

BAXI

HIGH EFFICIENCY WALL-MOUNTED GAS-FIRED BOILERS

LUNA 3 COMFORT

INSTALLER'S AND USER'S INSTRUCTIONS

Australian Agent and Distributor:



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Dear Customer,

Our company is confident our new product will meet all your requirements. Buying one of our products guarantees all your expectations: good performance combined with simple and rational use. Please do not put this booklet away without reading it first: it contains useful information for the correct and efficient use of your product.

Our company, constantly striving to improve the products, reserves the right to modify the details given in this documentation at any time and without notice. These Instructions are only meant to provide consumers with use information and under no circumstance should they be construed as a contract with a third party.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

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1. INSTRUCTIONS PRIOR TO INSTALLATION

This appliance shall be installed in accordance with the manufacturer's installation instructions, local gas fitting, electrical and water authority regulations, municipal building codes, AS5601 - Gas Installations and any other relevant statutory regulations.

This boiler is designed to heat water at a lower than boiling temperature at atmospheric pressure. The boiler must be connected to a central heating system and to a domestic hot water supply system in compliance with its performances and output power.

Have the boiler installed by a Qualified Service Engineer and ensure the following operations are accomplished:

- a) careful checking that the boiler is fit for operation with the type of gas available. For more details see the notice on the packaging and the label on the appliance itself.
- b) careful checking that the flue terminal draft is appropriate; that the terminal is not obstructed and that no other appliance exhaust gases are expelled through the same flue duct, unless the flue is especially designed to collect the exhaust gas coming from more than one appliance, in conformity with the laws and regulations in force.
- c) careful checking that, in case the flue has been connected to pre-existing flue ducts, thorough cleaning has been carried out in that residual combustion products may come off during operation of the boiler and obstruct the flue duct.
- d) to ensure correct operation of the appliance and avoid invalidating the guarantee, observe the following precautions:

1. Hot water circuit:

1.1. If the water hardness is greater than 20 °F (1 °F = 10 mg calcium carbonate per litre of water) a polyphosphate or comparable treatment system responding to current regulations.

1.2. Domestic Hot Water circuit must be thoroughly flushed after the installation of the appliance and before its use.

2. Heating circuit

2.1. new system

Before proceeding with installation of the boiler, the system must be cleaned and flushed out thoroughly to eliminate residual thread-cutting swarf, solder and solvents if any, using suitable proprietary products.

To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non alkaline. The recommended products for cleaning are:

SENTINEL X300 or X400 and FERNOX heating circuit restore. To use this product proceeding strictly in accordance with the maker's directions.

2.2. existing system

Before proceeding with installation of the boiler, the system must be cleaned and flushed out to remove sludge and contaminants, using suitable proprietary products as described in section 2.1.

To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline such as SENTINEL X100 and FERNOX heating circuit protective. To use this product proceeding strictly in accordance with the maker's directions.

Remember that the presence of foreign matter in the heating system can adversely affect the operation of the boiler (e.g. overheating and noisy operation of the heat exchanger).

Failure to observe the above will render the guarantee null and void.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch: do not use any phone in your building.
- Immediately call your gas supplier from a neighbour's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department. Installation and service must be performed by a qualified installer, service agency or the gas supplier.

WARNINGS

THIS APPLIANCE IS NOT SUITABLE AS A POOL HEATER.

DO NOT SPRAY AEROSOLS IN THE VICINITY OF THIS APPLIANCE WHILE IT IS IN OPERATION.

DO NOT USE OR STORE FLAMMABLE MATERIALS IN OR NEAR THIS APPLIANCE.

DO NOT PLACE ARTICLES ON OR AGAINST THIS APPLIANCE.

DO NOT MODIFY THIS APPLIANCE.

SERVICING SHALL BE CARRIED OUT ONLY BY AUTHORIZED PERSONNEL.

WARNINGS

- FOR CONTINUED SAFETY OF THIS APPLIANCE IT MUST BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- THIS APPLIANCE MAY DELIVER WATER AT HIGH TEMPERATURE. REFER TO THE PLUMBING CODE OF AUSTRALIA (PCA), LOCAL REQUIREMENTS AND INSTALLATION INSTRUCTIONS TO DETERMINE IF ADDITIONAL DELIVERY TEMPERATURE CONTROL IS REQUIRED.

2. INSTRUCTIONS PRIOR TO COMMISSIONING

Initial lighting of the boiler must be carried out by a licensed technician. Ensure the following operations are carried out:


- compliance of boiler parameters with (electricity, water, gas) supply systems settings.
- compliance of installation with the laws and regulations in force.
- appropriate connection to the power supply and grounding of the appliance.

Failure to observe the above will render the guarantee null and void.

Prior to commissioning remove the protective plastic coating from the unit. Do not use any tools or abrasive detergents as you may spoil the painted surfaces.

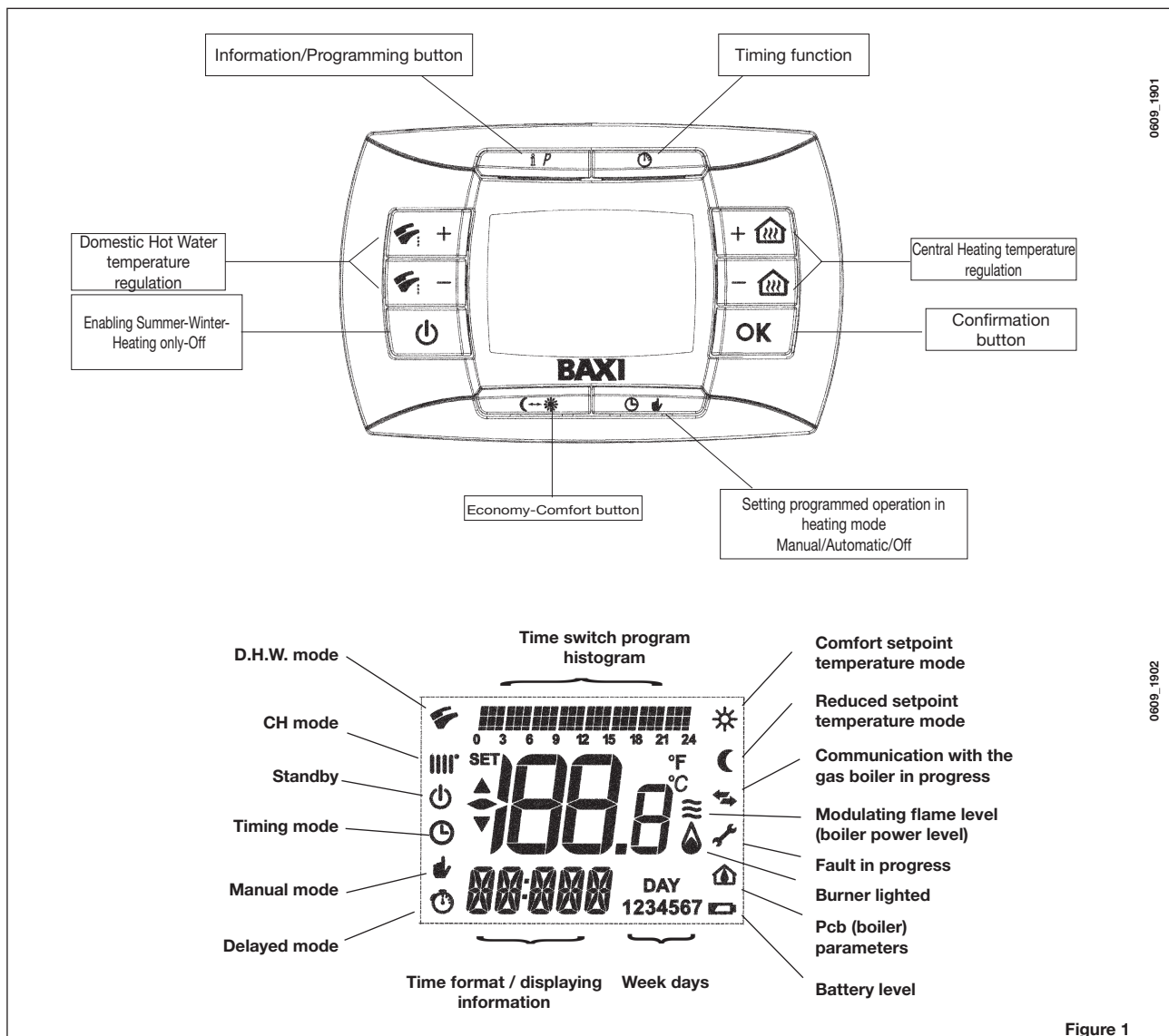
3. COMMISSIONING OF THE BOILER

To correctly light the boiler proceed as follows:

- Provide power supply to the boiler.
- open the gas cock;
- press the  button, to set the gas boiler mode as described in section 3.2.

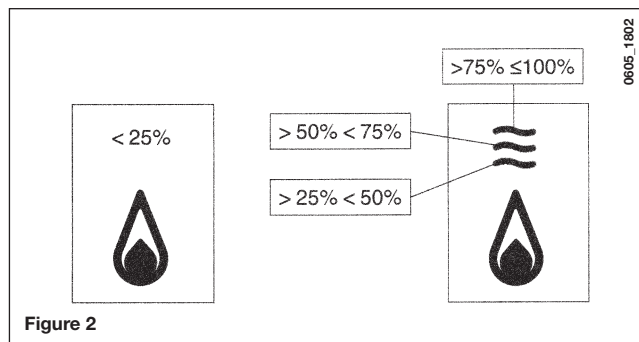
Note: if summertime mode is setting, the boiler will light only during a D.H.W. demand.

- To adjust the CH and D.H.W. temperature, press the +/- respective buttons as described in section 3.3.



3.1 SYMBOL MEANING


There are 4 power levels displayed during boiler operation, relevant to the gas boiler modulation, as shown in fig. 2:






3.2 DESCRIPTION OF BUTTON (Summer - Winter - Heating only - Off)



Press this button to set the following boiler operation modes:

- **SUMMER**
- **WINTER**
- **HEATING ONLY**
- **OFF**

In **SUMMER** mode the symbol  is shown on the display. The boiler only meets DHW demands; heating mode is not enabled (frost protection function is enable).

In **WINTER** mode the symbols   are shown on the display. The boiler meets DHW and heating mode demands (frost protection function activated).

In **HEATING ONLY** mode the symbol  is shown on the display. The boiler only meets heating mode demands (frost protection function is enable).

If **OFF** is selected, neither of the two symbols () () is displayed. In this mode only the frost protection function is enabled and any other demands in DHW or heating mode are not met.


3.3 DESCRIPTION OF BUTTON (AUTOMATIC-MANUAL-OFF)

By pressing this button it is possible to set one of the following Heating modes:
AUTO-MANUAL-OFF as describe below.

AUTO (Displayed symbol)

The Heat request depends on the type of the "Time Programs" set (COMFORT room temperature "☀" or REDUCED room temperature "❄"). See section 3.6 to set the programming heating mode.

MANUAL (Displayed symbol)

This function disables the "Time Programming" in Heating mode. Press the +/-  button to set the room temperature value.

OFF (Displayed symbol)

This function disables the Heating mode and the display shows the  symbol (the frost protection is enabled).

3.4 ROOM AND DOMESTIC HOT WATER (D.H.W.) TEMPERATURE ADJUSTMENT

The room (||||) and D.H.W. (🔥) temperature adjustment are carried out by pressing the relative +/- buttons (figure 1). When the burner is lighted the display shows the symbol (💧) as described in section 3.1.

CENTRAL HEATING (CH)

The system must be equipped with a room thermostat (see the relevant regulations) to control the temperature in the rooms. During a CH mode, the display shows a CH (||||) symbol and the room temperature value (°C).

During a temperature regulation, the display shows “AMB”.

DOMESTIC HOT WATER (D.H.W.)

During a D.H.W. request, the display shows a D.H.W. (🔥) symbol and the room temperature value (°C).

During a temperature regulation, the display shows “HW SP”.

Note that water directly to sanitary fixture an additional temperature control device has to be installed in order to avoid that the hot water temperature exceeds 50°C.

NOTICE:

if an external water tank is connected to the gas boiler, during a domestic hot water request, the display shows a (🔥) symbol and the room temperature value (°C).

3.4.1. Remote control installed on the boiler front panel

If the remote control is installed on the boiler front panel, the +/- 🏠 buttons regulate the Central Heating flow temperature. The display shows the room temperature.

3.5 PROGRAMMING (PROGR)

SETTING THE DATE-TIME

Press the **IP** button: the display shows (briefly) the message **PROGR** and the time starts flashing.

Note: If no button is pressed the function ends automatically after approx. 1 minute.

- Use the buttons +/- 🏠 to set the hour;
- Press the OK button;
- Use the buttons +/- 🏠 to set the minutes;
- Press the OK button;
- Use the buttons +/- 🏠 to set the day of the week “Day”
(1...7 corresponding to Monday...Sunday);

Press the **IP** button to exit DATE-TIME setting.

3.6 PROGRAMMING HEATING MODE OPERATION TIMES

To enable the function, press the 🕒 button (the display shows the 🕒 symbol)

Time period programming allows the setting of boiler automatic operation in heating mode in fixed time slots and on fixed days of the week.





Boiler operation settings can be made for **single** days or **groups** of consecutive days.

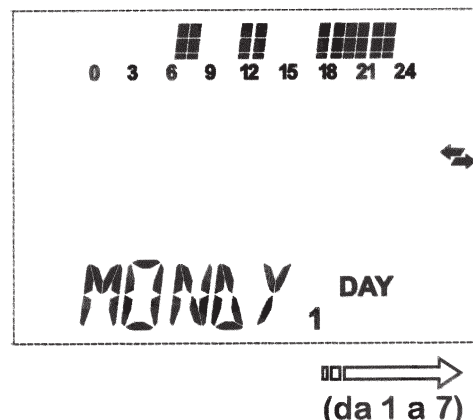
3.6.1. Single days

Four time bands (4 boiler activation and deactivation periods in heating mode even with different times from day to day) are available for every day selected, as shown in the following table:

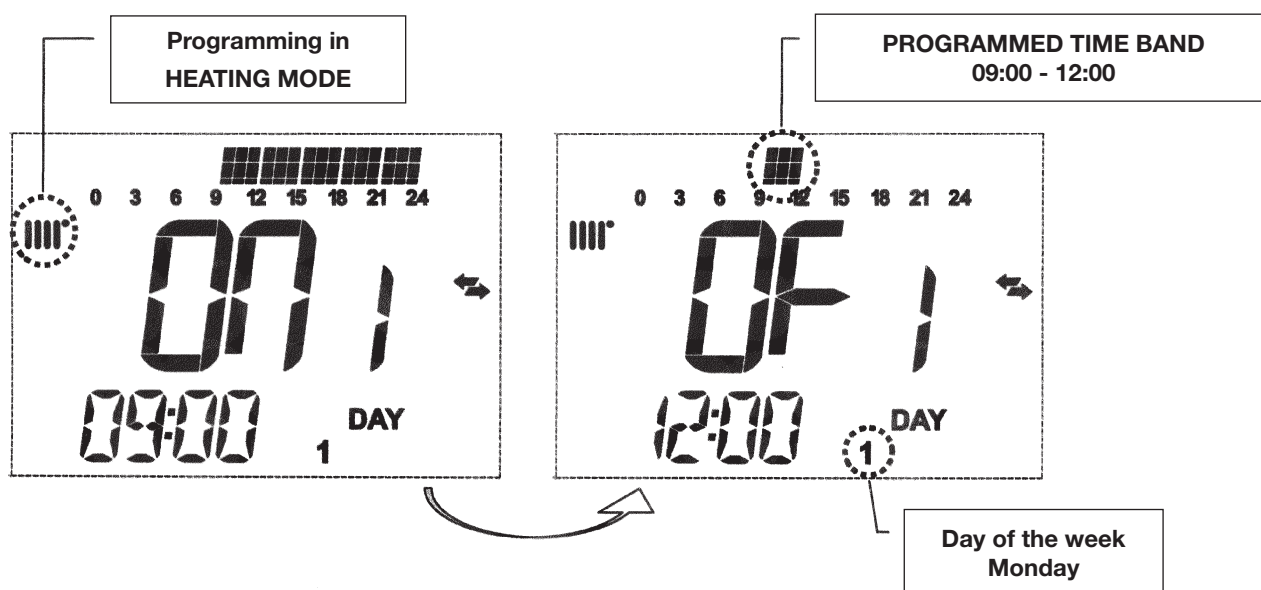
| | | | FACTORY SETTINGS | | | | | | | |
|-------|-------|-------------|------------------|-------|-------|-------|-------|-------|-------|-------|
| | | | On 1 | Of 1 | On 2 | Of 2 | On 3 | Of 3 | On 4 | Of 4 |
| MONDY | DAY 1 | (monday) | 06:00 | 08:00 | 11:00 | 13:00 | 17:00 | 23:00 | 24:00 | 24:00 |
| TUEDY | DAY 2 | (tuesday) | | | | | | | | |
| WEDDY | DAY 3 | (wednesday) | | | | | | | | |
| THUDY | DAY 4 | (thursday) | | | | | | | | |
| FRIDY | DAY 5 | (friday) | | | | | | | | |
| SATDY | DAY 6 | (saturday) | | | | | | | | |
| SUNDY | DAY 7 | (sunday) | | | | | | | | |

To set a single time band, proceed as follows:

- 1) Press the **IP** button and then the button ;
- 2) choose a day of the week (1...7) by repeatedly pressing the buttons +/- ;
- 3) press the **OK** button;
- 4) the display shows the message **on 1** and the 4 digits of the time flashing, as shown in the figure below;
- 5) use the buttons +/-  to set the boiler lighting time;
- 6) press the **OK** button;
- 7) the display shows the message **of 1** and the 4 digits of the time flashing;
- 8) use the buttons +/-  to set the boiler switching off time;
- 9) press the **OK** button;
- 10) repeat the same operations (from point 4) to set the remaining three time bands;
- 11) press the **IP** button to exit the function.



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Note: By setting the lighting time **on...** equal to the switching off time **of...**, the time band is cancelled and the program goes to the next time slot.

(ex. **on1**=09:00 - **of1**=09:00 the programme "skips" time band 1 and continues with **on2**...).

3.6.2. Groups of days

This function enables the programming of 4 common boiler activation and deactivation time slots for several days or the entire week (see the summary table below).

To set a single time band, proceed as follows:

- 1) Press the **IP** button and then the button ;
- 2) Select a **GROUP** of days by repeatedly pressing the buttons +/- ;
- 3) press the **OK** button
- 4) repeat the operations described in points 4-10 of paragraph 3.6.1.

Summary table of available groups of days



| | | | FACTORY SETTINGS |
|---------------|-------------------|-------------------------|----------------------------------|
| Group "MO-FR" | DAY 1 2 3 4 5 | from Monday to Friday | As per table in paragraph 3.6.1. |
| Group "SA-SU" | DAY 6 7 | Saturday and Sunday | 07:00 – 23:00 |
| Group "MO-SA" | DAY 1 2 3 4 5 6 | from Monday to Saturday | As per table in paragraph 3.6.1. |
| Group "MO-SU" | DAY 1 2 3 4 5 6 7 | every day of the week | As per table in paragraph 3.6.1. |

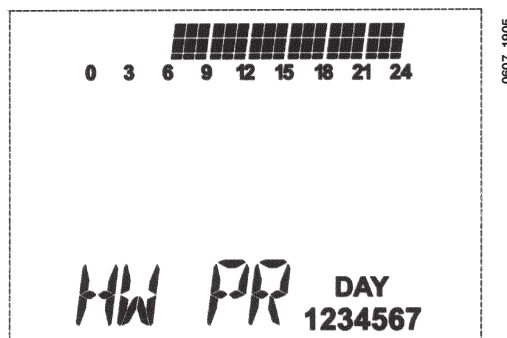
3.7 PROGRAMMING DHW MODE OPERATION TIMES

(only for boilers connected to an external heater)

This function enables the programming of four boiler DHW mode operation time slots in the span of a week (the programmed time slots are the same for every day of the week).

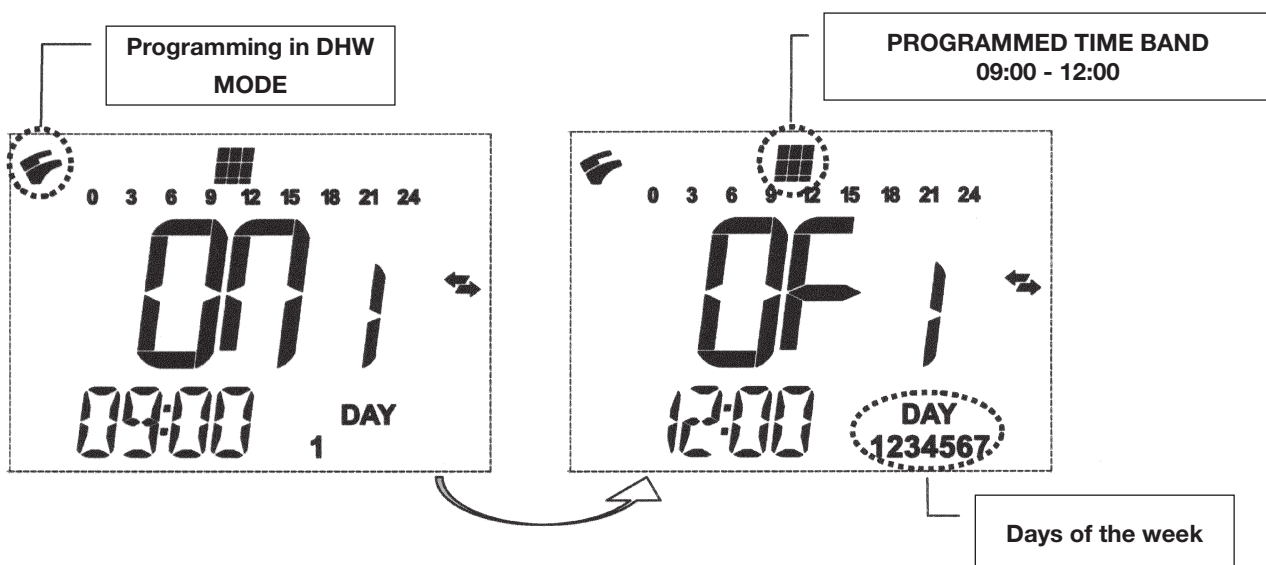
To set the programming of DHW mode operation times, proceed as follows:

- 1) Press the **IP** button and then the button  to enter the programming (heating and DHW modes);
- 2) Select the DHW programme "**HW PR**" by repeatedly pressing the buttons +/- .
- 3) Press the **OK** button
- 4) Set the time slots in which you can enable DHW mode operation by repeating the operations described in points 4-10 of paragraph 3.6.1 (factory setting 06:00 - 23:00).



IMPORTANT:

the installer has to set "**HW PR**" parameter = 2, as described in section 19.1.



4. SPECIAL FUNCTIONS



4.1 ECONOMY - COMFORT FUNCTION

This function enables the user to set two different room temperature setpoints:

Economy / Comfort.

For more simplicity it's better to set the COMFORT value temperature higher than the ECONOMY value temperature.

To set the required room temperature, press the  button:


- the “**ECONM**” writing shows the operating in reduced room temperature mode; display shows  symbol;
- the “**COMFR**” writing shows the operating in nominal room temperature mode; display shows  symbol;

To temporary change the setting room temperature value, press +/-  buttons or see section 4.3.



This function could operates in automatic or in manual mode:


AUTOMATIC OPERATION (displayed symbol)

The setting room temperature depends on the time slot (section 3.6). Inside the time slot the room temperature is the COMFORT value, outside the time slot the room temperature is the ECONM value.

To temporary change the room temperature value (from COMFORT to ECONOMY or vice versa) press the  button. This changes has effect until the next time change over.

MANUAL OPERATION (displayed symbol)

Press   button to set the gas boiler in manual operation mode

To temporary change the room temperature value (from COMFORT to ECONOMY or vice versa) press the  button. This change has effect until the next button pressure.





4.2 SHOWER FUNCTION


The shower function ensures better hot water comfort, e.g. during a shower.

This function enables domestic hot water to be drawn at a lower temperature than the nominal temperature value.

To set or modify the max. shower function temperature value, refer to section 4.3.

This function can be manually activated in the following way:

- Press one of the two buttons +/-  and then the button  to activate the function; (the message **SHOWR** briefly appears on the display, followed by the message **HW SS**);
- press the **OK** button while the flow temperature and the symbol  flash on the display;
- the duration of the function is **60 minutes** (during this time the symbol  flashes).

At the end of this time the domestic hot water temperature returns to the value of the previously set operating mode (the symbol  is no longer intermittent on the display).

Note: To disable the function before the end of the 60 minutes, proceed as follows:


- press one of the two buttons +/-  and then the button ;
- press the **OK** button, the display shows the message “**HW S^** “..

4.3 TEMPERATURE VALUES MODIFICATION BY PRESSING THE BUTTON

To modify the room temperature values, proceed as follows:

- press the **IP** button to enable the **PROGR** function;
- press the  button to select the required function as described in the following table:

| Function | Display | Description of function |
|--------------|---|--|
| COMFR | The set temperature value flashes (factory setting = 20°C) | Boiler operation in heating mode at nominal temperature. |
| ECONM | The set temperature value flashes (factory setting = 18°C) | Boiler operation in heating mode at reduced temperature. |
| NOFRS | The set temperature value flashes (factory setting = 5 °C) | Boiler operation in heating mode at room frost protection temperature. |
| SHOWR | The set temperature value flashes (factory setting = 40°C) | Boiler operation in DHW mode at DHW temperature set. |






- Press the +/-  button to modify the value of the selected function.
- Press the **IP** button to exit the function.

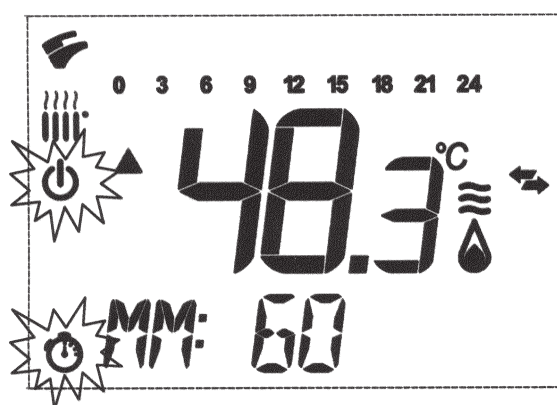
4.4 PROGRAMMABLE SWITCHING TIME FUNCTION (BUTTON)

4.4.1 HOLIDAY PROGRAM function


It is possible to temporary shut off the timing program (section 3.6) for a certain period of time. During this period of time a minimum room temperature value is guaranteed (default value 5°C). To modify this temperature value see section 4.3 under the entry “**NOFRS**”.


To enable the function proceed as follows:

- press the  button to set the function to “**AUTO**” (symbol );
- press the  button, the display shows the writing **MM 60** and the   symbols flashing.



In this example the function has a period of 60 minutes.


Press the +/-  buttons to set the period of the timing program with 10 minutes step. The period of time is settable from a minimum of 10 minutes to a maximum of 45 days.

By pressing the +  button after **90 minutes**, the display shows “**HH 02**”:

in this case the period of time is carries out in hours from a minimum of 2 hours to a maximum of 47 hours, with 1 hour step.

By pressing the +  button after **47 hours**, the display shows “**DD 02**”:

in this case the period of time is carried out in days from a minimum of 2 days to a maximum of 45 days, with 1 day step.








WARNING: do not press any button after having enabled this function. By pressing some of the remote control buttons, it is possible that the manual function is enabled by mistake (in this case the display shows the  symbol) and that causes the “Holiday Program” function shut off. In this case it is necessary to repeat the instructions described at the beginning of this section to enable again the function.

4.4.2 PARTY function

This function allows the user to set a temporary room temperature value. It is possible to change this temperature value also during the function operation.

The operating mode returns to a previews setting at the end of this period of time.

To enable the function, proceed as follows:


- press the   button to set the function to “MANUAL” (symbol );
- press the  button, the display shows the writing **MM 60** and the   flashing;
- to set the period of the timing program see the section 4.4.1.
- to modify the room temperature value, press the “OK” button (the display shows “AMB”) then press the +/-  buttons.

5. FILLING THE BOILER

IMPORTANT: Regularly check that the pressure displayed by the pressostat (figure 3) is 0.7 to 1.5 bar, with boiler not operating. In case of overpressure, open the boiler drain valve (figure 3).

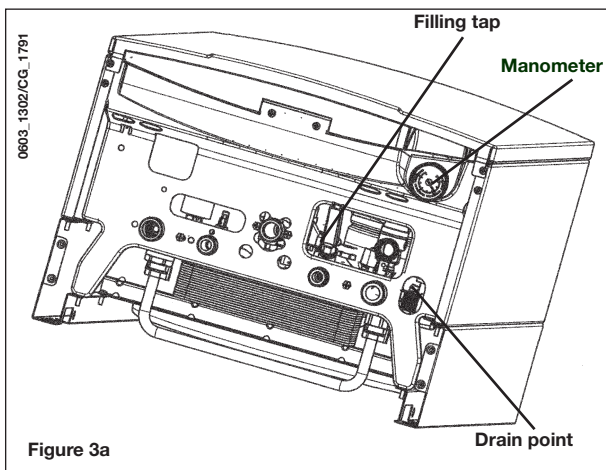
In case the pressure is lower open the boiler filling tap (figure 3).

We recommend you open the tap very slowly in order to let off the air.

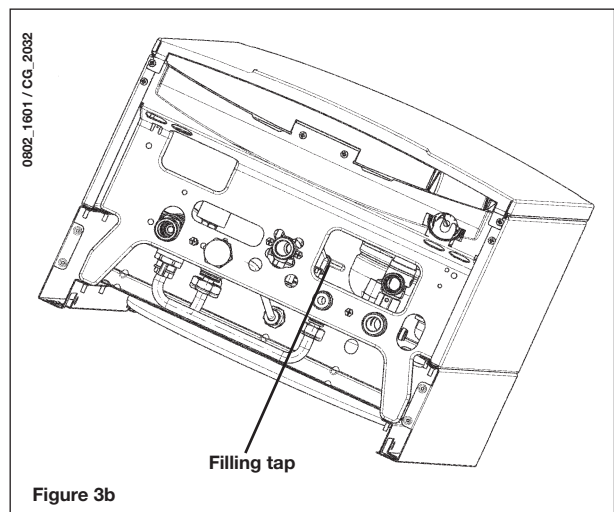
During this operation, the gas boiler must be in “OFF” mode (press the  - figure 1).

NOTE: In case pressure drops occur frequently have the boiler checked by a Qualified Service Engineer.

310 Fi



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6. TURNING OFF THE BOILER

To switch off the boiler, the electrical power to the appliance must be turned off. If the boiler is “OFF” (section 3.2), the electrical circuits remain powered and the frost protection function is activated (section 8).

7. GAS CHANGE

These boilers set for natural gas can be converted to work with **LPG**.

Any gas change must be effected by a Qualified Service Engineer.

8. PROLONGED STANDSTILL OF THE SYSTEM. FROST PROTECTION

We recommend you avoid draining the whole system as water replacements engender purposeless and harmful limestone deposits inside the boiler and on the heating elements. In case the boiler is not operated during wintertime and is therefore exposed to danger of frost we suggest you add some specific-purpose anti-freeze to the water contained in the system (e.g.: propylene glycole coupled with corrosion and scaling inhibitors).

The electronic management of boilers includes a "frost protection" function in the central heating system which operates the burner to reach a heating flow temperature of 30° C when the system heating flow temperature drops below 5°C.

The frost protection function is enabled if:

- * electrical supply to the boiler is on;
- * the gas service cock is open;
- * the system pressure is as required;
- * the boiler is not blocked.

9. ERROR MESSAGES AND TABLE OF FAULTS

There are two type of fault carried out by the temperature control: **FAULT** and **BLOCK**.



FAULT

If a fault occurs, the display shows the   symbols flashing together with the **<ERROR>** writing.

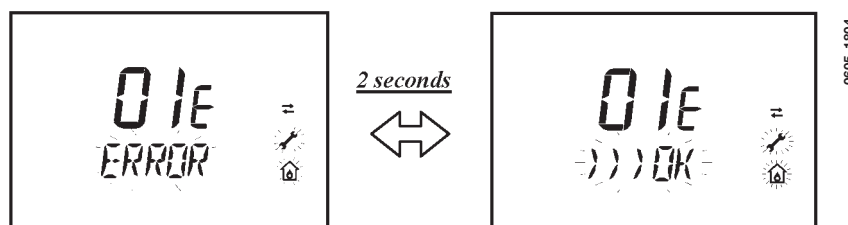
The fault is identified by an error code followed by **E** letter and is not resettable. Call an authorized Service Centre.



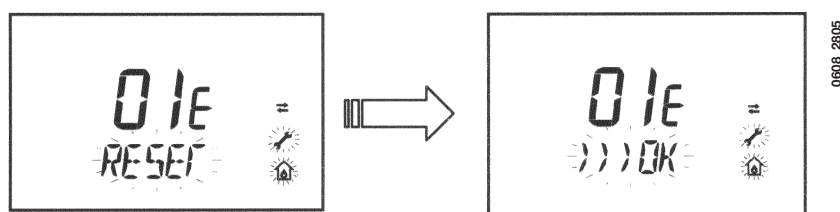
BLOCK

If a block occurs, the display shows the   symbols flashing together with the **<ERROR>** writing alternated, with 2 seconds step, with the **<>>>OK>** flashing writing.

The block fault is identified by an error code (see the table below) followed by **E** letter.



Press the **OK** button (figure 1) to reset the gas boiler. The display shows the **<RESET>** writing and then the **>>>OK** writing



| ERROR CODE | Description of FAULTS | CORRECTIVE ACTION |
|------------|--|---|
| 01E | Gas supply fault | Press the OK button (figure 1) for at least 2 seconds. If this fault persist, call an authorised Service centre. |
| 02E | Safety thermostat sensor tripped | Press the OK button (figure 1) for at least 2 seconds. If this fault persist, call an authorised Service centre. |
| 03 | Flue pressure switch tripped | Call an authorised Service centre. |
| | Flue thermostat sensor tripped | Press the OK button (figure 1) for at least 2 seconds. If this fault persist, call an authorised Service centre. |
| 04E | Safety error for frequently loss of flame | Call an authorised Service centre. |
| 05E | Central heating NTC sensor fault | Call an authorised Service centre. |
| 06E | Domestic Hot Water NTC sensor fault | Call an authorised Service centre. |
| 10E | Water pressure LOW | Check that the pressure in the system is as specified. See Section 5. If this fault persist, call an authorised Service centre. |
| 11E | Safety thermostat has cuts out (for low temperature system) | Call an authorized Service centre. |
| 18E | System water filling function enable (only for predisposed appliances) | Waiting until the system filling is finished |
| 19E | System filling anomaly (only for predisposed appliances) | Call an authorized Service centre. |
| 25E | Boiler max temperature exceeded (probable pump jammed or air in the circuit) | Call an authorized Service centre. |
| 31E | No communication between the main board and the remote temperature control | Press the OK button (figure 1) for at least 2 seconds. If this fault persists, call an authorized Service centre |
| 35E | Fault flame (parasitic flame) | Press the OK button (figure 1) for at least 2 seconds. If this fault persists, call an authorized Service centre |
| 80E-96E | Internal remote control error | Call an authorized Service centre. |
| 97E | Wrong power supply electrical frequency (Hz) | Set the correctly electrical frequency (Hz) |
| 98E-99E | Electrical main board internal error | Call an authorized Service centre. |

10. SERVICING INSTRUCTIONS

To ensure efficient operation of the boiler it is recommended that it is checked and serviced as necessary at regular intervals.

The frequency of servicing will depend upon the particular installation conditions and usage, but in general once per year should be adequate.

The manufacturer recommends that any service work must be carried out by a licensed technician.

Careful servicing will ensure economical operation of the system.

Do not clean the outer casing of the appliance with abrasive, aggressive and/or easily flammable cleaners (i.e.: gasoline, alcohol, and so on). Always isolate the electrical supply to the appliance before cleaning it (see section 6).

For service and spare parts contact Hydroheat Supplies on (03) 9588 1299.

10.1 COMPONENT REPLACEMENT OR PERIODIC CLEANING

It is the law that any service work must be carried out by a competent person.

WARNING

Before replacing any boiler components, isolate the electrical supply and close the boiler gas service cock. Allow the boiler to cool.

Always test for gas leaks after replacing any gas carrying components or disturbing any gas connections.

Check the operation of the boiler. (Refer to Commissioning of the Boiler, section 3). Ensure that all the controls are returned to their original settings.

CLEANING THE BOILER

- 1 Remove any deposits from heat exchanger using a suitable soft brush. Do not use a brush with metallic bristles.
- 2 Check the condition of the combustion chamber insulation panels. Any damaged panels must be replaced.
- 3 Check the condition of the burner injectors on the manifold, carefully clean them with a soft brush if necessary. Do not use a brush with metallic bristles as this might damage the injectors.
- 4 Remove any fallen deposits from the bottom of the inner case.
- 5 Clean the burner with a soft brush and check that the flame ports are clear. Blockages may be removed with a stiffer brush.
- 6 Check the condition of the electrodes.
- 7 Check the spark gap, positioning and height of the electrodes.
- 8 Check that the fan impeller is clean and free to rotate.
- 9 Clean the DHW flow sensor filter (6 - figure 20).
- 10 Check the expansion vessel pressure.

11. GENERAL INFORMATION

The following remarks and instructions are addressed to Service Engineers to help them carry out a faultless installation. Instructions regarding lighting and operation of the boiler are contained in the 'Instructions pertaining to the user' section. Note that installation, maintenance and operation of the domestic gas appliances must be performed exclusively by qualified personnel in compliance with current standards.

Please note the following:

- * This boiler can be connected to any type of double- or single feeding pipe convector plates, radiators, thermoconvectors. Design the system sections as usual though taking into account the available output / pump head performances, as shown in section 24.
 - * Do not leave any packaging components (plastic bags, polystyrene, etc.) within children's reach as they are a potential source of danger.
 - * Initial lighting of the boiler must be effected by a Qualified Service Engineer.
- Failure to observe the above will render the guarantee null and void.

This appliance shall be installed in accordance with the manufacturer's installation instructions, local gas fitting, electrical and water authority regulations, municipal building codes, AS5601 - Gas Installations and any other relevant statutory regulations.

WARNING - Before Leaving

Test the operation of the appliance after installation is complete. Check all connections for gas leaks with soap and water. DO NOT use a naked flame for detecting leaks. When satisfied with the boiler, please instruct the user on the correct method of operation. In case the appliance fails to operate correctly after all checks have been carried out, refer to the authorised service provider in your area".

12. INSTRUCTIONS PRIOR TO INSTALLATION

This boiler is designed to heat water at a lower than boiling temperature at atmospheric pressure. The boiler must be connected to a central heating system and to a domestic hot water supply system in compliance with its performances and output power.

Have the boiler installed by a Qualified Service Engineer and ensure the following operations are accomplished:

- a) careful checking that the boiler is fit for operation with the type of gas available. For more details see the notice on the packaging and the label on the appliance itself.
- b) careful checking that the flue terminal draft is appropriate; that the terminal is not obstructed and that no other appliance exhaust gases are expelled through the same flue duct, unless the flue is especially designed to collect the exhaust gas coming from more than one appliance, in conformity with the laws and regulations in force.
- c) careful checking that, in case the flue has been connected to pre-existing flue ducts, thorough cleaning has been carried out in that residual combustion products may come off during operation of the boiler and obstruct the flue duct.

To ensure correct operation of the appliance and avoid invalidating the guarantee, observe the following precautions:

1. Hot water circuit:

- 1.1. If the water hardness is greater than 20 °F (1 °F = 10 mg calcium carbonate per litre of water) a polyphosphate or comparable treatment system responding to current regulations.
- 1.2. Domestic Hot Water circuit must be thoroughly flushed after the installation of the appliance and before its use.

2. Heating circuit

2.1. new system

Before proceeding with installation of the boiler, the system must be cleaned and flushed out thoroughly to eliminate residual thread-cutting swarf, solder and solvents if any, using suitable proprietary products.

To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non alkaline. The recommended products for cleaning are:

SENTINEL X300 or X400 and FERNOX heating circuit restore. To use this product proceeding strictly in accordance with the maker's directions.

2.2. existing system

Before proceeding with installation of the boiler, the system must be cleaned and flushed out to remove sludge and contaminants, using suitable proprietary products as described in 2.1.

To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline such as SENTINEL X100 and FERNOX heating circuit protective. To use this product proceeding strictly in accordance with the maker's directions.

Remember that the presence of foreign matter in the heating system can adversely affect the operation of the boiler (e.g. overheating and noisy operation of the heat exchanger).

IMPORTANT: when connecting an instantaneous boiler (mixed) to a system with solar panels, the maximum temperature of the DHW at the boiler inlet must not be greater than:

- 60°C with a flow limiting device
- 70°C without a flow limiting device

13. BOILER INSTALLATION

Decide upon the boiler location, then tape the template on the wall. Connect the pipework to the gas and water inlets prearranged on the template lower bar. We suggest you fit two G3/4 stop cocks (available on demand) on the central heating system flow and return pipework; the cocks will allow to carry out important operations on the system without draining it completely. If you are either installing the boiler on a pre-existent system or substituting it, we suggest you also fit settling tank on the system return pipework and under the boiler to collect the deposits and scaling which may remain and be circulated in the system after the purge.

When the boiler is fixed on the template connect the flue and air ducts (fittings supplied by the manufacturer) according to the instructions given in the following sections.

LOCATION

Model 1.240 Fi Indoor, 1.310 Fi Indoor, 310 Fi Indoor.

The boiler **MUST** be installed within the building.

Model 1.240 Fi Outdoor, 1.310 Fi Outdoor, 310 Fi Outdoor.

The boiler **MUST** be installed outside the building.

All Models

The boiler must be installed on a flat vertical wall which is capable of supporting the weight of the boiler. The location must take account of the flueing method to be used and the position of the flue terminal, with regard to the requirements of AS5601.

Refer to AS5601 for gas pipe size details.

Refer to AS3688 for water pipe threaded fastening connections.

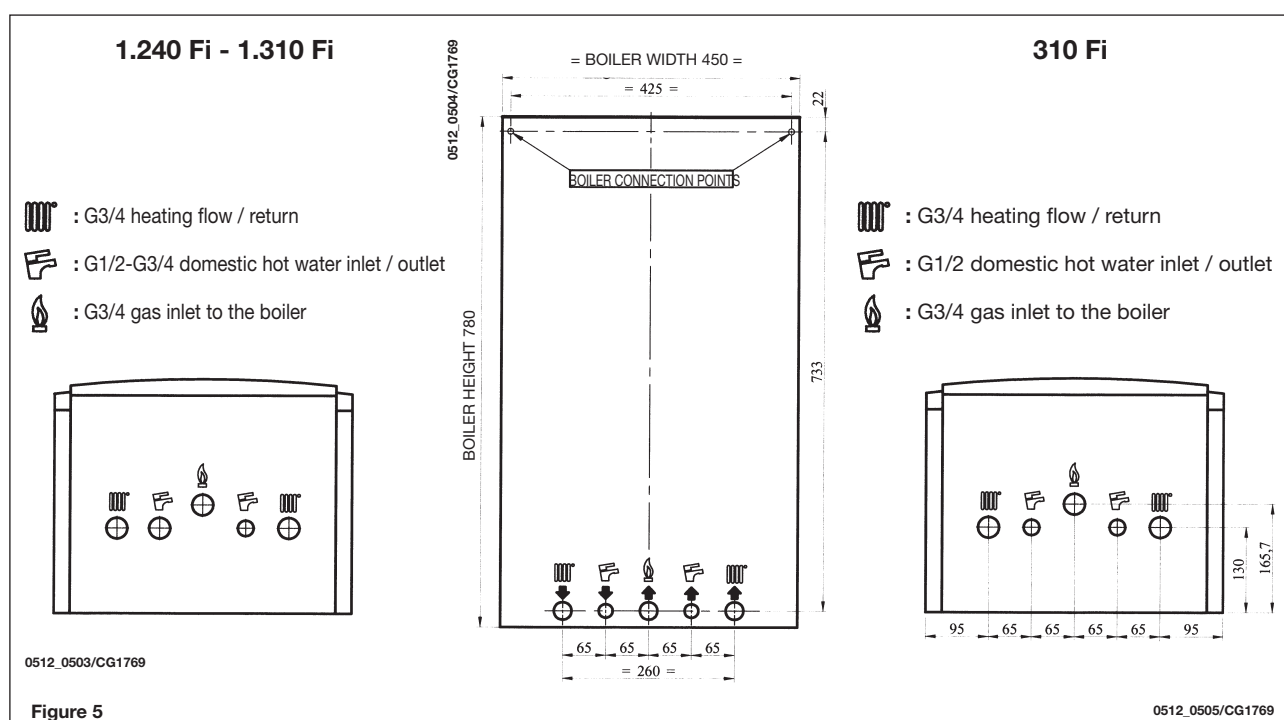
Refer to AS/NZS 3500.4 for "Plumbing and Drainage Heated Water Systems".

Clearances - Indoor Models

There must be a minimum clearance of 450mm between the top edge of the boiler and any horizontal surface above the boiler. Any regulations with regard to combustible surfaces and suitable fire protection must be observed.

Clearances - Indoor/ Outdoor Models

A minimum clearance of 100mm must be provided between the side of the boiler and any adjacent wall. A clear space of at least 600mm must be provided in front of the boiler, to allow access for service purposes.



14. BOILER SIZE

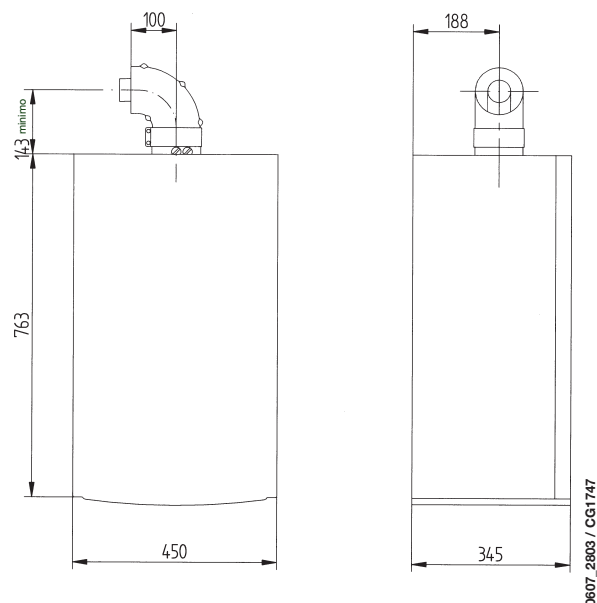


Figure 6

OUTDOOR INSTALLATION

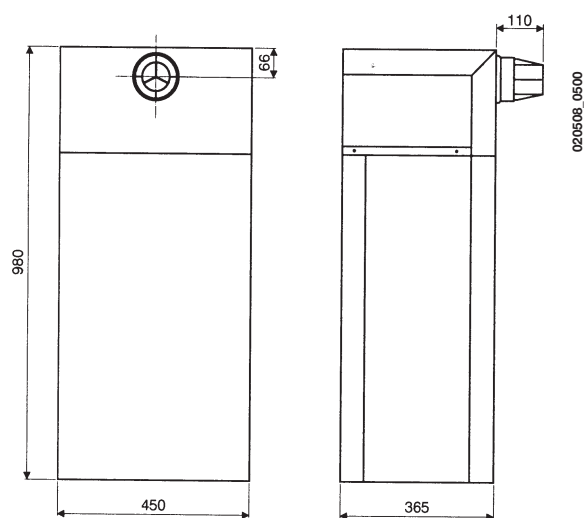


Figure 6.1

15. INSTALLATION OF FLUE AND AIR DUCTS

Models 310 Fi - 1.240 Fi - 1.310 Fi

We guarantee ease and flexibility of installation for a gas-fired forced draught boiler thanks to the fittings and fixtures supplied (described below).

The boiler is especially designed for connection to an exhaust flue / air ducting, with either coaxial, vertical or horizontal terminal. By means of a splitting kit a two-pipe system may also be installed.

Exclusively install fittings supplied by the manufacturer.

WARNING

To guarantee more operating insurance it is necessary to assure the flue pipes to the wall using the apposite clamps.

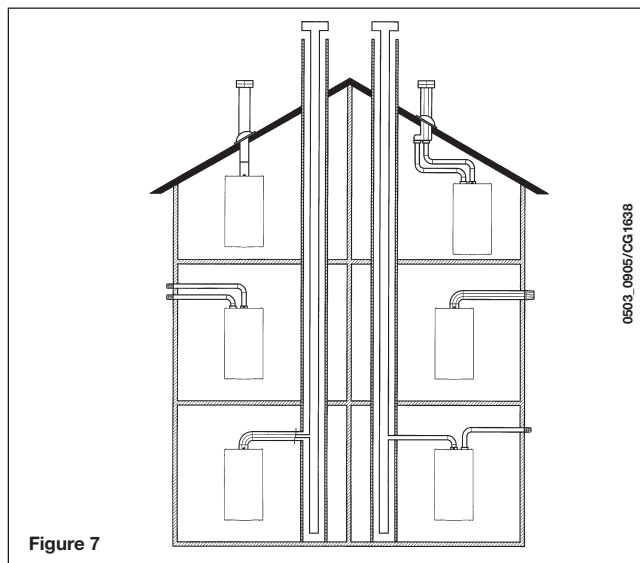


Figure 7

... COAXIAL FLUE - AIR DUCT (CONCENTRIC)

This type of duct allows to disengage exhaust gases and to draw combustion air both outside the building and in case a LAS flue is fitted.

The 90° coaxial bend allows to connect the boiler to a flue-air duct in any direction as it can rotate by 360°. It can moreover be used as a supplementary bend and be coupled with a coaxial duct or a 45° bend.

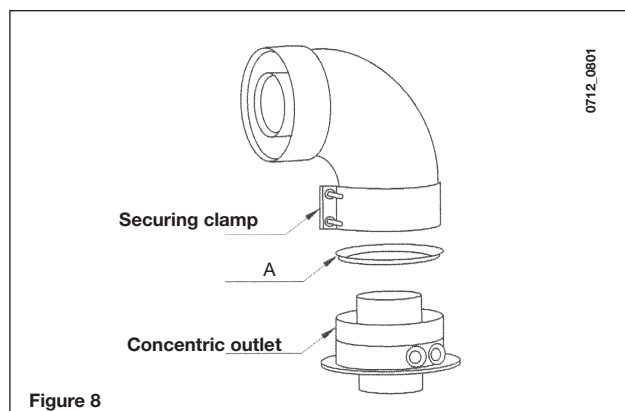


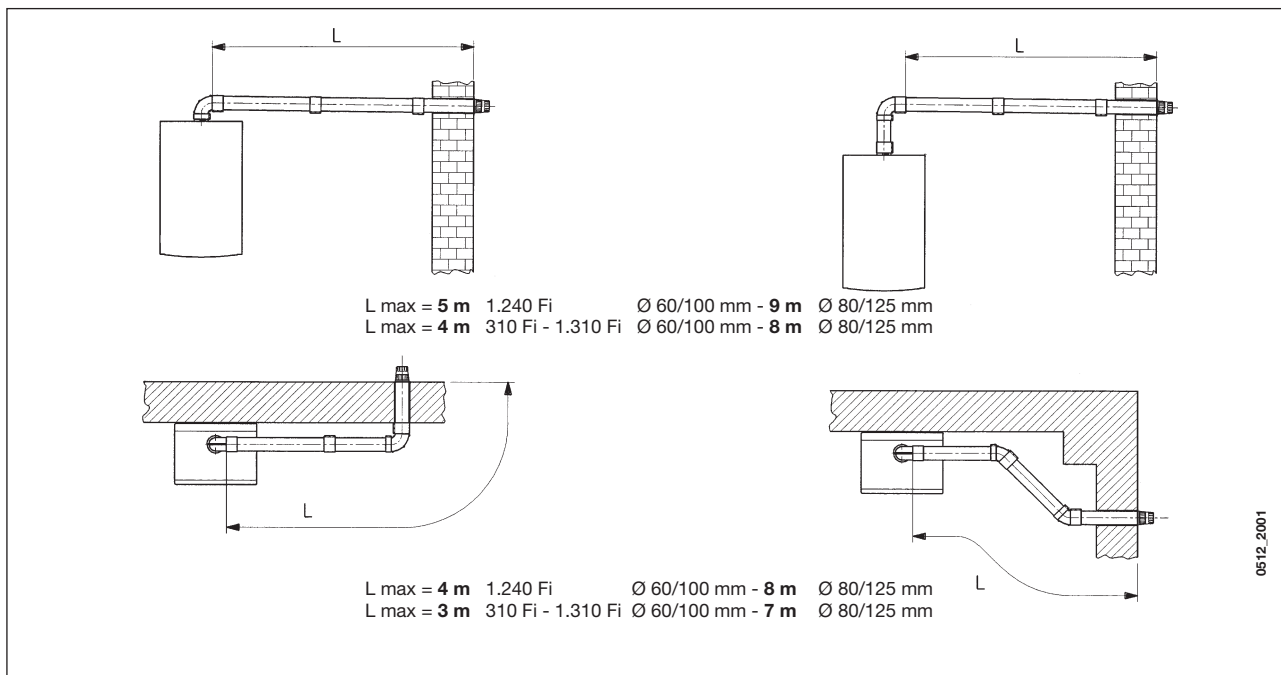
Figure 8

If the flue outlet is placed outside, the flue-air ducting must protrude at least 18mm out of the wall to allow aluminium weathering tile to be fitted and sealed to avoid water leakages. Ensure a minimum downward slope of 1 cm towards the outside per each metre of duct length.

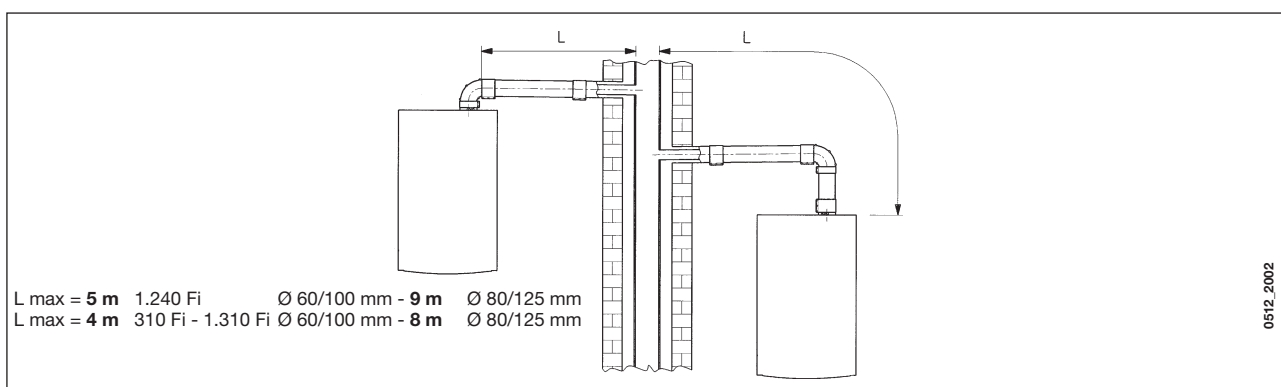
- **A 90° bend reduces the total duct length by 1 metre.**
- **A 45° bend reduces the total duct length by 0.5 metre.**
- **The first 90° bend is not included in the maximum available length.**

| Boiler model | Length (m) | Air suction RESTRICTOR Ⓐ |
|--------------------|------------|-----------------------------|
| 1.240 Fi | 0 ÷ 1 | Yes |
| | 1 ÷ 5 | No |
| 310 Fi 1.310 Fi | 0 ÷ 1 | Yes |
| | 1 ÷ 4 | No |

15.1 HORIZONTAL FLUE TERMINAL INSTALLATION OPTIONS

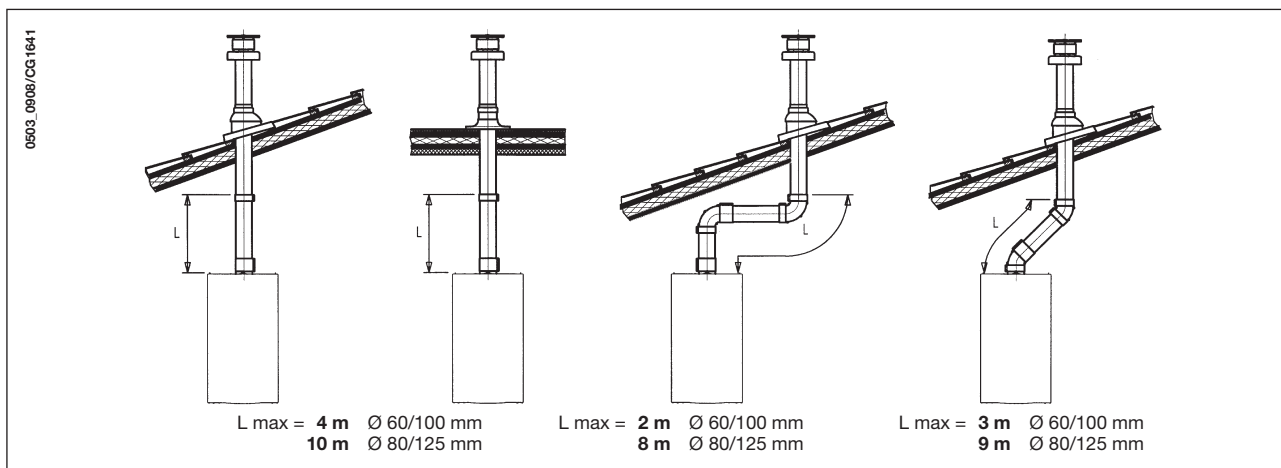


15.2 LAS FLUE DUCT INSTALLATION OPTIONS



15.3 VERTICAL FLUE TERMINAL INSTALLATION OPTIONS

This type of installation can be carried out both on a flat or pitched roof by fitting a terminal, an appropriate weathering tile and sleeve, (supplementary fittings supplied on demand).



For detailed instructions concerning the installation of fittings refer to the technical data accompanying the fittings.

... SEPARATED FLUE-AIR DUCTING

This type of ducting allows to disengage exhaust flue gases both outside the building and into single flue ducts. Comburent air may be drawn in at a different site from where the flue terminal is located. The splitting kit consists of a flue duct adaptor (100/80) and of an air duct adaptor. For the air duct adaptor fit the screws and seals previously removed from the cap.

The restrictor must be removed in the following cases

| Boiler model | (L1+L2) | Air suction coupling position | CO ₂ % | |
|--------------------|---------|-------------------------------|-------------------|-----|
| | | | G20 | G31 |
| 1.240 Fi | 0 ÷ 15 | 1 | 5.7 | 6.5 |
| | 15 ÷ 25 | 2 | | |
| | 25 ÷ 40 | 3 | | |
| 310 Fi 1.310 Fi | 0 ÷ 2 | 1 | 6.9 | 7.7 |
| | 2 ÷ 8 | 2 | | |
| | 8 ÷ 25 | 3 | | |

WARNING

The first 90° bend is not included in the maximum available length.

The 90° bend allows to connect the boiler to flue-air ducting regardless of direction as it can be rotated by 360°. It can moreover be used as a supplementary bend to be coupled with the duct or with a 45° bend.

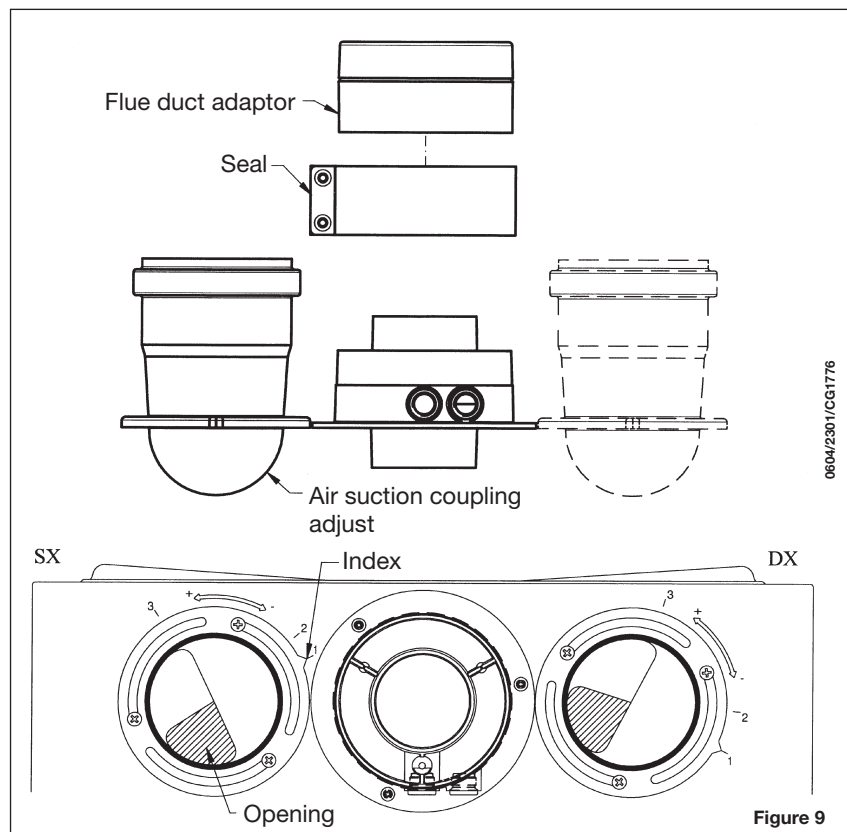
- A 90° bend reduces the total duct length by 0.50 m.
- A 45° bend reduces the total duct length by 0.25 m.

Split flue air control adjustment

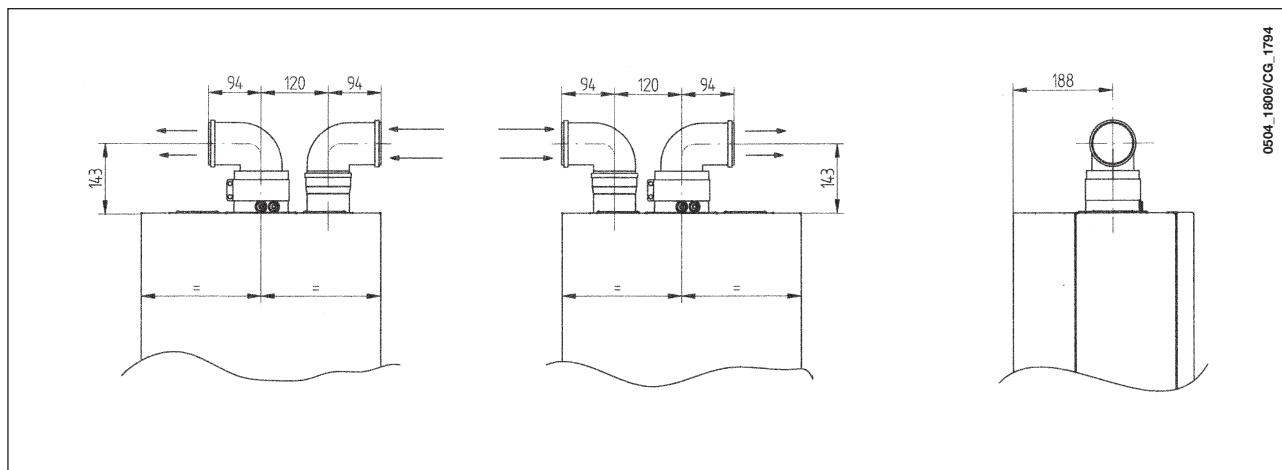
The adjustment of this control is required to optimise performance and combustion parameters. The air suction coupling can be rotated to adjust excess air according to the total length of the flue and intake ducts for the combustion air. Turn this control to increase or decrease excess combustion air (figure 9):

To improve optimisation a combustion product analyser can be used to measure the CO₂ contents of the flue at maximum heat output, gradually adjusting air to obtain the CO₂ reading in the table below, if the analysis shows a lower value.

To properly install this device, also refer to the technical data accompanying the fitting.



15.4 SPLIT FLUE OVERALL DIMENSIONS

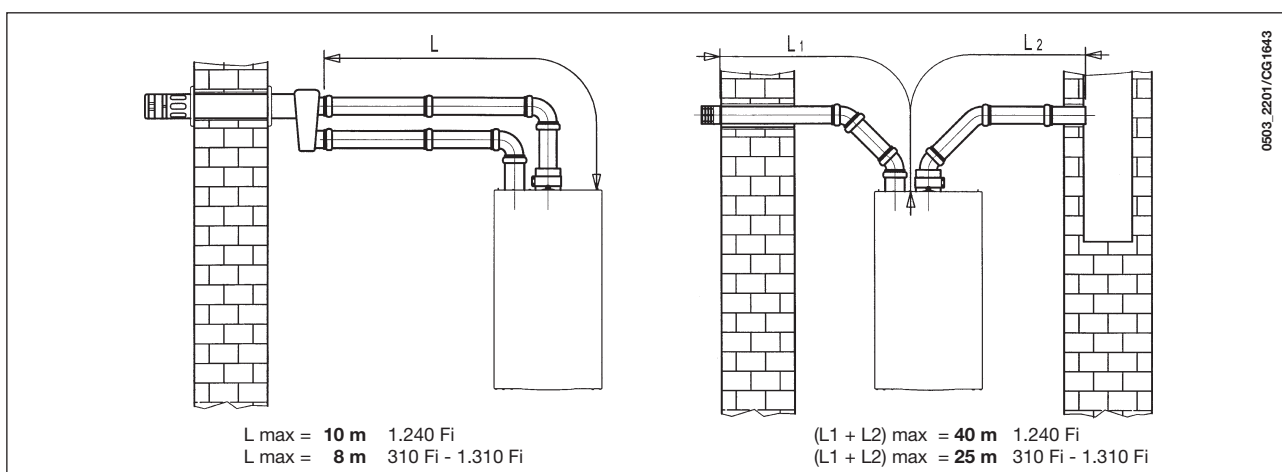


15.5 SEPARATED HORIZONTAL FLUE TERMINALS INSTALLATION OPTIONS

WARNING

Ensure a minimum downward slope of 1 cm toward the outside per each metre of duct length.

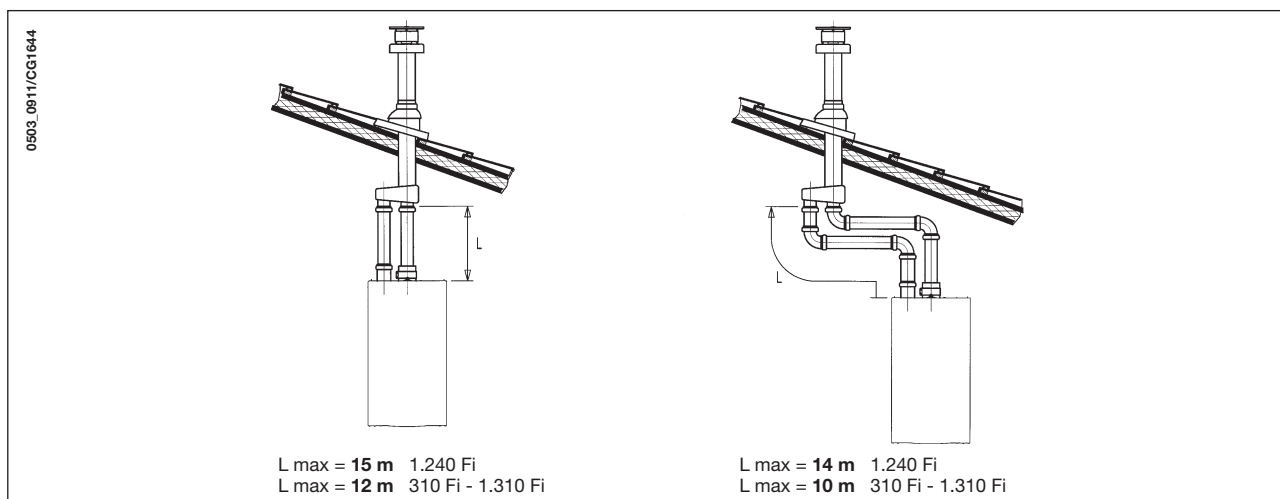
In the event of installation of the condensate collection kit, the angle of the drain duct must be directed towards the boiler.



NB: For C52 types, terminals for combustion air suction and combustion product extraction must never be fitted on opposite walls of the building. The maximum length of the horizontal suction duct must be 10 metres.

If the flue duct exceeds 6 m, the condensate collection kit (supplied as an accessory) must be fitted close to the boiler.

15.6 SEPARATED VERTICAL FLUE TERMINALS INSTALLATION OPTIONS



WARNING

if fitting a single exhaust flue duct, ensure it is adequately insulated (e.g.: with glass wool) wherever the duct passes through building walls.

For detailed instructions concerning the installation of fittings refer to the technical data accompanying the fittings.

16. CONNECTING THE MAINS SUPPLY

Electrical safety of the appliance is only guaranteed by correct grounding, in compliance with the applicable laws and regulations.

Connect the boiler to a 230V monophase + ground power supply by means of the three-pin cable supplied with it and make sure you connect polarities correctly.

Use a double-pole switch with a contact separation of at least 3mm in both poles.

In case you replace the power supply cable fit a HAR H05 VV-F' 3x0.75mm² cable with an 8mm diameter max.

...Access to the power supply terminal block

- isolate the electrical supply to the boiler by the double-pole switch;
- unscrew the two screws securing the control board to the boiler;
- rotate the control board;
- unscrew the lid and gain access to the wiring (Figure 10).

The 2A fast-blowing fuses are incorporated in the power supply terminal block (to check or replace the fuses, pull out the black fuse carrier).

IMPORTANT: be sure to connect polarities correctly **L** (LIVE) - **N** (NEUTRAL).

(L) = **Live** (brown)

(N) = **Neutral** (blue)

(⏏) = **Ground** (yellow/green)

(1) (2) = **Room thermostat terminal**

WARNING

If the heating is directly connected to a floor heating system, a safety overheating thermostat should be provided by the installer.

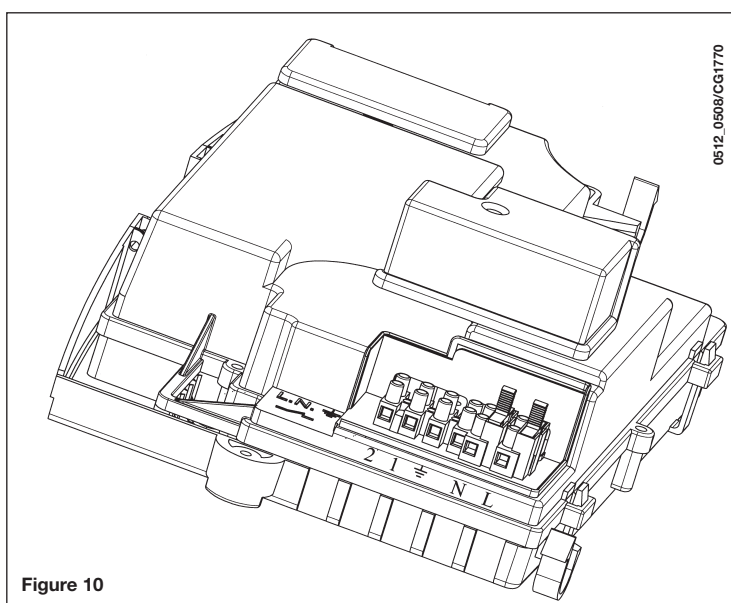


Figure 10

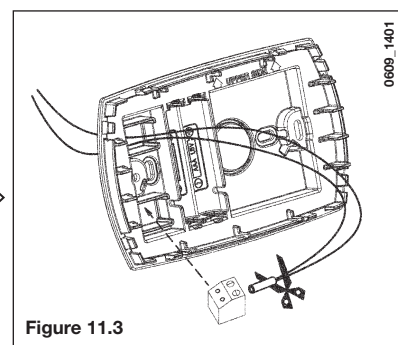
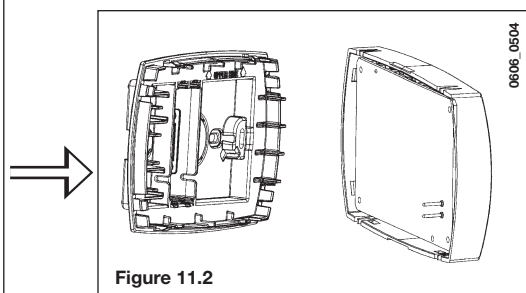
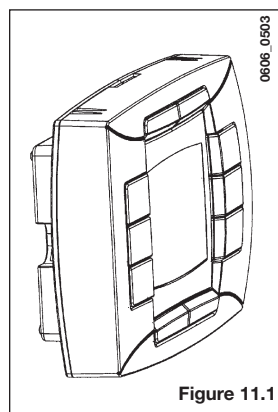
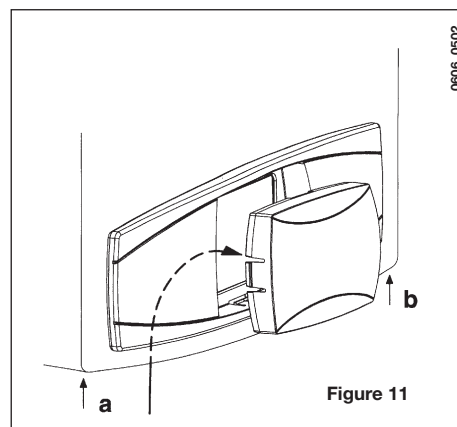
17. REMOTE CONTROL INSTALLATION

The remote control can be installed directly on the boiler or in the wall.

17.1 INSTALLING THE REMOTE CONTROL ON THE BOILER FRONT PANEL

To fit the remote control inside the boiler front control panel, proceed as follows:

1. Undo the two screws (**a-b** figure 11) fixing the casing to the boiler;
2. Lift the casing slightly and with one hand push the front panel cover on the outside (figure 11);
3. Pass the red wire, coming from the terminal block **M2** (located behind the casing), through the special hole in the remote control and cut it as shown in figure 11.3)
4. Open the remote control (there are no screws) by prising with hands and connect the red wire (figure 11.3);



5. Fit the remote control inside the special housing on the front control panel without forcing;
6. close the casing and fix it to the boiler with the screws (figure 11).

WARNING

the remote control is a Low Tension appliance. Do not connect it to a 230 V power supply. For the electrical connection refer to section 27 and 32.

PARAMETER SETTING

- set both “**MODUL**” and “**AMBON**” parameters = 0, as described in section 19.1;
- set parameter **F10 = 02** as described in section 20.

ROOM THERMOSTAT CONNECTION

- Access the power supply terminal block (figure 10);
- connect the room thermostat cables to terminals (1) e (2);
- provide power supply to the boiler;

DESCRIPTION OF BUTTON (↔☀)

The (↔☀) button does not operate as described in section 4.1 (ECONOMY-COMFORT function).

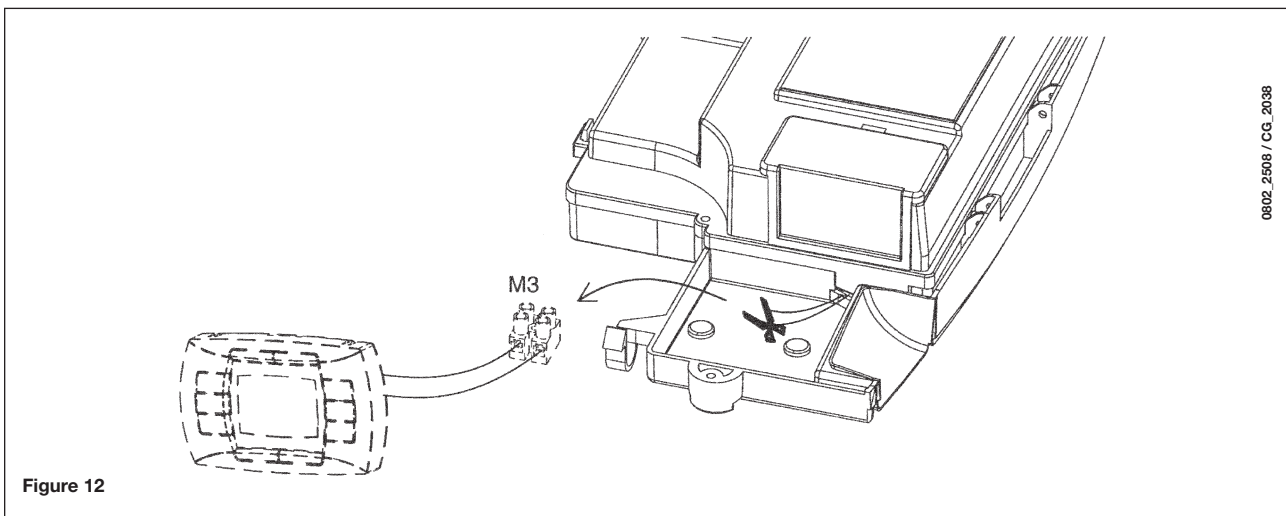
The gas boiler operates when both the programmed time slot and the room thermostat required heating.

By pressing the (↔☀) button during a room thermostat heating request, it is possible “to forced” a Heating request even if the programmed time slot does not required Heating. This is a “manual forced” mode and the display shows the symbol ☀ flashing. This mode terminates at the next “not request” time change over of the time slot Heating.

17.2 REMOTE CONTROL WALL MOUNTING

To wall-mount the remote control, proceed as follows:

1. Undo the two screws (a-b figure 11) fixing the casing to the boiler;
2. Cut the two red wires coming from the control panel box and connect the wires to a two-poles terminal block **M3** (not supplied with the boiler) as shown in Figure 12;
3. Connect the remote control cable (not supplied with the boiler) between the two-poles terminal block and the remote control terminal block. To reach the remote control terminal block see paragraph 17.1 (Figures 11.1 to 11.3)..



WARNING

After installing the remote control, switch the power on to the appliance, making sure that the remote control works properly.

18. GAS CHANGE MODALITIES

A Qualified Service Engineer may adapt this boiler to operate with natural gas (**G. 20**) or with liquid gas (**G. 31**).

The procedure for calibrating the pressure regulator may vary according to the type of gas valve fitted (HONEYWELL or SIT; see figure 13).

Carry out the following operations in the given sequence:

- A) substitute the burner injectors;**
- B) change the modulator voltage;**
- C) proceed with a new max. and min. setting of the pressure adjusting device.**

A) Substitute the main burner injectors

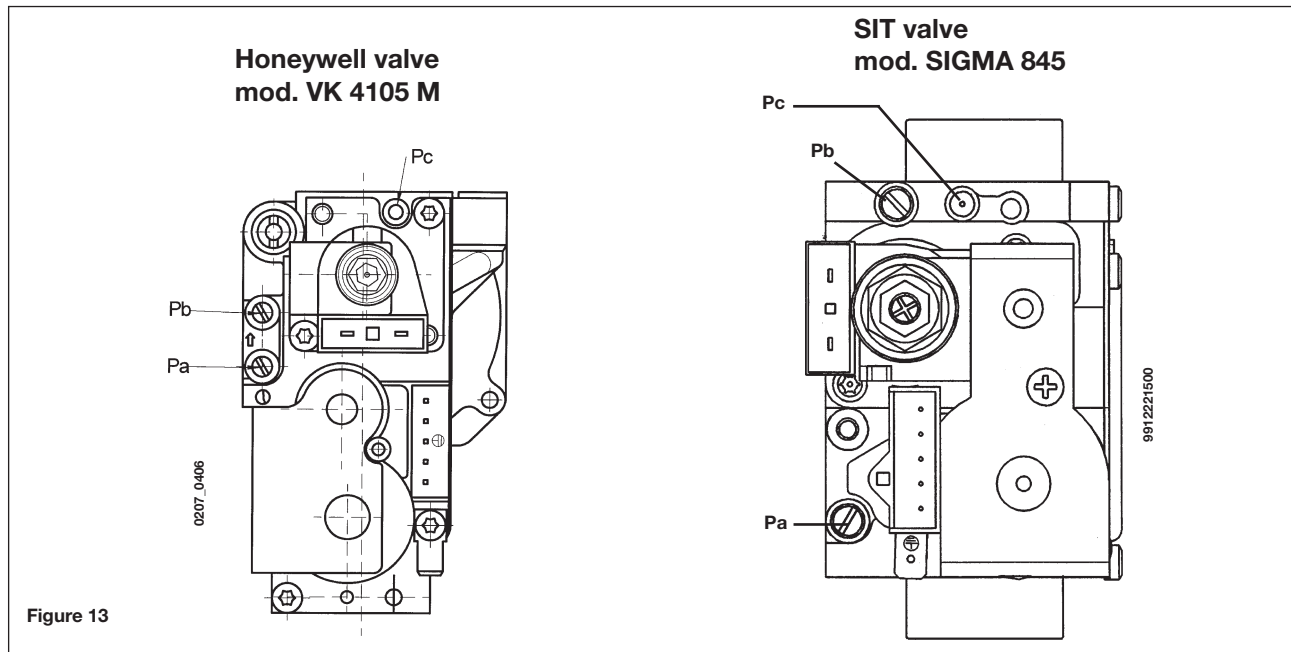
- carefully pull the main burner out of its seat;
- substitute the main burner injectors and make sure you tighten them to avoid leakage. The diameters of the injectors are specified in table 1.

B) Change the modulator voltage


- setting **F02** parameter according to the gas used as described in section 20.

C) Pressure adjusting device setting

- connect the positive pressure test point of a differential (possibly water-operated) manometer to the gas valve pressure test point (**Pb**) (Figure 13); connect, for sealed chamber models only, the negative pressure test point of the manometer to a "T" fitting in order to join the boiler adjusting outlet, the gas valve adjusting outlet (**Pc**) and the manometer. (The same measurement can be carried out by connecting the manometer to the pressure test point (**Pb**) after removing the sealed chamber front panel);
If you measure the pressure of burners in a different way you may obtain an altered result in that the low pressure created in the sealed chamber by the fan would not be taken into account.



C1) Adjustment to nominal heat output

- open the gas tap;
- press  button (figure 1) and set the boiler in winter mode;
- open a hot water tap to reach a minimum **10 l/min** flow rate or ensure that maximum heating requirements are set;
- remove the modulator cover;
- adjust the tube brass screw (**a**) figure 14 to obtain the pressure settings shown in table 1;
- check that boiler feeding dynamic pressure, as measured at the inlet gas valve pressure test point (**Pa**) (figure 13) is correct (**2,75 kPa** for propane gas **G.31**, **1,13 kPa** for natural gas **G20**);

C2) Adjustment to reduced heat output

- disconnect the modulator feeding cable and unscrew the (**b**) figure 14 screw to reach the pressure setting corresponding to reduced heat output (see table 1);
- connect the cable again;
- fit the modulator cover and seal.

C3) Final checks

- apply the additional dataplate, specifying the type of gas and settings applied.

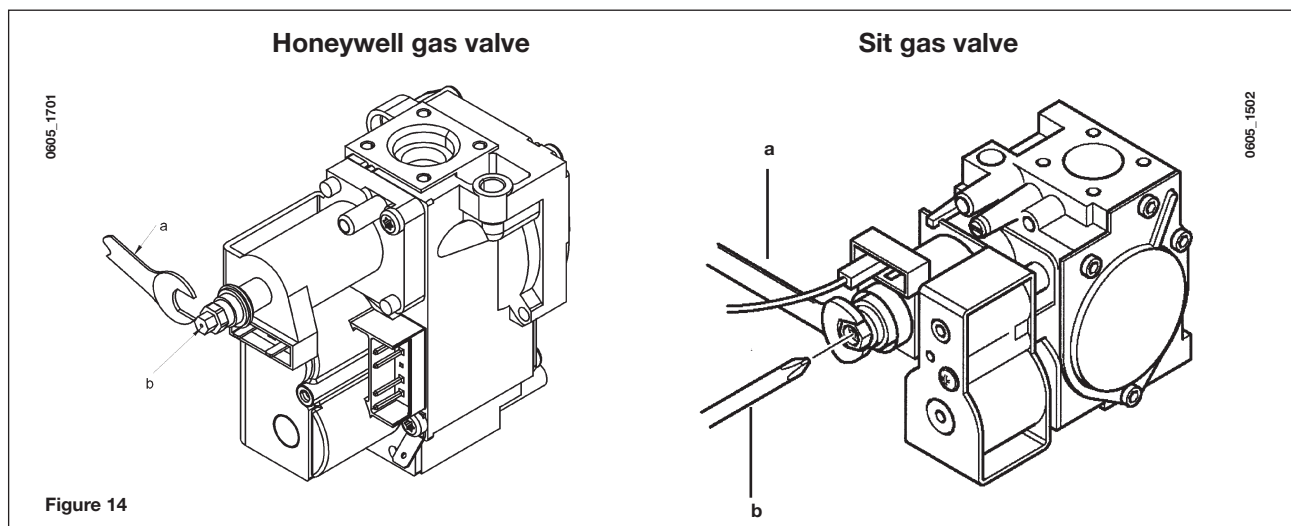


Table of burner pressures

| Gas used | 1.240 Fi | | 310 Fi - 1.310 Fi | |
|-------------------------------------|-------------------|-------------------|-------------------|-------------------|
| | Natural Gas (G20) | Propane Gas (G31) | Natural Gas (G20) | Propane Gas (G31) |
| injector diameter (mm) | 1,28 | 0,77 | 1,42 | 0,85 |
| NOMINAL HEAT OUTPUT | | | | |
| Test point pressure (mbar) | 7.8 | 21.6 | 8.5 | 22.0 |
| (kPa) | 0.78 | 2.16 | 0.85 | 2.20 |
| REDUCED HEAT OUTPUT | | | | |
| Turndown test point pressure (mbar) | 1.5 | 4.0 | 1.5 | 3.4 |
| (kPa) | 0.15 | 0.40 | 0.15 | 0.34 |
| Inlet gas pressure (mbar) | 11,30 | 27,50 | 11,30 | 27,50 |
| (kPa) | 1,13 | 2,75 | 1,13 | 2,75 |
| No of injectors | 15 | | | |

Table 1


| Gas consumption | 1.240 Fi | | 310 Fi - 1.310 Fi | |
|--------------------------|-------------------|-------------------|-------------------|-------------------|
| | Natural Gas (G20) | Propane Gas (G31) | Natural Gas (G20) | Propane Gas (G31) |
| Nominal Gas Consumption | 103 MJ/h | 103 MJ/h | 141 MJ/h | 125 MJ/h |
| Turndown Gas Consumption | 38 MJ/h | 38 MJ/h | 55 MJ/h | 46 MJ/h |

Table 2

19. PARAMETERS DISPLAY

19.1 INFORMATION AND ADVANCED SETTING MODE

To access the Information and Advanced Setting mode, it is necessary to press, for at least 3 seconds, the **IP** button; in INFO mode the display shows **"INFO"**.

To escape the INFO mode briefly press the **IP** button. In this mode press the **OK** button to scroll the windows; to set parameters press the +/-  button.

WARNING

Communications between the main board and the remote control is not immediately. In some case it may happen that the command given through the remote control takes some time depending on the type of the transferred information.


CENTRAL HEATING (CH)

- **"CH SL"** Max. heating circuit setpoint, value settable with the buttons +/- .

WARNING: to change the unit of measure from °C to °F and vice versa, press the  button.

- **"EXT °C"** Outside temperature (with external sensor connected).
- **"CH O>"** Maximum Heating flow temperature.
- **"CH R<"** Return heating temperature (unplanned).
- **"CH S^"** CH temperature setpoint.
- **"CH MX"** Maximum CH temperature setpoint (max. settable value).
- **"CH MN"** Minimum CH temperature setpoint (min. settable value).







DOMESTIC HOT WATER (D.H.W.)

- **"HW O>"** D.H.W. flow temperature.
- **"HW S^"** Maximum setpoint temperature value setting. Press the +/-  buttons to set the value.
- **"HW MX"** Maximum D.H.W. temperature setpoint (max. settable value).
- **"HW MN"** Minimum D.H.W. temperature setpoint (min. settable value).


ADVANCED INFORMATION

- **"PWR %"** Power level/modulating flame (%).
- **"P BAR"** Water pressure heating circuit (bar).
- **"F L/M"** Water flow rate (l/min).
- **"EXT °C"** External temperature (°C)

PARAMETERS SETTING




- **"K REG"** Central Heating setting constant (0,5...9,0 - factory setting 3 - Refer to section 25 - Graph 3). Press +/-  buttons to set the value. An high value setting involves a high flow temperature. To set a correct value of the Central Heating constant K REG, involves the room temperature to match the CH setpoint with external temperature changes over.
- **"BUILD"** A parameter that takes into account the degree of building insulation (1..10 - factory setting 5). When the outside temperature varies, the room temperature changes at different rates, depending on the building thermal storage capacity. An high value setting involves a heavy building structures (the room temperature will respond slower to outside temperature variations; buildings with thick walls or with external insulation). A low value setting involves a light building structures (the room temperature will respond quicker to outside temperature variations; buildings with a light envelope). Press +/-  buttons to set the value.
- **"YSELF"** CH flow temperature auto setting function Enabled/Disabled (1/0). Factory setting 1. With function enable, the constant **"K REG"** is modified to match the room temperature comfort. This function operates with the external sensor connected. Press +/-  buttons to set the value.
- **"AMBON"** Room temperature influence Enabled/Disabled (1/0). Factory setting 1. In this case, the rooms temperature regulation it depends on the flow temperature set ("CH SL"). Press +/-  buttons to set the value.
Note: Refer to the summary table of possible AMBON and MODUL combinations.
- **T ADJ** - Reading correction of the remote control Room Sensor (factory setting 0.0°C). It allows correction of the Room Sensor reading by a value ranging from -3.0°C to 3.0°C, with a resolution of 0.1°C. The value may be set using the buttons +/- . The function is enabled only if the unit of measurement is °C.
- **"MODUL"** Enable/disable Modulation of flow temperature depending on the room temperature and external temperature value (with external sensor connected). (with Room Sensor enabled). A value equal to 1 indicates enabling of delivery setpoint modulation; a value equal to 0 indicates disabling. The above value can be modified with the buttons +/- .
Note: Refer to the summary table of possible AMBON and MODUL combinations.

Combination table between **AMBON** and **MODUL** functions:

| AMBON | MODUL | BUTTONS FUNCTION +/-  |
|-------|-------|--|
| 1 | 1 | Room temperature adjustment (modulating flow temperature) |
| 0 | 1 | with external sensor : KREG curve adjustment without external sensor : Calculated flow temperature adjustment. (It is advisable to set MODUL = 0). |
| 0 | 0 | Flow temperature adjustment |
| 1 | 0 | Room temperature adjustment (fixed flow temperature) |

- **"HW PR"** Enabling the DHW programmer (only for boilers connected to an external hot water tank). Factory setting 1.
 - 0: Disabled
 - 1: Always enabled
 - 2: Enabled with DHW weekly program ("HW PR" refer to section 3.7)
- **"NOFR"** Frost protection Enabled/Disabled (1/0). Factory setting 1.

WARNING: this value must be always enable (1).




- **"COOL"** Summer temperature control Enable/Disable (factory set = 0). By setting this parameter = 1 the function is enabled and a new boiler operation mode **"SUMMER+COOL"** is available. This function is added to the ones described on section 3.2 of the "instructions for the user" manual: **SUMMER - WINTER - SUMMER+COOL - HEATING ONLY - OFF**.
To enable the function, press the  button until the display shows the  symbol on the right side of the hour. The aim of this function is to enable the remote control to adjust the room temperature in summertime by controlling one or more external cooling devices such as a condition machine. In this way, the boiler relay card enables the external condition system when the room temperature is higher than the remote control temperature set value. When the function operates, the display shows the  symbol flashing. See the following figure and refers to the SERVICE instruction manual.

19.2 ADDITIONAL INFORMATION

See Service Instruction.



20. PARAMETERS SETTING

To access the Parameters setting mode proceed as follows:

- press, for at least 3 seconds, the **IP** button;
- press first the  button then press together the   button.

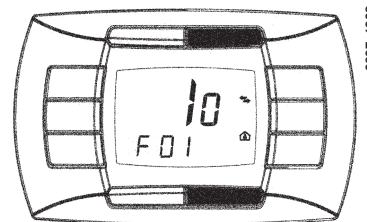
When the function is activated, the display shows “F01” with the value of the selected parameter.

Parameters setting

- Press +/-  buttons for scrolling parameters;
- Press +/-  buttons to change the single parameter value;

Nota: the value is automatic saved after about 3 seconds.

(Do not press any button until the value is beginning to flash again).



| | Description of parameter | Default value | | |
|----------------|---|---------------|--------|----------|
| | | 1. 240 Fi | 310 Fi | 1.310 Fi |
| F01 | Type of gas boiler 10 = sealed chamber | 10 | | |
| F02 | Type of gas 00 = natural (metane) - 01 = LPG | 00 o 01 | | |
| F03 | Hydraulic system 00 = instantaneous appliance 05 = appliance with external water tank 08 = only heating appliance | 08 | 00 | 08 |
| F04 | Programmable relay 1 setting 2 = zone system (See Service instructions) | 02 | | |
| F05 | Programmable relay 2 setting 13 = Cool function (See Service instructions) | 04 | | |
| F06 | External sensor programmable input setting (See Service instructions) | 00 | | |
| F11...F12 | Manufacture information | 00 | | |
| F13 | CH max. heating output (0-100%) | 100 | | |
| F14 | D.H.W. max. heating output (0-100%) | 100 | | |
| F15 | CH min. heating output (0-100%) | 00 | | |
| F16 | Maximum temperature setpoint setting 00 = 85°C - 01 = 45°C | 00 | | |
| F17 | Pump overrun time (01-240 minutes) | 03 | | |
| F18 | Minimum burner pause in central heating mode (01-10 minutes) - 00 =10 seconds | 03 | | |
| F19 | Manufacture information | 07 | | |
| F20 | Manufacture information | 00 | | |
| F21 | Anti-legionella function 00 = Disabled - 01 = Enabled | 00 | | |
| F22 | Manufacture information | 00 | | |
| F23 | Maximum D.H.W. setpoint | 60 | | |
| F24 | Not used | 35 | | |
| F25 | Lack of water safety device | 00 | | |
| F26...F29 | Manufacture information (only read parameters) | -- | | |
| F30 | Manufacture information | 10 | | |
| F31 | Manufacture information | 30 | | |
| F32...F41 | Diagnostics (See Service instructions) | -- | | |
| Last parameter | Controller stop function activation (See Service instructions) | 00 | | |

WARNING: do not modify the values of the “Manufacture information” parameters.

21. CONTROL AND OPERATION DEVICES

The boiler has been designed in full compliance with European reference standards and in particular is equipped with the following:

- **Air pressure switch for forced draught model (310 Fi - 1-240 Fi - 1.310 Fi)**

This switch allows the burner to switch on provided the exhaust flue duct efficiency is perfect.

In the event of one of the following faults:

- the flue terminal is obstructed;
- the venturi is obstructed;
- the fan is blocked;
- the connection between the venturi and the air pressure switch is interrupted;

The boiler will stay on stand-by and the display shows error code 03E (see section 9).

- **Overheat safety thermostat**

Thanks to a sensor placed on the heating flow, this thermostat interrupts the gas flow to the burner in case the water contained in the primary circuit has overheated. Under such conditions the boiler is blocked and relighting will only be possible after the cause of the anomaly has been removed.

See section 9 to RESET normal operating conditions.

It is forbidden to disable this safety device

- **Flame ionization detector**

The flame sensing electrode, placed on the right of the burner, guarantees safety of operation in case of gas failure or incomplete interlighting of the burner. The boiler is blocked after 3 relight attempts.

See section 9 to RESET normal operating conditions.

- **Hydraulic pressure sensor**

This device enables the main burner only to be switched on if the system pressure is over 0.5 bars.

- **Pump overrun for central heating circuit**

The electronically-controlled supplementary running of the pump lasts 3 minutes (F17 - Section 20), when the boiler is in the central heating mode, after the burner has switched off due to a room thermostat or intervention.

- **Pump overrun for domestic hot water circuit**

The electronic control system keeps the pump operating for 30 seconds in domestic hot water mode when the D.H.W. request has cut off.

- **Frost protection device**

Boilers electronic management includes a "frost protection" function in the central heating system which operates the burner to reach a heating flow temperature of 30°C when the system heating flow temperature drops below 5 °C.

This function is enabled when the boiler is connected to electrical supply, the gas supply is on and the system pressure is as required.

- **Lack of water circulation (probable pump jammed or air in the circuit)**

If the water inside the primary circuit doesn't circulate, the display shows 25E error (see section 9).

- **Anti-block pump function**

In the event that no heat is required, the pump will automatically start up and operate for one minute during the following 24 hours. This function is operative when the boiler is powered.

- **Three-way anti-blockage valve**

In the case of no heat is request for a period of 24 hours the three way valve carries out a complete commutation.

This function is operative when the boiler is powered.

- **Hydraulic safety valve (heating circuit)**

This device is set to 3 bar and is used for the heating circuit.

The safety valve should be connected to a siphoned drain. Use as a means of draining the heating circuit is strictly prohibited.

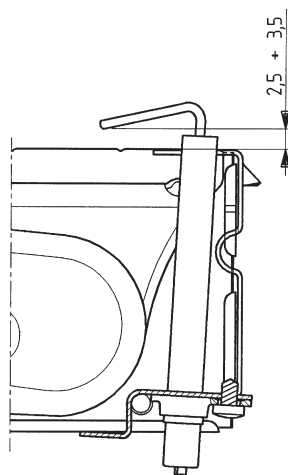
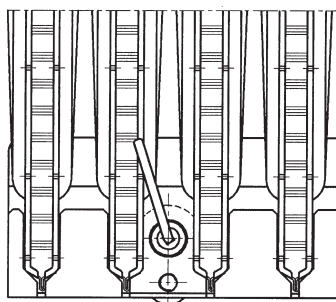
- **Antilegionella function (models 1. 240 Fi - 1.310 Fi with D.H.W. storage tank)**

The antilegionella function is NOT enable.

To enable the function, set the parameter F21=01 (as described in section 20). When the function is activated, at weekly intervals the boiler's electronic control system brings the water inside the hot water tank to a temperature above 60°C (the function is only operational if the water has never exceeded 60°C in the previous 7 days).

NOTICE: domestic hot water is guaranteed even if the NTC sensor is damaged. In this case, the temperature control is carried out by the boiler flow temperature.

22. POSITIONING OF THE IGNITION AND FLAME SENSING ELECTRODE



9912070100

Figure 15

23. CHECK OF COMBUSTION PARAMETERS

The boiler has two connection points specifically designed to allow technicians to measure the combustion efficiency after installation and ensure that the combustion products do not constitute a health risk.

One connection point is connected to the flue gas discharge circuit, and allows monitoring of the quality of the combustion products and the combustion efficiency.

The other is connected to the combustion air intake circuit, allowing checking of any recycling of the combustion products in case of coaxial pipelines.

The following parameters can be measured at the connection point on the flue gas circuit:

- temperature of the combustion products;
- oxygen (O_2) or carbon dioxide (CO_2) concentration;
- carbon monoxide (CO) concentration.

The combustion air temperature must be measured at the connection point on the air intake circuit, inserting the measurement probe to a depth of about 3 cm.

For natural draught boiler models, a hole must be made in the flue gas discharge pipe at a distance from the boiler equal to twice the inside diameter of the pipe itself.

The following parameters can be measured through this hole:

- temperature of the combustion products;
- oxygen (O_2) or carbon dioxide (CO_2) concentration;
- carbon monoxide (CO) concentration.

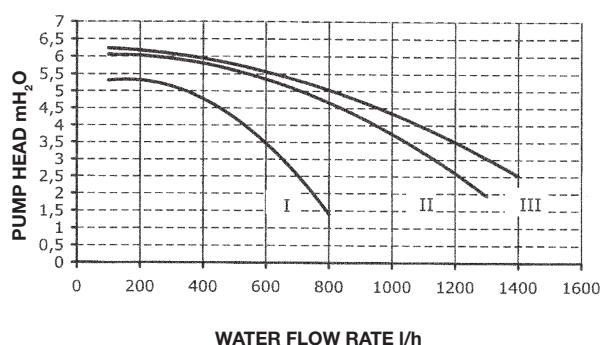
The combustion air temperature must be measured close to the point where the air enters the boiler.

The hole, which must be made by the person in charge of operating the system when it is commissioned, must be sealed in a way which ensures that the combustion product discharge pipe is airtight during normal operation.

24. OUTPUT / PUMP HEAD PERFORMANCES

This is a high static head pump fit for installation on any type of single or double-pipe heating systems. The air vent valve incorporated in the pump allows quick venting of the heating system.

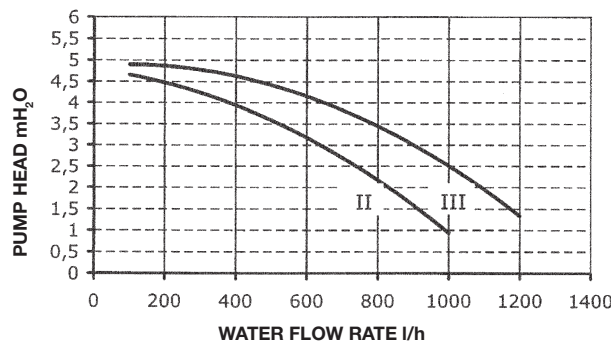
310 Fi - 1.310 Fi



Graph 1

0802_2201

1.240 Fi



Graph 2

0802_2202

25. CONNECTION OF THE EXTERNAL PROBE

The boiler is prearranged for connection of an external probe (supplied as accessory).

For the connection, refer to the figure below (terminals 3-4) and the instructions supplied with the probe.

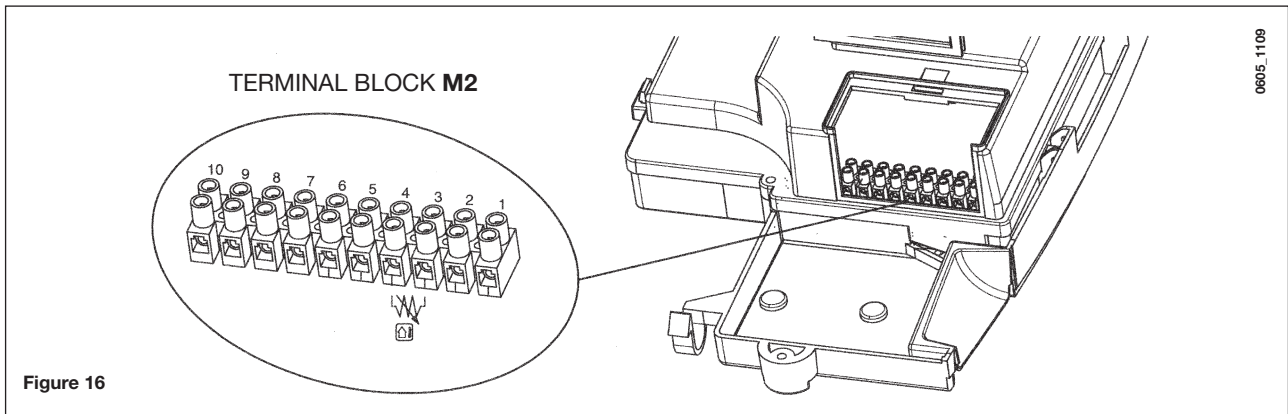


Figure 16

With the external temperature sensor connected, the heating delivery temperature can be adjusted in two different ways.

If the remote control is installed in the boiler (section 17.1), the heating flow temperature adjustment depends on the curve **K REG** (graph 3) set manually by operating the buttons +/- .

If the remote control is wall-mounted (section 17.2), the heating flow temperature adjustment is automatic. The electronic control system automatically sets the correct climatic curve according to the outside temperature and room temperature measured. (See also section 19.1).

IMPORTANT:

the **TM** flow temperature value depend on the F16 parameter setting (see section 20). The maximum flow temperature value could be 85° or 45 °C.

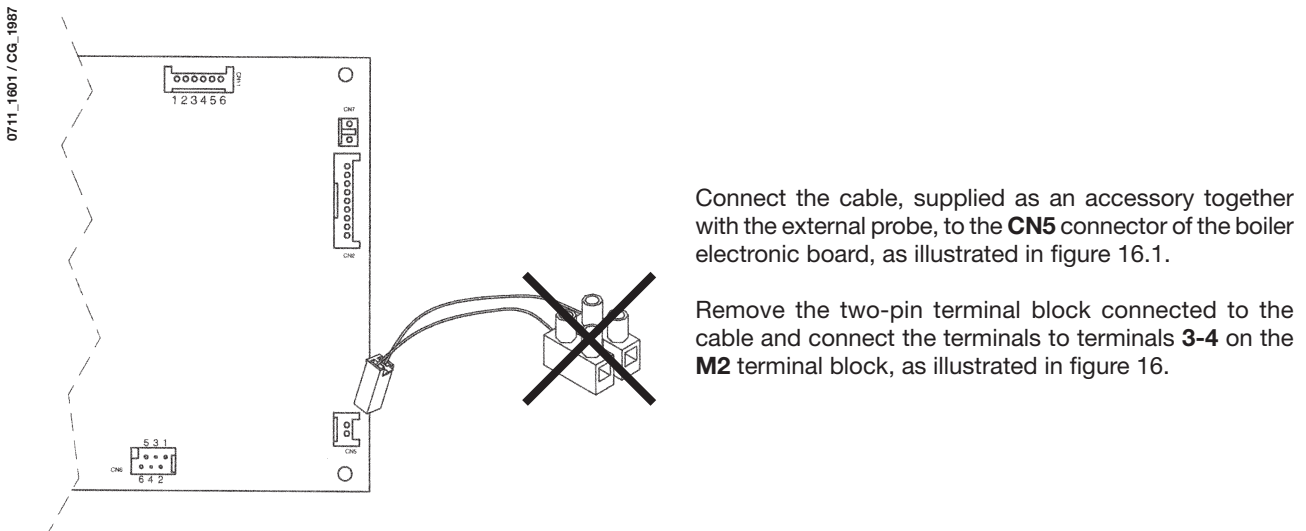
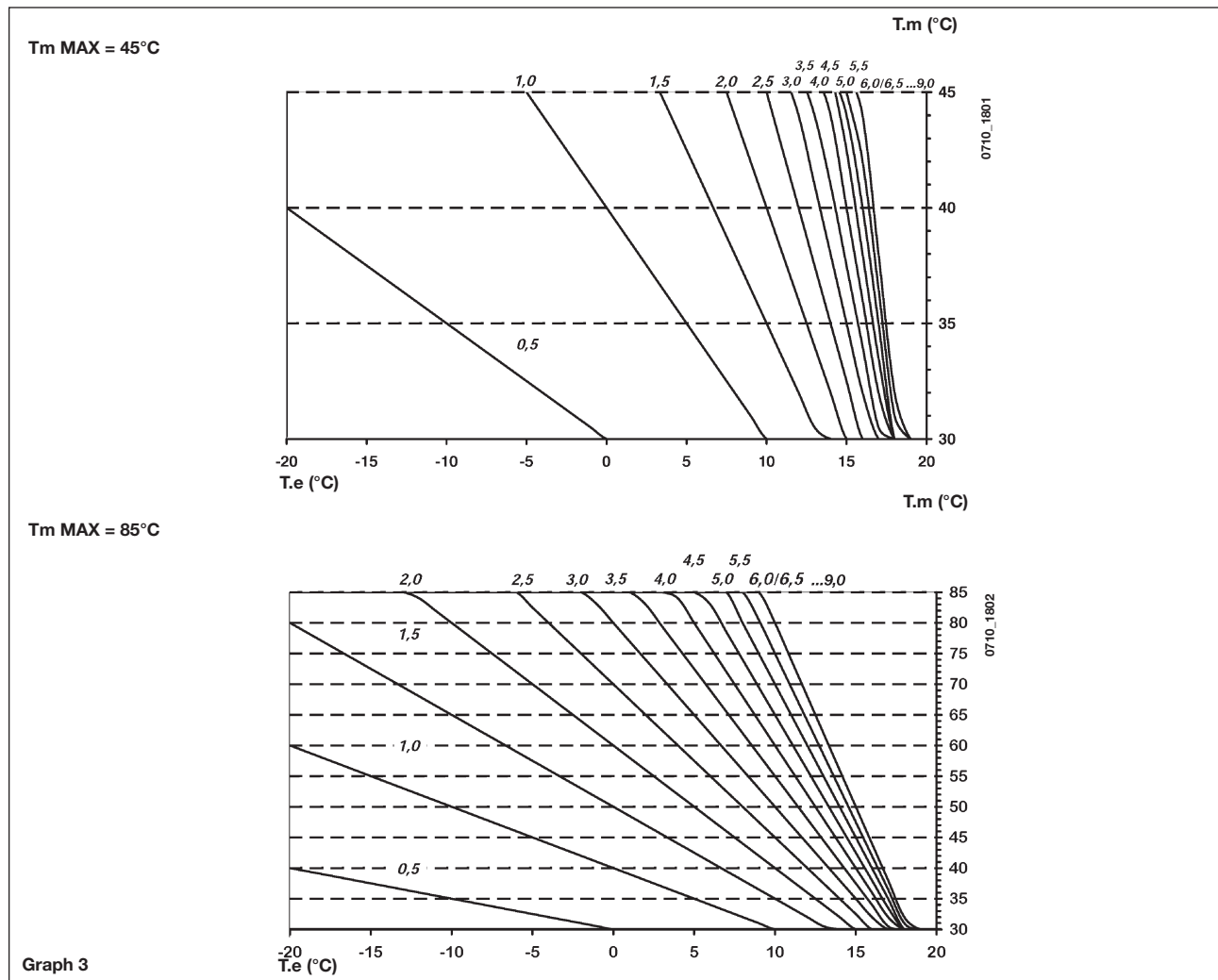


Figure 16.1

Connect the cable, supplied as an accessory together with the external probe, to the **CN5** connector of the boiler electronic board, as illustrated in figure 16.1.

Remove the two-pin terminal block connected to the cable and connect the terminals to terminals **3-4** on the **M2** terminal block, as illustrated in figure 16.

K REG constant curves



T_m = flow temperature (°C)
T_e = external temperature (°C)

26. CONNECTING AN EXTERNAL HOT WATER TANK AND 3-WAY VALVE MOTOR

Models 1.240 Fi - 1.310 Fi

NOTICE: The DHW priority NTC sensor and the 3-way valve motor are not included, but are supplied as accessories.

HOT WATER TANK SENSOR CONNECTION

The boiler is arranged for connection of an external D.H.W. storage tank.

Connect the D.H.W. storage tank pipes as shown in figure 17.

Connect the D.H.W. priority **NTC** sensor to terminals 5-6 on the terminal block **M2**. Insert the NTC sensor probe in the special hole on the D.H.W. storage tank.

The domestic hot water temperature (35°...65 °C) is adjusted by operating the buttons +/- .

Legend

| | |
|----|------------------------------------|
| UB | hot water tank unit |
| UR | heating unit |
| M | 3-way valve motor (accessory) |
| M2 | connection terminal block |
| SB | DHW priority hot water tank sensor |
| MR | heating delivery |
| MB | hot water tank delivery |
| RR | heating/hot water tank return |

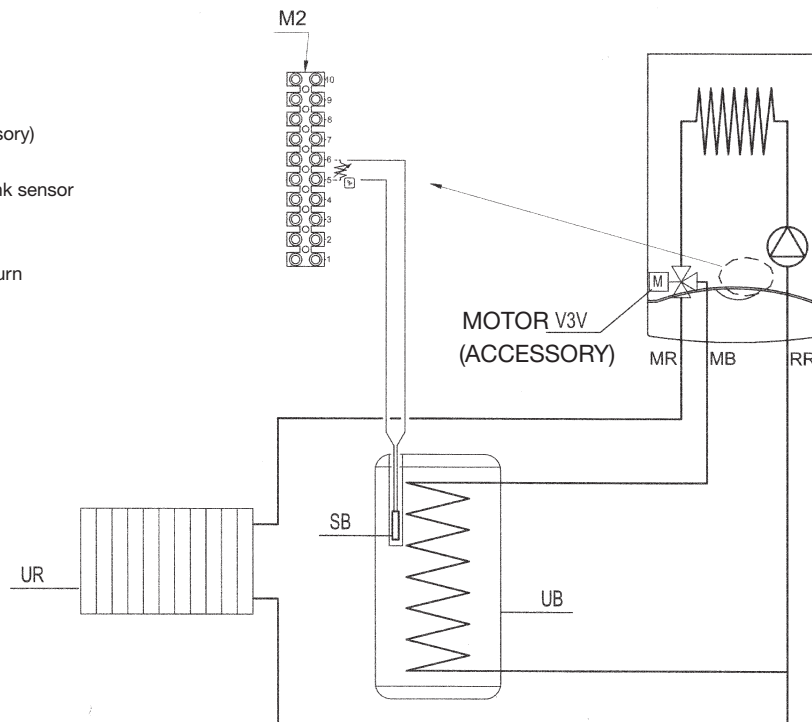


Figura 17

0702_1602

NOTICE: Make sure parameter **F03 = 05** (section 20).

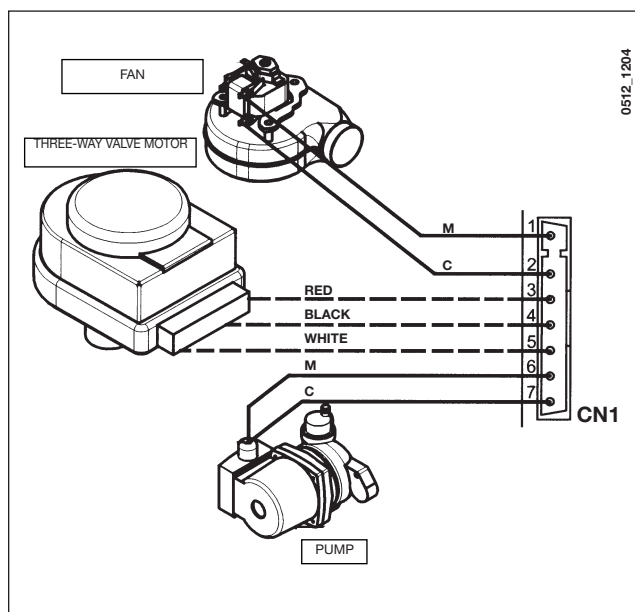
3-WAY VALVE MOTOR ELECTRICAL CONNECTION (Models 1.240 Fi - 1.310 Fi)

The 3-way valve motor and relevant wiring are supplied separately as a kit. Connect the 3-way valve motor as shown in figure.

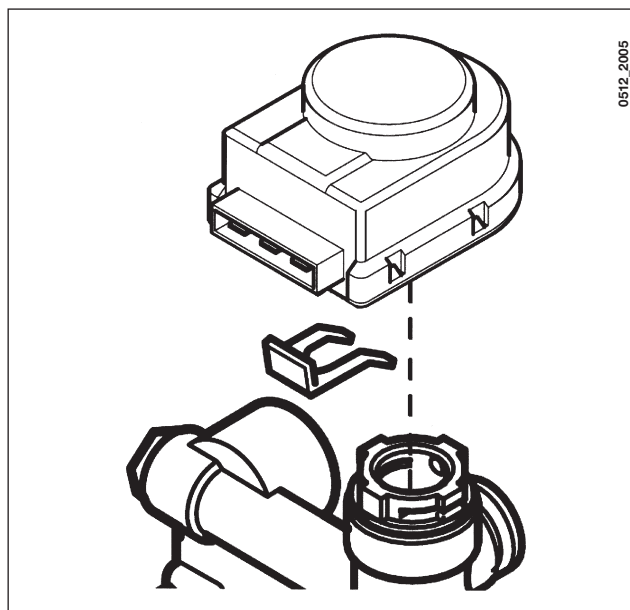
To connect the wiring, proceed as follows:

- 1) undo the 3 fixing screws and lift the control panel;
- 2) connect the 3-way valve motor wires (white-red-black) as shown in figure 19;
IMPORTANT: check correct clamping of the wires on the connector CN1.
- 3) secure the wiring cable to the control panel cable clamp;
- 4) close the control panel, securing it with the fixing screws.

3-WAY VALVE MOTOR ASSEMBLY (Models 1.240 Fi - 1.310 Fi)



0512_1204



0512_2005

Note: before installing the 3-way motor remove the cap upon the 3 way valve.

27. ELECTRICAL CONNECTIONS TO A MULTI-ZONE SYSTEM

27.1 - RELAY CARD (SUPPLIED AS AN ACCESSORY) CONNECTION)

The relay card is not included but is supplied as an accessory.

Connect terminals **1-2-3** (common-normally closed - normally open) of connector **CN1** to terminals **10-9-8** of the boiler terminal block **M2** (figure 18).

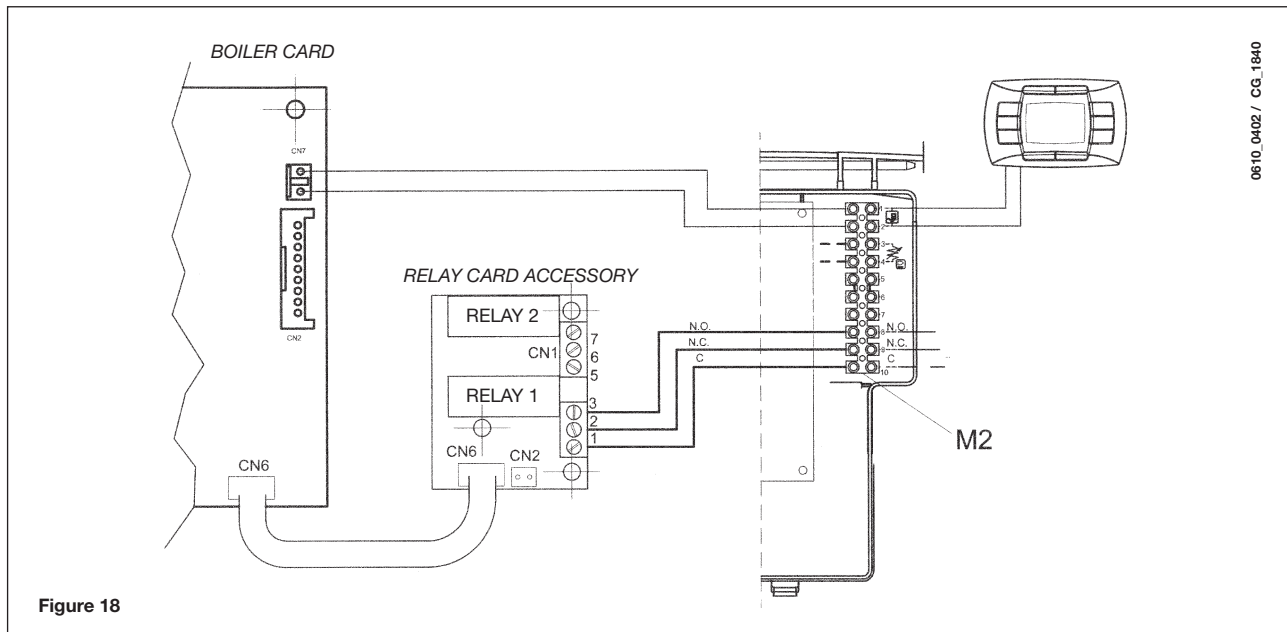


Figure 18

27.2 - CONNECTION OF ZONES

Connect the switch controlling those zones not controlled by the remote control in parallel to the “TA” terminals 1-2 of terminal board **M1** as shown in figure below. The zone controlled by the remote control is supplied by the zone 1 solenoid valve, as shown in figure 18.1.

The remote control automatically controls room temperature in its own zone.

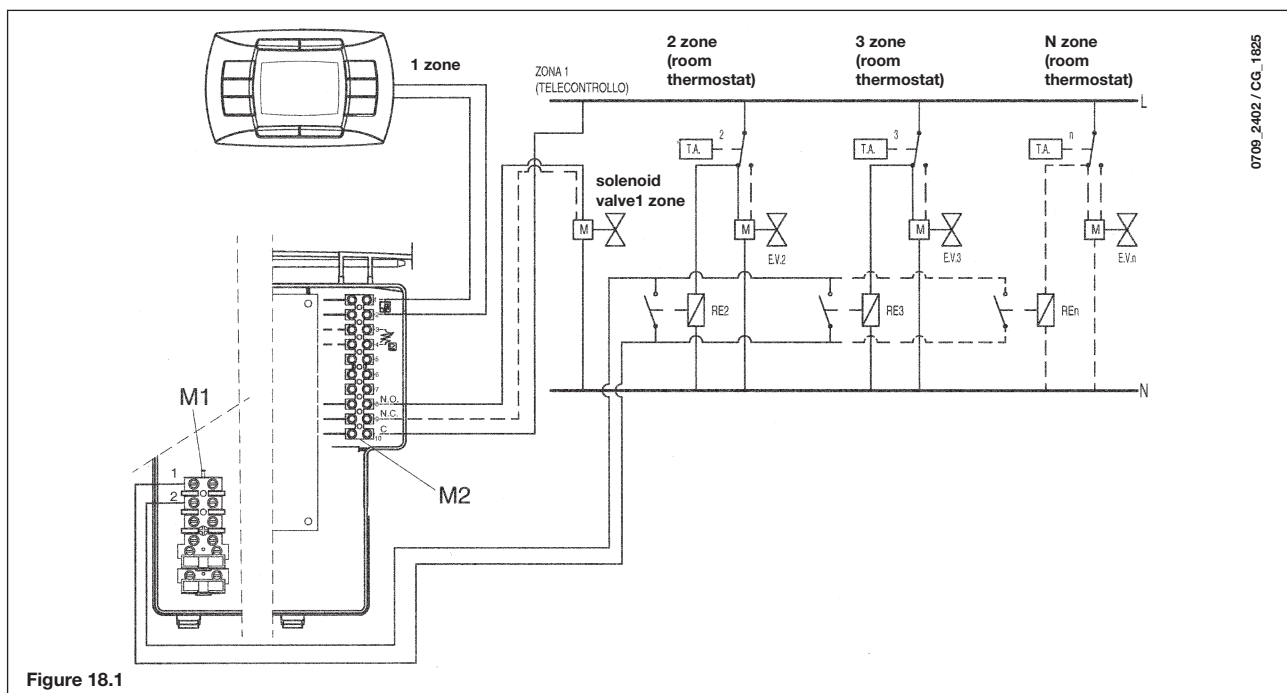


Figure 18.1

IMPORTANT: For a multi-zone system be sure that parameter **F04 = 2** (as described in section 20).

28. HOW TO PURGE THE DHW SYSTEM FROM LIMESTONE DEPOSITS

(Not fitted on 1.240 Fi e 1.310 Fi models)

To clean the DHW system it is not necessary to remove the DHW heat exchanger if the assembly is equipped with the appropriate taps (supplied on demand) placed on the hot water outlet and inlet.

To carry out the purge it is necessary to:

- close the cold water inlet
- drain the DHW system from the water contained therein by means of a hot water tap
- close the DHW outlet
- unscrew the two stop cocks caps
- remove the filters.

In case the appropriate tap is not supplied it is necessary to disassemble the DHW heat exchanger, as described in the following section, and do the purge aside. We recommend you also purge from limestone deposits the DHW heat exchanger seat and the NTC sensor fitted on the DHW system.

To purge the exchanger and/or the DHW system we suggest the use of Cillit FFW-AL or Beckinser HF-AL.

29. HOW TO DISASSEMBLE THE DHW HEAT EXCHANGER

(Not fitted on 1.240 Fi e 1.310 Fi models)

The stainless steel plate-type DHW heat exchanger is easily disassembled with a screwdriver by operating as described below:

- drain, if possible, only the boiler system, **through the drain tap**;
- drain the DHW system from water;
- remove the two screws (right in front of you) securing the DHW heat exchanger and pull it off its seat (figure 19).

30. CLEANING THE COLD WATER FILTER

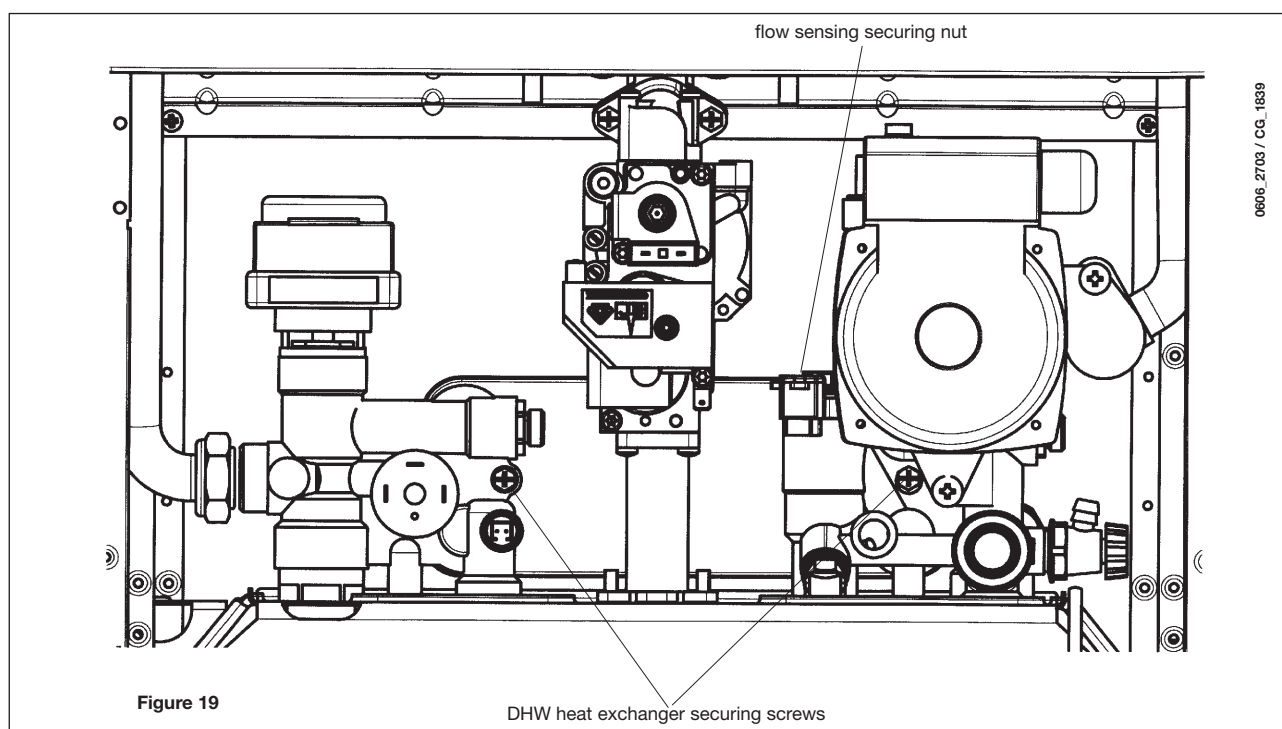
(Not fitted on 1.240 Fi e 1.310 Fi models)

The boiler is equipped with a cold water filter placed on the hydraulic assembly. To clean it do the following:

- drain the DHW system from water;
- unscrew the nut on the flow sensing assembly (Figure 19);
- pull out the flow sensing device and its filter;
- remove the impurities.

IMPORTANT:

in the event of replacements and/or cleaning of the O-rings on the hydraulic unit, do not use oil or grease as lubricant but exclusively Molykote 111.



31. BOILER SCHEMATIC

310 Fi

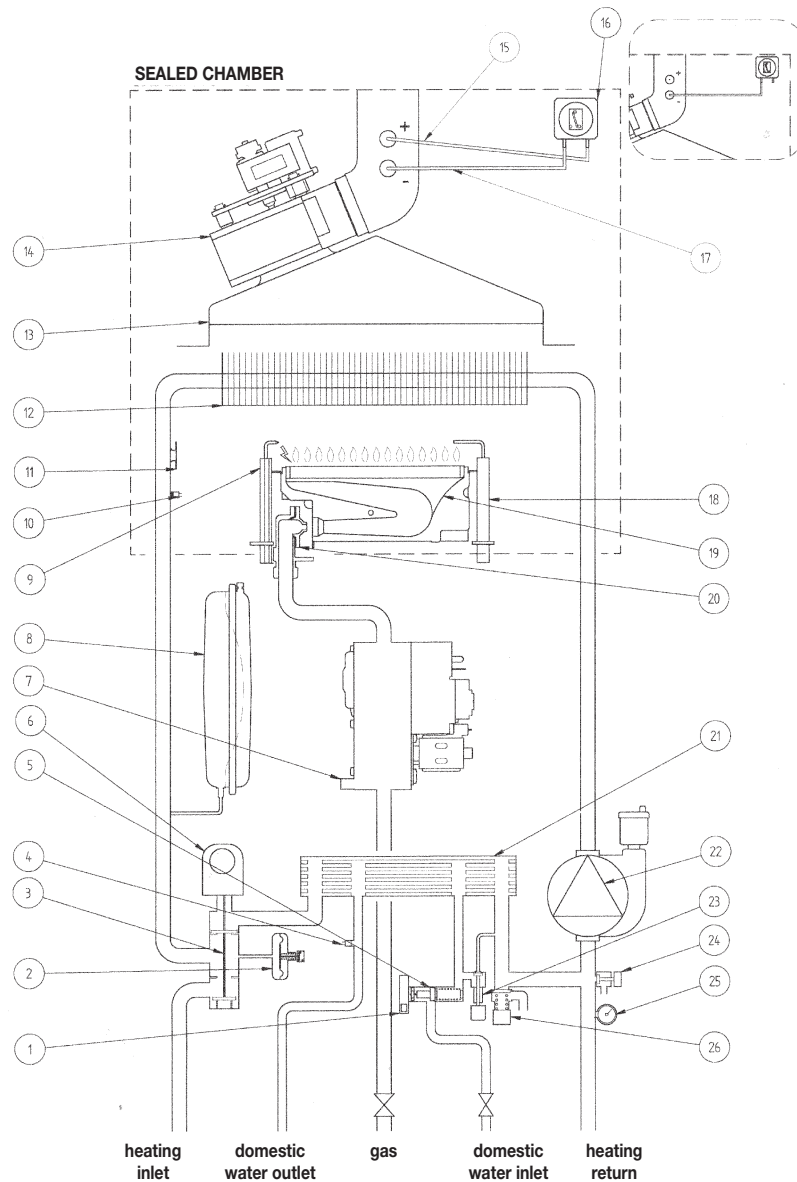
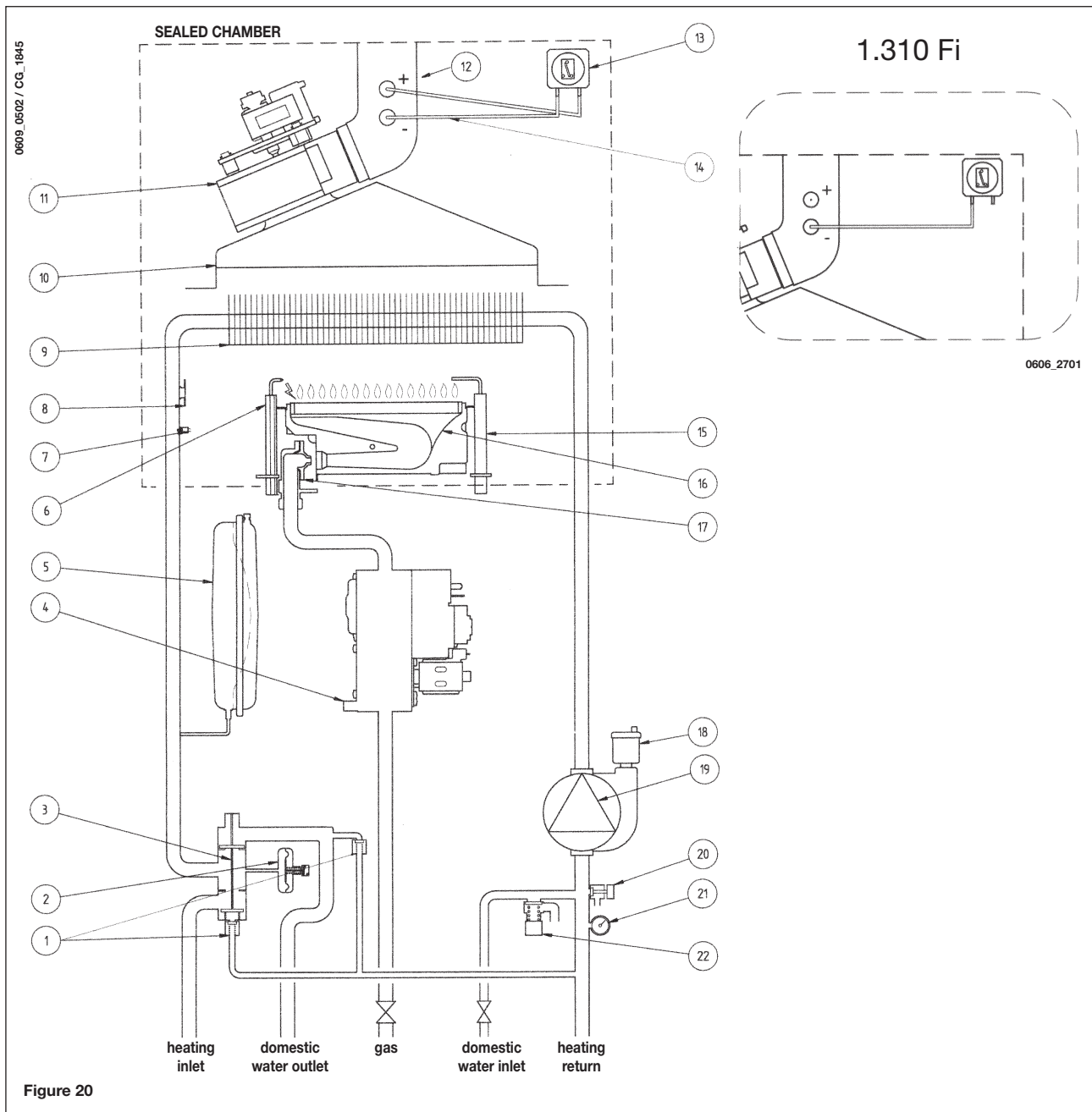


Figure 20

Key:

- | | |
|---|--|
| 1 D.H.W. NTC priority sensor | 14 Fan |
| 2 Water pressure switch | 15 Positive pressure point (the positive point must be closed) |
| 3 Three way valve | 16 Air pressure switch |
| 4 D.H.W. NTC sensor | 17 Negative pressure point |
| 5 Flow sensor with filter and water flow rate limiter | 18 Flame detector electrode |
| 6 Three way valve motor | 19 Burner |
| 7 Gas valve | 20 Burner injectors |
| 8 Expansion vessel | 21 D.H.W. plate heat exchanger |
| 9 Ignition electrode | 22 Pump and air separator |
| 10 Central heating NTC sensor | 23 System filling cock |
| 11 Overheat safety thermostat | 24 Boiler drain point |
| 12 Flue-water exchanger | 25 Manometer |
| 13 Flue hood | 26 Pressure relief valve |

1.240 Fi - 1.310 Fi

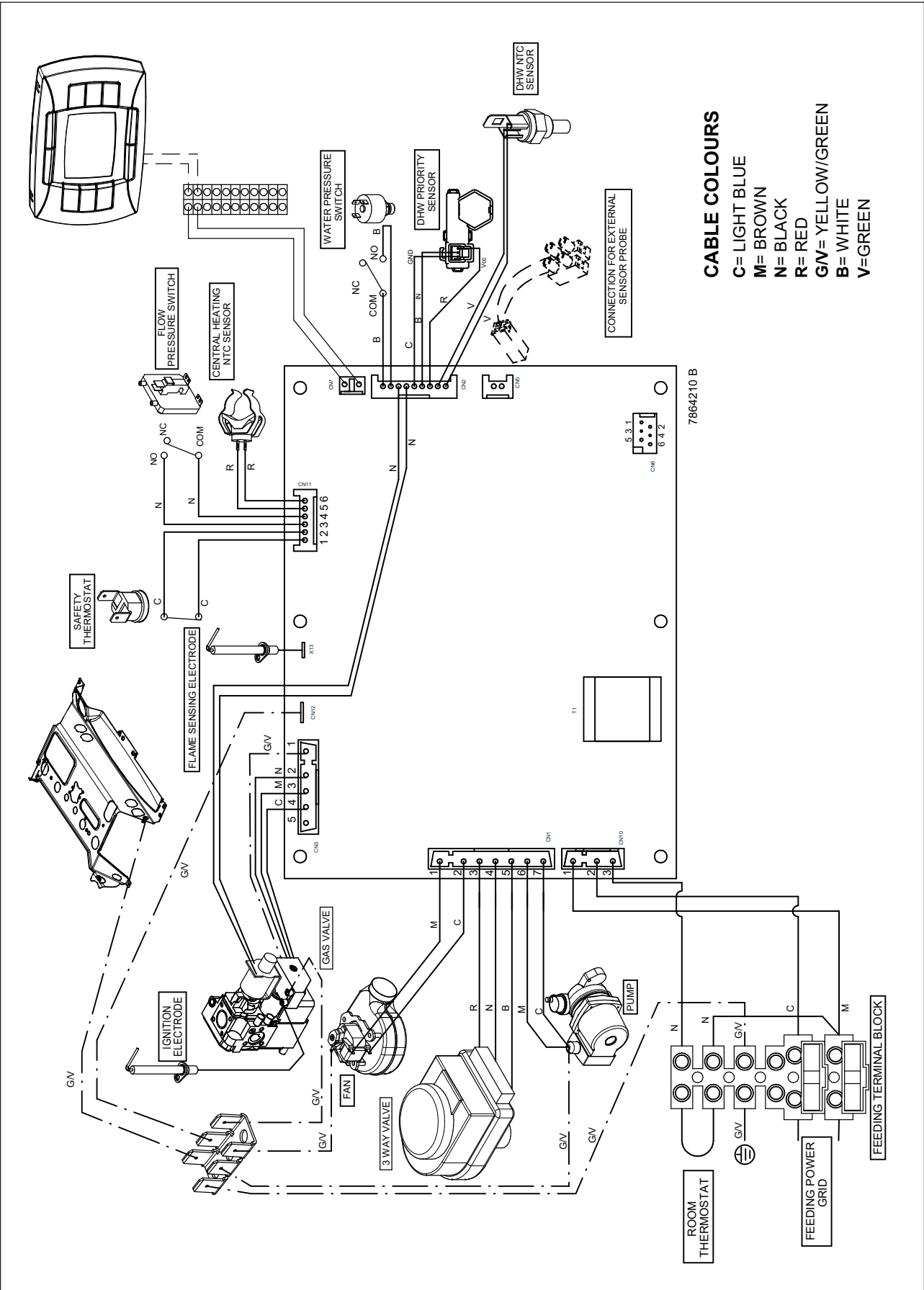


Key:

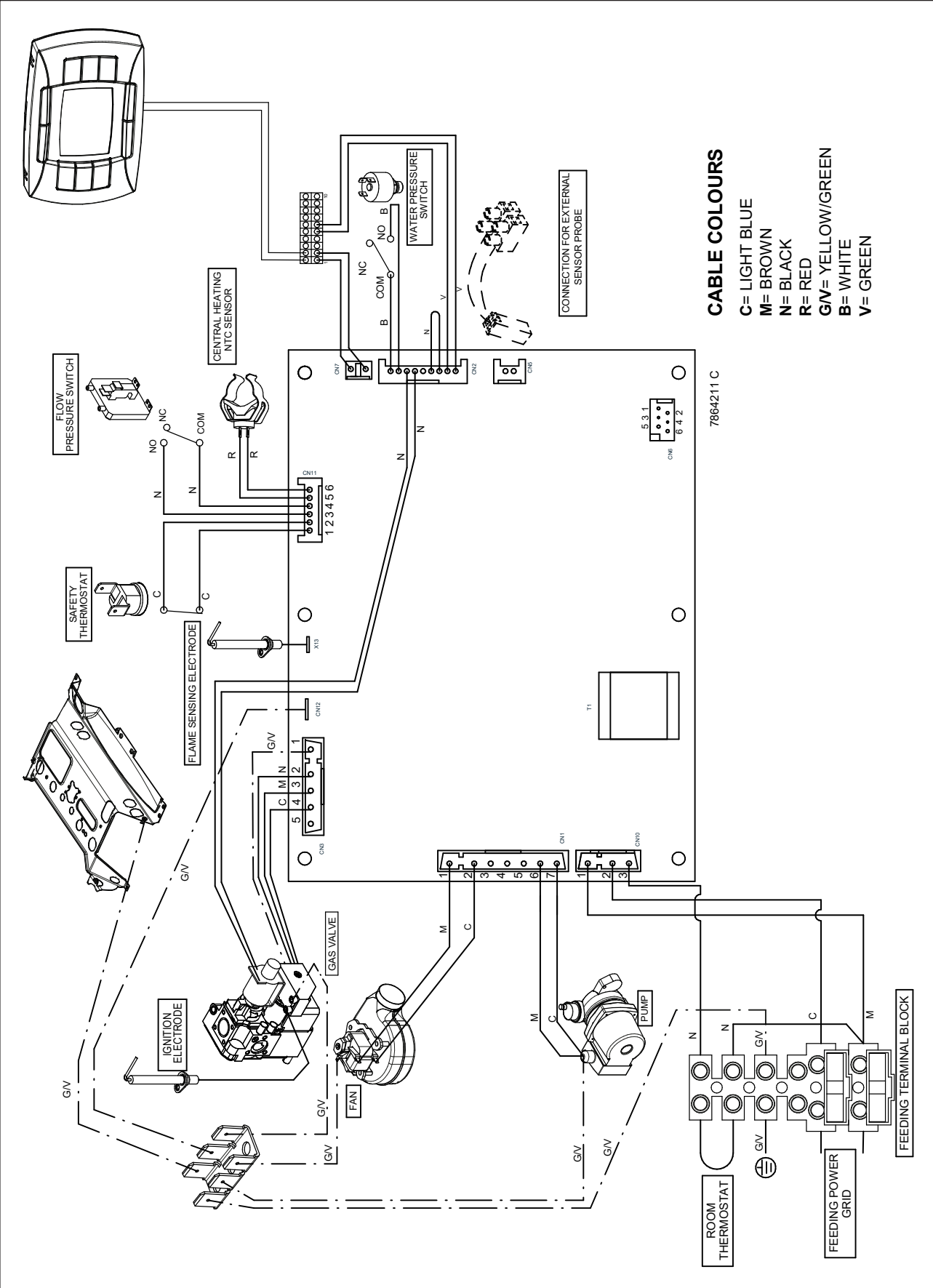
- | | |
|------------------------------|--|
| 1 Automatic by-pass | 12 Positive pressure point (for 1.310 Fi model the positive point must be closed) |
| 2 Water pressure switch | 13 Air pressure switch |
| 3 Three way valve | 14 Positive pressure point |
| 4 Gas valve | 15 Flame detector electrode |
| 5 Expansion vessel | 16 Burner |
| 6 Ignition electrode | 17 Burner injectors |
| 7 Central heating NTC sensor | 18 Automatic air vent |
| 8 Overheat safety thermostat | 19 Pump and air separator |
| 9 Flue-water exchanger | 20 Boiler drain point |
| 10 Flue hood | 21 Manometer |
| 11 Fan | 22 Pressure relief valve |

32. ILLUSTRATED WIRING DIAGRAM

310 Fi



1.240 Fi - 1.310 Fi



33. TECHNICAL DATA

| Model LUNA 3 COMFORT | | 1.240 Fi | 310 Fi | 1.310 Fi |
|---|--------------------|-----------------------------------|--------------------|--------------------|
| Indoor/Outdoor | | | | |
| Category | | l _{2H3P} | l _{2H3P} | l _{2H3P} |
| Maximum heat input | MJ/h | 103 | 141 | 141 |
| Reduced heat input | MJ/h | 38 | 55 | 55 |
| Maximum heat output | kW | 25 | 31 (NG) 29 (PG) | 31 (NG) 29 (PG) |
| Reduced heat output | kW | 9,3 | 10,4 | 10,4 |
| Central heating system max. pressure | kPa | 300 | 300 | 300 |
| Expansion vessel capacity | l | 8 | 10 | 10 |
| Expansion vessel pressure | kPa | 50 | 50 | 50 |
| DHW system max. pressure | kPa | — | 800 | — |
| DHW system min. dynamic pressure | kPa | — | 15 | — |
| DHW system min. output | l/min | — | 2,0 | — |
| DHW production at $\Delta T=25\text{ }^{\circ}\text{C}$ | l/min | — | 16,4 | — |
| DHW production at $\Delta T=35\text{ }^{\circ}\text{C}$ | l/min | — | 11,7 | — |
| Specific output | l/min | — | 13,7 | — |
| Type | — | C12 - C32 - C42 - C52 - C82 - B22 | | |
| Concentric flue duct diameter | mm | 60 | 60 | 60 |
| Concentric air duct diameter | mm | 100 | 100 | 100 |
| 2-pipe flue duct diameter | mm | 80 | 80 | 80 |
| 2-pipe air duct diameter | mm | 80 | 80 | 80 |
| Discharge pipe diameter | mm | — | — | — |
| Max. flue mass flow rate (G20) | kg/s | 0,017 | 0,018 | 0,018 |
| Min. flue mass flow rate (G20) | kg/s | 0,017 | 0,019 | 0,019 |
| Max. flue temperature | $^{\circ}\text{C}$ | 135 | 145 | 145 |
| Min. flue temperature | $^{\circ}\text{C}$ | 100 | 110 | 110 |
| NOx Classe | — | 3 | 3 | 3 |
| Type of gas used | — | Natural/Propane Gases | | |
| Natural Gas Supply Pressure | kPa | 1.13 | 1.13 | 1.13 |
| Propane Gas Supply Pressure | kPa | 2.75 | 2.75 | 2.75 |
| Power supply voltage | V | 230 | 230 | 230 |
| Power supply frequency | Hz | 50 | 50 | 50 |
| Power consumption | W | 135 | 165 | 165 |
| Net weight | kg | 36 | 40 | 38 |
| Dimensions (Indoor Models)*** | height | mm | 763 | 763 |
| | width | mm | 450 | 450 |
| | depth | mm | 345 | 345 |
| Protection-limit against humidity and water leakages (**) | — | IP X5D | IP X5D | IP X5D |

(**) according to EN 60529

(***) Dimensions for Outdoor Models: 990mm (Height) x 454mm (Width) x 365mm (Depth)

(NG) Natural Gas

(PG) Propane Gas

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