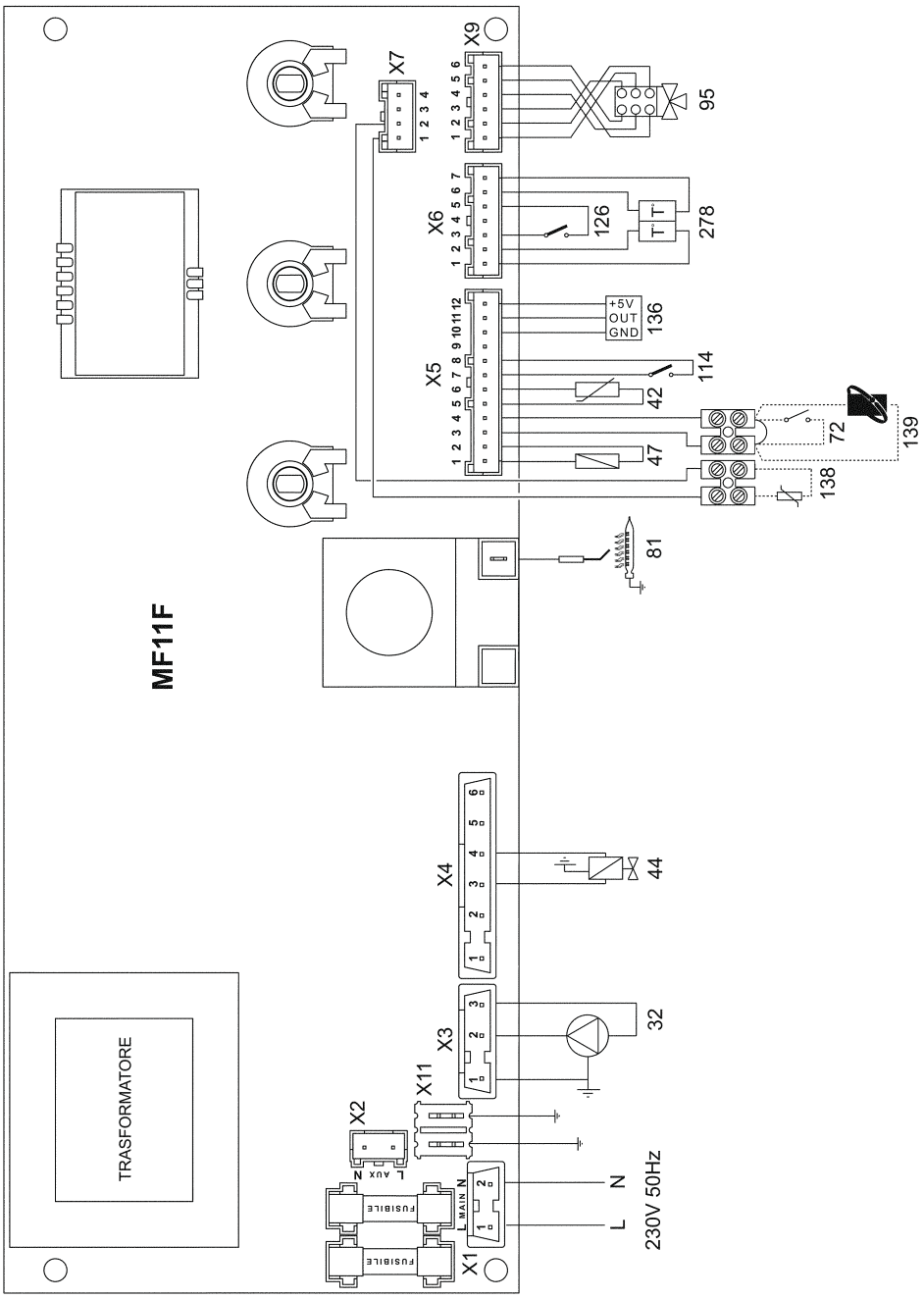


fig. 27 - Wiring diagram

32 DHW circulating pump
42 DHW temperature sensor
44 Gas valve
47 Modureg
72 Room thermostat (Optional)
81 Ignition/detection electrode
95 Diverter valve
114 Water pressure switch
126 Fume thermostat
136 Flow meter
138 External sensor
139 Remote Timer Control - Opentherm (Optional)
278 Double sensor (Safety + Heating)

Before connecting the room thermostat or the remote timer control, remove the jumper on the terminal block.

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