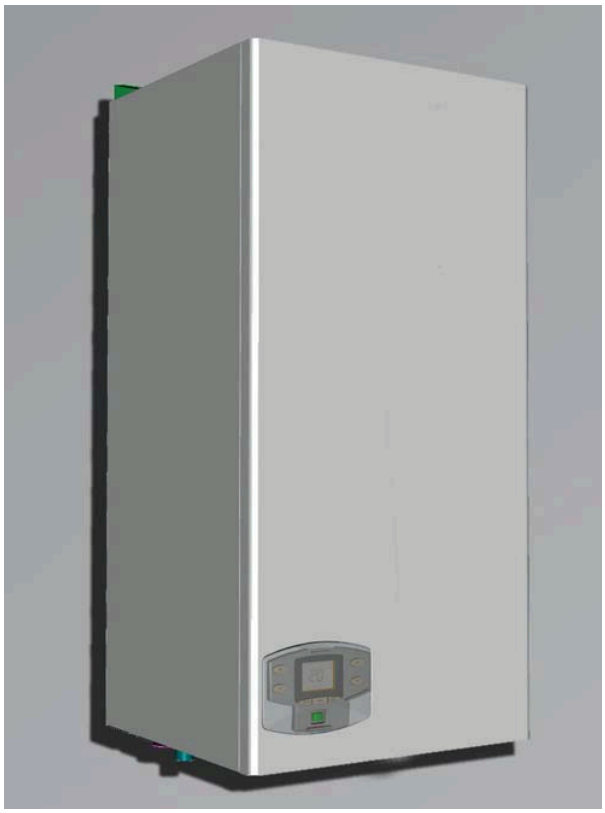
Ferroli

GRUPPO FERROLI

ENERGY TOP W 70 - W 80 - W 125

ISO 9001 : 2000
CERTIFIED COMPANY

TÜV SÜD



CE

INSTRUCTIONS FOR USE, INSTALLATION AND MAINTENANCE
INSTRUCTIONS D'UTILISATION, D'INSTALLATION ET D'ENTRETIEN
ISTRUZIONE PER L'USO L'INSTALLAZIONE E LA MANUTENZIONE
INSTRUCCIONES DE USO, INSTALACIÓN Y MANTENIMIENTO
BETRIEBS-, INSTALLATIONS- UND WARTUNGSANLEITUNG

cod. 3540I161 – 12/2008 (Rev. 00)

- 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: FERROLI S.p.A.

Address: Via Ritonda 78/a 37047 San Bonifacio VR Italy

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 **ENERGY TOP W 70 - W 80 - W 125**, a wall-mounted boiler featuring **FERROLI** 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.

ENERGY TOP W 70 - W 80 - W 125 is a high efficiency, low emissions sealed chamber **premix condensing** heat generator for heating, running on natural gas or LPG and equipped with a microprocessor control system.

The **boiler shell** consists of an aluminium finned tube exchanger and a **premix burner** in steel, equipped with electronic ignition and ionisation flame control, a modulating speed fan and a modulating gas valve. **ENERGY TOP W 70 - W 80 - W 125** is a heat generator arranged to operate alone or in cascade.

1.2 Control panel

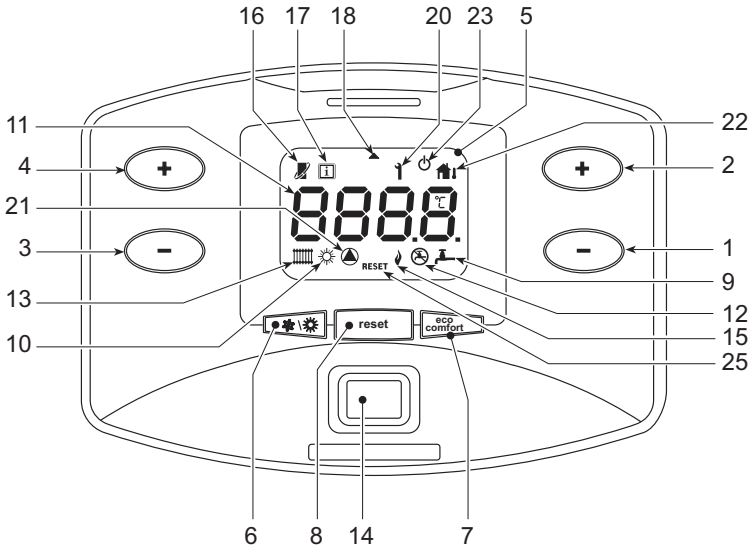


fig. 1 - Control panel

Key

1 = DHW temperature setting decrease button (with optional hot water tank installed)
2 = DHW temperature setting increase button (with optional hot water tank installed)
3 = Heating system temperature setting decrease button
4 = Heating system temperature setting increase button
5 = Display
6 = Summer/Winter mode selection button
7 = Economy/Comfort mode selection (with optional hot water tank installed) and unit On/Off button
8 = Reset button
9 = DHW operation (with optional hot water tank installed)
10 = Summer mode
11 = Multifunction
12 = Eco (Economy) mode (with optional hot water tank installed)
13 = Heating mode
14 = Unit On / Off button
15 = Burner On
16 = Appears on connecting the Remote Timer Control (optional)
17 = Information symbol
18 = Arrow symbol
20 = Fault
21 = Circulating pump On
22 = Appears on connecting the external probe (optional)
23 = Boiler Off
25 = Fault reset request

Indication during operation

Heating

A heating demand (generated by the Room Thermostat or Remote Timer Control or 0-10 Vdc signal) is indicated by activation of the circulating pump and the radiator (details 13 and 21 - fig. 1).

The display (detail 11 - fig. 1) shows the actual heating delivery temperature and during DHW standby time, the message “d”.

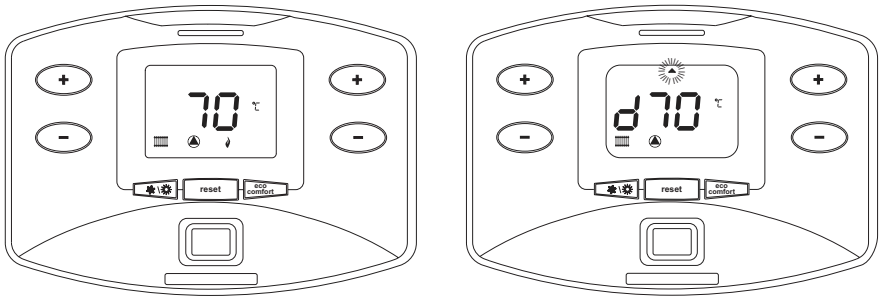


fig. 2

DHW circuit (with optional hot water tank installed)

A hot water tank heating demand is indicated by activation of the circulating pump and the tap (details 9 and 21 fig. 1). The display (detail 11 - fig. 1) shows the actual hot water tank sensor temperature and during heating standby time, the message **“d“**.

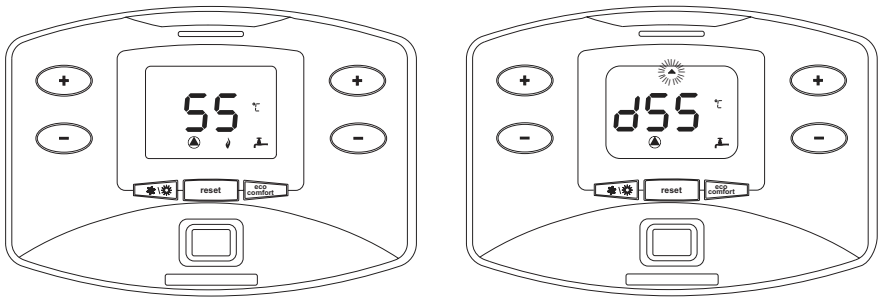


fig. 3 -

Exclude hot water tank (economy)

Hot water tank temperature maintaining/heating can be excluded by the user. If excluded, domestic hot water will not be delivered. The hot water tank can be deactivated by the user (ECO mode) by pressing the button eco comfort (detail 7 - fig. 1). In ECO mode the display activates the symbol (detail 12 - fig. 1). To activate COMFORT mode, press the button eco comfort (detail 7 - fig. 1) again.

1.3 Turning on and off

Boiler lighting

Press the On/Off button (detail 14 fig. 1).

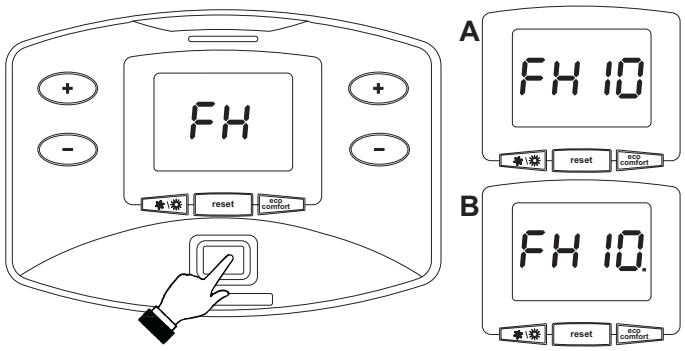


fig. 4 - Boiler lighting

- For the following 120 seconds the display will show FH which identifies the heating system air venting cycle.
- During the first 10 seconds the display will also show the card software release (**A =** Display card software release / **B =** Controller software release).
- Open the gas valve ahead of the boiler.
- When the message FH disappears, the boiler is ready to operate automatically in case of a room thermostat demand.

Turning the boiler off

Press the button eco comfort (detail 7 - fig. 1) for 5 seconds.

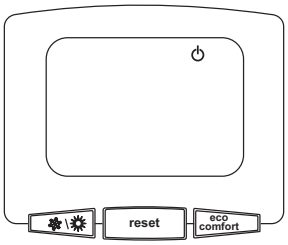


fig. 5 - Turning the boiler off

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

Domestic hot water (with optional hot water tank installed) and heating operation are disabled. The antifreeze system remains activated.

To relight the boiler, press the button eco comfort (detail 7 fig. 1) again for 5 seconds.

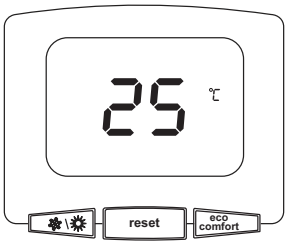


fig. 6

The boiler will be immediately ready to operate whenever domestic hot water is drawn (with optional hot water tank installed) or in case of a room thermostat demand.

To completely disconnect the power to the unit, press the button detail 14 fig. 1.

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.

1.4 Adjustments

Summer/Winter changeover

Press the button ❄/☼ detail 6 - fig. 1 for 1 second.

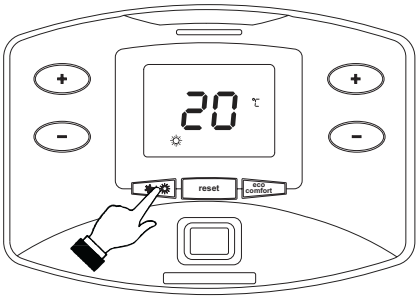


fig. 7

The display activates the Summer symbol detail 10 - fig. 1. The heating function is deactivated, whereas the possible production of domestic hot water (with optional external hot water tank) remains activated. The antifreeze system remains activated.

To deactivate Summer mode, press the button ❄/☼ (detail 6 - fig. 1) again for 1 second.

Heating temperature adjustment

Operate the heating buttons (+) (−) (details 3 and 4 - fig. 1) to adjust the temperature from a min. of 20 °C to a max. of 90 °C.

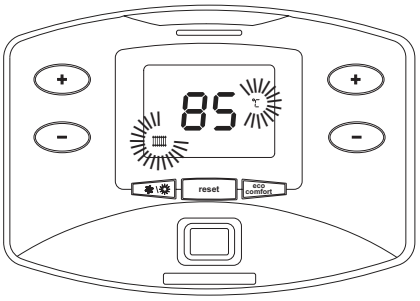


fig. 8

DHW temperature adjustment (with optional hot water tank installed)

Operate the DHW buttons (+) (−) (details 1 and 2 - fig. 1) to adjust the temperature from a min. of 10 °C to a max. of 65°C.

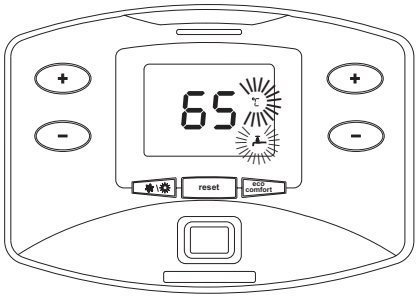


fig. 9

Room temperature adjustment (with optional room thermostat)

Using the room thermostat, set the temperature required in the rooms.

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.

Sliding Temperature

When the optional external probe is installed the corresponding symbol (detail 22 - fig. 1) is activated on the control panel display (detail 5 - fig. 1). The boiler control system operates 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 given "compensation curve".

With Sliding Temperature adjustment, the temperature set with the heating buttons (+) (−) (details 3 and 4 - 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 offset

Press the button reset (detail 8 - fig. 1) for 5 seconds, to display the actual compensation curve (fig. 10) which can be modified with the DHW buttons + − (details 1 and 2 - fig. 1).

Adjust the required curve from 1 to 10 according to the characteristic (fig. 12).

By setting the curve to 0, sliding temperature adjustment is disabled.

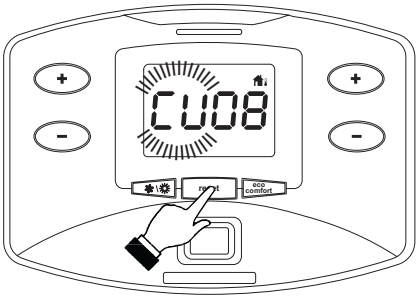


fig. 10 - Compensation curve

Press the heating buttons + − (details 3 and 4 - fig. 1) to access parallel curve offset (fig. 13), modifiable with the DHW buttons + − (details 1 and 2 - fig. 1).

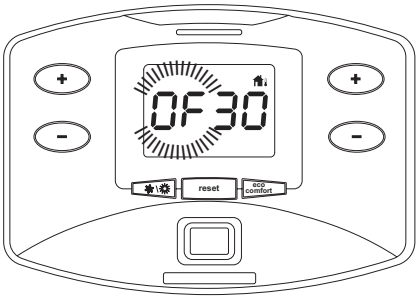


fig. 11 - Parallel curve offset

Press the button reset (detail 8 - fig. 1) again for 5 seconds 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.

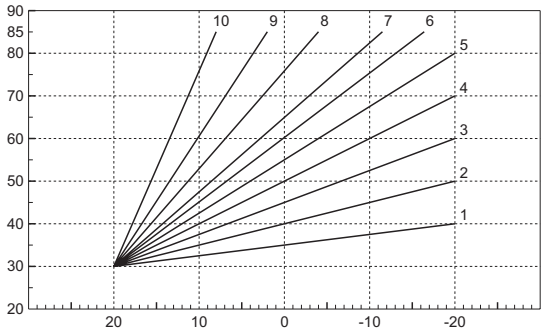


fig. 12 - Compensation curves

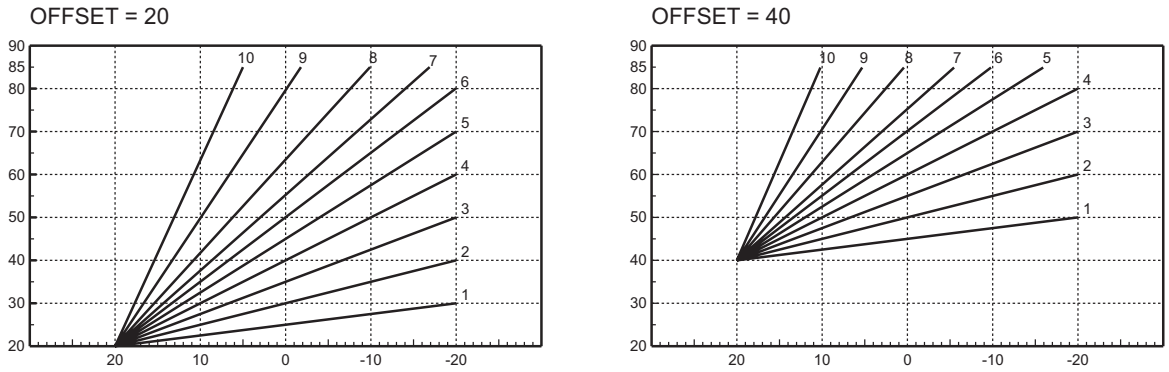


fig. 13 - Example of parallel compensation curve shift

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 be made from the Remote Timer Control menu and the boiler control panel.
DHW temperature adjustment (with optional hot water tank installed)	Adjustment can be made from the Remote Timer Control menu and the boiler control panel.
Summer/Winter changeover	Summer mode has priority over a possible Remote Timer Control heating demand.
Eco/Comfort selection (with optional hot water tank installed)	On disabling DHW from the Remote Timer Control menu, the boiler selects the Economy mode. In this condition, the button eco comfort (detail 7 - fig. 1) on the boiler panel is disabled.
	On enabling DHW from the Remote Timer Control menu, the boiler selects the Comfort mode. In this condition it is possible select one of the two modes with the button eco comfort (detail 7 - fig. 1).
Sliding Temperature	Both the Remote Timer Control and the boiler card manage Sliding Temperature adjustment: of the two, the Sliding Temperature of the boiler card has priority.

Water system pressure adjustment

The filling pressure with the system cold must be approx. 1.0 bar. If the system pressure falls to values below minimum, the boiler card will activate fault F37 (fig. 14).

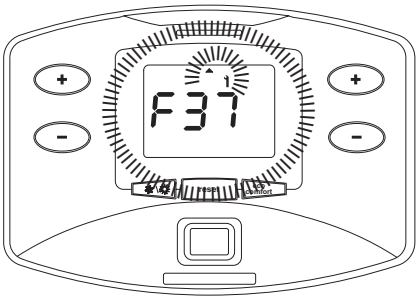


fig. 14 - System low pressure fault

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

2. Installation

2.1 General Instructions

THE BOILER MUST ONLY BE INSTALLED BY QUALIFIED PERSONNEL, IN COMPLIANCE WITH ALL THE INSTRUCTIONS GIVEN IN THIS TECHNICAL MANUAL, THE PROVISIONS OF CURRENT LAW, THE NATIONAL AND LOCAL REGULATIONS, AND THE RULES OF PROPER WORKMANSHIP.

ENERGY TOP W 70 - W 80 - W 125 is a high-efficiency heat generator arranged to operate alone or in cascade (bank). When two or more generators ENERGY TOP W 70 - W 80 - W 125 are installed in cascade with the original kits FERROLI, respecting the prescriptions of this manual, they can be considered as a single heat generator of total power equal to the sum of the powers of all the units connected in cascade.

All the requirements of the current standards and regulations applicable to this “equivalent” generator with total heating capacity must be met. In particular the place of installation, safety devices and fume exhaust system must be adequate for the total heating capacity of the bank of units.

In fact, each ENERGY TOP W 70 - W 80 - W 125 is a complete and independent heat generator, equipped with its own safety devices. In case of overtemperature, a lack of water or no circulation in the unit, the protection devices cause the unit to switch off or shut down, preventing it from working.

The installation instructions given in the following paragraphs concern both single units and connection in cascade.

2.2 Place of installation

The combustion circuit is sealed with respect to the place of installation and therefore the unit can be installed in any room. However, the place of installation must be sufficiently ventilated to prevent the creation of any dangerous conditions in case of even small gas leaks. This safety precaution is required by EEC Directive no. 90/396 for all gas-fired units, including those with a so-called sealed chamber.

The unit can also work with air drawn from the installation room (B type). In this case, the room must be provided with adequate ventilation, according to current regulations.

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 arranged for wall installation. Wall fixing must ensure a 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 proper and regular operation. In particular, provide for all the protection and safety devices required by current regulations for the complete modular generator. They must be installed on the hot water circuit delivery piping, immediately downstream of the last module, within a distance of 0.5 m, with no shutoff devices in between. The unit is not supplied with an expansion tank; its connection must therefore be carried out by the Installer.

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.

A filter must be also installed on the system return piping to prevent impurities or sludge from the system clogging and damaging the heat generators.

The filter MUST be installed when replacing generators in existing systems. The manufacturer declines any liability for damage caused to the generator by failure to install or inadequate installation of this filter.

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

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.

Optional kits

The following kits are available on request:

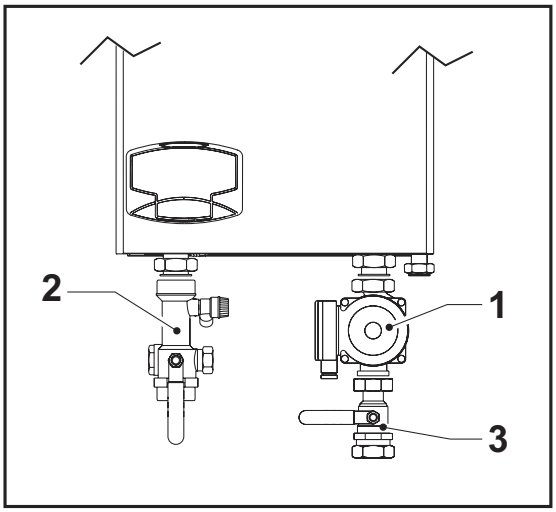


fig. 15 - Optional Kits

1) code 042021X0- High head PUMP KIT

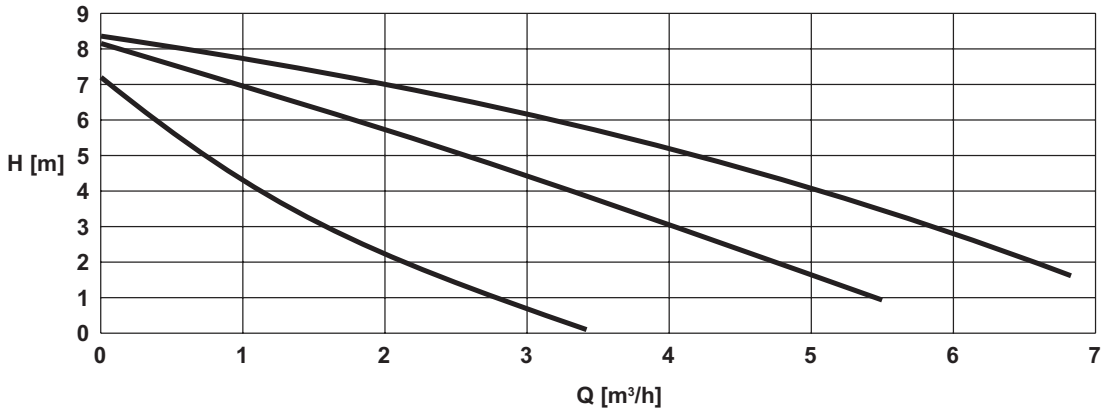


fig. 16 - Pump head

2) code 042023X0- 3-way COCK KIT - Male 1"1/2 with non-return valve and safety valve

It enables shutting off (for maintenance operations) in conformity with **ISPESL** requirements and can be used as a local shutoff for the connection of several units in bank. The third way must be connected to an atmospheric discharge manifold. In this way, with the valve in the "open" position, the boiler exchanger is connected to the delivery manifold; and in the "closed" position, through the third way, the exchanger communicates with the atmospheric discharge manifold. This valve therefore also acts as a boiler discharge.

3) code 042022X0- COCK KIT Male/Female 1"1/2

In combination with the 3-way valve described above, it enables shutting off (for maintenance operations) in conformity with **ISPESL** requirements and can be used as a local shutoff for the connection of several units in bank.

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 gas system pipes to remove any residuals that could affect boiler operation.

The gas must be connected to the relevant connection (see cap. 2.3 "Plumbing connections") in conformity with current standards, with a rigid metal pipe or with a continuous flexible s/steel tube, installing a gas cock between the system and boiler Make sure all the gas connections are tight. The gas meter capacity must be suitable for the simultaneous use of all the units 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 pressure, in conformity with current standards.

Do not use the gas pipes to earth electrical appliances.

In case of connection in cascade, make sure to install a fuel shutoff valve externally with respect to the modules.

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)

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.

External probe (optional)

Connect the probe to its respective terminals. The maximum permissible length for the boiler - external probe connection electrical cable is 50 m. A normal 2-wire cable can be used. The external probe should preferably be installed on the North, North-West wall or that facing the largest area of living room. The probe must never be exposed to the early morning sun or, insofar as possible, direct sunlight; protect it if necessary. In any case, the probe must not be installed near windows, doors, ventilation openings, flues or heat sources that could affect the reading.

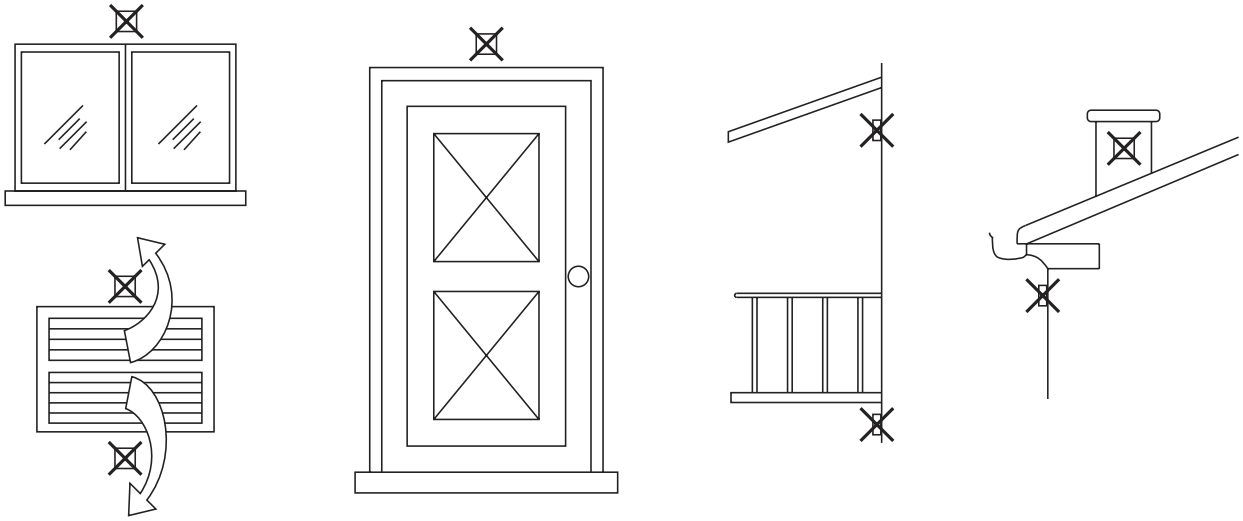


fig. 17 - External probe positioning not recommended

Accessing the electrical terminal block

To access the terminal block (**A** - fig. 18) it is necessary to remove the front panel (see fig. 26), remove the fixing screw **B** and turn the control panel as indicated in fig. 18. The layout of the terminals for the various connections is also given in the wiring diagram in fig. 32.

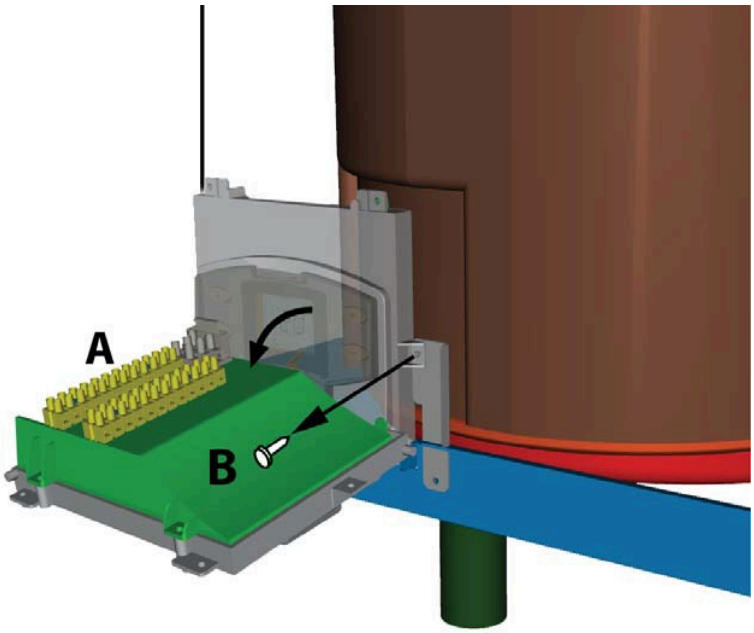


fig. 18 - Accessing the terminal block

2.6 Fume ducts

The unit is a “C type” with sealed chamber and forced draught; the air inlet and fume outlet must be connected to one of the extraction/inlet systems indicated below. The unit is approved to work with all the Cxy and Bxy flue configurations given on the dataplate (some configurations are given by way of example in this section). Some configurations, however, may be expressly limited or not permitted by local regulations, standards or laws. Before proceeding with installation, check and carefully observe the relevant prescriptions. Also comply with the provisions concerning the positioning of wall and/or roof terminals and the minimum distances from windows, walls, ventilation openings, etc.

This C-type unit must be installed using the inlet and fume exhaust ducts supplied by the manufacturer in conformity with UNI-CIG 7129/92. Failure to use them automatically invalidates every warranty and relieves the manufacturer of any liability.

For fume ducts longer than 1 m, during installation take in account the natural expansion of the materials when the boiler is operating.

To prevent deformations, leave an expansion space of approx. 2 ÷ 4 mm for every metre of pipe.

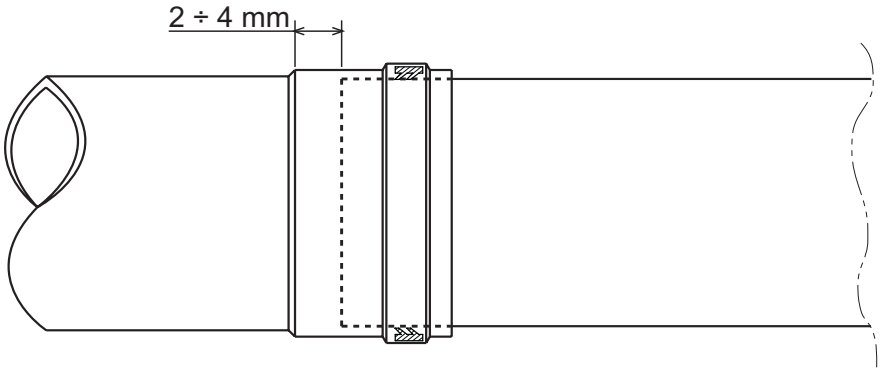


fig. 19 - Expansion

Connection with coaxial pipes

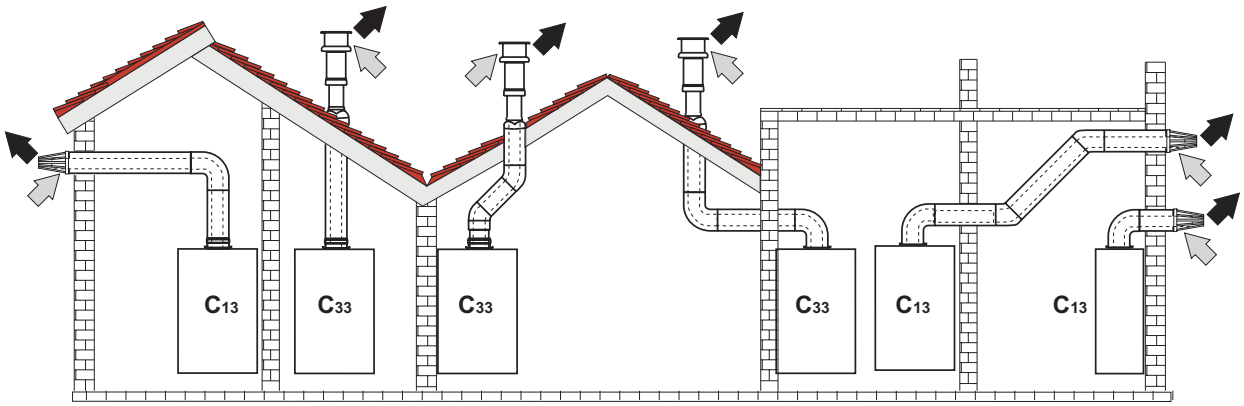


fig. 20 - Examples of connection with coaxial pipes (⇨ = Air / ➡ = Fumes)

For coaxial connection, fit the unit with one of the following starting accessories. For the wall hole dimensions, refer to sec. 4.1. Any horizontal sections of the fume exhaust must be kept sloping slightly towards the boiler, to prevent possible condensate from flowing back towards the outside and causing dripping.

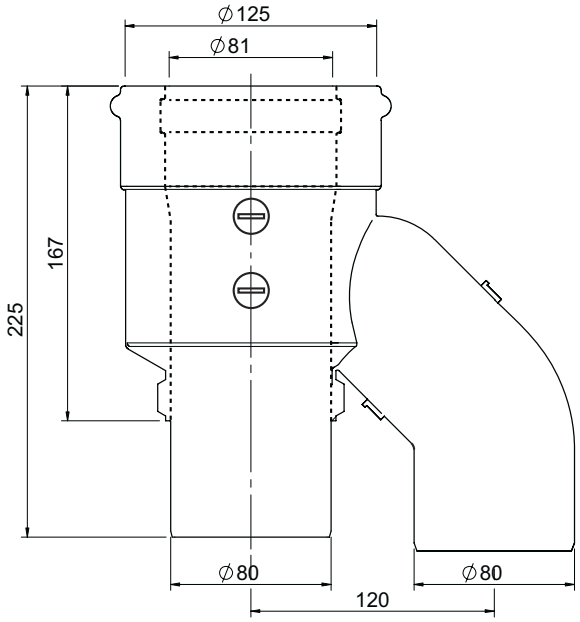


fig. 21 - Starting accessories for coaxial ducts 041007X0

Before proceeding with installation, check with table 2 that the maximum permissible length is not exceeded, bearing in mind that every coaxial bend gives rise to the reduction indicated in the table. For example, a Ø 80/125 duct comprising a 90° bend + 1 horizontal metre has a total equivalent length of 1.5 metres.

Table. 2 - Max. length coaxial ducts

	ENERGY TOP W 70 - W 80	ENERGY TOP W 125
	Coaxial 80/125	Coaxial 80/125
Max. permissible length	**4 m**	**2 m**
Reduction factor 90° bend	0.5 m	0.5 m
Reduction factor 45° bend	0.25 m	0.25 m

Connection with separate pipes

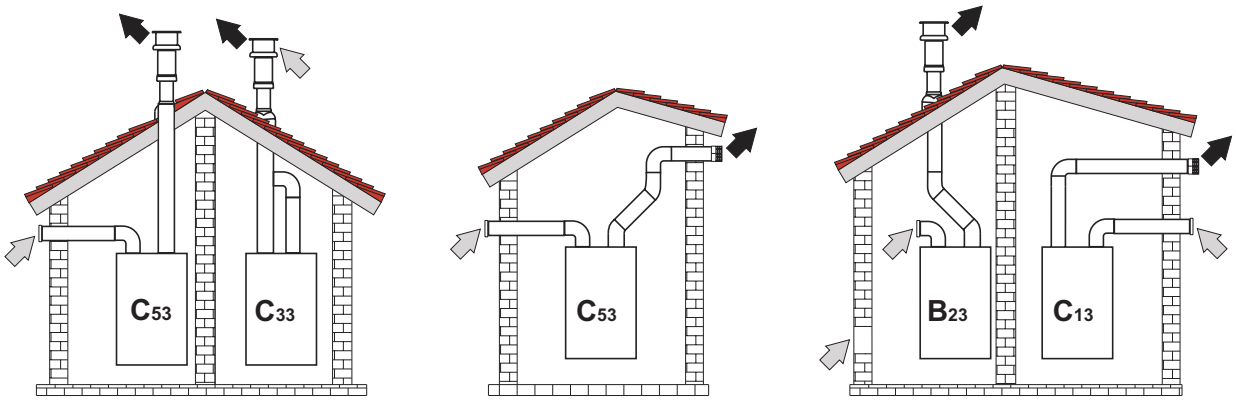


fig. 22 - Examples of connection with separate pipes (⇨ = Air / ➡ = Fumes)

Separate Ø80 ducts can be connected directly to the unit.

Before proceeding with installation make sure the maximum permissible length has not been exceeded, by means of a simple calculation:

1. Completely establish the layout of the system of split flues, including accessories and outlet terminals.
2. Consult the table 4 and identify the losses in m_{eq} (equivalent metres) of every component, according to the installation position.
3. Check that the sum total of losses is less than or equal to the maximum permissible length in table 3.

Table. 3 - Max. length separate ducts

	Separate ducts	
	ENERGY TOP W 70 - W 80	ENERGY TOP W 125
Max. permissible length	20 m_{eq}	10 m_{eq}

Table. 4 - Accessories

				Losses in m_{eq}		
				Air inlet	Fume exhaust	
					Vertical	Horizontal
Ø 80	**PIPE**	1 m M/F	1KWMA83W	1.0	1.6	2.0
	BEND	45° M/F	1KWMA65W	1.2	1.8	
		90° M/F	1KWMA01W	1.5	2.0	
	PIPE SECTION	with test point	1KWMA70W	0.3	0.3	
	TERMINAL	air, wall	1KWMA85A	2.0	-	
		fumes, wall with antiwind	1KWMA86A	-	5.0	

2.7 Condensate drain connection

The boiler is equipped with a trap to drain condensate. Carry out the following instructions for fitting.

1. Fix the support bracket “A” to the bottom of the boiler.
2. Connect the preformed black tube “B” to the condensate drain “S” on the bottom of the boiler, fixing it with a clamp.
3. Remove the trap ring nut “C” and insert the preformed black tube “B” in the special opening, making sure to fit the seal “D”.
4. Refit the trap ring nut, insert it in the bracket and fix with the special clip “E”.
5. Connect the flexible tube "F" from the trap to the condensate drain system.

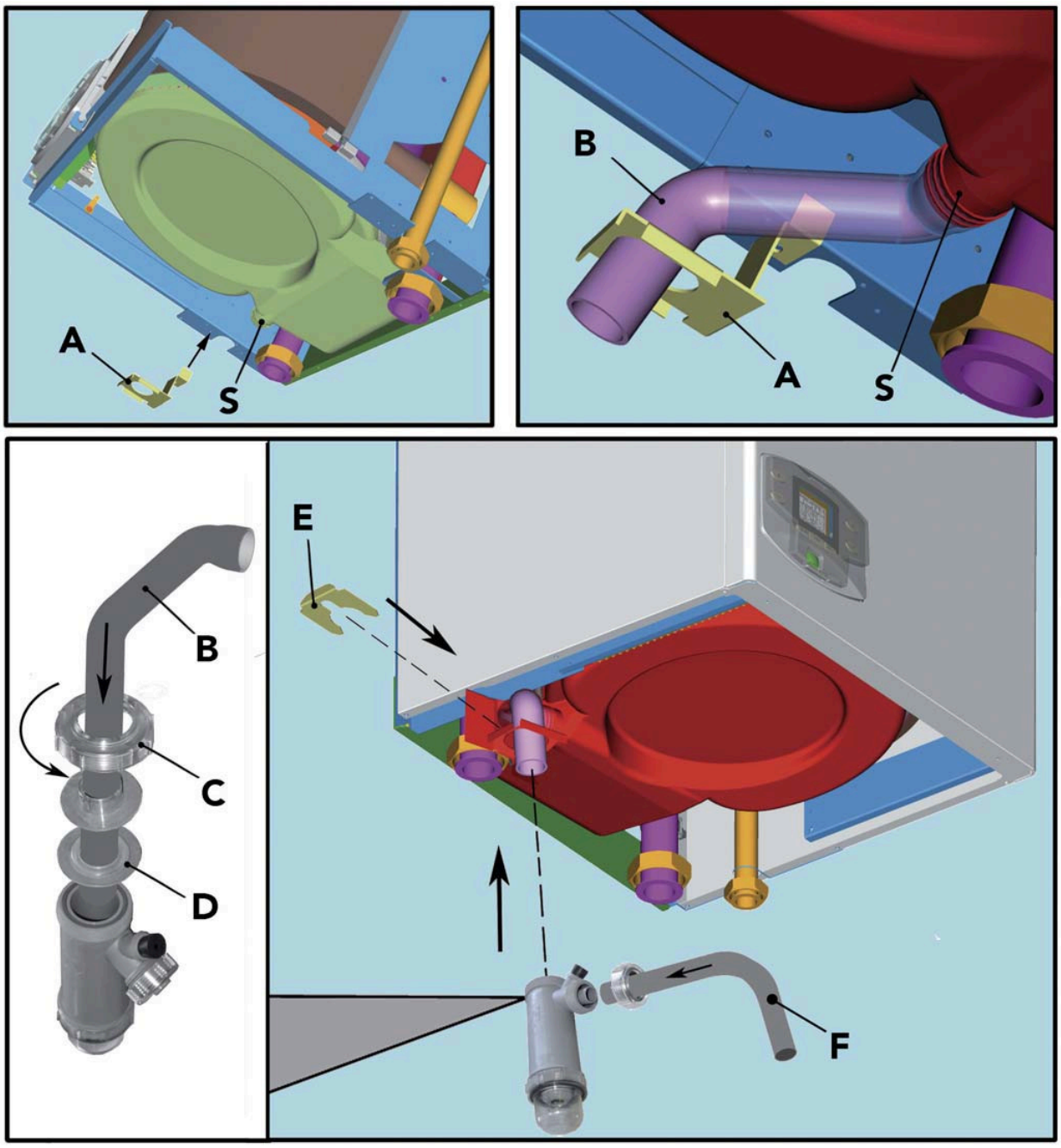


fig. 23 - Condensate drain connection

3. Service and maintenance

All adjustment, conversion, startup 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.

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

3.1 Adjustments

Gas 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. Remove the casing.
2. Loosen the gas valve fixing ring **"A"**.
3. Undo the three fixing screws **"B"** and remove the gas valve **"C"**.
4. Replace the gas valve **"D"**, positioning it inside the gasket **"E"**, with that contained in the conversion kit. Refit the parts and check the tightness.
5. Modify the parameter for the type of gas:
   - put the boiler on standby
   - press the DHW buttons (details 1 and 2 - fig. 1) at the same time for 10 seconds: the display shows "**P01**" flashing.
   - press the DHW buttons (details 1 and 2 - fig. 1) at the same time to set the parameter **00** (for natural gas) or **01** (for LPG).
   - press the DHW buttons (details 1 and 2 - fig. 1) at the same time for 10 seconds.
   - the boiler will go back on standby
6. Apply the label, contained in the conversion kit, near the dataplate.
7. Using a combustion analyser connected to the boiler fume outlet, make sure the CO_2 content in the fumes, with the boiler operating at max. and min. output, matches that given in the technical data table for the corresponding type of gas.

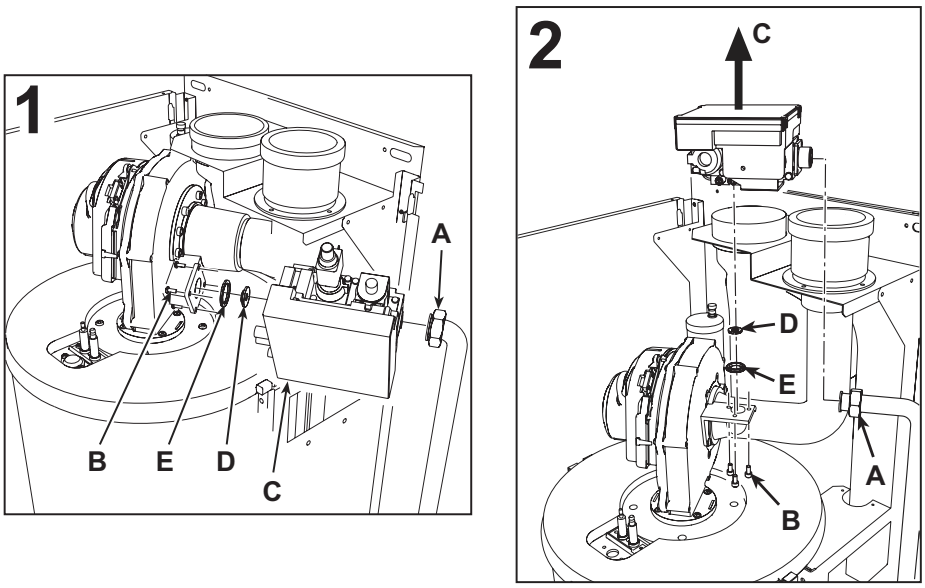


fig. 24 - Gas conversion

1 Model **ENERGY TOP W 70 - W 80**
2 Model **ENERGY TOP W 125**

Activating TEST mode

Press the heating buttons (+) (−) (details 3 and 4 - fig. 1) at the same time for 5 seconds to activate the **TEST** mode. The boiler lights at the maximum heating power set as described in the following section.

The heating symbol (detail 13 - fig. 1) and DHW symbol (detail 9 - fig. 1) flash on the display; the heating power will be displayed alongside.

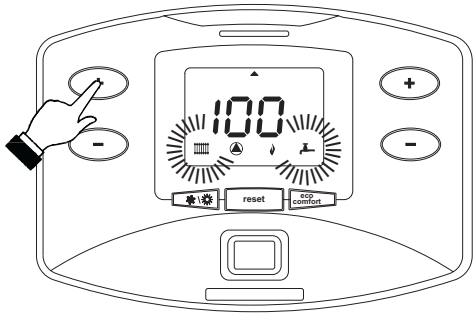


fig. 25 - TEST mode (heating power = 100%)

To deactivate TEST mode, repeat the activation sequence.

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

Heating power adjustment

To adjust the heating power, switch the boiler to TEST mode (see sec. 3.1).

Press the heating buttons (+) (−) (details 3 and 4 - fig. 1) to increase or decrease the power (min. = 00 - max. = 100).

Press the button reset (detail 8 - fig. 1) within 5 seconds; max. power will remain that just set. Exit TEST mode (see sec. 3.1).

3.2 Start-up

Checks to be made at first lighting, and after all maintenance operations that involved disconnection from the systems or an operation 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 correct prefilling of the expansion tank (ref. sec. 4.4).
- Fill the water system and make sure 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.
- Fill the condensate trap and check correct connection of the condensate elimination system.
- Make sure there are no water leaks in the system, DHW circuits, connections or boiler.
- Check correct connection of the electrical system and efficiency of the earthing system
- Make sure the gas pressure value for heating is that required.
- Make sure there are no flammable liquids or materials in the immediate vicinity of the boiler

Checks during operation

- Turn the unit on as described in sec. 1.3.
- Make sure the fuel circuit and water systems are tight.
- Check the efficiency of the flue and air-fume ducts while the boiler is working.
- Check the correct tightness and functionality of the condensate elimination system and trap.
- Make sure the water is circulating properly between the boiler and the systems.
- Make sure the gas valve modulates correctly in the heating and domestic hot water production phases.
- Check proper boiler lighting by doing several tests, turning it on and off with the room thermostat or remote control.
- Using a combustion analyser connected to the boiler fume outlet, check that the CO_2 content in the fumes, with the boiler operating at max. and min. output, corresponds to that given in the technical data table for the corresponding type of gas.
- Make sure the fuel consumption indicated on the meter matches that given in the technical data table on sec. 4.4.
- Check the correct programming of the parameters and carry out any necessary customization (compensation curve, power, temperatures, etc.).

3.3 Maintenance

Periodical check

To keep the unit working properly over time, it is necessary to have qualified personnel make an annual check that includes the following tests:

- The control and safety devices (gas valve, flow meter, thermostats, etc.) must function correctly.
- The fume extraction circuit must be fully efficient.
- The airtight chamber must be sealed
- The air-fume end piece and ducts must be free of obstructions and leaks
- The condensate evacuation system must be efficient with no leakage or obstructions.
- 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 gas and water systems must be airtight.
- The water pressure in the cold water system must be about 1 bar; otherwise, bring it to that value.
- The circulation 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 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 (fig. 26):

1. Undo the screws **(A)**
2. Open, turning the casing **(B)**
3. Lift and remove the casing **(B)**

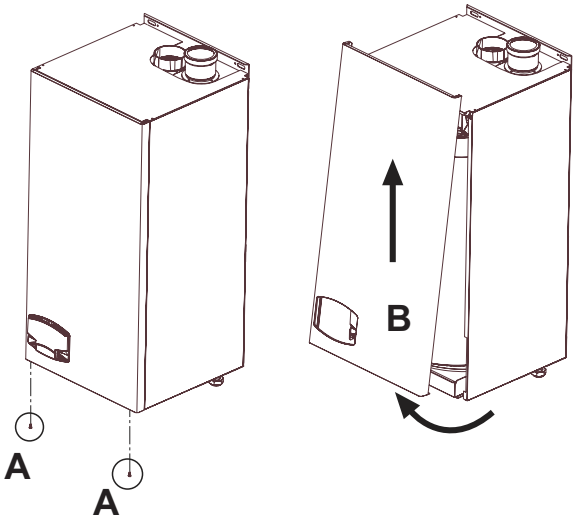


fig. 26 - Opening the casing

Combustion analysis

Combustion can be analysed through the air sampling point (**detail 2**) and fume sampling point (**detail 1**) shown in fig. 27.

To perform the test:

1. Open the air and fume sampling points
2. Insert the probes
3. Press the **"+"** and **"-"** buttons for 5 seconds to activate the TEST mode
4. Wait 10 minutes for the boiler to stabilise
5. Take the measurement

For natural gas the CO_2 reading must be between 8.7 and 9 %.

For LPG the CO_2 reading must be between 9.5 and 10 %.

Analyses made with an unstabilised boiler can cause measurement errors.

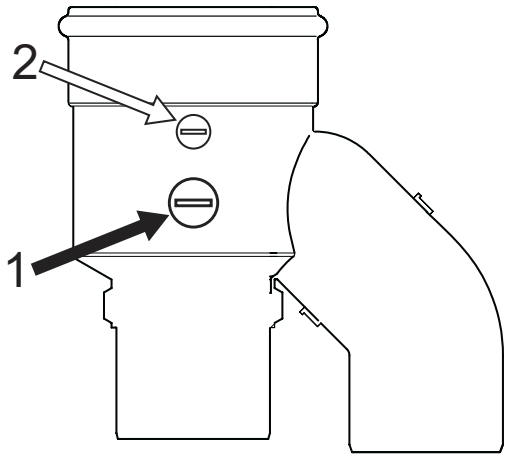


fig. 27 - Combustion analysis

3.4 Troubleshooting

Diagnostics

The boiler is equipped with an advanced self-diagnosis system. In case of a boiler fault, the display will flash together with the fault symbol (detail 20 - fig. 1) indicating the fault code.

There are faults that cause permanent shutdowns (marked with the letter "**A**"): to restore operation press the RESET button (detail 8 - fig. 1) for 1 second or use the RESET on the optional remote timer control if installed; if the boiler fails to start, it is necessary to first eliminate the fault.

Other faults (marked with the letter "**F**") cause temporary shutdowns that are automatically reset as soon as the value returns within the boiler's normal working range.

Table. 5 - List of faults

Fault code	Fault	Possible cause	Cure
A01	The burner fails to light	No gas	Check the regular gas flow to the boiler and that the air has been eliminated from the pipes
		Detection/ignition electrode fault	Check the wiring of the electrode and that it is correctly positioned and free of any deposits
		Faulty gas valve	Check the gas valve and replace it if necessary
		Insufficient gas supply pressure	Check the gas supply pressure
		Trap blocked	Check the trap and clean it if necessary
A02	Flame present signal with burner off	Electrode fault	Check the ionisation electrode wiring
		Card fault	Check the card
A03	Overtemperature protection activation	Heating sensor damaged	Check the 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
A04	Fume extraction duct safety device activation	Fault F07 generated 3 times in the last 24 hours	See fault F07
A05	Fan protection activation	Fault F15 generated for 1 hour (consecutive)	See fault F15
A06	No flame after ignition stage (6 times in 4 min.)	Ionisation electrode fault	Check the position of the ionisation electrode and replace it if necessary
		Flame unstable	Check the burner
		Gas valve Offset fault	Check the Offset adjustment at minimum power
		air/fume ducts blocked	Remove the obstruction from the flue, fume extraction and air inlet ducts and terminals
		Trap blocked	Check the trap and clean it if necessary
F07	High fume temperature	Flue partially obstructed or insufficient	Check the efficiency of the flue, fume extraction ducts and outlet terminal
		Fume sensor position	Check the correct positioning and operation of the fume sensor
F10	Delivery sensor 1 fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F11	Return sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F12	DHW sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	

Fault code	Fault	Possible cause	Cure
F13	Fume sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F14	Delivery sensor 2 fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F15	Fan fault	No 230V power supply	Check the 3-pole connector wiring
		Tachometric signal interrupted	Check the 5-pole connector wiring
		Fan damaged	Check the fan
F34	Supply voltage under 170V	Electric mains trouble	Check the electrical system
F35	Irregular mains frequency	Electric mains trouble	Check the electrical system
F37	Incorrect system water pressure	Pressure too low	Fill the system
		Water pressure switch not connected or damaged	Check the sensor
F39	External probe fault	Probe damaged or wiring shorted	Check the wiring or replace the sensor
		Probe disconnected after activating the sliding temperature	Reconnect the external probe or disable the sliding temperature
A41	Sensor positioning	Delivery sensor disconnected from the pipe	Check the correct positioning and operation of the heating sensor
F42	Heating sensor fault	Sensor damaged	Replace the sensor
A62	No communication between electronic controller and gas valve	Controller not connected	Connect the controller to the gas valve
		Damaged valve	Change the valve

4. Technical data and characteristics

4.1 Dimensions and connections

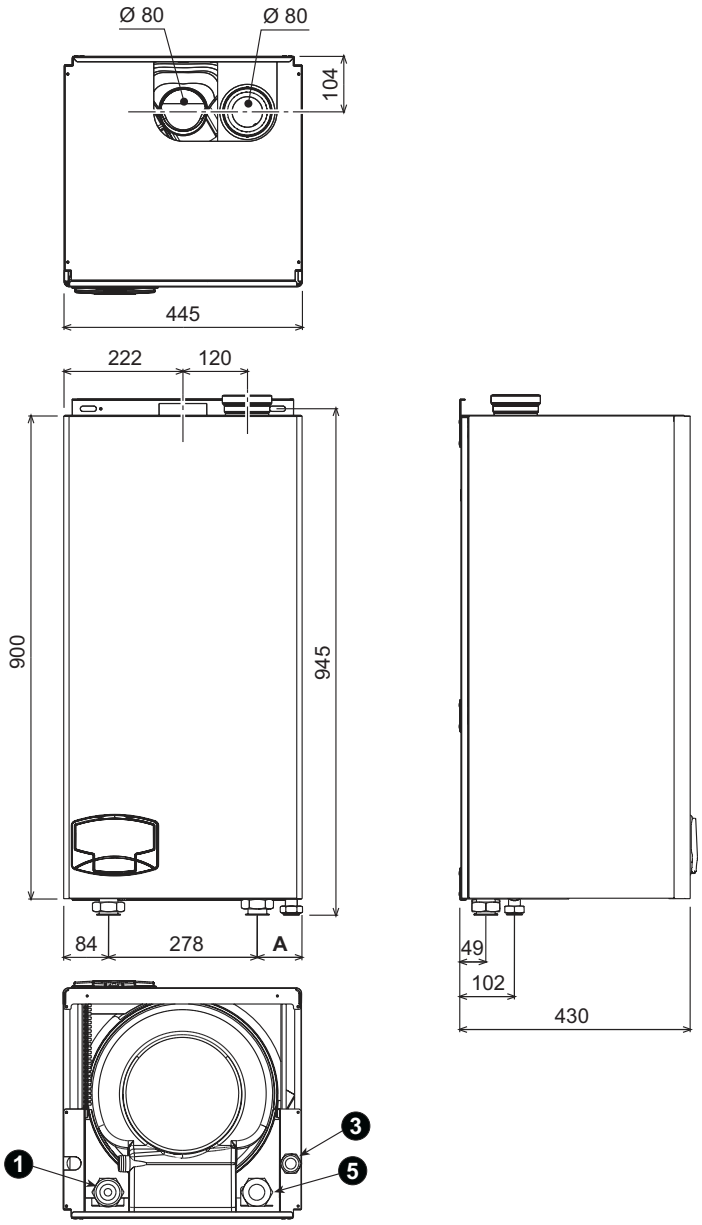


fig. 28 - Dimensions and connections

	A
ENERGY TOP W 70 - W 80	65
ENERGY TOP W 125	63

1 = Heating system delivery
3 = Gas inlet
5 = Heating system return

4.2 General view and main components

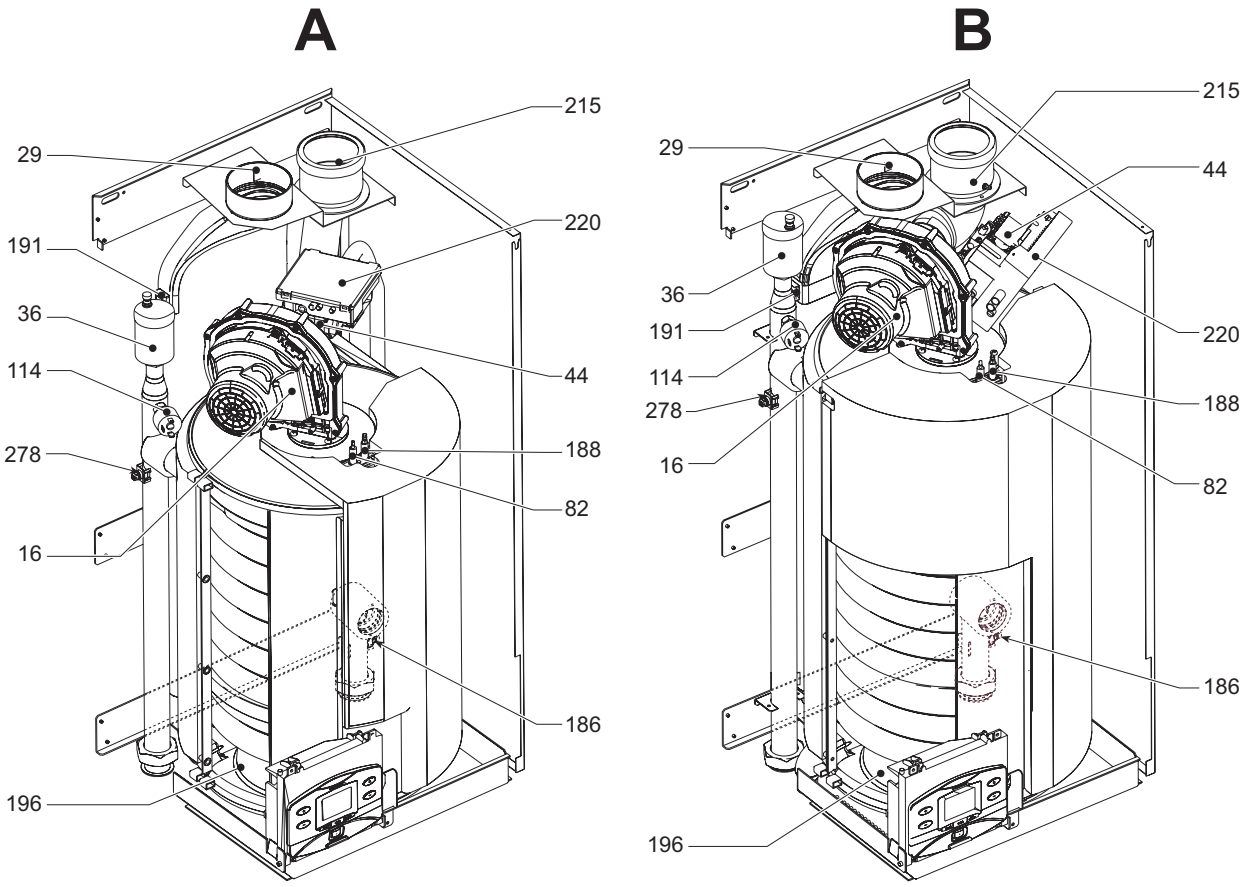


fig. 29 - General view

A Model **ENERGY TOP W 70 - W 80**
B Model **ENERGY TOP W 125**
16 Fan
29 Fume outlet manifold
36 Automatic air vent
44 Gas valve
82 Detection electrode
114 Water pressure switch
186 Return sensor
188 Ignition electrode
191 Fume temperature sensor
196 Condensate tray
215 Air inlet reducer
220 Ignition card
278 Double sensor (Safety + Heating)

4.3 Plumbing circuit

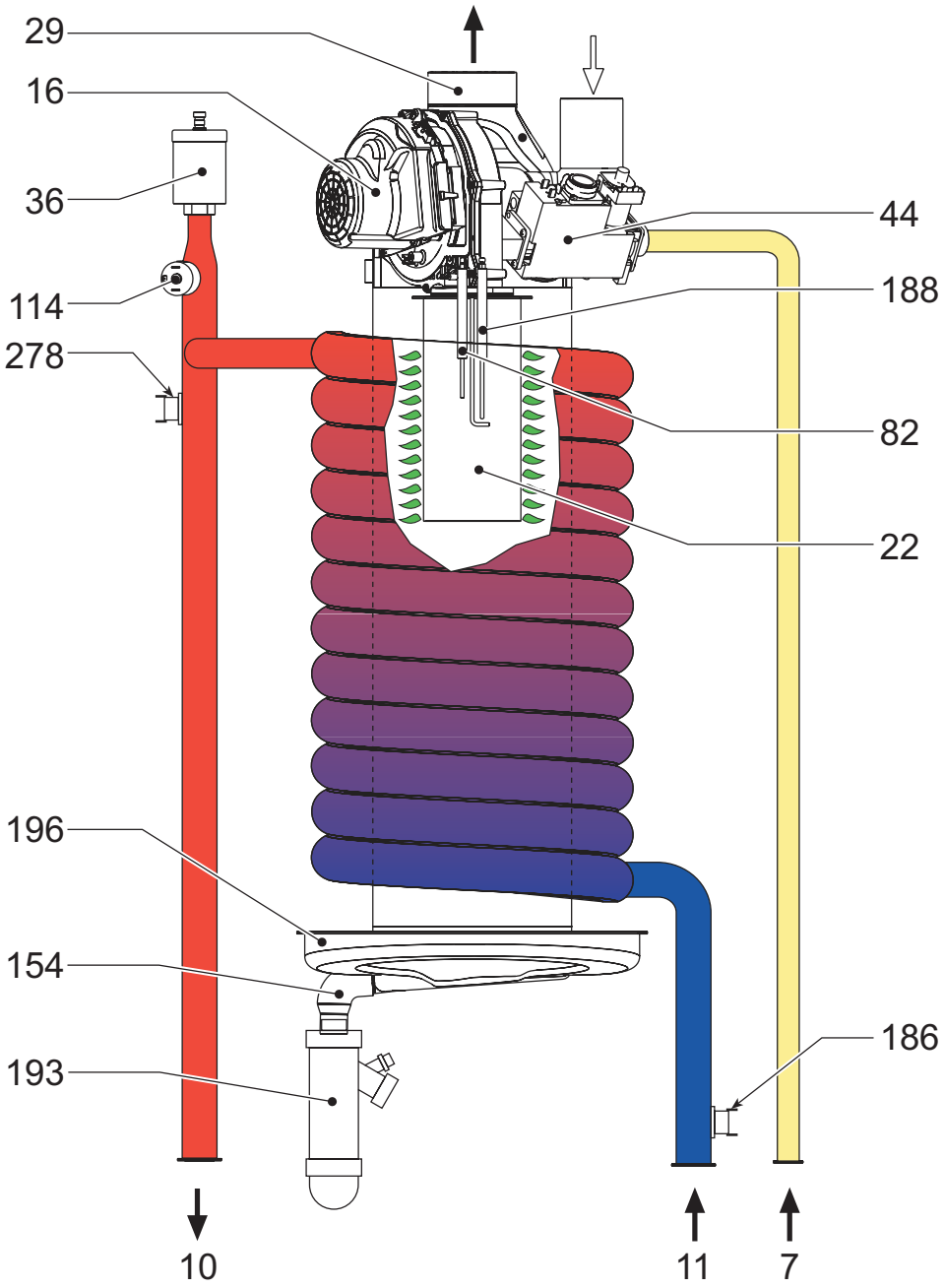


fig. 30 - Plumbing circuit

7	Gas inlet
10	System delivery
11	System return
16	Fan
22	Main burner
29	Fume outlet manifold
36	Automatic air vent
44	Gas valve
82	Detection electrode
114	Water pressure switch
154	Condensate outlet pipe
186	Return sensor
188	Ignition electrode
193	Trap
196	Condensate tray
278	Double sensor (Safety + Heating)

4.4 Technical data table

The column on the right gives the abbreviation used on the dataplate.

Data	Unit	Value	Value	Value	
Model		**ENERGY TOP W 70**	**ENERGY TOP W 80**	**ENERGY TOP W 125**	
Max. heating capacity	kW	65.9	75	116	(Q)
Min. heating capacity	kW	17	17	25	(Q)
Max. Heat Output in heating (80/60 °C)	kW	64.6	73.5	113.7	(P)
Min. Heat Output in heating (80/60 °C)	kW	16.7	16.7	24.6	(P)
Max. Heat Output in heating (50/30 °C)	kW	69.9	79.5	123	(P)
Min. Heat Output in heating (50/30 °C)	kW	18.3	18.3	26.9	(P)
Efficiency Pmax (80/60 °C)	%	98	98	98	
Efficiency Pmin (80/60 °C)	%	98.5	98.5	98.5	
Efficiency Pmax (50/30 °C)	%	106	106	106	
Efficiency Pmin(50/30 °C)	%	107.5	107.5	107.5	
Efficiency 30%	%	109	109	109	
Gas diaphragm (G20)	Ø	8.50	8.50	9.4	
Gas supply pressure G20	mbar	20	20	20	
CO_2 max. (G20)	%	9	9	9	
CO_2 min. (G20)	%	8.5	8.5	8.5	
Max. gas delivery G20	m^3/h	6.97	7.94	12.38	
Min. gas delivery G20	m^3/h	1.8	1.8	2.65	
Gas diaphragm (G31)	Ø	5.8	5.8	7.0	
Gas supply pressure G31	mbar	37	37	37	
CO_2 max. (G31)	%	10	10	10	
CO_2 min. (G31)	%	9.2	9.2	9.2	
Max. gas delivery G31	kg/h	5.16	5.87	9.08	
Min. gas delivery G31	kg/h	1.33	1.33	1.96	

Efficiency class Directive 92/42 EEC	-	★★★★	★★★★	★★★★	
NOx emission class	-	5	5	5	(NOx)
Max. fume temperature (80 °C - 60 °C)	°C	65	65	65	
Min. fume temperature (80 °C - 60 °C)	°C	60	60	60	
Max. fume temperature (50 °C - 30 °C)	°C	43	43	45	
Min. fume temperature (50 °C - 30 °C)	°C	33	33	34	
Max. fume flowrate	kg/h	127.5	127.5	197	
Min. fume flowrate	kg/h	31.4	31.4	44.7	
Max. working pressure in heating	bar	6	6	6	(PMS)
Min. working pressure in heating	bar	0.8	0.8	0.8	
Max. heating temperature	°C	95	95	95	(tmax)
Heating water content	litres	5	5	7	
Protection rating	IP	X5D	X5D	X5D	
Power supply voltage	V/Hz	230V/50Hz	230V/50Hz	230V/50Hz	
Electrical absorption	W	70	95	200	
Empty weight	kg	46	46	51	
Type of unit		C_{13} - C_{23} - C_{33} - C_{43} - C_{53} - C_{63} - C_{83} - B_{23} - B_{33}			
PIN CE		0461BS0879			

4.5 Diagrams

Pressure losses

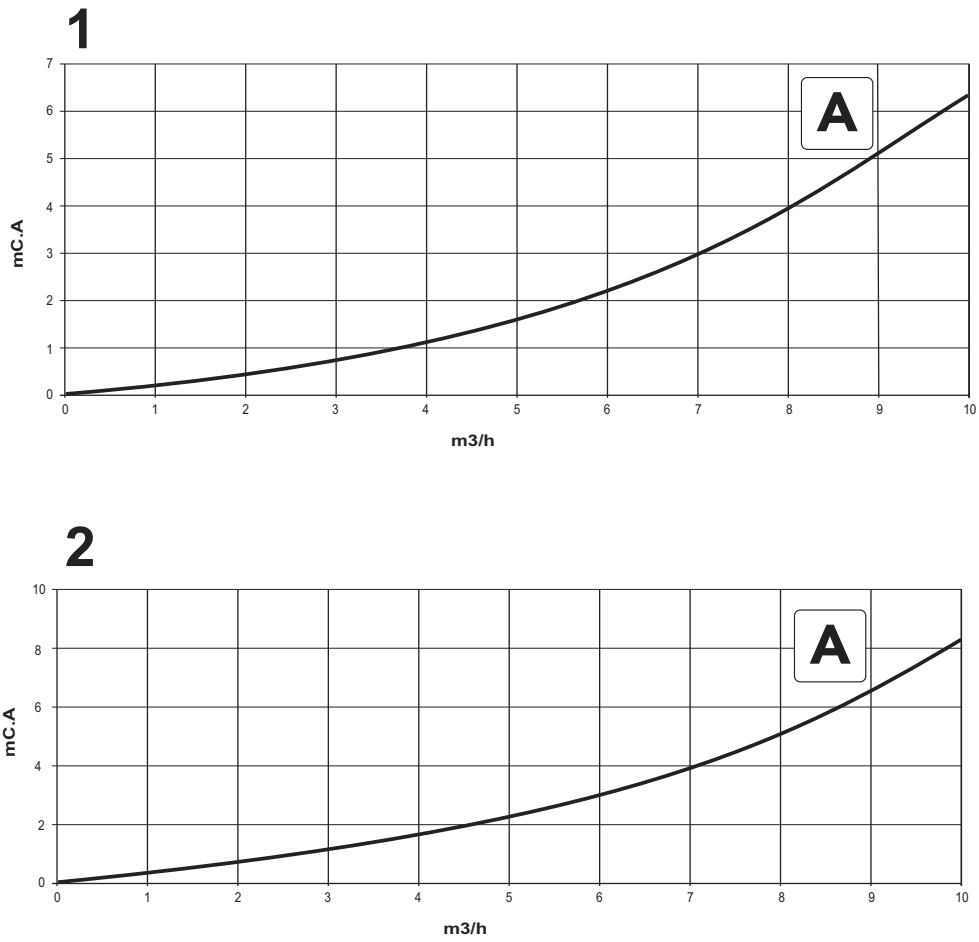


fig. 31 - Pressure loss diagrams

A Boiler pressure losses
1 Model diagram **ENERGY TOP W 70 - W 80**
2 Model diagram **ENERGY TOP W 125**

4.6 Wiring diagram

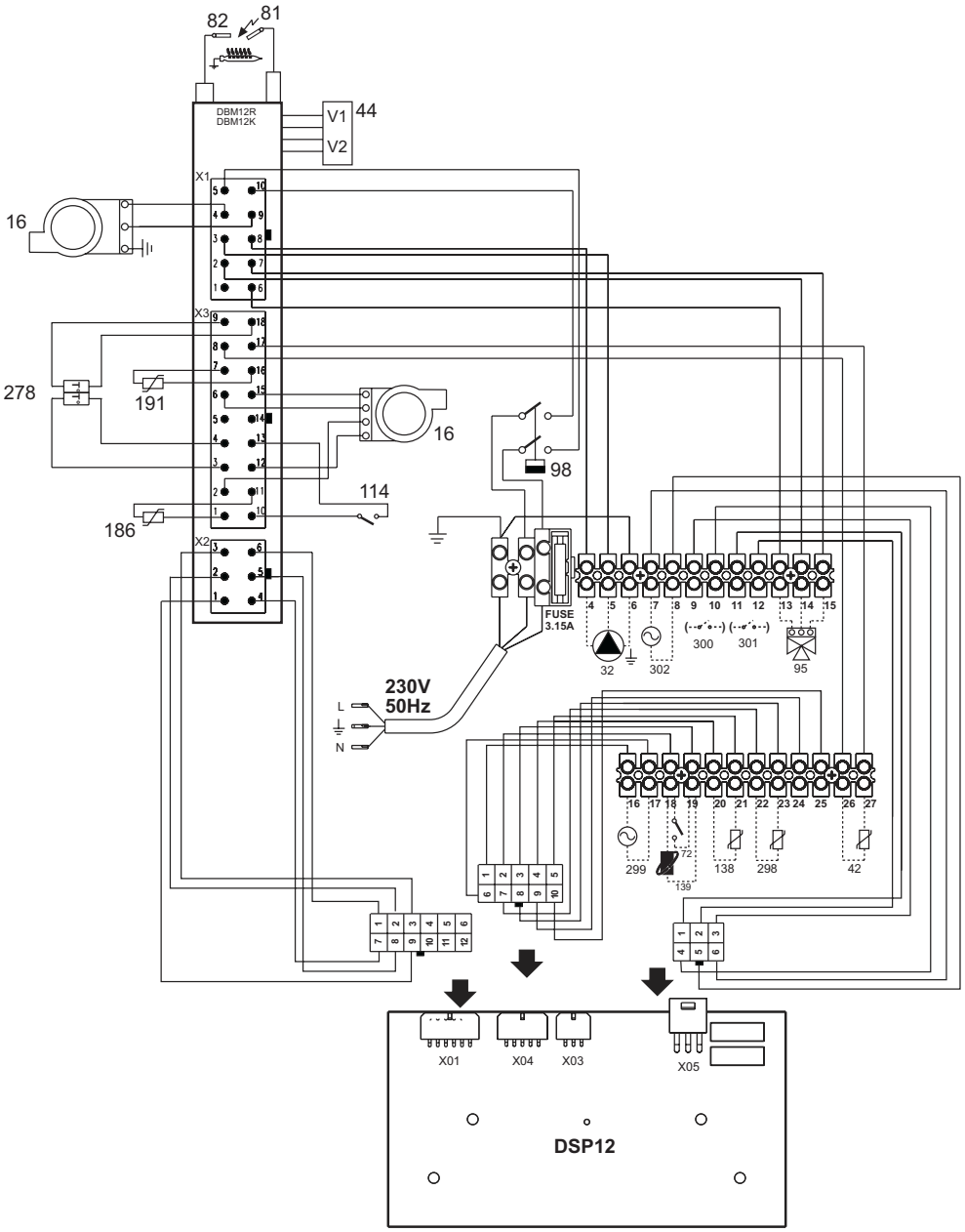


fig. 32 - Wiring diagram

16 Fan
32 Heating circulating pump (not supplied)
42 DHW temperature sensor (not supplied)
44 Gas valve
72 Room thermostat (not supplied)
81 Ignition electrode
82 Detection electrode
95 Diverter valve (not supplied)
98 Switch
114 Water pressure switch
138 External probe (not supplied)
139 Remote timer control (not supplied)
186 Return sensor
191 Fume temperature sensor
278 Double sensor (Safety + Heating)
298 Cascade temperature sensor (not supplied)
299 Input 0-10 Vdc
300 Burner On contact (voltage-free contact)
301 Fault contact (voltage-free contact)
302 Remote reset input (230 Volt)

BENCHMARK No. 2 6 7 | | | |

Please add the first 4 digits of the Boiler serial No to complete the BENCHMARK No.

GAS BOILER COMMISSIONING CHECKLIST

BOILER SERIAL No. _____ ***NOTIFICATION No.*** _____

CONTROLS *To comply with the Building Regulations, each section must have a tick in one or other of the boxes*

TIME & TEMPERATURE CONTROL TO HEATING	ROOM T/STAT & PROGRAMMER/TIMER	☐	PROGRAMMABLE ROOMSTAT	☐
TIME & TEMPERATURE CONTROL TO HOT WATER	CYLINDER T/STAT & PROGRAMMER/TIMER	☐	COMBI BOILER	☐
HEATING ZONE VALVES	FITTED	☐	NOT REQUIRED	☐
HOT WATER ZONE VALVES	FITTED	☐	NOT REQUIRED	☐
THERMOSTATIC RADIATOR VALVES	FITTED	☐		
AUTOMATIC BYPASS TO SYSTEM	FITTED	☐	NOT REQUIRED	☐

FOR ALL BOILERS CONFIRM THE FOLLOWING

THE SYSTEM HAS BEEN FLUSHED IN ACCORDANCE WITH THE BOILER MANUFACTURER'S INSTRUCTIONS? ☐

THE SYSTEM CLEANER USED

THE INHIBITOR USED

FOR THE CENTRAL HEATING MODE, MEASURE & RECORD

GAS RATE		m^3/hr		ft^3/hr
BURNER OPERATING PRESSURE (IF APPLICABLE)	☐ N/A			mbar
CENTRAL HEATING FLOW TEMPERATURE				°C
CENTRAL HEATING RETURN TEMPERATURE				°C

FOR COMBINATION BOILERS ONLY

HAS A WATER SCALE REDUCER BEEN FITTED? YES ☐ NO ☐

WHAT TYPE OF SCALE REDUCER HAS BEEN FITTED?

FOR THE DOMESTIC HOT WATER MODE, MEASURE & RECORD

GAS RATE		m^3/hr		ft^3/hr
MAXIMUM BURNER OPERATING PRESSURE (IF APPLICABLE)	☐ N/A			mbar
COLD WATER INLET TEMPERATURE				°C
HOT WATER OUTLET TEMPERATURE				°C
WATER FLOW RATE				lts/min

FOR CONDENSING BOILERS ONLY CONFIRM THE FOLLOWING

THE CONDENSATE DRAIN HAS BEEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS? YES ☐

FOR ALL INSTALLATIONS CONFIRM THE FOLLOWING

THE HEATING AND HOT WATER SYSTEM COMPLIES WITH CURRENT BUILDING REGULATIONS ☐

THE APPLIANCE AND ASSOCIATED EQUIPMENT HAS BEEN INSTALLED AND COMMISSIONED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS ☐

IF REQUIRED BY THE MANUFACTURER, HAVE YOU RECORDED A CO/CO_2 RATIO READING? N/A ☐ YES _____ CO/CO_2 RATIO

THE OPERATION OF THE APPLIANCE AND SYSTEM CONTROLS HAVE BEEN DEMONSTRATED TO THE CUSTOMER ☐

THE MANUFACTURER'S LITERATURE HAS BEEN LEFT WITH THE CUSTOMER ☐

COMMISSIONING ENG'S NAME PRINT _____ CORGI ID No. _____

SIGN _____ DATE _____

SERVICE INTERVAL RECORD

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

Service Provider. Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the boiler manufacturer's instructions. Always use the manufacturer's specified spare part when replacing all controls

SERVICE 1 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 2 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 3 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 4 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 5 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 6 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 7 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 8 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 9 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

SERVICE 10 DATE
ENGINEER NAME
COMPANY NAME
TEL No.
CORGI ID CARD SERIAL No.
COMMENTS

SIGNATURE

FERROLI TECHNICAL HELPLINE - 08707 282 885

Should you require any assistance during the installation call our Technical Service Helpline on 08707 282 885 option 1
Should you require a service engineer to visit call our service centre on 08707 282 885 option 2
(For U.K. and Northern Ireland)

For EIRE only call HEATOVENT on 014508166

Phone numbers:

Installer _____

Service Engineer _____

BECAUSE OF OUR CONSTANT ENDEAVOUR FOR IMPROVEMENT DETAILS MAY VARY SLIGHTLY FROM THOSE QUOTED IN THESE INSTRUCTIONS.

Ferroli

ALL SPECIFICATIONS SUBJECT TO CHANGE

Please note - to avoid incurring unnecessary expense, in the event of a boiler shut down, check this is not caused by lack of electricity supply, gas supply or low water pressure before calling our Customer Service Helpline.

Lichfield Road, Branston Industrial Estate, Burton Upon Trent, Staffordshire DE14 3HD
Tel. 08707 282 885 - Fax 08707 282 886

EIRE only:
HEATOVENT Greenhills Industrial Estate,
Greenhills Road, Walkinstown, Dublin 12, IRELAND
Tel 014508166 - Fax 014508501