

# **BAXI**

# **LUNA DUO-TEC IN+**

**en**

**BUILT IN CONDENSING GAS WALL-HUNG BOILERS**

*Instructions manual for users and fitters*



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 declares that these products are marked **CE** in compliance with the essential requirements of the following Directives:

- Gas Directive **2009/142/EC**
- Efficiency Directive **92/42/EEC**
- Electromagnetic Compatibility Directive **2014/30/EU**
- Low Voltage Directive **2014/35/EU**
- Ecodesign directive **2009/125/EC**
- Energy labelling directive **2010/30/EU** (for boilers with Power<70kW)
- Ecodesign regulation (EU) No **813/2013**
- Energy labelling regulation (EU) No **811/2013** (for boilers with Power<70kW)









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.

**The appliance can be used by children aged 8 or over and by people with reduced physical, sensory or mental faculties, or who do not have the required experience or knowledge, provided they are supervised or have received instructions on using the appliance safely and understanding its intrinsic hazards. Children must not play with the appliance. The cleaning and maintenance operations reserved to the user must not be performed by unsupervised children.**

*User & Installer (en)*

# CONTENT

DESCRIPTION OF SYMBOLS .....	4
SAFETY WARNINGS .....	4
GENERAL PRECAUTIONS .....	5
ENERGY-SAVING TIPS .....	5
1. COMMISSIONING THE BOILER .....	6
1.1  SYMBOL MEANING .....	7
1.2 DESCRIPTION OF BUTTON  (SUMMER - WINTER - HEATING ONLY - OFF) .....	7
1.3 DESCRIPTION OF BUTTON  (AUTOMATIC-MANUAL-OFF) .....	7
1.4 ROOM AND DOMESTIC HOT WATER (D.H.W.) TEMPERATURE ADJUSTMENT .....	7
1.5 PROGRAMMING (PROGR) .....	7
1.6 PROGRAMMING HEATING MODE OPERATION TIMES .....	8
1.7 PROGRAMMING DHW MODE OPERATION TIMES .....	9
1.8 ECONOMY - COMFORT FUNCTION  .....	9
1.9 SHOWER FUNCTION .....	9
1.10 TEMPERATURE VALUES MODIFICATION BY PRESSING THE  BUTTON .....	10
1.11 PROGRAMMABLE SWITCHING TIME FUNCTION (BUTTON  ) .....	10
2. PROLONGED SHUTDOWN. ANTI-FREEZE PROTECTION .....	10
3. GAS CONVERSION .....	11
4. TROUBLESHOOTING .....	11
5. SWITCHING OFF THE BOILER .....	12
6. FILLING THE SYSTEM .....	12
7. ROUTINE MAINTENANCE INSTRUCTIONS .....	12
INSTRUCTIONS PRIOR TO INSTALLATION .....	13
8. INSTALLING THE BOILER .....	13
CONTENTS OF PACK .....	13
8.1 RECESSED INSTALLATION OUTDOORS .....	14
8.2 WALL-MOUNTED INSTALLATION OUTDOORS IN PARTIALLY SHELTERED AREAS .....	14
8.3 WALL-MOUNTED OPEN AIR INSTALLATION OUTDOORS .....	15
9. FILLING THE SYSTEM .....	15
10. INSTALLING THE DUCTS .....	16
10.1 CONCENTRIC DUCTS .....	17
10.2 SEPARATE DUCTS .....	17
SEPARATE DUCTS (TYPE B23) .....	17
SEPARATE DUCTS WITH SHELTER KIT (TYPE B23) .....	17
11. ELECTRICAL CONNECTIONS .....	18
11.1 INSTALLING THE REMOTE CONTROL ON THE WALL .....	19
11.2 CONNECTING TO A ZONE SYSTEM .....	20
11.3 CONNECTING THE ROOM THERMOSTAT .....	21
11.4 ACCESSORIES NOT INCLUDED IN THE SUPPLY .....	21
12. SPECIAL FUNCTIONS .....	22
12.1 INITIAL IGNITION .....	22
12.2 SYSTEM GAS EXTRACTION FUNCTION .....	22
12.3 CHIMNEY SWEEPER .....	23
12.4 COMBUSTION TEST (CO <sub>2</sub> ) .....	23
COMBUSTION ADJUSTMENT FUNCTION (CO <sub>2</sub> %) .....	23
13. GAS VALVE .....	24
13.1 GAS CONVERSION METHODS .....	24
14. BOILER INFORMATION MENU .....	24
15. PARAMETERS SETTING .....	25
15.1 ADJUSTING MAXIMUM HEATING POWER .....	27
16. TROUBLESHOOTING SERVICE FAULTS .....	27
17. ADJUSTMENT AND SAFETY DEVICES .....	29
18. PUMP CAPACITY/ HEAD .....	29
19. POSITIONING THE ELECTRODES .....	29
20. ANNUAL SERVICING .....	30
20.1 HYDRAULIC UNIT .....	30
20.2 CLEANING THE FILTERS .....	30
20.3 DISMOUNTING THE WATER-WATER HEAT EXCHANGER .....	30
20.4 REPLACEMENT OF PARTS .....	31
AUTOMATIC CALIBRATION FUNCTION .....	31
21. DISMANTLING, DISPOSAL AND RECYCLING .....	31
22. TECHNICAL SPECIFICATIONS .....	32
23. TECHNICAL PARAMETERS .....	33
24. PRODUCT FICHE .....	34

## DESCRIPTION OF SYMBOLS



### **WARNING**

Risk of damage to, or malfunction of the appliance. Pay special attention to the warnings concerning danger to people.



### **DANGER OF BURNS**

Wait for the appliance to cool down before working on the parts exposed to heat.



### **DANGER - HIGH VOLTAGE**

Live components - electrocution hazard.



### **DANGER OF FREEZING**

Possible formation of ice due to low temperatures.



### **IMPORTANT INFORMATION**

Information to read with particular care as it is useful for the correct operation of the boiler.



### **GENERIC PROHIBITION**

It is forbidden to do/use the things indicated alongside the symbol.

## SAFETY WARNINGS

### **SMELL OF GAS**

- Switch off the boiler.
- Do not activate any electrical device (such as switching on the light).
- Put out any naked flames and open the windows.
- Call an Authorised Service Centre.

### **SMELL OF COMBUSTION FUMES**

- Switch off the boiler.
- Open all the doors and windows to ventilate the room.
- Call an Authorised Service Centre.

### **FLAMMABLE MATERIAL**

Do not use and/or store highly flammable material (thinners, paper, etc.) near the boiler.

## SERVICING AND CLEANING THE BOILER

Switch off the boiler before working on it.



The appliance is not intended to be used by persons with reduced physical, sensory or mental capacities, or who lack experience or knowledge, unless, through the mediation of a person responsible for their safety, they have had the benefit of supervision or of instructions on the use of the appliance.



Frost protection can be enabled only when the appliance is powered up, the supply of gas is active and the pressure in the system is within the recommended range. All the shut-off valves of the boiler must remain open. Our company cannot accept liability when these requirements are not observed.



There must be a gas shut-off valve at a point upstream of the appliance where it can be found and accessed with ease.

## GENERAL PRECAUTIONS

This boiler has been designed to heat water to a temperature lower than boiling point at atmospheric pressure. It must be connected to a central heating system and to a domestic hot water supply system according to its performance and power output. Before having the boiler installed by a qualified service engineer, make sure the following operations are performed:

- Make sure that the boiler is adjusted to use the type of gas delivered by the gas supply. To do this, check the markings on the packaging and the data label on the appliance.
- Make sure that the flue terminal draft is appropriate, that the terminal is not obstructed and that no exhaust gases from other appliances are expelled through the same flue duct, unless the latter has been specially designed to collect exhaust gas from more than one appliance, in compliance with current laws and regulations.
- Make sure that, if the boiler is connected to existing flue ducts, these have been thoroughly cleaned as residual products of combustion may detach from the walls during operation and obstruct the flow of fumes.
- To ensure correct operation and maintain the warranty, observe the following precautions:

### 1. DHW circuit

**1.1** If the water is harder than 20 °F (1 °F = 10 mg calcium carbonate per litre of water), install a polyphosphate dispenser or an equivalent treatment system, compliant with current regulations.

**1.2** Thoroughly flush the system after installation of the appliance and before use.

**1.3** The materials used for the DHW circuit comply with Directive 98/83/EC.

### 2. Heating circuit

**2.1 New system:** Before installing the boiler, the system must be cleaned and flushed to eliminate residual thread-cutting swarf, solder and any solvents, using suitable off-the-shelf non-acid and non-alkaline products that do not damage metal, plastic and rubber parts. To protect the system from scale, use inhibitors such as SENTINEL X100 and FERNOX protector for heating circuits. Use these products in strict compliance with the manufacturers' instructions.

**2.2 Existing system:** Before installing the boiler, drain the system and clean it to remove sludge and contaminants, using suitable proprietary products. Recommended cleaning products are: SENTINEL X300 or X400 and FERNOX regenerator for heating circuits. Use these products in strict compliance with the manufacturers' instructions. Remember that the presence of foreign bodies in the heating system can adversely affect boiler operation (e.g. overheating and excessive noise of the heat exchanger).

Initial lighting of the boiler must be carried out by an authorised Service Engineer who must first ensure that:

- The rated data correspond to the supply (electricity, water and gas) data.
- That the installation complies with current regulations.
- The appliance is correctly connected to the power supply and earthed.



**Failure to observe the above will render the warranty null and void. Prior to commissioning, remove the protective plastic coating from the boiler. Do not use any tools or abrasive detergents to do this as you may damage the painted surfaces.**



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

## ENERGY-SAVING TIPS

### Adjustment in the heating mode

Adjust the boiler flow temperature depending on the kind of system. For systems with radiators, set a maximum heating water flow temperature of approximately 60°C and increase this value if the required room temperature is not reached. For systems with radiant floor panels, do not exceed the temperature indicated by the system designer. Use the External Sensor and/or Control Panel to automatically adjust the flow temperature to atmospheric conditions or the indoor temperature. This ensures that no more heat than that effectively necessary is produced. Adjust the room temperature without overheating the rooms. Every extra degree centigrade means consuming approximately 6% more. Also room ambient temperature depending on how the rooms are used. For example, the bedroom or the least used rooms can be heated to a lower temperature. Use the programmable timer and set the night-time room temperature at approximately 5°C lower than that during the day. There is no appreciable saving to be achieved by setting it any lower. Only in case of a prolonged absence, such as a holiday, should the temperature setpoint be lowered. Do not cover radiators as this prevents the air from circulating correctly. Do not leave the windows partially open to ventilate the rooms but open them completely for a short period.

### Domestic hot water

Setting the domestic hot water at the required temperature without mixing it with cold water saves a lot of money. Additional heating wastes energy and creates additional scale.





**BAXI** 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 safeguarding 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. COMMISSIONING THE BOILER

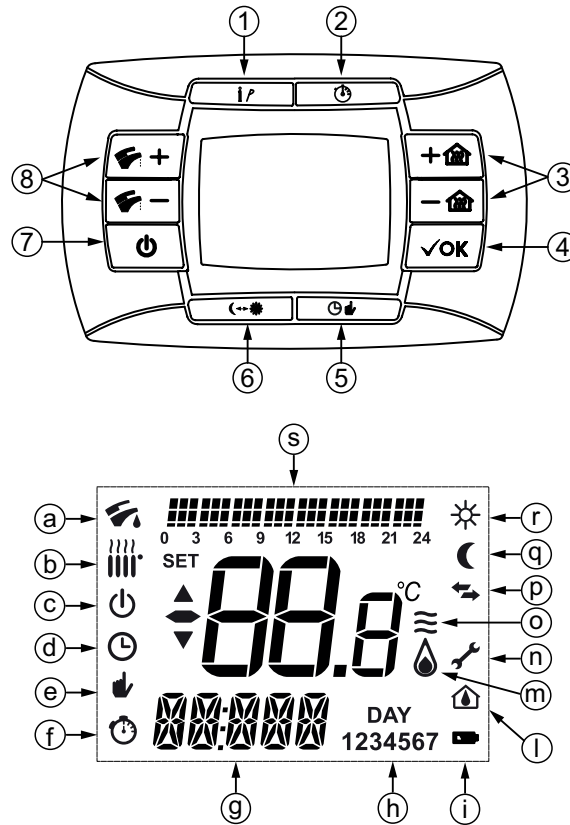
To correctly light the boiler proceed as follows:

- Provide power supply to the boiler.
- Open the gas cock.
- Press the  button (following figure) to set the gas boiler mode as described in section "DESCRIPTION OF BUTTON  (Summer - Winter - Heating only - Off)".



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



<b>1</b>	Information/Programming button	<b>5</b>	Setting programmed operation in heating mode Manual/Automatic/Off
<b>2</b>	Timing function	<b>6</b>	Economy-Comfort button
<b>3</b>	Central Heating temperature regulation	<b>7</b>	Enabling Summer-Winter-Heating only-Off
<b>4</b>	Confirmation button	<b>8</b>	Domestic Hot Water temperature regulation

<b>a</b>	D.H.W. mode	<b>l</b>	Pcb (boiler) parameters
<b>b</b>	CH mode	<b>m</b>	Burner lighted
<b>c</b>	Standby	<b>n</b>	Fault in progress
<b>d</b>	Timing mode	<b>o</b>	Modulating flame level (boiler power level)
<b>e</b>	Manual mode	<b>p</b>	Communication with the gas boiler in progress
<b>f</b>	Delayed mode	<b>q</b>	Reduced setpoint temperature mode
<b>g</b>	Time format / displaying information	<b>r</b>	Comfort setpoint temperature mode
<b>h</b>	Week days	<b>s</b>	Time switch program histogram
<b>i</b>	Battery level		


## 1.1 SYMBOL MEANING

There are 4 power levels displayed during boiler operation, relevant to the gas boiler modulation, as shown in figure to side.


## 1.2 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.

## 1.3 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 "PROGRAMMING HEATING MODE OPERATION TIMES" 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).

## 1.4 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 (see figure in section "COMMISSIONING THE BOILER").

When the burner is lighted the display shows the symbol  as described in section "  SYMBOL MEANING".

**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".



*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).*




## 1.5 PROGRAMMING (PROGR)

**SETTING THE DATE-TIME**

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



*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.

## 1.6 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.

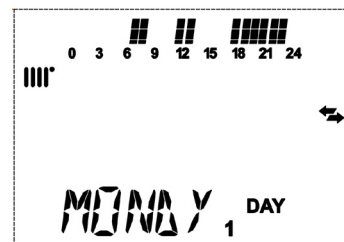
### 1.6.1 Single days

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)								

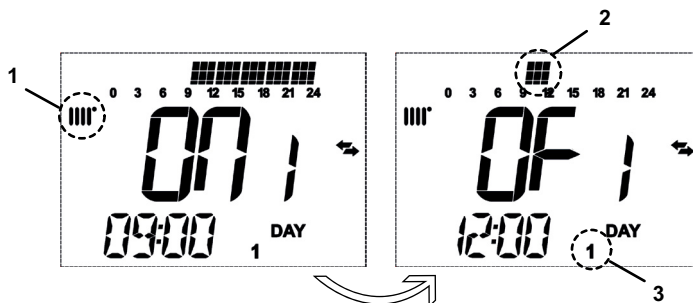
To set a single time band, proceed as follows:

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



1	Programming in HEATING MODE
2	PROGRAMMED TIME BAND 09:00 - 12:00
3	Day of the week: Monday

**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 he programme "skips" time band 1 and continues with on2...).**



### 1.6.2 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:

- Press the IP button and then the button ;
- Select a GROUP of days by repeatedly pressing the buttons +/- ;
- press the OK button;
- repeat the operations described in points 4-10 of paragraph "Single 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 "Single days".
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 "Single days".
Group "MO-SU"	DAY	1	2	3	4	5 6 7	every day of the week	As per table in paragraph "Single days".



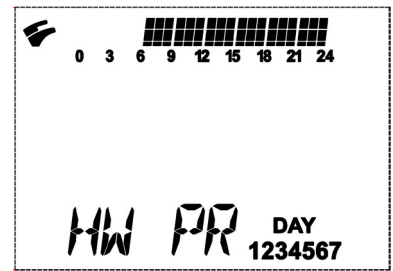
## 1.7 PROGRAMMING DHW MODE OPERATION TIMES

(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).

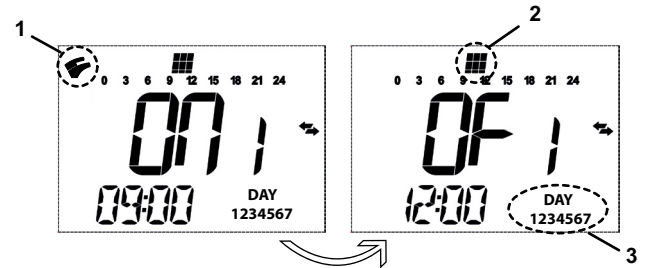
To set the programming of DHW mode operation times, proceed as follows:

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



**the installer has to set "HW PR" parameter = 2, as described in section "INFORMATION AND ADVANCED SETTING MODE".**

1	Programming in DHW MODE
2	PROGRAMMED TIME BAND 09:00 - 12:00
3	Days of the week



## 1.8 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 "TEMPERATURE VALUES MODIFICATION BY PRESSING THE BUTTON".

This function could operate in automatic or in manual mode:

**AUTOMATIC OPERATION (displayed symbol )**

The setting room temperature depends on the time slot (section "PROGRAMMING HEATING MODE OPERATION TIMES"). 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.

## 1.9 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 "TEMPERATURE VALUES MODIFICATION BY PRESSING THE BUTTON".

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^".

## 1.10 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 = 20°C)	Boiler operation in heating mode at nominal temperature.
<b>ECONM</b>	The set temperature value flashes (factory setting = 18°C)	Boiler operation in heating mode at reduced temperature.
<b>NOFRS</b>	The set temperature value flashes (factory setting = 5 °C)	Boiler operation in heating mode at room frost protection temperature.
<b>SHOWR</b>	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.

## 1.11 PROGRAMMABLE SWITCHING TIME FUNCTION (BUTTON ⌚)

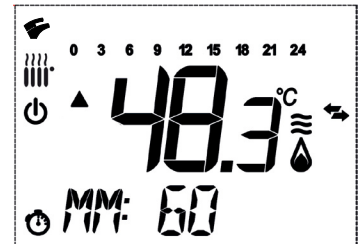
### 1.11.1 HOLIDAY PROGRAM function

It is possible to temporary shut off the timing program (section "PROGRAMMING HEATING MODE OPERATION TIMES") 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 "TEMPERATURE VALUES MODIFICATION BY PRESSING THE (↔☀) BUTTON" 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.



**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 ↓ 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.**

### 1.11.2 PARTY function

This function allows the user to set a temporary room temperature value. 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 "HOLIDAY PROGRAM function".
- to modify the room temperature value, press the OK button (the display shows "AMB") then press the +/- (🏠) buttons.

## 2. PROLONGED SHUTDOWN. ANTI-FREEZE PROTECTION

Do not drain the whole system as filling up with water again could cause unnecessary and harmful scale to build up inside the boiler and the heating elements. If the boiler is not used during winter and is therefore exposed to the danger of frost, add some specific anti-freeze to the water in the system (e.g.: propylene glycol coupled with corrosion and scale inhibitors). The electronic boiler management system includes a "frost protection" function for the heating system which, when delivery temperature falls below 5°C, lights the burner until a delivery temperature of 30°C is reached.





**The function is operative if: the boiler is electrically powered, there is gas, system pressure is normal and the boiler is not blocked.**

### 3. GAS CONVERSION

The boilers can operate both on natural gas (G20) and LPG (G31). All gas conversions must be made by the AUTHORISED TECHNICAL SERVICE CENTRE.

### 4. TROUBLESHOOTING

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.




<b>E</b>	Description of fault	Action
<b>09</b>	Gas valve connection error	Call the Authorised Service Centre.
<b>10</b>	External probe sensor faulty	Call the Authorised Service Centre.
<b>12</b>	Hydraulic differential pressure switch switching failure	Call the Authorised Service Centre.
<b>13</b>	Hydraulic differential pressure switch contacts stuck	Call the Authorised Service Centre.
<b>15</b>	Gas valve control error	Call the Authorised Service Centre.
<b>18</b>	Hydraulic circuit automatic filling in progress	Wait for the end of the filling cycle
<b>19</b>	Fault in system filling phase	Press and hold down <b>R</b> for at least 2 seconds.
<b>20</b>	NTC flow sensor faulty	Call the Authorised Service Centre.
<b>28</b>	NTC fumes sensor faulty	Call the Authorised Service Centre.
<b>40</b>	NTC return sensor faulty	Call the Authorised Service Centre.
<b>50</b>	NTC domestic hot water sensor faulty (only for heating-only model with storage boiler)	Call the Authorised Service Centre.
<b>53</b>	Fumes outlet obstructed	Disconnect the boiler from the mains power supply for a few seconds. If the fault persists, call the authorised technical service centre
<b>55</b>	Electronic board not calibrated	Call the Authorised Service Centre.
<b>83...87</b>	Communication problem between boiler board and control unit. Probable short circuit on wiring.	Call the Authorised Service Centre.
<b>92</b>	Fumes fault during calibration (probable fumes recirculation)	Call the Authorised Service Centre.
<b>109</b>	Air in boiler circuit (temporary fault)	Call the Authorised Service Centre.
<b>110</b>	Safety thermostat tripped due to overtemperature (pump probably blocked or air in heating circuit).	Press and hold down <b>R</b> for at least 2 seconds.
<b>117</b>	Pressure in hydraulic circuit too high (> 2,7 bar)	Call the Authorised Service Centre.
<b>118</b>	Pressure in hydraulic circuit too low	Check that the pressure in the system is correct; See the FILLING THE SYSTEM section.
<b>125</b>	No circulation safety trip (control performed via a temperature sensor)	Press and hold down <b>R</b> for at least 2 seconds.
<b>128</b>	No flame	Press and hold down <b>R</b> for at least 2 seconds.
<b>129</b>	Loss of flame at ignition	Call the Authorised Service Centre.
<b>130</b>	Fumes NTC tripped due to overtemperature	Press and hold down <b>R</b> for at least 2 seconds.
<b>133</b>	Ignition failure (5 attempts)	Press and hold down <b>R</b> for at least 2 seconds.
<b>134</b>	Gas valve blocked	Press and hold down <b>R</b> for at least 2 seconds.
<b>135</b>	Internal board error	Press and hold down <b>R</b> for at least 2 seconds.
<b>154</b>	Delivery/return probe control test	Call the Authorised Service Centre.
<b>160</b>	Fan fault	Call the Authorised Service Centre.
<b>178</b>	Intervention of safety thermostat for excess temperature in low temperature system	Call the Authorised Service Centre.
<b>270</b>	Overheating exchanger	Call the Authorised Service Centre.
<b>317</b>	<b>162</b>	Call the Authorised Service Centre.
<b>321</b>	<b>163</b>	Call the Authorised Service Centre.
<b>384</b>	<b>164</b>	Parasite flame (internal error)
		Press and hold down <b>R</b> for at least 2 seconds.
<b>385</b>	<b>165</b>	Input voltage too low
		Automatic reset at voltages in excess of 175V. If this fault persists, call the Authorised Service Centre.
<b>431</b>	Exchanger sensor faulty	Call the Authorised Service Centre.



*5 reset attempts can be performed after which the boiler shuts down. Wait 15 minutes before attempting to reset the boiler again.*

## 5. SWITCHING OFF THE BOILER

To turn off the boiler, disconnect the electric power supply using the two-pole switch. In the “Off” operating mode  the boiler stays off but the electrical circuits remain powered and the anti-freeze function remains active.

## 6. FILLING THE SYSTEM

The device has an automatic filling system. For further information, refer to the section **FILLING THE SYSTEM** in “*INSTALLER section*”.



*If pressure drops occur frequently, have the boiler checked by the AUTHORISED TECHNICAL SERVICE CENTRE.*

## 7. ROUTINE MAINTENANCE INSTRUCTIONS

To keep the boiler efficient and safe, have it checked by the Authorised Service Centre at the end of every operating period. Careful servicing ensures economical operation of the system.

## INSTRUCTIONS PRIOR TO INSTALLATION

The following notes and instructions are addressed to fitters to allow them to carry out trouble-free installation. Instructions for lighting and using the boiler are contained in the 'Instructions for Users' section. Installation, servicing and running of domestic gas-fired systems must be performed by qualified technicians, in compliance with current regulations.

Additionally, bear in mind the following:

- When installing the unit in environments with temperatures lower than 0°C, take the necessary precautions to avoid the formation of ice in the siphon and in the condensation drain.
- This boiler can be connected to any type of double- or single-pipe convector plate, radiator or thermoconvector. Design the system sections as usual, though, bearing in mind the available flow-head at the plate, as shown in section 16.
- Do not leave any packaging (plastic bags, polystyrene, etc.) within the reach of children as they are a potential source of danger.
- Initial lighting of the boiler must be carried out by an authorised Service Engineer, as indicated on the attached sheet.

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

### ADDITIONAL PUMP WARNING

If an additional pump is used on the heating system, position it on the boiler return circuit. This will allow the correct operation of the water pressure switch.

### SOLAR WARNING

If the instantaneous (mixed) boiler is connected to a system with solar panels, the maximum temperature of the domestic hot water entering the boiler must not exceed **60°C**.



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

## 8. INSTALLING THE BOILER

The boiler can be installed in the following ways:

1. Recessed installation outdoors.
2. Wall-mounted installation outdoors in partially sheltered areas.
3. Wall-mounted open air installation outdoors.

### CONTENTS OF PACK

- Template (see figure in annex "SECTION" C at the end of this manual)
- Boiler supporting bar for installation in box
- Boiler supporting bar for wall-mounted installation
- 8 mm expansion plugs and pressure screws

Fit two G3/4 taps (flow and return) on the central heating circuit; these taps make it possible to carry out important operations on the system without draining it completely. If you are either installing the boiler on an existing system or replacing one, as well as the above, fit a settling tank under the boiler on the system return line in order to collect any deposits and scale circulating in the system after flushing.



Do not lift the boiler exerting pressure on the plastic parts like the siphon and the flue turret.



Tighten the boiler water connections with care (maximum tightening torque 30 Nm).



Before starting up the boiler, fill the water siphon to prevent the fumes from diffusing in the room.

### DIMENSIONS OF THE BOILER AND BOX

The dimensions of the boiler and box and the relative installation positions of the water connections are shown in the annex "SECTION" C at the end of the manual.

	Condensate drain point		GAS inlet (G3/4")
	Safety valve drain point		Cold domestic water inlet / System filling tap (G1/2")
	Heating system flow (G3/4")		Heating system return (G3/4")
	DHW flow (G1/2") models 24 and 28 / storage boiler (G3/4") models 1.12 and 1.24		

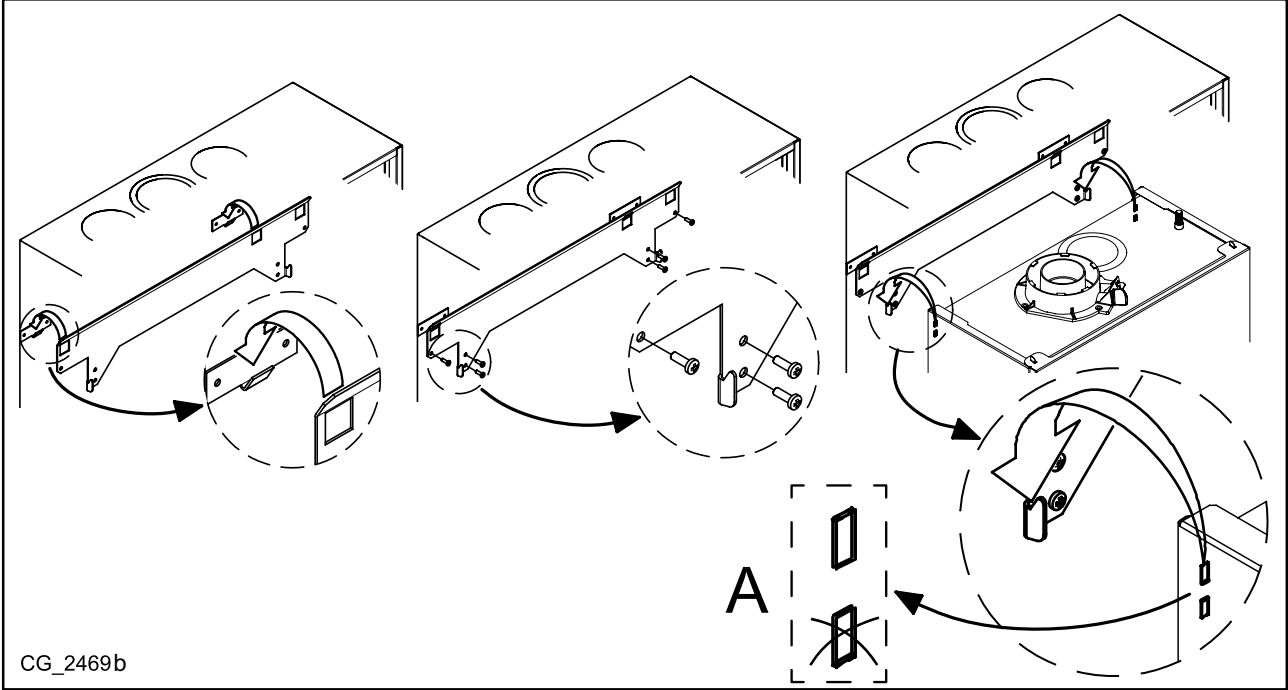
## 8.1 RECESSED INSTALLATION OUTDOORS

The appliance must be installed inside the template box which is supplied as an accessory in a separate package. The template box must be fitted into the wall in a niche created for the purpose and blocked with special rag bolts at the sides.



**The useful internal depth of the template box must be a uniform 240 mm to ensure proper installation of the boiler. If it is not, use the spacing frame kit available as an accessory.**

Connect the system to the gas and water inlets on the lower bar of the template box. After completing all masonry work, mount the boiler supporting bar on the fittings in the template box. Insert the 6 self-tapping screws supplied with the boiler in the holes of the bar to fix the latter in place. Mount the boiler on the bar at the point of the upper holes (detail A in the figure) and make the hydraulic connections with the hoses (available as an accessory).



The safety valve **MUST** be connected to a drain trap at the point of the hole "A" at the base of the template box to prevent this valve from leaking.

Connect the condensate drain trap to a sump at the point of the hole "B" at the bottom of the template box making sure that it is on a continuous slope.

**Avoid horizontal stretches.**

After fixing the boiler, connect the flue and air ducts, supplied as accessories, as described in the following sections.

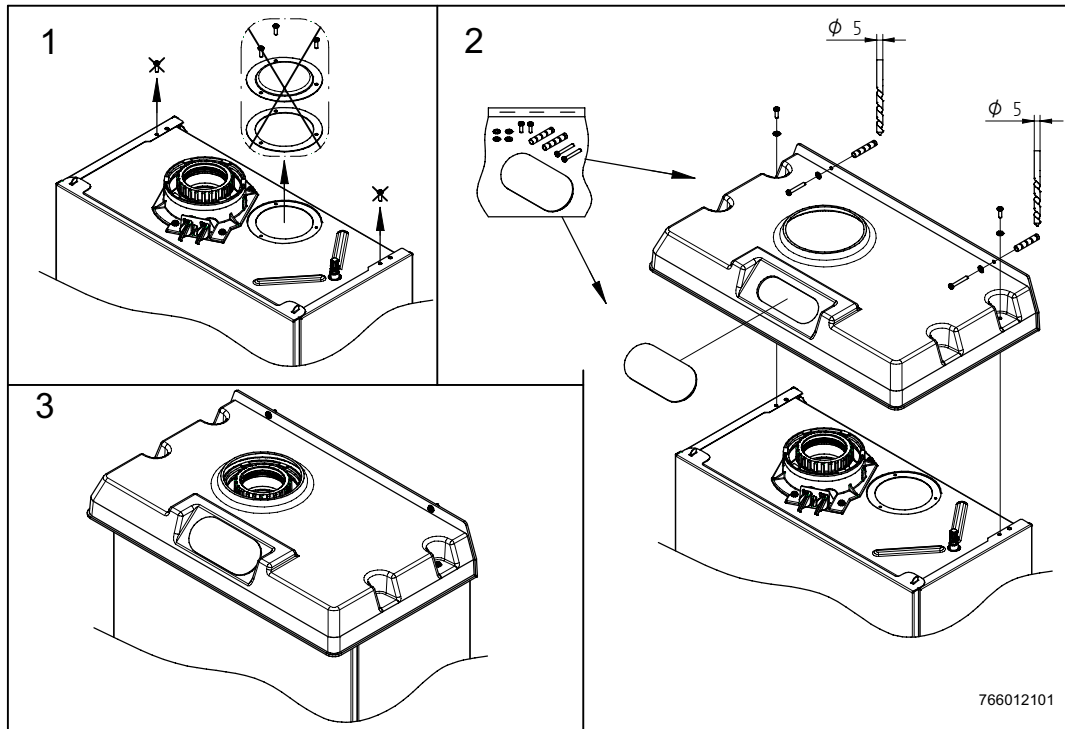
## 8.2 WALL-MOUNTED INSTALLATION OUTDOORS IN PARTIALLY SHELTERED AREAS

This boiler may be installed outdoor in a partially protected location. A partially protected location is a location where the boiler is not directly exposed to weather conditions (rain, snow, hailstorm, etc.).

After deciding the exact location of the boiler, fix the template to the wall. Connect the system to the gas and water inlets present on the lower bar of the template. Make sure the rear part of the boiler (back) is as parallel as possible to the wall (otherwise, shim the lower part). After fixing the boiler to the template, connect the flue and air ducts, supplied as accessories, as described in the following sections. Connect the siphon to a drain trap, making sure the slope is continuous. Avoid horizontal stretches.

## 8.3 WALL-MOUNTED OPEN AIR INSTALLATION OUTDOORS

This boiler can be installed in the open air outdoors with the shelter kit supplied as an accessory. After deciding the exact location of the boiler, fix the template to the wall. Connect the system to the gas and water inlets present on the lower bar of the template. Make sure the rear part of the boiler (back) is as parallel as possible to the wall (otherwise, shim the lower part). After mounting the boiler on the wall, install the shelter kit following the procedure in the figure. Connect the flue and air ducts, supplied as accessories, as described in the following sections.



## 9. FILLING THE SYSTEM

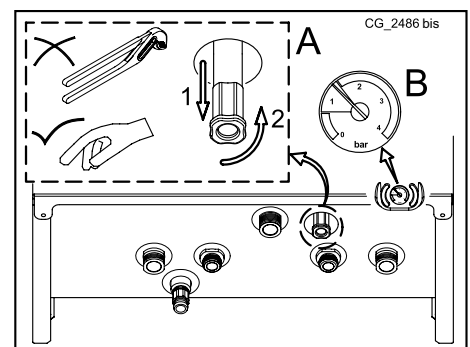
The initial filling procedure and resetting the pressure of the system depend on the model of the boiler:

### 24 -28 MODELS

#### INITIAL FILLING PHASE

For initial filling of the system, proceed as follows:

- remove the front panel of the boiler;
- check that the automatic air vent valve in the body of the valve of the pump is open;
- fill the system at the tap in the hydraulic unit (detail "A" in the figure to the side);
- vent all the heating elements concerned;
- check that the pressure displayed on the pressure gauge (detail "B" in the figure to the side) is 0.8 - 1.5 bar, with the system cold. In case of overpressure, open the boiler drain valve;
- **Close the system filling tap.**



#### SYSTEM PRESSURE RESETTING PHASE

The pressure of the system is automatically reset whenever it drops below  $\sim 0.8$  bar.

The pressure switch requires the filling of water. The text **Err 18** is shown on the display of the Room Unit during the filling phase. The cycle runs for a maximum of  $\sim 6$  minutes. The text **Err 19** is shown on the display of the Room Unit if the pressure is not reset at the end of the filling cycle. The boiler begins a new filling cycle when the fault is reset.

If the fault is caused by blocking of the filling electrovalve, it is possible to proceed manually with the system filling tap.

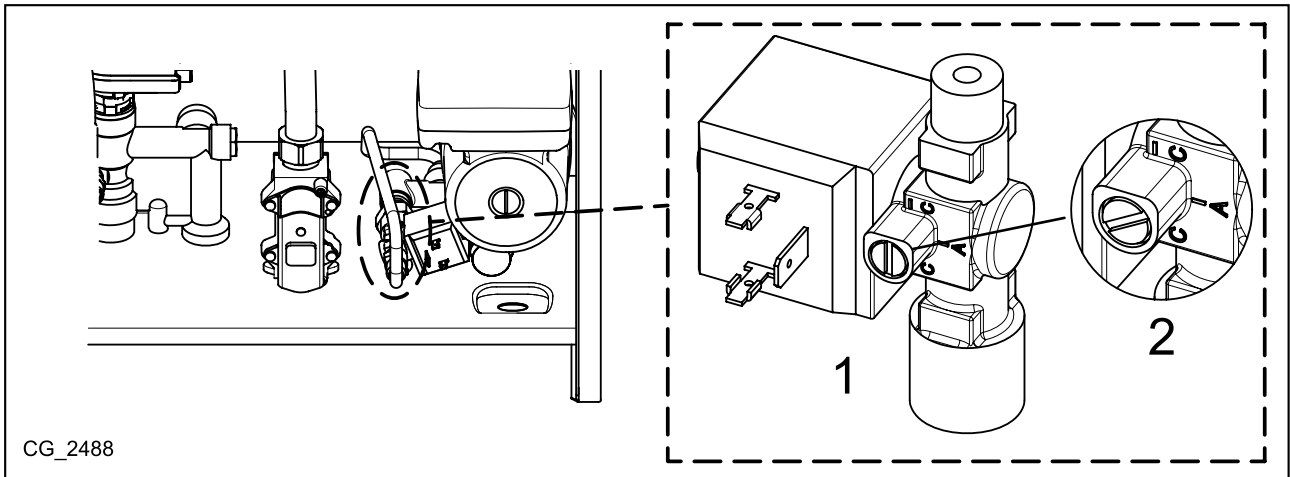
### 1.12 -1.24 MODELS

#### INITIAL FILLING PHASE

For initial filling of the system, proceed as follows:

- remove the front panel of the boiler;
- check that the automatic air vent valve in the body of the valve of the pump is open;
- **check that the filling tap in the boiler is always open. Fill the system by turning the screw on the body of the electrovalve (turn to position "A");**
- vent all the heating elements concerned;
- Check that the pressure displayed on the pressure gauge is 0.8 -1.5 bar, with the boiler cold. In case of overpressure, open the boiler drain valve;

- after filling, turn the screw back to position "C".



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### SYSTEM PRESSURE RESETTING PHASE

The pressure of the system is automatically reset whenever it drops below ~ 0.8 bar. The pressure switch requires the filling of water. The text **Err 18** is shown on the display of the Room Unit during the filling phase. The cycle runs for a maximum of ~ 6 minutes. The text **Err 19** is shown on the display of the Room Unit if the pressure is not reset at the end of the filling cycle. The boiler begins a new filling cycle when the fault is reset. If the fault is caused by blocking of the filling electrovalve, it is possible to proceed manually with the system filling tap.



For the models 24 - 28, the filling tap in the boiler (see SECTION G) must always remain closed.



For models 1.12 - 1.24, the automatic filling electrovalve is located under the circulator. Make sure to protect the electrovalve against contact with water when opening the central screw of the circulator to release it or to check circulation.



The boiler is fitted with a hydraulic pressure gauge which prevents the boiler from working if there is no water.



The internal function of the electronic board of the appliance (see the section SYSTEM GAS EXTRACTION FUNCTION) is used to facilitate the elimination of the air inside the heating circuit when the boiler is first installed or after maintenance when the water is drained from the primary circuit.



Take special care when filling the heating system. In particular, open any thermostat valves in the system, ensure the water enters slowly in order to prevent the formation of air inside the primary circuit until operating pressure is reached. Lastly, vent any radiators in the system. BAXI declines all liability for damage deriving from the presence of air bubbles in the primary exchanger due to the incorrect or imprecise observance of the above.

## 10. INSTALLING THE DUCTS

The boiler is easy and flexible to install thanks to the extensive range of available accessories, as described below. The boiler has been designed for connection to a vertical or horizontal coaxial flue-air duct. The boiler can also be used with separate ducts using the accessory splitting kit.

### WARNINGS

**C13, C33** The terminals for separate flues must be fitted inside a 50 cm square. Detailed instructions are provided with the individual accessories.

**C53** Do not fit the flue and air duct terminals on opposite walls of the building.

**C63** The pressure drop of the ducts must not exceed **100 Pa**. The ducts must be certified for this specific use and for a temperature in excess of 100°C. The flue terminal must be certified to EN 1856-1.

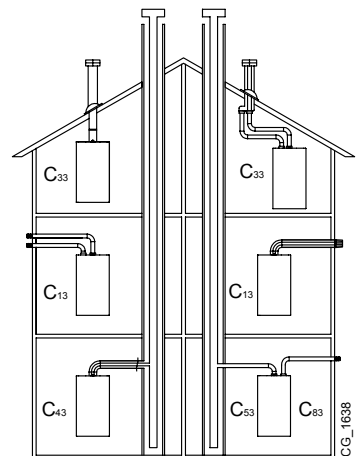
**C43, C83** The flue terminal or flue duct must be suitable for the purpose.



For optimal installation, the accessories supplied by the manufacturer should be used.



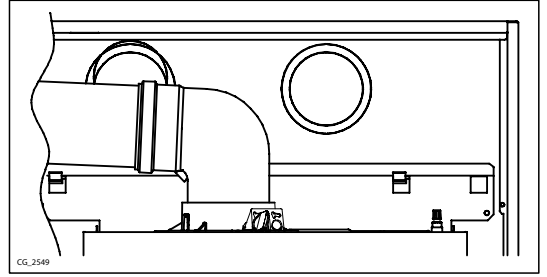
To optimise operating safety, make sure the flue ducts are firmly fixed to the wall with suitable brackets. The brackets must be positioned over the joints at a distance of approximately 1 metre from one another.





## 10.1 CONCENTRIC DUCTS

This type of duct is used to discharge exhaust fumes and draw combustion air both outside the building and if a LAS flue is fitted. The 90° coaxial bend allows the boiler to be connected to a flue-air duct in any direction as it can be rotated by 360°. It can also be used as a supplementary curve combined with a coaxial duct or a 45° curve. If fumes are discharged outside the building, the flue-air duct must protrude at least 18 mm from the wall to allow an aluminium weathering surround to be fitted and sealed to avoid water infiltrations.



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

Fasten the suction pipes using two galvanised Ø 4,2 mm self tapping screws with minimum length 19 mm. If not included with the supply, screws with the same characteristics must be sourced on the market separately.



Before securing the screws, make sure that at least 45 mm of the pipe is inserted into the gasket (see the figures in annex "SECTION" D at the end of this manual).



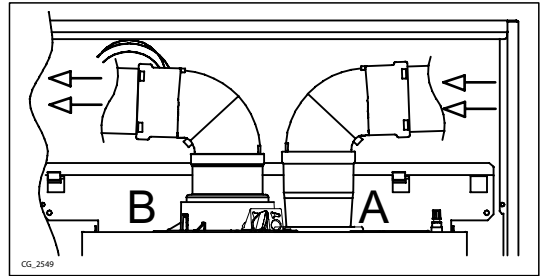
Make sure there is a minimum downward slope of 5 cm per metre of duct towards the boiler.



SOME OUTLET DUCT INSTALLATION EXAMPLES AND THEIR RELATIVE MAXIMUM LENGTHS ARE SHOWN IN ANNEX "SECTION" D AT THE END OF THIS MANUAL.

## 10.2 SEPARATE DUCTS

This type of installation makes it possible to discharge exhaust fumes both outside the building and into single flue ducts. Comburent air can be drawn in at a different location from that of the flue terminal. The accessory splitting kit comprises a flue duct adaptor (B) and an air duct adaptor (A). For the air duct adaptor, fit the screws and seals previously removed from the cap. The 90° bend is used to connect the boiler to the inlet and outlet ducts, adapting them to various requirements. It can also be used as a supplementary curve combined with a duct or a 45° bend.



- A 90° bend reduces the total duct length by 0.5 metres.
- A 45° bend reduces the total duct length by 0.25 metres.
- The first 90° bend is not included when calculating the maximum available length.



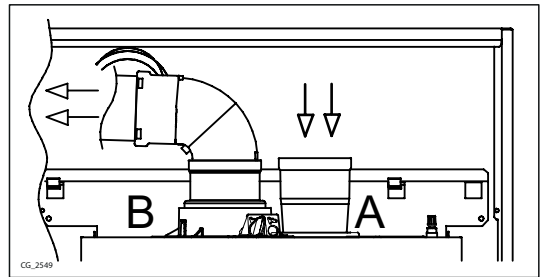
Make sure there is a minimum downward slope of 5 cm per metre of duct towards the boiler.



SOME OUTLET DUCT INSTALLATION EXAMPLES AND THEIR RELATIVE MAXIMUM LENGTHS ARE SHOWN IN ANNEX "SECTION" D AT THE END OF THIS MANUAL.

### SEPARATE DUCTS (TYPE B23)

For B23 type discharge, the comburent air is drawn out of the room where the boiler is installed. The accessories for separate 80 mm ducts are required for the discharge of fumes. This type of installation makes it possible to discharge exhaust fumes both outside the building and into single flue ducts. The accessory splitting kit comprises an 80 mm flue duct adaptor (B) and an air duct adaptor (A). For the air duct adaptor, fit the screws and seals previously removed from the cap.



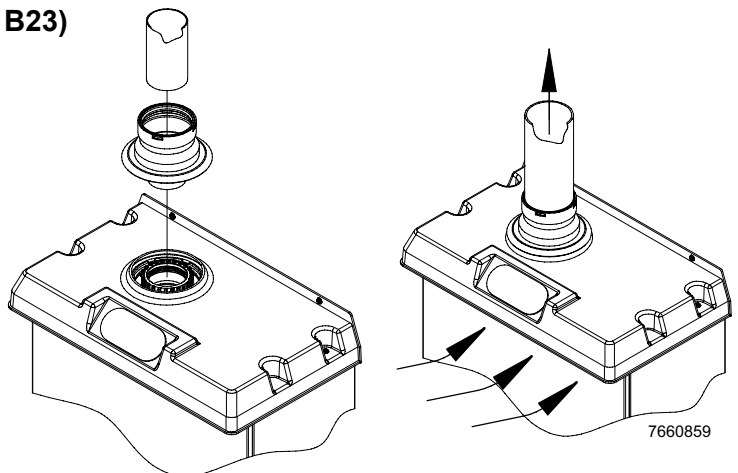
THE MAXIMUM LENGTH OF THE FLUE DUCT IS 25 m.

### SEPARATE DUCTS WITH SHELTER KIT (TYPE B23)

For B23 type discharge, the comburent air is drawn out of the room where the boiler is installed. The 60/80 mm flue duct adaptor and the 80 mm flue ducts supplied as accessories are required for the discharge of fumes.



THE MAXIMUM LENGTH OF THE FLUE DUCT IS 25 m.



INSTALLER Section (en)

## 11. ELECTRICAL CONNECTIONS

This machine is only electrically safe if it is correctly connected to an efficient earth system in compliance with current safety regulations. Connect the boiler to a 230V single-phase earthed power supply using the supplied three-pin cable, observing correct Live-Neutral polarity.

**Use a double-pole switch with a contact separation of at least 3 mm.**

When replacing the power supply cable, fit a harmonised "HAR H05 VV-F" 3x0,75 mm<sup>2</sup> cable with a maximum diameter of 8 mm. To access the terminal block, remove the front boiler panel (fixed with two screws at the bottom), turn the control box downwards and access terminal blocks, used for the electrical connections, after removing the protective cover. The 2 A fast-blowing fuses are incorporated in the power supply terminal block (to check and/or replace the fuse, pull out the black fuse carrier).

SEE WIRING DIAGRAM IN ANNEX "SECTION" B AT THE END OF THIS MANUAL.



Make sure that the overall rated power input of the accessories connected to the appliance is less than 2A. If it is higher, install a relay between the accessories and the electronic board.

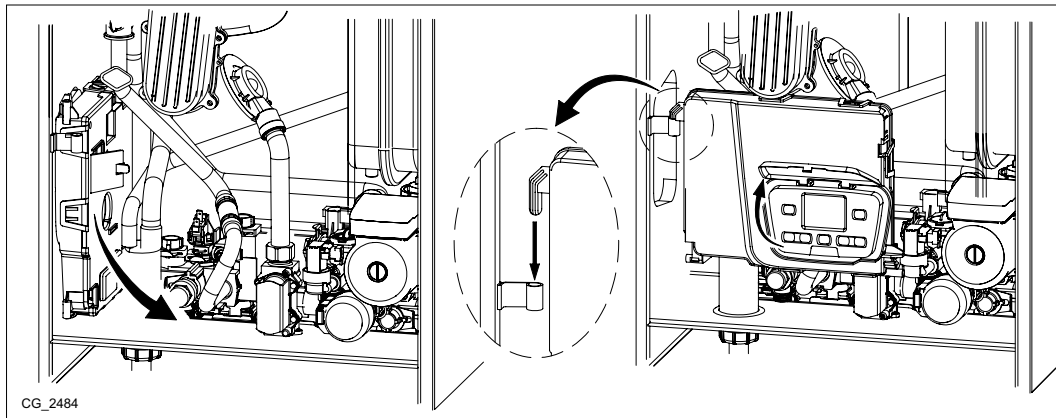


The connections in terminal block M1 are high voltage (230 V). Before making connections, make sure the appliance is disconnected from the power supply. Respect the input polarity on terminal block M1: L (LINE) - N (NEUTRAL).

### ACCESS TO THE BOILER CONTROL BOX

Access the boiler control box following this procedure (see figure below):

- power off the boiler;
- remove the front panel of the template box, when applicable, and of the boiler (secured with 2 screws);
- slide the control box carefully away from the side of the boiler;
- put the control box in place;
- when done, put the control box back in its original place.



### TERMINAL BLOCK M1

(L) = Live (brown)

(N) = Neutral (light blue).

⊕ = Earth (yellow-green).

(1) (2) = contact for Room Thermostat.



Put back the jumper on terminals 1-2 of boiler terminal block M1 if the room thermostat is not used or if the modulating Room Unit supplied with the boiler is not connected.

### TERMINAL BLOCK M2

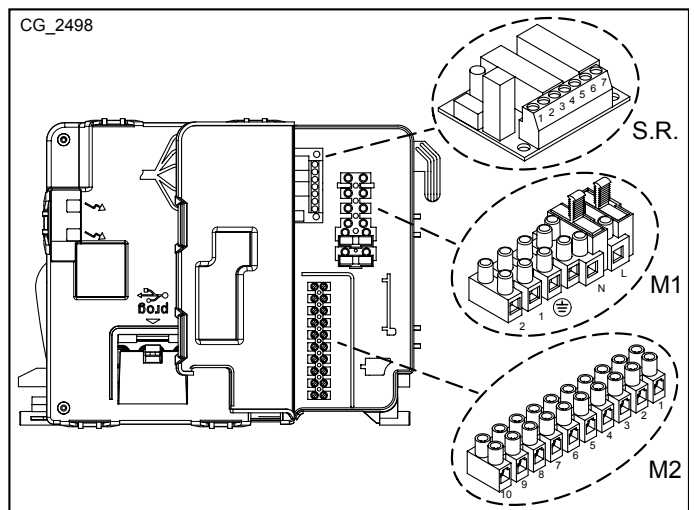
**Terminals 1 - 2:** Room Unit connection (low voltage).

**Terminals 4 - 5:** External Sensor connection (supplied as an accessory).

**Terminals 6 - 8:** not used.

**Terminal 7:** ----.

**Terminals 9 - 10:** DHW storage boiler sensor connection (only for mono-thermal boilers 1.12-1.24).



### RELAY INTERFACE TERMINAL BLOCK (S.R.)

**Terminals 1 (common) - 2 (closed) - 3 (open):** potential-free contacts, and for configuration of these see parameter P04 described in the section "SETTING PARAMETERS".

**Terminals 5 (common) - 6 (closed) - 7 (open):** contacts 5 and 7 used to control the automatic system filling valve.



If the appliance is connected to an underfloor system, install a limit thermostat to prevent the latter from overheating.

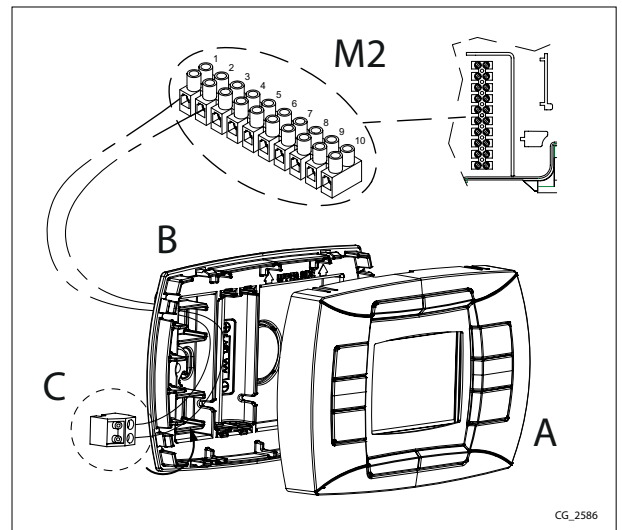


Use the relative cable grommets at the bottom of the boiler to thread the cables through to the terminal blocks.

## 11.1 INSTALLING THE REMOTE CONTROL ON THE WALL

Before mounting the accessory, consult the Room Unit manual. Proceed as follows:

- Disconnect the boiler from the mains power supply.
- Remove the jumper from the ends of the contacts 1-2 of the terminal block **M1**.
- Open the Remote Control, separating the base **B** from the front panel **A**.
- Pass the two wires from the boiler terminal block **M2** through the hole in the base **B** to apply to the wall.
- Connect wires 1-2 (non-polarised) of the boiler terminal block **M2** to the ends of the terminal of the base **B**.
- Fix the base **B** to the wall using the expansion plugs and screws supplied with the accessory.
- Apply the front panel **A** to the base fixed to the wall, taking care not to apply excessive force.
- Power the boiler making sure that the Remote Control lights up.



The Room Unit controls the boiler with the exception of the Flue Cleaner Function, the Initial Start-up Function and the Combustion Adjustment Function. The Boiler Information menu is not available on the Room Unit.



If the error code "E83" is displayed there is a communication fault between the main board and the Control Unit. Probable short circuit on wiring. Avoid placing cables near sources of heat, high voltage and magnetic fields.

### 11.1.1 INSTALLER FUNCTIONS

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.




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.
- "CH MN" Minimum CH temperature setpoint.

### DOMESTIC HOT WATER (DHW)

- "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.
- "HW MN" Minimum D.H.W. temperature setpoint.

### 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 annex SECTION E). 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=1/Disabled=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 "PROGRAMMING DHW MODE OPERATION TIMES").
- **"NOFR"**: Frost protection Enabled/Disabled (1/0). Factory setting 1.



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 "DESCRIPTION OF BUTTON (Summer - Winter - Heating only - Off)": **SUMMER - WINTER - SUMMER+COOL - HEATING ONLY - OFF**. To enable the function, press the button until the display shows the **X** 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 **X** symbol flashing. See the following figure and refers to the SERVICE instruction manual.

## 11.2 CONNECTING TO A ZONE SYSTEM

KEY TO ELECTRICAL CONNECTIONS (see diagram A in annex "SECTION" F at the end of this manual).

<b>Z</b>	Zone (1..n)	<b>EV</b>	Zone electrovalve
<b>R</b>	Relay	<b>RT</b>	Room thermostat

The boiler can manage a zone heating system. The Room Unit (wall-mounted) can be used to control one zone while normal ambient thermostats can be used to control the other zones.

### SYSTEM CONNECTIONS

- Connect the zone 1 valve/pump to terminals 1 - 3 of the relay board terminal block inside the boiler control box.
- Connect the Ambient Thermostat contact of the other zones to terminals 1-2 of terminal block M1 (CONNECTING THE AMBIENT THERMOSTAT section).

Check that parameter **P04=02**. Set parameter **P10** (SETTING PARAMETERS section).

## 11.3 CONNECTING THE ROOM THERMOSTAT



The connections in terminal block M1 are high voltage (230 V). Before making connections, make sure the appliance is disconnected from the power supply. Respect polarity L (LIVE) - N (NEUTRAL).

To connect the Room Thermostat to the boiler, proceed as described below:

- switch off the boiler;
- access the terminal block M1;
- remove the jumper from the ends of contacts 1-2 and connect the wires of the Room Thermostat;
- switch on the boiler and make sure the Room Thermostat works correctly.

## 11.4 ACCESSORIES NOT INCLUDED IN THE SUPPLY

### 11.4.1 EXTERNAL SENSOR

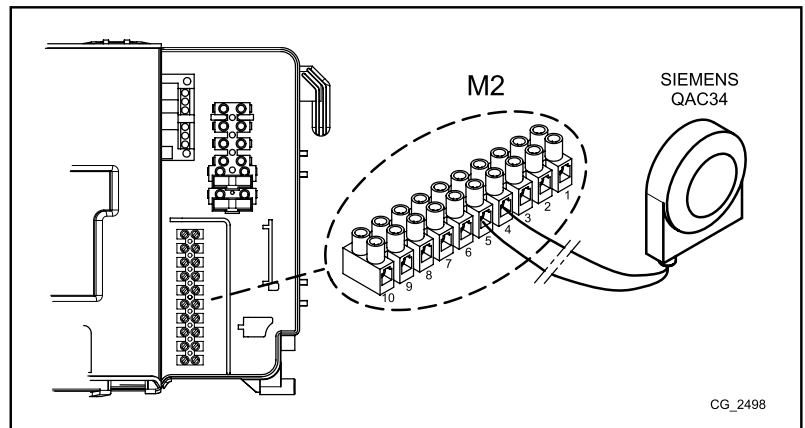
Connect the wires of the external probe to the terminals 4-5 of terminal block M2 as shown in the figure to the side and following the instructions provided with the same probe.

When the external probe is connected, adjustment of the heating flow temperature depends on the devices that interface with the boiler, as described below:

#### • CONNECTION OF THE ROOM THERMOSTAT WITHOUT REMOTE CONTROL

The Kt curve is set manually at the keys on the control panel of the boiler.

#### • CONNECTION OF THE REMOTE CONTROL WITHOUT ROOM THERMOSTAT



When the Remote Control is installed (section "INSTALLING THE REMOTE CONTROL ON THE WALL"), adjustment of the heating flow temperature depends on the K REG curve, the "KORR" coefficient (influencing the room temperature) and the temperature (TAMB) set manually at the keys .

#### • CONNECTION OF THE ROOM THERMOSTAT AND REMOTE CONTROL

If both the devices, the Room Thermostat and the Remote Control, are connected to the boiler, adjustment of the heating flow temperature depends on the curve set for each device as described above.

### 1) SETTING THE "Kt" CLIMATE CURVE WITH ROOM THERMOSTAT (TA) AT THE BOILER CONTROL PANEL

When the external sensor is connected to the boiler, the electronic board adjusts the flow temperature calculated according to the set Kt coefficient. Select the required curve by pressing as indicated in the chart in annex SECTION E for selecting the most appropriate one (00 to 90).

**IMPORTANT:** the kt curve can be adjusted at the boiler control panel only when the Remote Control is disconnected from the boiler.

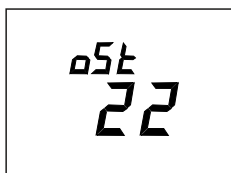
#### KEY TO CHART - "SECTION" E

	Flow temp		Outside temp
--	-----------	--	--------------

### 2) SETTING THE "K REG" CLIMATE CURVE AT THE REMOTE CONTROL

See section: "INSTALLER FUNCTIONS" - "PARAMETERS SETTING" - "K REG".

Connect the External Probe to the boiler in order to visualise the external temperature, expressed in °C, on the Room Unit display.



## 11.4.2 EXTERNAL STORAGE BOILER

Only for models 1.12 - 1.24.

The boiler can be electrically connected to an external storage boiler. A diagram of the hydraulic connection of the external storage boiler is shown in figure B of annex "SECTION" F. Connect the DHW priority sensor NTC to terminals **9-10** on terminal block **M2**. The sensitive element of the NTC sensor must be inserted in the special well located on the storage boiler. Make sure that the exchange capacity of the storage boiler coil is appropriate for the power of the boiler. Adjust DHW temperature (+35°C...+60°C) by pressing .

**IMPORTANT: set parameter P03 = 05 as described in section "PARAMETERS SETTING".**

KEY TO STORAGE BOILER CONNECTIONS (see diagram "A" in annex "SECTION" F at the end of this manual).

<b>A</b>	Heating Unit	<b>E</b>	Heating water / Storage boiler return
<b>B</b>	Powered 3-way valve	<b>F</b>	Storage boiler unit
<b>C</b>	Heating water flow	<b>G</b>	DHW priority probe
<b>D</b>	Storage boiler water flow		



The anti-legionellosis function is NOT enabled. To enable it, set parameter P21 = 55...67 °C as described in the "SETTING PARAMETERS" section.

## 12. SPECIAL FUNCTIONS



These functions can be enabled on the boiler control panel in the control box. To access the boiler control panel, refer to the chapter "ELECTRICAL CONNECTIONS-ACCESS TO THE BOILER CONTROL BOX".



When the symbols flash on the display, one of the following functions is active: INITIAL START-UP, FLUE CLEANER FUNCTION or COMBUSTION ADJUSTMENT FUNCTION.

### 12.1 INITIAL IGNITION

When lighting the boiler for the first time perform the following procedure. After electrically powering the boiler the code "000" appears on the display. This means the appliance is ready for the "initial lighting" procedure.

- Press together and hold down for 6 seconds. "On" appears on the display for 2 seconds followed by code "312" indicating that the "system venting" function is active. This function lasts 10 minutes.
- Afterwards, the boiler switches on, the display shows the code "000" alternating with the % of ignition power and the temperature value (°C). During this "gas recognition function" phase, that lasts approximately 7 minutes, the type of gas used is analysed. During this function, assure maximum heat exchange to the heating or DHW system (domestic hot water demand) in order to prevent the boiler from switching off due to overheating.
- If the boiler runs on natural gas, the display shows **NG** for approximately 10 seconds. The boiler is now ready for normal operation. If the display shows **LPG**, press and together and hold down for at least 4 seconds to exit without changing the factory setting.
- If the boiler runs on propane the display shows **LPG**. Press for at least 6 seconds to confirm the gas effectively used. If the display shows **NG** and does not recognise the type of gas used, press and together and hold down for at least 4 seconds to exit the function and then change parameter **P02=01** as described in the "PARAMETER SETTINGS" section of the boiler instructions manual.



If the venting or gas recognition function is interrupted by a power blackout, start the function again when power is restored by pressing and together and holding them down for at least 6 seconds. If the display shows fault E118 (low pressure in hydraulic circuit) during the venting function, open the filling tap on the appliance and restore the correct pressure. If the gas recognition function is interrupted due to a fault (e.g.: E133 no gas) press to reset and then press and (for at least 6 seconds) to restart the function again. If the gas recognition function is interrupted due to overheating, restart the function by pressing and and holding them down for at least 6 seconds.

The combustion of this appliance has been factory controlled, calibrated and set for operation with NATURAL GAS.

During the Gas Type Control Function, the combustion ratio will increase for a short period of time while the gas type is being established.



During initial ignition, the burner may not ignite (causing the boiler to shut down) until any air in the gas pipes is vented. In this case, repeat the ignition procedure until gas reaches the burner. To reset boiler operation, press for at least 2 seconds.



For the first few ignitions immediately after installation the system must implement a self-learning procedure to reach the correct ignition level.

### 12.2 SYSTEM GAS EXTRACTION FUNCTION





This function is used to facilitate the elimination of the air inside the heating circuit when the boiler is first installed or after maintenance when the water is drained from the primary circuit.

To enable the system gas extraction function press buttons together for 6 seconds. When the function is active, **On** appears on the display for a few seconds, followed by programme row **312**.


The electronic board will activate a pump on/off cycle lasting 10 minutes. The function will automatically stop at the end of the cycle. To manually exit this function, press the above buttons together for 6 seconds once again.

## 12.3 CHIMNEY SWEEPER

This function enables the boiler to generate **maximum heating power**. After activation, the boiler power % can be adjusted from minimum to maximum in the DHW mode. The following procedure is used.

- Press buttons  and  together for at least 6 seconds. When the function is enabled, the displays shows "On" for a few seconds followed by programme row "303" alternated with the % of boiler power.
- Press   to gradually adjust power (sensitivity 1%).
- To exit press both buttons together for at least 6 seconds, as described in point one.



Press  to display the instantaneous flow temperature for 15 seconds.

## 12.4 COMBUSTION TEST (CO<sub>2</sub>)

For correct boiler operation, the content of (CO<sub>2</sub>- O<sub>2</sub>) in the combustion fumes must observe the tolerances indicated in the following table. If the value of (CO<sub>2</sub>- O<sub>2</sub>) is different, check the electrodes and their relative distances. If necessary, replace the electrodes and position them correctly. If the problem persists, use the following function.

		G20		G31			
		1.12 - 1.24 - 24 - 28		1.12		1.24 - 24 - 28	
		CO <sub>2</sub> %	O <sub>2</sub> %	CO <sub>2</sub> %	O <sub>2</sub> %	CO <sub>2</sub> %	O <sub>2</sub> %
Maximum power	Nominal value	8,7	5,4	10,5	5,2	10,0	6,0
	Permitted value	8,2 - 9,3	6,3 - 4,3	10,0 - 11,0	6,0 - 4,5	9,5 - 10,5	6,8 - 5,2
Ignition power	Nominal value	8,7	5,4	10,8	4,8	10,8	4,8
	Permitted value	8,2 - 9,3	6,3 - 4,3	10,3 - 11,3	5,5 - 4,1	10,3 - 11,3	5,5 - 4,1
Minimum power	Nominal value	8,8	5,2	10,0	6,0	10,0	6,0
	Permitted value	8,2 - 9,3	6,3 - 4,3	9,5 - 10,5	6,8 - 5,2	9,5 - 10,5	6,8 - 5,2









The combustions analisys shall be done using an analyzer regularly calibrated.







During normal operation the boiler performs combustion control cycles. In this phase, CO values higher than 1000 ppm can occur for brief periods of time.

## COMBUSTION ADJUSTMENT FUNCTION (CO<sub>2</sub> %)

This function sets out to partially adjust the value of CO<sub>2</sub> %. The following procedure is used.

- Press buttons  and  together for at least 6 seconds. When the function is enabled, the displays shows "On" for a few seconds followed by programme row "304" alternated with the % of boiler power.
- After the burner is lit, the boiler reverts to maximum DHW power (100). When the display shows "100" it is possible to partially adjust the value of CO<sub>2</sub> %;
- press . The display shows "00" alternating with the function number "304" (Δ flashes);
- press   to raise or lower the amount of CO<sub>2</sub> (from -3 to +3).
- press  to save the new value and view the power value "100" on the display again (the boiler continues operating at maximum DHW power).

This procedure can also be used to adjust the quantity of CO<sub>2</sub> to the **ignition power** and to the **minimum power** by pressing   after point 5 of the procedure described above.

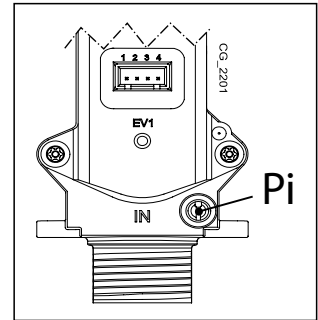
- After saving the new value (point 5 of the procedure), press  to take the boiler to its **ignition power**. Wait for the value of CO<sub>2</sub> to stabilise and then adjust as described in point 4 of the procedure (the power value is a number <> 100 and <> 0) then save (point 5).
- press  again to take the boiler to **minimum power**. Wait for the value of CO<sub>2</sub> to stabilise and then adjust as described in point 4 of the procedure (power value = 00);
- to exit the function, press the buttons for at least 6 seconds as described in point 1.

## 13. GAS VALVE

This appliance does not require any mechanical adjustment on the valve. The system ensures electronic auto-adaptation.

### Gas valve key

Pi
Gas supply inlet pressure tap



### 13.1 GAS CONVERSION METHODS

Only an Authorised Technical Assistance Service can convert boiler operation from **NATURAL GAS** to **LPG** or vice-versa. To perform calibration, set parameter **P02** as described in the PARAMETER SETTINGS section. Lastly, check the combustion parameters as described in the SPECIAL FUNCTIONS - CHECKING COMBUSTION PARAMETERS section.



When the gas change is completed the boiler data plate must be amended to indicate the new gas data.

## 14. BOILER INFORMATION MENU



Set the parameters at the control panel in the boiler control box. To access this, refer to the chapter "ELECTRICAL CONNECTIONS".

Press and hold down **[iP]** for at least 1 second, to display the information indicated in the table. Press **[OR]** to exit.

<b>i</b>	DESCRIPTION	<b>i</b>	DESCRIPTION
<b>00</b>	Secondary fault internal code	<b>06</b>	Heating return temperature (°C)
<b>01</b>	Heating supply temperature (°C)	<b>07</b>	Flue sensor temperature (°C)
<b>02</b>	Outdoor temperature (°C)	<b>08</b>	Primary exchanger temperature (°C)
<b>03</b>	Indirect tank DHW temperature (boiler CH only)	<b>09 - 13</b>	Manufacturer information
<b>04</b>	Domestic hot water temperature (boiler with plate exchanger)	<b>14</b>	Identification Open Therm communication
<b>05</b>	Water pressure in heating system (bar)	<b>15 - 18</b>	Manufacturer information



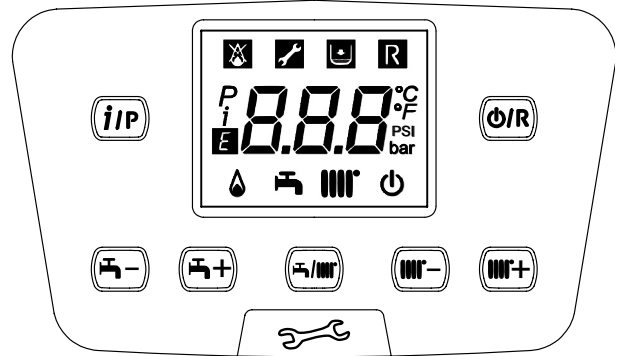
## 15. PARAMETERS SETTING



Set the parameters at the control panel in the boiler control box. To access this, refer to the chapter "ELECTRICAL CONNECTIONS".

### Key to BUTTONS

	DHW temperature adjustment (+ to increase the temperature and – to decrease it)
	Heating water temperature adjustment (+ to increase the temperature and – to decrease it)
	Boiler operating information
	Operating mode: DHW – DHW & Heating – Heating Only
	Off – Reset – Exit menu/functions



### Key to SYMBOLS

	Off: heating and DHW disabled (only boiler anti-freeze protection is active)		Burner lit
	Fault preventing the burner from lighting		DHW operating mode enabled
	Boiler/system water pressure low		Heating mode enabled
	Technical Service Centre call-in		Programming menu
	Manually resettable fault ()		Boiler information menu
	Fault in progress	°C, °F, bar, PSI	Set unit of measurement (SI/US)

To programme the parameters of the boiler electronic board, proceed as follows:

- Press and together and hold them down for 6 seconds until programme row "P01" appears on the display alternated with the set value;
- Press to scroll the list of parameters;
- Press the value of the selected begins flashing, press to change the value;
- Press to confirm the value or press to exit without saving.



Further information concerning the parameters listed in the following table are supplied together with the required accessories.

DESCRIPTION OF PARAMETERS		FACTORY SETTINGS			
		1.12	1.24	24	28
P01	Manufacturer information	00			
P02	Gas used 00 = METHANE - 01 = LPG	00			
P03	Hydraulic system 00 = instantaneous appliance 05 = appliance with external storage boiler 08 = heating only appliance	08	08	00	00
P04	Programmable relay 1 settings (See SERVICE instructions) 00 = no associated function 01 = relay contact closed with Room Thermostat demand (230V) 02 = relay contact closed with Remote Control demand (low voltage) 03 = system fill contact 04 = boiler faulty signal contact 05 = fan contact (kitchen fan) 06-07 = not used 08 = timed contact for enabling external DHW pump 09 = timed contact for enabling external DHW circulation pump via DHW programming from remote control 10 = relay contact closed with DWH demand active 11 - 12 - 13 = not used	02			
P05	Programmable relay 2 settings NOT MODIFY (dedicated to automatic filling )	03			
P06	External probe input configuration (See SERVICE Instructions)	00			
P07..P09	Manufacturer information	--			
P10	Heating setpoint setting OT / RT (Remote Control - Open Therm / Room Thermostat 230V~)  00 = the temperature request is the Remote Control setpoint 01 = not used 02 = the temperature request is the Remote Control setpoint. The Room Thermostat enable the gas boiler operates. 03 = the calculated setpoint depends on the origin of the request (PCB or Remote Control):  a) <b>PCB (Ambient Thermostat)</b> : the setpoint is set by pressing the +/- IIIII buttons on the boiler control panel, after having first disconnected the Remote Control from the boiler. b) <b>Remote Control</b> : the setpoint is set by modifying the "CH SL" parameter (see chapter "ELECTRICAL CONNECTIONS - INSTALLER FUNCTIONS") c) <b>Simultaneous request PCB - Remote Control</b> the higher setpoint of the two requests is satisfied.	00			
P11..P12	Manufacturer information	--			
P13	Max. heating output (0-100%)	100	100	80	86
P14	Max DHW output (0-100%)	100			
P15	Min. heating output (0-100%)	00			
P16	Maximum CH setpoint (°C) 00 = 85°C - 01 = 45°C	00			
P17	Pump overrun time in heating mode (01-240 minutes)	03			
P18	Delay prior to new ignition in CH mode (00-10 minutes) - 00=10 seconds	03			
P19	Manufacturer information	07			
P20	Pump overrun time in DHW mode (seconds)	30			
P21	Anti-legionellosis function (°C) 00...54 = Disabled - 55...67 = Enabled (set the desired temperature value)	00			
P22	Manufacturer information	00			
P23	Maximum DHW setpoint temperature (ACS)	60			
P24	Manufacturer information	35			
P25	No water safety device	00			
P26..P31	Manufacturer information	--			
P32..P41	Diagnostics (See SERVICE Instructions)	--			
P67	Open Therm (OT) settings (See SERVICE Instructions) 00 = Plug & Play	00			


## 15.1 ADJUSTING MAXIMUM HEATING POWER

The maximum heating power of the boiler can be reduced to suit the requirements of the heating system it serves. A table showing parameter P13 values according to the desired maximum power model is shown below for each single boiler. To access and edit parameter P13 values, proceed as described in the PARAMETER SETTINGS section.

**Boiler model - PARAMETER P13 (%) / Heating output (kW)**


kW	1.12	1.24	24	28
2	0			
3	10			
3,5	15	0	0	
4	20	2	2	0
5	30	7	7	4
6	40	12	12	8
7	50	17	17	13
8	60	22	22	17
9	70	27	27	21
10	80	32	32	25
12	100	41	41	33
14		51	51	42
16		61	61	50
18		71	71	58
20		80	80	67
22		90		75
24		100		86

## 16. TROUBLESHOOTING SERVICE FAULTS


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.

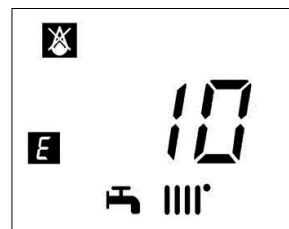



### FAULTS INDICATED ON THE BOILER DISPLAY

The faults shown on this display are identified with the symbol  and a number (fault code). For a complete list of faults, see the following table.

If  appears on the display of the CONTROL BOX the fault must be RESET manually.

To RESET the boiler, press and hold down  for 2 seconds. If faults are displayed frequently, call the Authorised Service Centre.



	Description of fault	Service action
09	Gas valve connection error	Check the connections between the gas valve and the electronic board.
10	External probe sensor faulty	Check the sensor (*).
12	Hydraulic differential pressure switch switching failure	Check correct operation of the pressure switch and the wiring.
13	Hydraulic differential pressure switch contacts stuck	See the actions indicated in E12
15	Gas valve control error	Check the connections between the gas valve and the electronic board. If necessary, replace the electronic board.
18	Hydraulic circuit automatic filling in progress	Wait for the end of the filling cycle.
19	Fault in system filling phase	Check the filling tap.
20	NTC flow sensor faulty	Check the sensor (**). Check the continuity of the probe wiring. Make sure the wiring has not shorted.
28	NTC fumes sensor faulty	Check the fumes NTC probe (***) Check the continuity of the probe wiring. Make sure the wiring has not shorted.
40	NTC return sensor faulty	See the actions indicated in E20
50	NTC domestic hot water sensor faulty (only for heating-only model with storage boiler)	See the actions indicated in E20

53	Fumes outlet obstructed	Check that the drainage pipe is free from obstructions. Switch off the electric power supply to the boiler for a few seconds.	
55	Electronic board not calibrated	Activate the automatic calibration function described in the spare parts instructions sheet.	
83...87	Communication problem between boiler board and control unit. Probable short circuit on wiring.	Check the wiring between the Ambient Unit and the electronic board or RF link.	
92	Fumes fault during calibration (probable fumes recirculation)	Check for any recirculation of fumes. Activate the automatic calibration function described in the paragraph YEARLY MAINTENANCE – REPLACING COMPONENTS.	
109	Air in boiler circuit (temporary fault)	Check pump operation. Check the pump power input wiring.	
110	Safety thermostat tripped due to overtemperature (pump probably blocked or air in heating circuit).	Check pump operation. Check the pump power input wiring. Check that the limit thermostat is undamaged and replace it if necessary. Check the continuity of the limit thermostat wiring.	
117	Pressure in hydraulic circuit too high (> 2.7 bar)	Check that the pressure in the system is correct. See the FILLING THE SYSTEM section.	
118	Pressure in hydraulic circuit too low	If the pressure in the CH circuit is < 0.5 bar, perform filling (see the FILLING THE SYSTEM section). Check the hydraulic pressure switch works correctly.	
125	No circulation safety trip. (control performed via a temperature sensor)	See the actions indicated in E109	
128	No flame	Check the flame sensing electrode is in good condition and correctly positioned (see the ANNUAL SERVICING - POSITIONING THE ELECTRODES section). Check the wire is uninterrupted and makes good contact with the flame sensing electrode and the ignition switch. See the actions indicated in E92.	
129	Loss of flame at ignition	Check the flame sensing electrode is in good condition and correctly positioned (see the ANNUAL SERVICING - POSITIONING THE ELECTRODES section). Check the wire is uninterrupted and makes good contact with the flame sensing electrode and the ignition switch. Check for any recirculation of fumes.	
130	Fumes NTC tripped due to overtemperature	Check the heat exchange level of the water-fumes exchanger: possible insufficient circulation or presence of scale. Check the fumes NTC probe (***).	
133	Ignition failure (5 attempts)	Check that the gas valve is open and there is no air in the gas supply circuit. Check the gas supply pressure. Check the wire is uninterrupted and makes good contact with the flame sensing electrode and the ignition switch. See the actions indicated in E92. Check correct operation of the condensate drainage.	
134	Gas valve blocked	Check the gas supply pressure. Check the integrity and position of the sensing and ignition electrodes and their wiring (see the ANNUAL SERVICING - POSITIONING THE ELECTRODES section). If necessary, replace the electronic board.	
135	Internal board error	Replace the electronic board.	
154	Delivery/return probe control test	See the actions indicated in E109	
160	Fan fault	Check correct operation of the fan. Check that the fan power supply wiring is connected to the electronic board.	
178	Intervention of safety thermostat for excess temperature in low temperature system	Check correct operation of the pump and the water circulation in the low temperature system. Check the pump power input wiring.	
317	162	Incorrect power supply frequency	Check whether the incorrect electric power supply frequency is due to causes outside the boiler, in which case contact the power supply company.
321	163	NTC domestic hot water sensor faulty	See the actions indicated in E20
384	164	Parasite flame (internal error)	Check correct operation of the gas valve.
385	165	Input voltage too low	Input voltage V<175V. Check whether the power supply reductions are due to reasons other than the boiler. If so, contact the electricity provider.

CH = central heating.

(\*) External Sensor: cold resistance value: approximately 1 kΩ @ 25° C (resistance decreases as temperature rises).

(\*\*) NTC delivery, return and DHW sensor: cold resistance value: approximately 10 kΩ @ 25° C (resistance decreases as temperature rises).

(\*\*\*) NTC fumes probe: cold resistance value: approximately 20 kΩ @ 25° C (resistance decreases as temperature rises).



**5 reset attempts can be performed after which the boiler shuts down. Wait 15 minutes before attempting to reset the boiler again.**

## 17. ADJUSTMENT AND SAFETY DEVICES

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

- **Limit thermostat**

Thanks to a sensor placed on the CH flow line, this thermostat interrupts the flow of gas to the burner if the water in the primary circuit overheats.

⊘ It is forbidden to disable this safety device

- **NTC fumes sensor**

This device is positioned on the fumes-water exchanger. The electronic board stops gas from flowing to the burner in case of over heating.

⊘ It is forbidden to disable this safety device

- **Flame ionisation detector**

The flame sensing electrode guarantees safety of operation in case of gas failure or incomplete ignition of the main burner. In these conditions, the boiler blocks.

- **Hydraulic pressure switch**

This device allows the main burner to be ignited only if system pressure is higher than 0.5 bars.

- **Pump post-circulation**

The electronically-controlled pump post-circulation function lasts 3 minutes and is enabled, in the heating mode, if the ambient thermostat causes the main burner to go out.

- **Antifreeze device**

The electronic boiler management system includes an "antifreeze" function for the heating and DHW systems which, when flow temperature falls below 5° C, operates the burner until a flow temperature of 30° C is reached. This function is enabled when the boiler is switched on, the gas supply is open and the system is correctly pressurised.

- **Anti-block pump function**

If no heat demand is received in the heating and/or DHW modes for 24 consecutive hours, the pump will automatically start and operate for 10 seconds.

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

If no heat demand is received for a period of 24 hours, the three-way valve performs a complete switching cycle.

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

This device is set to 3 bar and is used for the heating circuit. Connect the safety valve to a drain trap. Do not use it to drain the heating circuit.

- **Heating pump pre-circulation**

In case of a heat demand in the heating mode, the appliance can pre-circulate the pump before the burner is ignited. This pre-circulation phase last from a few seconds to a few minutes, depending on the operating temperature and installation conditions.

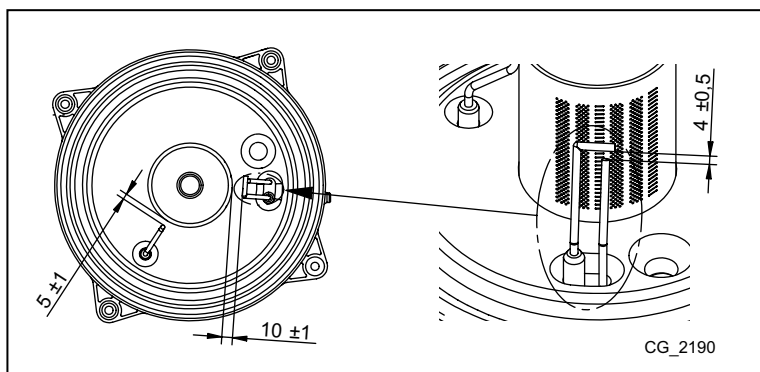
## 18. PUMP CAPACITY/ HEAD

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

KEY TO PUMP CHARTS - "SECTION" E

<b>Q</b>	WATER FLOW RATE	<b>MIN</b>	Minimum speed of modulation
<b>H</b>	HEAD	<b>MAX</b>	Maximum speed of modulation

## 19. POSITIONING THE ELECTRODES



## 20. ANNUAL SERVICING



If the boiler was operating, wait for the combustion chamber and pipes to cool down.



Before commencing any maintenance operations, make sure the boiler is disconnected from the power supply. After servicing, reset the original operating parameters of the boiler if they were changed.



Do not clean the boiler with abrasive, aggressive and/or easily flammable substances (such as petrol, acetone, etc.).

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

- Check the appearance and airtightness of the gaskets of the gas and combustion circuits. Replace any worn seals with new original spares;
- 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 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 (for condensation boilers);
- Check the magnesium anode, where present, for boilers fitted with storage boilers.



It is advisable not to use the service cap at the base to empty and clean the siphon. Remove the siphon from inside the boiler and clean it with a jet of water. Fill the siphon with clean water and put back in place, making sure that it is properly connected.

### 20.1 HYDRAULIC UNIT

For special areas, where the water is harder than 20 °F (1 °F = 10 mg calcium carbonate per litre of water), install, on the cold water inlet, a polyphosphate dispenser or an equivalent treatment system, compliant with current regulations.

### 20.2 CLEANING THE FILTERS

Information valid only for models 24 - 28.

The DHW and CH filters are housed inside removable cartridges (see figure in annex "SECTION" G at the end of this manual). The CH cartridge is located on the CH return line (F) while the DHW cartridge is on the cold water inlet (E). To clean the filters, proceed as described below:

- switch off the boiler;
- shut the DHW inlet valve;
- drain the water in the CH circuit by opening valve (A);
- remove the clip (1-E/F) from the filter as illustrated in the figure and take out the cartridge (2-E/F) containing the filter, taking care not to apply excessive force;
- to extract the heating filter cartridge, first remove the 3-way valve motor (1-2G);
- eliminate any impurities and deposits from the filter;
- reposition the filter in the cartridge and put it back into its housing, securing it with the clip.
- The NTC DHW sensor is positioned in point (D).

Remove the scale from the seat and relative NTC sensor fitted on the DHW circuit (D).



When replacing and/or cleaning the O-rings on the hydraulic assembly, only use Molykote 111 as a lubricant, not oil or grease.

### 20.3 DISMOUNTING THE WATER-WATER HEAT EXCHANGER

Information valid only for models 24 - 28.

The stainless steel plate-type water-water heat exchanger is easily disassembled with a screwdriver (see figure in annex "SECTION" G at the end of the manual ) by operating as described below:

- drain the system, just the boiler if possible, through the drain tap;
- drain the DHW system;
- remove the two screws at the front securing the water-water heat exchanger and pull it out (B).

To clean the exchanger and/or DHW circuit, use Cillit FFW-AL or Benckiser HF-AL.



Pay great attention when dismantling the individual parts of the hydraulic assembly. Do not use sharp tools, do not apply excessive force when removing the fixing clip.

## 20.4 REPLACEMENT OF PARTS

If one or more of the following components are replaced:

- Water-fumes exchanger
- Fan
- Gas valve
- Gas nozzle
- Burner
- Flame sensing electrode




perform the Automatic Calibration procedure described below, then check and adjust the CO<sub>2</sub>% value as indicated in the section "COMBUSTION ADJUSTMENT FUNCTION (CO<sub>2</sub>%)".



*When working on the appliance, check the condition and position of the flame sensing electrode and replace it if necessary.*



### AUTOMATIC CALIBRATION FUNCTION



This function can be enabled on the boiler control panel. To access the boiler control panel, refer to the chapter "ELECTRICAL CONNECTIONS-ACCESS TO THE BOILER CONTROL BOX".




Press  and  together and hold down for at least 6 seconds. When the display indicates "On" press  (within 3 seconds after pressing the previous buttons).




*If the display indicates "303" the Automatic Calibration function has not been activated. Disconnect the boiler from the mains power supply for a few seconds and repeat the procedure.*

When the function is enabled,  and  flash on the display


After the ignition sequence, which can also take place after a few attempts, the boiler performs three operations (each lasting approximately 1 minute) going first to maximum power, then to ignition power and lastly to minimum power. Before moving on to the following phase (from maximum power to ignition power and then to minimum power),  and  appear on the display. During this phase, the power level reached by the boiler and the delivery temperature alternate on the display.

When ,  and  flash together on the display, the calibration function has terminated.

Press  to leave the function. The display shows **ESC**.

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.

## 21. DISMANTLING, DISPOSAL AND RECYCLING



**Only qualified technicians are authorised to service the device and system.**

Before dismantling the appliance, be sure to disconnect the power supply, close the gas inlet shutoff valve and secure all of the boiler and system connections.

Dispose of the appliance correctly according to the laws and regulations in place. The appliance and accessories cannot be discarded along with normal household waste.

More than 90% of the materials that make up the appliance are recyclable.

## 22. TECHNICAL SPECIFICATIONS

Model: LUNA DUO-TEC IN+		1.12 GA	1.24 GA	24 GA	28 GA
Cat.		II <sub>2</sub> H3P			
Gas used	-	G20 - G31			
Rated heat input for DHW circuit.	kW	-	-	24,7	28,9
Rated heat input for heating circuit.	kW	12,4	24,7	20,6	24,7
Reduced heat input	kW	2,1	3,5	3,5	3,9
Rated heat output for DHW circuit	kW	-	-	24,0	28,0
Rated heat power 80/60 °C	kW	12,0	24,0	20,0	24,0
Rated heat power 50/30 °C	kW	13,1	26,1	21,8	26,1
Reduced heat output 80/60 °C	kW	2,0	3,4	3,4	3,8
Reduced heat output 50/30 °C	kW	2,2	3,7	3,7	4,1
Rated efficiency 50/30 °C	%	105,8	105,7	105,8	105,8
Max. pressure of water in heating circuit	bar	3			
Min. pressure of water in heating circuit	bar	0,5			
Capacity of water in expansion vessel	l	8			
Minimum pressure of expansion vessel	bar	0,8			
Max. pressure of water in DHW circuit	bar	-	-	8,0	8,0
Min. dynamic pressure in DHW circuit	bar	-	-	0,15	0,15
Minimum flow of water in DHW circuit	l/min	-	-	2,0	2,0
Production of DHW with $\Delta T = 25$ °C	l/min	-	-	13,8	16,1
Production of DHW with $\Delta T = 35$ °C	l/min	-	-	9,8	11,5
Specific flow "D" (EN 13203-1)	l/min	-	-	11,5	13,4
Temperature range in heating circuit	°C	25+80			
Temperature range in DHW circuit	°C	35+60			
Fumes typology	-	C13 - C33 - C43 - C53 - C63 - C83 - B23			
Coaxial flue duct diameter	mm	60/100			
Diameter of separate outlets	mm	80/80			
Max. mass flow rate of fumes	kg/s	0,006	0,012	0,012	0,014
Min. mass flow rate of fumes	kg/s	0,001	0,002	0,002	0,002
Max. temperature of fumes	°C	75	80	80	80
Natural gas supply pressure 2H	mbar	20			
Propane gas supply pressure 3P	mbar	37			
Power supply voltage	V	230			
Power supply frequency	Hz	50			
Rated power supply	W	72	85	85	99
Net weight	kg	28,5	28,5	32,5	32,5
Dimensions (height/width/depth)	mm	770/470/238			
Dimensions casing/template (height/width/depth)	mm	1170/600/240			
Protection-limit against humidity (EN 60529)	-	IPX5D			
EC certificate 0085CL0214					

### CONSUMPTION AT HEAT INPUT Q<sub>max</sub> and Q<sub>min</sub>

Q <sub>max</sub> (G20) - 2H	m <sup>3</sup> /h	1,31	2,61	2,61	3,06
Q <sub>min</sub> (G20) - 2H	m <sup>3</sup> /h	0,22	0,37	0,37	0,41
Q <sub>max</sub> (G31) - 3P	kg/h	0,96	1,92	1,92	2,25
Q <sub>min</sub> (G31) - 3P	kg/h	0,16	0,27	0,27	0,30



## 23. TECHNICAL PARAMETERS

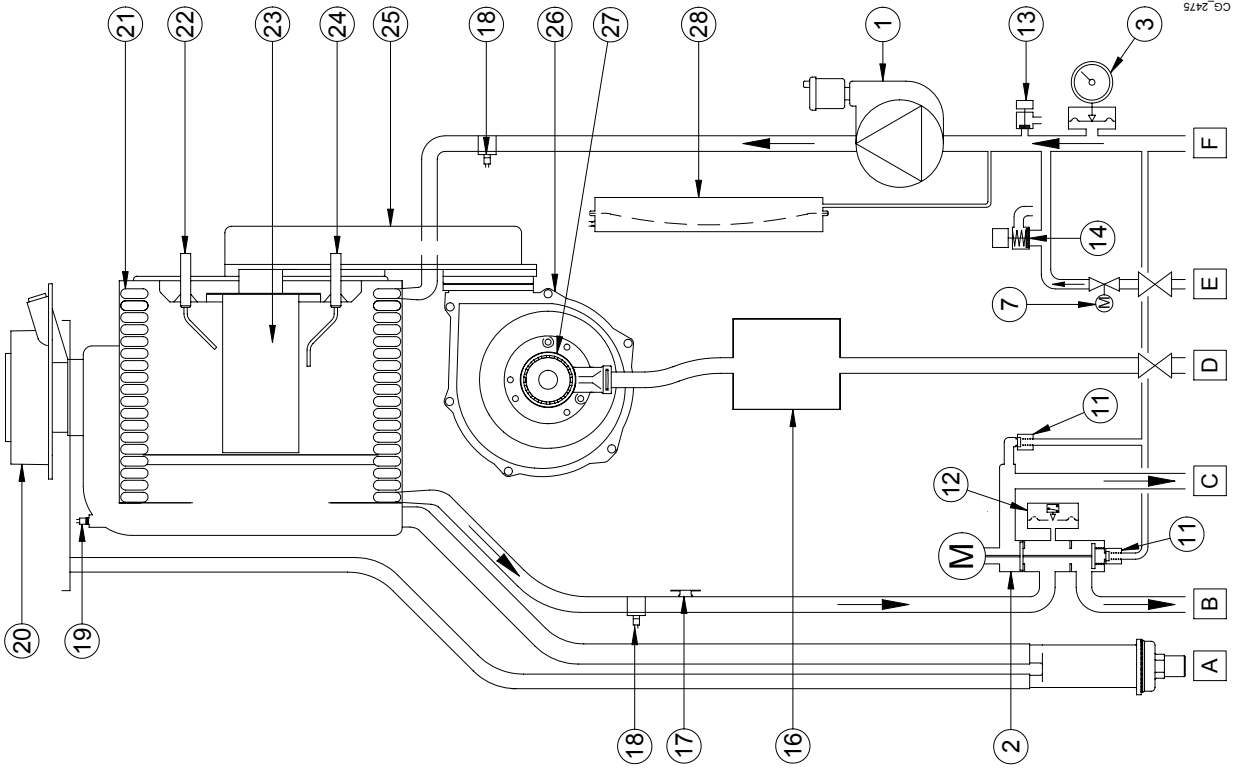
BAXI LUNA DUO-TEC IN+			1.12 GA	1.24 GA	24 GA	28 GA
Condensing boiler			Yes	Yes	Yes	Yes
Low-temperature boiler <sup>(1)</sup>			No	No	No	No
B1 boiler			No	No	No	No
Cogeneration space heater			No	No	No	No
Combination heater			No	No	Yes	Yes
<b>Rated heat output</b>	$P_{rated}$	kW	12	24	20	24
Useful heat output at rated heat output and high temperature regime <sup>(2)</sup>	$P_4$	kW	12.0	24.0	20.0	24.0
Useful heat output at 30% of rated heat output and low temperature regime <sup>(1)</sup>	$P_1$	kW	4.0	8.0	6.7	8.0
<b>Seasonal space heating energy efficiency</b>	$\eta_s$	%	93	93	93	93
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	$\eta_4$	%	88.1	87.9	88.0	87.9
Useful efficiency at 30% of rated heat output and low temperature regime <sup>(1)</sup>	$\eta_1$	%	98.2	98.0	98.0	98.0
<b>Auxiliary electricity consumption</b>						
Full load	$el_{max}$	kW	0.030	0.042	0.030	0.042
Part load	$el_{min}$	kW	0.013	0.013	0.013	0.013
Standby mode	$P_{SB}$	kW	0.003	0.003	0.003	0.003
<b>Other items</b>						
Standby heat loss	$P_{stby}$	kW	0.035	0.035	0.035	0.035
Ignition burner power consumption	$P_{ign}$	kW	0.000	0.000	0.000	0.000
Annual energy consumption	$Q_{HE}$	GJ	37	74	62	74
Sound power level, indoors	$L_{WA}$	dB	52	52	49	50
Emissions of nitrogen oxides	$NO_x$	mg/kWh	21	16	15	17
<b>Domestic hot water parameters</b>						
<b>Declared load profile</b>					XL	XL
Daily electricity consumption	$Q_{elec}$	kWh			0.162	0.232
Annual electricity consumption	$AEC$	kWh			36	51
<b>Water heating energy efficiency</b>	$\eta_{wh}$	%			88	86
Daily fuel consumption	$Q_{fuel}$	kWh			21.780	22.470
Annual fuel consumption	$AFC$	GJ			17	17
(1) Low temperature means for condensing boilers 30°C, for low temperature boilers 37°C and for other heaters 50°C return temperature (at heater inlet).						
(2) High temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet.						

## 24. PRODUCT FICHE

BAXI LUNA DUO-TEC IN+		1.12 GA	1.24 GA	24 GA	28 GA
Space heating - Temperature application		Medium	Medium	Medium	Medium
Water heating - Declared load profile				XL	XL
Seasonal space heating energy efficiency class		<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>
Water heating energy efficiency class				<b>A</b>	<b>A</b>
Rated heat output ( <i>Prated or Psup</i> )	kW	12	24	20	24
Space heating - Annual energy consumption	GJ	37	74	62	74
Water heating - Annual energy consumption	kWh <sup>(1)</sup>			36	51
	GJ <sup>(2)</sup>			17	17
Seasonal space heating energy efficiency	%	93	93	93	93
Water heating energy efficiency	%			88	86
Sound power level L <sub>WA</sub> indoors	dB	52	52	49	50
(1) Electricity (2) Fuel					

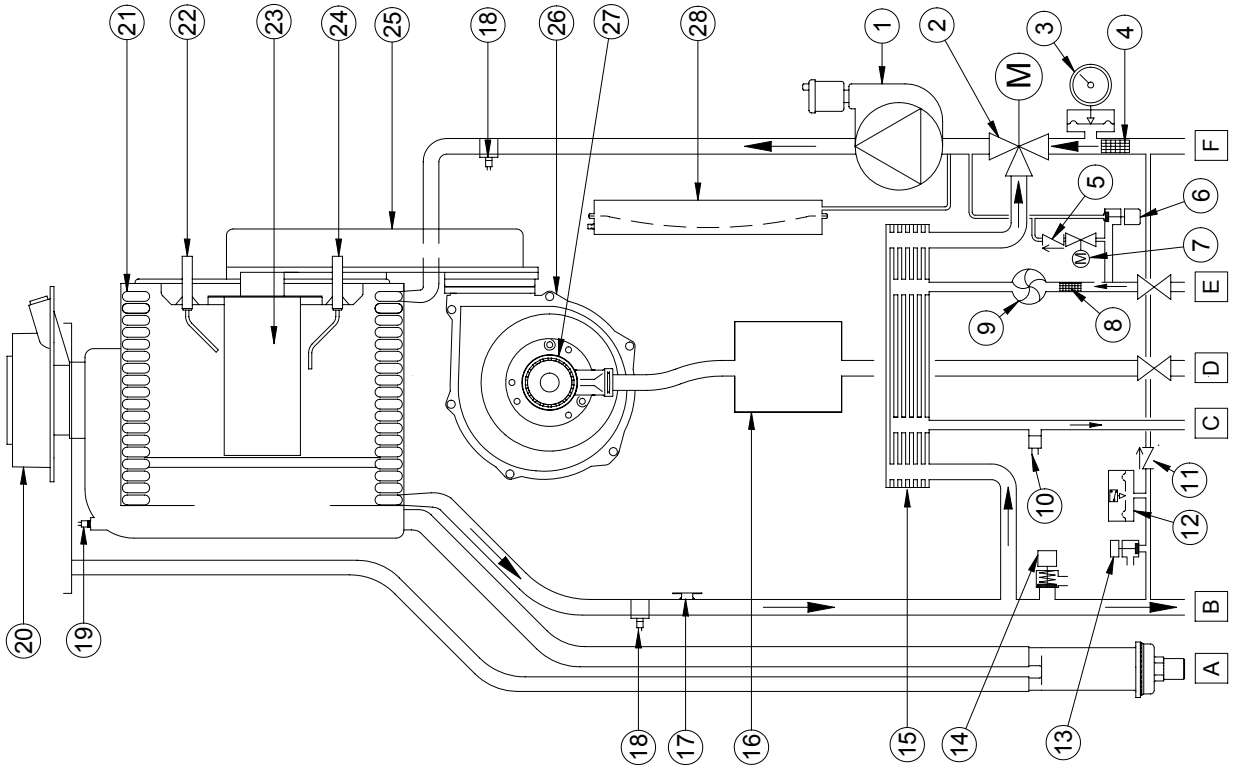


1.12 - 1.24



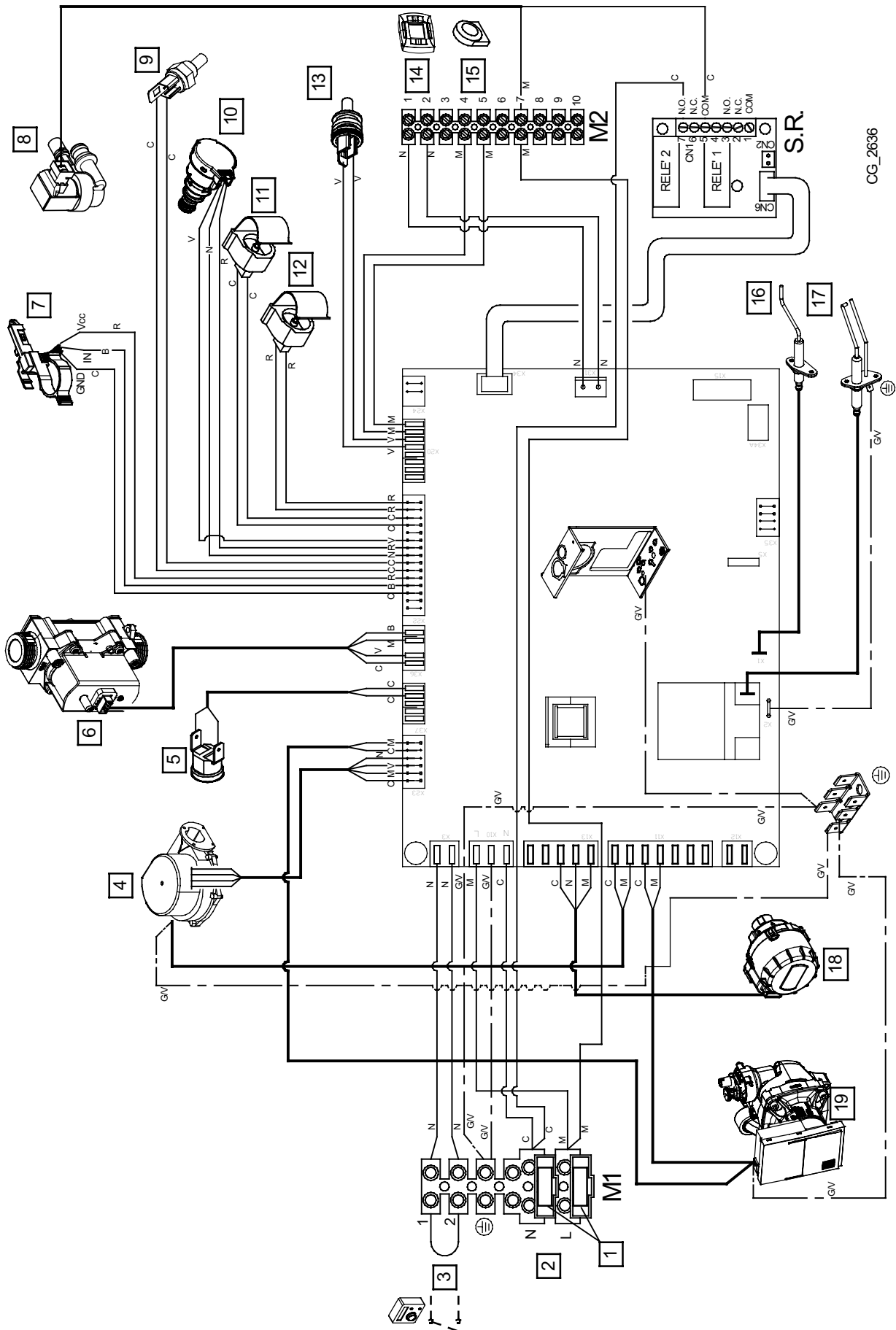
CG\_2475

24 - 28



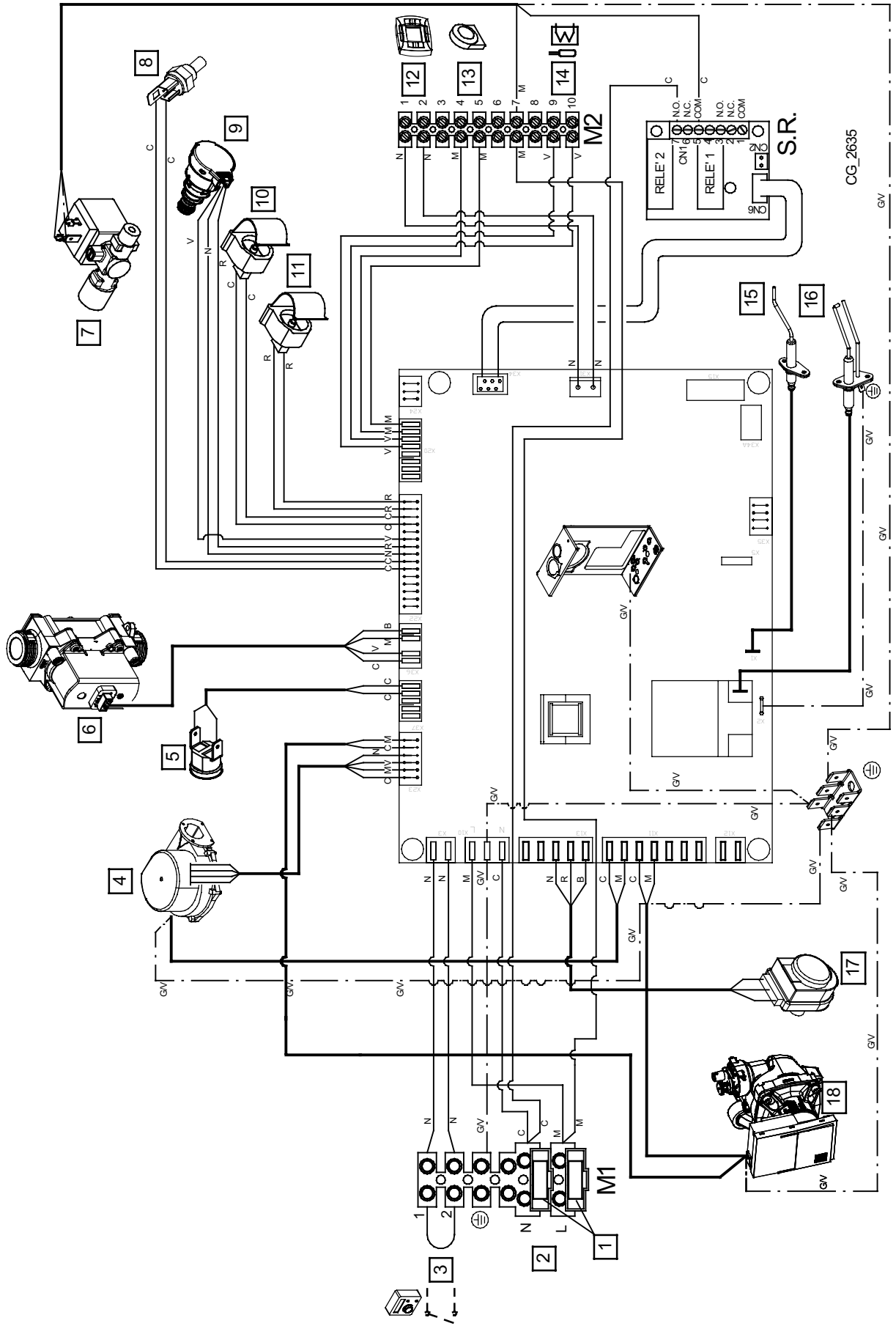
CG\_2475

<b>en</b>	
<b>1</b>	Pump with air separator
<b>2</b>	3-way valve with motor
<b>3</b>	Pressure gauge
<b>4</b>	CH removing filter
<b>5</b>	Non-return valve
<b>6</b>	Manual boiler filling tap
<b>7</b>	Automatic boiler filling tap
<b>8</b>	Domestic cold water removing filter
<b>9</b>	DHW priority sensor
<b>10</b>	NTC DHW sensor
<b>11</b>	Check valve on automatic by-pass
<b>12</b>	Hydraulic Pressure Sensor
<b>13</b>	Boiler drain tap
<b>14</b>	Hydraulic Safety valve
<b>15</b>	DHW heat exchanger
<b>16</b>	Gas valve
<b>17</b>	Safety thermostat
<b>18</b>	NTC heating sensor (flow/return)
<b>19</b>	Fumes sensor
<b>20</b>	Coaxial connector
<b>21</b>	Water-fumes exchanger
<b>22</b>	Ignition electrode
<b>23</b>	Burner
<b>24</b>	Flame detection electrode
<b>25</b>	Air/gas blend manifold
<b>26</b>	Fan
<b>27</b>	Venturi
<b>28</b>	Expansion vessel
<b>A</b>	Siphon with condensate drain
<b>B</b>	Heating flow tap
<b>C</b>	DHW outlet/Storage boiler
<b>D</b>	Gas inlet tap
<b>E</b>	Cool DHW inlet tap
<b>F</b>	Heating return tap



CG\_2636

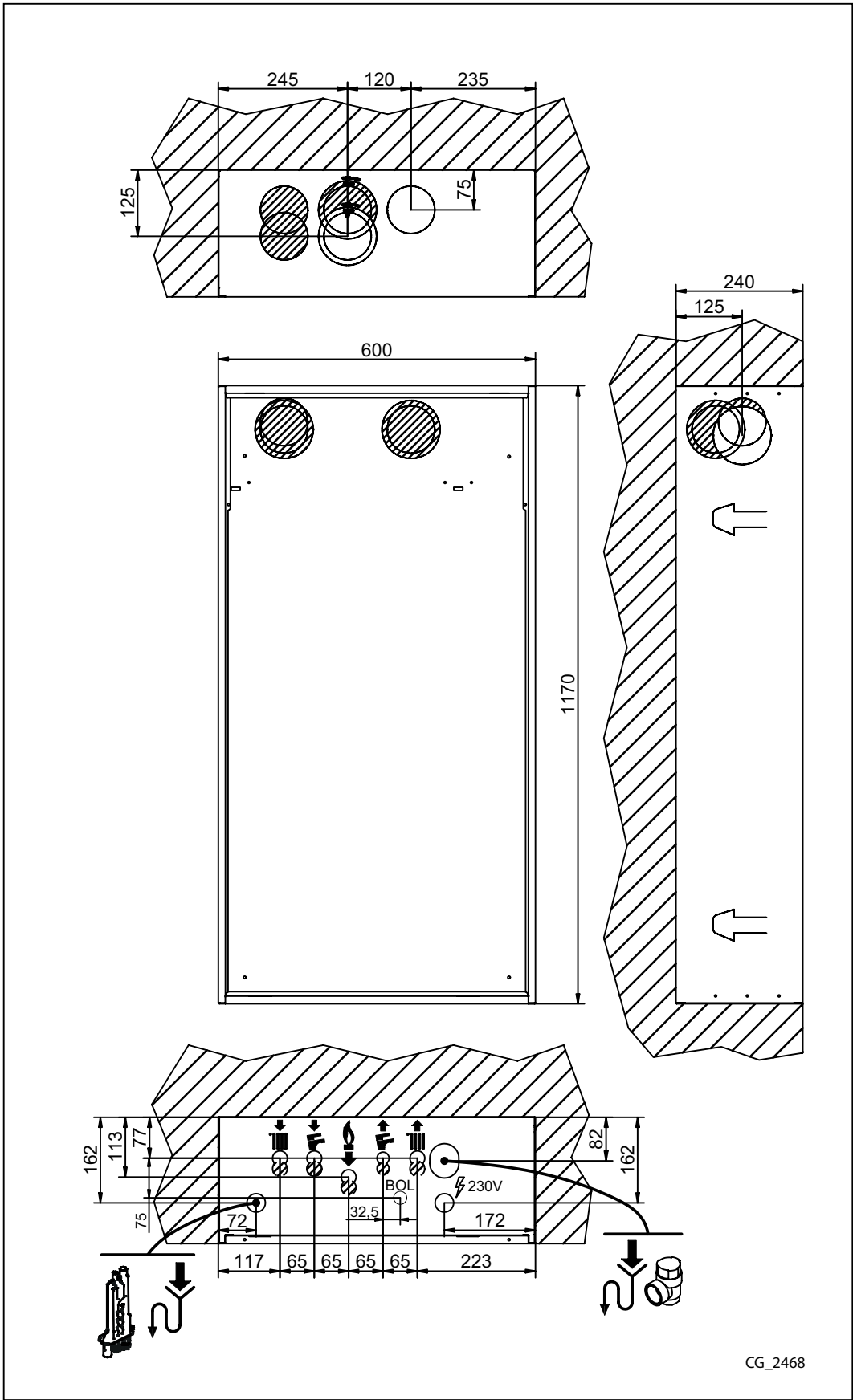
en	
<b>1</b>	Fuses
<b>2</b>	230 V Power Supply
<b>3</b>	Room Thermostat (RT)
<b>4</b>	Fan
<b>5</b>	Safety Thermostat
<b>6</b>	Gas valve
<b>7</b>	DHW priority sensor
<b>8</b>	Automatic filling tap
<b>9</b>	Fumes sensor
<b>10</b>	Pressure Sensor
<b>11</b>	Heating return sensor
<b>12</b>	Heating flow sensor
<b>13</b>	NTC DHW sensor
<b>14</b>	Room Unit (R.U.) connection
<b>15</b>	Outdoor sensor
<b>16</b>	Flame sensor electrode
<b>17</b>	Ignition electrode
<b>18</b>	Diverter valve motor
<b>19</b>	Pump
<b>C</b>	Blue
<b>M</b>	Brown
<b>N</b>	Black
<b>R</b>	Red
<b>G/V</b>	Yellow/Green
<b>V</b>	Green
<b>B</b>	White
<b>G</b>	Grey
<b>Y</b>	Yellow
<b>P</b>	Violet



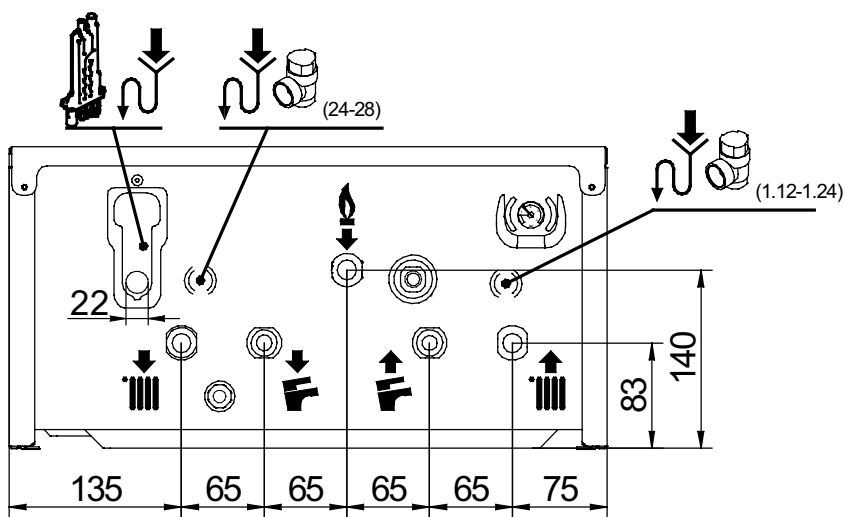
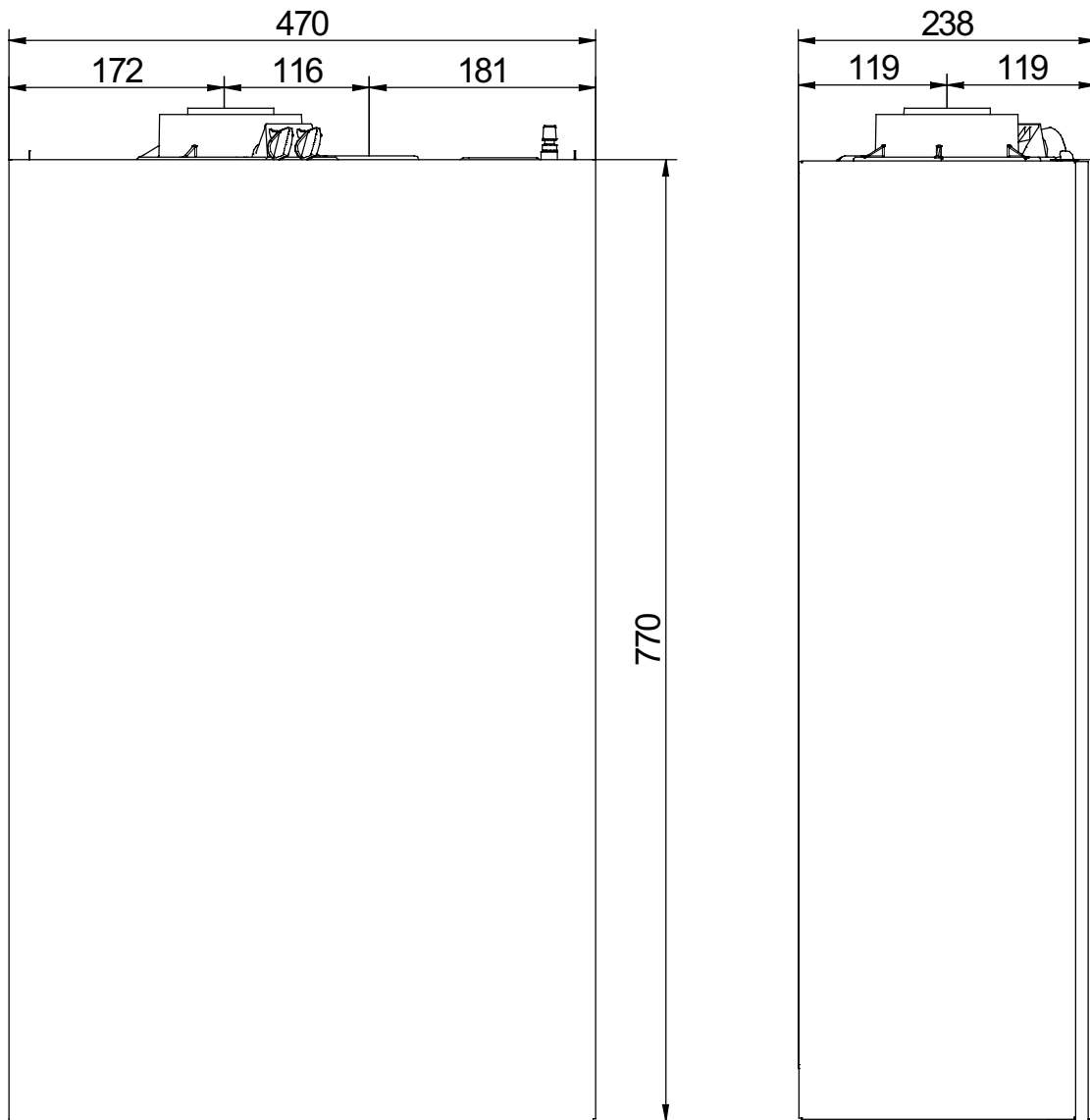


<b>en</b>	
<b>1</b>	Fuses
<b>2</b>	230 V Power Supply
<b>3</b>	Room Thermostat (RT)
<b>4</b>	Fan
<b>5</b>	Safety Thermostat
<b>6</b>	Gas valve
<b>7</b>	Automatic filling tap
<b>8</b>	Fumes sensor
<b>9</b>	Pressure Sensor
<b>10</b>	Heating return sensor
<b>11</b>	Heating flow sensor
<b>12</b>	Room Unit (R.U.) connection
<b>13</b>	Outdoor sensor
<b>14</b>	Boiler NTC DHW sensor
<b>15</b>	Flame sensor electrode
<b>16</b>	Ignition electrode
<b>17</b>	Diverter valve motor
<b>18</b>	Pump
<b>C</b>	Celeste
<b>M</b>	Marrone
<b>N</b>	Nero
<b>R</b>	Rosso
<b>G/V</b>	Giallo/Verde
<b>V</b>	Verde
<b>B</b>	Bianco
<b>G</b>	Grigio
<b>Y</b>	Giallo
<b>P</b>	Viola

SECTION C



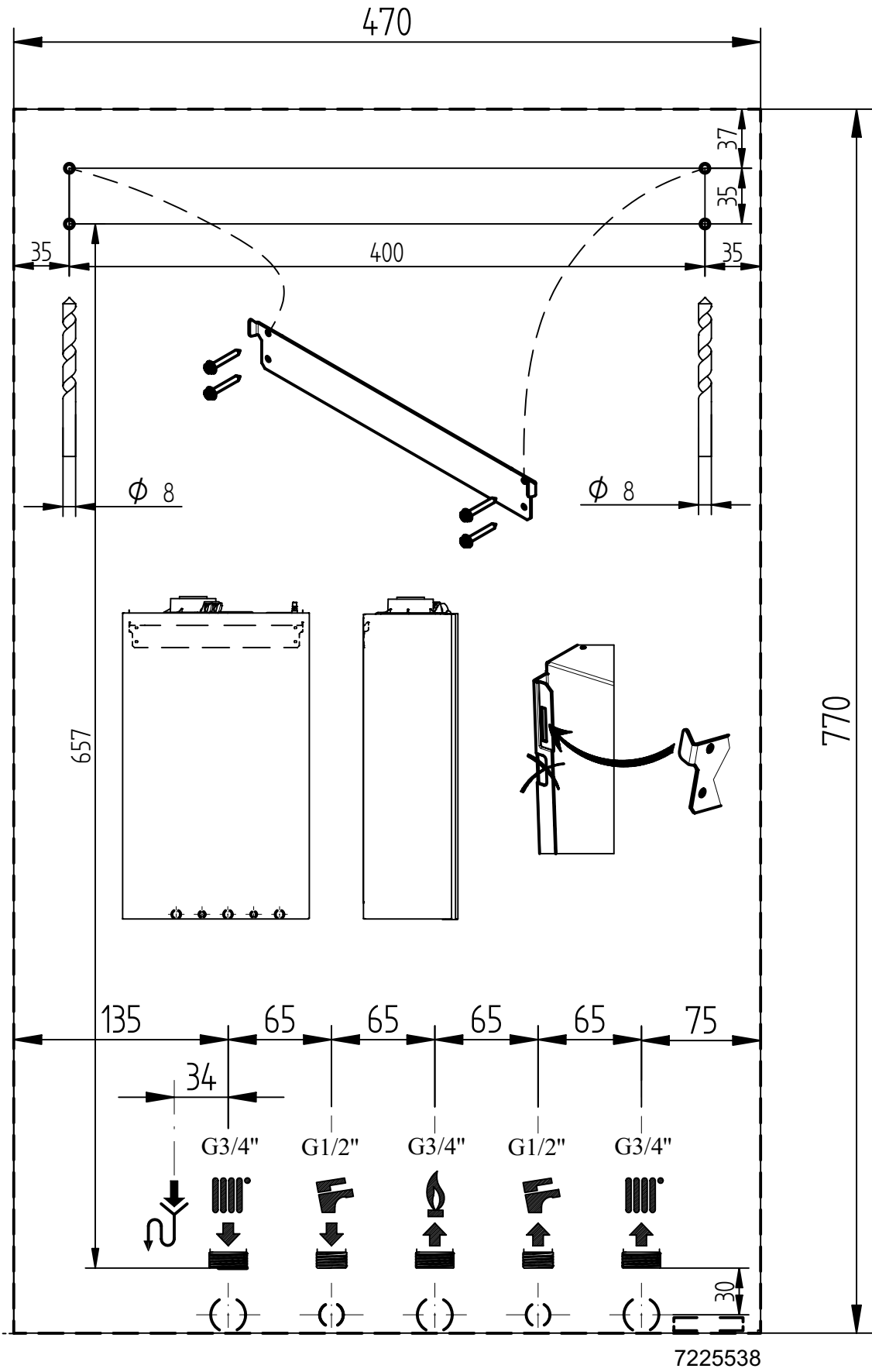
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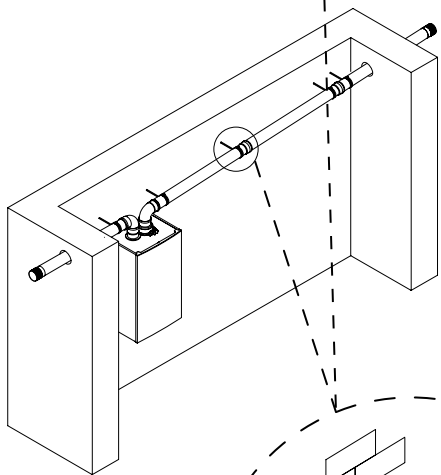
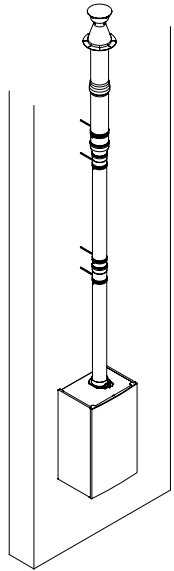
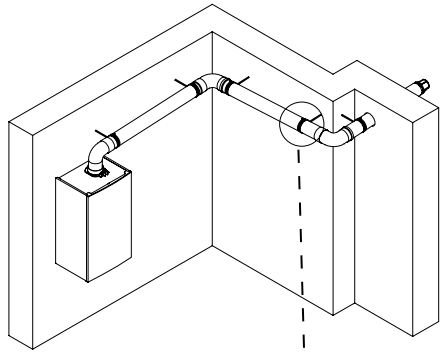


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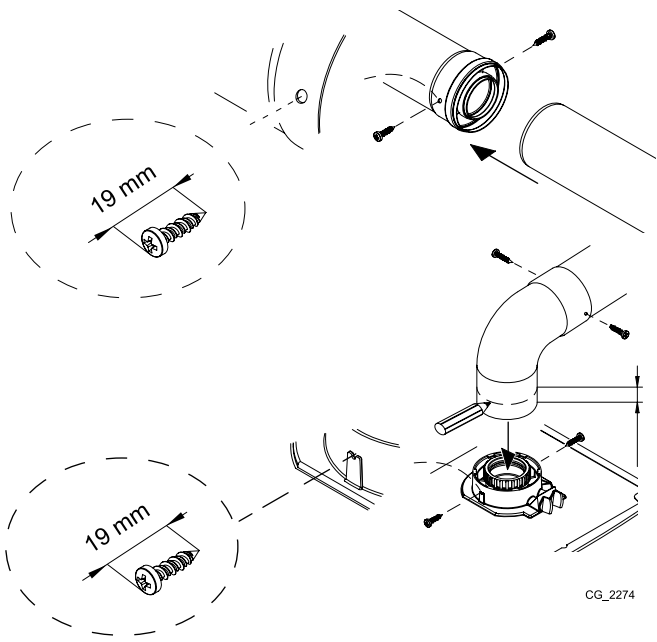
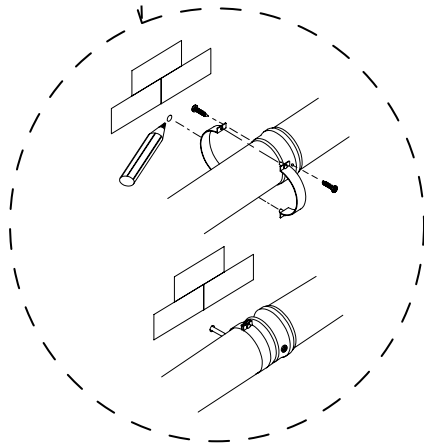
SECTION C

SECTION C

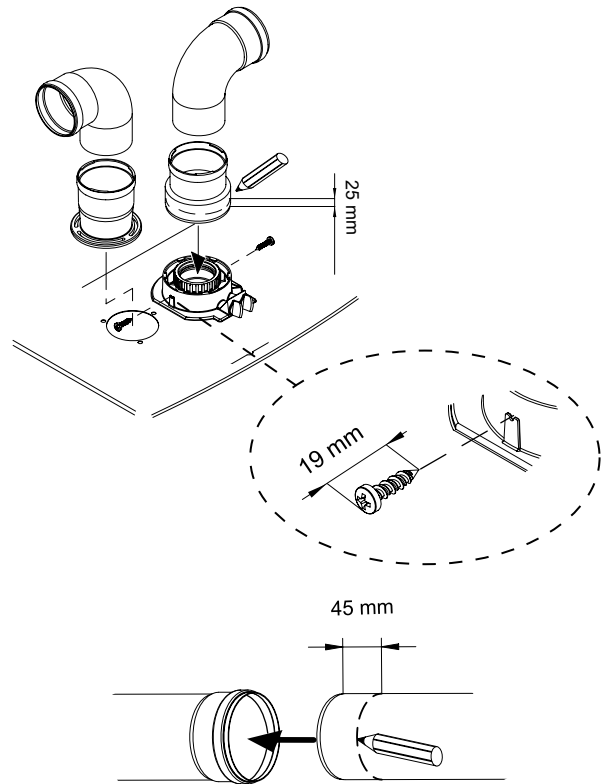
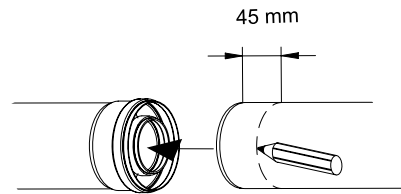




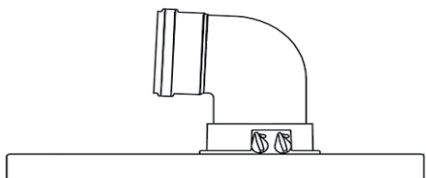
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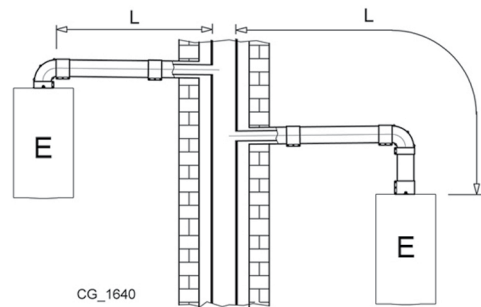
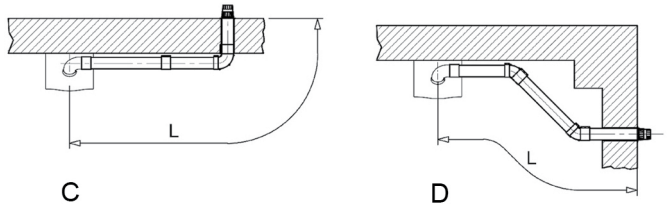
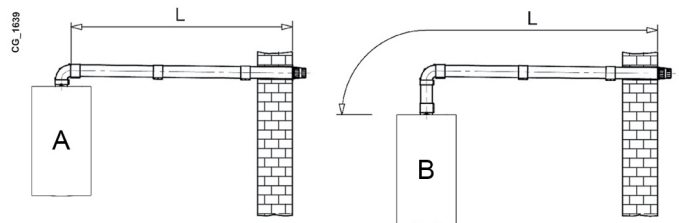
CG\_2274



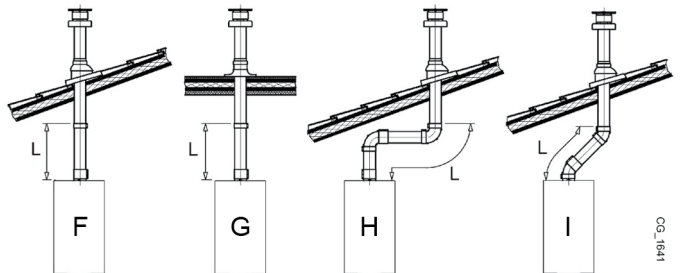
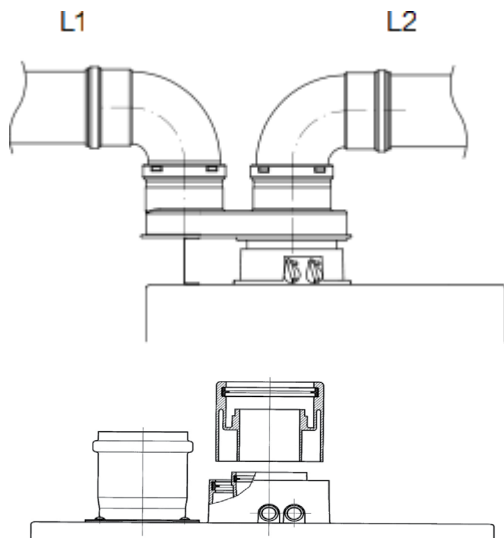
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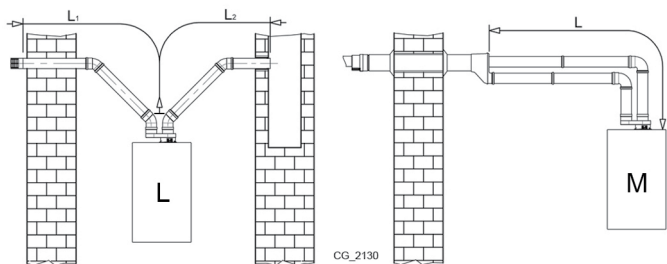
<b>A B</b>	Lmax = 10 m - Ø 60/100 mm
	Lmax = 25 m - Ø 80/125 mm
<b>C D</b>	Lmax = 9 m - Ø 60/100 mm
	Lmax = 24 m - Ø 80/125 mm
<b>E</b>	Lmax = 10 m - Ø 60/100 mm
	Lmax = 25 m - Ø 80/125 mm
<b>F G</b>	Lmax = 10 m - Ø 60/100 mm
	Lmax = 25 m - Ø 80/125 mm
<b>H</b>	Lmax = 8 m - Ø 60/100 mm
	Lmax = 23 m - Ø 80/125 mm
<b>I</b>	Lmax = 9 m - Ø 60/100 mm
	Lmax = 24 m - Ø 80/125 mm



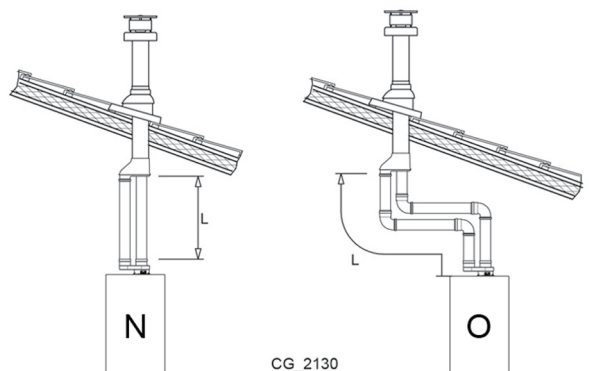
CG\_1640



CG\_1641

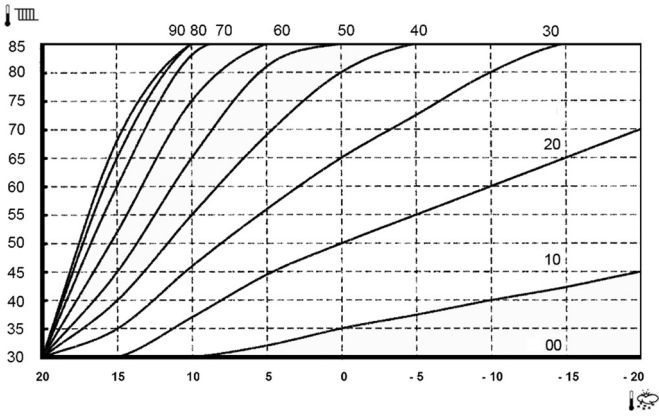
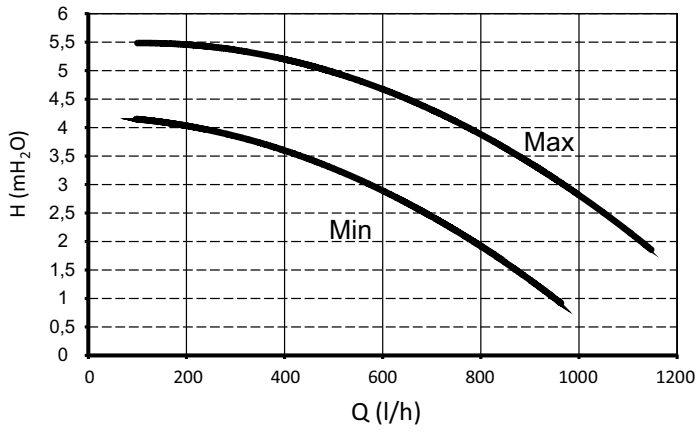
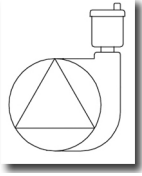


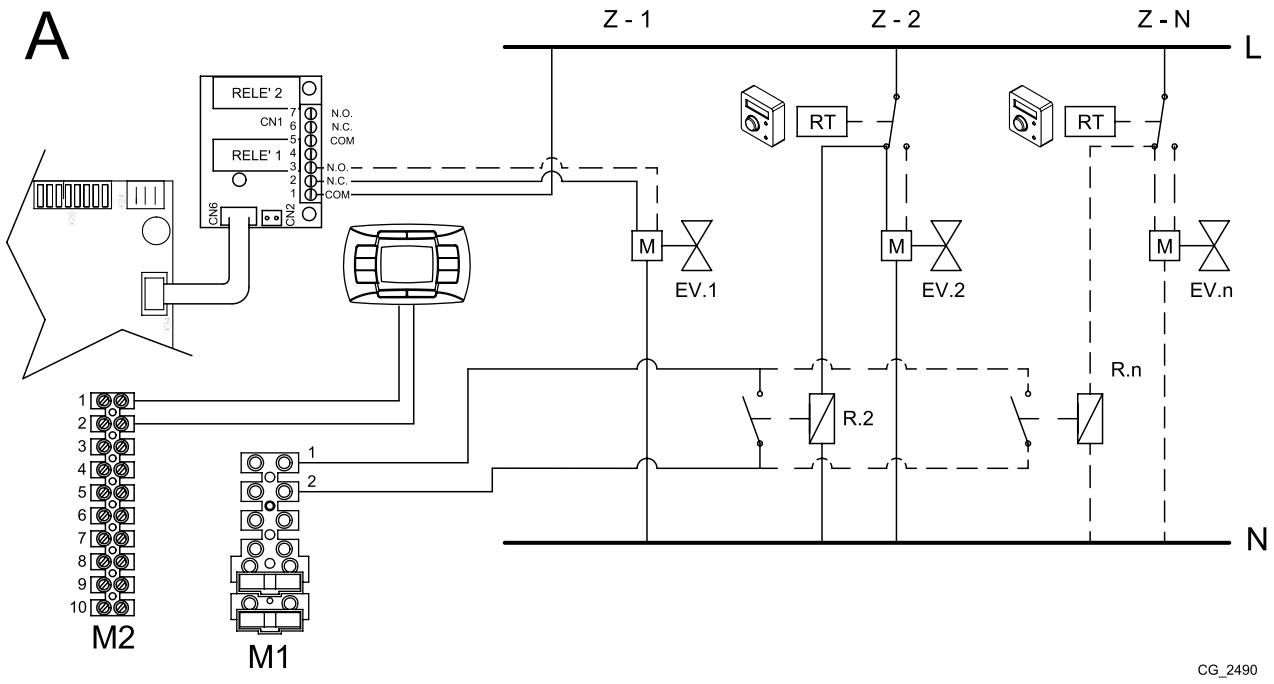
CG\_2130



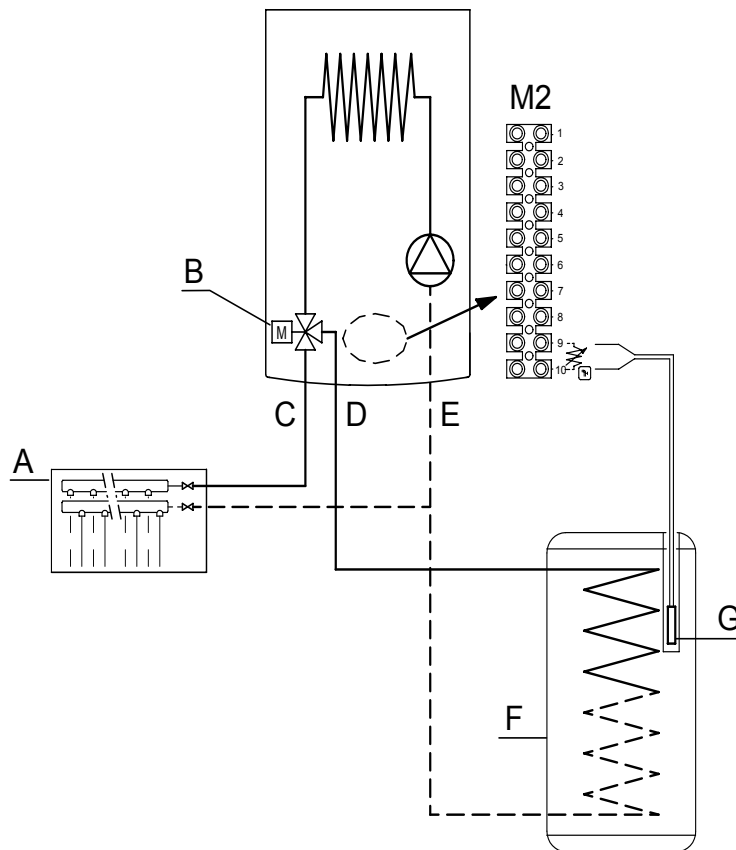
CG\_2130

<b>L</b>	(L1+L2) max = 80 m - Ø 80 mm L1 max = 15 m
<b>M</b>	L max = 15 m
<b>N</b>	L max = 15 m
<b>O</b>	L max = 14 m



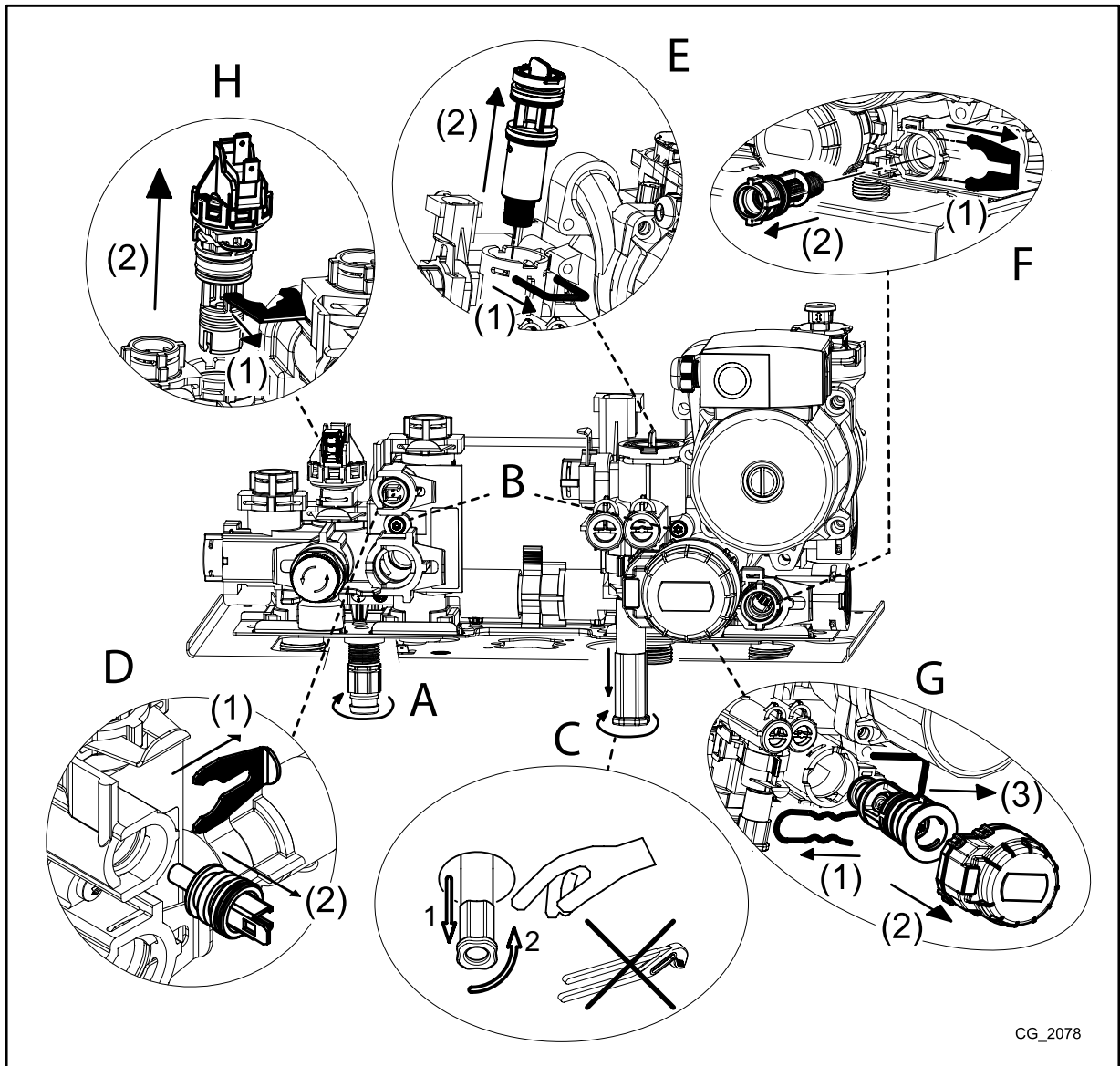
**A**

CG\_2490

**B**

CG\_2171





**MODIFIED PARAMETERS**

N°	VALUE	REMARKS



**BAXI**

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*Via Trozzetti, 20*

*Servizio clienti: tel. 0424-517800 – Telefax 0424-38089*

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