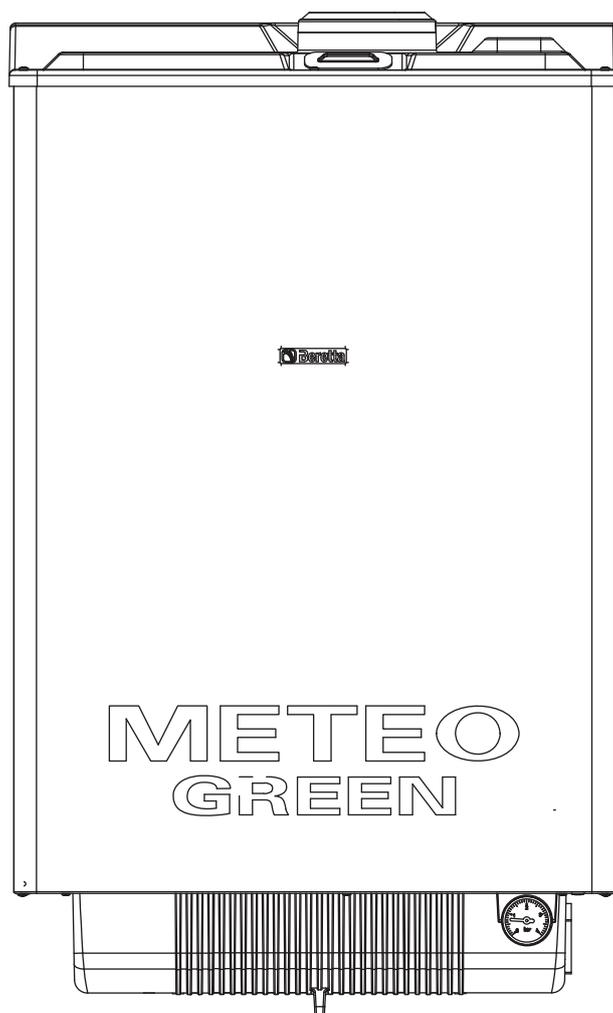


# Meteo Green HE R.S.I.



METEO GREEN HE R.S.I. boiler complies with basic requirements of the following Directives:

- Gas directive 2009/142/EC;
- Yield directive 92/42/EEC;
- Electromagnetic compatibility directive 2004/108/EC;
- Low-voltage directive 2006/95/EC;
- Directive 2009/125/EC Ecodesign for energy-using appliances;
- Directive 2010/30/EU Indication by labelling of the consumption of energy by energy-related products;
- Delegated Regulation (EU) No. 811/2013;
- Delegated Regulation (EU) No. 813/2013;
- Delegated Regulation (EU) No. 814/2013.



## RANGE RATED

This boiler can be adapted to the heating requirements of the system, it is possible to change the maximum output in central heating. Refer to chapter "Adjustments" for calibration.

After setting the desired output (parameter 23 maximum heating) report the value in the table on the back cover of this manual, for future references.

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In some parts of the manual, these symbols are used:

ATTENTION = for actions that require particular caution and proper training

FORBIDDEN = for actions that MUST NOT be performed

This handbook contains data and information for both users and installers. In detail:

- The chapters entitled "Boiler installation, Hydraulic connections, Gas connection, Electric connection, Filling and emptying the system, Fumes exhaustion and burning air suction, Technical data, Programming parameters, Gas conversion, Checking combustion parameters" are intended for installers;
- The chapters entitled "General safety devices, Start-up and operation" are for both users and installers.

# INSTALLER MANUAL

## 1 - GENERAL SAFETY DEVICES

⚠ The boilers produced in our factory are built with care down to the last component to protect both the user and installer from eventual accidents. We therefore recommend qualified personnel that after working on the product they should pay particular attention to the wiring, especially the bare wires, that must not be exposed outside the terminal board for any reason to prevent any contact with the live parts of the wiring.

⚠ This instructions manual is integral parts of the product. Make sure they remain with the boiler, even if it is transferred to another owner or user or moved to another heating system. In case of loss or damage, please contact your local Technical Assistance Service for a new copy.

⚠ This boiler may only be installed and serviced by qualified fitters who satisfy the requirements of local rules. Work must be done in compliance with regulations in force and subsequent updates.

⚠ The boiler must be serviced at least once a year. This should be booked in advance with the Technical Assistance Service.

⚠ The installer shall instruct the user in the operation of the boiler and the safety devices.

⚠ This boiler may only be used for what it was expressly built to do. The manufacturer declines all contractual and non-contractual liability for injury to persons or animals or damage to property deriving from errors made during installation, adjustment and servicing and from improper use.

⚠ This appliance is used to produce hot water and must therefore be connected to a heating and/or a domestic hot water system, according to its performance and power.

⚠ After removing the packaging, make sure the contents are undamaged and complete. If this is not the case, contact your dealer.

⚠ When the product reaches the end of its life it should not be disposed of as solid urban waste but should be brought to a separated waste collection facility.

⚠ The safety valve outlet must be connected to a suitable collection and venting system. The manufacturer declines all liability for any damage caused by the safety valve.

⚠ The safety and automatic adjustment devices on the appliance must never be modified during its lifetime, except by the maker or dealer.

⚠ If the appliance develops a fault and/or works badly, switch it off and do not attempt to repair it yourself.

⚠ Immediately after installation, inform the user that:

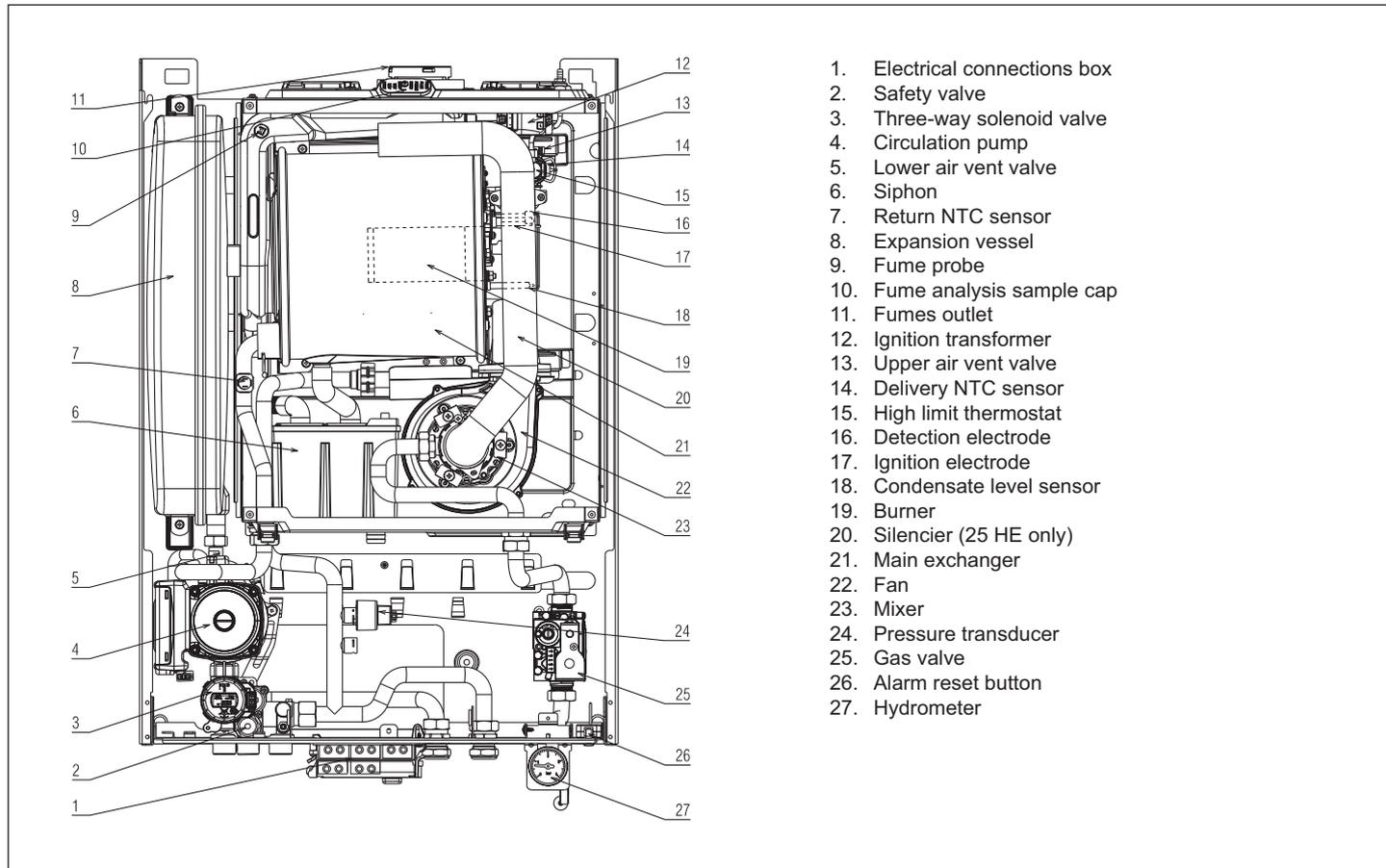
- in the event of leaks, he/she must shut off the water supply and promptly inform the Technical Assistance Service
- **GREEN HE R.S.I.:** must periodically check, on the display, that the pressure value is between 1 and 1,5 bar; if not fill the system as described in the paragraph "Boiler functions"
- if the boiler is not planned to be used for a long period, he/she should call in the Technical Assistance Service to perform the following operations:
  - turn off the main boiler and general system switches.
  - close the gas and water taps on the heating.
  - drain the heating circuits to prevent freezing.

⚠ Connect the outlet collector to a suitable outlet system (refer to chapter 5 - CONDENSATE COLLECTION).

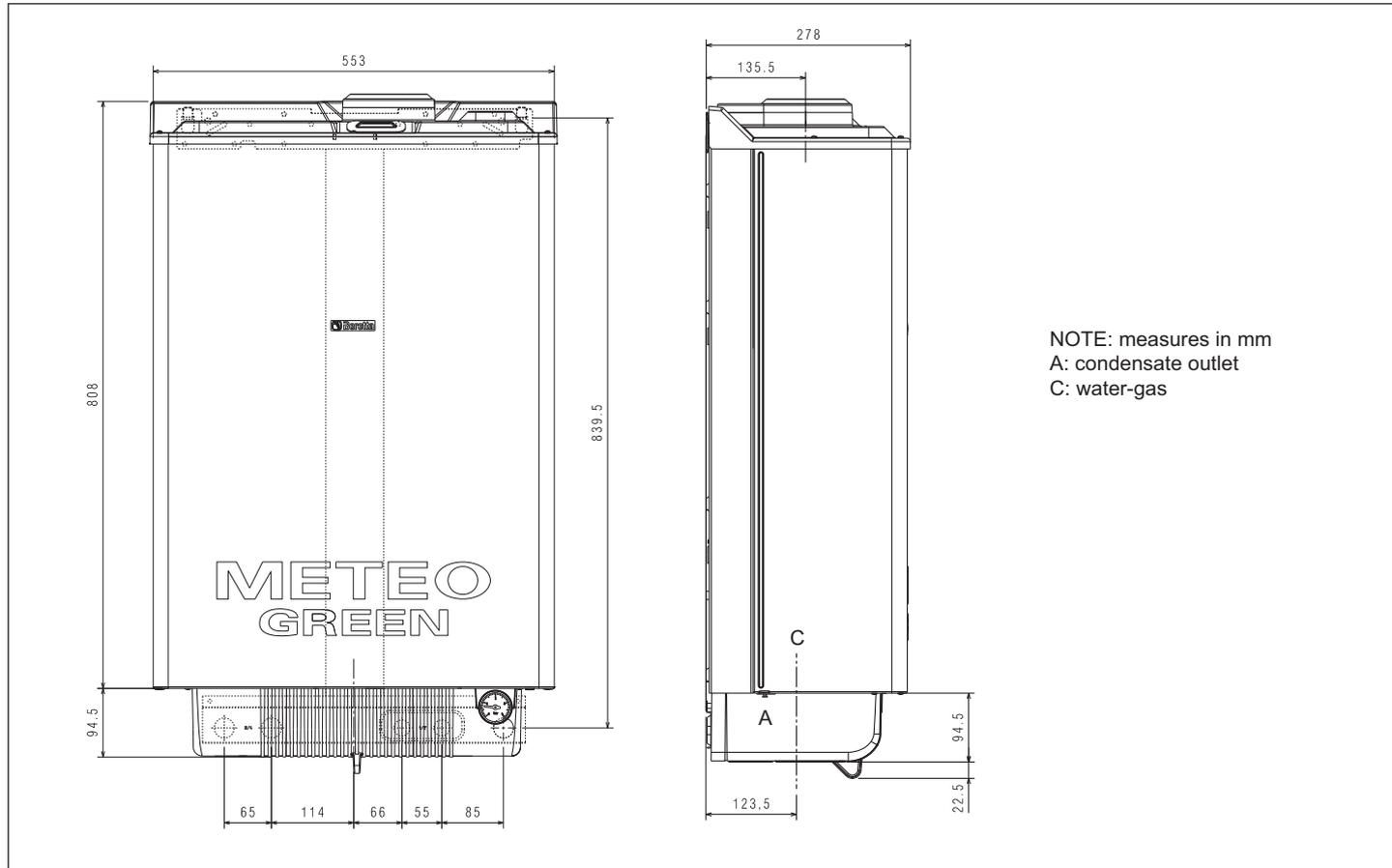
Safety measures:

- ⊖ The boiler should not be used by children or unassisted disabled people
- ⊖ Electrical devices or equipment, such as switches, appliances, etc., should not be used if there is a smell of gas or fumes. If there is a gas leak, open all the doors and windows to ventilate the area, turn off the general gas tap and immediately call the Technical Assistance Service
- ⊖ Do not touch the boiler barefoot or if parts of your body are wet or damp
- ⊖ Press the  button until "--" is shown on the display and disconnect the electricity supply by turning off the two-position system switch, before cleaning
- ⊖ It is forbidden to modify the safety or adjustment devices without the manufacturer's permission and relative instructions
- ⊖ Do not pull, detach or twist the wires from the boiler even if they are not connected to the power supply
- ⊖ Do not block or reduce the size of the ventilation openings in the room
- ⊖ Do not leave inflammable containers or substances in the room
- ⊖ Keep packaging out of reach of children
- ⊖ Only use appliance for purposes it is devoted to
- ⊖ Do not lean any object on the boiler
- ⊖ Do not tamper with sealed elements
- ⊖ It is forbidden to block the condensate outlet.

## 2 - BOILER OPERATING ELEMENTS



## 3 - BOILER DIMENSIONS



## 4 - TECHNICAL DATA

			R.S.I. 25 kW	R.S.I. 35 kW
<b>CH</b>	Nominal thermal load	kW	25.00	34.60
		kcal/h	21 500	29 756
	Nominal thermal power (80-60°C)	kW	24.38	33.74
		kcal/h	20 963	29 012
	Nominal thermal power (50-30°C)	kW	26.20	36.50
		kcal/h	22 532	31 393
	Reduced thermal load (G20/G31)	kW	2.50 / 4.50	3.50 / 6.20
		kcal/h	2 150 / 3 870	3 010 / 5 332
	Reduced thermal power (80-60°C) (G20/G31)	kW	2.49 / 4.47	3.41 / 6.04
		kcal/h	2 144 / 3 847	2 929 / 5 193
	Reduced thermal power (50-30°C)(G20/G31)	kW	2.69 / 4.82	3.71 / 6.57
		kcal/h	2 309 / 4 145	3 188 / 5 647
	Nominal thermal load Range Rated heat (Cn)	kW	25.00	34.60
		kcal/h	21 500	29 756
	Minimal thermal load Range Rated (Qm) (G20/G31)	kW	2.50 / 4.50	3.50 / 6.20
		kcal/h	2 150 / 3 870	3 010 / 5 332
	Working efficiency Pn max - Pn min (80-60°C)	%	97.5 - 99.7 (G31: 99.4)	97.5 - 97.3 (G31: 97.4)
	Working efficiency 30% (47°C return)	%	102.8	103.1
	Combustion efficiency	%	97.8	97.7
	Working efficiency Pn max - Pn min (50-30°C)	%	104.8 - 107.4 (G31: 107.1)	105.5 - 105.9 (G31: 105.9)
	Working efficiency 30% (30°C return)	%	109.4	108.0
	Average Range Rated Pn performance (80-60°C)	%	98.1	97.6
	Average Range Rated Pn performance (50-30°C)	%	105.2	106.1
	Electric power	W	88	116
	Category		I12H3P	I12H3P
	Supply voltage	V - Hz	230 - 50	230 - 50
	Protection level	IP	X5D	X5D
	Chimney losses with burner off-on	%	0.10 - 2.16	0.08 - 2.30
<b>CH operation</b>				
	Maximum pressure - temperature	bar - °C	3 - 90	3 - 90
	Minimum pressure for standard working/operating	bar	0.25 - 0.45	0.25 - 0.45
	Selection field of CH water temperature	°C	20 - 80	20 - 80
Pump	maximum head available for system	mbar	320	320
	capacity	l/h	1 000	1 000
	Membrane expansion tank	l	10	10
	Expansion vessel pre-charge (CH)	bar	1	1
<b>Gas pressure</b>				
	Natural gas pressure (G20)	mbar	1.13	1.13
	LPG pressure (G31)	mbar	2.75	2.75
<b>Hydraulic connections</b>				
	CH input-output	Ø	3/4"	3/4"
	Water tank delivery-return	Ø	3/4"	3/4"
	Gas input	Ø	3/4"	3/4"
<b>Boiler dimensions and weight</b>				
	Height	mm	797	797
	Width	mm	553	553
	Depth	mm	268	268
	Weight	kg	44	45
<b>Fan performance</b>				
	Fan residual head without pipes	Pa	98	199
<b>Flow rates (G20)</b>				
	Air capacity	Nm <sup>3</sup> /h	31.135	43.090
	Fumes capacity	Nm <sup>3</sup> /h	33.642	46.561
	Mass flow (max-min)	gr/s	11.282 - 1.070	15.614 - 1.498
<b>Fume exhaustion and air suction concentric pipe</b>				
	Diameter	mm	60 - 100	60 - 100
	Max length	mm	7.85	7.85
	Loss for a 90°/45° bend	m	1.6 / 1.3	1.6 / 1.3
	Hole in the wall	mm	105	105
<b>Fume exhaustion and air suction concentric pipe</b>				
	Diameter	mm	80 - 125	80 - 125
	Max length	mm	14.85	14.85
	Loss for a 90°/45° bend	m	1,5 / 1	1.5 / 1
	Hole in the wall	mm	130	130

			R.S.I. 25 kW	R.S.I. 35 kW
<b>Fume exhaustion and air suction separated pipe</b>				
Diameter		mm	80	80
Max lenght		m	32 + 32	40 + 40
Loss for a 90°/45° bend		m	1.5 / 1	1.5 / 1
<b>Forced open installation (B23P-B53P)</b>				
Diameter		mm	80	80
Max lenght		m	50	60
Loss for a 90°/45° bend		m	1.5 / 1	1.5 / 1
<b>Nox</b>			5	5
<b>Emission values at maximum and minimum of gas G20 **</b>				
Maximum	CO s.a. lower than	p.p.m.	180	180
	CO <sub>2</sub>	%	9.0	9.0
	NOx s.a. lower than	p.p.m.	45	35
	T fumes	°C	76	74
Minimum	CO s.a. lower than	p.p.m.	5.0	10
	CO <sub>2</sub>	%	9.5	9.5
	NOx s.a. lower than	p.p.m.	10	15
	T fumes	°C	59	62

\* Average value among various sanitary running conditions.

\*\* Tested with Ø60-100 concentric - lenght 0,85m - water temperature 80-60°C.

## 5 - MULTIGAS TABLE

		G20	G31
Lower Wobbe index (15°C-1013 mbar)	MJ/m³S	45.67	70.69
Lower heat value	MJ/m³S	34.02	88
	MJ/kgS	-	46.34
Supply nominal pressure	mbar	20	37
	mm H <sub>2</sub> O	203.9	377.3
Supply minimum pressure	mbar	10	-
	mm H <sub>2</sub> O	102.0	-
<b>Meteo Green R.S.I. 25 kW</b>			
Diaphragm (number of holes)	n.	2	2
Diaphragm (diameter of holes)	mm	3.65	2.95
CH maximum gas capacity	Sm³/h	2.64	-
	kg/h	-	1.94
CH minimum gas capacity	Sm³/h	0.26	-
	kg/h	-	0.35
Numbers of fan revolutions at slow start	rpm	3 700	3 700
Maximum number of fan revolutions	rpm	6 000	6 000
Minimum number of fan revolutions	rpm	1 200	1 900
<b>Meteo Green R.S.I. 35 kW</b>			
Diaphragm (number of holes)	n.	2	2
Diaphragm (diameter of holes)	mm	3.80	3.05
CH maximum gas capacity	Sm³/h	3.66	-
	kg/h	-	2.69
CH minimum gas capacity	Sm³/h	0.37	-
	kg/h	-	0,48
Numbers of fan revolutions at slow start	rpm	3 300	3 300
Maximum number of fan revolutions	rpm	6 000	5 900
Minimum number of fan revolutions	rpm	1 200	1 900

Parameter	Symbol	R.S.I. 25 kW	R.S.I. 35 kW	Unit
Seasonal space heating energy efficiency class	-	A	A	-
Water heating energy efficiency class	-	-	-	-
Rated heat output	Pnominal	24	34	kW
Seasonal space heating energy efficiency	$\eta_s$	93	92	%
<b>Useful heat output</b>				
At rated heat output and high-temperature regime (*)	P4	24,4	33,7	kW
At 30% of rated heat output and low-temperature regime (**)	P1	8,2	11,2	kW
<b>Useful efficiency</b>				
At rated heat output and high-temperature regime (*)	$\eta_4$	88,3	87,9	%
At 30% of rated heat output and low-temperature regime (**)	$\eta_1$	98,5	97,3	%
<b>Auxiliary electricity consumption</b>				
At full load	elmax	40,0	68,0	W
At part load	elmin	16,4	25,8	W
In Stand-by mode	PSB	6,3	7,7	W
<b>Other parameters</b>				
Stand-by heat loss	Pstby	55,0	42,0	W
Pilot flame energy consumption	Pign	-	-	W
Annual energy consumption	QHE	42	58	GJ
Sound power level, indoors	LWA	58	60	dB
Emissions of nitrogen oxides	NOx	36	23	mg/kWh
<b>For combination heaters</b>				
Declared load profile		-	-	
Water heating energy efficiency	$\eta_{wh}$	-	-	%
Daily electricity consumption	Qelec	-	-	kWh
Daily fuel consumption	Qfuel	-	-	kWh
Annual electricity consumption	AEC	-	-	kWh
Annual fuel consumption	AFC	-	-	GJ

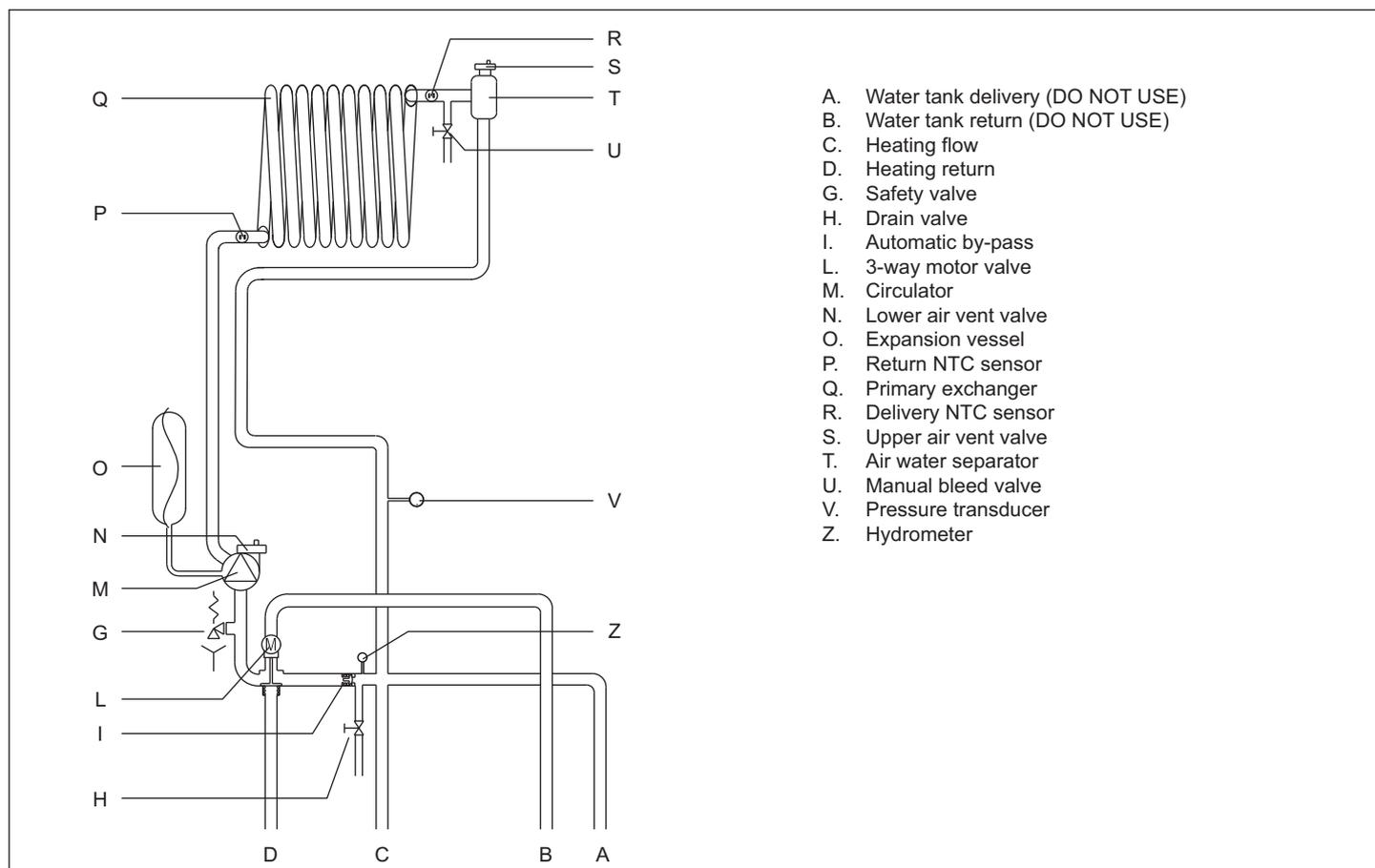
(\*) High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

(\*\*) 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).

NOTE (if the external probe or the control panel or both devices are in the boiler) With reference to Delegated Regulation (EU) No. 811/2013, the data in the table can be used for completing the product card and the labelling for ambient heating appliances, for mixed heating appliances, for assemblies of appliances for ambient heating, and for temperature control devices and solar devices:

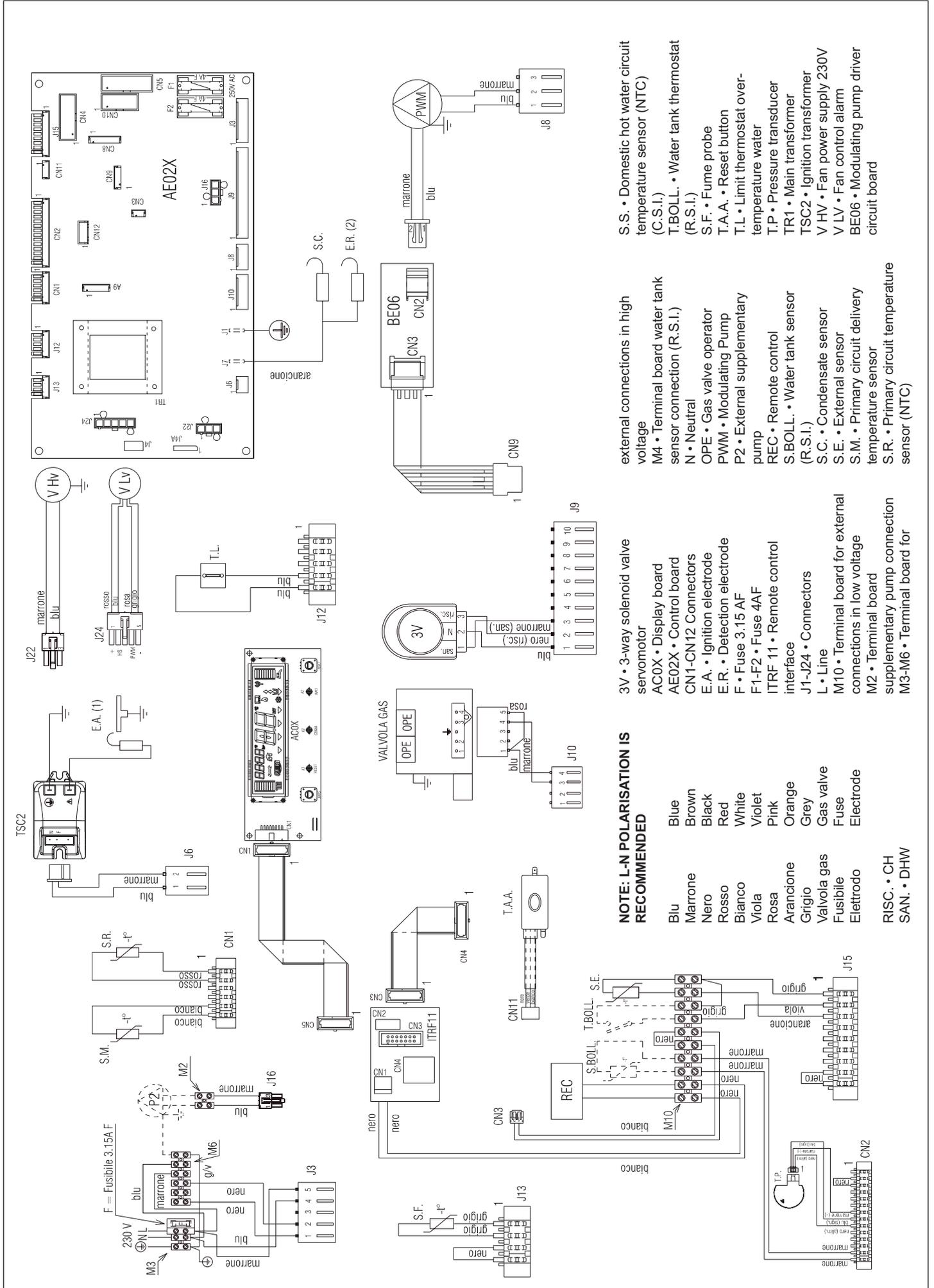
Component	Class	Bonus
External probe	II	2%
Control panel	V	3%
External probe + control panel	VI	4%

## 6 - HYDRAULIC CIRCUIT



- A. Water tank delivery (DO NOT USE)
- B. Water tank return (DO NOT USE)
- C. Heating flow
- D. Heating return
- G. Safety valve
- H. Drain valve
- I. Automatic by-pass
- L. 3-way motor valve
- M. Circulator
- N. Lower air vent valve
- O. Expansion vessel
- P. Return NTC sensor
- Q. Primary exchanger
- R. Delivery NTC sensor
- S. Upper air vent valve
- T. Air water separator
- U. Manual bleed valve
- V. Pressure transducer
- Z. Hydrometer

7 - MULTI-WIRE DIAGRAM



**NOTE: L-N POLARISATION IS RECOMMENDED**

- |             |           |
|-------------|-----------|
| Blu         | Blue      |
| Marrone     | Brown     |
| Nero        | Black     |
| Rosso       | Red       |
| Bianco      | White     |
| Viola       | Violet    |
| Rosa        | Pink      |
| Arancione   | Orange    |
| Grigio      | Grey      |
| Valvola gas | Gas valve |
| Fusibile    | Fuse      |
| Elettrodo   | Electrode |
- RISC. • CH  
SAN. • DHW

- 3V • 3-way solenoid valve servomotor  
AC0X • Display board  
AE02X • Control board  
CN1-CN12 Connectors  
E.A. • Ignition electrode  
E.R. • Detection electrode  
F • Fuse 3.15 AF  
F1-F2 • Fuse 4AF  
ITRF 11 • Remote control interface  
J1-J24 • Connectors  
L • Line  
M10 • Terminal board for external connections in low voltage  
M2 • Terminal board supplementary pump connection  
M3-M6 • Terminal board for sensor (NTC)

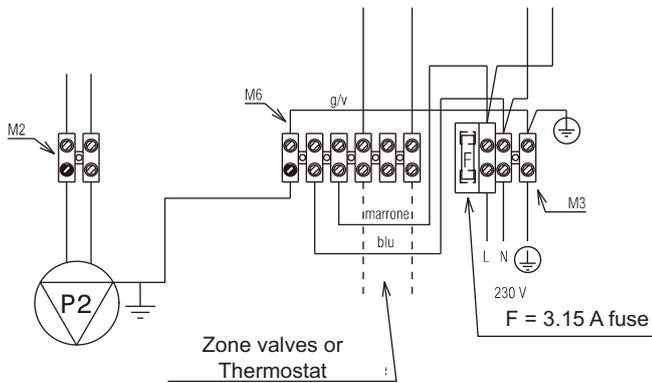
- external connections in high voltage  
M4 • Terminal board water tank sensor connection (R.S.I.)  
N • Neutral  
OPE • Gas valve operator  
PWM • Modulating Pump  
P2 • External supplementary pump  
REC • Remote control  
S.BOLL. • Water tank sensor (R.S.I.)  
S.C. • Condensate sensor  
S.E. • External sensor  
S.M. • Primary circuit delivery temperature sensor  
S.R. • Primary circuit temperature sensor (NTC)

- S.S. • Domestic hot water circuit temperature sensor (NTC) (C.S.I.)  
T.BOLL. • Water tank thermostat (R.S.I.)  
S.F. • Fume probe  
T.A.A. • Reset button  
T.L. • Limit thermostat over-temperature water  
T.P. • Pressure transducer  
TR1 • Main transformer  
TSC2 • Ignition transformer  
V HV • Fan power supply 230V  
V LV • Fan control alarm  
BE06 • Modulating pump driver circuit board

## 8 - ELECTRICAL CONNECTIONS

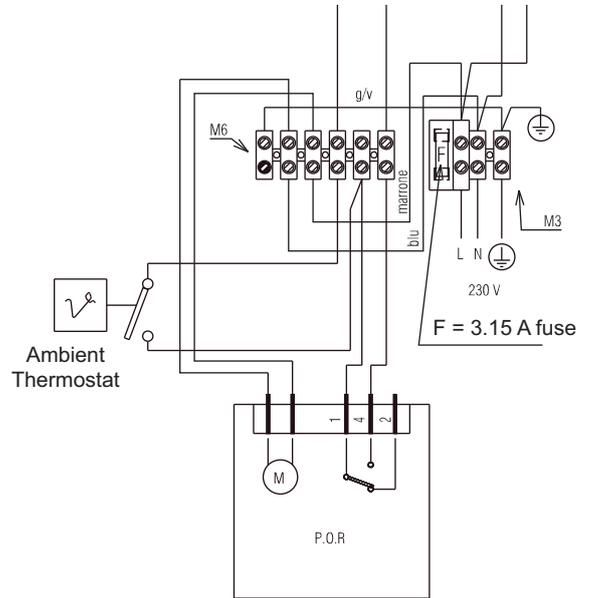
### HIGH VOLTAGE CONNECTIONS

Any external connection of a second circulator will be connected to the terminal black M2 as shown below.  
 The limit of the zone valves must have free contact tension.  
 The contacts of the room thermostat must be designed for V= 230 volts.



### HIGH VOLTAGE CONNECTIONS

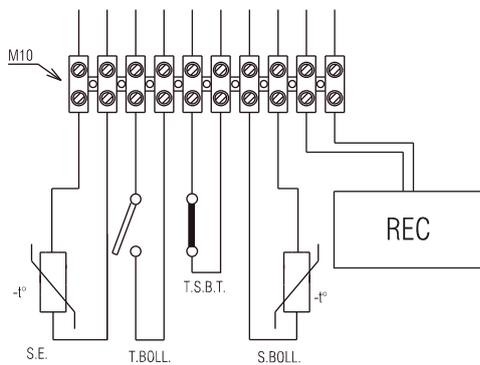
The programmable heating thermostat and ambient thermostat to be connected as shown in the diagram. The contacts of the room thermostat and time programmer must be designed for V= 230 volts.  
 P.O.R. = Programmable Thermostat



### LOW VOLTAGE CONNECTIONS

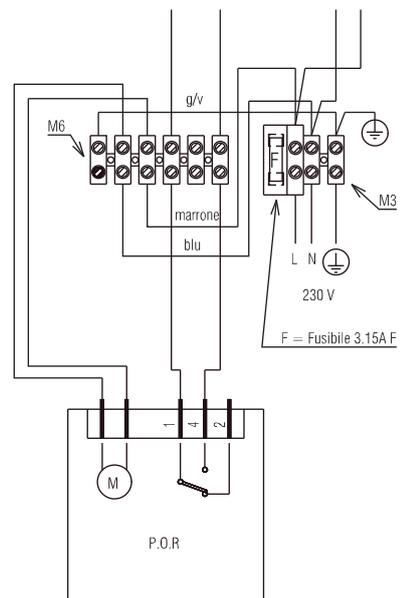
Any low voltage units to be connected as shown in the diagram below on the terminal M10 designed for connection of loads in the low voltage.

- TSBT = safety thermostat low temperature
- SE = outside probe
- REC = remote control panel
- S.BOLL = DHW probe
- T.BOLL = boiler thermostat



### HIGH VOLTAGE CONNECTIONS

The programmable heating thermostat to be connected as shown in the diagram. The contacts of the room thermostat and time programmer must be designed for V= 230 volts.  
 P.O.R. = Programmable Thermostat



## 9 - BOILER INSTALLATION

Boiler must only be installed by qualified personnel.  
Boiler is available in the following models:

Model	Type	Category	Power
R.S.I.	CH only	C	25-35 kW

**Meteo Green HE R.S.I.** is a C-type condensation wall-mounted boiler and is able to operate:

- **CASE A:** only heating. The boiler doesn't supply domestic hot water

**Meteo Green HE** boilers are fitted with:

- circulation at adjustable speed (PWM = Pulse-Width Modulation)
- 1-10 modulation, the boiler is designed to automatically modulate the flow rate supplied between a maximum and a minimum (see technical data)
- Range Rated, indicates that the boiler has a device for adapting to the system's heat requirements, making it possible to adjust the boiler's thermal load to the energy requirements of the building

The following types of fumes outlet are available for this kind of boiler: B23P; B53P; C13, C13x; C23; C33, C33x; C43, C43x; C53, C53x; C63, C63x; C83, C83x, C93, C93x.

In **B23P** configuration (if installed inside), do not install the apparatus in rooms used as bedrooms, bathrooms, showers or where there are open vent stacks without own air exchange. The boiler must be installed in an adequately ventilated room. See the local and national rules abouttailed instructions on installing vent stacks, gas pipes and to ventilate the room.

In **C** configuration the boiler can be installed in any type of room and there are no limits to aeration conditions and size of room.

For proper installation, we remind you that:

- the boiler must not be installed over a kitchen or any other cooking equipment
- minimum spaces are to be left in order to allow maintenance operations: at least 5,0 cm every side and 20 cm under the boiler
- it is forbidden to leave inflammable substances in the room
- suitably insulate heat-sensitive walls (e.g.: in wood).

Support plate and integrated pre-installation template are provided for with the boiler (Fig. 1.1).

Mounting instructions:

- fix the boiler support plate (F) with the template (C) to the wall and use a plumb to check that it is perfectly horizontal
- trace out 4 holes (Ø 6 mm) for fixing the boiler support plate (F) and 2 holes (Ø 4 mm) for fixing the pre-installation template (C)
- make sure all the measurements are correct, then drill holes in the wall using a drill and point with the diameter given previously
- fix the plate to the wall by the supplied anchor screws
- make hydraulic connections.

Fit the lower cover (Fig. 1.2) so that its hooks slip into the relative slots in the lower part of the boiler. Fix the lower cover with the screws A- B (Fig. 1.3) contained in the documentation envelope in the boiler.

### CLEANING THE SYSTEM AND CHARACTERISTICS OF HEATING CIRCUIT WATER

After installing a new system or replacing a boiler, clean the heating system. To ensure the product works correctly, after cleaning, additivating and/or chemically treating the system (e.g.: anti-freeze, film-formers, etc.), make sure the characteristics of the water satisfy the parameters indicated in the table.

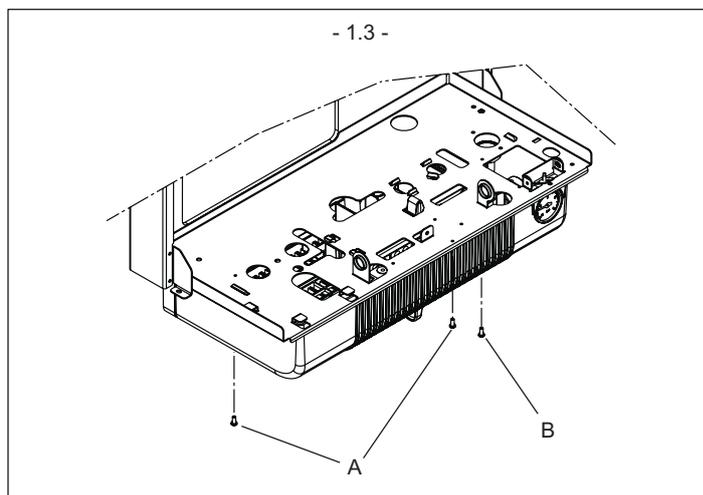
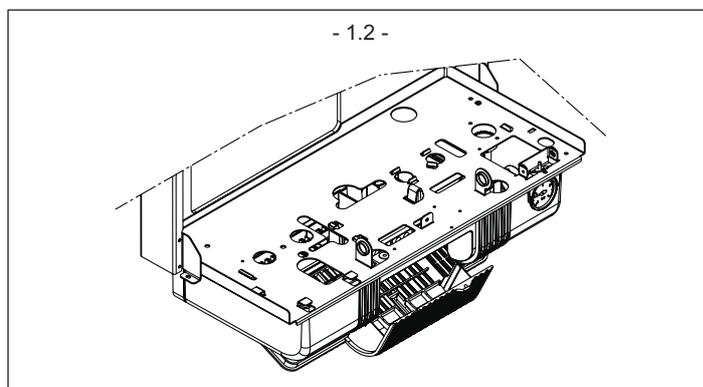
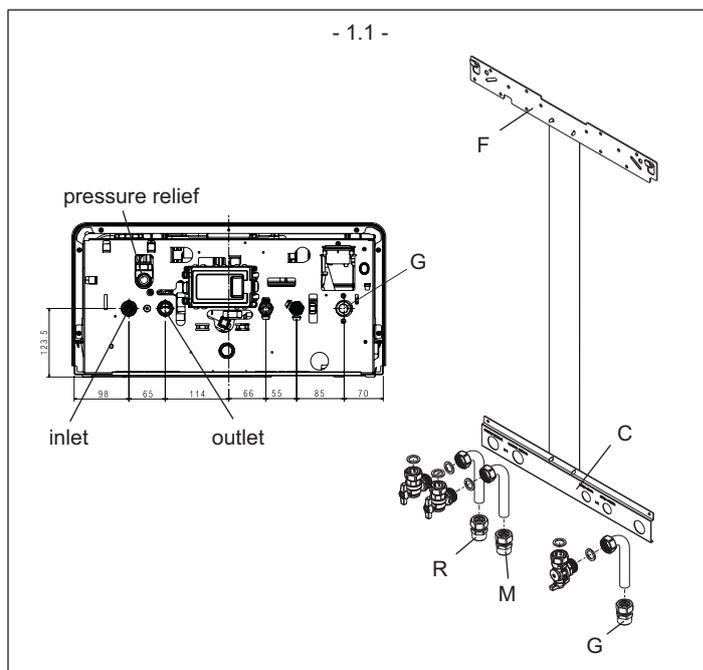
Parameters	Water in heating circuit	Inlet water
PH	7+8	
Hardness	-	15+20 °F
Appearance	-	limpid

If water hardness exceeds 28°F, it is recommended to use water softeners, to prevent any limestone deposit in boiler due to excessively hard water.

### PUMP DUTY

**Meteo Green HE** boilers are fitted with a variable speed circulation unit that is already connected up in terms of plumbing and electrics, and the usable performance it provides is shown in the graph.

The boilers are fitted with an anti-blocking system that starts an operating cycle every 24 hours when not used, irrespective of the position of the function selector.



⚠ The “anti-blocking” function is only active when the electrical power supply to the boiler is on.

⚠ Operating the circulation system without any water is strictly forbidden.

**VARIABLE SPEED CIRCULATION UNIT**

The modulating circulating function is only active for the heating function. When switching the three ways on the plate heat exchanger, the circulation unit is set at maximum speed. The modulating circulation function applies only to the boiler circulation unit and not to circulation units on any external devices connected to it (e.g. booster circulation unit). Any of 4 operating modes can be chosen, depending on situations and the type of plant.

By accessing parameter 90 in the technical menu, one of the following possibilities can be chosen:

- 1 - VARIABLE SPEED CIRCULATION UNIT WITH PROPORTIONAL MODE ( $41 \leq P90 \leq 90$ )
- 2 - VARIABLE SPEED CIRCULATION UNIT WITH CONSTANT  $\Delta T$  MODE ( $2 \leq P90 \leq 40$ )
- 3 - VARIABLE SPEED CIRCULATION UNIT WITH MAXIMUM FIXED MAXIMUM SPEED MODE ( $P90 = 1$ )
- 4 - EXCEPTIONAL USE OF A STANDARD CIRCULATION UNIT WITHOUT SPEED ADJUSTMENT ( $P90 = 0$ )

**1 - VARIABLE SPEED CIRCULATION UNIT WITH PROPORTIONAL MODE ( $41 \leq P90 \leq 90$ )**

In this mode the boiler’s board determines what flow rate curve to adopt according to the instantaneous power supplied by the boiler.

The boiler controller breaks down the power range within which the boiler operates in heating mode into various levels. Depending on the power level in use when heating, one of the speeds available is selected automatically according to a linear logic:

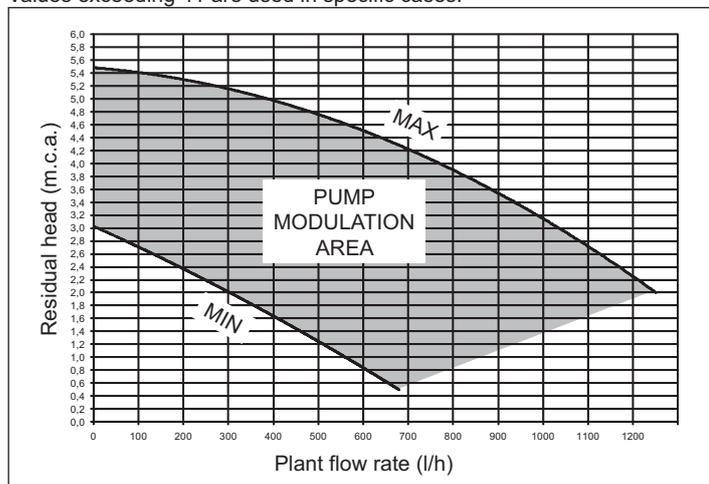
- maximum power = high speed
- minimum power = low speed

This is used on all types of plants where the machine’s power has been correctly balanced with the plant’s real needs.

Operationally:

- Access parameter 90
- Set the parameter = 41

**NOTE** - The parameter 90 = 41 setting is recommended by the manufacturer. Values exceeding 41 are used in specific cases.



**2 - VARIABLE SPEED CIRCULATION UNIT WITH CONSTANT  $\Delta T$  MODE ( $2 \leq P90 \leq 40$ )**

In this mode the installer sets the  $\Delta T$  value to be maintained between the delivery and return (e.g. if a value of 10 is entered, the circulation unit’s speed will change to implement a plant flow rate aimed at maintaining the  $\Delta T$  between upstream and downstream of the heat exchanger at 10°C).

By periodically sampling the values provided by the boiler delivery/return sensors, the board increases or decreases the circulation unit’s speed and therefore the plant’s flow rate. If the sampling shows a  $\Delta T$  value lower than that set, the speed is reduced until the  $\Delta T$  increases to the value set. Vice-versa is sampling is higher than the value set, the speed is increased. This is used for direct high temperature plants (typical of replacement), where the boiler is not thermostatically controlled, and where a calculated  $\Delta T$  can be set.

When working with a constant delivery temperature and attainment of stabilising the ambient conditions, the average temperature of the radiators tends to increase. By keeping  $\Delta T$  constant, the reduction in the flow rate is obtained by changing the operating curve, which produces a lower return temperature that in turn favours high boiler performance and the reduction of electricity consumption.

Operationally:

- Access parameter 90
- Set the parameter at a value between 2 and 40 (normally between 10 and 20).

**3 - VARIABLE SPEED CIRCULATION UNIT WITH MAXIMUM FIXED MAXIMUM SPEED MODE ( $P90 = 1$ )**

In this mode the modulating circulation unit works constantly at maximum speed.

It is used on plants with a high load loss in which the boiler’s head must be used as much as possible in order to guarantee sufficient circulation (plant flow rate at maximum speed lower than 600 litres per hour).

This is used when bottles of mixture are involved, with high flow rates in the circuit downstream.

Operationally:

- Access parameter 90
- Set the parameter = 1

**4 - EXCEPTIONAL USE OF A STANDARD CIRCULATION UNIT WITHOUT SPEED ADJUSTMENT ( $P90 = 0$ )**

This mode must be used in exceptional cases in which the boiler is to be used with a traditional circulation unit without a speed adjustment. It presupposes that the adjustable speed circulation unit has been removed and replaced with a non-adjustable speed circulation unit.

**WARNING!!!** The BE06 board connected to connector CN9 must be removed and replaced with a connector with a jumper to be inserted into connector CN9. This latter connection is obligatory and if not formed may cause the system to malfunction.

Operationally:

- Access parameter 90
- Set the parameter = 0

**CONFIGURATIONS RECOMMENDED BY THE MANUFACTURER**

	EXTERNAL SENSOR YES (heat regulation)	EXTERNAL SENSOR NO (no heat regulation)
HIGH TEMPERATURE (radiators without thermostatic valves)	PROPORTIONAL (P90 = 41)	$\Delta T$ constant ( $2 \leq P90 \leq 40$ )
LOW TEMPERATURE (floor)	PROPORTIONAL (P90 = 41)	PROPORTIONAL (P90 = 41)
HIGH TEMPERATURE (radiators with thermostatic valves)	PROPORTIONAL (P90 = 41)	PROPORTIONAL (P90 = 41)

**10 - HYDRAULIC CONNECTIONS**

Position and dimensions of hydraulic connections are specified in figure 1.1:

- R** CH return 3/4"
- M** CH flow 3/4"
- G** Gas connection 3/4"
- F** Support plate
- C** Pre-installation template

## 11 - INSTALLING THE EXTERNAL PROBE

The sensor (Fig. 1.4) must be installed on an external wall of the building you want to heat, while taking care to comply with the instructions below:

- It must be fitted on the facade most often exposed to wind, on a wall facing SOUTH or SOUTH-EAST, and taking care to avoid direct sunlight.
- It must be fitted about 2/3 up the height of the façade.
- It must not be near any doors, windows, outlets for air ducts, or near chimneys or other heat sources.

The electrical connection to the external sensor must be formed using a two-pole cable (not supplied), with a cross-section of 0,5 to 1 mm<sup>2</sup> and a maximum length of 30 metres. It is not necessary to worry about the polarity of the cable for the connection to the external sensor. Do not form joints in this cable. If a joint has to be made it must be watertight and adequately protected.

Any conduiting used for the connection cable must be separate from the conduits used for the power cables (230 Vac).

### WALL MOUNTING OF THE EXTERNAL SENSOR

- Install the probe in an area of smooth wall; for brick walls or other irregular surfaces, prepare a smooth contact area if at all possible.
- Remove the upper plastic cover by turning it anti-clockwise.
- Identify the wall fixing point and drill a hole for the 5x25 expansion grip.
- Insert the expansion grip into the hole.
- Remove the card from its housing.
- Fix the housing to the wall using the supplied screw.
- Attach the bracket and tighten the screw.
- Loosen the cable grommet screw, push in the probe connection cable and connect it to the electrical terminal.

⚠ Remember to firmly secure the cable grommet to prevent humidity from entering.

- Put the card back into its housing.
- Close the upper plastic cover by turning it clockwise. Firmly secure the cable grommet.

## 12 - CONDENSATE COLLECTION

The outlet collector A (Fig. 1.5) collects: the condensate water, any evacuation water from the safety valve and the system outlet water.

⚠ The collector must be connected, by means of a rubber pipe (not supplied), to a suitable collection and evacuation system in the storm water outlet and in compliance with current regulations.

⚠ The external diameter of the collector is 20 mm: we therefore suggest using an Ø 18-19 mm pipe, to be closed with a suitable clamp (not supplied).

⚠ The manufacturer is not responsible for any damage caused by the lack of a collection system.

⚠ The outlet connection line must have a guaranteed seal.

⚠ The manufacturer of the boiler is not responsible for any flooding caused by interventions of the safety valve.

## 13 - GAS CONNECTION

Before connecting appliance to gas pipe network, check the following:

- regulations in force are met
- gas type used is the same as set for appliance operation
- pipes are clean.

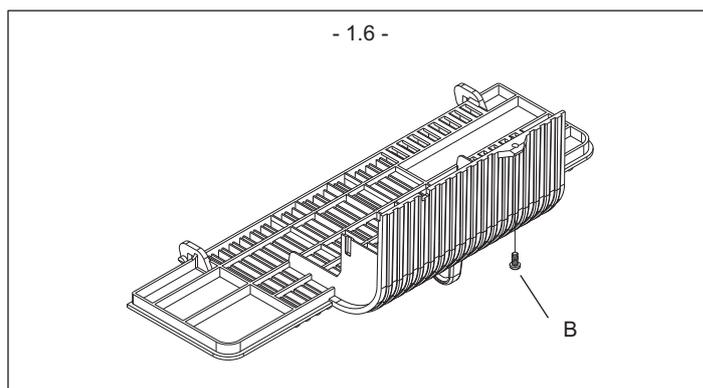
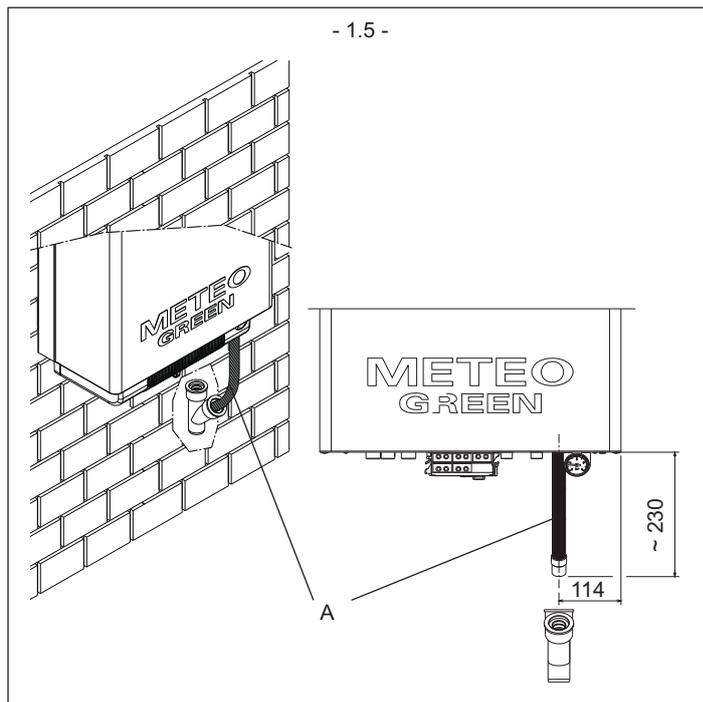
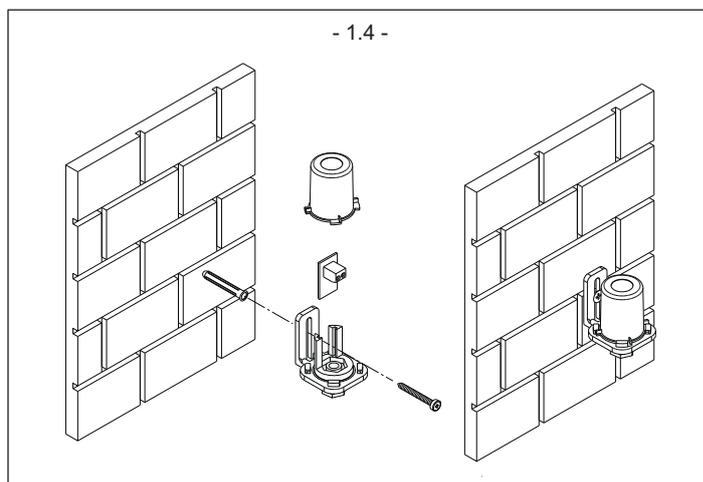
Gas must be piped externally. If the pipe goes through a wall it must go through the central opening in the lower part of the template. It is recommended to install an appropriately sized filter on the gas line in case gas from the mains contains some small solid particles. After installation make sure that all the joints have been made airtight conforming to standard installation practices

## 14 - ELECTRIC CONNECTION

To access the electrical connections, proceed as follows:

- unscrew the lower cover fixing screw B, (Fig. 1.6)
- loosen the fixing screws (A - B) (Fig. 1.3) and remove the shell
- open the terminal board (Fig. 1.7 : high voltage connections 230 V, low voltage connections).

Connect the appliance to the mains power supply with a switch featuring a distance of at least 3,5 mm (EN 60335-1, category III) between each wire. The appliance uses alternating current at 230 Volt/50 Hz, has a power input of 88 W (25kW R.S.I.) and 116 W (35kW R.S.I.) and complies with EN 60335-1 standard. Connect the boiler to a safe earth circuit according to current legislation. Live and neutral (L-N) connections should also be respected.

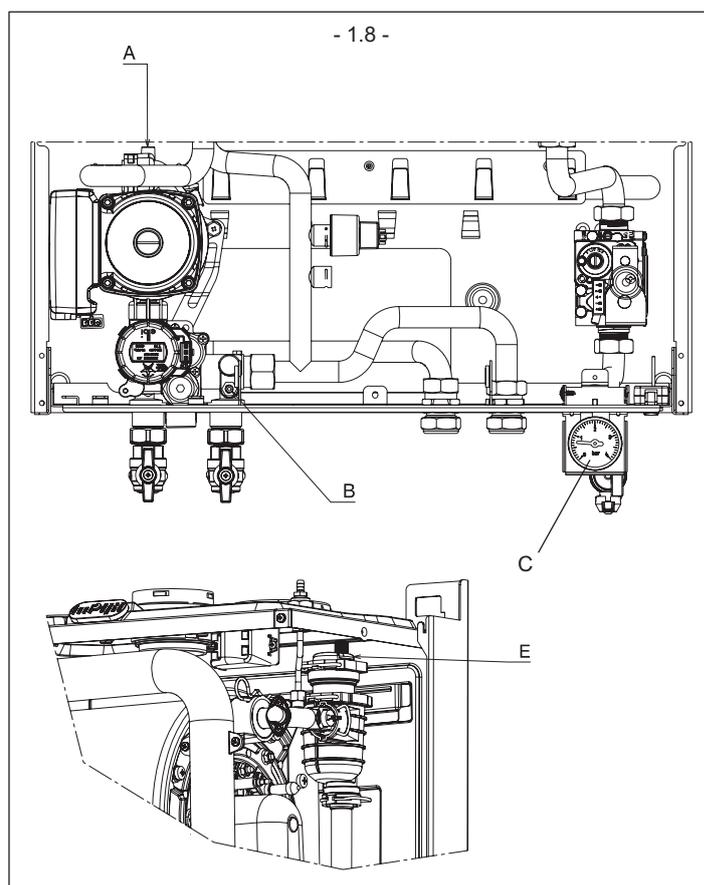
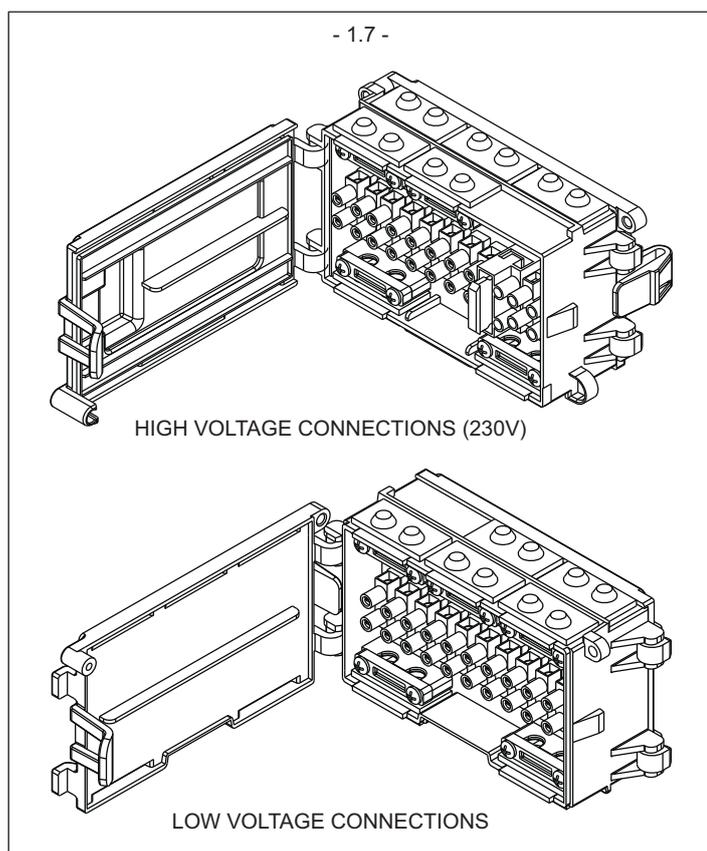


The boiler can operate with phase-neutral or phase-phase power supply. For floating power supply, without an earth-bonded conductor, it is necessary to use an insulation transformer with secondary anchored to ground.

- ⚠ The earth conductor must be a couple of cm longer than the others.
- ⚠ Gas and/or water pipes may not be used to earth electrical equipment.
- ⚠ The installer is responsible for making sure that the appliance has an adequate earthing system; the manufacturer shall not be held liable for eventual damages caused by incorrect usage or failing to earth the boiler.

Use the **supplied power cable** to connect the boiler to the mains power supply. Connect the ambient thermostat and/or time clock as shown in the electrical diagrams.

**When replacing the power cable, use a HAR H05V2V2-F cable, 3 x 0,75 mm<sup>2</sup>, Ø max. external 7 mm.**



## 15 - FILLING AND EMPTYING THE SYSTEM

The central heating system can be filled up once the water mains have been connected up. This must be done while the installation is cold by:

- turn the caps of the lower (A) and upper (E) automatic bleed valves two or three times; leave A and E valve caps open for continual air venting (Fig. 1.8);
- making sure the cold water inlet tap is open
- opening the external filling tap until the pressure on the hydrometer (C) is between 1 and 1,5 bar (blue zone) (Fig. 1.8).

Close the filling tap after filling it up.

The boiler is equipped with an efficient air separator so that there is no need to do anything manually.

The burner only ignites when air venting has finished.

**NOTE:** air extraction from the boiler takes place automatically, through two automatic bleeding valves, A and E.

The first is situated on the pump, while the second is inside the air chamber.

**NOTE:** manual filling tap is not supplied with the boiler, foresee one external or verify if external water tank has one.

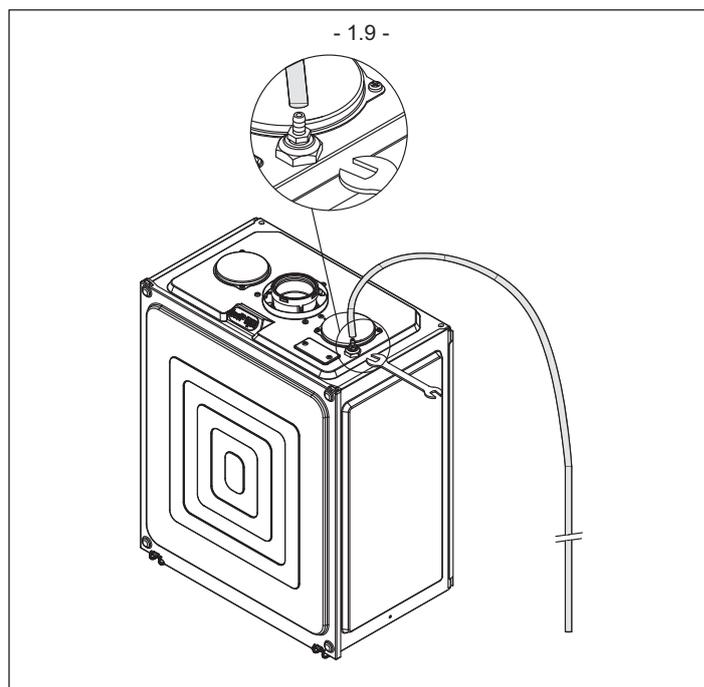
Before starting to empty it, remove the electrical feeder by positioning the general switch for the system on "off".

- Close the interception devices for the thermal system
- Loosen the system outlet valve (B) manually
- The water from the system is discharged through the outlet collector (A - Fig. 1.5).

### SUGGESTIONS TO CORRECTLY ELIMINATE AIR FROM THE HEATING SYSTEM AND BOILER (Fig. 1.9)

We recommend carrying out the sequence of operations given below during first installation or with extraordinary maintenance work:

1. Using a CH11 spanner open the manual air vent valve located above the air box; the tube supplied with the boiler must be connected to the valve to let out the water into an outside container.
2. Open the manual system filling stopcock on the water group, wait until the water starts coming out of the valve;
3. Switch on the boiler leaving the gas cock closed;
4. Use the room thermostat or the remote control panel to activate request for heat so that the three-way will turn to heating;
5. Activate request for hot water as follows:  
**instant boilers:** turn on a tap for 30" every minute so that the three-way cycles from heating to domestic hot water and vice versa about ten times (here the boiler will go into alarm as it lacks gas and has to be reset every time this happens).  
**Heating only boilers connected to an external water tank:** use the water tank thermostat;



6. Continue the sequence until water only comes out of the manual air vent valve and the flow of air has finished; close the manual air vent valve at this point;
7. Make sure the system is at the correct pressure (1 bar is ideal);
8. Close the manual system filling stopcock on the water group;
9. Open the gas cock and ignite the boiler.

## 16 - FUMES EXHAUSTION AND BURNING AIR SUCTION

### EXHAUSTION CONFIGURATIONS (Fig. 1.10-1.11)

Boiler is homologated for the following exhaustion configurations:

**B23P-B53P** - Suction in room and discharge outside

**C13** - Concentric wall exhaustion. Pipes can separately start from boiler, but outlets must be concentric or close enough to be subject to similar wind conditions (within 50 cm)

**C23** - Concentric exhaustion in common chimney (suction and exhaustion in the same chimney)

**C33** - Concentric roof exhaustion. Outlets like C13

**C43** - Exhaustion and suction in common separate chimneys, but subject to similar wind conditions

**C53** - Wall or roof separate exhaustion and suction in different pressure areas. Exhaustion and suction must never be located on opposite walls

**C63** - Exhaustion and suction with separately certified and sold pipes (1856/1)

**C83** - Single or common chimney exhaustion and wall suction

**C93** - Exhaust on roof (similar to C33) and air

Refer to regulations in force for exhaustion of combustion products.

Boiler is provided for without fume exhaustion/air suction kit, since forced draught sealed chamber accessories can be used, as they better adapt to installation characteristics. For fume extraction and burning air restoration in boiler, use original pipes or other EC-certified pipes with equivalent characteristics; check connection is correct as shown on instructions fume accessories provided for with. More appliances can be connected to a single chimney, provided that all appliances are condensing type.

### “FORCED OPEN” INSTALLATION (TYPE B23P-B53P, intake inside and outlet outside) Fumes outlet duct Ø 80 mm

The fumes outlet duct can be aimed in the most suitable direction for installation needs. To install follow the instructions supplied with the kit.

⚠ In this configuration, the boiler is connected to the Ø 80 mm fumes outlet duct by means of a Ø 60-80 mm adaptor.

⚠ In this case, the combustion supporting air is taken from the room in which the boiler is installed, which must be a suitable and ventilated technical room.

⚠ Non-insulated fumes outlet ducts are potential sources of danger.

⚠ Provision must be made for a 1% slope of the fumes outlet duct towards the boiler.

	Max length fumes outlet duct Ø 80 mm	Pressure drop for each bend (45°/90°) [m]
25 R.S.I.	50 m	1 / 1,5
35 R.S.I.	60 m	

### INSTALLATION “SEALED” (TYPE C)

Boiler is a C-type appliance (sealed chamber) and must be safely connected to fume exhaustion duct and burning air suction duct, both getting outside; appliance cannot operate without these ducts.

#### Concentric outlets (Ø 60-100 mm) (Fig. 1.12)

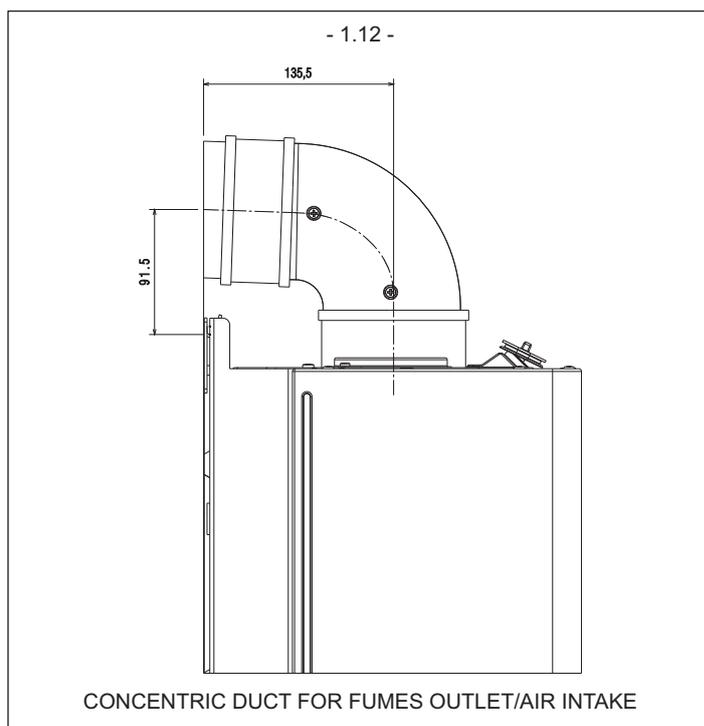
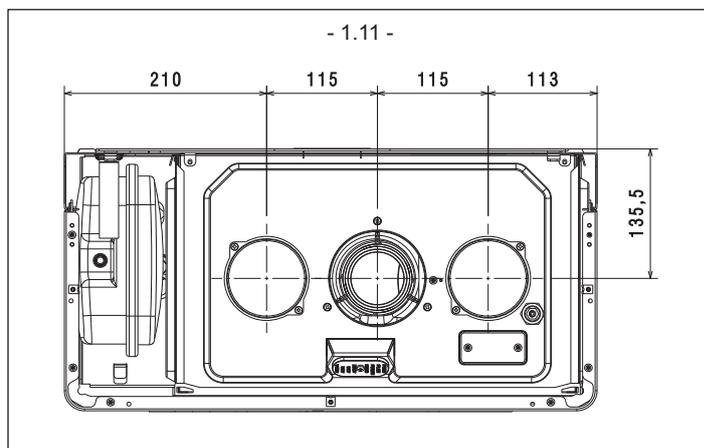
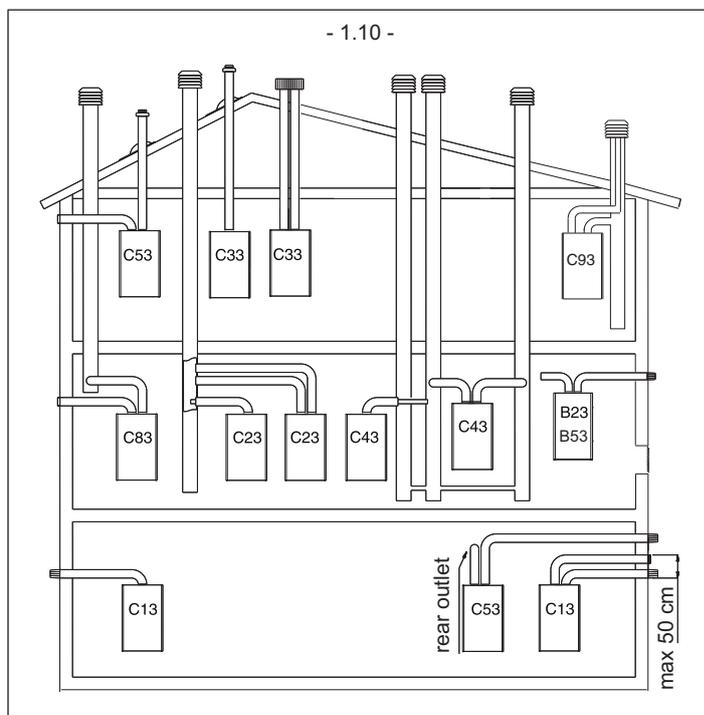
Concentric ducts may be placed in the most suitable direction for installation requirements but special care must be taken as regards the external temperature and the length of the duct.

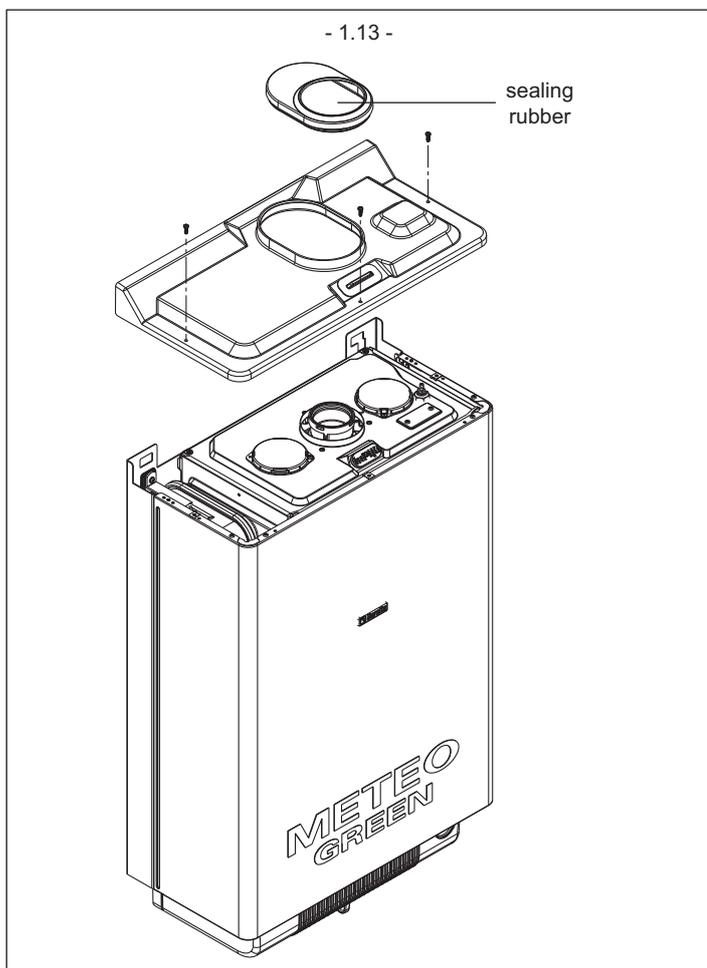
#### Horizontal

	Max linear length concentric duct Ø 60-100 mm	Pressure drop for each bend (45°/90°) [m]
25 R.S.I.	7.85 m	1.3 / 1.6
35 R.S.I.	7.85 m	

#### Vertical

	Max linear length concentric duct Ø 60-100 mm	Pressure drop for each bend (45°/90°) [m]
25 R.S.I.	8.85 m	1.3 / 1.6
35 R.S.I.	8.85 m	





- ⚠ Rectilinear length means without bends, outlet ends and connections.
  - ⚠ The fumes outlet duct must slope by 1% towards the condensate collector.
  - ⚠ Uninsulated fumes outlets are potential hazards.
  - ⚠ The boiler automatically adapts ventilation according to the type of installation and the length of the duct.
  - ⚠ Do not obstruct or narrow the comburent air inlet duct in any way.
- To install follow the instructions supplied with the kit.

**Concentric outlets (Ø 80-125)**

For this installation it is necessary to install the suitable adaptor kit. Ducts may be placed in the most suitable direction for installation requirements. For the installation process, follow the instructions supplied with the kit for the specific accessory for condensation boilers.

	Max linear length concentric duct Ø 80-125 mm	Pressure drop for each bend (45°/90°) [m]
25 R.S.I.	14,85 m	1 / 1.5
35 R.S.I.	14,85 m	

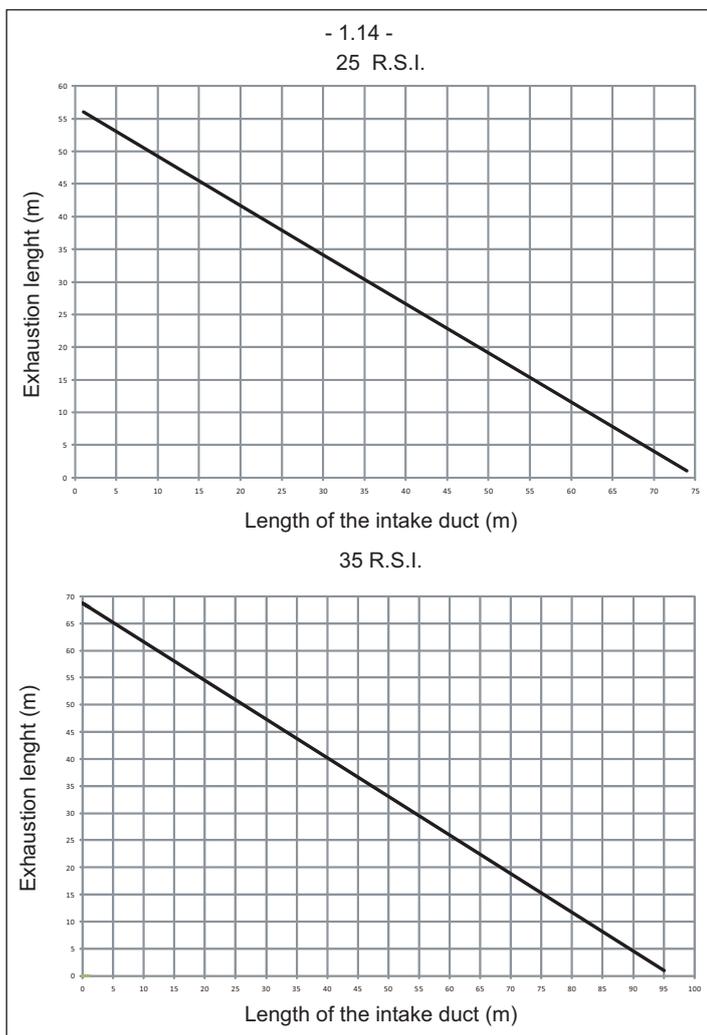
**Twin outlets (Ø 80)**

The split duct can be aimed in the most suitable direction for installation needs. Upper cover not used (Fig. 1.13). The combustion-supporting air intake duct must be connected to the entrance after having removed the closing cap, attached with three screws, and having attached a suitable adaptor. The fumes outlet duct must be connected to the fumes outlet after having installed a suitable adaptor. For the installation process, follow the instructions supplied with the kit for the specific accessory for condensation boilers.

- ⚠ The fumes outlet duct must slope by 1% towards the condensate collector.
- ⚠ The boiler automatically adapts ventilation according to the type of installation and the length of the duct. Do not obstruct or narrow the comburent air inlet duct in any way.
- ⚠ For an indication of the maximum lengths of every single pipe, refer to the graphs (Fig. 1.14).
- ⚠ Using longer ducts causes a loss in the power of the boiler.

	Max length twin duct Ø 80 mm	Pressure drop for each bend (45°/90°) [m]
25 R.S.I.	32 + 32 m	1 / 1.5
35 R.S.I.	40 + 40 m	

- ⚠ Rectilinear length means without bends, outlet ends and connections.



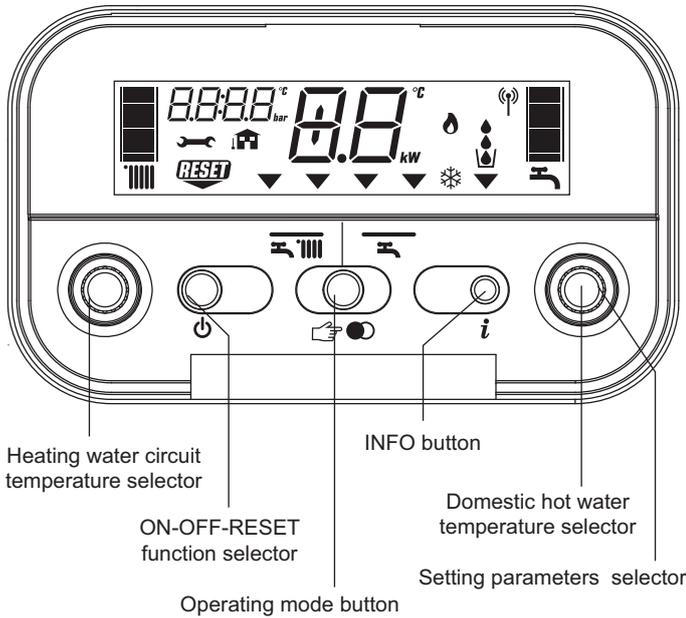
## 17 - START-UP AND OPERATION

**NB: all the adjustments (boiler calibration, thermoregulation setting, parameter setting) must be made directly on the boiler control panel only.**

⚠ Ignition, switch-off, function selection and heat requests must ALWAYS be carried out on the remote control panel only.

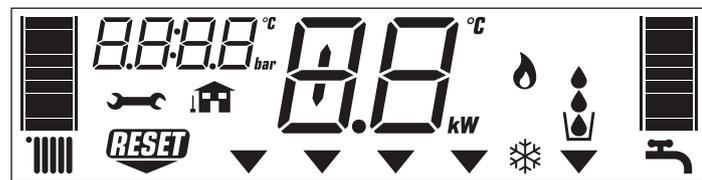
This boiler is able to operate only in heating condition.

### DESCRIPTION OF COMMANDS



- **Heating water temperature selector:** sets the heating water temperature.
- **Domestic hot water temperature selector:** sets the domestic hot water temperature stored in the water tank.
- **Setting parameters selector (cases A):** using in calibration and programming phase.
- **Function key:**  
**ON** - the boiler is electrically powered and waiting for operating requests (☰ - ☷)  
**OFF** - the boiler is electrically powered but will not respond to operating requests  
**RESET** - resets the boiler following a fault
- **Operating mode button:** ☞ ⏻ button allows to choose the desired operating mode: pressing it, the indicator "function selector" ▼ moves to: ☷ (winter) or ☰ (summer, only if water-tank connected - DO NOT USE).
- **Info button:** shows a sequence of information concerning the operating status of the machine.

### DESCRIPTION OF DISPLAY SYMBOLS



☰ graduated heating water temperature scale with heating function symbol

☷ graduated domestic hot water temperature scale (DO NOT USE)

☷ domestic hot water function symbol (DO NOT USE)

⚠ fault symbol

RESET reset symbol

12 pressure value

⚠ external sensor connection

48° heating/domestic hot water temperature

or

⚠ fault symbol (e.g. 10 - no flame)

▼ function selector (turned to the chosen operating mode: ☷ winter or ☰ summer (DO NOT USE))

☷ burner operating symbol

❄ anti-freeze function active symbol

### 17.1 - SWITCHING ON

Switch on the boiler as follows:

- access the gas tap through the slots in the cover located in the lower part of the boiler.
  - open the gas tap by turning it anti-clockwise (Fig. A)
  - power the boiler.
- When powered, the boiler performs a test sequence and a series of numbers and letters are shown on the display (Fig. B).  
 If the test is successful the boiler is ready to work about 4 seconds after the cycle ends.  
 After being powered, the boiler begins an automatic vent cycle lasting approximately 2 minutes. The display indicates "sf" and the "function selection indicators" ▼ light up in sequence.
- Press ☞ ⏻ button to interrupt the automatic vent cycle. The display will look like Fig. C.
  - With the door of the remote control panel closed, press the key ⏻ to view the required type of operation - summer ☰ or winter ☷ (fig. 1A).  
 If the test is unsuccessful, the boiler will not work and a "0" will flash on the display.  
 In this case, contact the Technical Assistance Centre.

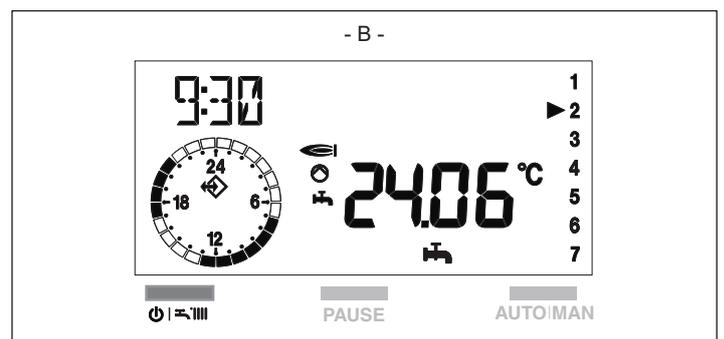
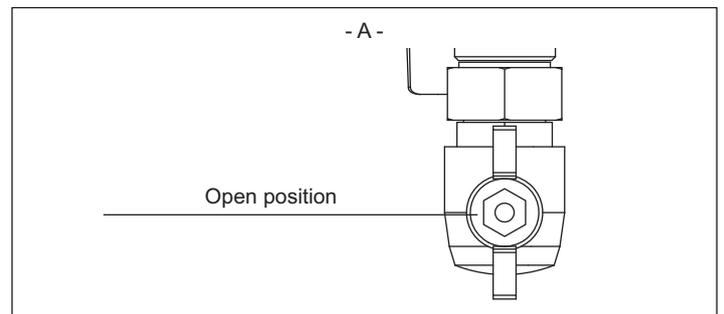
⚠ The boiler turns on in the status it was in before it was switched off: if the boiler was in the winter mode when it was switched off, it will turn on again in the winter mode. If it was in the OFF mode, the display will show two segments in the central area (Fig. D). Press the ⏻ button to enable operation.

Choose the desired operating mode by pressing ☞ ⏻ button, until the ▼ symbol moves to:

- WINTER ☷
- SUMMER ☰ (DO NOT USE)

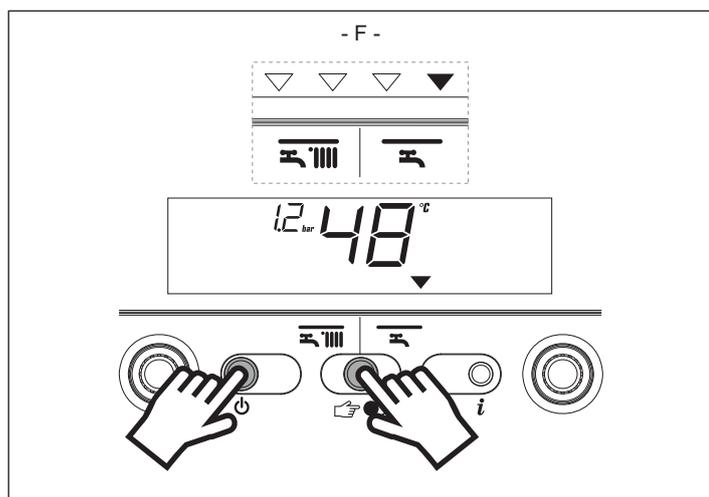
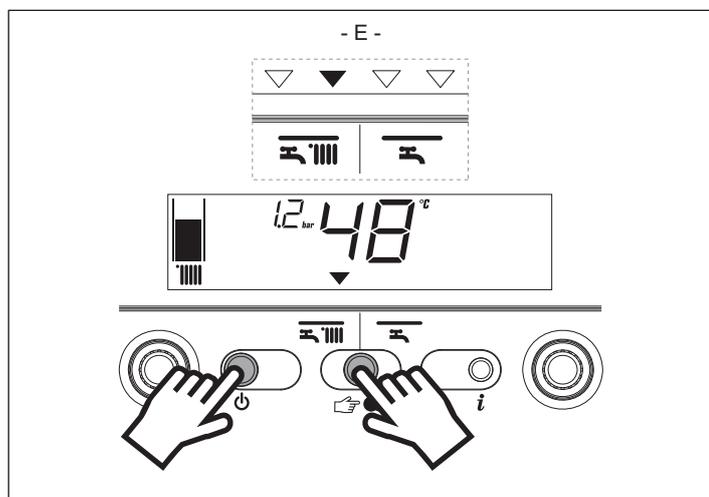
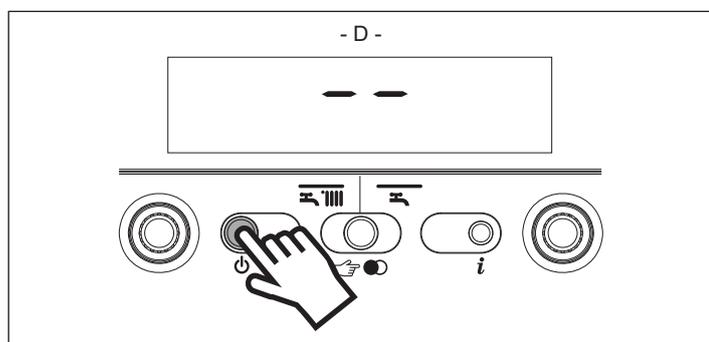
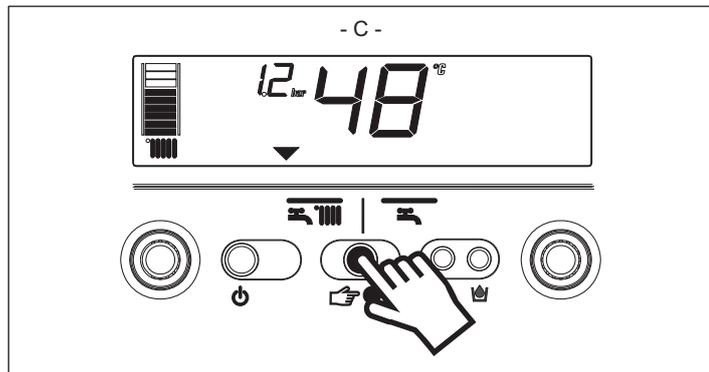
### WINTER function (Fig. E)

With the selector in this position, the boiler provides hot water for the heating and, if an external water tank is connected, provides water to the water tank to allow domestic hot water preparation. Function S.A.R.A is enabled in this position.



**SUMMER function (only with external water tank connected, DO NOT USE Fig. F)**

With the selector in this position, the boiler provides water to the water tank with a temperature stabiliser to allow domestic hot water preparation.



**ADJUSTING HEATING WATER TEMPERATURE**

Turning the selector **A** (Fig. G), after having positioned the selector mode on winter , it is possible to regulate the heating water temperature. Turn clockwise to increase the temperature and anticlockwise to decrease. The bar segments light up (every 5°C) as the temperature is increased. The selected temperature value appears on the display.

 The boiler switches on the mode indicated by the remote control panel.

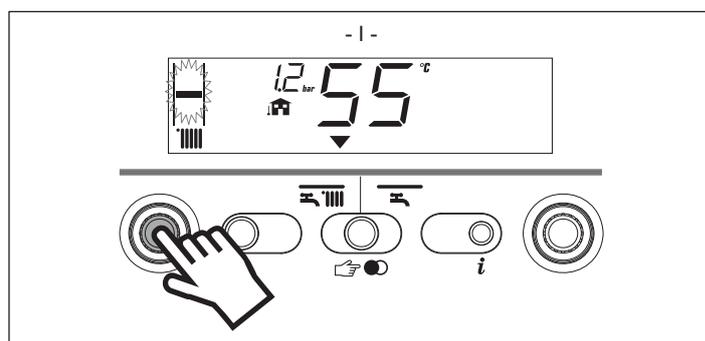
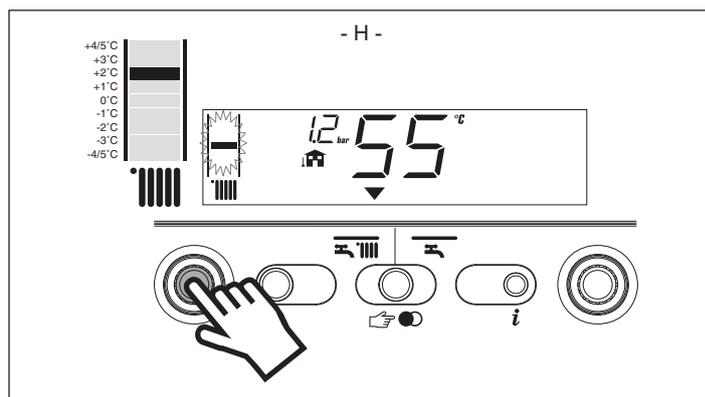
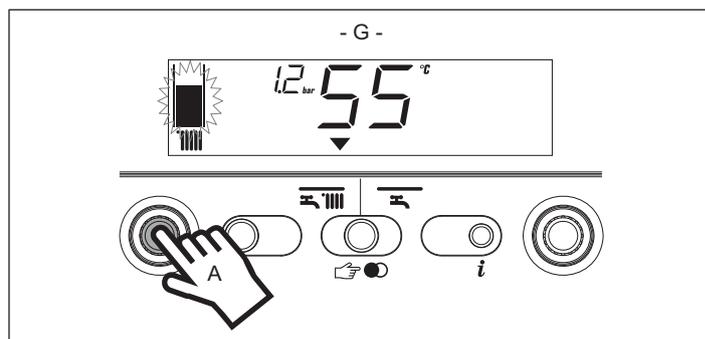
**ADJUSTING HEATING WATER TEMPERATURE WITH AN EXTERNAL SENSOR CONNECTED**

When an external probe is connected, the value of the delivery temperature is automatically chosen by the system which rapidly adjusts ambient temperature to the changes in external temperature. Just the central segment of the bar is illuminated (Fig. H).

To increase or decrease the temperature with respect to the value automatically calculated by the electronic board, turn the heating water selector clockwise to increase and anticlockwise to decrease. The bar segments light up (at every comfort level), correction tolerance lies between - 5 and + 5 comfort levels (Fig. H). When choosing the level of comfort, the digit area of the display shows the required level of comfort while the bar shows the matching segment (Fig. I).

**ADJUSTING DOMESTIC HOT WATER TEMPERATURE**

CASE A - only heating - adjusting not applicable



## WORKING THE BOILER

Adjust the ambient thermostat to the required temperature (approx. 20°C). If there is a demand for heating water, the boiler starts and the  symbol is shown on the display (Fig. K). The boiler will remain working until the set temperatures are reached, after which it will go on stand-by. In the event of ignition or operating faults, the boiler will perform a "safety stop". The flame symbol  will go out and the fault code and  will be displayed (Fig. L). For a description of faults and how to reset them, consult chapter "Troubleshooting".

### 17.2 - SWITCHING OFF

#### Switching off for short periods

For brief absences press the  button to switch off the boiler. The display will show two segments in the central area (Fig. M). When the boiler remains powered with the gas tap open, it is protected by the following systems:

- anti-freeze: when the temperature of the water in the boiler falls below safety values, the circulator and the burner work at minimum power to increase the water temperature to a safe value (35°C). The  symbol lights up on the display.
- circulator anti-block: one operating cycle is performed every 24 hours.

#### Switching off for long periods

For prolonged absences press the  button to switch off the boiler (Fig. D). The display will show two segments in the central area. Turn the main switch to "off".

Turn off the gas tap under the boiler by turning it clockwise (Fig. N).

 In this case, the anti-freeze and anti-block systems are disabled. Empty the water circuit or suitably protect it with a good make of anti-freeze.

### 17.3 - BOILER FUNCTIONS

#### Filling the circuit

If circuit pressure reaches 0.6 bar, the pressure value flashes on the display (Fig. O); if it falls below a minimum safety value (0.3 bar), fault code 41 appears on the display (Fig. P) for a certain time, following which, if the fault persists, fault code 40 is displayed (see chapter on "Troubleshooting"). In the event of fault 40 (Fig. Q) proceed as follow to restore the correct pressure value:

- press  button
- open the filling tap external to the boiler, until the pressure shown in the display is between 1 and 1,5 bar.

If you have to fill the system several times, contact the Technical Service Centre to check whether the heating circuit is watertight (see if there are any leaks).

#### Information

Press , the display turns off and just the word InFO appears (Fig. R). Press the button  to view operating information. Press the button again to move on to the next piece of information. If the  button is not pressed, the system automatically exits the function.

#### Info list:

**Info 0** - shows the word InFO (Fig. R)

**Info 1** - only with the external probe connected, displays external temperature (e.g. 12°C) (Fig. S). The values shown on the display range between - 30°C and 35°C. Beyond these values the display shows "-."

**Info 2** - shows circuit pressure (Fig. T)

**Info 3** - shows the set heating temperature (Fig. U)

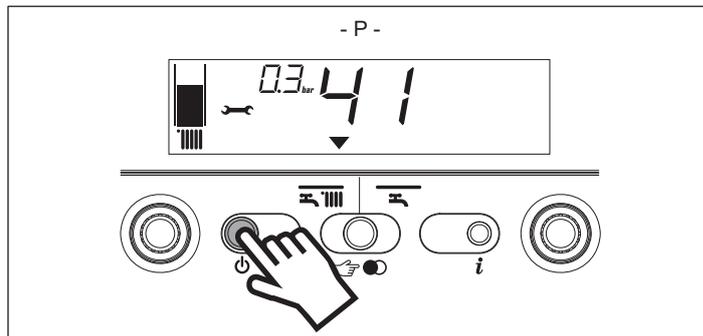
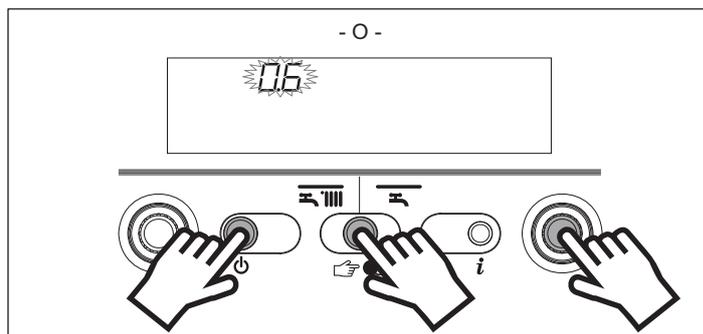
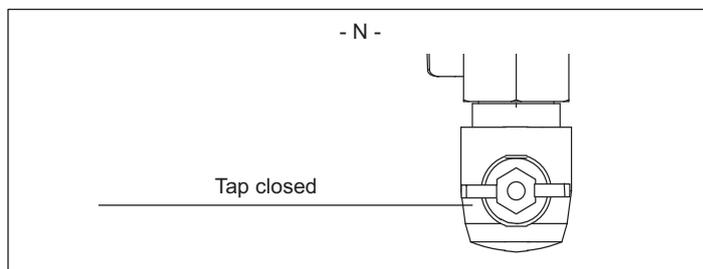
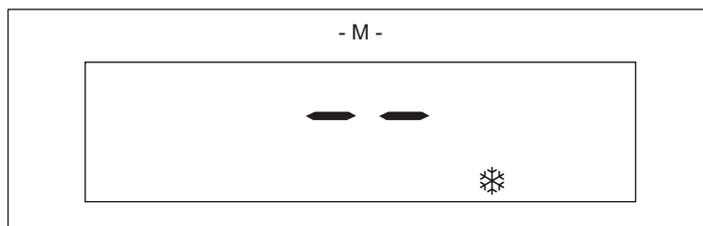
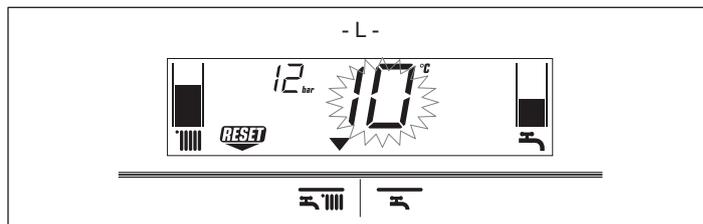
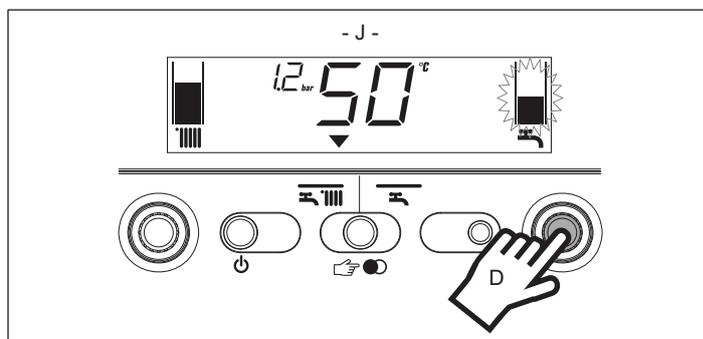
**Info 4** - shows the setted temperature (only water tank with sensor, Fig. V)

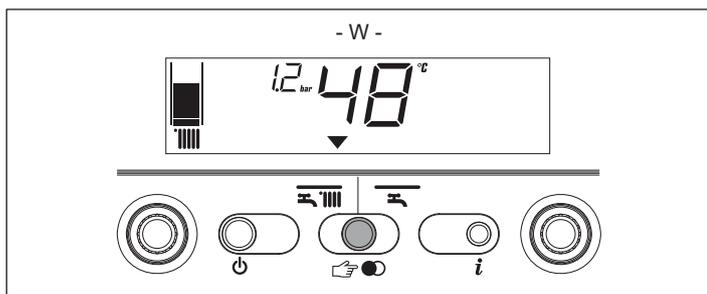
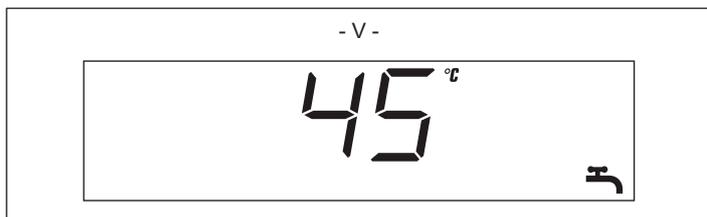
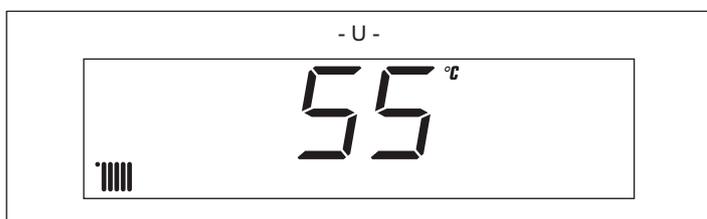
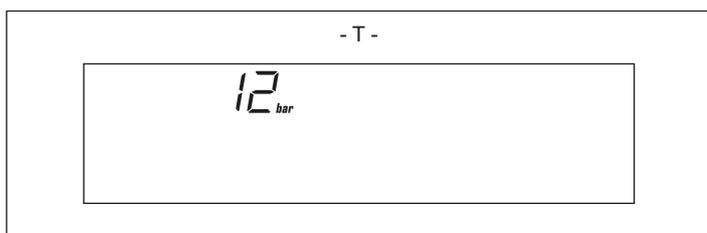
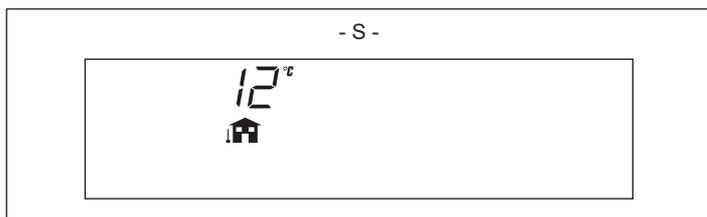
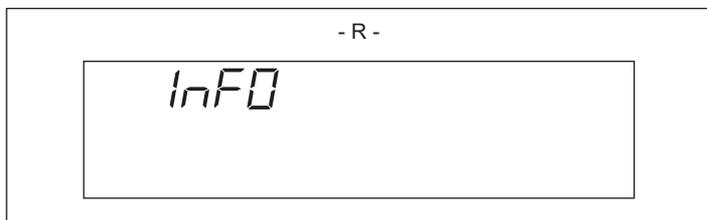
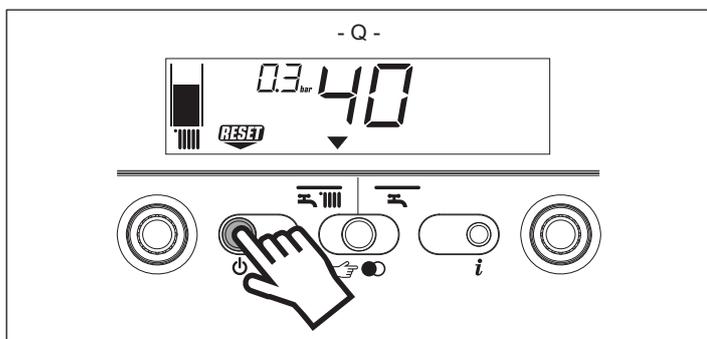
**Info 5** - displays the set heating temperature, in reference to the second circuit, only if it is connected.

#### S.A.R.A. function (Fig. W)

If the "winter" mode is selected, the S.A.R.A. function is activated for the heating circuit. This function allows to reach the required ambient temperature more quickly.

Depending on the temperature set on the ambient thermostat and the time taken to reach it, the boiler automatically adjusts the heating water temperature to reduce operating times, thereby increasing operating comfort and energy saving.





**17.4 - INF2**

It is possible to display information, which may be useful for the Technical Assistance Centre, by pressing the button **i** for 10 seconds: the code "INF2" appears on the display.

**INF2 list**

Step	Description	Display 2 digits	Display 4 digits	
1	Input probe temperature	xx	01	°C
2	Return probe temperature	xx	02	°C
3	Sanitary probe temperature: (DO NOT USE)			
	Water tank with thermostat (DO NOT USE)	--	03	°C
	Water tank with probe (DO NOT USE)	xx	03	°C
4	Not used in this model	xx	Cond	°C
5	Fumes probe temperature	xx(**)	05	
6	Second heating system probe temperature	xx	06	°C
7	Not used in this model	xx	07	
8	Fan speed /100	xx	FAN	
9	Not used in this model	xx	09	
10	Not used in this model	xx	10	
11	Exchanger cleaning counter status	bH	xxxx	
12-19	Historic alarm codes	xx	HIS0-HIS7	

(\*\*): if the display also shows the dot (.), the temperature of the fumes probe is 100+displayed value.

## 18 - TROUBLESHOOTING

### DIAGNOSTIC CODES

In this generation of PCB it's possible to have more detailed fault signals compared to the past. This is made to give to the service the chance to know with an higher level of precision where the problem is, and avoid in this way loss of time and/or the unnecessary substitution of functioning components.

FAMILY	CODE
GAS	1X
SAFETY	2X
AIR	3X
WATER	4X
PCBs	5X
DHW CIRCUIT	6X
CH CIRCUIT	7X
GENERAL/SYSTEM	8X
CONDENSE	9X

### FAULT CODES

Fault codes take priority over all display functions in the event of a system fault occurring.

There are TWO different kind of faults (temporary-final) and THREE kind of signals are displayed, as you can see here under:

Only KEY : it's a temporary error, that the boiler attempts to solve automatically (in the meanwhile it will go on working).

If the correct functioning is not reached, we can have two different situations: (A) the KEY  disappears, appears RESET  with a different fault code; or (B) KEY  + , different fault code.

A RESET DURING THIS PHASE WILL HAVE NO EFFECT.

(A) Only RESET : it's necessary to reset the boiler with the RESET button. The fault is due to a random situation. If the alarm is repeated in the time, is strongly suggested to call the After Sales Service.

(B) KEY  + RESET : it's necessary to call the After Sales Service.

**If alarm 12 code is temporarily displayed at ignition (with flame burning) this does not indicate a fault. Check the relevant table if the alarm persists.**

#### Fault codes: GAS FAMILY

CODE	TYPE	MEANING		
10	Final	<b>End of available attempts:</b> this alarm is generated because the boiler failed the ignition for the 5 attempts available. It's necessary to reset the boiler. Post pump time 30", Post purge time for 5". Or <b>Condense electrode intervention.</b>	YES	NO
11	Temporary	<b>False flame:</b> this alarm is generated because the boiler sensed the flame before the IGNITION PHASE (spark +gas operators). The boiler stops the ignition and goes in stand-by mode. If the situation resets, the boiler will work, otherwise appears on the display the fault code 15.	NO	YES
12	Temporary	<b>Unsuccessful ignition in the second attempt:</b> this alarm is generated from the 2nd attempt. If the ignition is successful the boiler will work at the requested thermal load, otherwise, if the 5th attempt is failed appears on the display the fault code 10. <b>Condense electrode intervention.</b>	NO	NO
13	Temporary	This alarm is generated because there is a problem on the bridge on the wiring harness. Check the plug J13 between 3&4.	NO	YES
14	Final		YES	NO
15	Final	<b>Flame presence without reasons in stand-by:</b> This alarm is generated as the evolution of error code 11. Check the electrode connections, the ignition transformer, the wiring harness.	YES	YES

#### Fault codes: SAFETY

CODE	TYPE	MEANING		
20	Final	<b>Limit thermostats:</b> this alarm is generated because the boiler sensed the intervention of one of the two thermostats described in the section "LIMIT THERMOSTATS" of this presentation. It's necessary to reset the boiler. Post pump time for 30", Post purge time for 5".	YES	NO
21	Temporary	<b>NTC FLUE TEMPERATURE</b> probe disconnected.	NO	YES
22	Final	<b>Wiring harness:</b> this alarm is generated because there is a problem on the bridge on the wiring harness. Check the unused plug J13 between 1&2, the resistance should be about 9.9 - 10 kΩ.	YES	NO
23	Temporary		NO	YES

(continued)

## Fault codes: SAFETY

CODE	TYPE	MEANING		
24	Final	<b>Flow NTC temperature too high:</b> this alarm is generated because the boiler sensed that the value of flow NTC exceeded the value of 105°C continuously for more than 120". It's necessary to reset the boiler. Post pump time 60", Post purge time for 5".	YES	NO
25	Temporary	<b>Flow NTC temperature too high:</b> This alarm is generated because the boiler sensed that the value of flow NTC exceeded the value of 105°C continuously for more than 2". The burner will be switched off and the pump and fan stay on. If the situation doesn't reset automatically, the alarm will become fault code 25.	NO	YES
26	Final	<b>Return NTC temperature too high:</b> this alarm is generated because the boiler sensed that the value of return NTC exceeded the value of 95°C continuously for more than 120". It's necessary to reset the boiler. Post pump time 60", Post purge time for 5".	YES	NO
27	Temporary	<b>Return NTC temperature too high:</b> this alarm is generated because the boiler sensed that the value of return NTC exceeded the value of 95°C continuously for more than 2". The burner will be switched off, pump and fan running. If the situation doesn't reset automatically, the alarm will become fault code 26.	NO	YES
28	Final	<b>Maximum delta between return temperature and flow temperature reached:</b> it's generated when the burner is on during the modulation phase and the boiler sensed the following difference between the return temperature and the flow temperature: T2 - T1 > 40°C after 30 sec. T2 - T1 > 20°C after 60 sec. T2 - T1 > 10°C after 90 sec. The burner is switched off and blocked.	YES	YES
29	Final	<b>Wiring harness:</b> this alarm is generated because there is a problem on the bridge on the wiring harness, J13 between 1&2. Check. The resistance should be 9.9 - 10 kΩ.  <b>OVERHEATING FLUE TEMPERATURE:</b> Permanent lock out.	YES	YES

## Fault codes: FAN OR FLUE SYSTEM

CODE	TYPE	MEANING		
30	Final	<b>Wrong parameter from factory (EEPROM read/write error):</b> is necessary replacing the main printed circuit electronic board.	YES	NO
31	Temporary		NO	YES
33	Final	<b>Fan error (incorrect fan rotation):</b> this alarm is generated because the fan during the ignition cycle didn't reach within 10" at least the value of 600 rpm. It's necessary to reset the boiler.	YES	YES
34	Final	<b>Fan error TACHO signal:</b> this alarm is generated to check the fan printed circuit board during the ignition cycle. It's generated if the TACHO frequency didn't reach within 5" at least the value of 5 Hz. Complementary of fault code 33. It's necessary to reset the boiler by pressing the reset button.	YES	NO
35	Temporary	<b>Fan error TACHO signal:</b> this alarm is generated because after 15 seconds the PCB still senses a TACHO signal with the fan switched off.	NO	YES
36	Temporary	<b>Wrong parameter from factory (EEPROM read/write error):</b> is necessary replacing the main printed circuit electronic board.	NO	YES
37	Final	<b>Fan error (incorrect fan rotation):</b> this alarm is generated because the fan during the ignition cycle exceeded after 10" at least the value of 7500 rpm. It's necessary to reset the boiler by pressing the reset button.	YES	YES
38	Final	<b>Wrong parameter from factory (EEPROM read/write error):</b> is necessary replacing the main printed circuit electronic board.	YES	YES

## Fault codes: WATER

CODE	TYPE	MEANING		
40	Final	<b>No water pressure in the appliance:</b> this alarm is generated because the CH system pressure was dropped 0,3 bar for more than 60 seconds. It's necessary to reset the boiler by pressing the RESET button.	YES	NO

(continued)

Fault codes: WATER				
CODE	TYPE	MEANING		
41	Temporary	<b>Too little water pressure in the appliance:</b> this alarm is generated because the CH system pressure level drops below 0,3 bar. The burner is switched off during this 60 seconds. If the pressure goes over 0,4 bar within 60 seconds the boiler will work normally, otherwise will become fault code 40.	NO	YES
42	Final	<b>Water pressure transducer fault:</b> this alarm is generated when the transducer gives to the PCB immediately (without passing through the previous two alarms) a value of tension out of range correspondent to a pressure of 0 or 6 bar (short circuit or open circuit). The 4-digits display will show "----". Check: wiring harness or water pressure transducer defected.	YES	YES

Fault codes: PCBs				
CODE	TYPE	MEANING		
50-51 52-53 54-55 56-57 58-59	Final	<b>Internal failure:</b> they can be related to EEPROM read/write error or error reading parameters or internal fault PCB. For all these fault codes, check the parameters setting and wiring connections. If the problem still remain replace PCBs.	YES	YES
60	Temporary	<b>Domestic hot water sensor NTC3 short circuit or open circuit:</b> it's generated because the DHW sensor NTC3 value has been continuously (over 120°C or under -10°C) for more than 2 seconds. The alarm will automatically reset if the temperature will return for more than 2 seconds within the limits (118°C or -8°C). The fault will be shown ONLY when the boiler is in stand-by mode, and ONLY if the PARAMETER 10 is set to 1, 2 or 4. The boiler will continue to produce DHW, but modulating on the FLOW NTC1 sensor at a fix value of 55°C, switching off at 60°C and switching on at 55°C. (SURVIVOR FUNCTION)	NO	YES

Fault codes: TEMPERATURE PROTECTIONS				
CODE	TYPE	MEANING		
70	Final	<b>Flow NTC1 sensor short circuit or open circuit:</b> it is generated when the detected value of the flow NTC1 sensor stays continuously for more than 2 seconds out of range: T1 > 120°C NTC1 short circuit T1 < -10°C NTC1 open circuit The burner is switched off because of protection. It's necessary to reset the boiler by pressing the RESET button.	YES	YES
71	Temporary	<b>Maximum flow NTC1 temperature reached:</b> it is generated when the detected value of the flow NTC1 sensor is: T1 > 95°C if the burner is on during modulation phase Each next block is updated an OVER TEMPERATURE COUNTER with 0,25 seconds The burner is on during this time.	NO	NO
72	Final	<b>Return NTC2 sensor short circuit or open circuit:</b> it is generated when the detected value of the return NTC2 sensor stays continuously for more than 2" T2 > 120°C NTC2 short circuit T2 < -10°C NTC2 open circuit The burner is switched off because of protection. It's necessary to reset the boiler by pressing the RESET button.	YES	YES
74	Final	<b>DT1/dt too high or dT2/dt too high (no water circulation):</b> every time that the burner is on and the system start modulating, the boiler checks the flow temperature and return temperature. After 6 seconds checks again both temperatures. The alarm is generated if one or both temperatures increased too fast within the first 6 seconds: dT1/dt > 15°C (dT1 MAX delta) the burner is switched off and blocked. dT2/dt > 12°C (dT2 MAX delta) the burner is switched off and blocked. It's necessary to reset the boiler. Post pump time during 60 seconds.	YES	NO

(continued)

Fault codes: TEMPERATURE PROTECTIONS				
CODE	TYPE	MEANING		
77	Temporary	<b>Over heat under floor heating thermostat:</b> it is generated when the contact of the under floor safety thermostat that protects an eventual under floor system opens. The burner is switched off and blocked.	NO	YES
78	Temporary	<b>Maximum delta between flow temperature and return temperature reached:</b> it's generated when the burner is on during the modulation phase and the difference between T1-T2 >35°C(MAX delta). Each next block is updated an OVER TEMPERATURE COUNTER with 0,25 seconds. The burner stays on during this time, only later on the n° of max.attempts will appear the final fault code 79.	NO	YES
79	Final	<b>Maximum delta between flow temperature and return temperature reached:</b> it's generated when the difference T1-T2 >35°C(TMAX delta) was too large after 100 attempts of the OVER TEMPERATURE COUNTER. The burner is switched off and blocked. Post pump time 30", Post purge time for 5". It's necessary to reset the boiler.	YES	NO

Fault codes: GENERAL / SYSTEM				
CODE	TYPE	MEANING		
8X	-	This alarms are not used and written in the PCB SW.	YES	YES
8X	-		NO	YES
8X	-		YES	YES
8X	-		NO	YES

Fault codes: COUNTER OR CONDENSE SENSOR				
CODE	TYPE	MEANING		
91	-	When the counter reach the limit set of 2500 hours, the boiler show this error code ( <b>Exchanger cleaning</b> ). In any case the boiler run in normal condition. <b>MAKE COUNTER RESET</b>	NO	YES

## 19 - Resetting faults

Wait for about 10 seconds before resetting operating conditions. Then proceed as follows:

### 1) VIEWING JUST THE SYMBOL

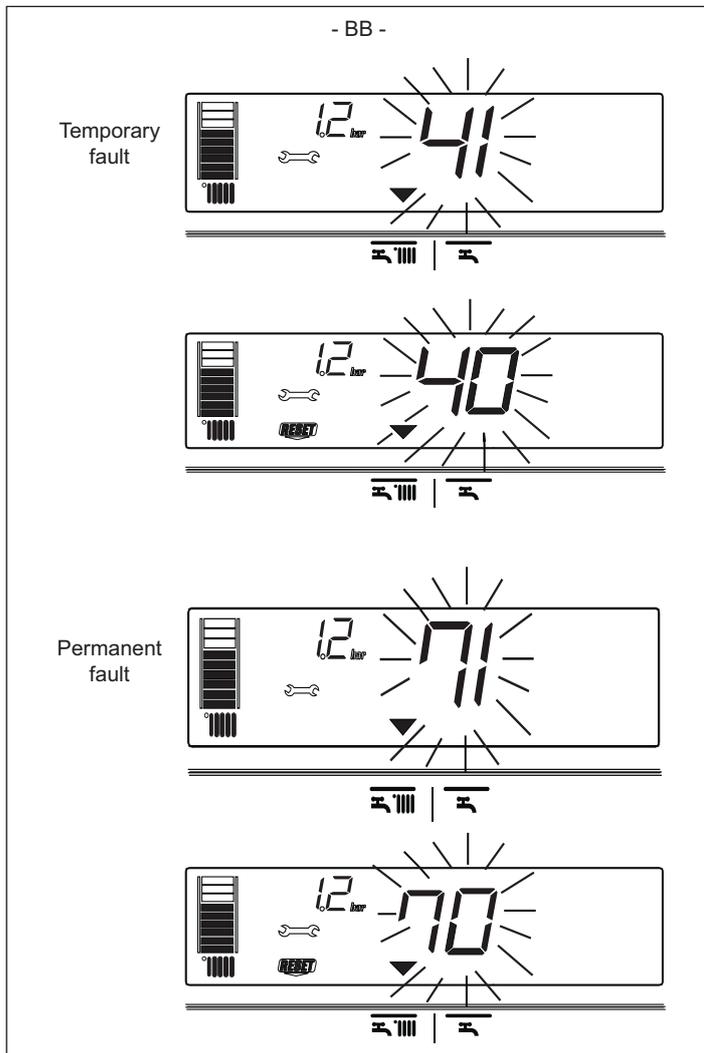
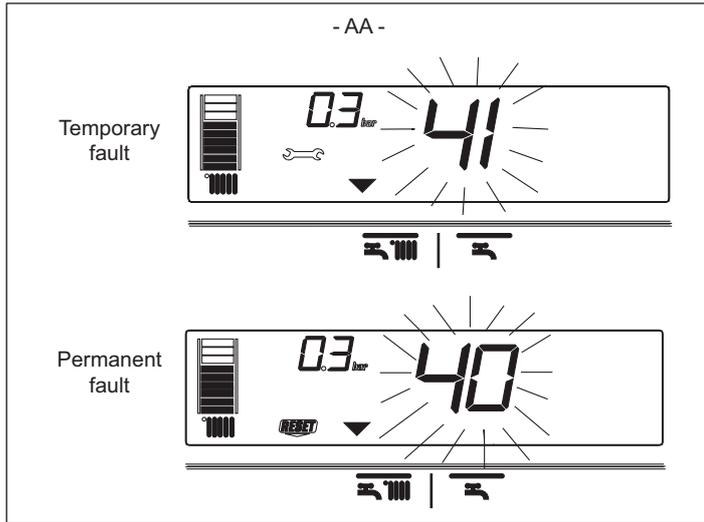
If  disappears, it means that an operating fault has been discovered which the boiler is attempting to solve on its own (temporary stoppage). If the boiler does not resume normal operation, two things may happen:

#### Case A (Fig. AA)

 disappears, the  symbol and a different alarm code appear. In this case, proceed as described in point 2.

#### Case B (Fig. BB)

 and a different alarm code are displayed together with . In this case, proceed as described in point 3.



- CC -

A



B



C



D



E



F



**Case C**

Alarm 91 - Contact the Technical Assistance

The boiler has a self-diagnosis system which, on the basis of the hours totalised in particular operating conditions, signals the need for maintenance or cleaning of the primary exchanger (alarm code 91). After cleaning using the kit supplied as an accessory, reset the hour counter as follows:

- disconnect the mains power supply
- remove the screws and hooks securing the electrical cover
- remove connector J13 (see wiring diagram)
- power the boiler and wait for alarm 13 to appear on the display
- disconnect the power supply and reconnect connector J13
- put back the electrical cover and restart the boiler

N.B.: perform the counter reset procedure every time the primary exchanger is thoroughly cleaned or replaced.

**COMBUSTION GROUP PERIODICAL MAINTENANCE (Fig. CC)**

For washing the exchanger, use the cleaning kit for condensing heat exchanger. Follows the procedure more detailed on instruction sheet of the kit, that consisting in:

- A) remove the flanges and the burner
- B) fill the heat exchanger with the contents of the kit
- C) use the brush to push the foam between the coils
- D) wait a few minutes and then acting with the blade pass all the coils
- E) rinse with water and vacuum residue
- F) reassemble

**2) Viewing just the  symbol (Fig. DD)**

Press the  button to reset the appliance. If the boiler starts the ignition phase and resumes normal operation, it may have stopped by accident. If these stoppages should continue, contact the Technical Assistance Centre.

**3) Viewing the  and  symbols (Fig. EE)**

Contact the Technical Assistance Centre.

**20 - PROGRAMMING PARAMETERS**

This boiler incorporates a new generation of electronic boards that, by setting/modifying operating parameters, allow the boiler to be personalised to satisfy various system and/or user requirements. The programmable parameters are shown in the table on the next page.

 The parameters must be programmed with the boiler in the OFF position. To do this, press the  button until the display shows “- -” (Fig. FF).

During parameter modification operations, the “select functions” button acts as an enter (confirm) button, the  button acts as an ESCAPE (escape) button. If no confirmation is given within 10 seconds, the value is discarded and returns to the previously set one.

**SETTING THE PASSWORD**

Press and hold down the operating functions button and the  button together for about 10 seconds. The display will look like Fig. GG. Enter the password for accessing the parameter modifications function by turning the domestic hot water temperature selector to obtain the required value. The password for accessing the parameter programming function is located on the back side of the control panel. Confirm by pressing ENTER.

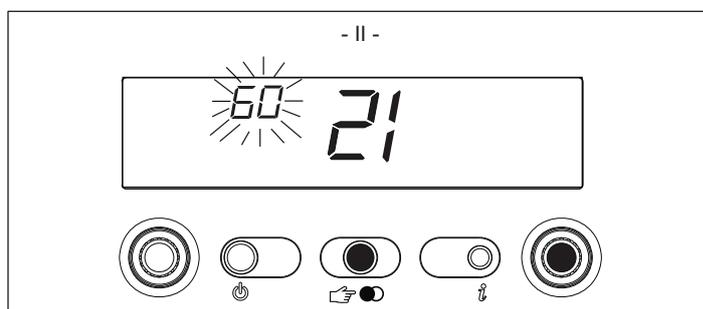
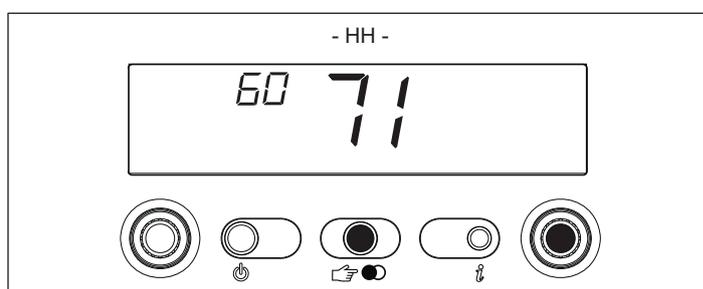
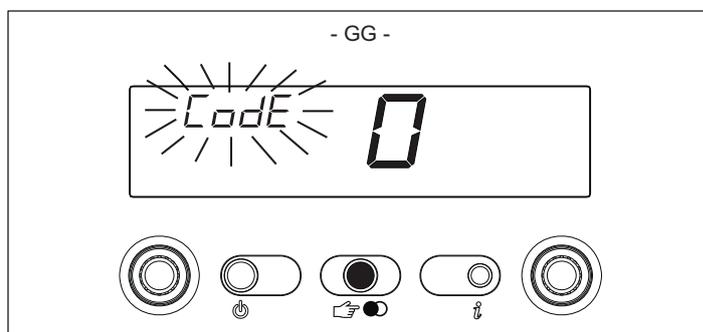
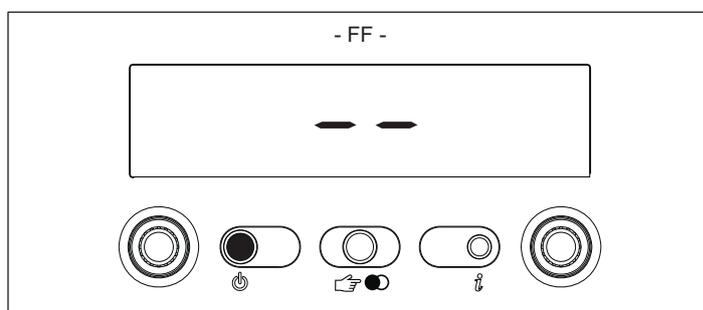
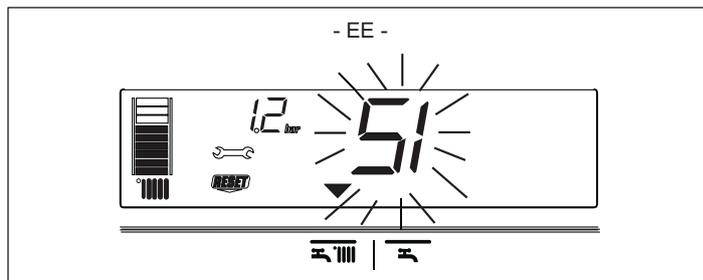
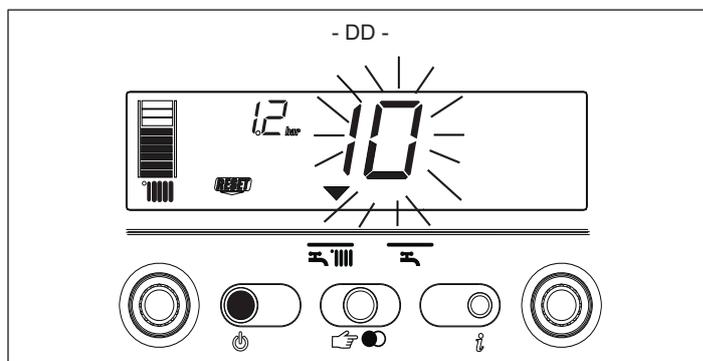
**MODIFYING PARAMETERS**

Turn the domestic hot water temperature selector (Fig. HH) to sequentially scroll the two-figure codes of the parameters indicated in the table. After identifying the parameter you wish to modify, proceed as follows:

- press ENTER to access the parameter modification function. When ENTER is pressed, the previously set value starts flashing (Fig.II)
- turn the domestic hot water temperature selector to change the value
- press ENTER to confirm the new value. The digits stop flashing
- press ESCAPE to exit.

The boiler returns to the “- -” (OFF) status.

To reset, press the  button (Fig. FF).



**PROGRAMMABLE PARAMETERS**

N° PAR.	DESCRIPTION PARAMETERS	UNIT OF MEASURE	MIN	MAX	DEFAULT (setted in factory)	PARAMETERS (setted by techn. assist. centre)
1	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				1	
2	THIS PARAMETER IS NOT influential				10-16-20-26-30-34-50-70	20
3	INSULATION LEVEL OF BUILDING	min	5	20	5	
10	DHW MODE		0 (OFF) 1 (Instantaneous) 2 (Mini-tank) 3 (External water-tank with thermostat) 4 (External water-tank with sensor) 5 (DS built-in storage tank) 6 (3S built-in storage tank)		3	
11	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				60	
12	WATER TANK MAXIMUM SET-POINT	°C	40	80	60	
13	DELIVERY TEMPERATURE EXT. WATER TANK	°C	50	85	80	
14	DELTA EXTERNAL WATER TANK (ON)	°C	0	10	5	
20	HEATING MODE		0 (OFF) 1 (ON) 2 (not used) 3 (CONNECT AP) 4 (not used) 5 (not used) 6 (CONNECT AT/BT) 7 (Remote panel + CONNECT AT/BT) 8 (Remote panel + zone valves)		1	
21	HEATING CIRCUIT MAXIMUM SET-POINT	°C	40	80	80	
22	MINIMUM HEATING SET POINT	°C	20	39	20	
23	MAXIMUM HEATING FAN SPEED	rpm		G20 G31 25kW 60** 60** 35kW 60** 59**	MAX	
24	MINIMUM HEATING FAN SPEED	rpm	G20 G31 25kW 12** 19** 35kW 12** 19**		MIN	
25	DIFFERENTIAL HEATING POSITIVE	°C	2	10	6	
26	DIFFERENTIAL HEATING NEGATIVE	°C	2	10	6	
28	MAX HEATING POWER REDUCTION TIMER	min	0	20	15	
29	FORCED HEATING SHUT DOWN TIMER	min	0	20	5	
30	HEATING TIMER RESET FUNCTION	-	0 (NO)	1 (YES)	0	
31	MAXIMUM HEATING SET POINT 2CH (I circuit)	°C	40	80	45	
32	MINIMUM HEATING SET POINT 2CH (II circuit)	°C	20	39	25	
35	DIFFERENTIAL HEATING POSITIVE 2CH	°C	2	10	3	
36	DIFFERENTIAL HEATING NEGATIVE 2CH	°C	2	10	3	
40	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				1	
41	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				1	
42	S.A.R.A. FUNCTION		0 (OFF) 1 (AUTO)		1	
43	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				1	
44	THERMOREGULATION FUNCTION		0 (OFF) 1 (AUTO)		1	
45	INCLINATION THERMOREGULATION CURVE (OTC)	-	2,5	40	20	
46	THERMOREGULATION FUNCTION 2CH		0 (OFF) 1 (AUTO)		1	
47	INCLINATION THERMOREGULATION CURVE (OTC) 2CH	-	2,5	40	10	
48	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				0	
50	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				1	
51	HEAT REQUEST TYPE CH1 (I circuit)	-	0	1	0	
52	HEAT REQUEST TYPE CH2 (II circuit)	-	0	1	0	
61	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				4	
62	HEATING ANTIFREEZE FUNC. DELIVERY TEMP. (ON)	°C	0	10	6	
63	WATER TANK ANTIFREEZE FUNC. DELIV. TEMP. (ON)	°C	0	10	6	
65	EXTERNAL SENSOR REACTIVITY		0 (very fast)	255 (very slow)	20	
85	SEMI-AUTOMATIC FILLING		0 (disabled) 1 (enabled)		0	
86	AUTOMATIC FILLING PRESSURE (ON)	bar	0,4	1,0	0,6	
87	THIS PARAMETER IS NOT USED ON THIS MODEL. DO NOT MODIFY				0	
90	VARIABLE SPEED PUMP	-	0	100	41	
92	enable post-circulation from dhw to heating	-	0	1	0	
93	duration of post-circulation from dhw to heating	-	1	255	5	
94	pump in continual mode ch1 (circuit 1)	-	0	1	0	
95	pump in continual mode ch2 (circuit 2)	-	0	1	0	

\*\* The value is expressed on the display in rpm/100 (example 3.600 = 36)

Some defaults may be different from what is indicated in the table for updates to the board

## 21 - SERIAL NUMBER PLATE

Q	nominal capacity
P	nominal power
IP	protection level
t max	temperature
NOx	NOx value class

 <b>METEO GREEN HE R.S.I.</b> 																
Serial No. _____																
Condensing Boiler EAN 80-18000-32117-1																
IAPMO Certificate No. GMK10203																
<table border="0"> <tr> <td><b>Q</b></td> <td>max</td> <td>min</td> <td></td> <td></td> </tr> <tr> <td><b>P</b> 80°-60°</td> <td></td> <td></td> <td>kW</td> <td></td> </tr> <tr> <td><b>P</b> 50°-30°</td> <td></td> <td></td> <td>kW</td> <td></td> </tr> </table>	<b>Q</b>	max	min			<b>P</b> 80°-60°			kW		<b>P</b> 50°-30°			kW		 
<b>Q</b>	max	min														
<b>P</b> 80°-60°			kW													
<b>P</b> 50°-30°			kW													
max water pressure min water pressure t max	Appliance category:															
max gas pressure MJ/h NG MJ/h ULPG min inlet pressure NG min inlet pressure ULPG																
CO <sub>2</sub> limits (all models):																
230 V ~ 50 Hz IPX5D NOx:																
Safety valve setting =      Weight (net) =																

## 22 - ADJUSTMENTS

The boiler has already been factory adjusted by the manufacturer. If a new adjustment is required, for example, after extraordinary maintenance, replacing the gas valve or converting from natural gas to LPG, proceed as follows.

**! Maximum and minimum power, minimum and maximum heating, must be adjusted in the indicated sequence by qualified staff.**

- Unscrew the lower cover fixing screw (A-B) (Fig. 1.5).
- Pull the cover towards you and remove.
- Lift up the panel and turn it forwards

**! CALIBRATION & SERVICE operations must be performed with the boiler in the OFF position. To do this, press the  button until the display shows "- -" (Fig. FF).**

**! During parameter modification operations, the "select functions" button acts as an ENTER (confirm) button, the  button acts as an ESCAPE button. If no confirmation is given within 10 seconds, the value is discarded and returns to the previously set one.**

### SETTING THE PASSWORD

To enter the password, and then setting the parameters, follow the procedure:

1. Turn the boiler in OFF, press the ON / OFF button until the display shows two horizontal lines "--".
2. Simultaneously press the button INFO and MODE 5" until the display shows:  
In display 4 digits written intermittent "Code" - "0000".  
In display 2 digit visualized 00.

Press MODE to confirm and to enter their passwords by turning the encoder DHW, and then always confirm the code by pressing another time MODE. In the display 2-digit appears the number of the parameter, in the display 4-digit appears the value.

### CALIBRATION PHASES

In this boiler we have the possibility of three different mode for three different level of setting:

#### Level one Programmer Setting

**Use password 53**

With this mode is possible change all the parameter. This mode is useful for personalize the boiler in function of the type of installation.

#### Level two Adjusting Setting (Calibration end Setting)

**Use password 18**

With this mode is possible change ONLY the parameter for setting the boiler. E.g. this mode is useful when you need to change the gas.

#### Level three Combustion Analysis mode

**Use password 19 (RANGE RATED & chimney sweeper function)**

With this mode is possible do set up the maximum power in heating and make the combustion analysis test at this power.

Parameter with password 18						
PAR.	MEANING	UNIT	MIN	MAX	STEP	DEFAULT
1	Kind of gas- don't change	--	1 = G20 - LPG		1	1
2	Power boiler	--	26 = (25 kW) 34 = (35 kW)		26-30	26-34
3	Thermal insolation of the house ONLY IF IS CONNECTED THE EXTERNAL SENSOR	min	5	20	1	5
10	Tipe of sanitary DHW	--	0 =OFF 1 =Istant 2 =not used 3= Ext. Tank with thermostat 4= Ext. Tank with NTC sensor 5= not used		1	1
45	CH1 OTC (climatic curve) ONLY IF IS CONNECTED THE EXTERNAL SENSOR	--	2,5	40	2,5	20

(continued)

CH1 = first CH circuit / CH2 = second CH circuit

Parameter with password 18						
PAR.	MEANING	UNIT	MIN	MAX	STEP	DEFAULT
47	CH2 OTC (climatic curve) ONLY IF THE PAR. 20 SET UP IS 6 (2 HEATING CIRCUIT)	--	2,5	40	2,5	20
HP	Max. speed fan The value visualized is rpm/100 (e.g.: 3700/100 = 37)	--			1	Look istr. boiler
LP	Min. speed fan The value visualized is rpm/100 (e.g.: 3700/100 = 37)	--			1	Look istr. boiler
SP	Slow ignition fan speed The value visualized is rpm/100 (e.g.: 3700/100 = 37)	--	LP	HP	1	37
HH	Max. power (flue analysais CO2)	--	--	--	1	--
LL	Min. power (flue analysais CO2)	--	--	--	1	--
MM	Modulation speed fan	--	--	--	1	--
23	Max. power CH (fan speed)	rpm	37=(3700)	HP	1	--
24	Min. power CH (fan speed)	rpm	LP	36=(3600)	1	--

**CH1 = first CH circuit / CH2 = second CH circuit**

**DETAILED DESCRIPTION OF PARAMETERS AND FUNCTIONS**

**HP**

The HP function allows to modify, only if strictly necessary, the value of the absolute maximum fan speed (burner OFF) and consequently the maximum power of the boiler. We cannot guarantee the well functioning of the boiler if it will be set to an higher value than the one shown in the booklet!  
The parameter 23 is automatically adjusted to this value setting by HP function.

**LP**

The LP function allows to modify, only if strictly necessary, the value of the ABSOLUTE minimum fan speed (burner OFF) and consequently the minimum power of the boiler. We cannot guarantee the well functioning of the boiler if it will be set to a lower value than the one shown in the booklet!  
The parameter 24 is automatically adjusted to the value setting by LP function

**SP**

The SP function allows to modify, only if strictly necessary, the value of the fan speed (burner OFF) during the ignition fan speed procedure. We cannot guarantee the well functioning of the boiler if it will be set to a different value than the one shown in the booklet!

**Differences between HP, LP and parameter 23 and parameter 24**

- The functions HP and LP are correspondent to the fan absolute maximum and minimum fan speed (DHW), while parameter 23 and parameter 24 can be set only within (at limit equal to) HP and LP functions and are only related to CH functioning.
- **Parameter 23** - It's possible to modify the maximum fan speed for CH mode, push Mode button, it's possible to reduce the maximum output in central heating (fan speed) by turning the DHW encoder. The parameter 23 can be adjusted between the low-limit as rpm/100 (3600/100 = 36) and the absolute maximum fan speed by setting HP function.
- **Parameter 24** - It's possible to modify the minimum fan speed for CH mode, push Mode button, it's possible to increase the minimum output in central heating (fan speed) by turning the DHW encoder. The parameter 24 can be adjusted between the absolute minimum fan speed by setting LP function and the high-limit as rpm/100 (3600/100 = 36).

For example if the function HP=51 (factory setting) the parameter 23 can be set between 36 and 51. To change parameter in service mode is sufficient to move the DHW encoder.

**HH**

The test mode function at maximum power is necessary to carry out a combustion analysis check, or the set the gas valve in order to obtain the CO<sub>2</sub> nominal percentage at the maximum power. In this mode an automatic heat request is simulated, the 3-way valve motor is adjusted to CH position and the fan goes to the absolute maximum speed related to PAR.1 and PAR.2 or HP continuously for 15 minutes. It's now possible to adjust the gas valve. The test mode will automatically end after 15 minutes, or prematurely by turning the DHW selector.

**IMPORTANT** - During this function the boiler won't modulate according to the CH set-value. In case of floor heating systems, or whenever the CH system is not sufficient to exchange all the heat, can be suggestible to open all the DHW taps at the maximum flow after removed the 3 way valve motor.

**LL**

The test mode function at minimum power is necessary to carry out a combustion analysis check, or the set the gas valve in order to obtain the CO<sub>2</sub> nominal percentage at the minimum power. In this mode an automatic heat request is simulated, the 3-way valve motor is adjusted to CH position and the fan goes to the absolute minimum speed related to PAR.1 and PAR.2 or LP continuously for 15 minutes. It's now possible to adjust the gas valve. The test mode will automatically end after 15 minutes, or prematurely by turning the DHW selector. To exit service mode push Info button.

**ATTENTION** - See the remark for function HH.

## Parameter with password 53

PAR.	MEANING	UNIT	MIN	MAX	STEP	DEFAULT
1	Gas type - don't change	--	1 = G20 - LPG		1	1
2	Boiler power - not used - don't change	--			26-30-34	26
3	Kind of building	min	5	20	1	5
10	Domestic hot water type	--	0= OFF 1= Instantaneous (COMBO) 2= Minitank 3= System boiler + storage tank with thermostat (SOLO) 4= System boiler + storage tank with NTC sensor (SOLO) 5= Not used		1	1 (COMBO)
11	Maximum set point for DHW (Instantaneous)	°C	40	60	1	60
12	Maximum set point for DHW (storage tank)	°C	40	80	1	60
13	Maximum flow temperature for storage tank	°C	50	85	1	80
14	Detection hysteresis ON for storage tank	°C	0	10	1	5
20	CH type	--	0= OFF 1= ON 2= unused 3= external pump or CONNECT AP 4= unused 5= unused 6= 2nd circuit is connected or CONNECT AT/BT		1	1
21	Maximum flow temperature CH1	°C	45	80	1	80
22	Minimum flow temperature CH1	°C	20	39	1	20
23	Maximum output CH (fan speed) The value is shown on the display is rpm/100 (e.g.: 3700/100 = 37) CH1 = 1st CH circuit / CH2 = 2nd CH circuit	rpm	36 (3600)	25 kW G20 = 60 G31 = 60  35 kW G20 = 60 G31 = 59	1	MAX
24	Minimum output CH (fan speed) The value is shown on the display is rpm/100 (e.g.: 3700/100 = 37) CH1 = 1st CH circuit / CH2 = 2nd CH circuit	rpm	25 kW G20 = 12 G31 = 19  35 kW G20 = 12 G31 = 19	36 (3600)	1	MIN
25	CH Hysteresis OFF	°C	2	10	1	6
26	CH Hysteresis ON	°C	2	10	1	6
28	CH timer: force burner (75%)	min	0	20	1	15
29	CH timer: blocking time	min	0	20	1	5

(continued)

CH1 = first CH circuit / CH2 = second CH circuit

Parameter with password 53						
PAR.	MEANING	UNIT	MIN	MAX	STEP	DEFAULT
30	CH timers: ON /OFF selection	--	0 = OFF 1 = ON		1	0
31	Maximum flow temperature CH2	°C	40	80	1	80
32	Minimum flow temperature CH2	°C	20	39	1	25
40	DHW thermostat function	--	0 = OFF 1 = AUTO 2 = ON		1	1
41	Pre-heating function	--	0 = OFF 1 = AUTO 2 = ON		1	1
42	S.A.R.A. function	--	0 = OFF 1 = AUTO		1	1
43	Booster function	--	0 = OFF 1 = AUTO		1	1
44	Thermoregulation function CH1	--	0 = OFF 1 = AUTO		1	1
45	Setting of heating curves CH1	--	2,5	40	2,5	20
46	Thermoregulation function CH2	--	0 = OFF 1 = AUTO			1
47	Setting of heating curves CH2	--	2,5	40	2,5	20
48	Unused	--				1
50	Unused	--				1
51	Type of heat request CH1	--	0	1	1	0
52	Type of heat request CH2	--	0	1	1	0
61	DHW frost protection tank	°C	0	10	1	4
62	CH frost protection temperature	°C	0	10	1	6
63	Not used – don't modified	°C	0	10	1	6
65	Outside sensor reactiveness	bit	0 (fast)	255 (slow)	1	20
85	Automatic filling function	--	0 = OFF 1 = ON		1	1 (COMBO)
86	Warning water pressure value	bar	0.4	0.8	0.1	0.6
87	Not used – don't modified					1
90	Adjustable speed pump		0	100	1	41
92	Enable post-circulation from DHW to CH		1	0	1	0
93	Duration post-circulation from DHW to CH		1	255	1	5
94	Pump in continual CH1		0	1	1	0
95	Pump in continual CH2		0	1	1	0

CH1 = first CH circuit / CH2 = second CH circuit

**⚠ The parameters 10 - HP - SP - LP - MM - 23 - 24 must be modified, by professionally qualified personnel, only if absolutely necessary. The manufacturer refuses any responsibility in the case of incorrect setting of the parameters.**

**MAXIMUM FAN SPEED (PAR. HP)**

- Select parameter HP
  - Press the ENTER button, then modify the value of the parameter by turning the sanitary water temperature selector. The maximum speed of the fan is linked with the type of gas and the power of the boiler, **table 1**.
  - Turn the sanitary water temperature selector in order to adjust the set value
  - Confirm the new value you have set by pressing ENTER.
- The value indicated on the display is expressed in rpm/100 (example 3600 = 36). The value set during this operation automatically modifies the maximum value of parameter 23.

**Table 1 - MAXIMUM NUMBER OF FAN RPM**

	G20	G31	
25 R.S.I.	60	60	rpm
30 R.S.I.	60	59	rpm

**MINIMUM FAN SPEED (PAR. LP)**

- Select parameter LP
  - Press the ENTER button, then modify the value of the parameter by turning the sanitary water temperature selector. The minimum speed of the fan is linked with the type of gas and the power of the boiler, **table 2**.
  - Turn the sanitary water temperature selector in order to adjust the set value
  - Confirm the new value you have set by pressing ENTER.
- The value indicated on the display is expressed in rpm/100 (example 3600 = 36). The value set during this operation automatically modifies the maximum value of parameter 24.

**Table 2 - MAXIMUM NUMBER OF FAN RPM**

	G20	G31	
25 R.S.I.	12	19	rpm
30 R.S.I.	12	19	rpm

**FAN IGNITION SPEED (PAR. SP)**

- Select parameter SP
- Press the ENTER button, then modify the value of the parameter by turning the sanitary water temperature selector. The standard slow start value is 3700 rpm (25HE) - 3300 rpm (35HE)
- Confirm the new value you have set by pressing ENTER.

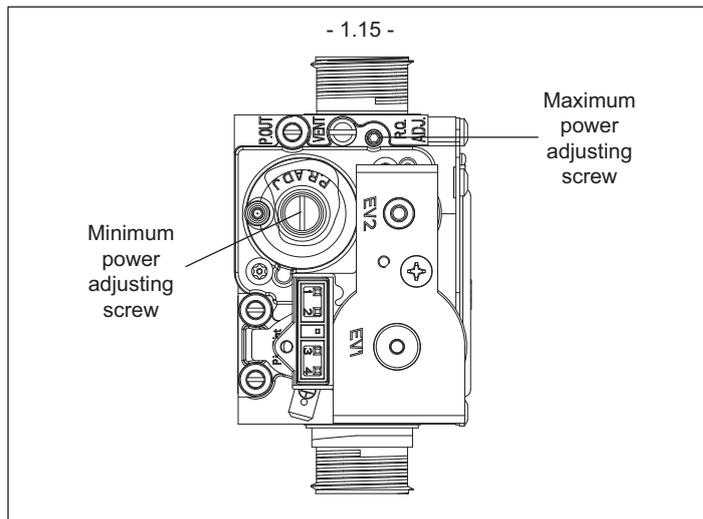
**MAXIMUM POWER ADJUSTMENT (PAR. HH) (Fig. 1.16)**

- Turn the boiler OFF
- Select the parameter HH and wait for the boiler to come on
- Check that the maximum CO2 reading on the analyser (see paragraph "Checking combustion parameters") corresponds with the values indicated in **table 3**.

If the CO<sub>2</sub> proves to comply with the values in the table, proceed to adjust the next parameter (LL - adjusting the minimum), if different modify the value by turning the maximum power adjustment screw with a screwdriver (clockwise to decrease) until you obtain a value contained in **table 3**.

**Table 3**

	G20	G31	
25 R.S.I.	9.0	10.0	%
30 R.S.I.	9.0	10.0	%



**MINIMUM POWER ADJUSTMENT (PAR. LL) (Fig. 1.15)**

- Select the parameter LL (with the boiler still OFF) and wait for the boiler to come on.
  - Check that the minimum CO2 reading on the analyser (see paragraph "Checking combustion parameters") corresponds with the values indicated in **table 4**.
- If the CO<sub>2</sub> proves to be different from the values in the table, proceed to adjust the parameter by turning the maximum power adjustment screw after having unscrewed the protective cap (clockwise to increase) until you obtain a value contained in **table 4**.

**Table 4**

	G20	G31	
25 R.S.I.	9.5	10.0	%
30 R.S.I.	9.5	10.0	%

**IGNITION SPEED (PAR. MM)**

- Select parameter MM.
- The boiler starts at the slow ignition speed.
- Turn the heating water selector to increase or decrease the fan speed.

**MINIMUM HEATING ADJUSTMENT POSSIBILITY (PAR. 24)**

- Select parameter 24
- Press the ENTER button to access the parameter value modification function
- Turn the sanitary water selector to modify the minimum fan speed
- Confirm the value you have set by pressing ENTER.

Exit the CALIBRATION & SERVICE function by pressing ESCAPE. The boiler returns to the "--" (OFF) status.

To reset, press the  button.

- Disconnect the pressure gauge and tighten the pressure tap screw.

**RANGE RATED MAXIMUM OUTPUT CH (fan speed) (PAR. 23)**

Select the parameter 23 by turning the encoder. Push ENTER button and modify the maximum fan speed as indicated in the range rated table by turning the encoder. Push ENTER button to store the alue. The values just setted must be recorded on the last page of this manual.

**⚠** After adjusting the gas valve, seal it with sealing wax.

After making adjustments:

- return the temperature set with the ambient thermostat to the required position
- close the panel
- put back the shell.

## 23 - SETTING THE THERMOREGULATION

### CHECKING THE CONNECTION WITH THE EXTERNAL PROBE

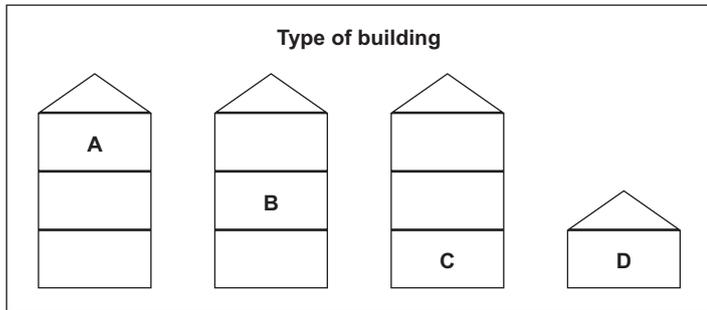
After connecting the external probe to the boiler, use the INFO function to check that the probe has been automatically recognised by the temperature control card. Immediately after installation, the value read by the probe may very well be higher than that measured by a reference probe. Enable and optimise the THERMOREGULATION function by setting the following parameters:

PARAMETER		AVAILABLE IN THE PROGRAMMING MODE
TYPE OF BUILDING	3	INSTALLATION AND CALIBRATION & SERVICE
MAXIMUM HEATING SET POINT	21	INSTALLATION
MINIMUM HEATING SET POINT	22	INSTALLATION
ENABLE THERMOREGULATION FUNCTION	44	INSTALLATION
OFFSET TEMPERATURE CURVE	45	INSTALLATION AND CALIBRATION & SERVICE
TYPE OF HEAT REQUEST	51	INSTALLATION

To access the programming mode, consult "Programming parameters".

### PARAMETER 03. Type of building

In order to calculate delivery temperature, the temperature control system does not directly use the external temperature value but considers the heat insulation of the building: in well-lagged buildings, external temperature variations affect the ambient temperature less than they do in badly-lagged buildings. Use parameter 3 to set the heat insulation level of the building according to the following scheme:



	New houses	Old houses	Hollow bricks	Solid bricks	Stones
A	19	14	12	8	
B	20	16	15	11	
C	19	15	14	9	
D	18	12	10	5	

### PARAMETERS 21 and 22. Maximum and minimum delivery temperature

These two parameters limit the delivery temperature automatically produced by the TEMPERATURE CONTROL function. PARAMETER 21 determines MAXIMUM DELIVERY TEMPERATURE (MAXIMUM HEATING SET POINT) while PARAMETER 22 determines MINIMUM DELIVERY TEMPERATURE (MINIMUM HEATING SET POINT).

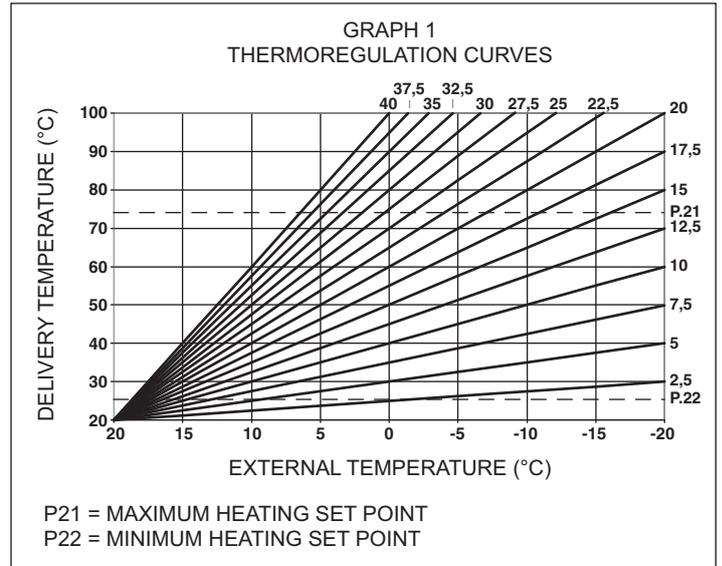
### PARAMETER 44. Enable thermoregulation function

The connected external temperature probe combined with PARAMETER 44 provides the following operating modes:

- EXTERNAL PROBE CONNECTED and PARAMETER 44 = 0 (OFF) in this case the TEMPERATURE CONTROL function is disabled even though the external probe is connected. The temperature read by the external probe can always be viewed by pressing the INFO button. The TEMPERATURE CONTROL symbols are not displayed.
- EXTERNAL PROBE CONNECTED, PARAMETER 44 = 1 (ON) in this case the TEMPERATURE CONTROL function is enabled. The temperature read by the external probe and the TEMPERATURE CONTROL symbols can be viewed by pressing the INFO button.

⚠ The TEMPERATURE CONTROL function cannot be enabled unless the external probe has been fitted and connected. In this case, PARAMETER 44 is ignored and has no effect on boiler operation.

### PARAMETER 45. Choosing the offset temperature curve (graph 1)



The offset heating curve maintains a theoretical ambient temperature of 20°C at external temperatures ranging from +20°C to -20°C. The choice of the curve depends on the rated minimum external temperature (on the geographical area, therefore) and the rated delivery temperature (on the type of system, therefore) and must be carefully calculated by the fitter using the following formula:

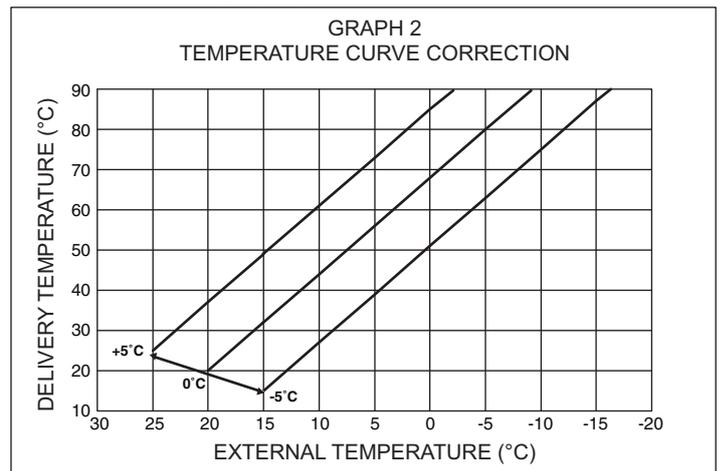
$$P. 45 = 10 \times \frac{\text{rated delivery } T - 20}{20 - \text{rated min. external } T}$$

If, from your calculations, you obtain an intermediate value between two curves, we suggest choosing the compensation curve closest to the value obtained.

Example: if the value obtained from the calculations is 8, this is between curve 7.5 and curve 10. In this case, choose the closest curve, which is 7.5.

### PARAMETER 51. Type of heat request

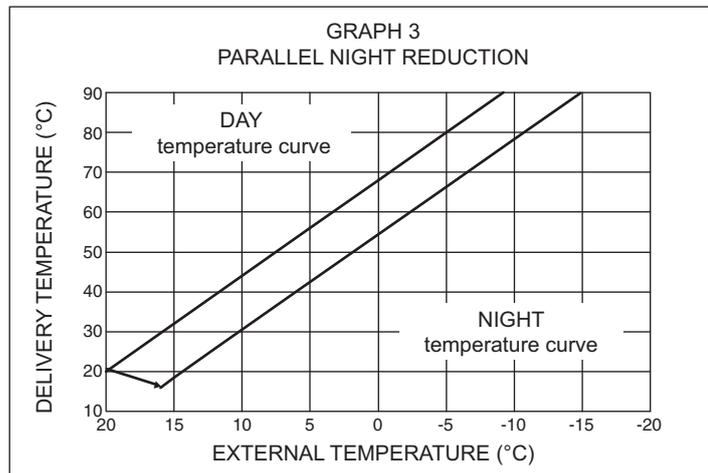
IF AN AMBIENT THERMOSTAT IS CONNECTED TO THE BOILER, SET PARAMETER 51 = 0 (graph 2)



The ambient thermostat makes a heat request when its contact closes, while it stops it when its contact opens. Though delivery temperature is automatically calculated by the boiler, the user may manually override it. By modifying HEATING on the user interface, the HEATING SET POINT will no longer be available but just a value that can be set from +5 to -5°C as required. Modifications to this value do not directly change delivery temperature but affect the calculation made to automatically determine its value by modifying the reference temperature of the system (0 = 20°C).

For boilers fitted with the S.A.R.A. Function, if the AMBIENT THERMOSTAT remains closed for a long time, the boiler automatically increases the delivery temperature which is added to the effect of the temperature control function. When the AMBIENT THERMOSTAT opens, the boiler automatically returns to the value determined by the TEMPERATURE CONTROL function.

**IF A PROGRAMMABLE TIMER IS CONNECTED TO THE BOILER, SET PARAMETER 51 = 1 (graph 3)**



When the contact is closed, the heat request is made by the delivery probe on the basis of the external temperature in order to maintain the rated ambient temperature at the DAY level (20°C). When the contact opens, it does not stop the heat request but reduces (parallel shift) the temperature curve to the NIGHT level (16°C). Though delivery temperature is automatically calculated by the boiler, the user may manually override it.

By modifying HEATING on the user interface, the HEATING SET POINT will no longer be available but just a value that can be set from +5 to -5°C as required.

Modifications to this value do not directly change delivery temperature but affect the calculation made to automatically determine its value by modifying the reference temperature of the system (0 = 20°C for DAY level; 16°C for NIGHT level).

**CONNECT AT/BT**

In case of using CONNECT AT/BT, accessory supplied on request, the boiler gives the possibility to choose 2 thermoregulation curves:

- OTC 1 CH (parameter 45) for a direct system
- OTC 2 CH (parameter 47) for a mixed system.

Even in case of second circuit (2CH) the curve depends on the external minimum project temperature (on the geographical area, therefore) and on the delivery project temperature (on the type of system, therefore); the installer must to put attention to calculate it using the following formula:

$$P. 47 = 10 \times \frac{\text{rated delivery } T - 20}{20 - \text{rated min. external } T}$$

Parameters 31 and 32 give the possibility to define the maximum and the minimum central heating set-point of the second circuit.

To correct the curve in this configuration, please refer to the instructions supplied with the accessory.

**24 - GAS CONVERSION**

It is easy to transform gas from one family to gas belonging to another family even with the boiler installed.

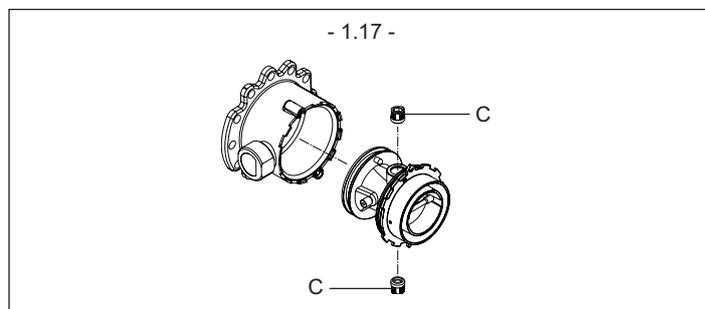
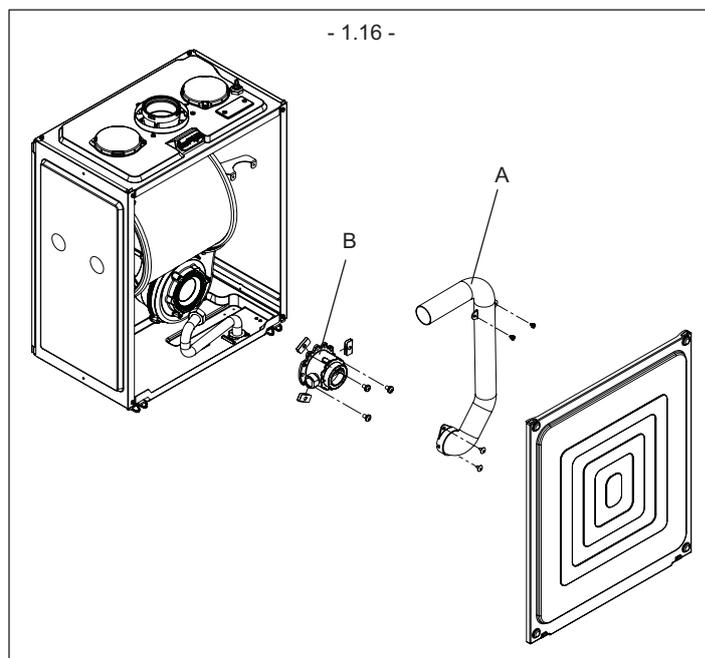
This job must be done by professionally qualified personnel only.

The boiler is supplied to run on natural gas (G20) – see the product rating plate for details.

The boiler can be transformed to use propane gas using a special kit.

Follow the instructions given here below for disassembly:

- Switch off the power to the boiler and turn off the gas cock
- Remove the panel and casing
- Lift up and rotate the instrument panel
- Open the air box cover
- For 25 HE only: unscrew the screws fastening the silencer (A) and remove it (Fig. 1.16)
- Disconnect the mixer gas ramp. Unscrew the clamp screws and relative mixer springs to fan and then remove it.
- For HE 35 only: unscrew the screws fixing the plastic Venturi to the aluminium shell
- Loosen the plastic Venturi (B) - Fig. 1.16 - by levering from under the teeth (BE CAREFUL NOT TO FORCE THEM) and press from the opposite side until it is completely extracted from the aluminium shell.
- Using wrench CH6 remove and DISCARD AND DO NOT RE-USE the 2 nozzles (C), clean plastic debris from relative housing (Fig. 1.17)
- Press in the 2 new nozzles from the kit as far as the threaded part, then screw in tightly



- Reassemble the mixer with the flap in a horizontal position and the spacer springs placed at 120° as shown in the (Fig. 1.18)
- Reassemble gas ramp and silencer, working vice versa.
- Check the number of times the fan turns
- Switch on the power to the boiler and turn on gas cock again
- Fill in and stick on the accompanying transformation data label
- Close the air box cover
- Close up the instrument panel again
- Reassemble the casing and panel

Programme the “Gas type” parameter and regulate the boiler following the instructions in the “Adjustments” section.

**Transformation must be done by qualified personnel only.**  
**After completing transformation, regulate the boiler again following instructions given in the specific paragraph and apply the new identification label from the kit.**

### GENERAL MAINTENANCE

Be particularly careful when handling the mixer: the Clapet juts out from the body so that the mixer must be laid on the air inlet side (flap area) or make sure the Clapet is inside the body if it has to be laid on the Clapet side. The Clapet must never have to bear the weight of the mixer.  
 Clean the Venturi from any dust with an aspirator during the annual system cleaning. Check that flap and Clapet are working correctly (all open at rated flow, all closed at minimum flow).

## 25 - CHECKING COMBUSTION PARAMETERS

Do as follows to analyze combustion:

- Go to GAUGING & SERVICE and set the combustion analysis password as given in paragraph “Adjustments”
- Insert the analyzer probe into the specific openings on the air box, after removing screw B and cap C.

**The fumes analysis probe must be introduced as far as possible.**

- Screw the analyzer setscrews into the fumes analysis opening.
  - The first display gives the reading of the number of turns corresponding to maximum heating power set on the boiler (see paragraph “Adjustments” item P23)
- After turning the domestic hot water temperature selector again the boiler will ignite to check combustion.
- Check combustion.
  - Refer to the “Adjustments” paragraph if the boiler has to be gauged.
  - Remove the analyzer gauge and close the combustion analysis openings by their screws.

### IMPORTANT

The function switching off the boiler when the water temperature reaches maximum limit of about 90°C will also stay on during combustion analysis.

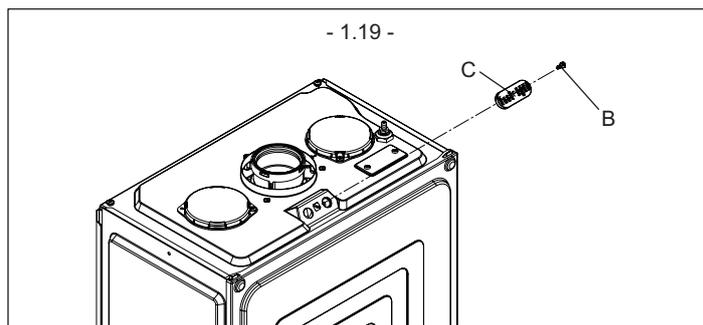
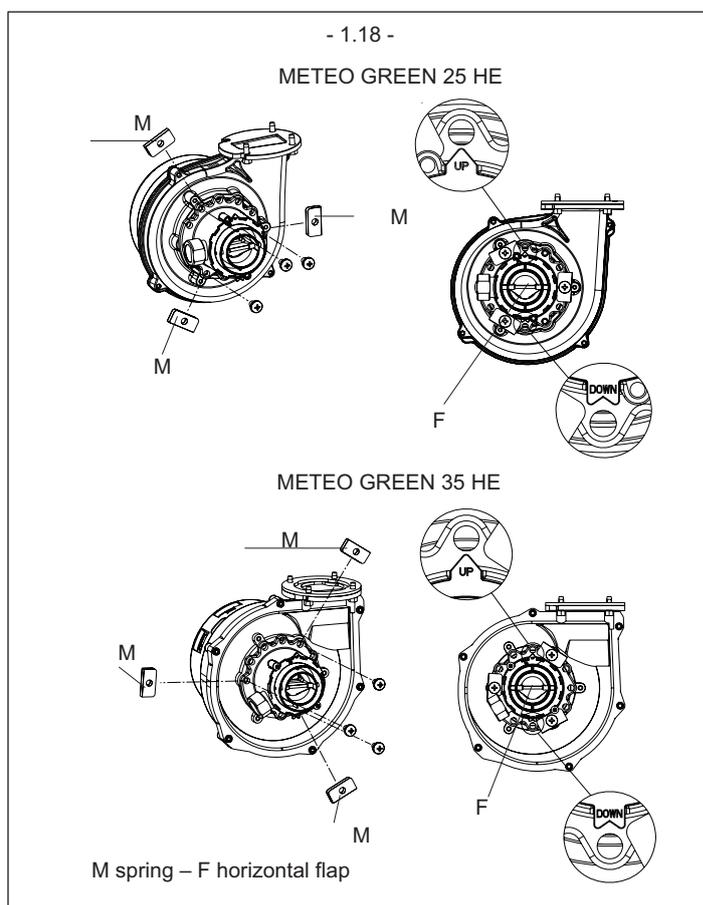
## 26 - MAINTENANCE

- The appliance must be systematically controlled at regular intervals to make sure it works correctly and efficiently and conforms to legislative provisions in force.
- The frequency of controls depends on the conditions of installation and usage, it being anyhow necessary to have a complete check carried out by authorized personnel from the Servicing Centre every year.
- Check and compare the boiler’s performance with the relative specifications. Any cause of visible deterioration must be immediately identified and eliminated.
- Closely inspect the boiler for signs of damages or deterioration, particularly with the drainage and aspiration system and electrical apparatus.
- Check and adjust - where necessary – all the burner’s parameters.
- Check and adjust - where necessary – the system’s pressure.
- Analyze combustion. Compare results with the product’s specification. Any loss in performance must be identified and corrected by finding and eliminating the cause.
- Make sure the main heat exchanger is clean and free of any residuals or obstruction.
- Check and clean - where necessary - the condensation tray to make sure it works properly.

**IMPORTANT** - Always switch off the power to the appliance and close the gas by the gas cock on the boiler before carrying out any maintenance and cleaning jobs on the boiler.

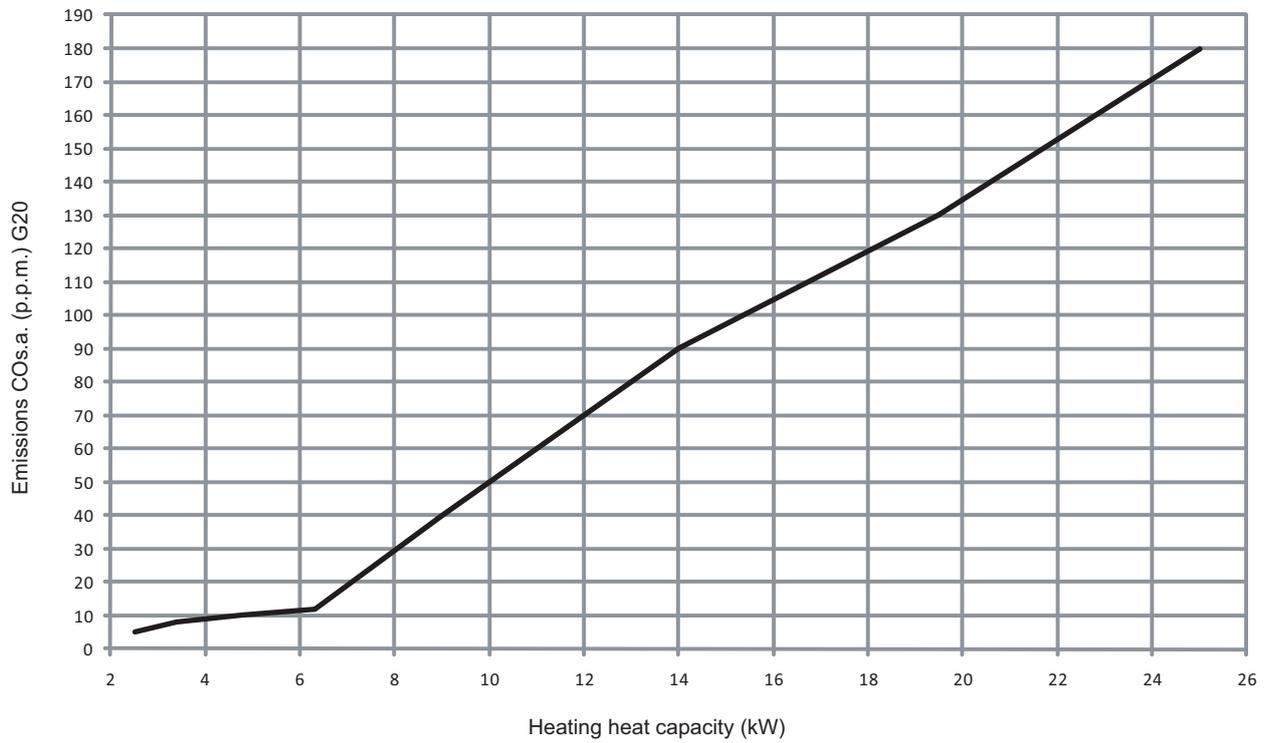
Do not clean the appliance or any latter part with flammable substances (e.g. petrol, alcohol, etc.).

Do not clean panelling, enamelled and plastic parts with paint solvents. Panels must be cleaned with ordinary soap and water only.

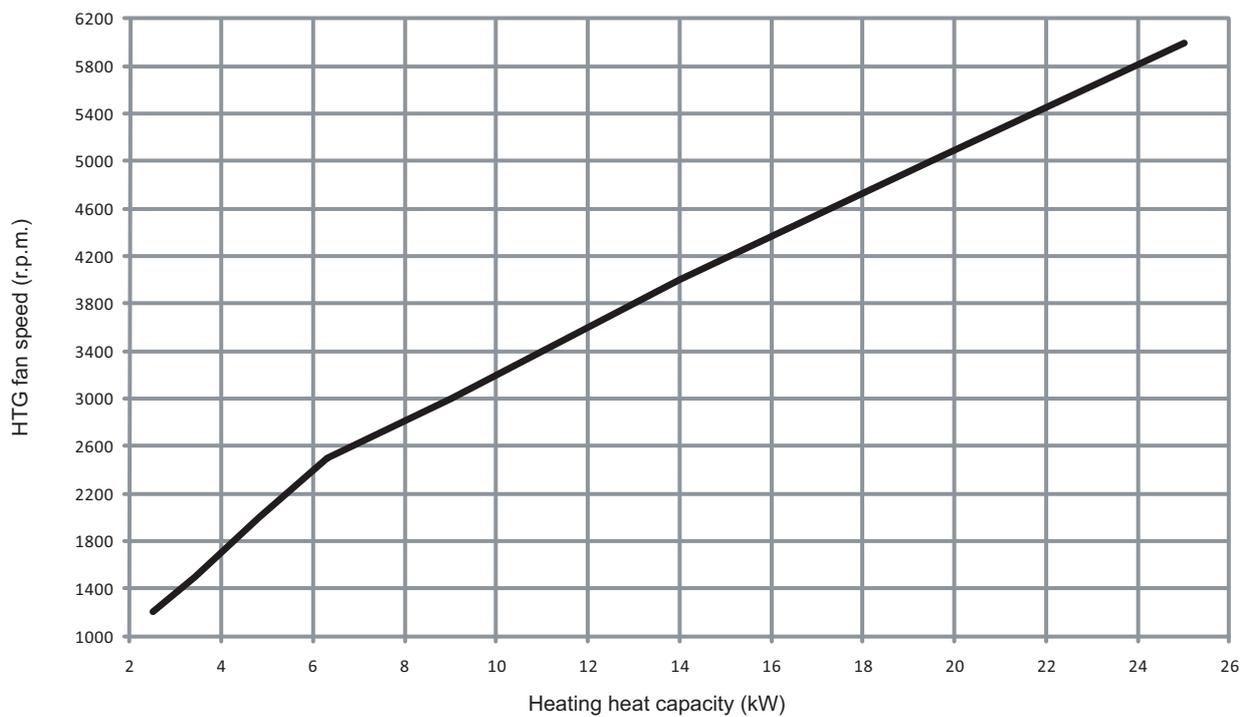


The boiler is supplied with the settings shown in the table. But said values may be adjusted by following the graphs given here below, depending on installation requirements or regional rules and regulations combusted gas emission limits.

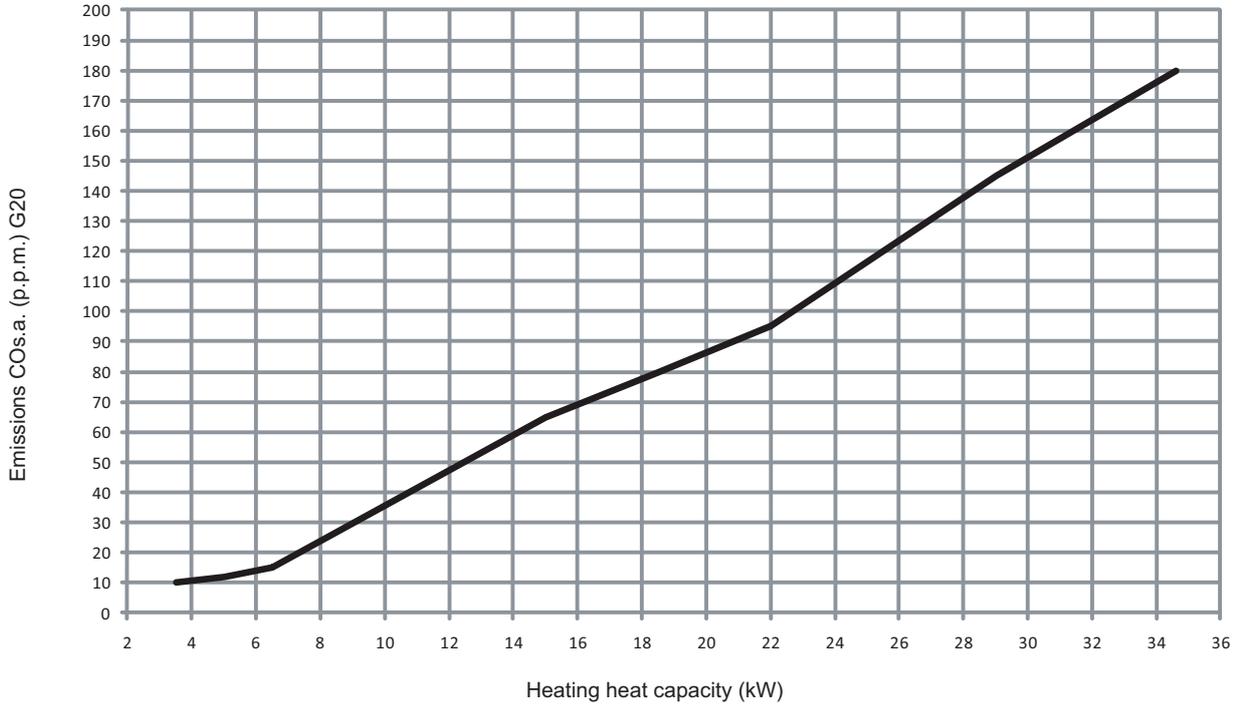
Heat capacity curve – emissions (Qnrisc) – 25 HE



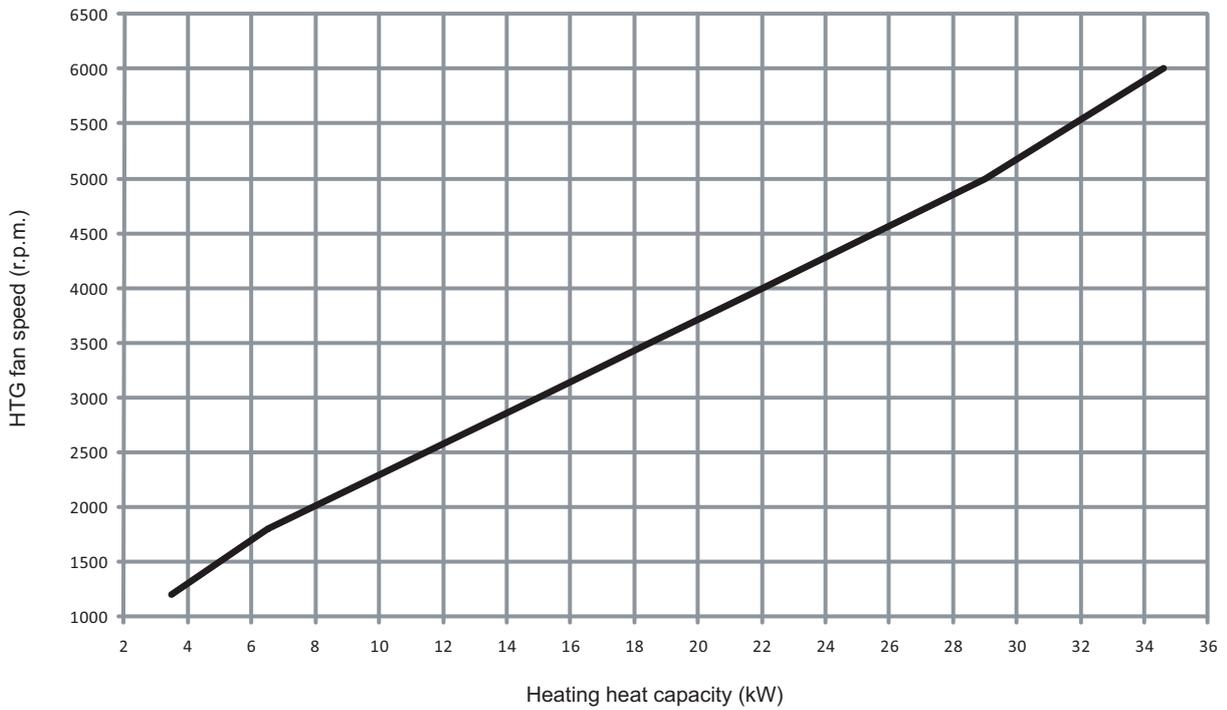
Heat capacity curve – fan rpm (Qnrisc) – 25 HE



Heat capacity curve – emissions (Qnrisc) – 35 HE



Heat capacity curve – fan rpm (Qnrisc) – 35 HE



# REMOTE CONTROL USER MANUAL

Dear Client,

Beretta has always been committing itself to comply with the demands of its own Clients and uses all its experience and competence for the realization of all its appliances.

We made this advisory manual in order to let you become familiar with your new boiler and appreciate with maximum satisfaction the advantages of autonomous heating and instantaneous hot water production.

Please read carefully because, following our information and advice, you would be able to use properly your new appliance and provide for its proper maintenance.

Having finished reading, you should keep it with care; it could be useful for a later consultation.

The **Remote control panel** complies with the following Directives:  
 - Electromagnetic compatibility Directive 2004/108/CEE  
 - Low-voltage Directive 2006/95/CEE



## 1 - GENERAL SAFETY INFORMATION

FOR A PROPER USE OF THE REMOTE CONTROL PANEL, PLEASE READ CAREFULLY THE ENTIRE CONTENTS OF THIS MANUAL.

### WARNINGS

- 1) The remote control panel has to be installed in the room most accessible for checking the temperature of the environment (normally the living room).
- 2) In order to read the display more easily, the remote control panel has to be placed, according to standards, at a height of 1.5 metres from the floor.
- 3) The control panel is supplied with low-voltage directly by the boiler. Nevertheless, it contains a buffer battery, which guarantees the maintenance of the user settings even when there is a blackout or a break in the boiler connection.
- 4) It is essential that the control panel be kept away from heat sources and draughts: these may affect the accuracy of the room thermostat incorporated in the panel.
- 5) Do not attempt to open the panel: it requires no maintenance.
- 6) Do not press against the surface of the liquid crystal display: this could damage the surface itself and cause viewing problems.
- 7) To clean the display, simply wipe with a dry cloth: any infiltrated liquid could damage the liquid crystals.

### HOW TO USE

The remote control panel has three operating modes:

- 1) **ROOM THERMOSTAT**  
The control panel keeps the temperature of the environment constant, based on the settings made by the user.
- 2) **PROGRAMMABLE ROOM THERMOSTAT**  
In this mode, advanced settings are available; you can decide how and when the boiler will switch on to heat up the environment.
- 3) **BOILER CONTROL**  
In this mode, the control panel works only with the boiler controls; it does not control the temperature of the environment. For that, you should use an external room thermostat.

This instructions manual is integral parts of the product. Make sure they remain with the boiler, even if it is transferred to another owner or user or moved to another heating system. In case of loss or damage, please contact your local Technical Assistance Service for a new copy.

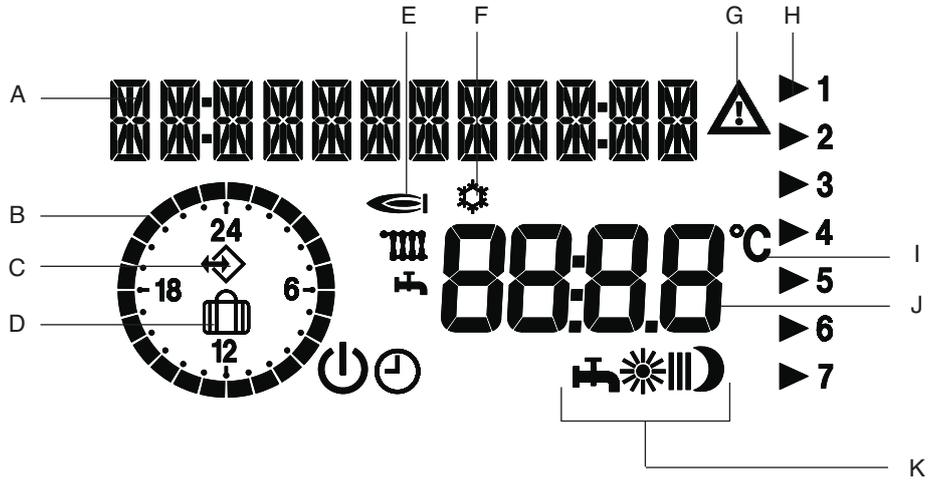
- ⚠ This boiler may only be installed and serviced by qualified fitters who satisfy the requirements of local rules. Work must be done in compliance with regulations in force and subsequent updates.
- ⚠ The boiler must be serviced at least once a year. This should be booked in advance with the Technical Assistance Service.
- ⚠ The installer shall instruct the user in the operation of the boiler and the safety devices.
- ⚠ This boiler may only be used for what it was expressly built to do. The manufacturer declines all contractual and non-contractual liability for injury to persons or animals or damage to property deriving from errors made during installation, adjustment and servicing and from improper use.
- ⚠ When the product reaches the end of its life it should not be disposed of as solid urban waste but should be brought to a separated waste collection facility.
- ⚠ The safety and automatic adjustment devices on the appliance must never be modified during its lifetime, except by the maker or dealer.
- ⚠ If the appliance develops a fault and/or works badly, switch it off and do not attempt to repair it yourself.
- ⚠ In the event of leaks, he/she must shut off the water supply and promptly inform the Technical Assistance Service.
- ⚠ Must periodically check, on the display, that the pressure value is between 1 and 1,5 bar; if not fill the system as described in the paragraph "Boiler functions".
- ⚠ If the boiler is not planned to be used for a long period, he/she should call in the Technical Assistance Service to perform the following operations:
  - turn off the main boiler and general system switches.
  - close the gas and water taps on the heating circuits.
  - drain the heating circuits to prevent freezing.

In some parts of the manual, these symbols are used:

⚠ ATTENTION = for actions that require particular caution and proper training

⊘ FORBIDDEN = for actions that MUST NOT be performed

DESCRIPTION OF DISPLAY



- A Text messages and time display field
- B Daily current heating schedule
- C Communication with the boiler symbol, indicates that there is an exchange of data between the boiler and the remote control panel
- D Holiday function symbol
- E Symbol for burner operating in the heating or sanitary function
- F Anti-freeze protection symbol
- G Modification symbol: indicates that the values set may vary
- H Arrow indicating the current day number
- I Centigrade degrees
- J Displaying the values set
- K Operating mode symbols

 Stand-by/OFF (The heating and domestic hot water are off, only the anti-freeze function is active)

 Automatic operating mode – programmable room thermostat

 Manual operating mode (continuous heating at selected temperature - T-AMB1) – room thermostat

For the heating schedule, the symbols correspond to:

 1st operating time band

 2nd operating time band

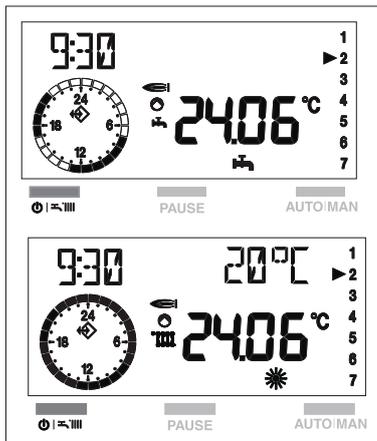
 3rd operating time band

 Night operating mode (reduced temperature heating)

 Summer operating mode (heating off, domestic hot water only)

## 2 - SWITCHING ON

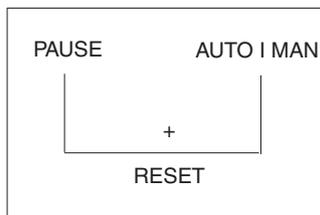
With the dashboard cover closed, push the button  until you see on the display the desired operating mode, summer  or winter  (the display shows one of the available winter operating modes – see section “Winter operating mode”).



The remote control panel starts up in the operating mode in which was set to work before it was switched off: if it was in winter mode , it starts up in winter mode; if it was in summer mode , it starts up in summer mode.

The boiler will start up and continue to operate until the selected temperatures are reached.

If faults occur on starting or operating, the boiler will make a “safety stop” and a fault



code will appear on the display. To reset the boiler: press the PAUSE and AUTO-MAN buttons simultaneously on the remote control panel.

If the blocking fault occurs over again, contact the Service Center.

For detailed information, see section “Faults”.

### ATTENTION

The remote control panel carries out different functions, depending on the dashboard cover being open or closed.

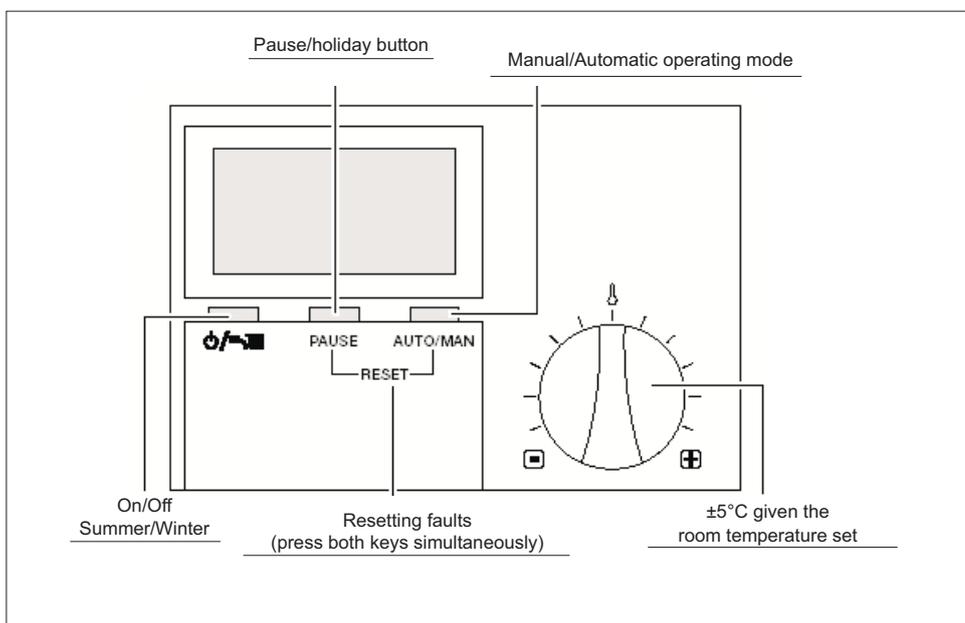
With the dashboard **cover closed**, basic functions are available, which allow the user to switch on or off the boiler, choose the desired operating mode and unblock the boiler when a fault occurred.

It is very interesting the presence of the selector for adjusting the room temperature, which facilitates the correction of the room temperature set with  $\pm 5^\circ\text{C}$ .

With the dashboard **cover open**, advanced functions are available, as for instance regulating temperatures, setting the heating schedule and others (see dedicated chapter).

## 3 - USING THE REMOTE CONTROL PANEL

### 3.1 Basic functions (dashboard cover closed)

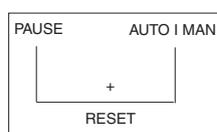


With the cover closed, the following buttons are enabled:

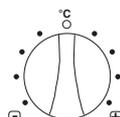
  On/Off, selects the operating mode

**PAUSE** Pause/Holiday (Interrupts the heating schedule)

**AUTO I MAN** In winter mode, selects the operating mode: manual, night or automatic



Pressed simultaneously, they unblock the boiler (RESET)



Selector for adjusting the room temperature set with  $\pm 5^\circ\text{C}$ .

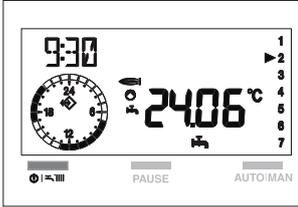
### 3.1.1 Selecting the operating mode

#### SUMMER MODE (boiler in STAND-BY)

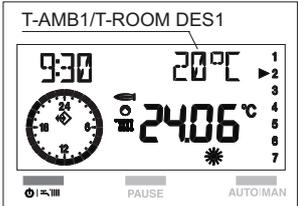
#### WINTER MODE

heating

To select the winter operating mode, press the “ ” button. To select the desired winter operating mode, press the AUTO/MAN button until you see the corresponding symbol on the display. The display shows one of the available winter operating modes:



#### MANUAL MODE



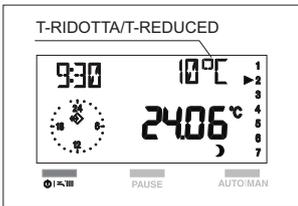
When the symbol “”, is displayed, the remote control panel operates as **ROOM THERMOSTAT**.

In the “” operating mode, the boiler works “manually”, that is to say independently of the time bands set in the heating schedule (paragraph 3.2.4. HTG-PROG dedicated section). As a

result, the heating works continuously at the selected temperature (see USER MENU).

To modify the room temperature, see section “Adjusting the preset data” paragraph 3.2.3, “T-ROOM” dedicated section.

#### NIGHT OPERATING MODE



When the “”, symbol is displayed, the heating is off.

he heating function will enable only if the room temperature falls below the reduced temperature set (T-REDUCED - see USER MENU, paragraph 3.2.4)..

To adjust the reduced temperature values, see chapter “Adjusting the preset data” paragraph 3.2.3., “T-REDUCED” dedicated section)

#### AUTOMATIC OPERATING MODE



When the “”, s displayed, the remote control panel operates as **PROGRAMMABLE ROOM THERMOSTAT**, given the heating time bands scheduled. The time bands are three and they identify with the symbols: | | |

To adjust them, see the paragraph 3.2.4 “HTG-PROG” dedicated section

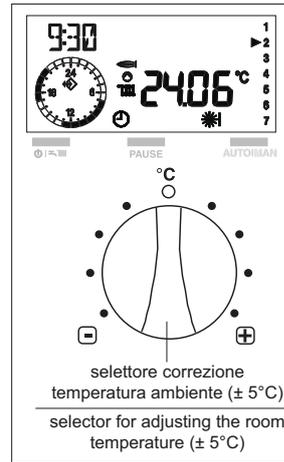
In the “” operating mode, the boiler works “automatically”.

To adjust the room temperature values, see chapter “Adjusting the preset data” paragraph 3.2.3., “T-ROOM” dedicated section.



To return to the automatic operating mode after a period of manual functioning, you need to press the button AUTO/MAN until the display shows the “” symbol.

### 3.1.2 Selector for adjusting the room temperature set



In the manual and automatic operating modes, the heating function depends on the room temperature values set.

These values can be adjusted with  $\pm 5^\circ\text{C}$  by turning the selector – see figure.

To adjust the temperature, proceed as follows:

- to increase the temperature set, turn the selector to the right,
- to decrease the temperature set, turn the selector to the left.

It is not possible to use the selector for adjusting the domestic hot water temperature.

The modification does not produce any effect on the reduced temperature set (night operating mode).

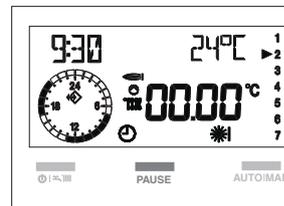
### 3.1.3 Interrupting the heating schedule

#### PAUSE



The **PAUSE** function is active only in the and | | | operating mode.

During this phase, the boiler does not operate and it will start over when the PAUSE time band set is finished or when the room temperature falls under the reduced temperature set.



If you press the **PAUSE** button If you press the PAUSE button once, the display shows four zeros in the room temperature field.

If, for 5 sec. from the first pressing you do not make any modification, the panel exits the function.



Another time, you can move on to set the interruption time bands, which can reach a maximum of 24 hours. The display appears as in figure. Each pressing of the **PAUSE** button increases the interruption time band with 1 hour.

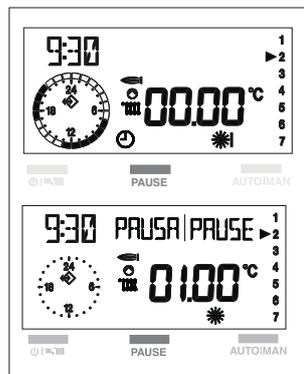
Each pressing of the AUTO/MAN button decreases the interruption time band with 1 hour.

The “PAUSE” function enables right after the PAUSE hours are set and disables when they are over.

To exit the PAUSE function before the time set is over, you have to press the “”, button; after some seconds the PAUSE word disappears from the display.

Press again the “” button, to select the function desired.

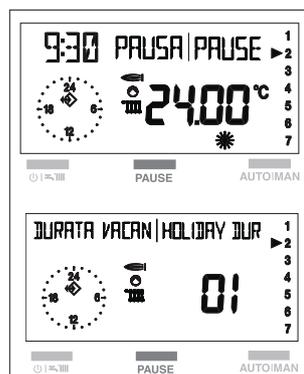
## HOLIDAY



To enable the function, you have to set the system in winter mode and overtake the 24 hours PAUSE in the following way:

- in winter mode press the **PAUSE** button.

The display shows four zeros in the room temperature field.



- press the PAUSE button repeatedly to start setting the interruption hours. Once the 24 hours are overtaken, the PAUSE word will disappear from the display

The display shows HOLIDAY DUR and the number of days of absence (for example 01).

⚠ If you do not make any setting, after 3 sec. from displaying HOLIDAY DUR, the panel automatically exits the programming

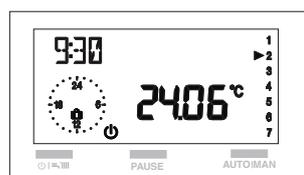
With the PAUSE button, you can increase the number of vacation days.

With the AUTO/MAN button, you can decrease the number of vacation days.

⚠ To enable the function, wait 3 seconds, the panel memorizes the data set. On the display appears "🔒". The panel enters off mode.

⚠ The "HOLIDAY" function will enable right after the values are set.

⚠ The function always disables at 24.00 of the last day scheduled.

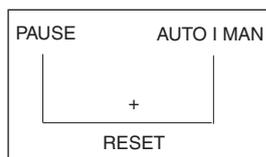


If you want to disable the Holiday function before it was scheduled to stop, press the "🔌" button.

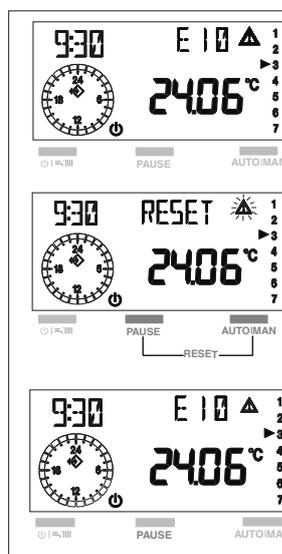
The "🔒" symbol disables.

Select the desired operating mode.

## 3.1.4 Unblocking function



Pressing simultaneously the buttons You can reset the boiler after a safety stop caused by a functioning fault.



During this function, the display shows the word RESET and the "⚠" flashing symbol.

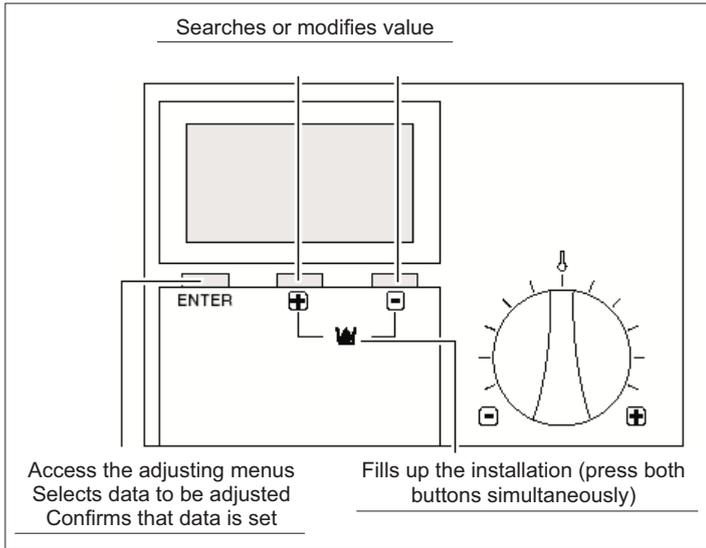
After some moments, the word RESET disappears, the fault code and the "⚠", symbol appear again for some seconds and then the boiler starts to work normally.

⚠ If, after a safety stop, the boiler starts over to work normally, the blocking is due to a casual situation. If the blockings repeat, you should call the Service Center.

⚠ You can make up to 5 unblocking attempts in 15 minutes, after that press the OFF/Reset button directly on the boiler.

⚠ For faults description, please refer to chapter 5 "Faults".

### 3.2 Advanced functions (dashboard cover open)



By opening the dashboard cover, you can access Control or Settings mode directly.

In this mode, you can adjust parameters of either the remote control panel or the boiler and see the installation data..

The buttons described previously in the section “dashboard cover closed, basic functions”, acquire the following new functions:

**The ENTER button permits:**

- selecting the menu
- selecting data to be modified
- memorizing the new value

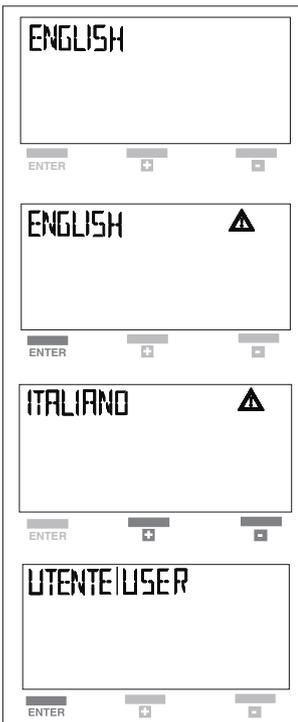
**The “+” button.**

Permits searching or adjusting a value set.

**The “-” button.**

Permits searching or adjusting a value set

#### 3.2.1 Setting the language



By opening the dashboard cover, only after each power supply interruption of the remote control panel, the display shows the language set. The language set by the manufacturer is ITALIAN.

If the language displayed corresponds to the one you desire, press ENTER twice to move on.

If you reopen the dashboard cover successively, the display will show the word “USER”.

If the language displayed does not correspond to the one you desire, adjust it as follows:

- right after you open the dashboard, press ENTER.

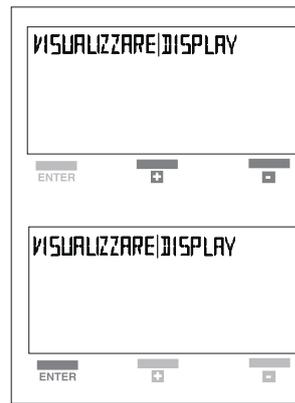
The current language and the “⚠” symbol appear on the display.

- press the +/- buttons to select the language; here are the ones available:

- ITALIANO
- PORTUGUES
- POLSKI
- CROATIAN
- CESKY
- LIETUVISKAI
- LATVIESU
- SLOVENSKY
- MAGYAR
- DEUTSCH
- ENGLISH
- FRANCAIS
- NEDERLANDS
- ESPAÑOL

- confirm the selection by pressing ENTER.

#### 3.2.2 Selecting the menus available



With the +/- buttons, you can run through the menus available, presented below:

**USER:** Setting values, made by user

**DISPLAYING:** Displaying temperatures and installation data (in this menu it is not possible to modify the values displayed)

**TIME+DAY:** Setting the hour and day of the week

**HTG-PROG** Setting the heating schedule

**EXPERT:** Setting parameters, made

exclusively by the Service Center

Press ENTER to go to a menu.

#### 3.2.3 Adjusting the preset data

To adjust the values set in each menu, proceed as follows:

- after you selected and entered the MENU in the way it is written above, with the + or - buttons select the parameter to be adjusted, then
- press ENTER to confirm the selection. The display of the “⚠” symbol indicates that it is possible to modify the value
- adjust the value of the parameter set by pressing the + or – button.
- press ENTER to confirm the modification.

The new value is memorized and the “⚠” symbol disappears from the display.

If you do not want the remote control panel to memorize the new value set, close the dashboard cover before pressing ENTER.

#### 3.2.4 Description of menus

##### USER

T-DHW (DO NOT USE):

- T-DHW 1 (35°C-60°C): Desired domestic hot water temperature.

Desired temperature for the **first time band** in case of domestic hot water schedule (HOTW-PROG).

- T-DHW 2 (35°C-60°C): Desired temperature for the **second time band** in case of domestic hot water schedule (HOTW-PROG).

- T-DHW 3 (35°C-60°C): Desired temperature for the **third time band** in case of domestic hot water schedule (HOTW-PROG).

- T-ROOM DES 1 (5°C-40°C): Comfort level temperature in case

of manual operating mode (see paragraph "operating mode")

Desired temperature for the **first time band** in case of heating schedule (HTG-PROG), see paragraph "HTG-PROG"

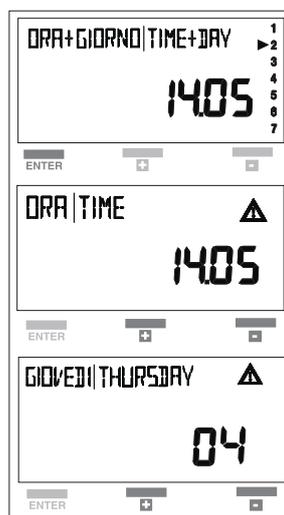
- T-ROOM DES 2 (5°C-40°C °C): Desired temperature for the **second time band**.
- T-ROOM DES 3(5°C-40°C):Desired temperature for the **third time band**.
- T-REDUCED (5°C-40°C): Desired temperature for night operating mode and for PAUSE mode.
- RETURN: Permits returning to USER menu

To change the values set, follow the indications in the paragraph "Adjusting the values set"

**DISPLAYING**

In displaying menu, you can run through the following values, which refer to instantaneously recorded temperatures:

- T-OUTSIDE: Displaying the external temperature, only if an external probe was connected to the boiler. By pressing ENTER, the display shows the maximum temperature value and the hour when it has been recorded. By pressing + and – the display shows the maximum and minimum values and the hour when they have been recorded. By pressing ENTER, you return to the DISPLAYING menu.
- T-ROOM: Displaying the room temperature [°C]. By pressing ENTER, the display shows the room temperature set (T-ROOM DES 1). By pressing + and – the display shows the maximum and minimum values and the hour when they have been recorded. By pressing ENTER, you return to the T-ROOM menu.
- T-DHW (DO NOT USED): Displaying domestic hot water real-time temperature [°C] . By pressing ENTER, the display shows the current desired temperature. By pressing ENTER, you return to the T-DHW menu.
- T-BOILER: displaying the boiler delivery temperature (°C). By pressing ENTER, the display shows the calculated temperature. By pressing ENTER, you return to the T-BOILER menu.
- MODULATION: Displaying the boiler current working efficiency [%].
- BURNER-TIME: Displaying the burner working hours. By pressing ENTER, you cancel the memorized value. By pressing ENTER you return to the BURNER-TIME menu.
- BURNER-START: Displaying the burner start-ups number. By pressing ENTER, you cancel the memorized value. By pressing ENTER, you return to the Information menu.
- WATER-PRESS: Displaying the boiler water pressure.
- RETURN: Permits returning to the DISPLAYING menu.



**TIME+ DAY**

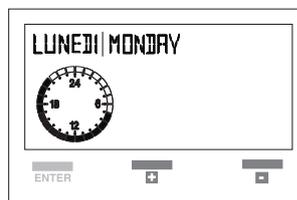
In TIME+DAY menu, perform the following operations:

- Press ENTER. The display shows the current hour and the "▲" symbol.
- With + and – set the right hour. By pressing continuously + or - the minutes elapse by 15 minutes stages: 15, 30, 45.
- Press ENTER to confirm.
- The display shows the current day and the corresponding number:  
Monday 01  
Tuesday 02  
Wednesday 03  
etc.
- With the + o – set the desired day
- Press ENTER to confirm.
- The display returns to the TIME+DAY

menu, displaying the new memorized settings.

**HTG-PROG**  
(heating schedule)

Permits programming three 24 hours operating time bands.



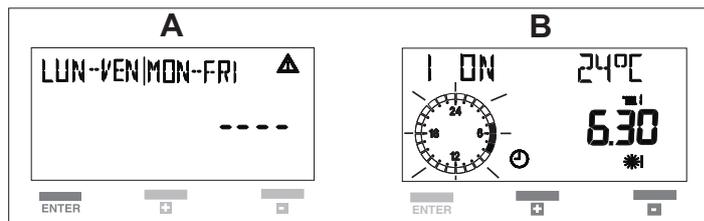
Each time band is assigned a room temperature set in USER menu (T-ROOM DES 1, 2, 3).

To set the time bands, proceed as follows:

- go to HTG-PROG
- press ENTER and the display will show the first day of the week
- with the + e – buttons select one of the available programs, described below:
- Daily: you can schedule each day of the week separately. The display will show each day: Monday, Tuesday, Wednesday, etc.
- Holiday: you can schedule week days at the same time (Monday to Friday) and Saturday and Sunday differently
- Sat-Sun: you schedule only Saturday and Sunday
- Weekly : you can schedule all the days of the week at the same time

(Monday to Sunday)

Select a schedule, then press ENTER to confirm.



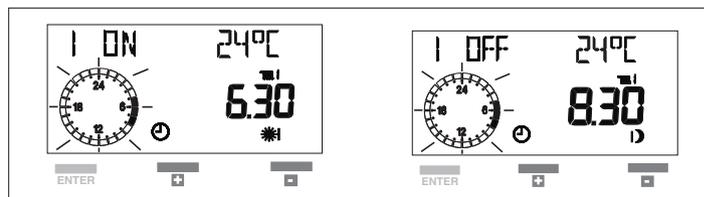
For a few seconds, the display will appear as in figure A, after that as in figure B.

The time bands programming phase always begins with a starting timetable (ON), identified with the symbol ☀ and finishes with an ending timetable (OFF), identified with the symbol ☾.

The 3 time bands are expressed on the display by the following symbols:

- |         |       |
|---------|-------|
| ☀       | ☾     |
| ☀ II    | ☾ II  |
| ☀ III   | ☾ III |
| 1) ☀ ON | ☾ OFF |
| 2) ☀ ON | ☾ OFF |
| 3) ☀ ON | ☾ OFF |

Set the starting timetable (ON) by pressing the + and – buttons and



the press ENTER to confirm.

The display appears as in figure.

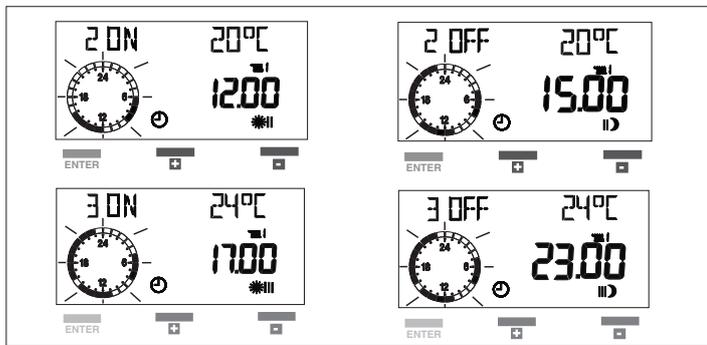
Set the ending timetable (OFF) by pressing the + and – buttons and the press ENTER to confirm.

▲ During the OFF phase, the boiler is in night operating mode ☾, and it will switch on only if the temperature falls under the T-REDUCED value set (see USER menu, paragraph 3.2.4).

Once you set down the ending timetable, press ENTER.

The display appears as in figure.

Proceed the same way to set the subsequent time bands ☀ II,



After you finished programming, press the + or – button to go to RETURN and exit the HTG-PROG menu. To stop at any moment the time bands programming, close the cover of the panel.

The values set will not be memorized. You may exclude the heating schedule from one or more time bands. To do so, proceed as follows:

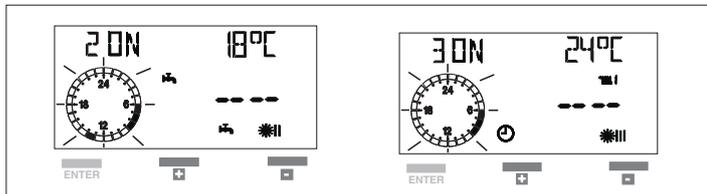
- set a time band: example ☀️ ON - 🌙 OFF as previously indicated
- press ENTER
- or the second time band overtake the 24 hours by pressing the + button.

The display shows segments instead of the timetable, see the figure

- press ENTER to confirm. By doing this operation, you excluded the second time band from the heating schedule
- for the third time band overtake the 24 hours by pressing the + button

The display shows segments instead of the timetable.

- press ENTER to confirm. By doing this operation, you excluded the third time band from the heating schedule.



The boiler will operate according to the time band set and will stay off the rest of the time.

The relative room temperature is automatically assigned to each time band and set in the HTG-PROG menu (T-ROOM DES 1, 2, 3):

- ☀️ T-ROOM DES1
- ☀️☀️ T-ROOM DES2
- ☀️☀️☀️ T-ROOM DES3

The default room temperatures are set for 20°C, but you may adjust them, as already explained in paragraph 3.2.4 “Description of menus” “USER” dedicated section.

If the room temperatures were personalized/modified, the programs are assigned these new values.

**EXAMPLE OF PROGRAMMING**

We consider that you want to set three heating time bands in 24 hours.

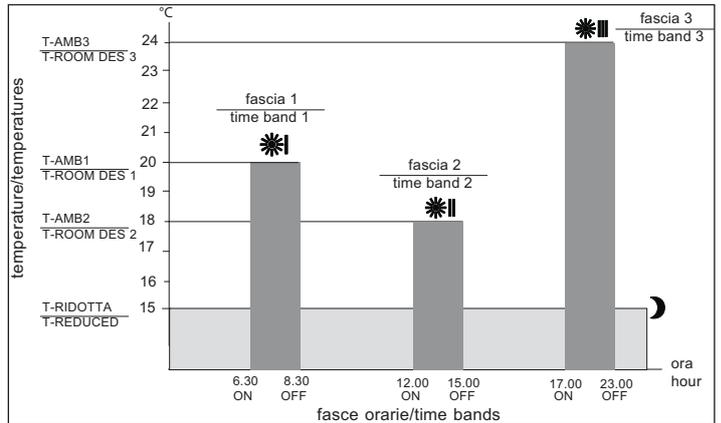
- time band 1: from 6.30 to 8.30 desired temperature 20°
- time band 2: from 12.00 to 15.00 desired temperature 18°
- time band 3: from 17.00 to 23.00 desired temperature 24°

In HTG-PROG MENU set the time bands.

In USER MENU set the desired temperature:

- T-ROOM DES1 20°C
- T-ROOM DES2 18°C
- T-ROOM DES3 24°C

The progress of temperature/time bands will be as shown in the diagram.



You may set even temperatures for different time bands

Eg. T-ROOM DES-1 = T-ROOM DES-2

It is not possible to overlay the time bands.



**HOTW-PROG (DO NOT USE FOR METEO GREEN HE R.S.I.)**

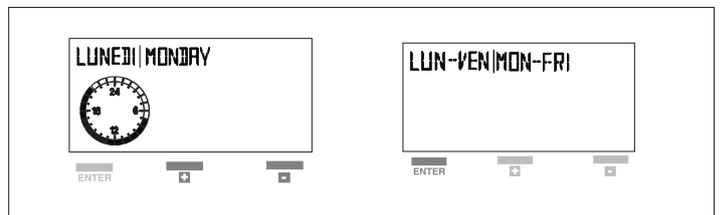
(domestic hot water schedule) Permits programming three operating time bands during the 24 hours. Each time band is assigned a sanitary temperature set in the USER menu (T-DHW 1, 2, 3).

This function is enabled only for boilers with water tanks.

If the water tank is equipped with probe, you can set the desired temperature; for boilers with thermostat, you have to set the water temperature directly on the boiler.

To set the time bands, proceed as follows:

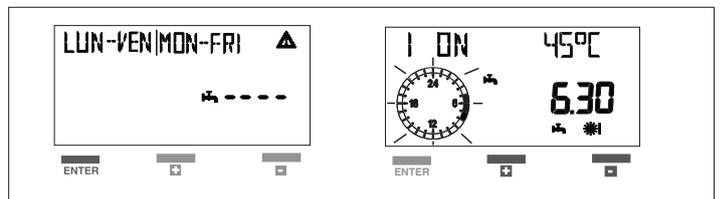
- go to HOTW-PROG
- press ENTER, the display will show the first day of the week
- with the + e – buttons select one of the available schedules described below:
  - Daily: you can schedule each day of the week separately. The display will show each day: Monday, Tuesday, Wednesday, etc
  - Holiday: you can schedule week days at the same time (Monday to Friday) and Saturday and Sunday differently
  - Sab-Dom: you schedule only Saturday and Sunday
  - Weekly: you can schedule all the days of the week at the same



time (Monday to Sunday)

Select a schedule, then press ENTER to confirm

For a few seconds, the display will appear as in figure A, after tha-



tas in figure B.

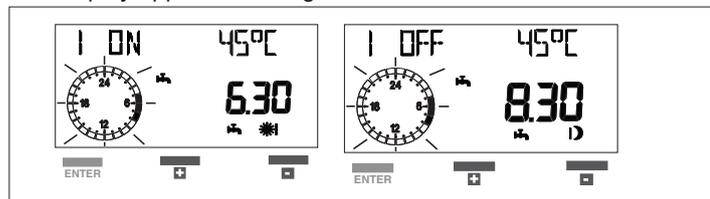
The time bands programming phase always begins with a starting timetable (ON), identified with the symbol ☀ and finishes with an ending timetable (OFF), identified with the symbol ☾.

The 3 time bands are expressed on the display by the following symbols:

- 1) ☀ I ON ☾ OFF
- 2) ☀ II ON ☾ OFF
- 3) ☀ III ON ☾ OFF

Set the starting timetable (ON) by pressing the + and – buttons and the press ENTER to confirm.

The display appears as in figure



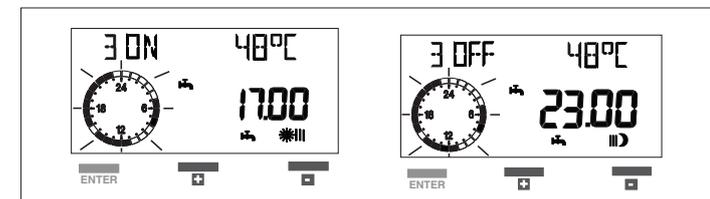
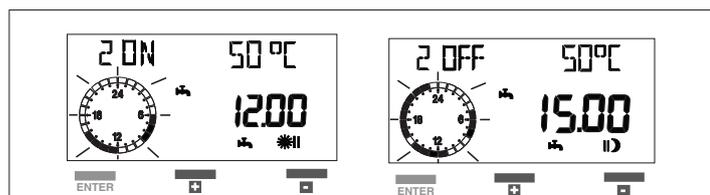
Set the ending timetable (OFF) by pressing the + and – buttons and the press ENTER to confirm.

During the OFF phase, the preparation of domestic hotwater is stopped.

Once you set down the ending timetable, press ENTER.

The display appears as in figure.

Proceed the same way to set the subsequent time bands ☀ II, ☀ III.



After you finished programming, press the + or – button to go to RETURN and exit the HOTW-PROG menu.

To stop at any moment the time bands programming, close the cover of the panel.

The values set will not be memorized.

You may exclude the heating schedule from one or more time bands. To do so, proceed as follows:

- set a time band: example ☀ I ON - ☾ OFF as previously indicated
- press ENTER
- for the second time band overtake the 24 hours by pressing the + button.

The display shows segments instead of the timetable, see the figure

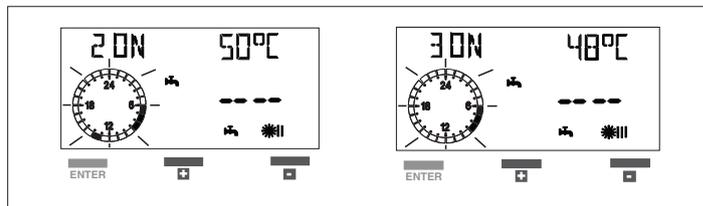
- press ENTER to confirm.
- By doing this operation, you **excluded the second time band** from the heating schedule
- for the **third time band** overtake the 24 hours by pressing the + button

The display shows segments instead of the timetable.

- press ENTER to confirm

By doing this operation, you **excluded the third time band** from the heating schedule.

The boiler will operate according to the time band set and will stay off the rest of the time.



The relative domestic hot water temperature is automatically assigned to each time band set in the HOTW-PROG menu (T-DHW 1, 2, 3):

- ☀ I T-DHW1
- ☀ II T-DHW2
- ☀ III T-DHW3

The default domestic hot water temperatures are set for 50°C, but you may adjust them as already explained in paragraph 3.2.4 "Description of menus", "USER" dedicated section. If the domestic hot water temperatures were personalized/modified, the programs are assigned these new values.

### EXAMPLE OF PROGRAMMING

We consider that you want to set three heating time bands in 24 hours.

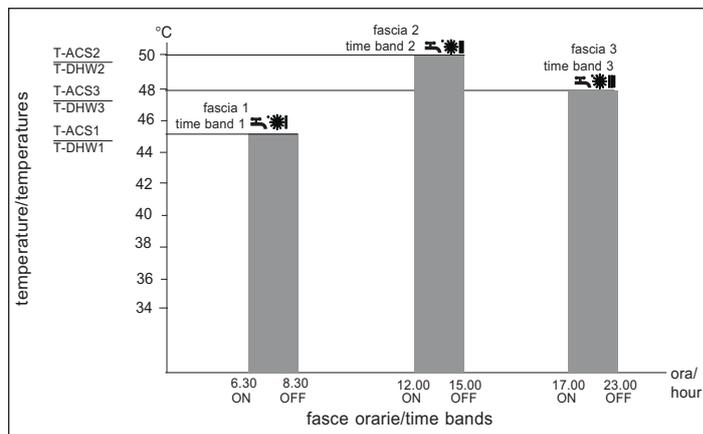
- time band 1 from 6.30 to 8.30  
desired temperature 45°
- time band 2 from 12.00 to 15.00  
desired temperature 50°
- time band 3 from 17.00 to 23.00  
desired temperature 48°

In PROGR-RISC MENU set the time bands.

In USER MENU set the desired temperature:

- T-DHW1 45°C
- T-DHW2 50°C
- T-DHW3 48°C

The progress of temperature/time bands will be as shown in the diagram.



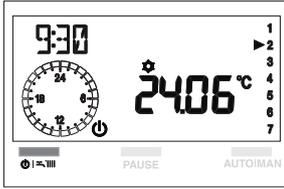
You may set even temperatures for different time bands

Eg. T-DHW-1 = T-DHW-2

It is not possible to overlay the time bands.

## 4 - SWITCHING OFF

### Switching off for short periods

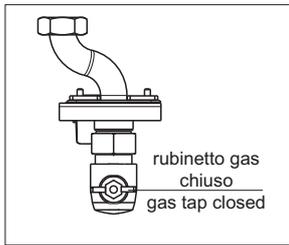


In the event of short periods of absence, press the “” button on the remote control panel – with the dashboard cover closed – to switch off the boiler. The display will appear as in figure. The remote control panel keeps all the settings memorized.

This way, leaving the power supply and the gas supply on, the boiler is protected by the systems:

- Anti-freeze: when the water temperature in the boiler falls below safety values, the circulation pump enables and the burner starts at minimum power, in order to restore the water temperature to safety values (35 °C).
- Anti-freeze from remote control panel (see installer’s manual).
- Circulation pump anti-blocking: an operating cycle starts at every 24 h.

### Switching off for long periods



In case of long periods of absence, press the “” button on the remote control panel – with dashboard cover closed - to switch off the boiler.

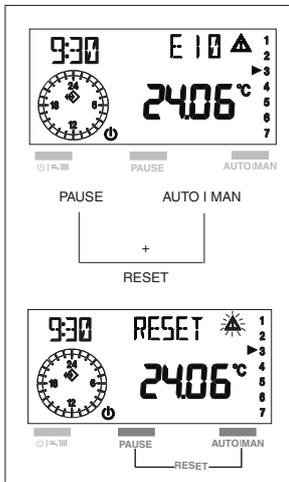
Turn the general system switch to “OFF”.

Then, close the gas tap placed under the boiler, by turning it clockwise. In this case, the anti-freeze and anti-block-

cking systems are disabled.

Drain the heating system or suitably protect it with a good make of anti-freeze. Drain the hot water system.

## 5 - FAULTS



When a functioning fault occurs, the display shows a flashing fault code and the “” symbol.

To reset the boiler after a fault occurred, press the PAUSE and AUTO MAN buttons simultaneously for about 3 seconds, see paragraph “3.1.4 Unblocking function”.

During this operation, the display shows the word RESET and the “” flashing symbol (see paragraph 3.1.4 Unblocking function).



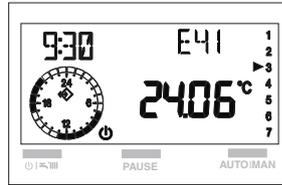
If, after a safety stop, the boiler starts over to operate normally, the blocking is due to a casual situation. If the blockings repeat, you should call the Service Center.



### FAULT E20

Whether the E20 code appears on the display.

If resetting succeeds, the E20 code disappears from the display. If the fault persists, press the button to switch off the boiler and call the Service Center.



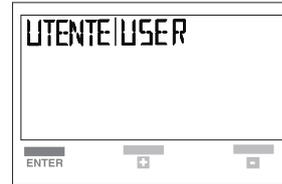
### FAULT E41

Should the wording FILL REQ appear on the display for lack of water, the filling procedure can be activated as follows:



If the filling procedure concludes successfully, the wording FILL REQ disappears from the display.

If the wording remains and filling has not been activated first it could be transformed into error E41 then into definitive error E40.



**Error E40:** un-lock the boiler by pressing both the PAUSE and AUTO MAN buttons together for about 3 seconds then carry on with filling the system as described above.

Best to call the servicing centre with repeated lock-outs.

### R.S.I. MODELS

- press the button to switch off the boiler
- call the servicing centre for help.

### FAULT VENT

(only for Exclusive Boiler Green models)

The display of “VENT” indicates that the boiler is making the automatic air discharge cycle, which takes about 2 minutes. By pressing the PAUSE and AUTO MAN buttons simultaneously for about 3 seconds, you can interrupt the cycle.

## 6 - MISCELLANEOUS

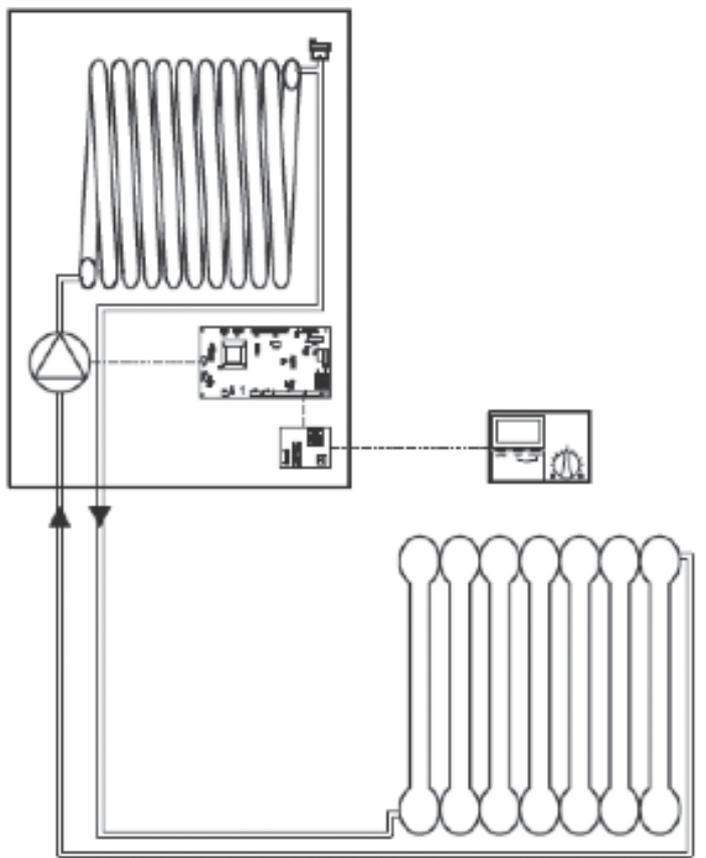
The remote control panel is supplied with electric power by the boiler. If there is a breakdown in the communication line between the remote panel and the boiler or there is no power supply, the digital display shuts off completely. The panel is equipped with a long duration internal memory with the purpose of memorizing all the schedules set, except hour and day settings.

## GUIDE TO MAIN CONFIGURATIONS

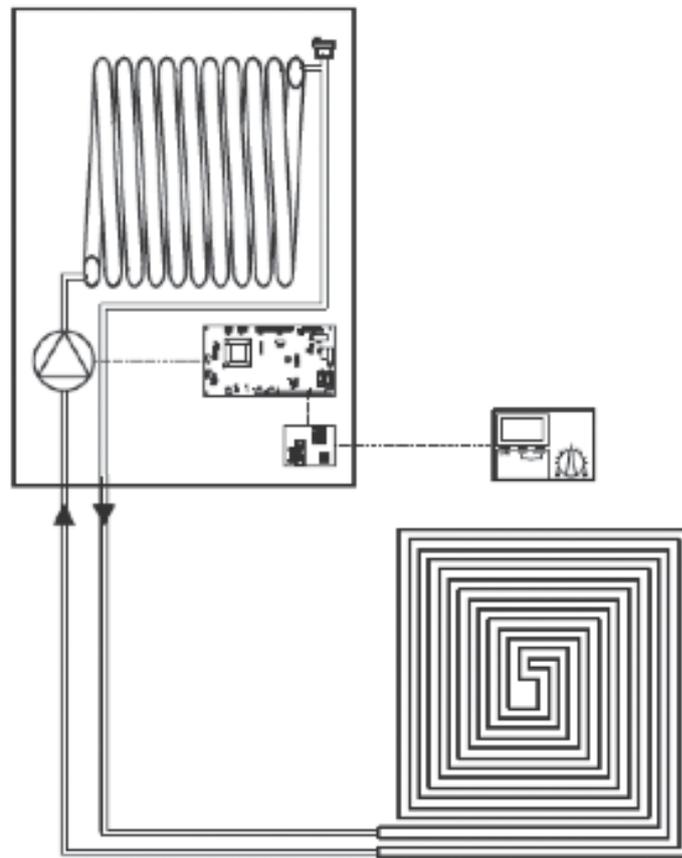
### SOLUTION A

System	Temperature	External Probe	Heating Call
Direct	High or Low	Not installed	Rec07

TRADITIONAL SYSTEM – RADIATORS HIGH TEMP.



UNDERFLOOR HEATING SYSTEM



With Parameter nr.20=1, and then with Par. nr. 21 and Par.22 we define the maximum and minimum limit of the Heating Set Point (SP).

When the Rec07 makes an heating call, the system can work in 2 different ways:

- The Rec07 defines the value of the water flow temperature thanks to the thermoregulation ( ambient temperature probe installed). The value of the water flow temperature is between the "MAX T-HS"- Maximum Flow Temperature (80°C default) and – "MIN T-HS" Minimum Flow Temperature (30°C default). The thermoregulation curves start from the "MIN T-HS" (Minimum Flow Temperature) value. For each degree of temperature (delta difference to the set point) the flow temperature is increased of 2 x "ROOM – INFL" value.

**Example for high temperature:** Parameter "MIN T-HS" (Minimum Flow Temperature) = 50 and parameter "ROOM – INFL" = 5. If we have an ambient temperature of 18°C vs 20°C as ambient temperature set point, we have accordingly a flow temperature of  $50 + 2 \times (20-18) \times 5$  ("ROOM INFL") = 70°C.

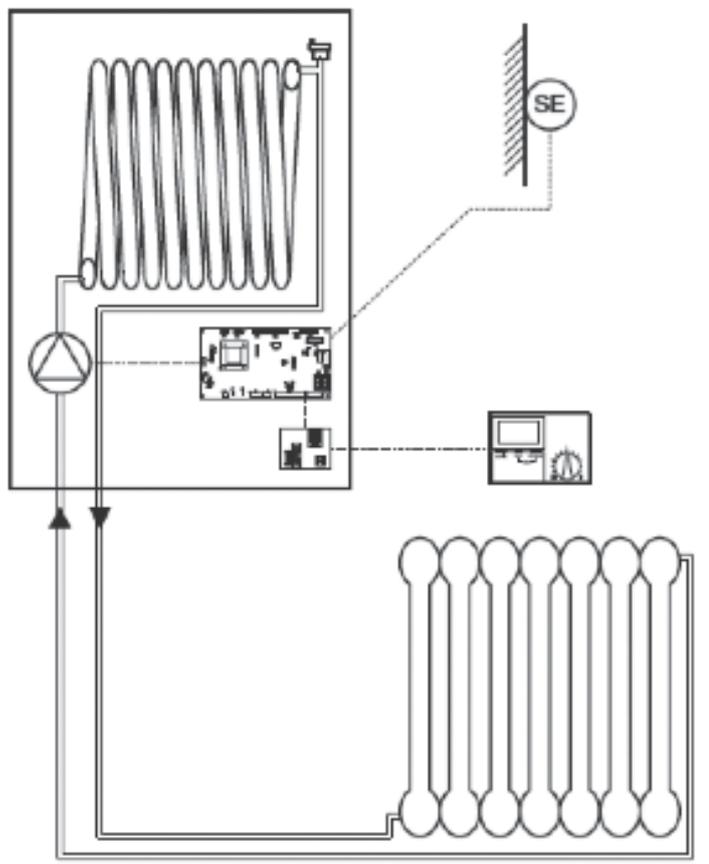
**Example for low temperature:** Parameter "MIN T-HS" (Minimum Flow Temperature) = 20 and parameter "ROOM INFL" = 2. If we have an ambient temperature of 18°C vs 20°C as ambient temperature set point, we have accordingly a flow temperature of  $20 + 2 \times (20-18) \times 2$  ("ROOM – INFL") = 28°C.

- The Rec07 defines the flow temperature at a fixed point if it is configured with parameter "ROOM – INFL" = 0 and parameter "MIN T-HS" (Minimum Flow Temperature) = parameter SP (Set Point) of the desired heating value. The parameter "MIN T-HS" (Minimum Flow Temperature) can be set from 20÷80°C.

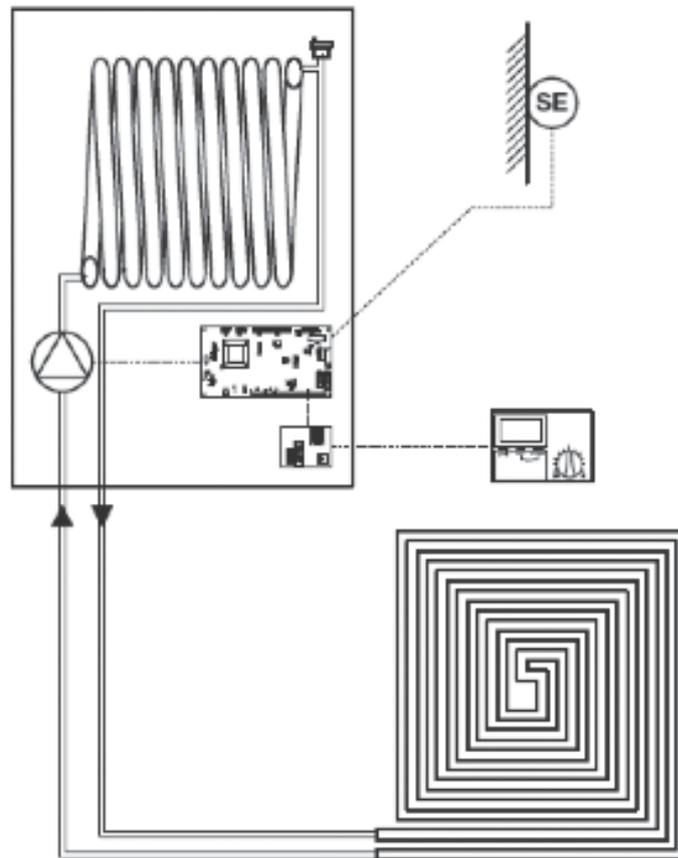
**SOLUTION B**

System	Temperature	External Probe	Heating call
Direct	High or Low	Installed	Rec07

**TRADITIONAL SYSTEM – RADIATORS HIGH TEMP.**



**UNDERFLOOR HETING SYSTEM**



With Parameter nr.20=1, and then with Par. nr. 21 and Par.22 we define the maximum and minimum limit of the Heating Set Point (SP).

With the external probe and the Rec07 request, the system can work in 2 ways, according to Parameter nr.44:

- If the Par.44=0, the thermoregulation is managed by the Rec07 which uses both its ambient probe and the boiler external one. With the parameter "HEAT SLOPE", we define the external probe curve and with the parameter "ROOM – INFL", the compensation of the ambient probe. With the parameter "MIN T-HS" (Minimum Flow Temperature) and the parameter "MAX T-HS" (Maximum Flow Temperature), we define the maximum and the minimum limit of the calculated flow temperature.

**Example for high temperature:** parameter "HEAT SLOPE"=2 and parameter "ROOM – INFL"=5. If we have an ambient temperature of 18°C vs 20°C as ambient temperature set point, and 0°C outside, we have accordingly a flow temperature of 67.5°C calculated by the Rec07 ("HEAT SLOPE"=2) increased of  $(20-18) \times 5$  ("ROOM – INFL")= 77,5°C.

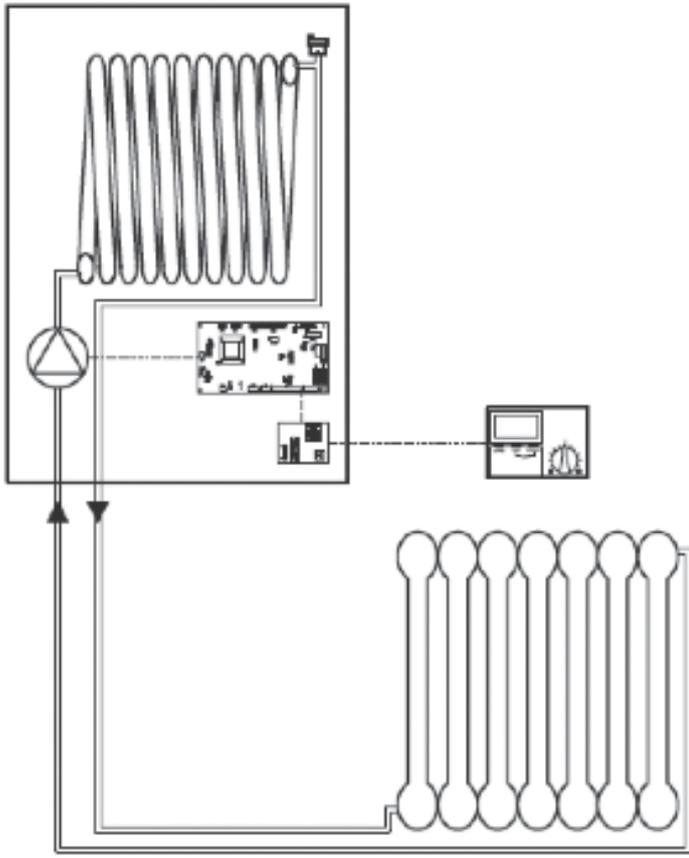
**Example for low temperature:** parameter "HEAT SLOPE"=0,5 and parameter "ROOM – INFL"=2. If we have an ambient temperature of 18°C vs 20° as ambient temperature set point and 0°C outside, therefore we have a flow temperature of 30°C calculated by the Rec07 ("HEAT SLOPE"=0,5) increased of  $(20-18) \times 2$  ("ROOM – INFL")= 34°C.

- The Rec07 defines the flow temperature thanks to the combined thermoregulation between the ambient probe and the external probe, always restricted between "MAX T-HS" – Maximum Flow Temperature (80°C default) and "MIN T-HS" – Minimum Flow Temperature (30°C default).
- With Parameter nr. 44=1 (default), the external probe thermoregulation is managed by the boiler electronic PCB (AE02). With Parameter nr.45 it is defined the thermoregulation curve: 20 (default) for systems with high temperature, 10 for systems with low temperature, but the value can be modified according to the system characteristics. It is suggested to keep the Parameter nr.3 = 5 and use the Parameter nr.65 to define the reactivity value of the external probe. If the house is new and well insulated, the Parameter nr.65 can be set at 20+25 as the internal temperature varies more slowly than the external one. If the house is scarcely insulated, it is advisable to set values between 10+15. Rotating the ENCODER for Central Heating settings it is possible to optimize the curve with a translation of  $\pm 5^\circ\text{C}$  on the desired ambient temperature used for the thermoregulation calculation.

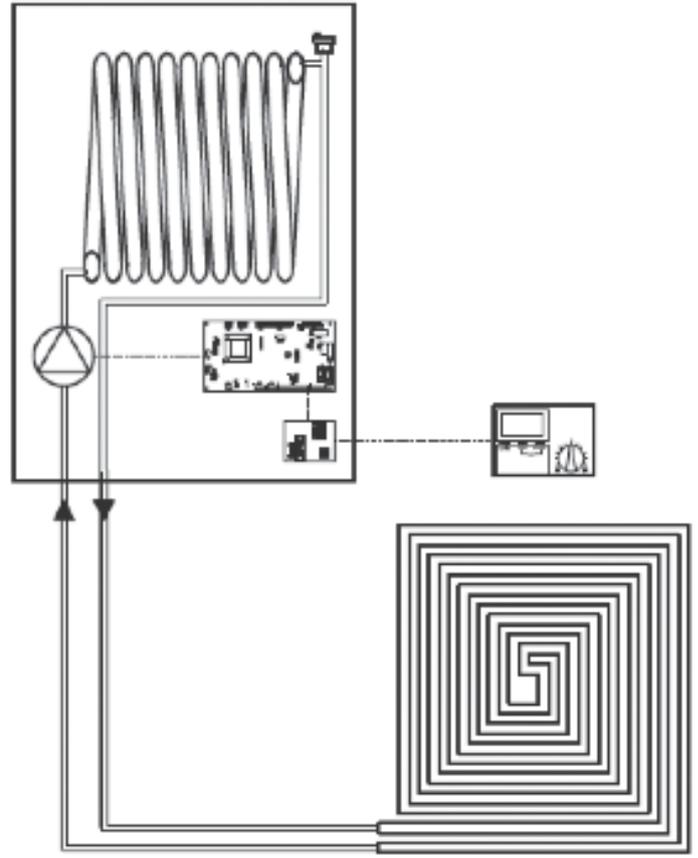
**SOLUTION C**

System	Temperature	External Probe	Heating call
Direct	High or Low	Not installed	Ambient Thermostat

**TRADITIONAL SYSTEM – RADIATORS HIGH TEMP.**



**UNDERFLOOR HEATING SYSTEM**

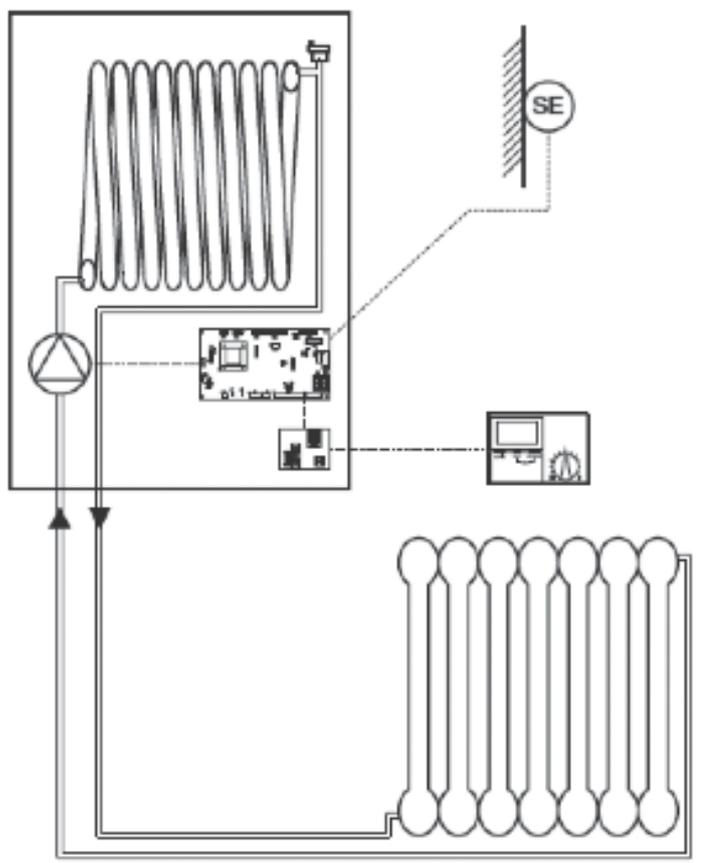


With Parameter nr.20=11, Par. nr. 21 and Par.22 we define the maximum and minimum limit of the Heating Set Point (SP)  
 When the Ambient Thermostat (TA) makes a heating call, the boiler starts working with a heating SP defined with the heating encoder ( $20+80^{\circ}\text{C} = \text{Par.22}+\text{Par.21}$ ). The Rec07 has to be set modifying its 3 day temperature, the night temperature at  $5^{\circ}\text{C}$  and the parameter "ROOM – INFL"=20, in order to avoid heating call.

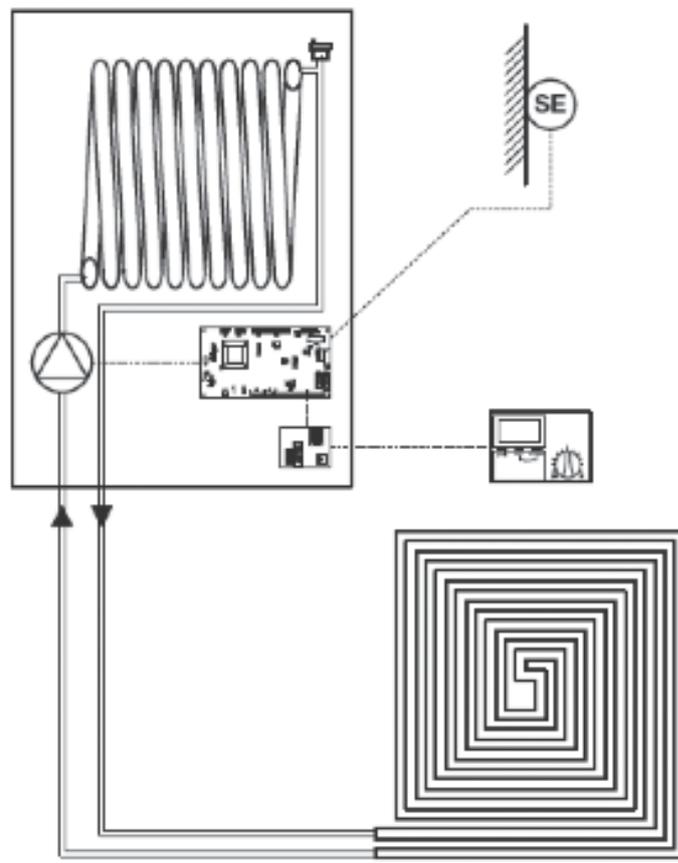
**SOLUTION D**

System	Temperature	External Probe	Heating call
Direct	High or Low	Installed	Ambient Thermostat

**TRADITIONAL SYSTEM – RADIATORS HIGH TEMP.**



**UNDERFLOOR HEATING SYSTEM**

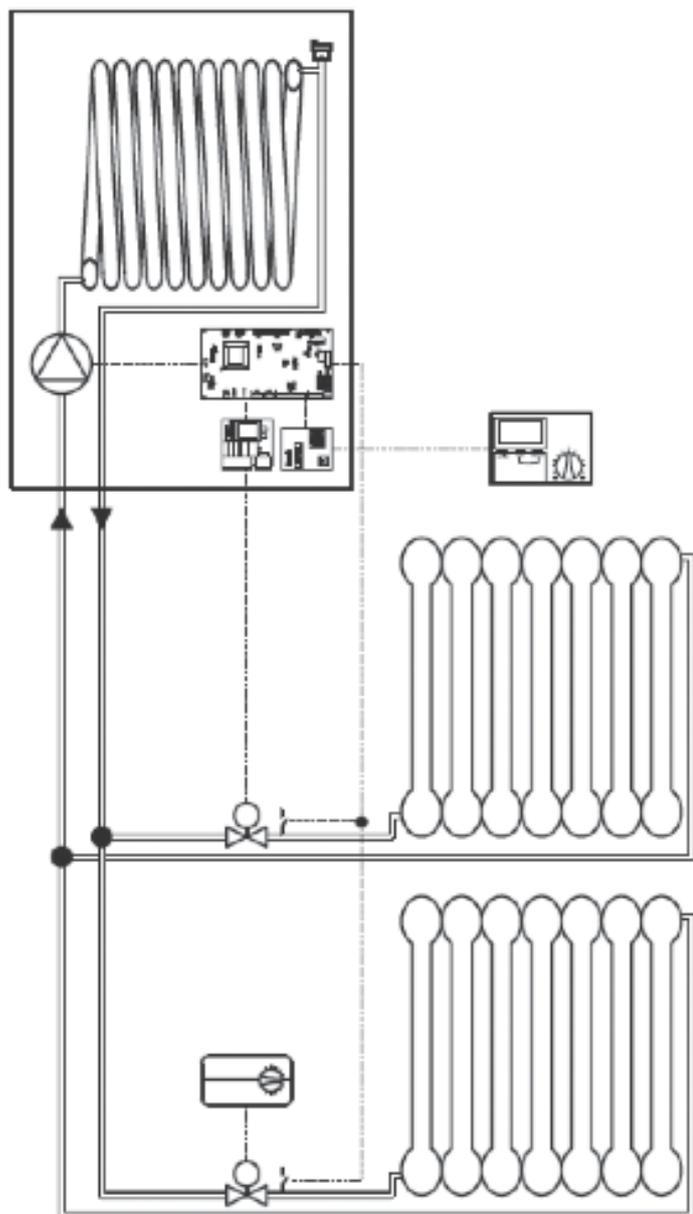


With Parameter nr.20=11, Parameter nr.44=1, Par.21 and Par.22 we define the maximum and minimum limit of the Heating Set Point (SP)  
 With the external probe and the request from the Ambient Thermostat, the system works according to the thermoregulation of the electronic PCB embedded in the boiler (AE02), thanks to Parameter nr.44=1 and with the climatic curve defined with Parameter nr.45: 20 (default) for systems with high temperature, 10 for systems with low temperature, but the value can be modified according to the system characteristics. It is suggested to keep the Parameter nr.3 = 5 and use the Parameter nr.65 to define the reactivity value of the external probe. If the house is new and well insulated, the Parameter nr.65 can be set at 20+25 as the internal temperature varies more slowly than the external one. If the house is scarcely insulated, it is advisable to set values between 10+15. Rotating the ENCODER for Central Heating settings it is possible to optimize the curve with a translation of  $\pm 5^{\circ}\text{C}$  on the required ambient temperature value used for the thermoregulation calculation. The Rec07 has to be set modifying its 3 day temperature, the night temperature at  $5^{\circ}\text{C}$  and the parameter "ROOM – INFL"=20, in order to avoid any heating call.

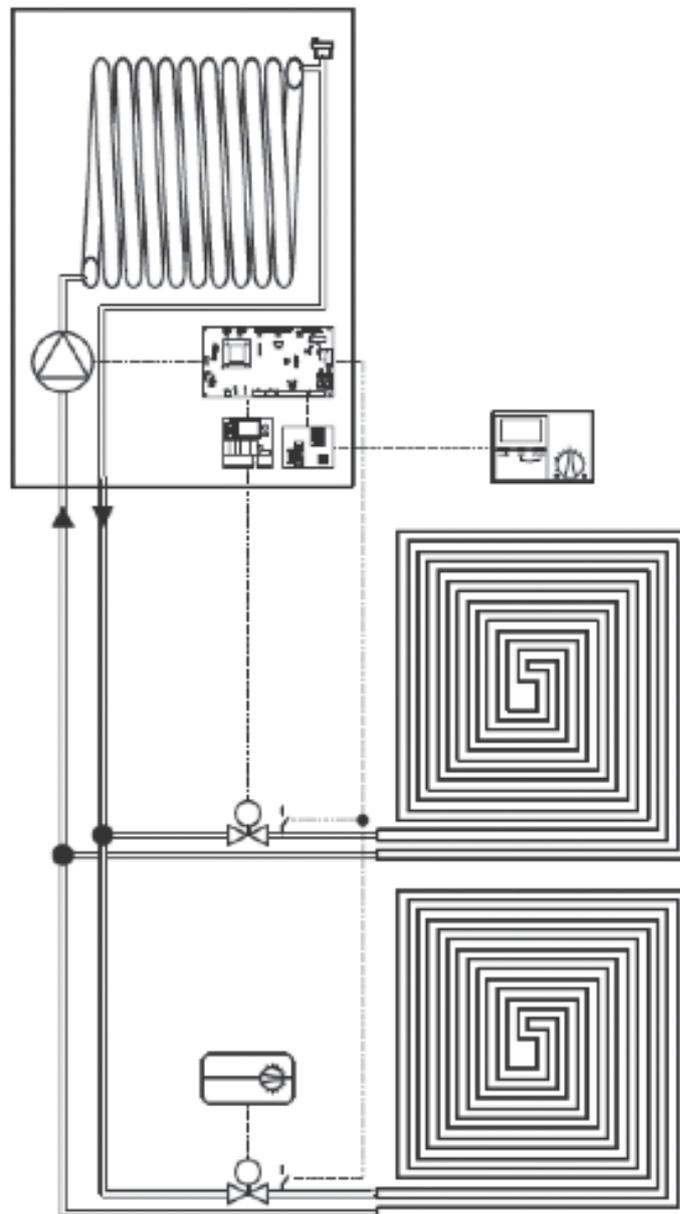
**SOLUTION E**

System	Temperature	External Probe	Heating Call
2 zones at least	High or Low	Not installed	Rec07 and / or TA

**TRADITIONAL SYSTEM – RADIATORS HIGH TEMP.**



**UNDERFLOOR HEATING SYSTEM**

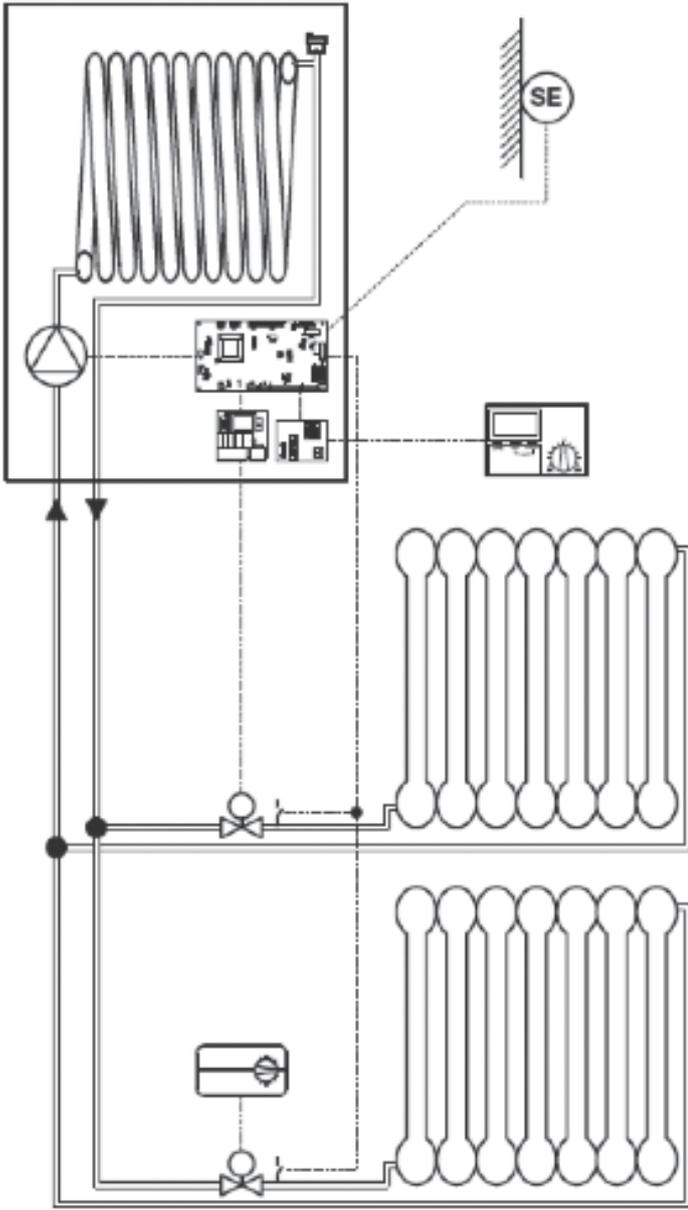


With Parameter nr.20=11, Par. nr. 21 and Par.22 we define the maximum and minimum limit of the Heating Set Point (SP)  
 The Rec07 has not the dry contact, typical of the Ambient Thermostat, which is necessary to energize the zone valve - VDZ (230 vac). Thus, if we want the Rec07 to energize its Zone Valve, it is necessary to use Kit Cod.1103039. The kit includes an electronic PCB "BE08" connected to the boiler electronic PCB (AE02). When the Rec07 makes a heating call, it closes the BE08 dry contact which energizes the Zone Valve. Once opened, this Zone Valve closes its limit switch contact (FC) connected in parallel to other ones on the boiler Ambient Thermostat clamp. In this way, the boiler starts heating only if at least a zone makes a heating call.  
 If the Rec07 has not to manage a zone, it is not necessary to have a kit Cod.1103039 and it has to be set modifying its 3 day temperature, the night temperature at 5 °C and the parameter "ROOM – INFL"=20, in order to avoid any heating call. The different Ambient Thermostats (TA) energize their respective Zone Valves through the limit switch contacts (FC) placed in parallel on the boiler Ambient Thermostat contact.  
 When we have a heating call from the limit switch contacts (FC) of the Zone Valves controlled by the Rec07 or the Ambient Thermostats, the boiler starts working with a heating set point (SP) defined with the heating encoder ( $20+80^{\circ}\text{C} = \text{Par.22}+\text{Par.21}$ ).

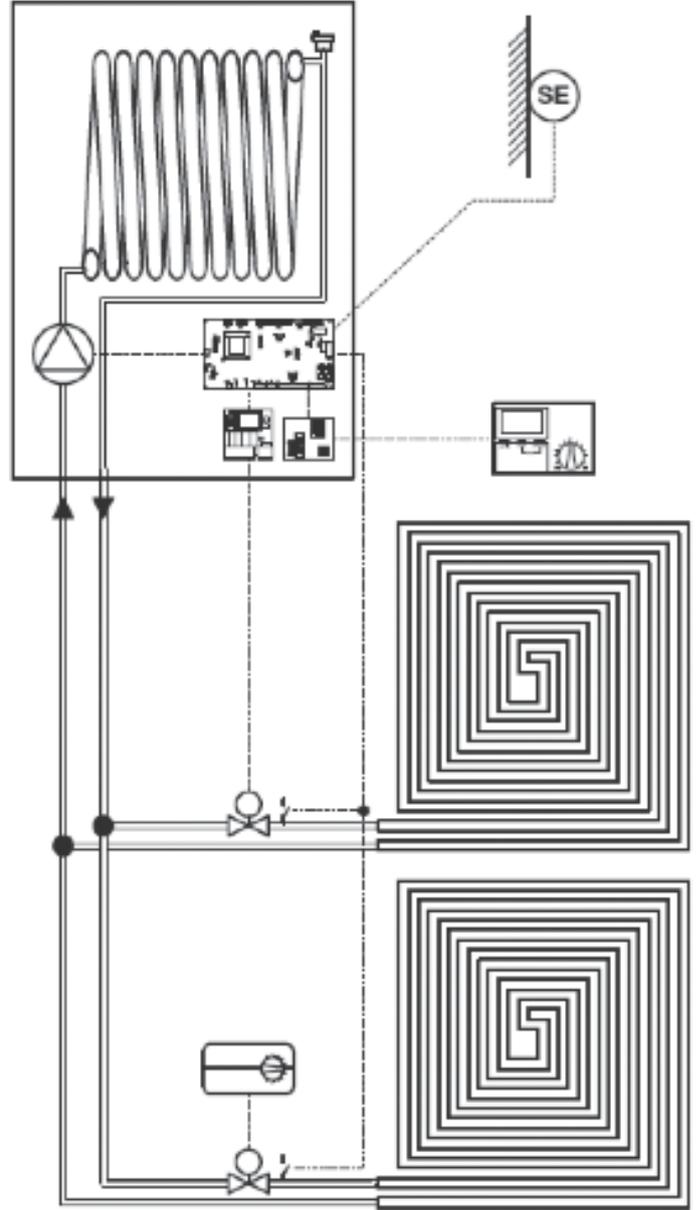
**SOLUTION F**

System	Temperature	External Probe	Heating Call
2 zones at least	High or Low	Installed	Rec07 and / or TA

**TRADITIONAL SYSTEM – RADIATORS HIGH TEMP.**



**UNDERFLOOR HEATING SYSTEM**



With Parameter nr.20=11, Parameter nr.44=1, Par.21 and Par.22 we define the maximum and minimum limit of the Heating Set Point (SP)  
 The Rec07 has not the dry contact, typical of the Ambient Thermostat, which is necessary to energize the zone valve – “VDZ” (230 vac). Thus, if we want the Rec07 to energize its Zone Valve, it is necessary to use Kit Cod.1103039. The kit includes an electronic PCB connected to the boiler electronic PCB (AE02). When the Rec07 makes a heating call, it is closed the BE08 dry contact which energizes the Zone Valve. Once opened, this Zone Valve closes its limit switch contact (FC) connected in parallel to other ones on the boiler Ambient Thermostat clamp. In this way, the boiler starts heating only if at least a zone makes a heating call.  
 If the Rec07 has not to manage a zone, it is not necessary to have a kit Cod.1103039 and it has to be set modifying its 3 day temperature, the night temperature at 5 °C and the parameter INFLAMB=20, in order to avoid any heating call. The different Ambient Thermostats (TA) energize their respective Zone Valves through the limit switch contacts (FC) placed in parallel on the boiler Ambient Thermostat contact.  
 When we have a heating call from the limit switch contacts (FC) of the Zone Valves controlled by the Rec07 or the Ambient Thermostats, the system works according to the thermoregulation of the electronic PCB embedded in the boiler (AE02), thanks to Parameter nr.44=1 and with the climatic curve defined with Parameter nr.45: 20 (default) for systems with high temperature, 10 for systems with low temperature, but the value can be modified according to the system characteristics. It is suggested to keep the Parameter nr.3 = 5 and use the Parameter nr.65 to define the reactivity value of the external probe. If the house is new and well insulated, the Parameter nr.65 can be set at 20+25 as the internal temperature varies more slowly than the external one. If the house is scarcely insulated, it is advisable to set values between 10+15. Rotating the ENCODER for Central Heating settings it is possible to optimize the curve with a translation of  $\pm 5^{\circ}\text{C}$  on the required ambient temperature used for the thermoregulation calculation.

**SOLUTION G**

System	Temperature	External Probe	Richiesta Calore	
1 High temp. e 1 Low Temp. Circuit	High and Low	unconcerned	Rec07 and / or TA	Connect BASE

The electronic PCB embedded in the boiler (AE02) considers the "Connect BASE" as the only Ambient Thermostat of a direct system (High Temp.). The Connect is equipped with a relay to which the 2 Ambient Thermostats of the 2 zones are connected; When one of the two 2 ambient thermostat make an heat call, the relay board (PCB) will pilot the related injection pump/s and will "bring" an heat call to the "TA" (ambient thermostat) of the gas boiler. The Temperature value of the High Temperature Circuit is defined by the gas boiler while the Temperature value of the Low Temperature Circuit is defined by the 3-way thermostatic mixing valve. As already described in SOLUTION E and F, if we want the Rec07 to manage a zone, it is necessary to adopt a kit Cod.1103039; otherwise, it is necessary to switch it off. If the external probe is installed, it is suggested to set the Parameter nr. 44 = 0 (not Par.44=-1) in order to disable the thermoregulation, as it would excessively stress the Connect thermostatic.

**RANGE RATED - EN483**

The rating for the heat output in heating mode is ..... kW

equivalent to a maximum fan speed in heating mode of ..... rpm

Date ..... / ..... / .....

Signature .....

Boiler registration number .....



A series of horizontal lines for writing, spanning the width of the page.



A series of horizontal lines for writing, starting from the top of the page and extending to the bottom, providing a template for text entry.

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