

# BAXI

## LUNA 3 COMFORT

EN

### High efficiency wall-mounted gas-fired boilers

Installer's and User's Instructions

RU

### Высокопроизводительный настенный газовый котел

Руководство по эксплуатации и монтажу

HU

### Magas hozamú fali gázkazán

Felhasználói és szerelési kézikönyv

CS

### Závěsný plynový kotel s vysokou účinností

Návod k použití určený pro uživatele a technika

ES

### Caldera mural de gas de alto rendimiento

Manual para el usuario y el instalador

RO

### Centrale murale pe gaz cu randament ridicat

Instrucțiuni pentru instalator i pentru utilizator

EL

### Επίτοιχος λέβητας αερίου υψηλής αποδοσης

Οδηγίες χρήσης για το χρήστη και τον εγκαταστάτη

CE 0051



MP02

Dear Customer,

We are sure your new boiler will comply with all your requirements.

Purchasing one of our products satisfies your expectations: good functioning, simplicity and ease of use.

Do not dispose of this booklet without reading it: you can find here some very useful information, which will help you to run your boiler correctly and efficiently.

Do not leave any parts of the packaging (plastic bags, polystyrene, etc.) within children's reach as they are a potential source of danger.

Our boilers bear the CE mark in compliance with the basic requirements as laid down in the following Directives:

- Gas Directive 2009/142/EC
- Efficiency Directive 92/42/EEC
- Electromagnetic Compatibility Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC



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BAXI S.p.A., a leading European manufacturer of hi-tech boilers and heating systems, has developed CSQ-certified quality management (ISO 9001), environmental (ISO 14001) and health and safety (OHSAS 18001) systems. This means that BAXI S.p.A. includes among its objectives the safeguard of the environment, the reliability and quality of its products, and the health and safety of its employees. Through its organisation, the company is constantly committed to implementing and improving these aspects in favour of customer satisfaction.



# 1. 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.
- 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.

**1.3.** The materials used for the domestic hot water circuit of the product comply with Directive 98/83/EC.

## 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).

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

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# 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:

- a) compliance of boiler parameters with (electricity, water, gas) supply systems settings.
- b) compliance of installation with the laws and regulations in force.
- c) 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.

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***The instructions shall state the substance of the following:***


***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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### 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.

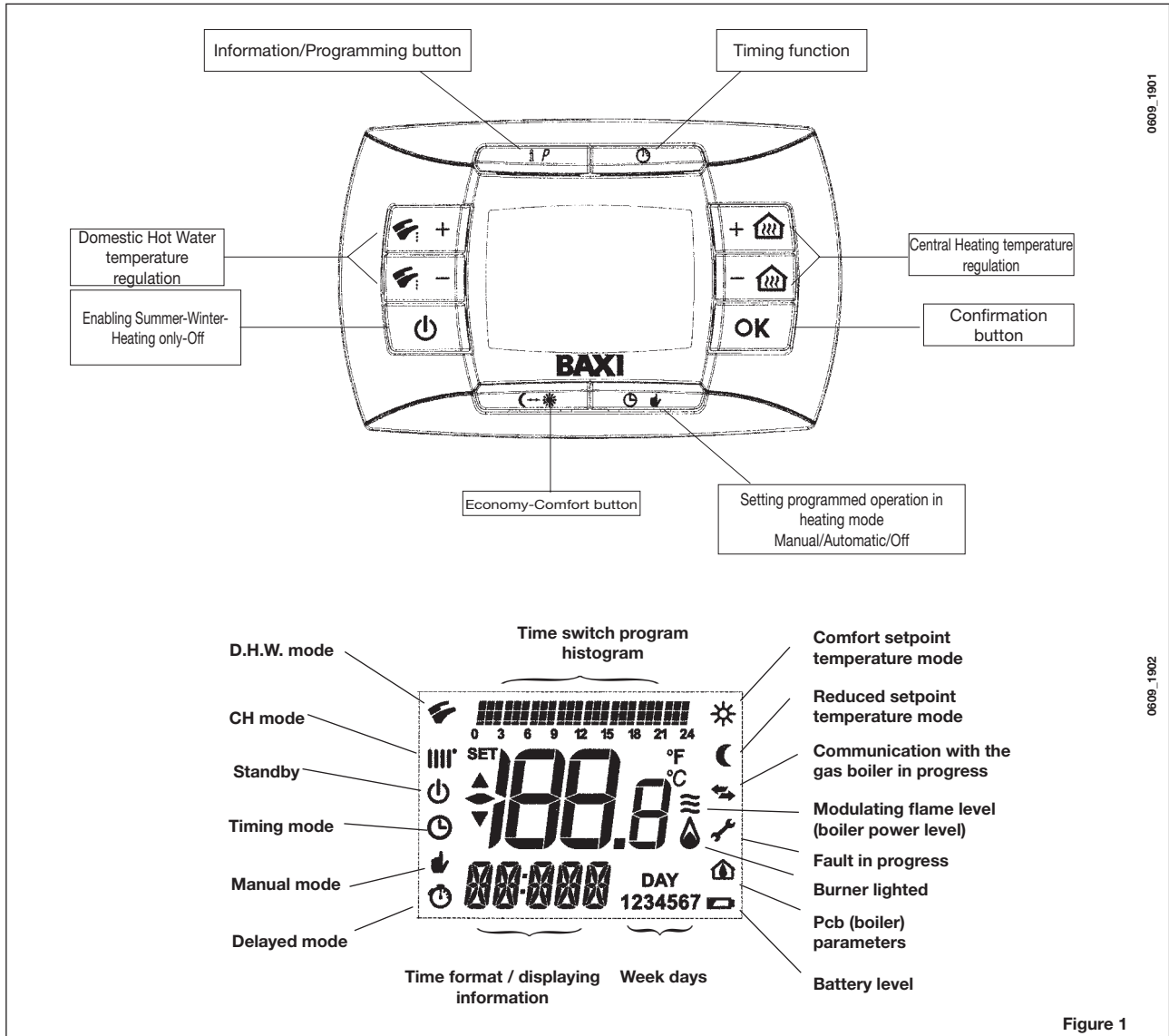
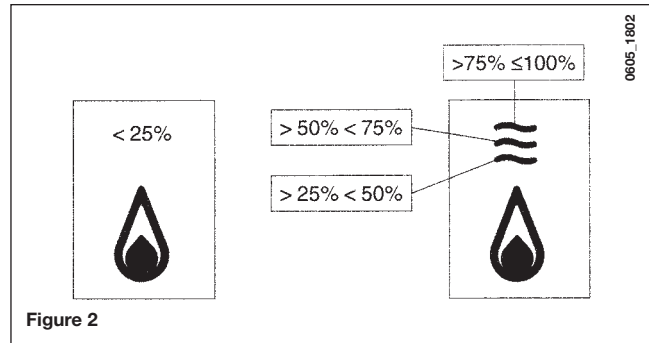


Figure 1

### 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)

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:** 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.

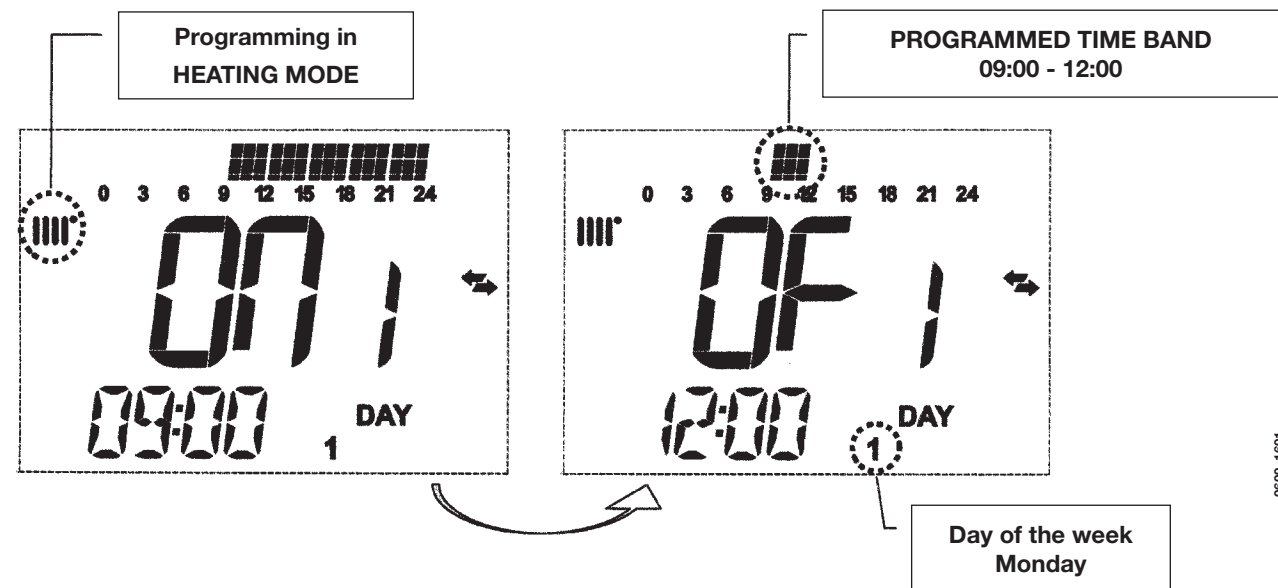
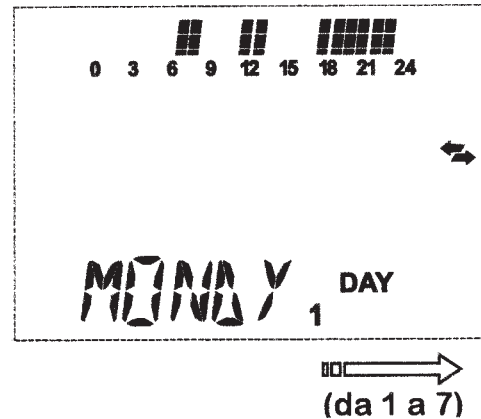
### 3.6.1. Single days

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.



**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

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.

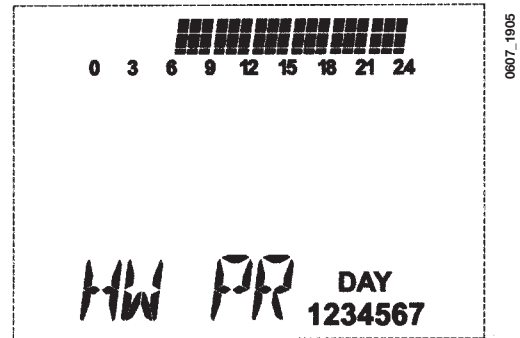
### 3.7 PROGRAMMING DHW MODE OPERATION TIMES

(only for boilers connected to an external heater)

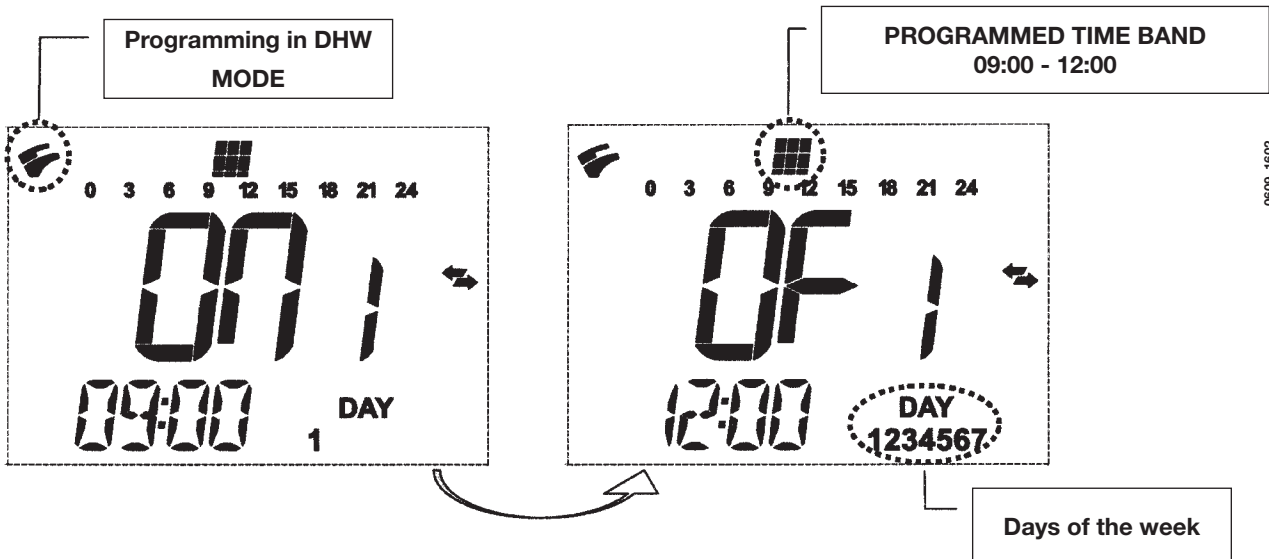
This function enables the programming of four boiler DHW mode operation time slots in the span of a week (the programmed time slots are the same for every day of the week).

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
<b>COMFR</b>	The set temperature value flashes (factory setting = <b>20°C</b> )	Boiler operation in heating mode at nominal temperature.
<b>ECONM</b>	The set temperature value flashes (factory setting = <b>18°C</b> )	Boiler operation in heating mode at reduced temperature.
<b>NOFRS</b>	The set temperature value flashes (factory setting = <b>5 °C</b> )	Boiler operation in heating mode at room frost protection temperature.
<b>SHOWR</b>	The set temperature value flashes (factory setting = <b>40°C</b> )	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.

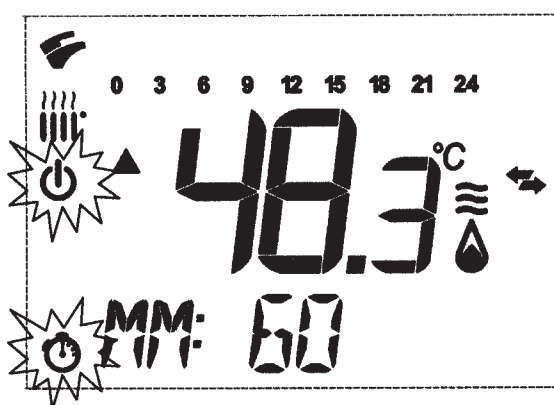
## 4.4 PROGRAMMABLE SWITCHING TIME FUNCTION (BUTTON )

### 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 carried 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 previous 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).

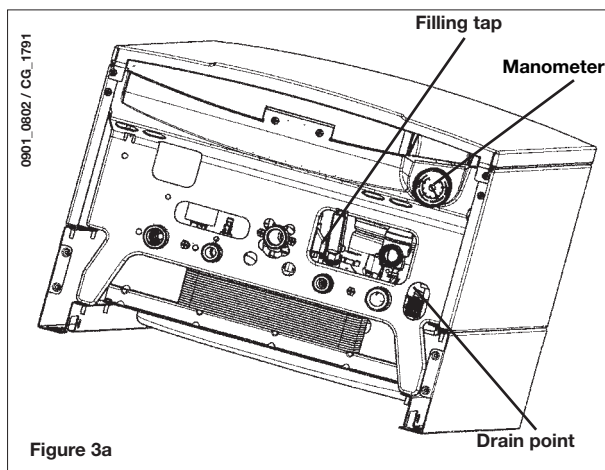
In case the pressure is lower open the boiler filling tap (figure 3).

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

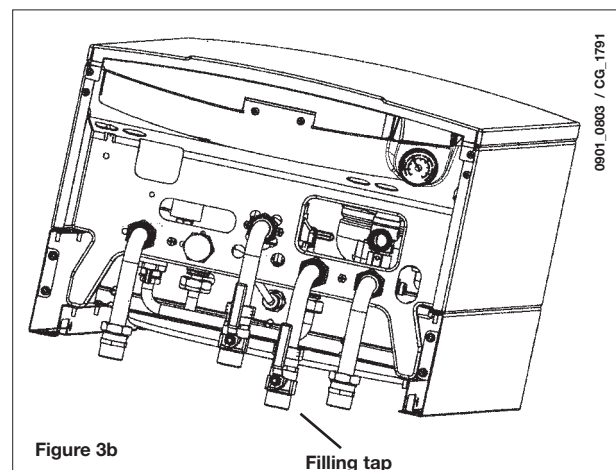
During this operation, the gas boiler must be in “OFF” mode (press the  - figure 1).

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

240i - 240 Fi - 310 Fi



1.240i - 1.240 Fi - 1.310 Fi



## 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.

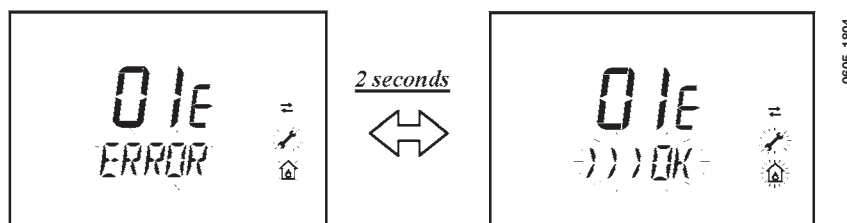
The fault is identified by an error code followed by **E** letter and is not resettable. Call an authorized Service Centre.



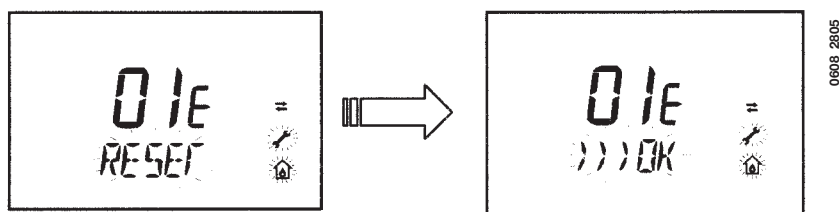
### **BLOCK**

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 <b>OK</b> button (figure 1) for at least 2 seconds. If this fault persist, call an authorised Service centre.
02E	Safety thermostat sensor tripped	Press the <b>OK</b> 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 <b>OK</b> 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 <b>OK</b> button (figure 1) for at least 2 seconds. If this fault persists, call an authorized Service centre
35E	Fault flame (parasitic flame)	Press the <b>OK</b> 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 maintain efficient and safe operation of your boiler have it checked by a Qualified Service Engineer at the end of every operating period.

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).

## 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.

## 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.

**1.3.** The materials used for the domestic hot water circuit of the product comply with Directive 98/83/EC.

### 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).

---

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

---

**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:

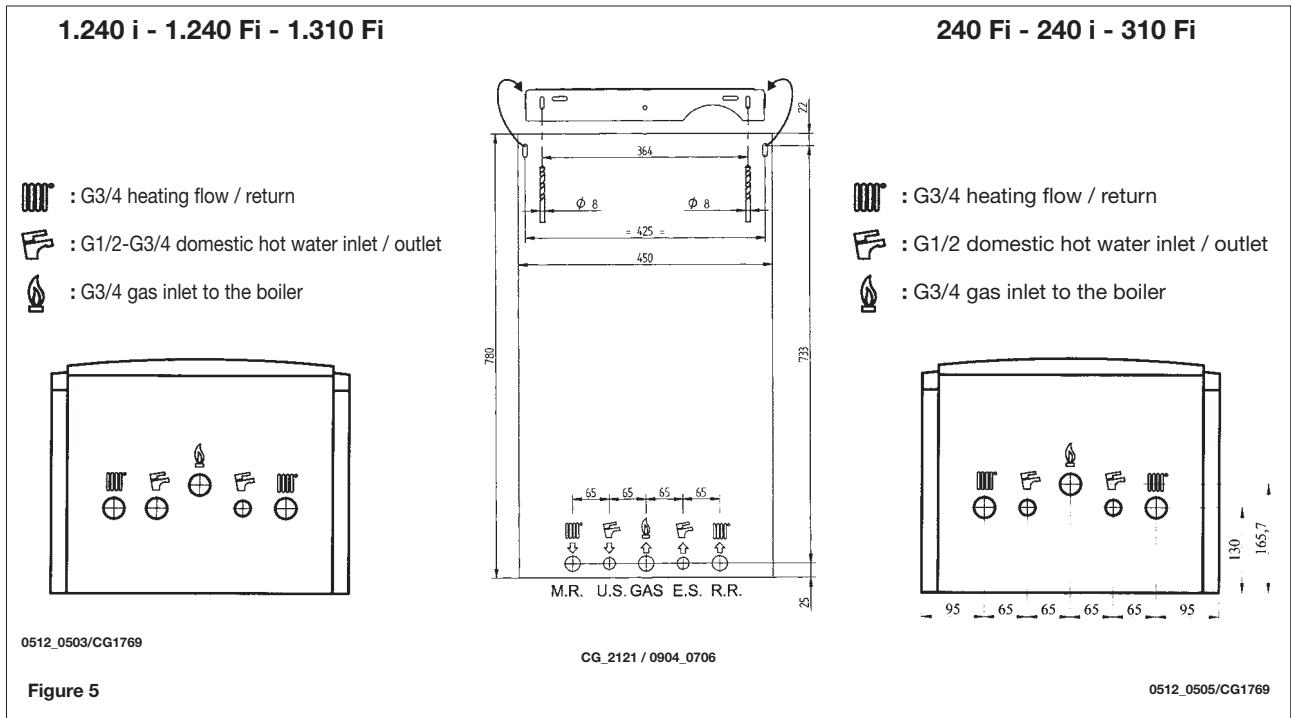
- 60°C with a flow limiting device
- 70°C without a flow limiting device

# 13. BOILER INSTALLATION

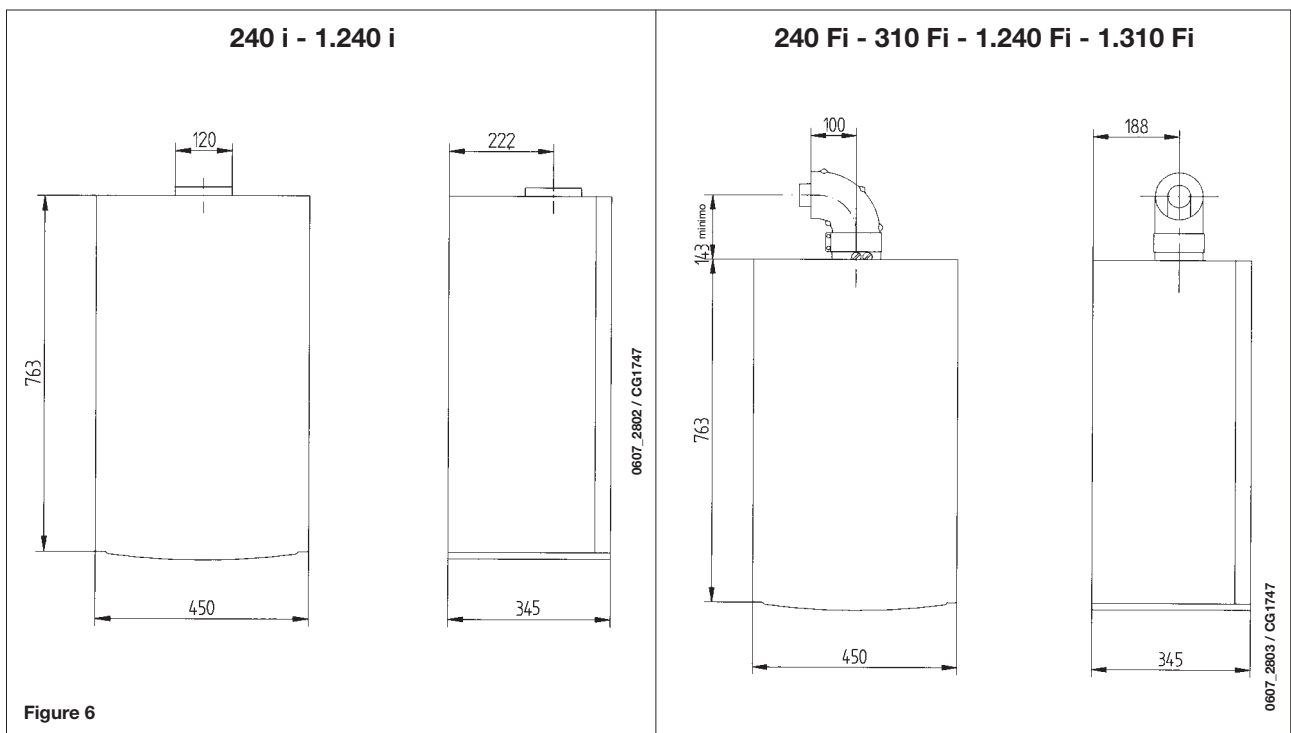
Decide upon the boiler location, then tape the template on the wall. Connect the pipework to the gas and water inlets prearranged on the template lower bar. We suggest you fit two G3/4 stop cocks (available on demand) on the central heating system flow and return pipework; the cocks will allow to carry 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.

When installing the **240 i - 1.240 i** model (boiler with natural draught), make the connection to the flue using a metal pipe which will provide resistance over time to the normal mechanical stresses, heat and the effects of the combustion products and any condensation they form.



# 14. BOILER SIZE



## 15. INSTALLATION OF FLUE AND AIR DUCTS

### Models 240 Fi - 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.**

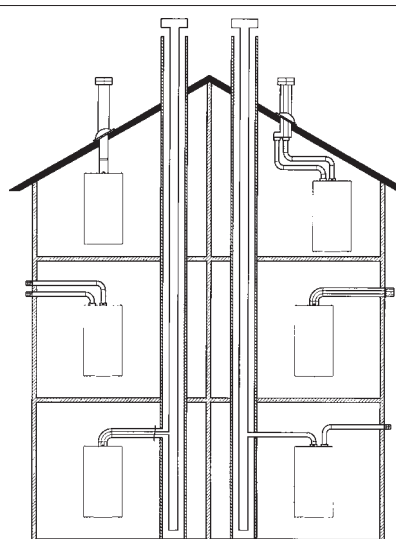


Figure 7

0503\_0905/CG1638

### ... 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.

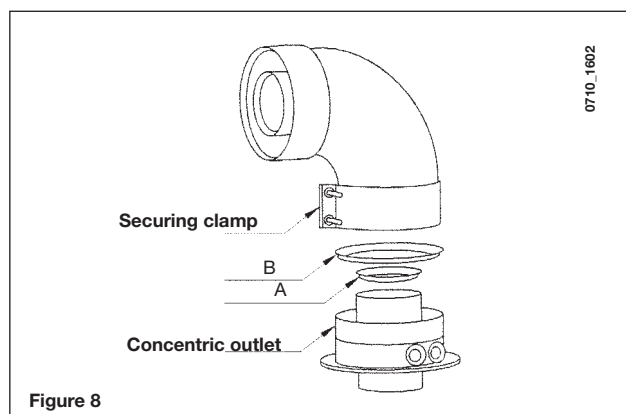


Figure 8

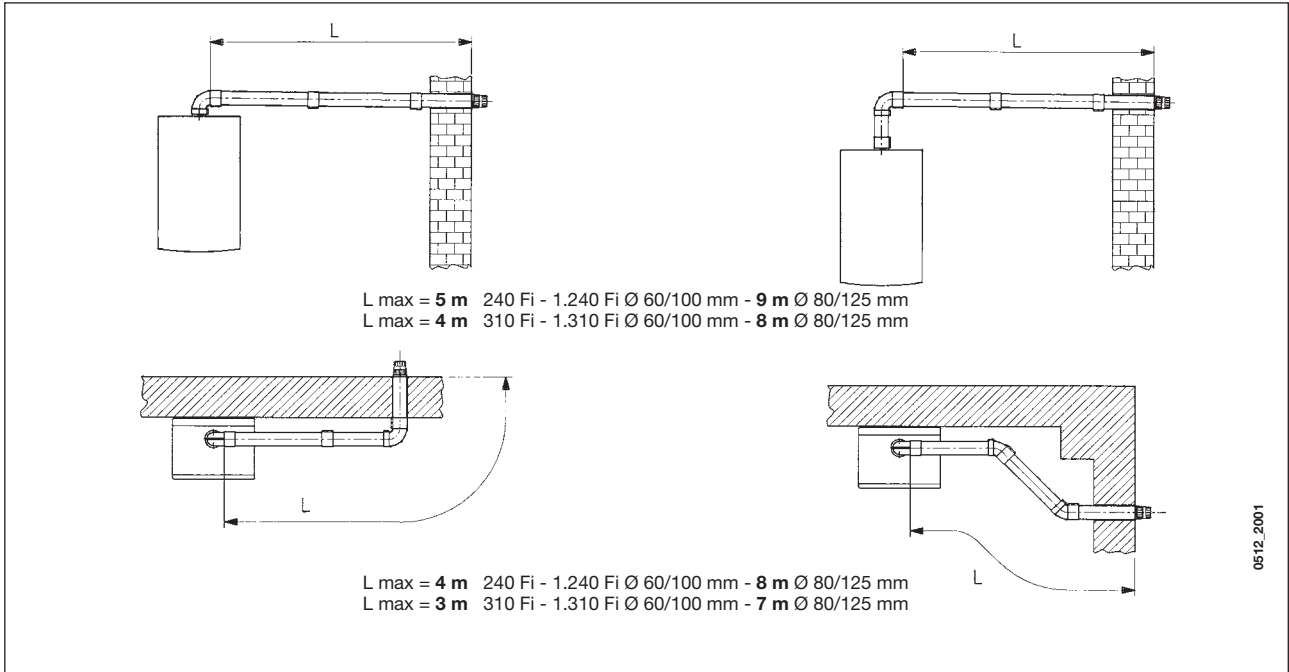
If the flue outlet is placed outside, the flue-air ducting must protrude at least 18mm out of the wall to allow aluminium weathering tile to be fitted and sealed to avoid water leakages. Ensure a minimum downward slope of 1 cm towards the outside per each metre of duct length.

- **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.**

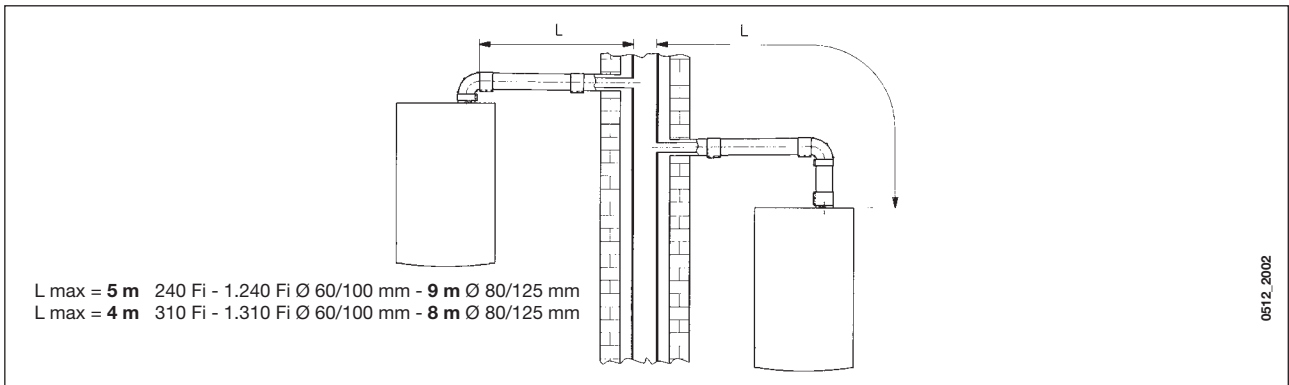
Boiler model	Length (m)	Air suction RESTRICTOR ⓑ	Flue RESTRICTOR Ⓐ
240 Fi 1.240 Fi	0 ÷ 1	Yes	Yes
	1 ÷ 2		No
	2 ÷ 5	No	No
310 Fi 1.310 Fi	0 ÷ 1	No	Yes
	1 ÷ 2	Yes	No
	2 ÷ 4	No	No



## 15.1 HORIZONTAL FLUE TERMINAL INSTALLATION OPTIONS

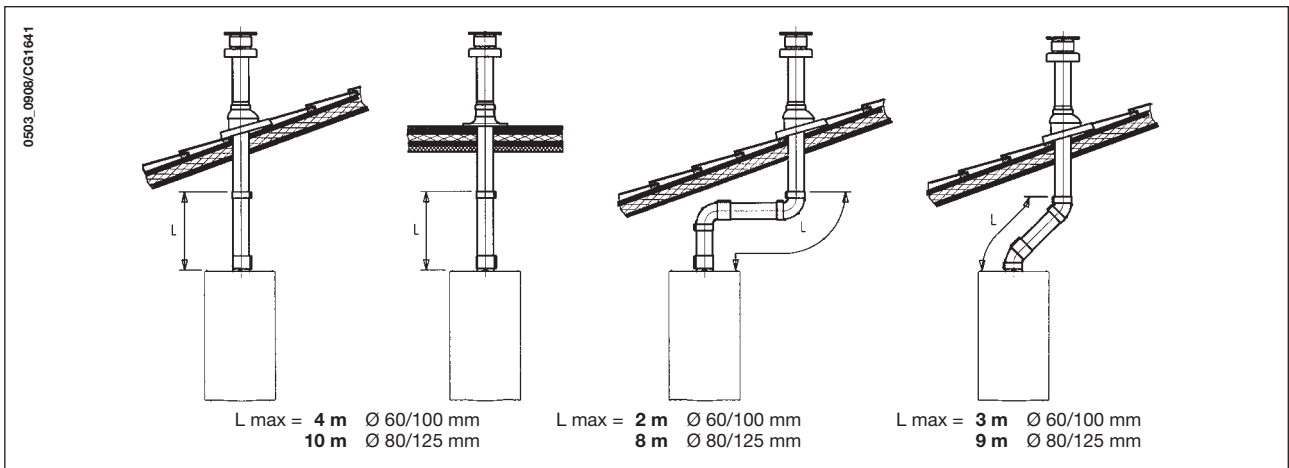


## 15.2 LAS FLUE DUCT INSTALLATION OPTIONS



## 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. Comburant 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	Flue RESTRICTOR (A)	CO2 %	
				G20	G31
240 Fi 1.240 Fi	0 ÷ 4	3	Yes	6,4	7,3
	4 ÷ 15	1	No		
	15 ÷ 25	2			
	25 ÷ 40	3			
310 Fi 1.310 Fi	0 ÷ 2	1	No	7,4	8,4
	2 ÷ 8	2			
	8 ÷ 25	3			

**Note: 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 0.5 metre.
- A 45° bend reduces the total duct length by 0.25 metre.

### 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 CO<sub>2</sub> contents of the flue at maximum heat output, gradually adjusting air to obtain the CO<sub>2</sub> 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.

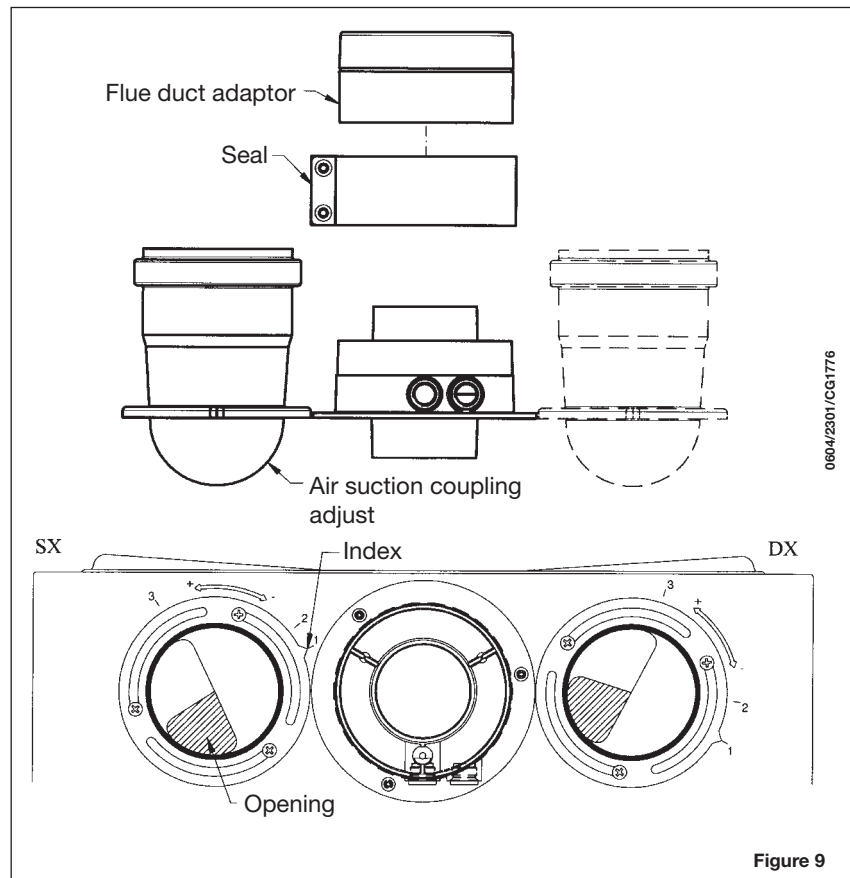
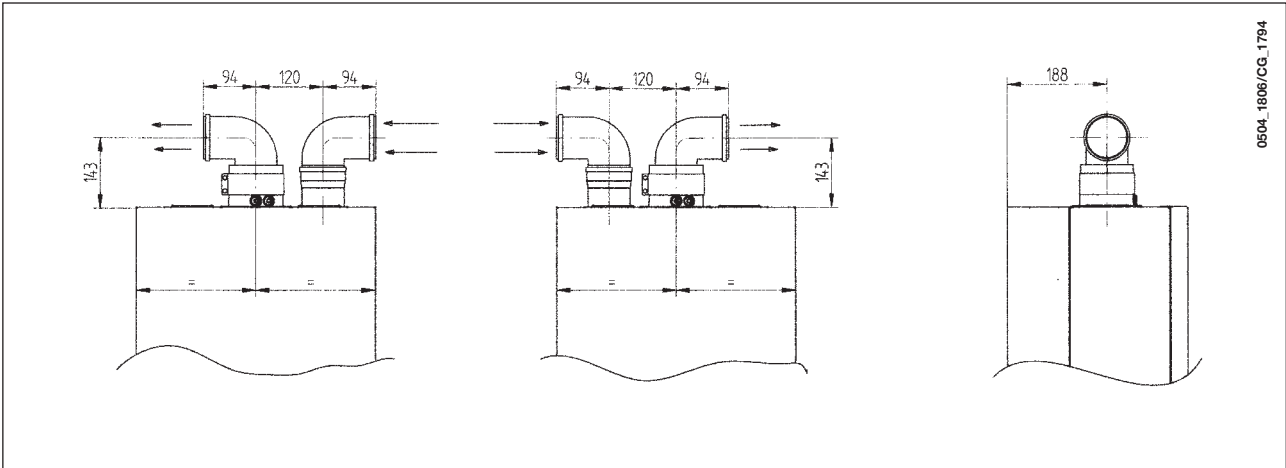


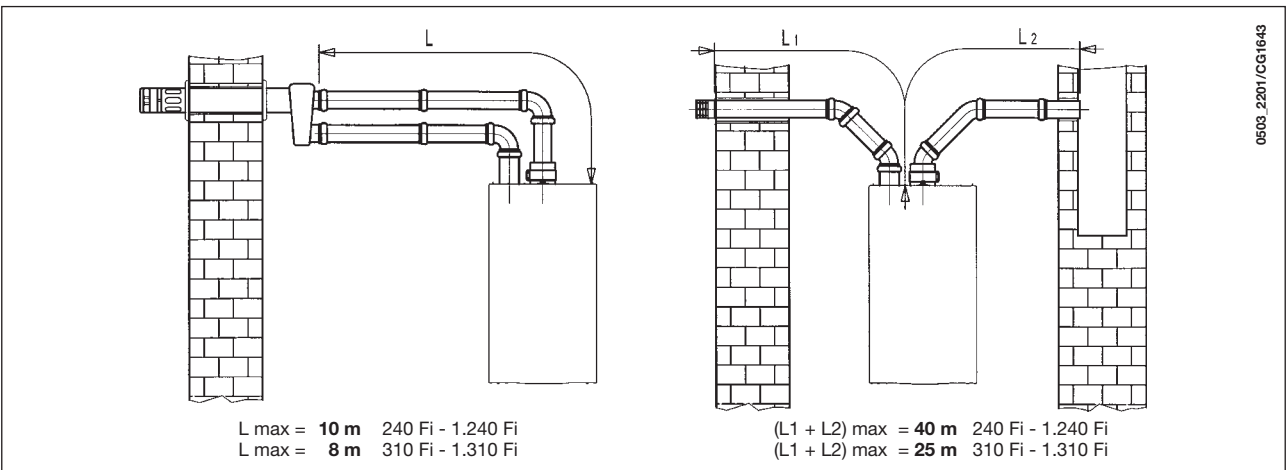
Figure 9

## 15.4 SPLIT FLUE OVERALL DIMENSIONS



## 15.5 SEPARATED HORIZONTAL FLUE TERMINALS INSTALLATION OPTIONS

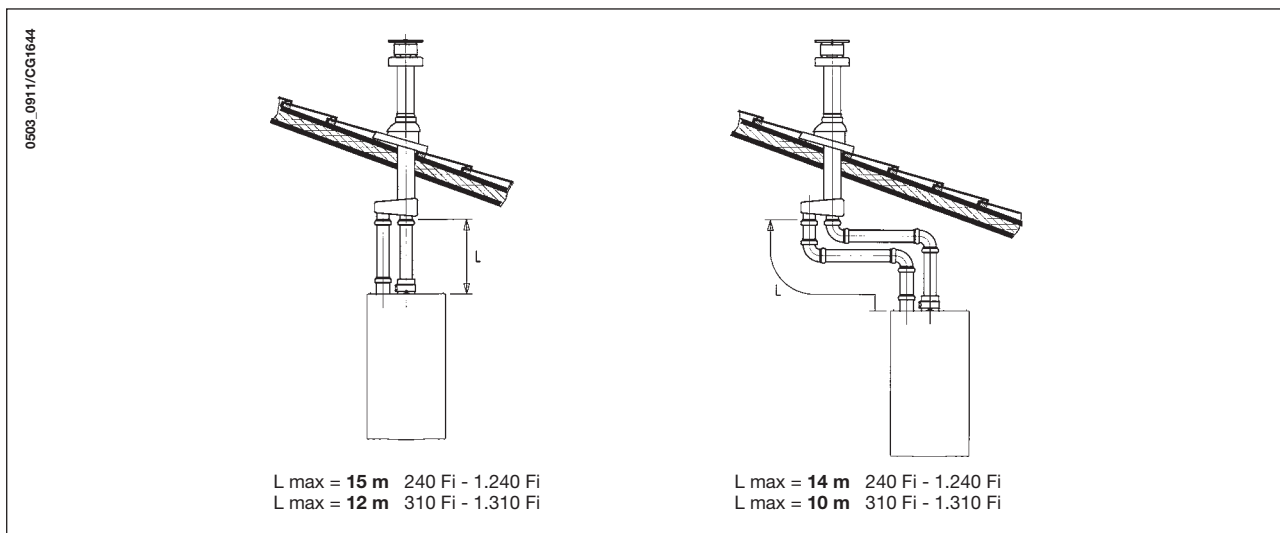
**IMPORTANT:** Ensure a minimum downward slope of 1 cm toward the outside per each metre of duct length. In the event of installation of the condensate collection kit, the angle of the drain duct must be directed towards the boiler.



**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 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



**Important:** 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' 3x0.75mm<sup>2</sup> 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.

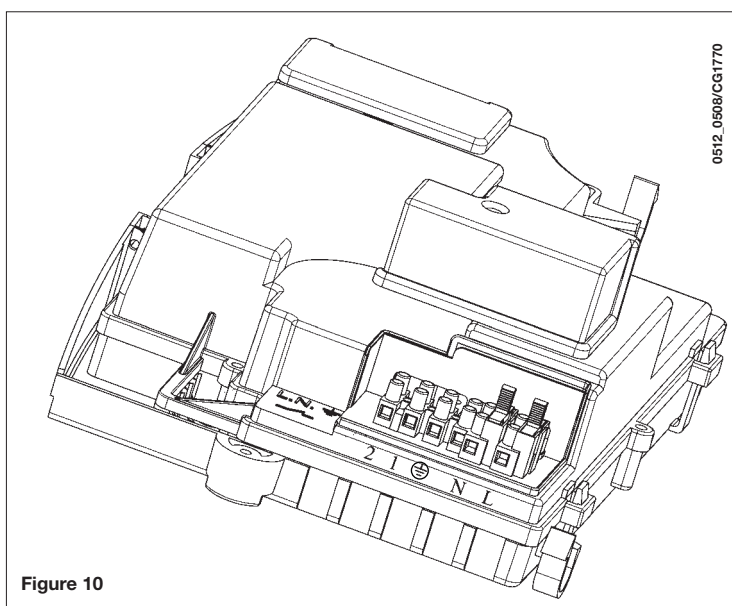


Figure 10

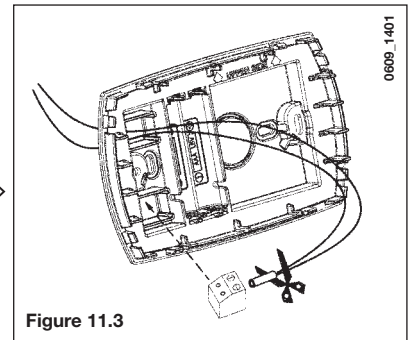
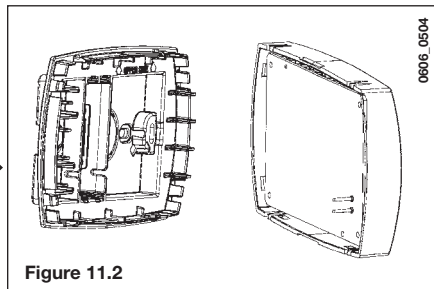
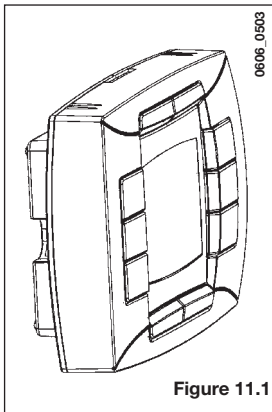
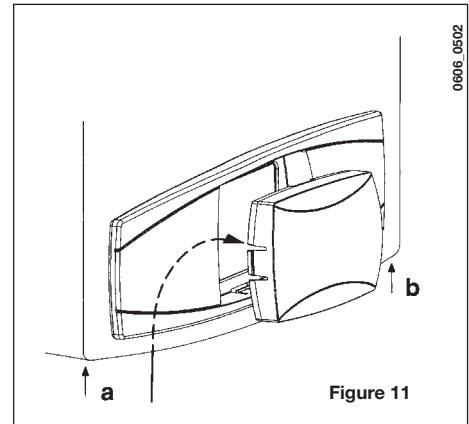
# 17. REMOTE CONTROL INSTALLATION

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;

### WARNING

If the ambient thermostat is not used, jump terminals **1-2** on the **M1** terminal block (figure 10).

## 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. access the terminal block **M2** as shown in the figure 12;
3. remove the two red wires from the terminals **1-2** and connect the two wires coming from the remote control.

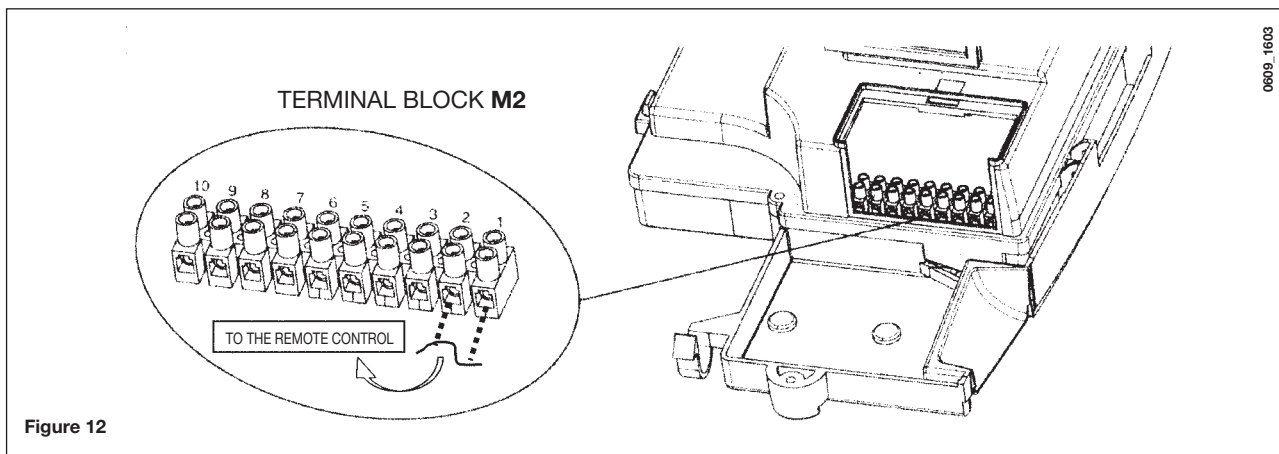


Figure 12

**IMPORTANT:** 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.

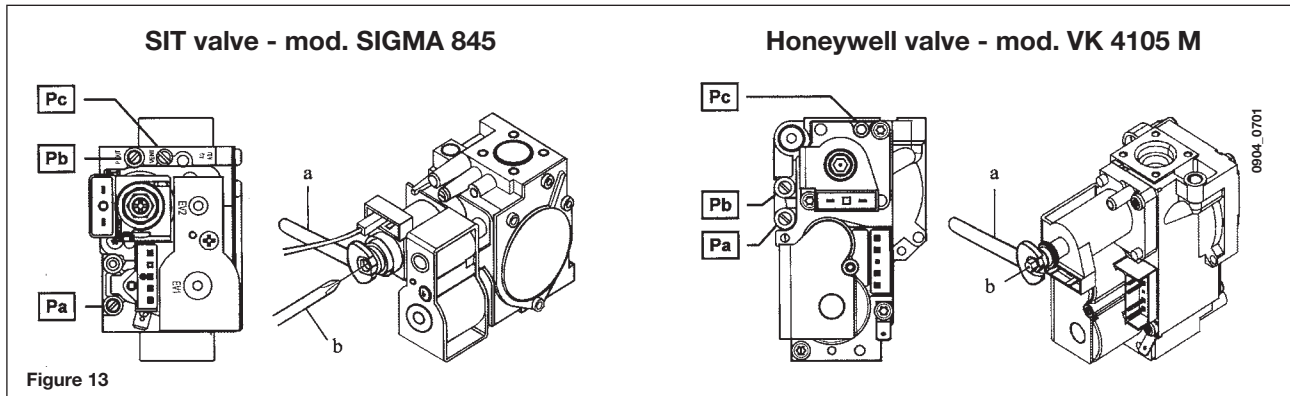
### B) Change the modulator voltage

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


### C) Pressure adjusting device setting (Figure 13)

- connect the positive pressure test point of a differential (possibly water-operated) manometer to the gas valve pressure test point (**Pb**); 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;
- check that boiler feeding dynamic pressure, as measured at the inlet gas valve pressure test point (**Pa**) is correct (**37 mbar** for propane gas **G.31**, **20 mbar** for natural gas **G20**);
- remove the modulator cover;
- adjust the tube brass screw (**a**) figure 14 to obtain the pressure settings shown in table 1;

#### C2) Adjustment to reduced heat output

- disconnect the modulator feeding cable and unscrew the (**b**) 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	240 Fi - 1.240 Fi		240 i - 1.240 i		310 Fi - 1.310 Fi	
	G20	G31	G20	G31	G20	G31
injector diameter (mm)	1,18	0,74	1,18	0,74	1,28	0,77
Burner pressure (mbar*) REDUCED HEAT OUTPUT	1,9	4,9	1,9	4,7	1,8	4,9
Burner pressure (mbar*) NOMINAL HEAT OUTPUT	11,3	29,4	10,0	26,0	13,0	35,5
no. of injectors	15					

\* 1 mbar = 10,197 mm H<sub>2</sub>O

Table 1


Gas consumption at 15 °C - 1013 mbar	240 Fi - 1.240 Fi		240 i - 1.240 i		310 Fi - 1.310 Fi	
	G20	G31	G20	G31	G20	G31
Nominal heat output	2,84 m <sup>3</sup> /h	2,09 kg/h	2,78 m <sup>3</sup> /h	2,04 kg/h	3,52 m <sup>3</sup> /h	2,59 kg/h
Reduced heat output	1,12 m <sup>3</sup> /h	0,82 kg/h	1,12 m <sup>3</sup> /h	0,82 kg/h	1,26 m <sup>3</sup> /h	0,92 kg/h
p.c.i.	34,02 MJ/m <sup>3</sup>	46,3 MJ/kg	34,02 MJ/m <sup>3</sup>	46,3 MJ/kg	34,02 MJ/m <sup>3</sup>	46,3 MJ/kg

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 +/- .
  - **"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).
- WARNING:** to change the unit of measure from °C to °F and vice versa, press the  button.

#### **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).

## 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.**
- “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

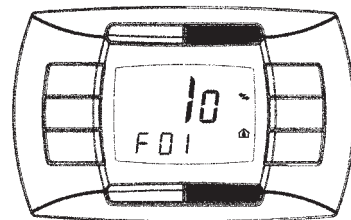
To access the Parameters setting mode proceed as follows:

- 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;



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**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					
		240 Fi	1. 240 Fi	240 i	1. 240 i	310 Fi	1.310 Fi
F01	Type of gas boiler <b>10</b> = sealed chamber - <b>20</b> = atmospheric chamber	10		20		10	
F02	Type of gas <b>00</b> = natural (metane) - <b>01</b> = LPG	00 o 01					
F03	Hydraulic system <b>00</b> = instantaneous appliance <b>05</b> = appliance with external water tank <b>08</b> = only heating appliance	00	08	00	08	00	08
F04	Programmable relay 1 setting <b>2</b> = zone system (See Service instructions)	02					
F05	Programmable relay 2 setting <b>13</b> = 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 ( <b>0-100%</b> )	100					
F14	D.H.W. max. heating output ( <b>0-100%</b> )	100					
F15	CH min. heating output ( <b>0-100%</b> )	00					
F16	Maximum temperature setpoint setting <b>00</b> = 85°C - <b>01</b> = 45°C	00					
F17	Pump overrun time ( <b>01-240 minutes</b> )	03					
F18	Minimum burner pause in central heating mode ( <b>01-10 minutes</b> ) - <b>00=10 seconds</b>	03					
F19	Manufacture information	07					
F20	Manufacture information	00					
F21	Anti-legionella function <b>00</b> = Disabled - <b>01</b> = 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					

## 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 (240 Fi - 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).
- **Flue thermostat for natural draught (model 240 i - 1-240 i)**  
This device has a sensor positioned on the left section of the flue extraction hood and shuts off the gas flow to the burner if the flue duct is obstructed or in the event of draught failure.  
Under such conditions the boiler is blocked and the display shows 03E error (see section 9).  
To relight the main burner immediately, see section 9.

---

It is forbidden to disable this safety device

---

- **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**  
Boiler's 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 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. 240 i - 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).

**Note:** 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

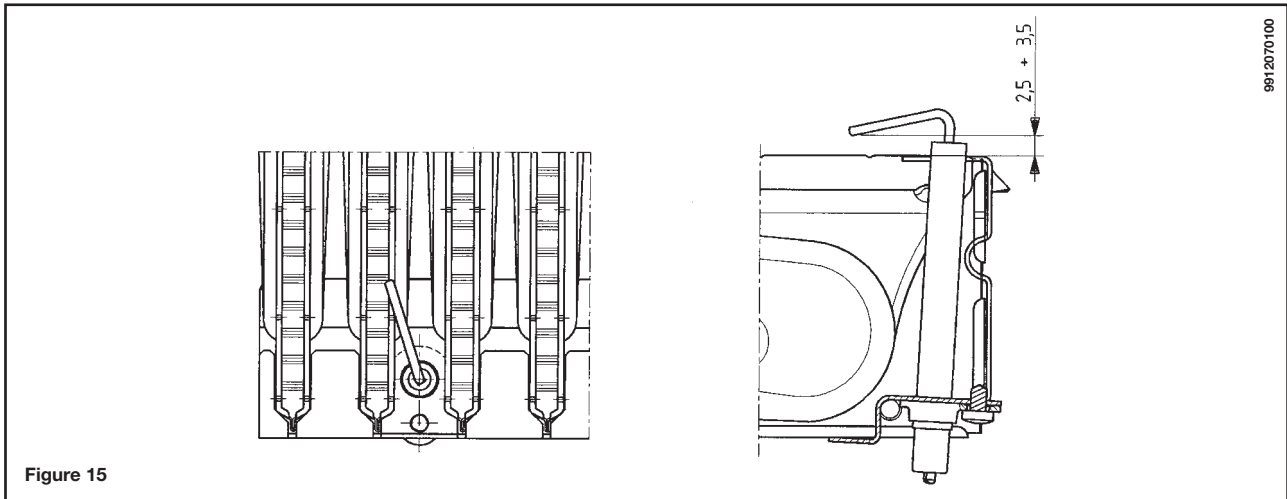


Figure 15

## 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<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>) 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:

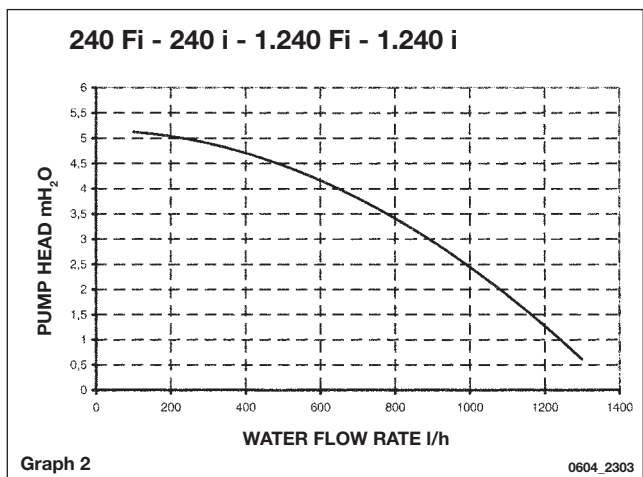
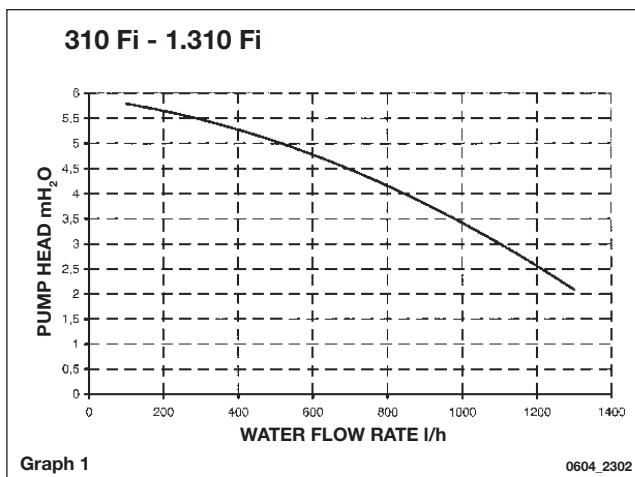
- temperature of the combustion products;
- oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>) concentration;
- carbon monoxide (CO) concentration.

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.



## 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.

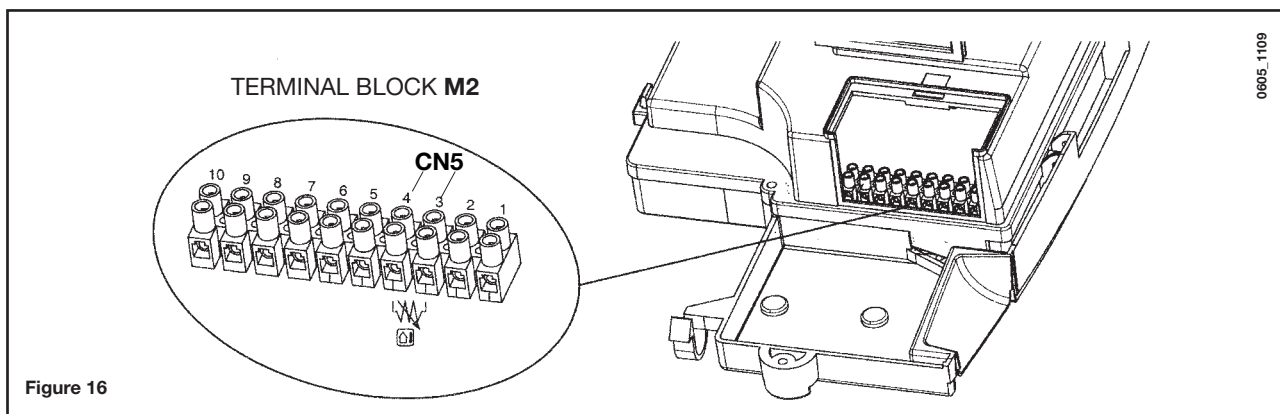



Figure 16

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.

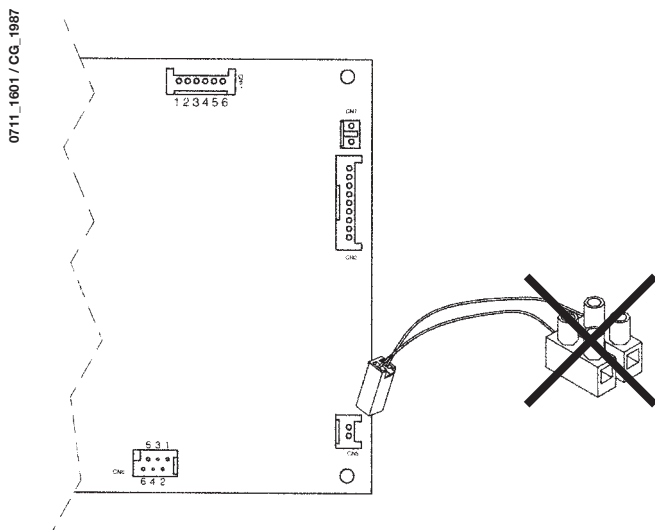
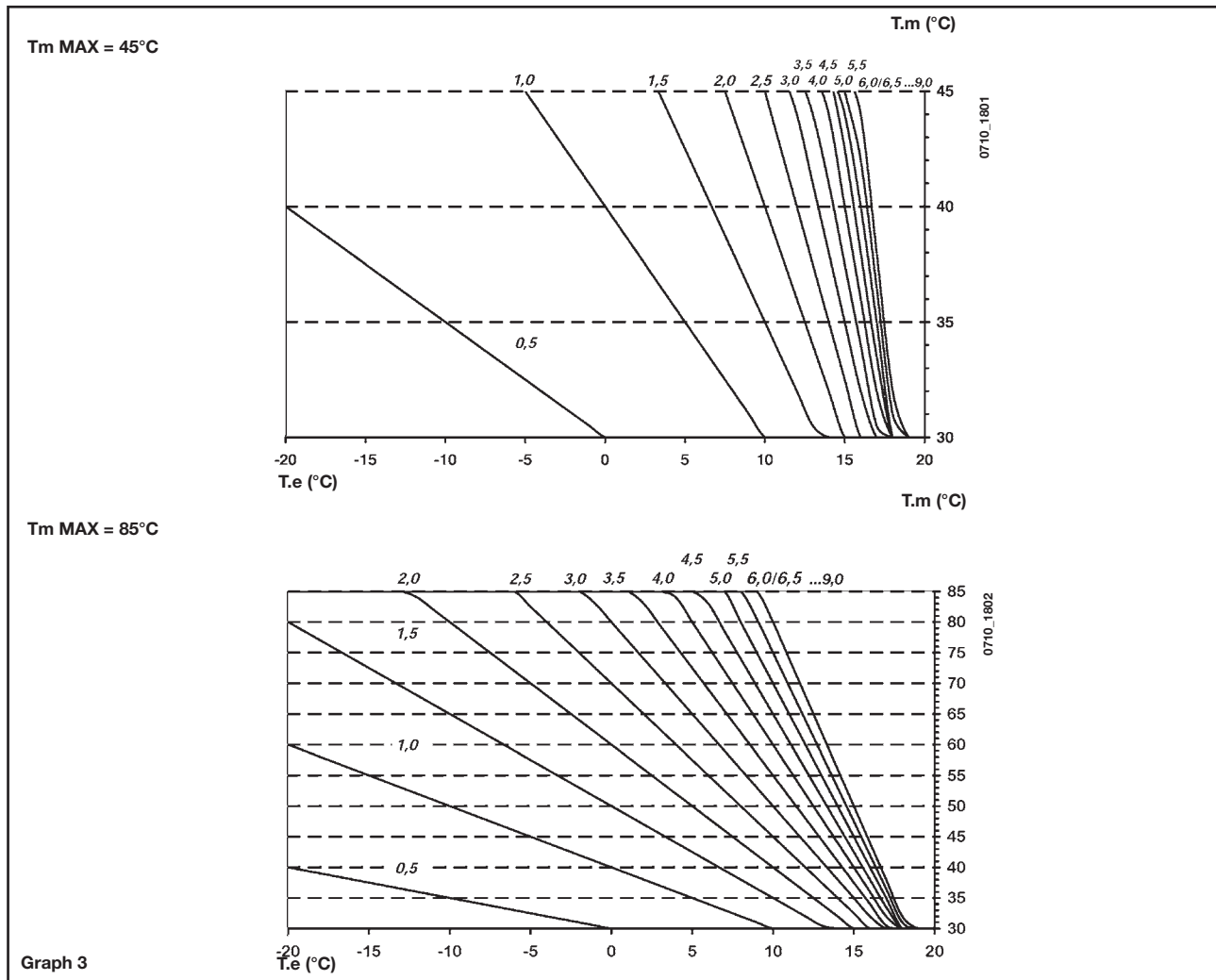


Figure 16.1

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<sub>M</sub>** = flow temperature (°C)  
**T<sub>e</sub>** = external temperature (°C)

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

### Models 1.240 i - 1.240 Fi - 1.310 Fi

**NB:** 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 +/- .

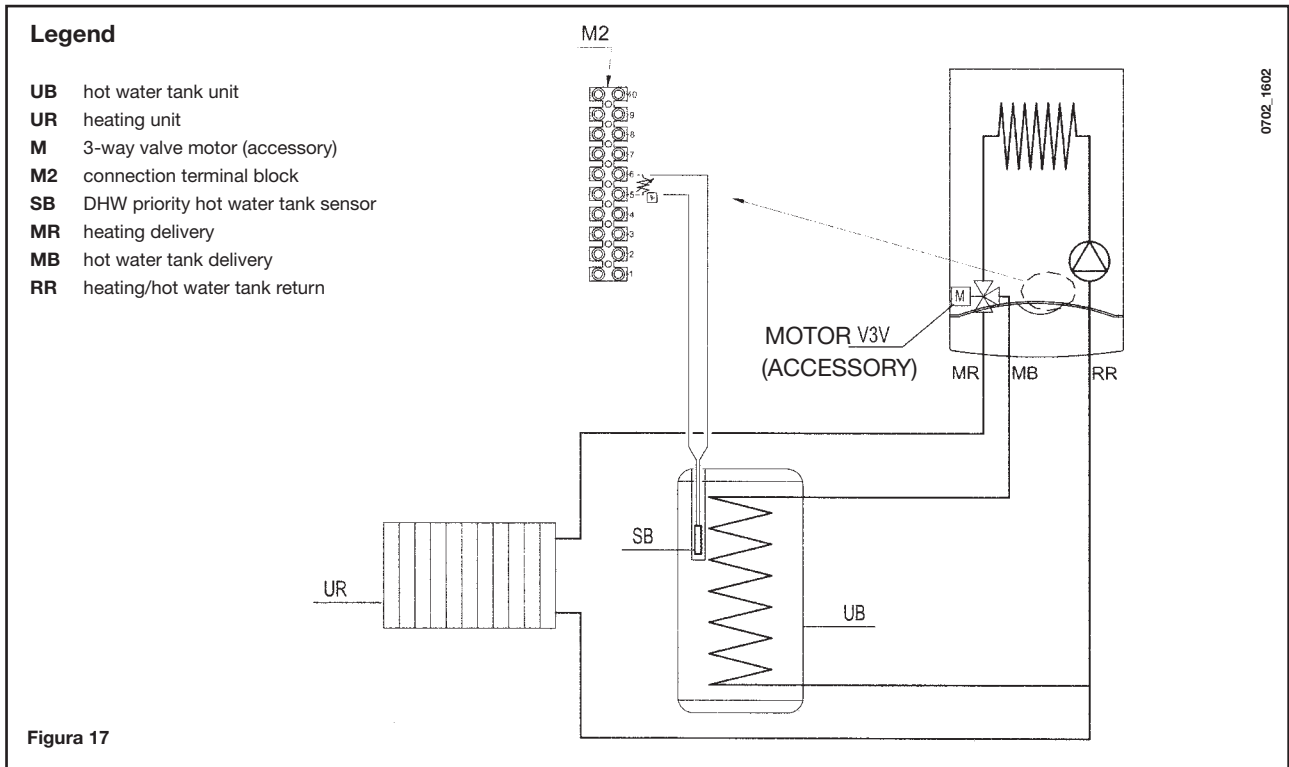


Figura 17

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

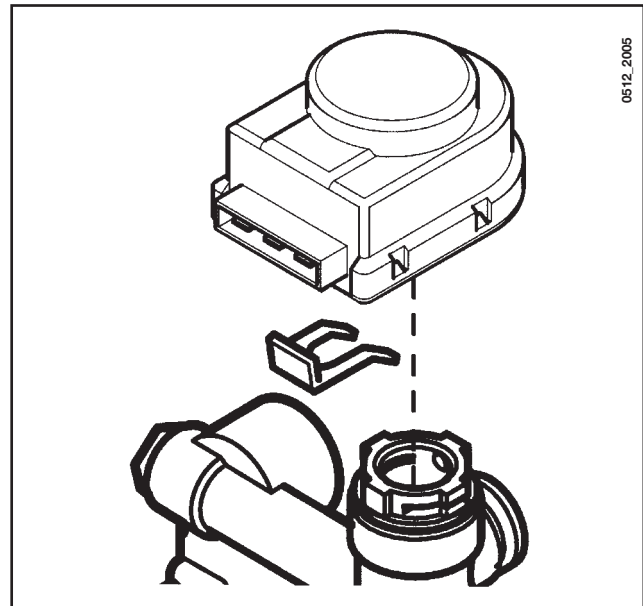
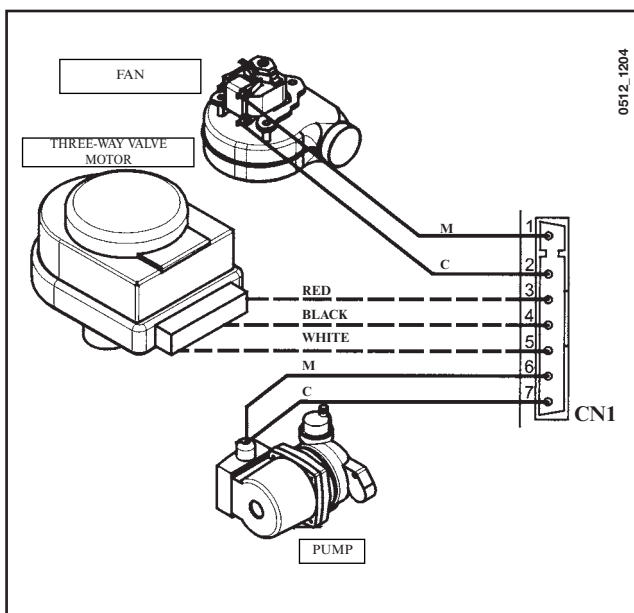
**3-WAY VALVE MOTOR ELECTRICAL CONNECTION (Models 1.240 i . 1.240 Fi - 1.310 Fi)**

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 i . 1.240 Fi - 1.310 Fi)**



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





## 28. HOW TO PURGE THE DHW SYSTEM FROM LIMESTONE DEPOSITS

(Not fitted on 1.240 i - 1.240 Fi and 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 i - 1.240 Fi and 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).

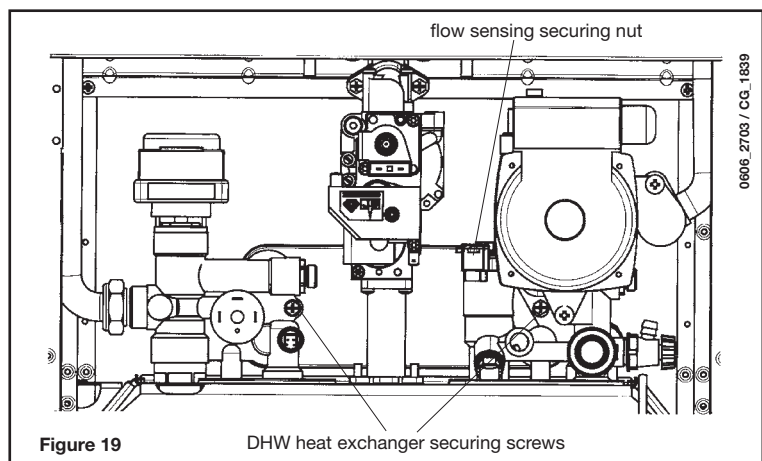
## 30. CLEANING THE COLD WATER FILTER

(Not fitted on 1.240 i - 1.240 Fi and 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. ANNUAL MAINTENANCE

To optimise boiler efficiency, carry out the following annual controls:

- check the appearance and airtightness of the gaskets of the gas and combustion circuits;
- check the state and correct position of the ignition and flame-sensing electrodes;
- check the state of the burner and make sure it is firmly fixed;
- check for any impurities inside the combustion chamber.

Use a vacuum cleaner to do this;

- check the gas valve is correctly calibrated;
- check the pressure of the heating system;
- check the pressure of the expansion vessel;
- check the fan works correctly;
- make sure the flue and air ducts are unobstructed;
- check for any impurities inside the siphon fitted on certain boilers;
- check the magnesium anode, where present, for boilers fitted with storage boilers.

### WARNINGS

**Before commencing any maintenance operations, make sure the boiler is disconnected from the power supply. Afterwards, move the knobs and/or operating parameters of the boiler to their original positions.**

# 32. BOILER SCHEMATIC

240 Fi - 310 Fi

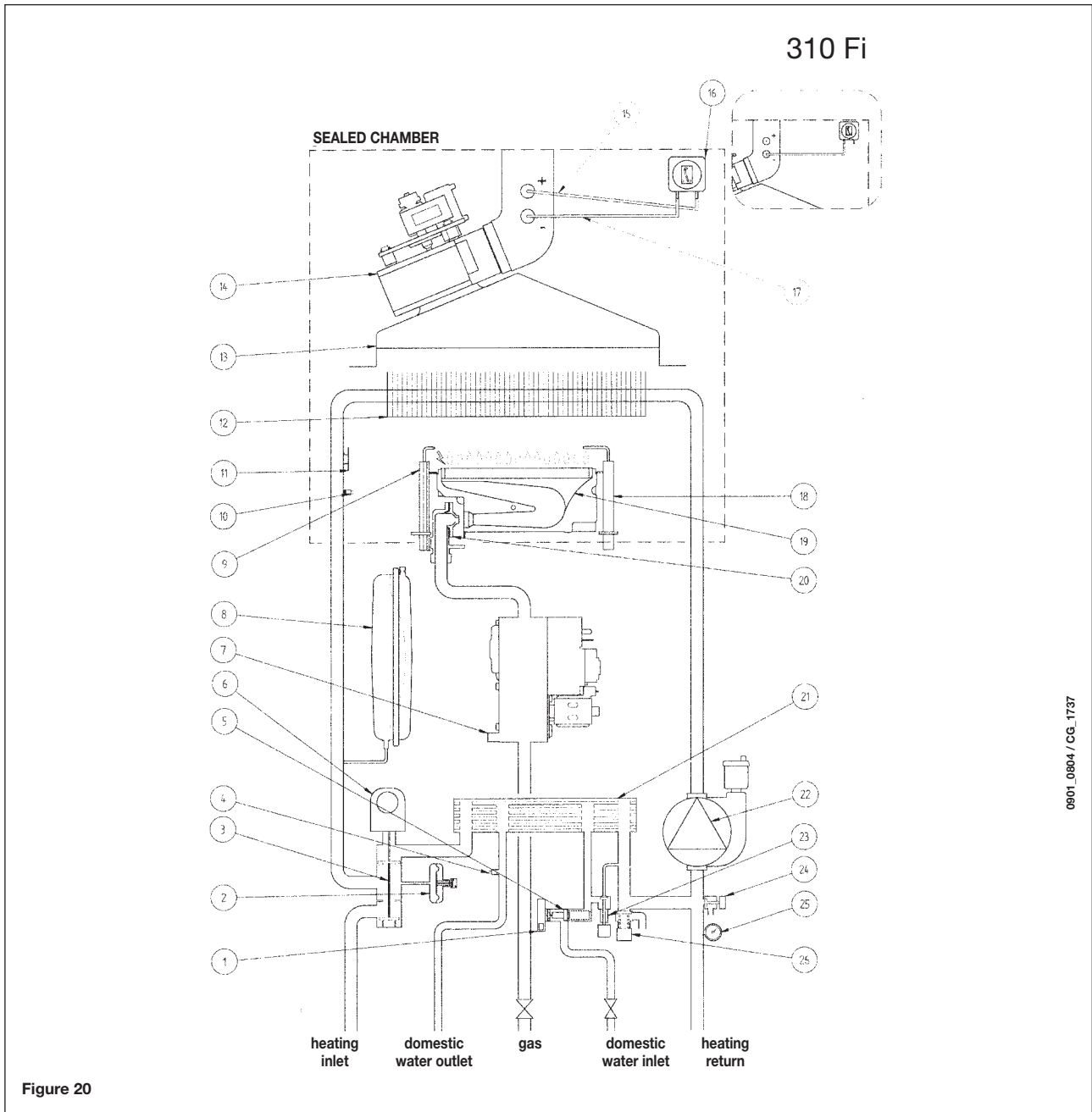


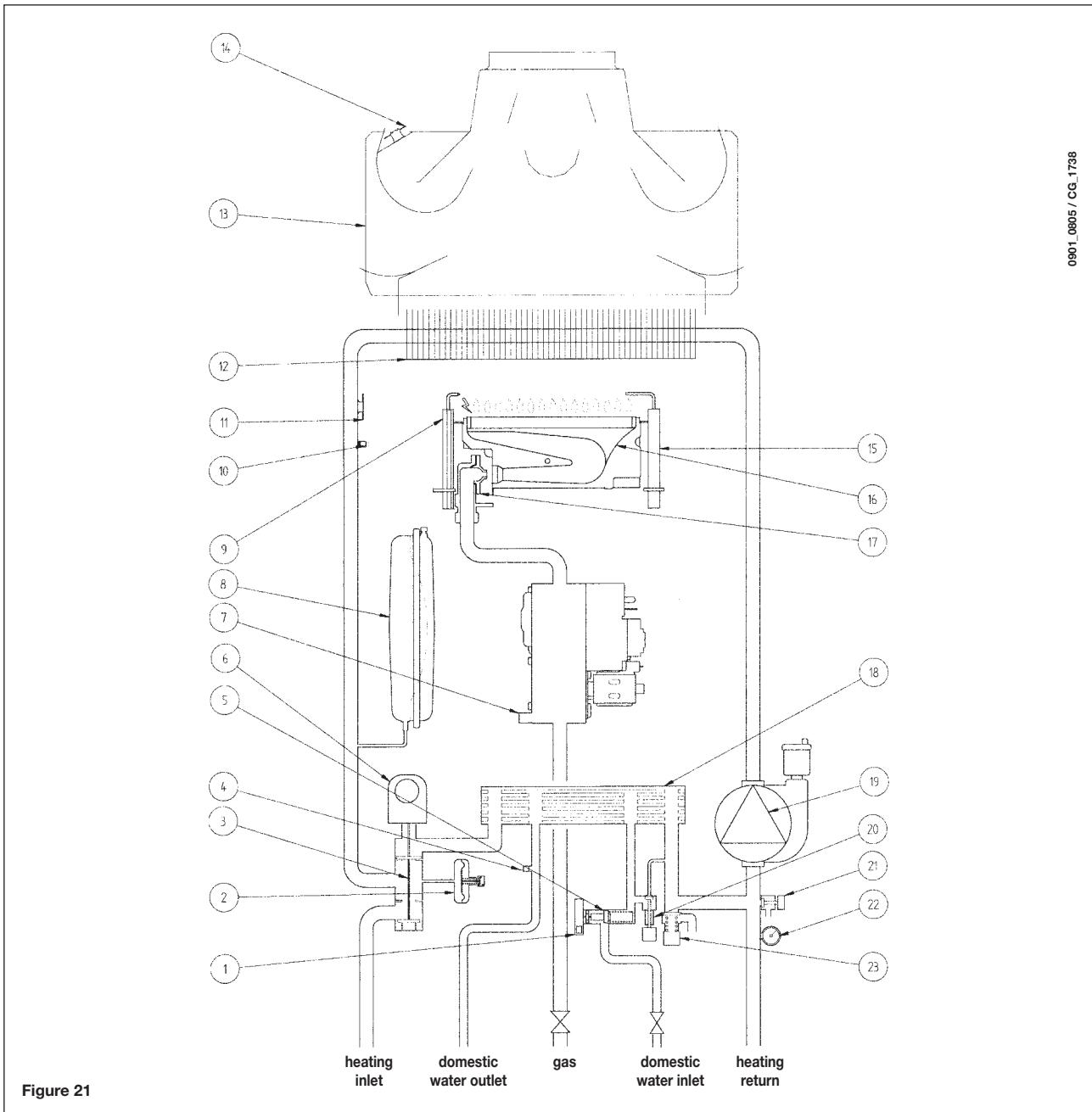
Figure 20

**Key:**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1 D.H.W. priority sensor</li> <li>2 Water pressure switch</li> <li>3 Three way valve</li> <li>4 D.H.W. NTC sensor</li> <li>5 Flow sensor with filter and water flow rate limiter</li> <li>6 Three way valve motor</li> <li>7 Gas valve</li> <li>8 Expansion vessel</li> <li>9 Ignition electrode</li> <li>10 Central heating NTC sensor</li> <li>11 Overheat safety thermostat</li> <li>12 Flue-water exchanger</li> <li>13 Flue hood</li> </ul> | <ul style="list-style-type: none"> <li>14 Fan</li> <li>15 Positive pressure point<br/>(for 310 Fi model the positive point must be closed)</li> <li>16 Air pressure switch</li> <li>17 Negative pressure point</li> <li>18 Flame detector electrode</li> <li>19 Burner</li> <li>20 Burner injectors</li> <li>21 D.H.W. plate heat exchanger (automatic by-pass)</li> <li>22 Pump and air separator</li> <li>23 System filling cock</li> <li>24 Boiler drain point</li> <li>25 Manometer</li> <li>26 Pressure relief valve</li> </ul> |
|---|--|

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## 240 i

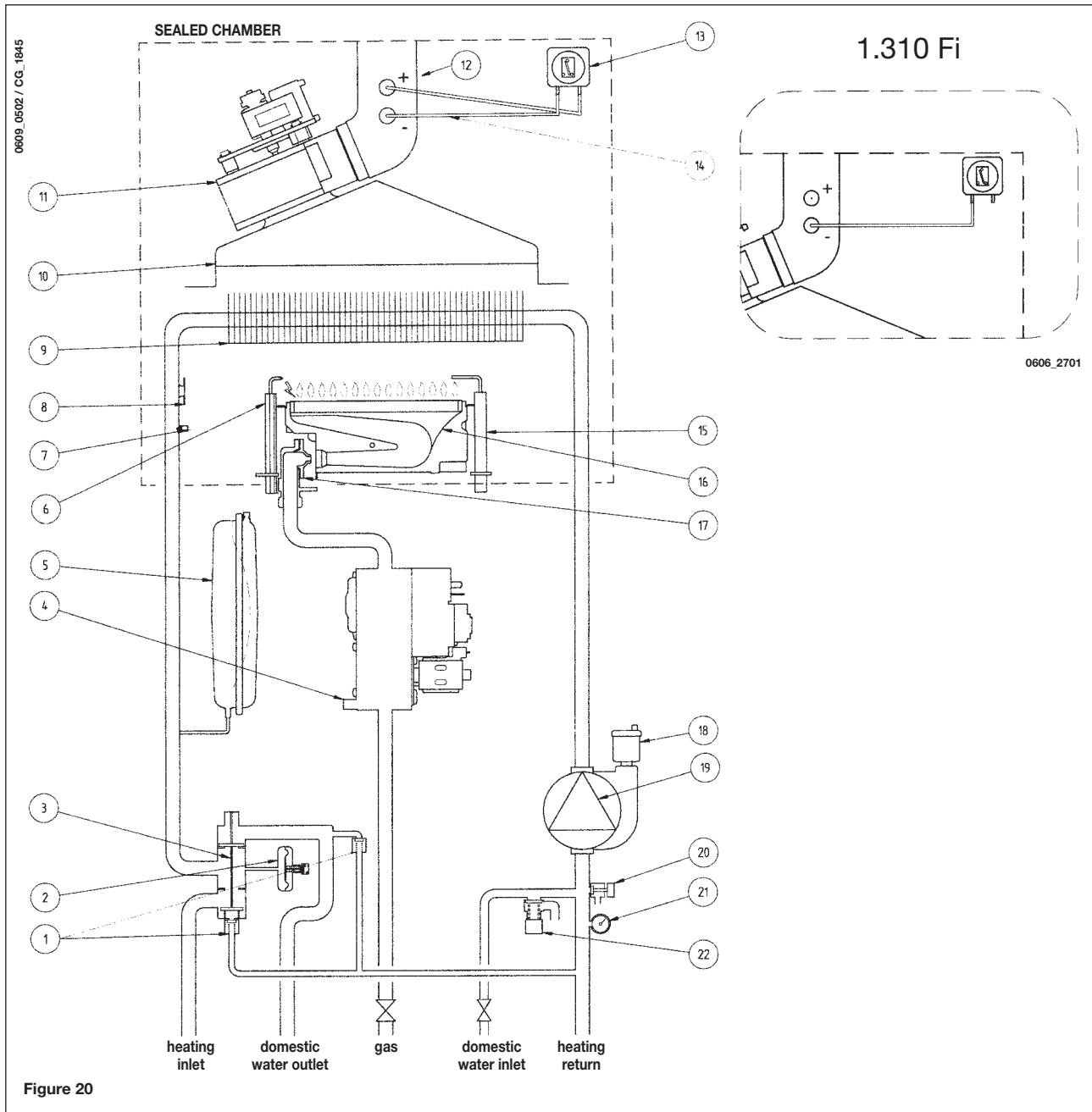


0901\_0805 / CG\_1738

### Key:

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

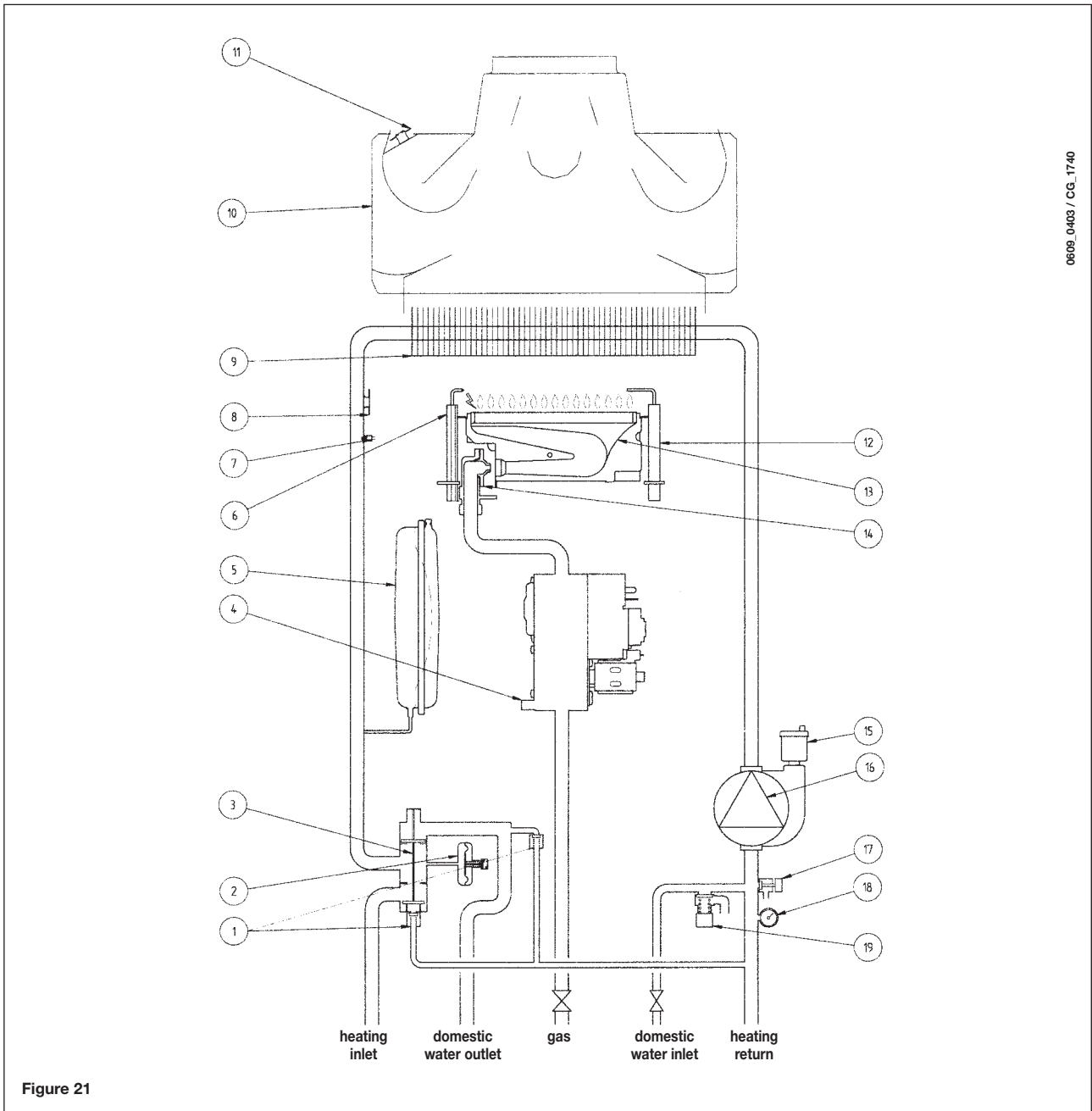
## 1.240 Fi - 1.310 Fi



**Key:**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 Automatic by-pass</li> <li>2 Water pressure switch</li> <li>3 Three way valve</li> <li>4 Gas valve</li> <li>5 Expansion vessel</li> <li>6 Ignition electrode</li> <li>7 Central heating NTC sensor</li> <li>8 Overheat safety thermostat</li> <li>9 Flue-water exchanger</li> <li>10 Flue hood</li> <li>11 Fan</li> </ul> | <ul style="list-style-type: none"> <li>12 Positive pressure point<br/>(for 1.310 Fi model the positive point must be closed)</li> <li>13 Air pressure switch</li> <li>14 Positive pressure point</li> <li>15 Flame detector electrode</li> <li>16 Burner</li> <li>17 Burner injectors</li> <li>18 Automatic air vent</li> <li>19 Pump and air separator</li> <li>20 Boiler drain point</li> <li>21 Manometer</li> <li>22 Pressure relief valve</li> </ul> |
|--|---|

## 1.240 i

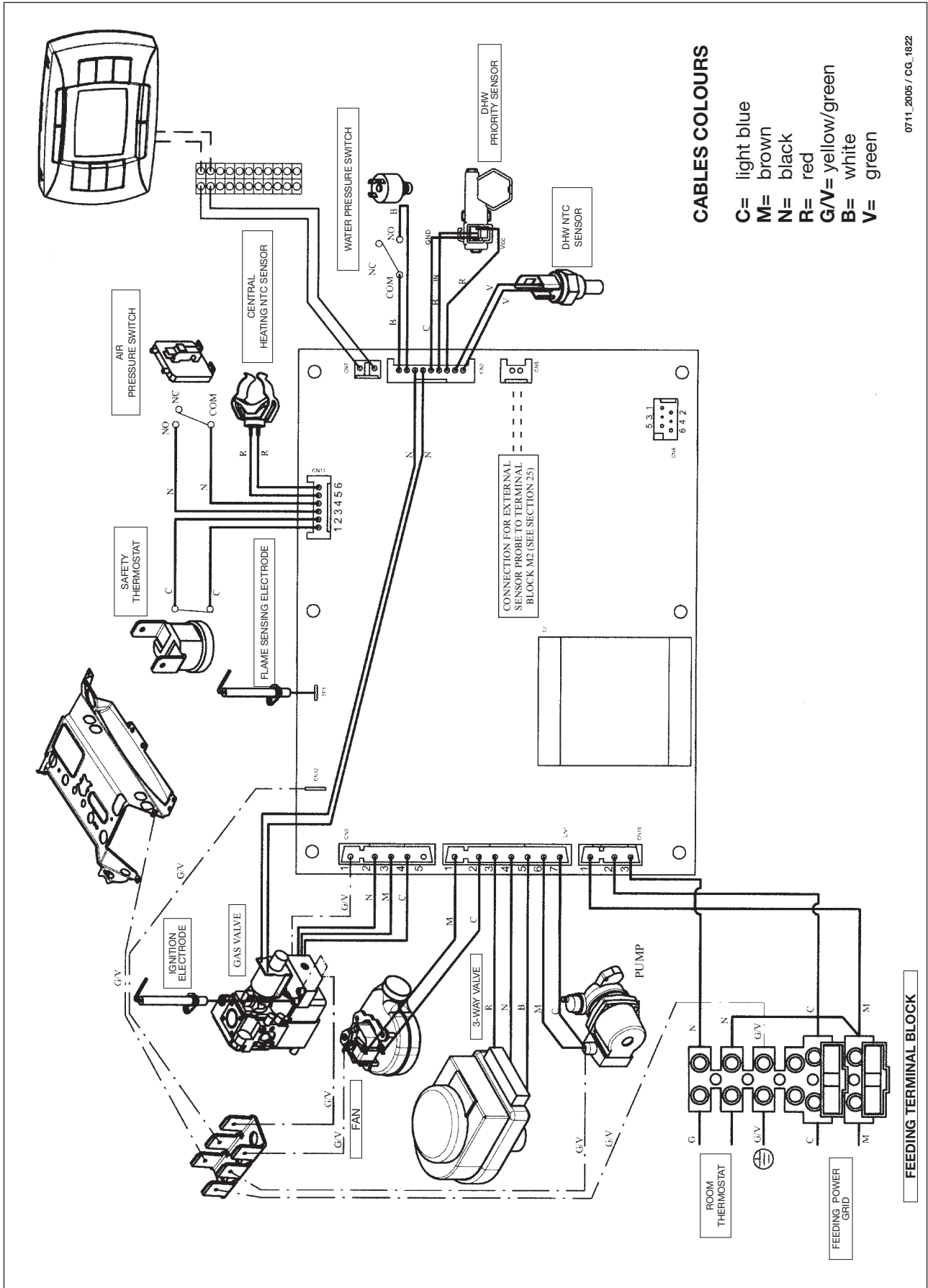


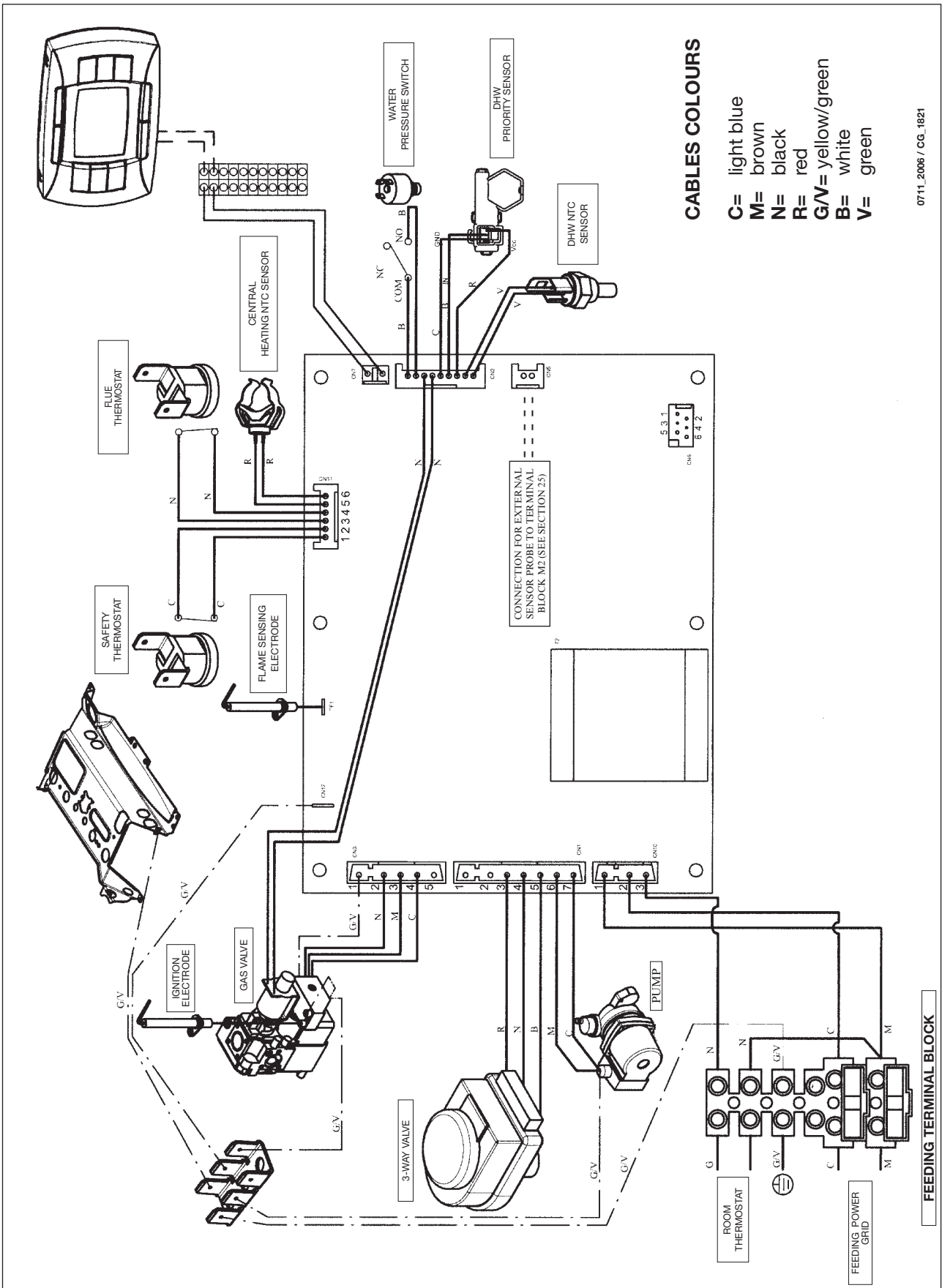
### Key:

- |                              |                             |
|------------------------------|-----------------------------|
| 1 Automatic by-pass          | 10 Flue hood                |
| 2 Water pressure switch      | 11 Flue thermostat          |
| 3 Three way valve            | 12 Flame detector electrode |
| 4 Gas valve                  | 13 Burner                   |
| 5 Expansion vessel           | 14 Burner injectors         |
| 6 Ignition electrode         | 15 Automatic air vent       |
| 7 Central heating NTC sensor | 16 Pump and air separator   |
| 8 Overheat safety thermostat | 17 Boiler drain point       |
| 9 Flue-water exchanger       | 18 Manometer                |
|                              | 19 Pressure relief valve    |

# 33. ILLUSTRATED WIRING DIAGRAM

240 Fi - 310 Fi



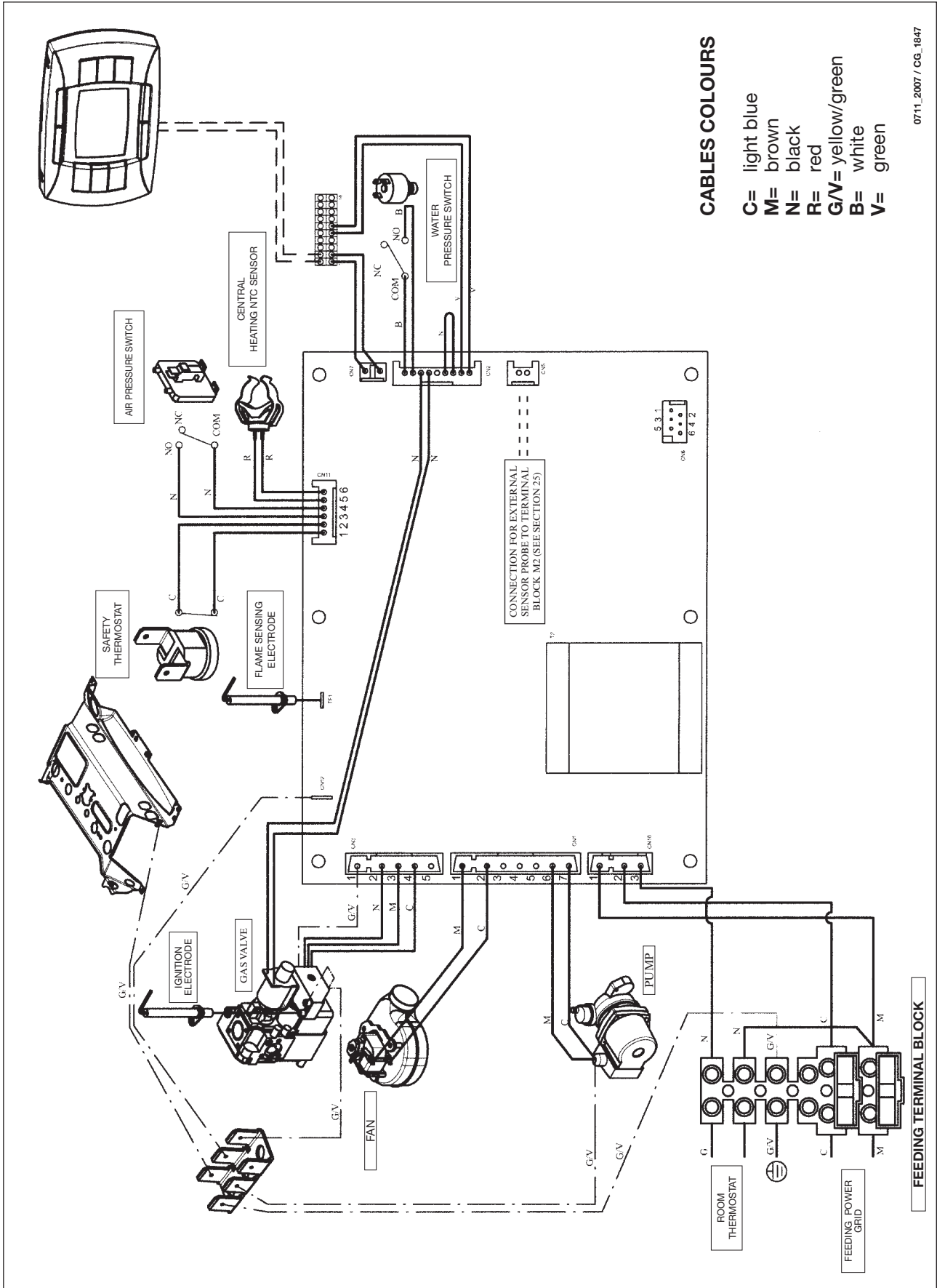


**CABLES COLOURS**

- C= light blue
- M= brown
- N= black
- R= red
- G/V= yellow/green
- B= white
- V= green

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# 1.240 Fi - 1.310 Fi



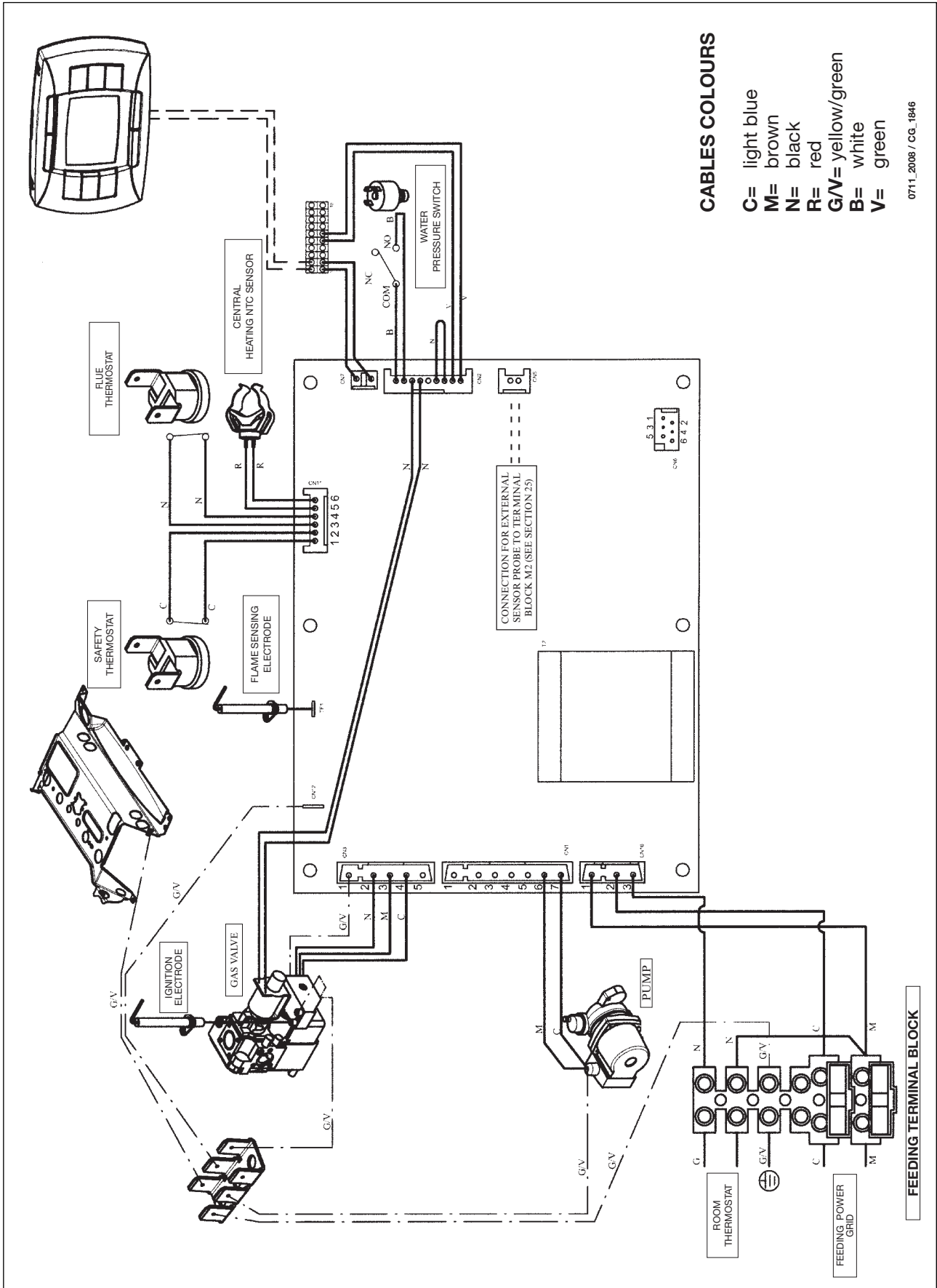
## CABLES COLOURS

- C= light blue
- M= brown
- N= black
- R= red
- G/V= yellow/green
- B= white
- V= green

0711\_2007 / CG\_1847



# 1.240 i



0711\_2008 / CG\_1846

## 34. TECHNICAL DATA

Model LUNA3 COMFORT		240 i	1.240 i	240 Fi	1.240 Fi	310 Fi	1.310 Fi
Category		II2H3P	II2H3P	II2H3P	II2H3P	II2H3P	II2H3P
Maximum heat input	kW	26,3	26,3	26,9	26,9	33,3	33,3
Reduced heat input	kW	10,6	10,6	10,6	10,6	11,9	11,9
Maximum heat output	kW	24	24	25	25	31	31
	kcal/h	20.600	20.600	21.500	21.500	26.700	26.700
Reduced heat output	kW	9,3	9,3	9,3	9,3	10,4	10,4
	kcal/h	8.000	8.000	8.000	8.000	8.900	8.900
Useful efficiency according to 92/42/CEE directive	—	★★	★★	★★★	★★★	★★★	★★★
Central heating system max. pressure	bar	3	3	3	3	3	3
Expansion vessel capacity	l	8	8	8	8	10	10
Expansion vessel pressure	bar	0,5	0,5	0,5	0,5	0,5	0,5
DHW system max. pressure	bar	8	—	8	—	8	—
DHW system min. dynamic pressure	bar	0,15	—	0,15	—	0,15	—
DHW system min. output	l/min	2,0	—	2,0	—	2,0	—
DHW production at ΔT=25 °C	l/min	13,7	—	14,3	—	17,8	—
DHW production at ΔT=35 °C	l/min	9,8	—	10,2	—	12,7	—
Specific output (*)	l/min	10,7	—	11,5	—	13,7	—
Type	—	B <sub>11BS</sub>	B <sub>11BS</sub>	C12 - C32 - C42 - C52 - C82 - B22			
Concentric flue duct diameter	mm	—	—	60	60	60	60
Concentric air duct diameter	mm	—	—	100	100	100	100
2-pipe flue duct diameter	mm	—	—	80	80	80	80
2-pipe air duct diameter	mm	—	—	80	80	80	80
Discharge pipe diameter	mm	120	120	—	—	—	—
Max. flue mass flow rate (G20)	kg/s	0,019	0,019	0,017	0,017	0,018	0,018
Min. flue mass flow rate (G20)	kg/s	0,017	0,017	0,017	0,017	0,019	0,019
Max. flue temperature	°C	110	110	135	135	145	145
Min. flue temperature	°C	85	85	100	100	110	110
NOx Classe	—	3	3	3	3	3	3
Type of gas used	—	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Natural gas feeding pressure 2H (G20)	mbar	20	20	20	20	20	20
Propane gas feeding pressure 3P (G31)	mbar	37	37	37	37	37	37
Power supply voltage	V	230	230	230	230	230	230
Power supply frequency	Hz	50	50	50	50	50	50
Power consumption	W	80	80	135	135	165	165
Net weight	kg	33	31	38	36	40	38
Dimensions	height	mm	763	763	763	763	763
	width	mm	450	450	450	450	450
	depth	mm	345	345	345	345	345
Protection-limit against humidity and water leakages (**)	—	IP X5D	IP X5D	IP X5D	IP X5D	IP X5D	IP X5D

(\*) according to EN 625

(\*\*) according to EN 60529

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