TRAINING MANUAL

FAMILY: Wall hang boilers

UNIT: Condensation Compact

MODELS: **ALTEAS ONE**
GENUS ONE

RELEASE: 1V0 16.05.2017

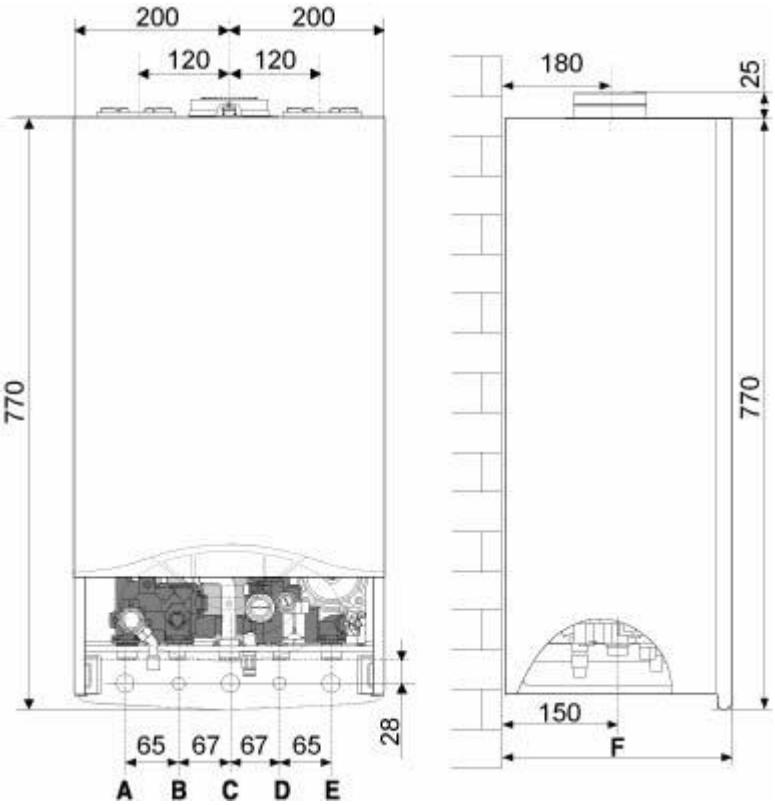
UPDATE

1V0	16/05/2017	TLM	Document creation
VERSION	**DATE**	**NAME**	**MODIFICATIONS**

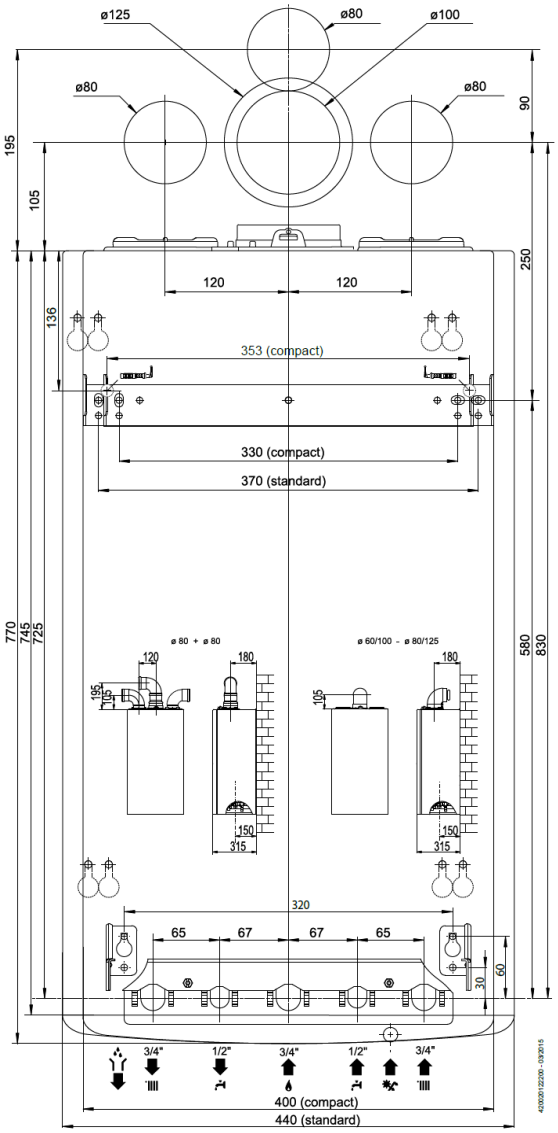
INDEX

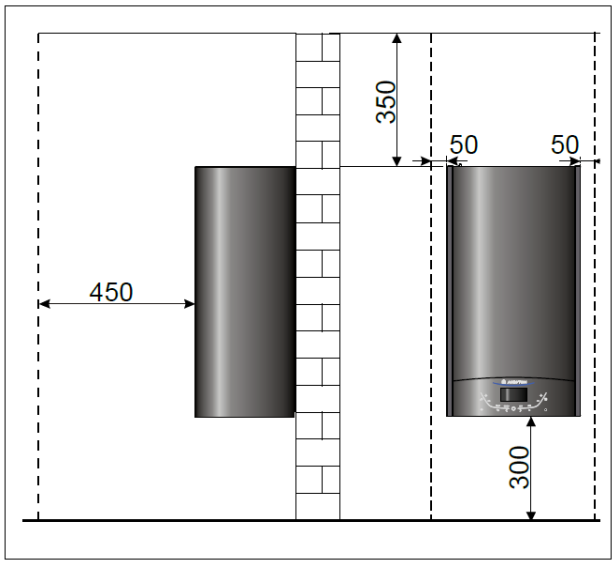
1 GENERAL INFORMATION

1.1 SIZES AND DIMENSIONS

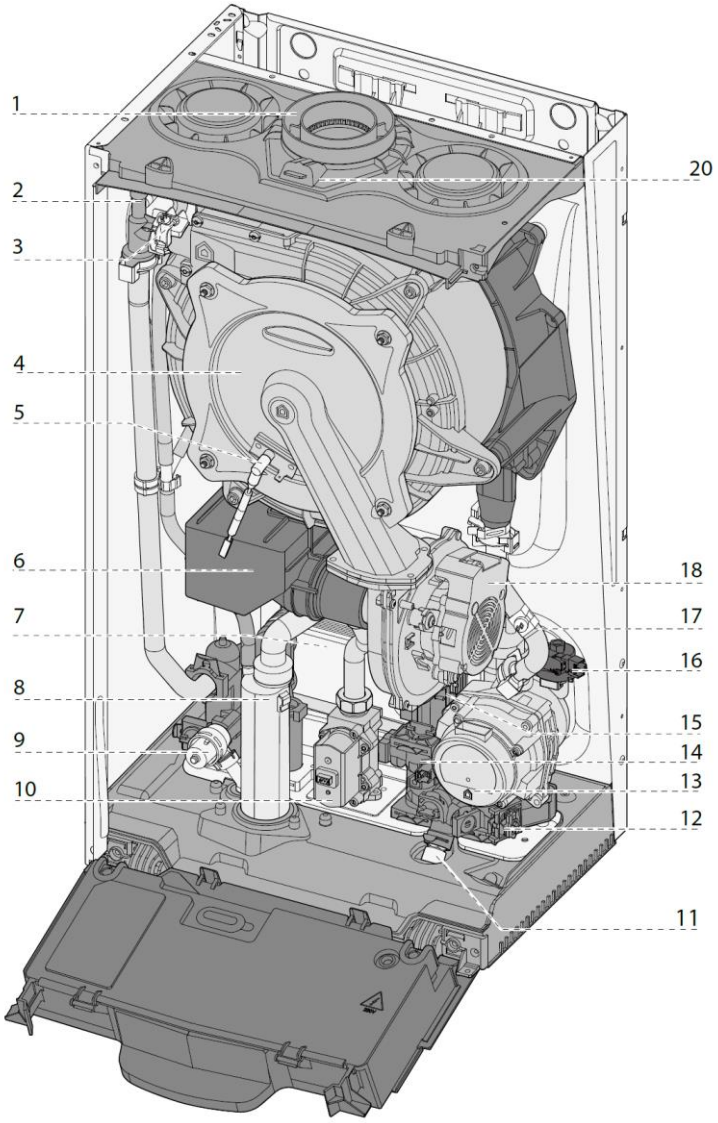


CAPTION	
A	System delivery
B	Hot water outlet
C	Gas inlet
D	Cold water inlet
E	Heating system return
F	315 mm for 24 KW model 385 mm for 30 & 35 KW models



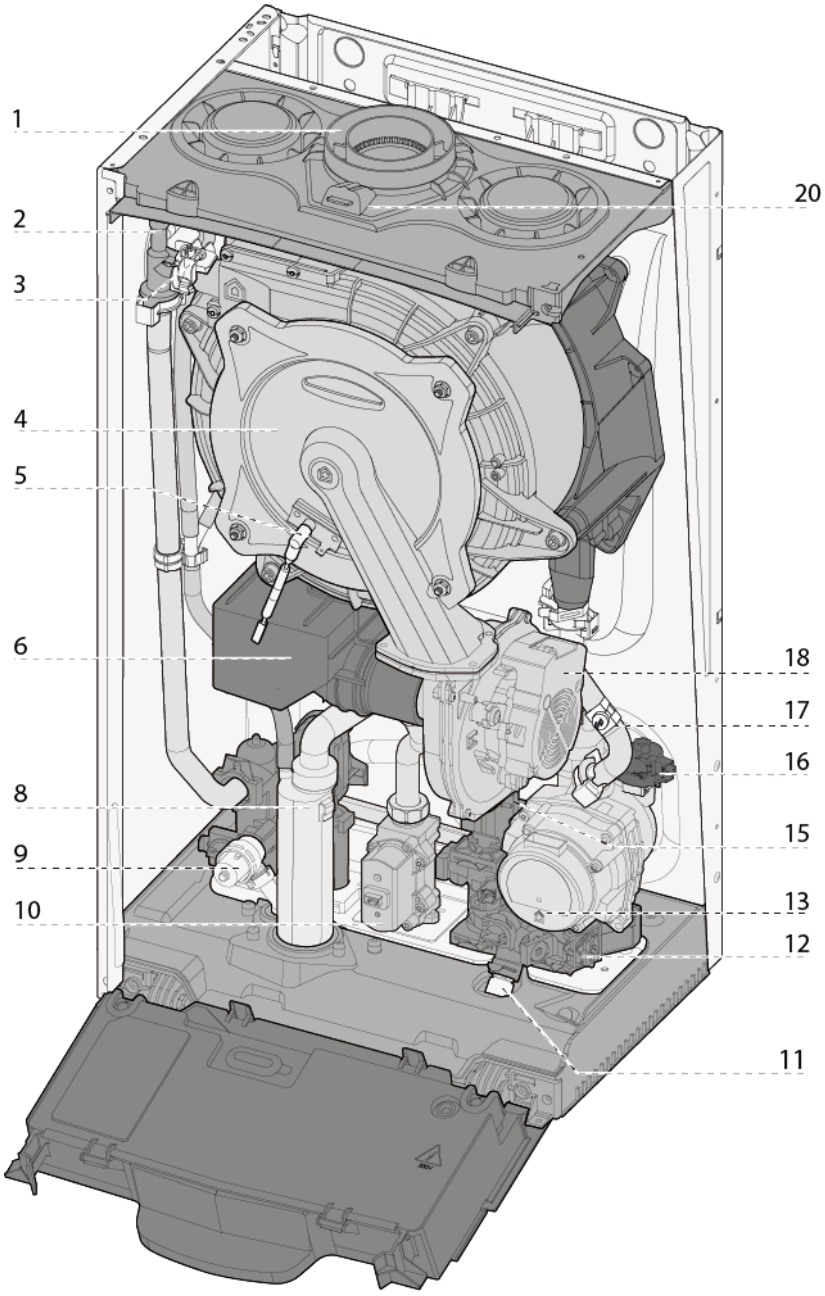


1.2 DETAILED DESCRIPTION – COMBI VERSION



CAPTION			
1	Exhaust discharge	**11**	Filling tap
2	Manual deaerator	**12**	Heating filter
3	Delivery sensor NTC1	**13**	Pump
4	Primary heat exchanger	**14**	Sanitary flow switch
5	Ignition and detection electrode	**15**	3 way valve
6	Silencer	**16**	Heating pressure sensor
7	Sanitary heat exchanger	**17**	Return sensor NTC2
8	Siphon	**18**	Fan
9	3 bar safety valve	**20**	Exhaust analysis intake
10	Gas valve		

1.3 DETAILED DESCRIPTION – SYSTEM VERSION



CAPTION			
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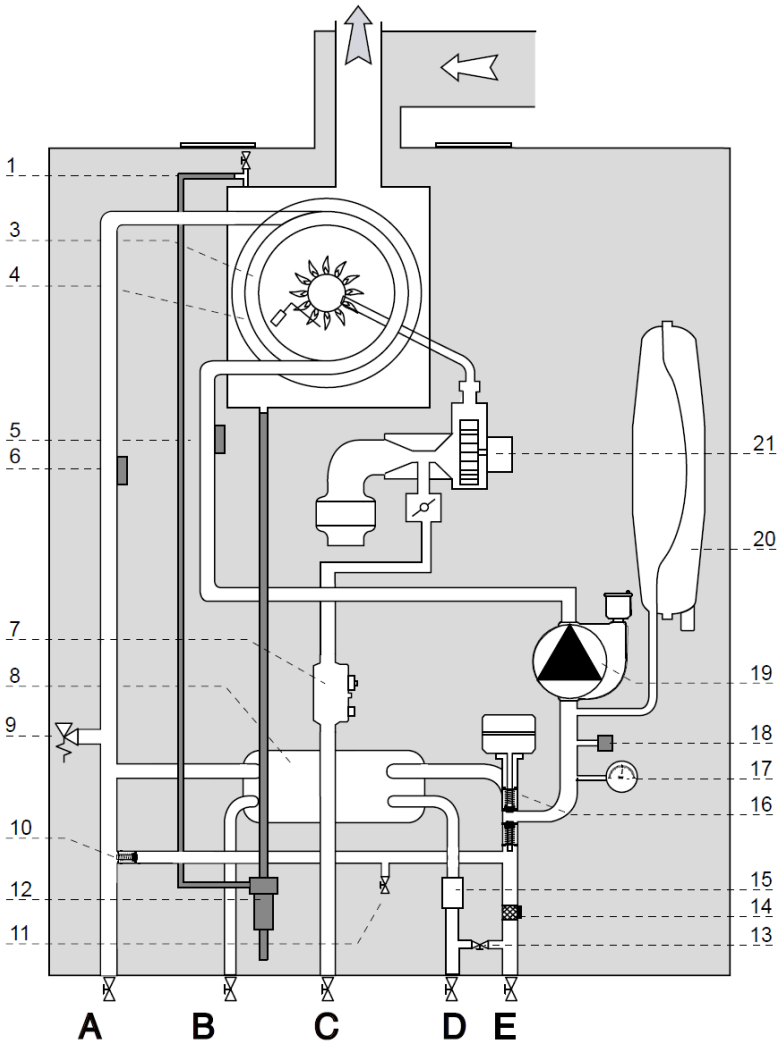
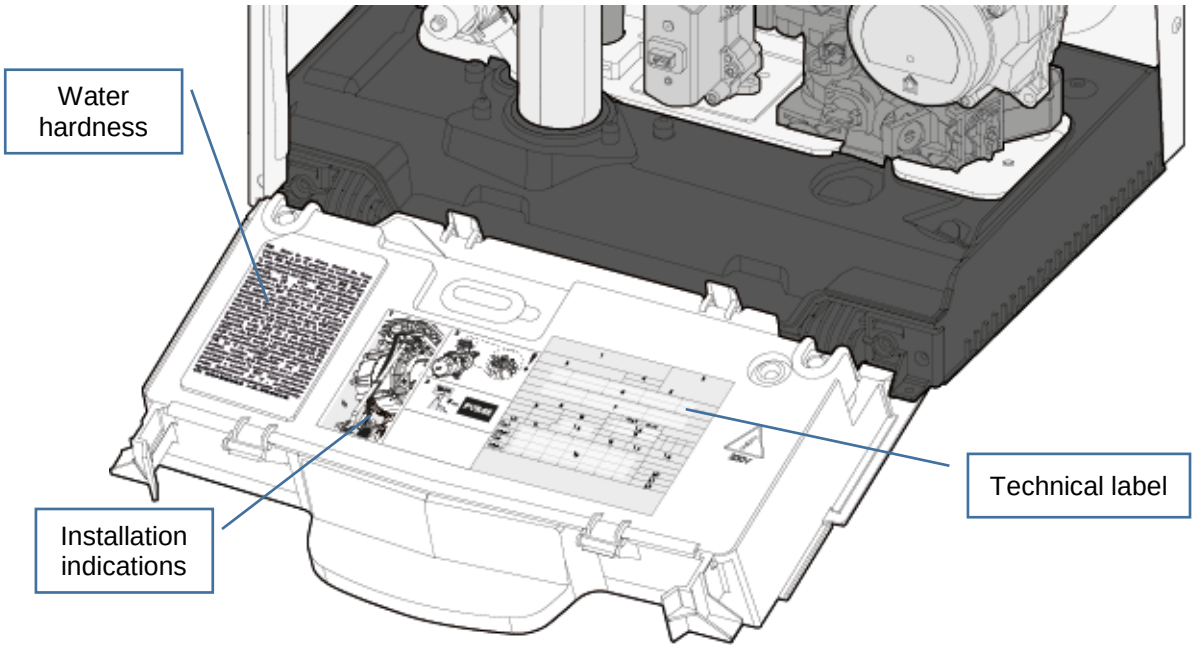
5	Ignition and detection electrode	**16**	Heating pressure sensor
6	Silencer	**17**	Return sensor NTC2
8	Siphon	**18**	Fan
9	3 bar safety valve	**20**	Exhaust analysis intake
10	Gas valve		

1.4 HYDRAULIC SCHEME

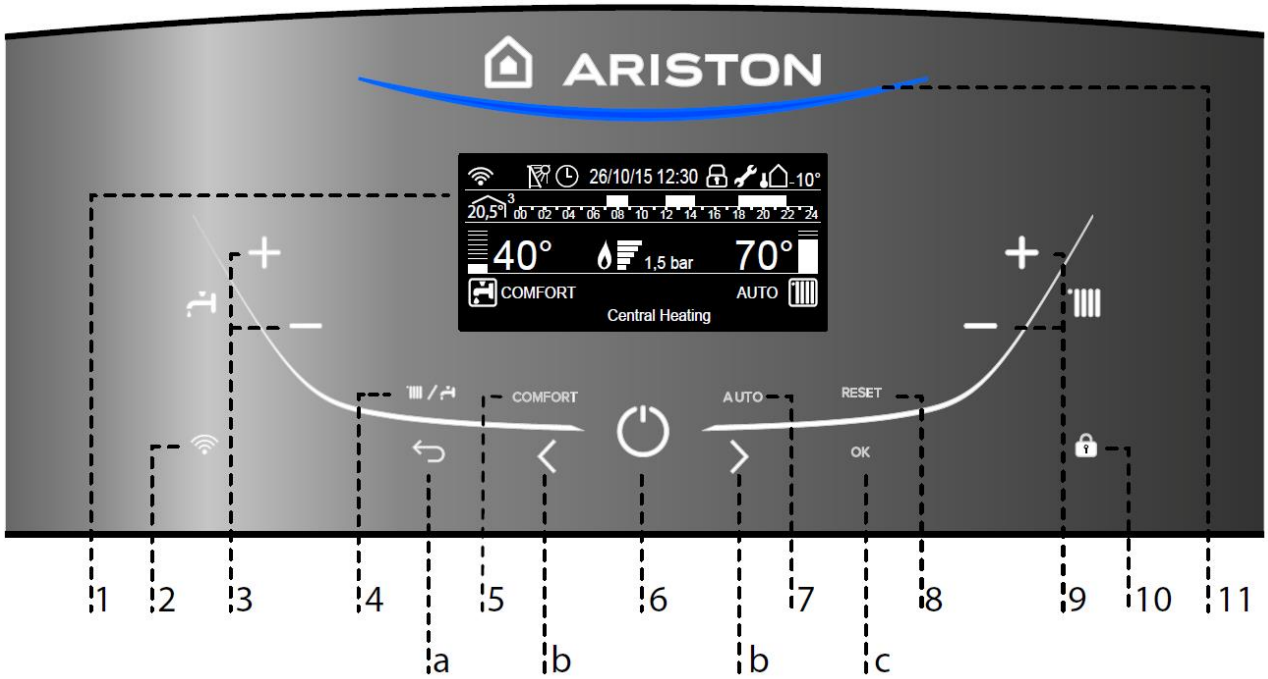


1. Air relief valve
3. Main Heat Exchanger
4. Detection/Ignition electrode
5. Central Heating Return Temperature Probe
6. Central Heating Flow Temperature Probe
7. Gas Valve
8. Secondary Exchanger
9. Safety valve
10. Automatic By-pass
11. Drain valve
12. Condensate Trap
13. Filling valve
14. Central Heating Filter
15. D.H.W. Flow Switch
16. Diverter valve
17. Pressure Gauge
18. Water pressure sensor
19. Modulating Circulation Pump with air release valve
20. Expansion vessel
21. Modulating Fun

1.5 LABELS POSITION



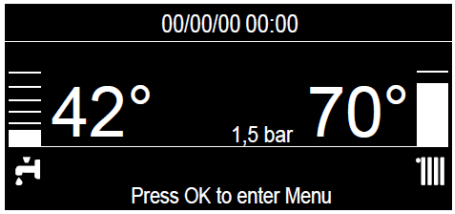
1.6 CONTROL PANEL DESCRIPTION



LEGENDA			
1	Display	**9**	CH temperature adjustment buttons zone 1 or offset of thermoregulation slope with Auto-function enabled.
2	Wi-Fi button (enable/disable/configure)	**10**	Key lock
3	DHW Temperature control button	**11**	Flame presence
4	Summer/ Winter button		
5	Comfort button	**a**	Esc button
6	On/Off button	**b**	Navigation keys
7	Auto button	**c**	OK button
8	Reset button		

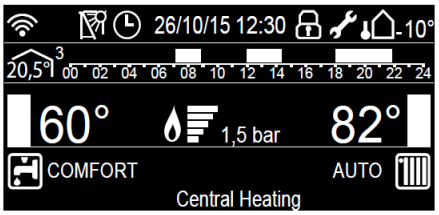
1.7 DISPLAY

Boiler Base (default)



Time & Date
Mode
Set temperature
Comfort function
Auto function
External temperature
CH water pressure

Boiler complete



Time & Date
Mode
Set temperature
Comfort function
Auto function
External temperature
CH water pressure
Description boiler status
Burner power level
Solar
Wi-Fi
Time program
Room temperature

ICON	DESCRIPTION
26/10/15 12:30	Date and time
	Key lock active
42°	Sanitary set temperature and set temperature level
70°	Heating set temperature and set temperature level
	Warning scheduled maintenance
	Heating mode ON (without request)
	Heating mode ON (with request)
	Sanitary mode ON (without request)
	Sanitary mode ON (with request)
	Flame ON and Burner power level
1,5 bar	Heating circuit pressure
ALERT	Error message
AUTO	Auto function ON
COMFORT	Comfort function ON
20,5° 3	Room temperature and zone number
-10°	External temperature (with external probe connected)
	Wi-Fi active
	Wi-Fi waiting configuration
	Solar manager connected
00 02 04 06 08 10 12 14 16 18 20 22 24	Heating scheduled time program

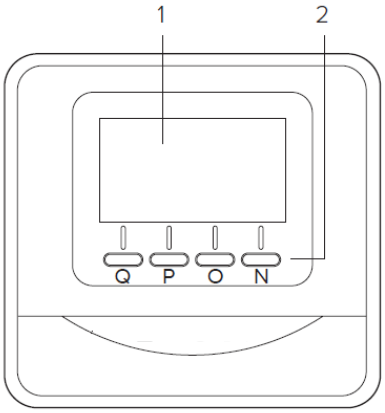
1.8 CUBE – Wired room sensor (Only Alteas – No China)

Together with the boiler is supplied the wired room sensor CUBE.
The main functions are:

- Room Temperature setting;
- Time program/Manual mode/Off;
- Override function.

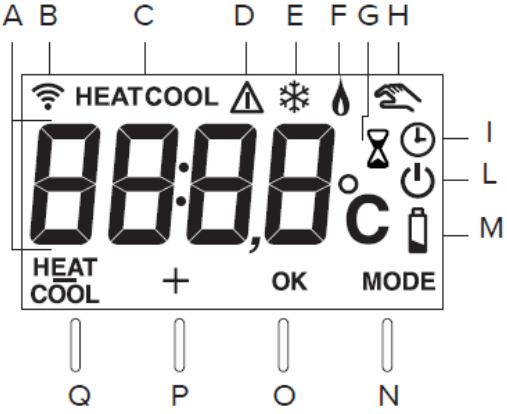
Room Sensor:

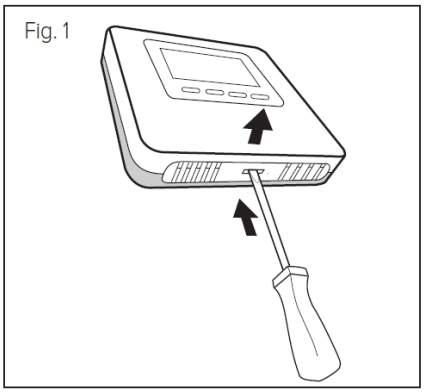
1. display
2. button

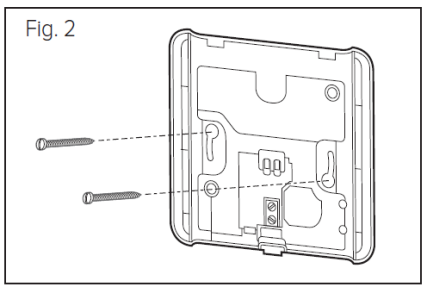


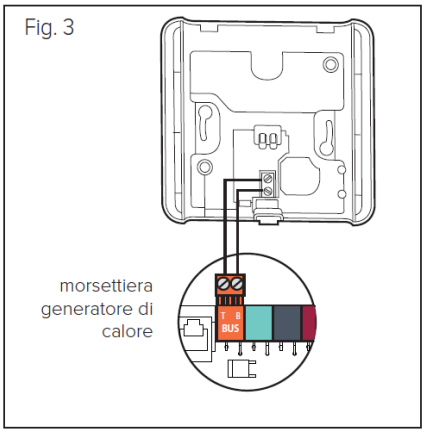
Display:

A. Measured room temperature
B. WiFi device detected on the bus
C. Heating/cooling mode active
D. Error notification
E. Heat/cooling request active or antifreeze mode
F. Heating request
G. Time extension of room temperature set-point in program mode
H. Manual mode
I. Time program mode (heating cooling according to time program profile set by system interface)
L. OFF of the associated zone
M. Low battery (not present on wired room sensor)
N. Operation mode selection (MODE)
O. Confirmation o selection (OK)
P. Increase set-point temperature (+)
Q. Decrease set-point temperature (-)
Selection of heating (HEAT) or cooling (COOL) operation mode of the system.





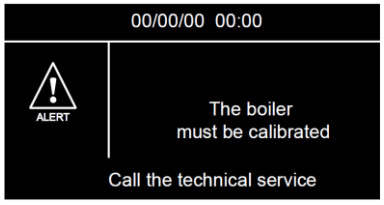
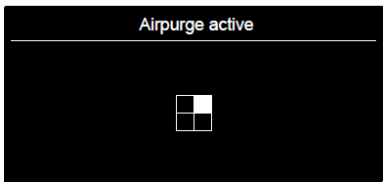
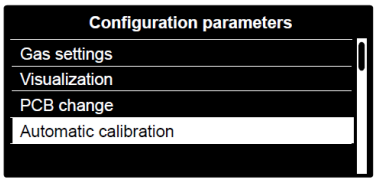
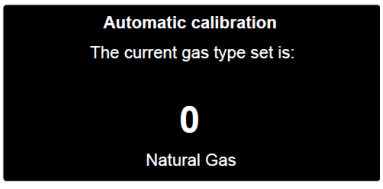
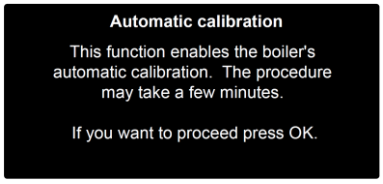


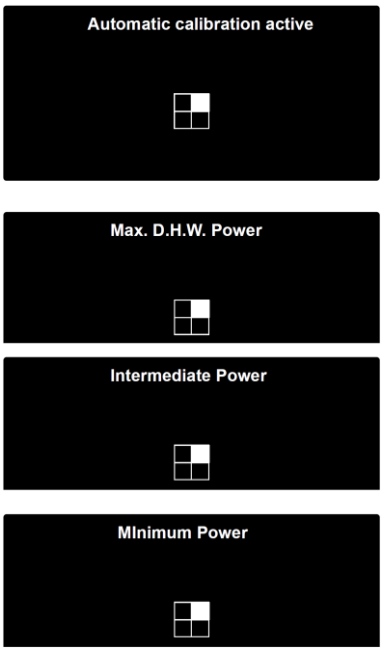
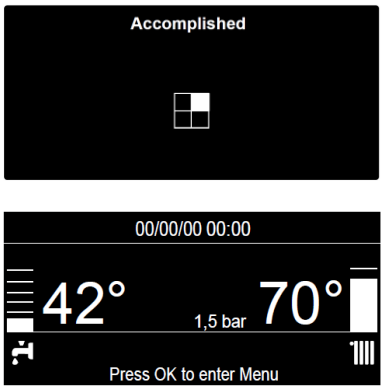
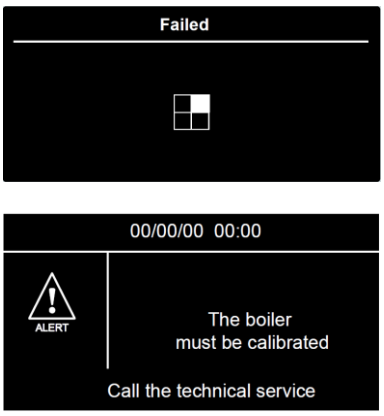


2 OPERATING LOGIC

2.1 FIRST IGNITION PROCEDURE

The boiler is equipped with an automatic combustion control system that allows to the boiler to auto-regulate the combustion. This is possible using the feed-back that comes from the ionization current and adjusting the gas through the gas valve.
After the installation of the boiler it needs to do the Automatic calibration procedure, because the boiler has to adjust the combustion taking in account the gas (type, quality and pressure) and exhaust/air pipes length.
During the Automatic calibration procedure, the boiler must be with frontal panel closed and the air/flue ducts completely assembled.
This is the procedure:

1	Switch on the boiler and the display shows the calibration warning.	
2	Purge of the hydraulic system using “Air purge function” from the “Configuration wizard” menu.	
3	Using the specific parameter enable the “Automatic calibration” (Technical area > Service > Automatic calibration).	
4	Automatic calibration – Step 1: • Gas type selection: ➢ 0 : Natural gas (factory setting) ➢ 1 : LPG ➢ 2 : G230 ➢ 3 : G130 Press “OK” button to start the calibration.	 

5	Automatic calibration – Step 2: • Automatic calibration → the boiler starts this procedure to check and adjust the calibration at 3 different powers (max, intermediate and min); this procedure takes some minutes (about 6 or 7 minutes).	
6	If the calibration is finalized, the boiler goes to the main screen and it is ready for the standard operation.	
7	If the calibration procedure is not completed the display shows: “Failed” and the calibration warning. Repeat the procedure.	

It needs to repeat this procedure in even of:
- PCB replacement;
- Electrode replacement;
- Gas valve replacement;
- Burner replacement;
- Fan replacement;
- Heat exchanger replacement;
- Exhaust/air pipes configuration modification;

- Gas change;
- After modification of the following parameter:
  - 220: soft ignition;
  - 232: max DHW power percentage
  - 233: min power

2.2 HEATING MODE: OPERATING LOGIC

OPERATION RANGE

40°C ÷ 82°C

By pushing the buttons "+" o "-",you can see on the display (for 4 seconds) the set temperature.

Through the parameter ***420*** is possible set the heating range 1: 35÷82°C ; 0: 20÷45°C).
Through the parameters ***425*** (min) and ***426*** (max) is possible set the maximum and the minimum temperature of the heating.

The heating request can be performed by: room thermostat 1, room thermostat 2, programming clock, REMOCON and room sensor. Icon and set temperature will be displayed.

HEATING REQUEST

When the boiler is in stand-by the valve is on the "stand-by" position. When heating is turned on the motor is supplied (inside shaft out), that closed the outlet of the secondary exchanger and puts pump intake in communication with the heating circuit.

Three-way valve **ON**

7 seconds

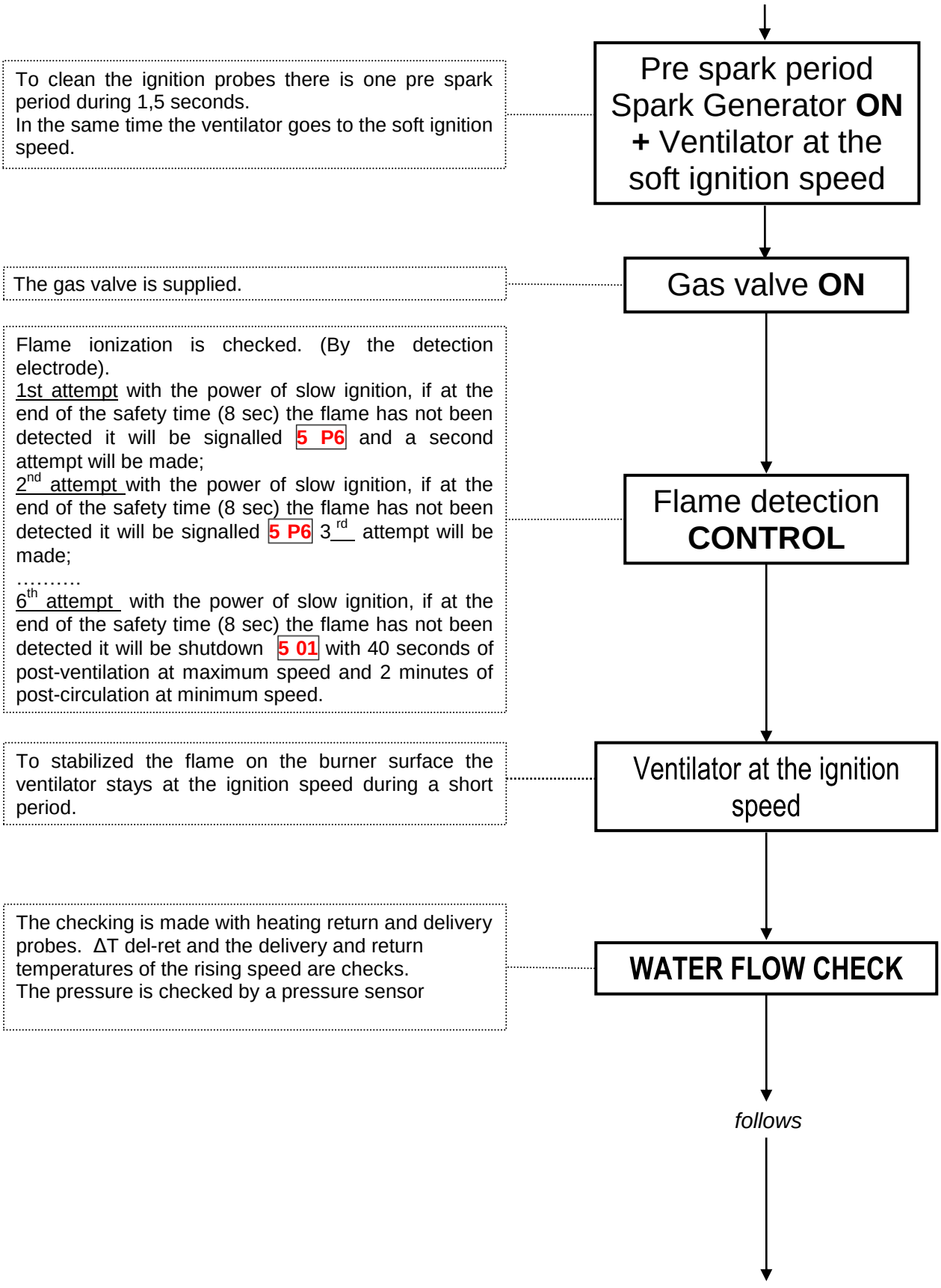
The circulating device start is delayed 7 seconds after heating request in order to allow switching the 3 way valve; when it starts, the circulating device intakes the water coming from the heating system backflow and sends it to the primary exchanger

PUMP ON

To clean the combustion chamber, the ventilator is supplied at the maximum speed during pre-ventilation period 5 seconds.
The same operation will be made after the burner OFF during 5 seconds.

Pre purge function:
VENTILATOR ON

follows


To clean the ignition probes there is one pre spark period during 1,5 seconds.
In the same time the ventilator goes to the soft ignition speed.
Pre spark period Spark Generator ON + Ventilator at the soft ignition speed
The gas valve is supplied.
Gas valve ON
Flame ionization is checked. (By the detection electrode).
1st attempt with the power of slow ignition, if at the end of the safety time (8 sec) the flame has not been detected it will be signalled 5 P6 and a second attempt will be made;
2nd attempt with the power of slow ignition, if at the end of the safety time (8 sec) the flame has not been detected it will be signalled 5 P6 3rd attempt will be made;
…….
6th attempt with the power of slow ignition, if at the end of the safety time (8 sec) the flame has not been detected it will be shutdown 5 01 with 40 seconds of post-ventilation at maximum speed and 2 minutes of post-circulation at minimum speed.
Flame detection CONTROL
To stabilized the flame on the burner surface the ventilator stays at the ignition speed during a short period.
Ventilator at the ignition speed
The checking is made with heating return and delivery probes. ΔT del-ret and the delivery and return temperatures of the rising speed are checks.
The pressure is checked by a pressure sensor
WATER FLOW CHECK
follows

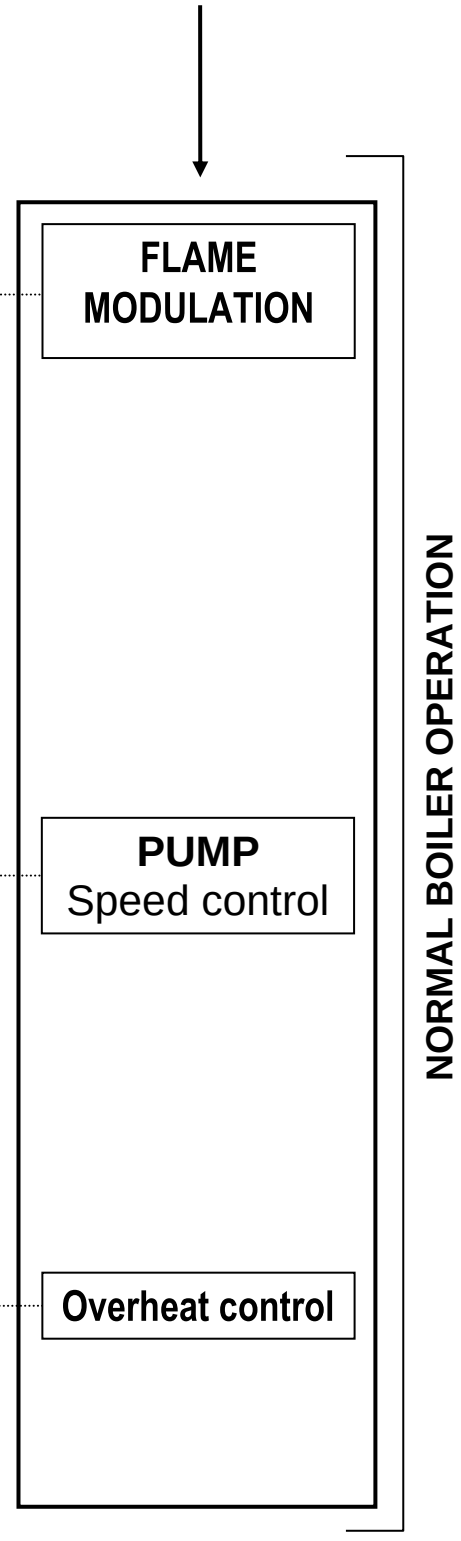
After flame detection the boiler is free to modulate the power according to the required thermal load and realized thanks to the speed of the ventilator. Modulation is carried out between the maximum heating power values (adjustable from the control panel with parameter **2 31**) and the minimum power value (value fix). The shutdown temperature of the burner is operated as follows:

- **1° min after flame detection:**
  T off = T set-point + 8°C
- **2° min after flame detection:**
  T off = T set-point + 6°C
- **starting from the 3rd min after flame detection:**
  T off = T set-point + 4°C

This logic is used to prevent the burner from shutting down too quickly with the system at temperature.
Next ignition can be delayed from 0 to 7 minutes (default value = 2 min., adjustable from the control panel with parameter **2 36**.

The pump is full modulating.
The pump speed change in relation with the boiler power

Performed from the flow and return NTC. If the temperature rises 102°C a lock out occurs, indicated on the display with **1 01**.



N.B. Starting from heating request, the **"limit temperature"** (88°C, not adjustable fixed value) remains on executed by the primary exchanger outlet probe (NTC 1).
When the burner is switched OFF, post ventilation is performed in order to evacuate the residual exhaust during 5 seconds.

If there is a bad circulation through the heating system, the **automatic by-pass** can be opened (max capacity 350 l/h).

2.3 SANITARY MODE: OPERATING LOGIC

OPERATING RANGE

36°C ÷ 60°C

By pushing the buttons "+" o "-",you can see on the display (for 4 seconds) the set temperature

A demand for Domestic hot water, is detected by the proportional flow meter.
Now the boiler will be working on the SANITARY mode. The display will show icon with the set temperature for sanitary.

DEMAND FOR DOMESTIC HOT WATER

When the boiler is on stand-by the valve is on the STAND-BY position.
If there is a SANITARY request the three-way valve moves to sanitary position.
If there is a demand while the boiler is operating on HEATING mode, the three- way valve will be switched on SANITARY.
During this passage the circulating device and the burner remain on.
The outlet of the plate exchanger will be in communication with the pump intake directed towards the primary exchanger.

Three-way valve

Heating **ON**	Heating **OFF**
Switch shaft position	Shaft position is OK

In the same time:

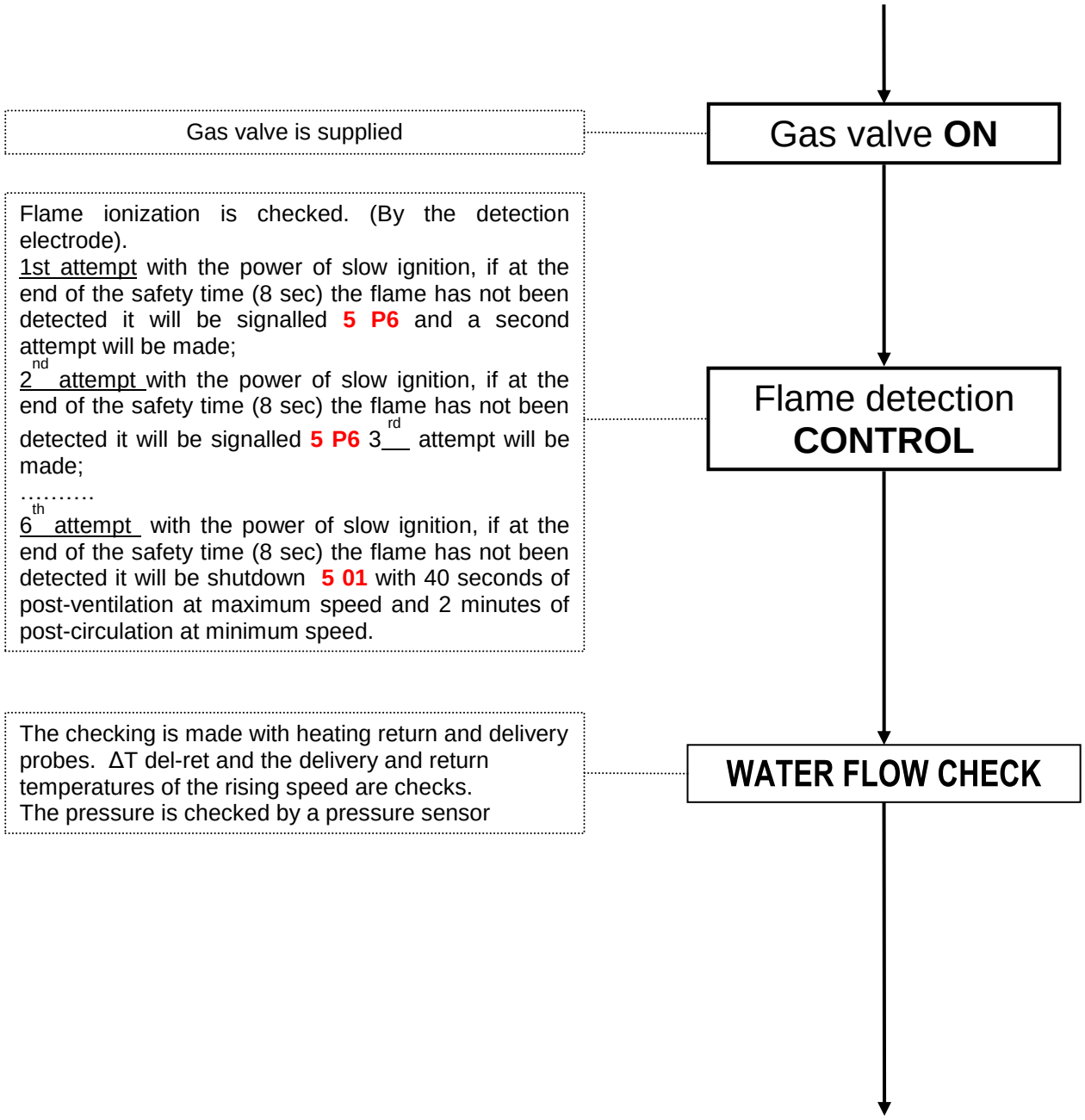
The pump (set automatically on maximum speed), intakes water coming from the outlet of the secondary and sends it to the primary exchanger.

The ventilator is supplied at the soft ignition speed.

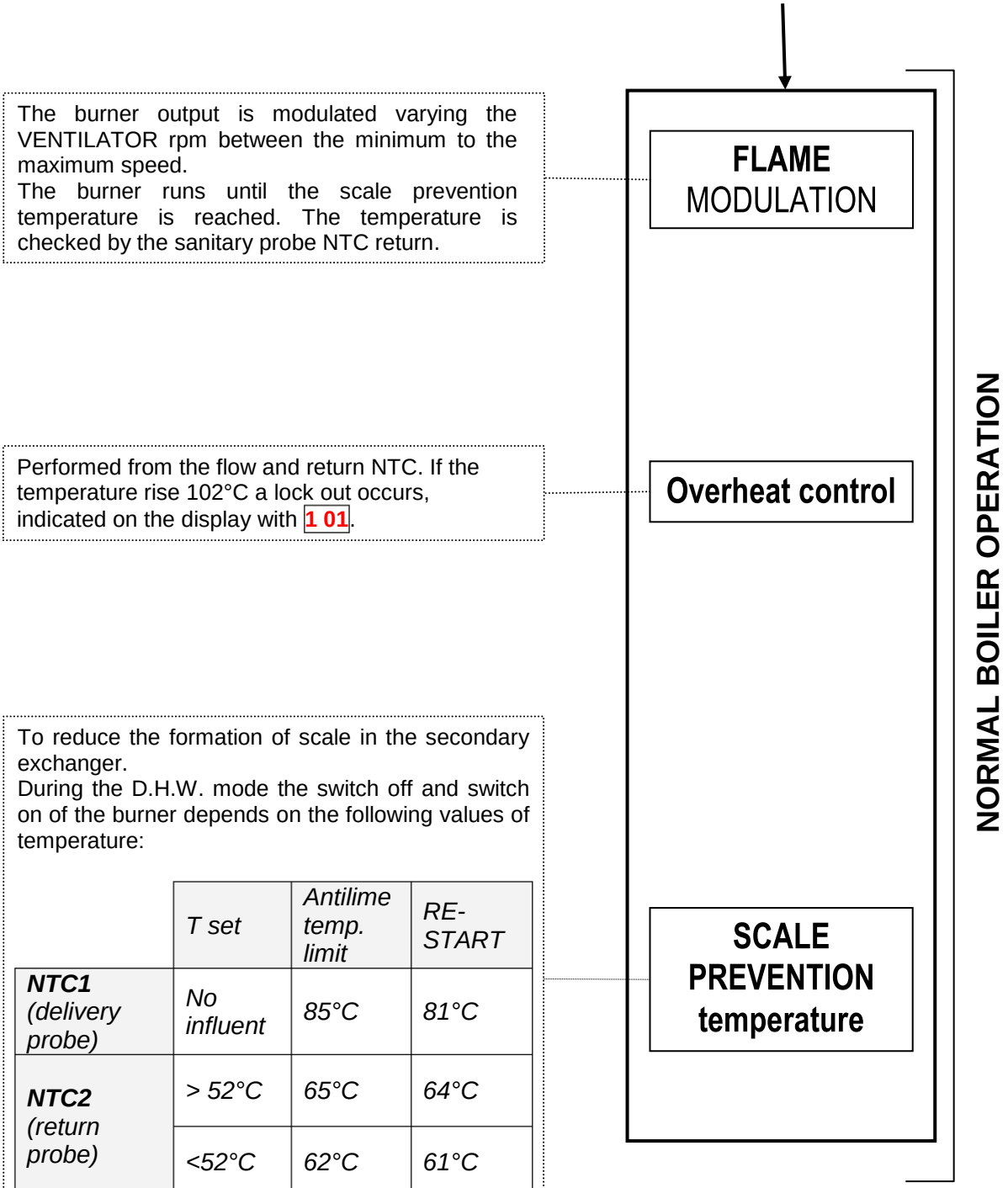
the spark generator is supplied to clean the ignition probes.

Pump **ON**
Ventilator **ON**
Spark generator **ON**

Follow


Gas valve is supplied
Gas valve **ON**
Flame ionization is checked. (By the detection electrode).
1st attempt with the power of slow ignition, if at the end of the safety time (8 sec) the flame has not been detected it will be signalled **5 P6** and a second attempt will be made;
2nd attempt with the power of slow ignition, if at the end of the safety time (8 sec) the flame has not been detected it will be signalled **5 P6** 3rd attempt will be made;
…….
6th attempt with the power of slow ignition, if at the end of the safety time (8 sec) the flame has not been detected it will be shutdown **5 01** with 40 seconds of post-ventilation at maximum speed and 2 minutes of post-circulation at minimum speed.
Flame detection **CONTROL**
The checking is made with heating return and delivery probes. ΔT del-ret and the delivery and return temperatures of the rising speed are checks.
The pressure is checked by a pressure sensor
WATER FLOW CHECK

follows



	T set	*Antilime temp. limit*	*RE-START*
NTC1 *(delivery probe)*	*No influent*	*85°C*	*81°C*
NTC2 *(return probe)*	*> 52°C*	*65°C*	*64°C*
	<52°C	*62°C*	*61°C*

N.B.: *The sanitary switch-off logic could be changed by the parameter 2 53:*

- *0 : Anti-scale (62 or 65°C) ⇨ default*
- *1 : Set-point + 4°C*

3 SYSTEM VERSION

3.1 "TANK" MODE

To select this typology of operation **set 1 on the parameter 228**. In this version the setting of the tank temperature (SET-POINT) is done throughthe buttons "+" and "-".

Sanitary sensor (NTCs):
Temperature range 40-65°C.
The control of the temperature of the tank is managed in the following way:

- **T tank ≥ T set+2** : off burner, off pump
- **T tank ≤ T set – Thyst** : on burner, on pump where: Thyst=(T set/10)+3
- **T tank≥80°C**: safety shut down 209, that disappear when the temperature go down 75°C

Flow heating sensor (NTC1):
The PCB manages the flow temperature (NTC1) in the following way:

- **T flow > T set + 20** : start modulation;
- **T flow ≥ 88°C** : burner off, pump on (on continuous)
- **T flow ≤ T set + 14** : burner on

3.2 "SYSTEM" MODE

To select this typology of operation **set 2 on the parameter 228**. In this version the tank temperature is manage thorough mechanical thermostat (ON/OFF).

Flow heating sensor (NTC1):
The PCB manages the flow temperature (NTC1) in the following way:

- **T flow > 82°C** : start modulation;
- **T flow ≥ 86°C** : burner off, pump on (on continuous)
- **T flow ≤ 82°C** : burner on

3.3 ANTILEGIONELLA FUNCTION

This function is available only for boiler with external tank and tank NTC sensor (par.228=1).
The factory setting is with this function enabled (par.257= 1) and with the time set to 30 days (par.258).
In this situation the boiler starts to heat the tank till 60°C for 1 hour in the following condition:

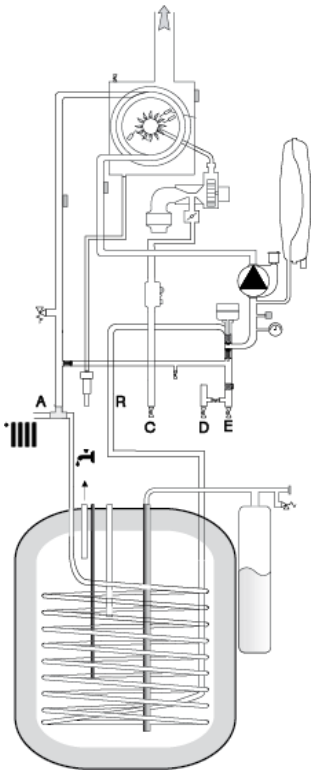
- Each time that the boiler is supplied by electrical power;
- Each 30 days or after 30 days from the last time that the tank stays at 60°C at least for 60 minutes continuously.

It is possible modify the frequency of this function through the parameter 258 from 25 hours to 480 hours (factory setting 30 days).
It is possible disable the function setting the parameter 257 to 0.

2	**5**	**7**	Antilegionella function (only for boilers with external tank and NTC sensor – par. 228 = 1)	0: disabled 1: enabled	1
2	**5**	**8**	Antilegionella time (only for boilers with external tank and NTC sensor – par. 228 = 1). The setting temperature is always 60°C (tank temperature).	24 ÷ 480 h and 30 days	30 day

It is advisable to install a thermostatic valve on the hot water outlet to prevent scorch.

3.4 HYDRAULIC SCHEME

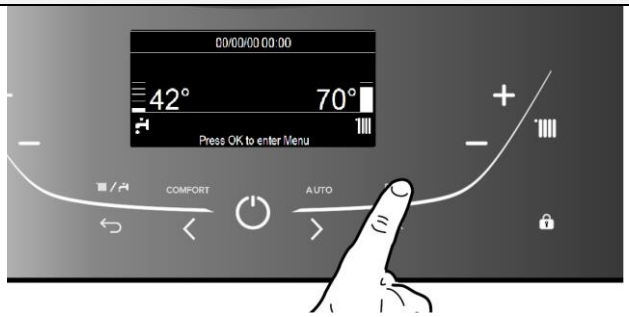
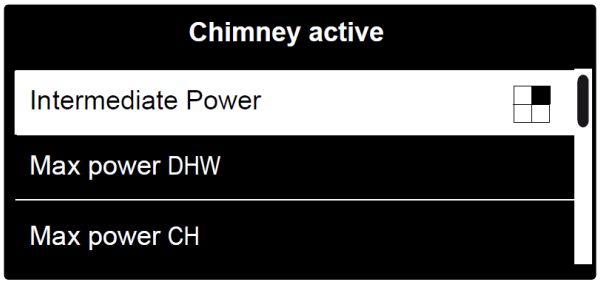


CAPTION			
A	Heating and tank delivery	**E**	Heating return
C	Gas inlet	**R**	Tank return
D	Inlet cold water (for filling)		

4 SPECIAL FUNCTIONS

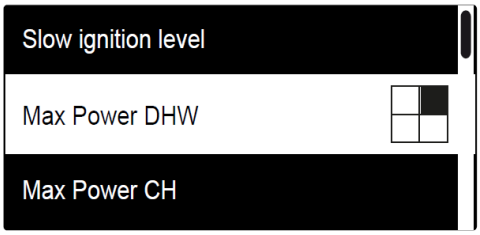
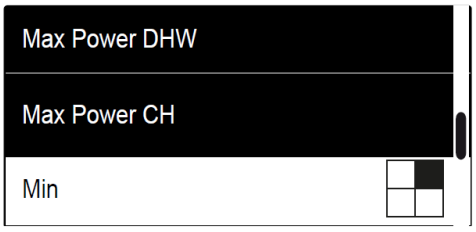
4.1 *FLUE CLEANER*" Function

This function is used to perform proper boiler combustion analysis and maximum and minimum gas calibration. Follow the instructions below to enable it:

PRESS	DISPLAY
	
Press Reset button for 5 continuous seconds	*The display will show this indication*

- With the boiler on "Winter" mode, the 3-way valves is positioned on "heating" and the burner turns on even without heating requested.
- With the boiler on "summer" mode:
  - without sanitary demand the burner turns on in heating;
  - with sanitary demand the burner turns on in sanitary.
- The delivery temperature (NTC1) is checked during the "Flue cleaner" function, as follows:
  - "summer" mode → Off: 86°C; On: 81°C;
  - "winter" mode → Off: 89°C; On: 84°C.

Four different powers can be selected when the function is enabled:

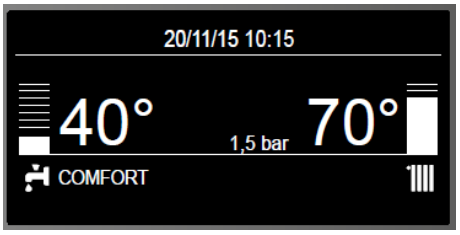
PRESS		DISPLAY	POWER
Push the button > anticlockwise			Max sanitary
Push the button > anticlockwise			Minimum

To exit the "Flue cleaner" function press the RESET button. However after 30 minutes the function will be disabled automatically.

4.2 *"COMFORT"* Function

This function reduces the hot sanitary water output time.
The objective is reached by keeping the primary circuit in the boiler hot.
To enable this function, follow the instructions below:

- Press button OK → the display show "Complete Menu";
- Press button OK
- By the buttons "<" or ">" select "DHW Settings" and press OK;
- By the buttons "<" or ">" select "Comfort" and press OK;
- By the buttons "<" or ">" select the desired Comfort mode:
  - "Time Based ": function becomes operative after each sanitary demand and remains enabled for the subsequent 30 minutes;
  - "Always Active": always enabled;
- Press button OK → Function enabled.



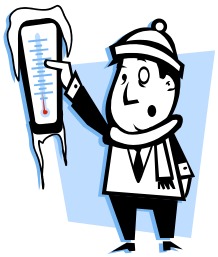
Moreover, by means of parameter 2 50 you can set comfort function as follows:
0: disabled;
1: enabled for 30 minutes after sanitary request;
2: always enabled;

The operating range is variable and depends on the temperature set for the sanitary mode:

TEMP. SET FOR SANITARY MODE	OFF TEMPERATURE	ON TEMPERATURE
36	40	34
37	41	35
38	42	36
39	44	38
40	45	39
41	46	40
42	47	41
43	49	43
44	50	44
45	51	45
46	53	47
47	54	48
48	56	50
49	58	52
50	59	53
51	61	55
52	63	57
53	64	58
54	66	60
55	68	62
56	70	64
57	71	65
58	72	66
59	73	67
60	74	68

4.3 "*ANTIFREEZE*" Function

This function is enabled only if the boiler is supplied with gas and electrical power. It is operated by means of the temperature detected by the heating delivery probe (NTC1).

	CONDITION	EVENTS	TIME
1ST CASE	The temperature detected by probe NTC1: Ranges between 3°C and 8°C	- The **PUMP** is supplied on speed III - The **3-WAY VALVE** alternatively switches the position of the shaft from 1 minute on "heating" to 1 minute on "sanitary" mode - The **DISPLAY** shows the icon ❄	Until the NTC1 temperature is ≥ 9°C
	↓ If, after 20 minutes, the **CONDITIONS** described in the 1st CASE are still present (3°C<NTC1<8°C) automatically check the **EVENTS** of the 2nd CASE ↓		
	CONDITION	**EVENTS**	**TIME**
2nd CASE	The temperature detected by probe NTC1: Is below 3°C	- The **BURNER** turns on, supplied with minimum power; - The **3-WAY VALE** is positioned on "sanitary" and switch every 30 s DHW/CH - When the temperature is ≥ 40°C the burner turn OFF. For 15 minutes the boiler maintain the temperature between 35°C and 40°C - After 15 minutes there is 2 minutes of post circulation in heating - Into 90 minutes if the temperature decreases again less than 8°C the burner switch on immediately. - The **DISPLAY** shows the icon ❄.	Until the NTC1 temperature is ≥ 30°C

If the NTC1 delivery probe is not working (open or short circuit) the "antifreeze" function check is followed by the NTC2 heating return probe but in these cases only the pump works (the burner doesn't light). The display doesn't show the antifreeze enabling code, but the error code of the NTC1 open or short circuit ***1 10*** or ***1 11***.

The antifreeze is enabled even if the NTC2 return probe is not working (open or short circuit) but only the pump works (the burner doesn't light). In this case the display doesn't show the antifreeze enabling code, but the error code of the NTC2 open or short circuit ***1 12***.

The antifreeze is enabled even if the boiler is shut down due to no flame detection ***5 01*** or blocked for over heat ***1 01***, but in these cases only the pump works (the burner doesn't light), and the display shows the error code of blocking and not the antifreeze enabling one.

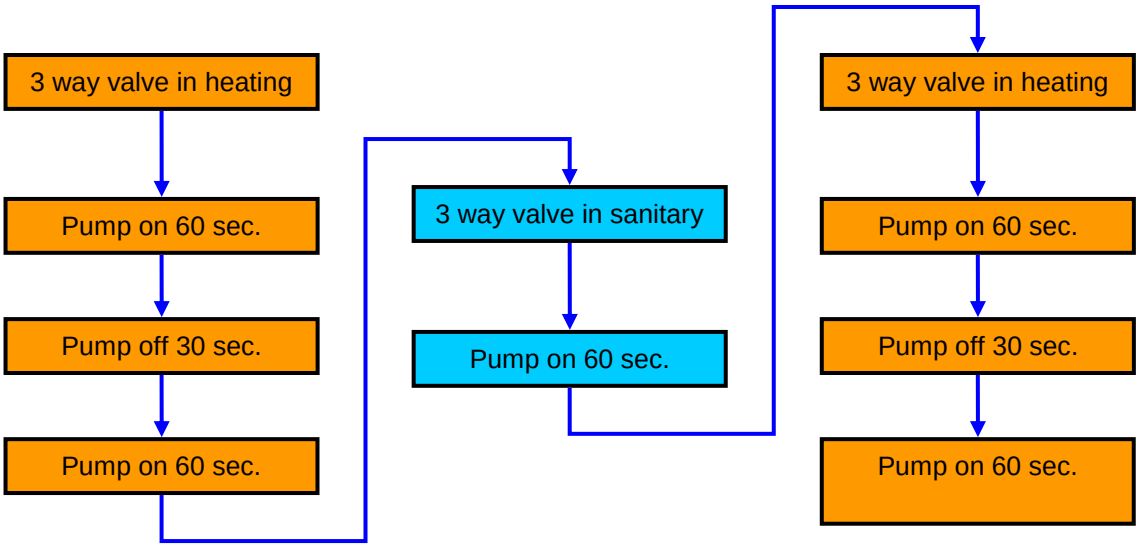
If there is an interruption of the power supply, the boiler maintains in memory all the setting and when the power supply is on the boiler returns in the condition that had before the turning off.

4.4 "WATER FLOW CHECK"

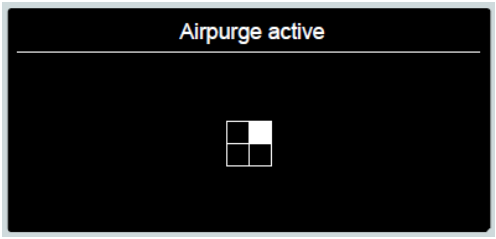
Check	When	What happens
Gradient Tman > 7°C/sec (checked every 100ms)	Check always with the flame on, except during the first 4 seconds after flame detection.	1. Immediate safety shutdown ***1 P1***: *- 10sec of post-circulation* *- 10 sec of post-ventilation* The boiler restarts after 10sec. 2. If the error occurs other 2 times within the following 4 minutes it will be shutdown ***1 03*** : *- 20sec of post ventilation* *- 1min of post circulation*.
Gradient Tman > 20°C/sec or **Gradient Trit > 20°C/sec** (checked every 100ms)	Check always with the flame on, and up to 7 sec after each turn off for temperature set or safety shutdown.	1. Shutdown ***1 04***: *- 20sec of post ventilation* *- 1min of post-circulation*.
Tman – Trit > 55°C	Check always with the flame on, and up to 7 sec after each turn off for temperature set or safety shutdown.	1. Immediate safety shutdown ***1 P2***: *- 10sec of post-circulation;* *- 10sec of post ventilation.* After 10sec the boiler restarts. *2.* If the error occurs other 2 times within the following 4 minutes it will be shutdown ***1 05*** : *- 20sec of post ventilation* *- 1min of post circulation*.
Trit > Tman + 10°C	Check always with the flame on.	1. If the defect occurs for 20 continuous seconds there will be a safety shutdown ***1 P3*** : *- 10sec of post-circulation;* *- 10sec of post ventilation.* After 10sec the boiler restarts. 2. If the defect occurs for 20 continuous seconds another 2 times within 4 minutes it will shutdown ***1 06*** : *- 20sec of post ventilation;* *- 1min of post circulation*.
Trit > Tman + 30°C	Check always with the flame on.	. Shutdown ***1 07***: *20sec of post ventilation;* *- 1min of post circulation*

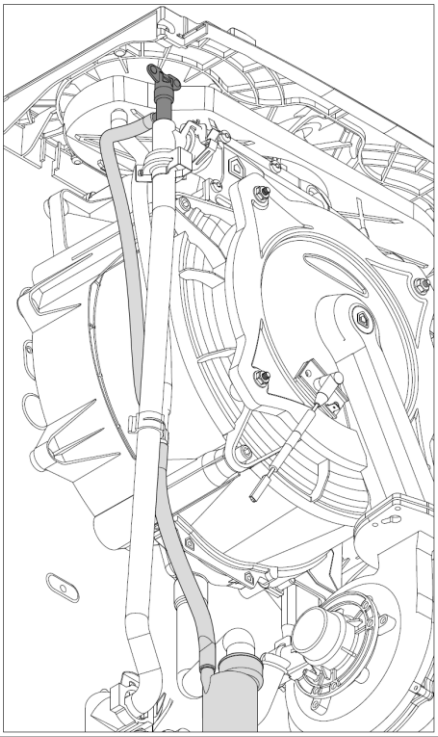
4.5 "*AIR PURGE*" Function

This function can be activated by the installer by the parameter 2 71 or pressing of the mode button for 5 sec (continues till to the finish (about 6') or pressing of the mode button).
Lo scopo di tale funzione è quello di aiutare ad espellere l'aria dal circuito primario dopo un riempimento.
It's aim is to help to purge the residual air inside the primary circuit after a filling cycle. At the activation the following cycle is begun:



This cycle can be repeated several times, till the boiler and the heating system are completely purged from air.





Using the manual air purge on the heat exchanger it is possible drain the ait from it.

4.6 "SELF ADAPTIVE HEATING RESTART DELAY"

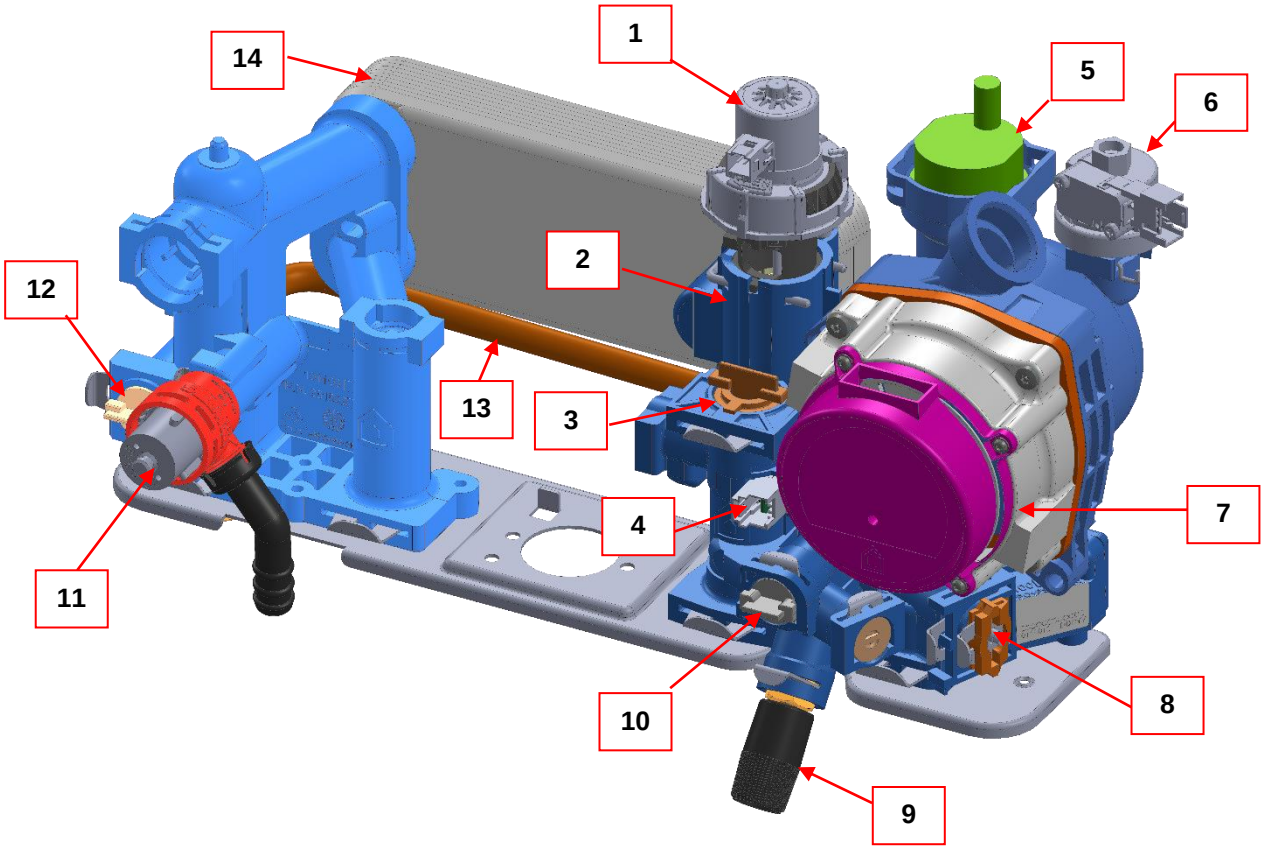
With the parameter 2 35 it is possible chose the heating restart delay type:
- 0: manual;
- 1: automatic.

MANUAL: with the parameter 2 36 it is possible set the heating restart delay between 0 and 7 min.

AUTOMATIC: the heating restart delay is calculated in base of the heating set-point temperature, see table below:

Set-point riscaldamento	< 50°C	51-60°C	61-70°C	71-80°C	> 80°C
Ritardo alla riaccensione (minuti)	5	4	3	2	1

5 HYDRAULIC UNIT



CAPTION			
1	3 way valve motor	8	Heating filter and pressure gauge connection
2	3 way valve	9	Filling tap
3	Sanitary flow switch	10	No back-flow valve
4	Reed sensor	11	3 bar safety valve
5	Automatic air valve	12	By-pass
6	Pressure sensor	13	By-pass pipe
7	Pump	14	Sanitary plate heat exchanger

5.1 3 WAY VALVE

The boiler uses a 3-way to change the water distribution (heating system side or secondary exchanger side). It's managed by the PCB that drive the stepper motor. It is formed by a composite material body and an electric stepper motor.
With the boiler on stand-by the 3-way valve is positioned on sanitary mode.
The 3 way valve can have 3 different positions:

- Heating;
- Domestic hot water (DHW);
- Stand-by (position similar to DHW, but with the gasket uncompressed).

Every time that the boiler is supplied the 3 way valve motor does a reset procedure, it does 3 complete switching (DHW → Heating → DHW), after that the position is related to the boiler working mode.
After DHW request (if there is not heating request), the e way valve remains in DHW position for 10 minutes, after that it goes in stand-by position.
At the end of the heating request (if there is not DHW request), after the post-circulation, the 3 way valve goes on DHW position and after 10 minutes it goes in stand-by position.
If the boiler is switched off through the ON/OFF button, the 3 way valve goes immediately in stand-by (if post-circulation is in progress, the 3 way valve goes in stand-by position at the end of the post-circulation).

HEATING POSTITION	DHW POSITION
	

The anti-sticking function of the 3 way valve is performed every 21 h after the last request.

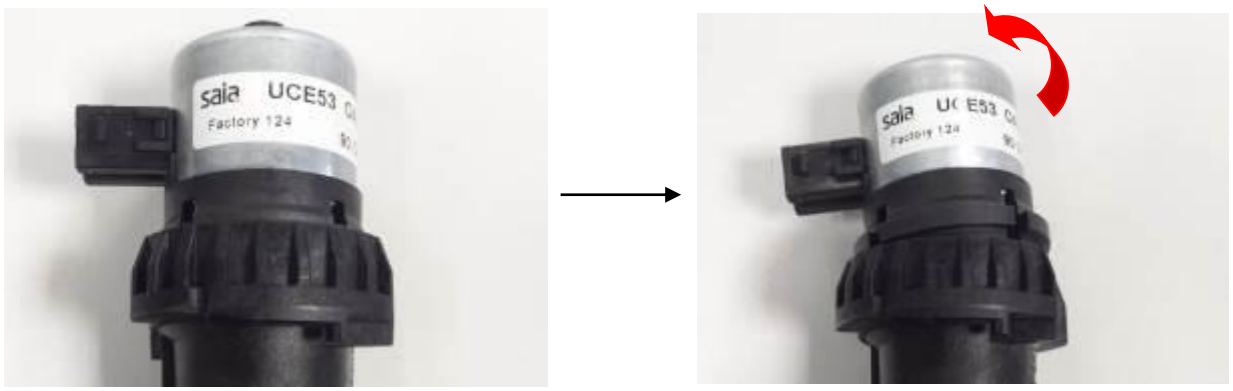
3 WAY VALVE MOTOR DISASSEMBLY:

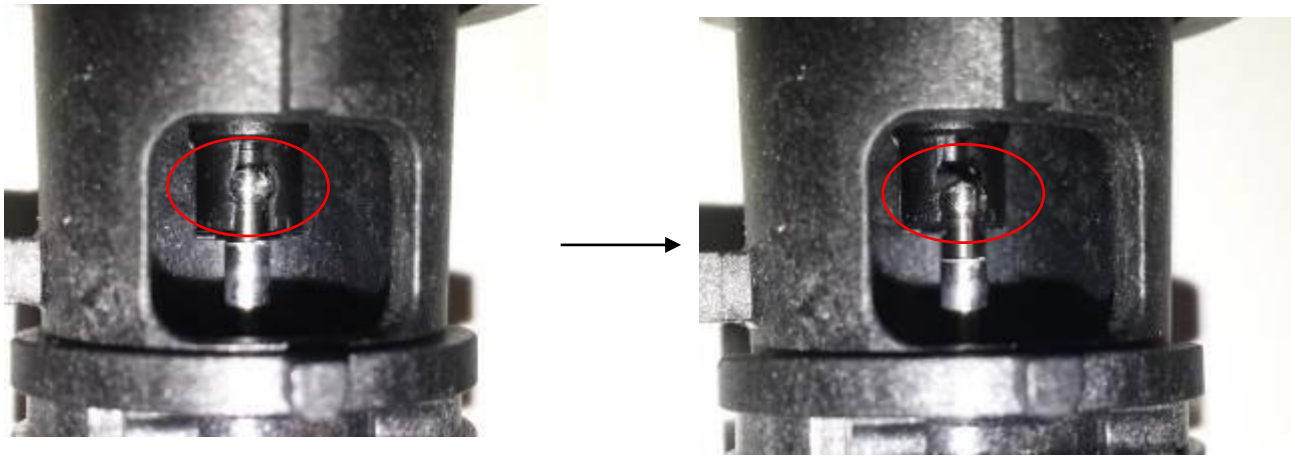
Before disassembly the 3 way valve is mandatory remove the stepper motor.
To remove the stepper motor the 3 way valve must be in DHW or stand-by position, otherwise it is not possible remove it. To do this it is enough switch off the boiler throught the ON/OFF button.

- Remove the motor blocking ring, rotating clockwise.

- Unblock the stepper motor

BLOCKED **UNBLOCKED**



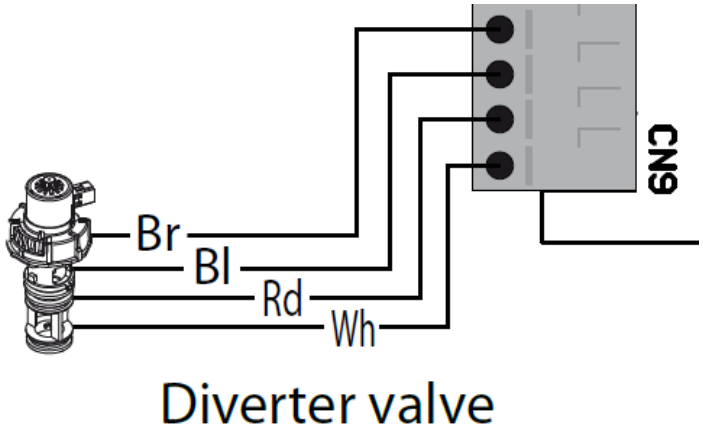


- Remove the stepper motor.

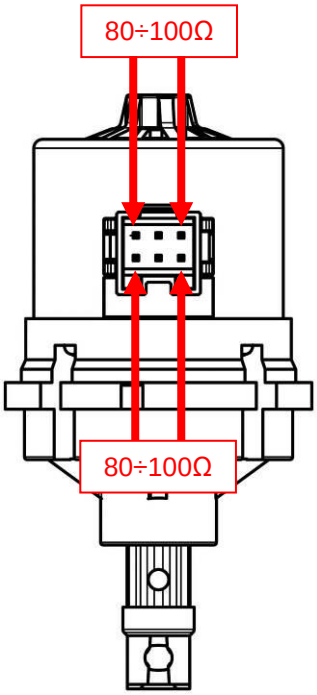
- Remove the 3 way valve (to do it easier it is possible use a flat screwdriver).

5.1.1 Stepper motor

The stepper motor is managed from the PCB.
Switching time (Heating → DHW or DHW → Heating) : about 3sec,.



To check the stepper motor is possible measure the resistance between the following pins. If it is between 80 and 100 Ohm it means that the coils of the stepper motor are ok.



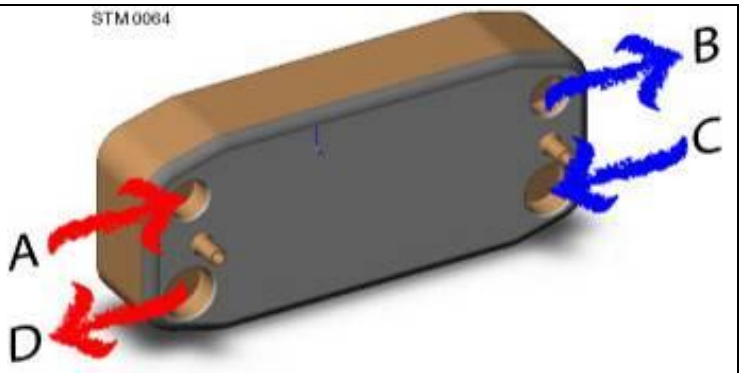
5.2 SECONDARY EXCHANGER

The secondary exchanger is fixed to the hydraulic unit with two screws.
The two points where the screws are fixed are asymmetric with the body of the exchanger so that it can be assembled only in the proper position.

HEAT EXCHANGER

Hot water from the main exchanger, flows into **A,** transferring its heat and flows out through **B**

The cold water from the domestic hot water mains, passes through the domestic proportional flow meter (thus starting up the boiler in domestic hot water mode) flows into **C**, heat up and flows out through **D,** ready for use in the distribution network.



Exchanger with 16 plates

5.2.1 Antiscale limit temperature

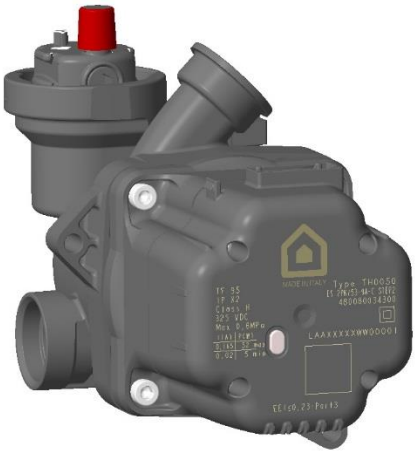
Reduces the formation of scale in the secondary exchanger. During SANITARY MODE operation the burner turn off and restart depends on the temperature values detected by probes NTC1 and NTCs indicated here on the right.

	T set	*Antiscale limit temp.*	*START*
NTC1 *(delivery probe)*	*Not influent*	*85°C*	*81°C*
NTC2 *(return probe)*	*> 52°C*	*65°C*	*64°C*
	<52°C	*62°C*	*61°C*

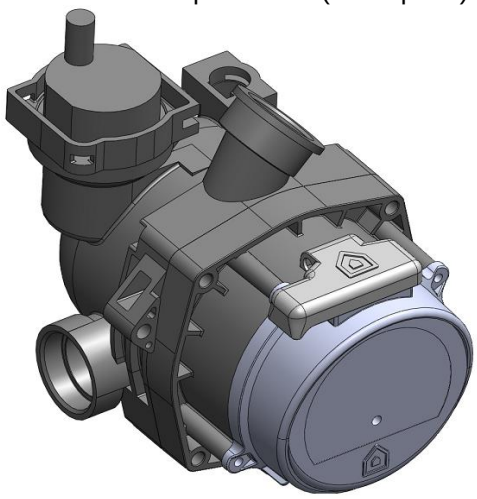
5.3 PUMP UNIT

The pump is full modulating. The modulation is according to the boiler power in heating.
In sanitary the pump goes always at the maximum speed.
We can have 2 alternative pumps on this boiler:

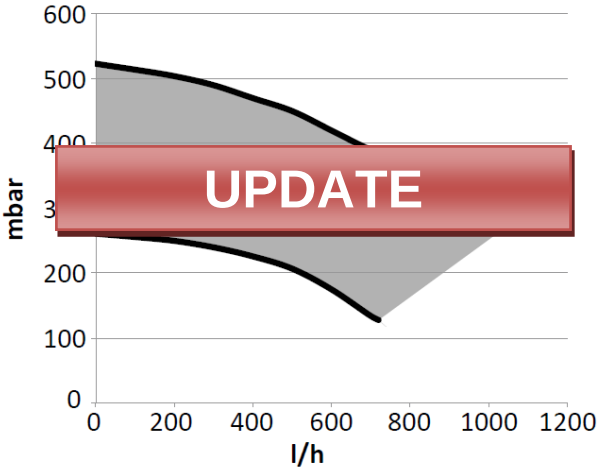
Pump model: ES 2PK/53-9A-C STEP2.
Electrical power supply: 325Vdc.
Electrical consumption:52W (max speed).



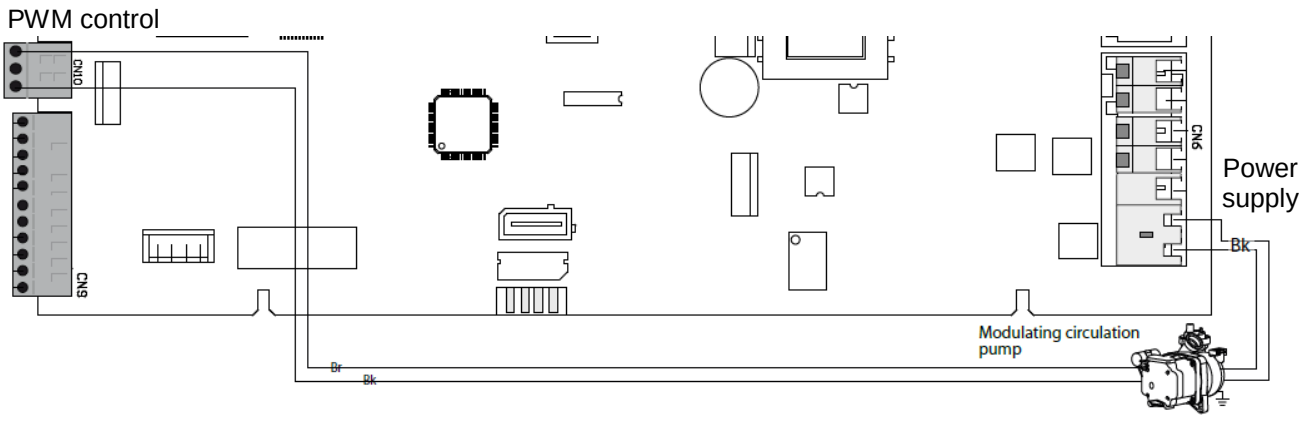
Pump model: EUMEZECP2AE-C
Electrical power supply: 325Vdc.
Electrical consumption:50W (max speed).



Setting the parameter 246 like the parameter 245 the pump works always at fixed speed.
Setting the parameter 245 and 246 to 75 the pump works at the speed that is like the low speed in the pump modulating in 2 step, at this speed is guaranteed the by-pass working.

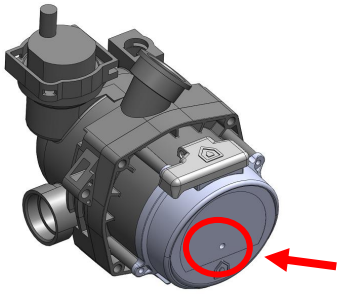


PAR.	NOTE
245	Max pump speed (settable between 75 and 100)
246	Min pump speed (settable between 40 and par. 245



There is one bi-colour led (green and red) in the frontal part of the pump:

- Led off: pump off or not supplied;
- Led green on fix: pump on with stable speed;
- Led green on blinking: pump on with speed changing;
- Led red on fix: pump blocked; with the system empty or with air inside the system switch-on alternatively the red led and the green blinking.



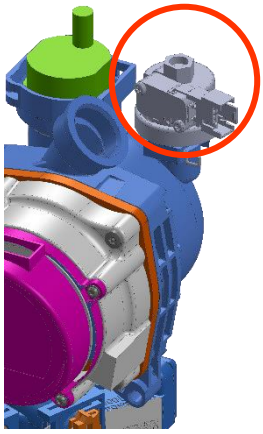
With the PWM wire disconnected (main PCB connector CN10) the pump goes at the maximum speed.

5.3.1 Types of post-circulation

Post-circulation after:	3 way valve position	Time of post circulation	Speed pump
Switching off due to:			
Room thermostat opening	Heating	3 min *(set by parameter 237 beetwen 0 e 15')*	Min/Mean
Heating Off by Summer/Winter button	Heating	3 min *(set by parameter 237 beetwen 0 e 15')*	Min/Mean
NTC delivery > T set +4	Heating	continuasly	Min/Mean
NTC return > 62°C or 67°C	Sanitary	continuasly	Max
End of sanitary demand	Sanitary	Par. 254=0 → 30 sec if:Tdel<75°C ; 3 min if Tdel>75°C; Post circulation: 30sec	Max
		Par. 254=1 → 3 min	
End of comfort cycle	Sanitary	30 sec	Max
End of antifreeze function	Heating / Sanitary	2 min	Max
End of chimney sweeping function	Heating	1 min	Min
Solar sensor	Sanitary	30 sec	Min
Errors			
Pressure sensor (102), Low pressure (108, 111)	Heating	40 sec	Min
No circulation (103, 104, 105, 106, 107)	Heating	1 min	Max
Flame missing, flame lift (501, 504)	Heating	2 min	Min
Overheat (101), Thermo fuse opening (610)	Heating	2 min	Min
No circulation (1P1, 1P2, 1P3)	Heating	10 sec	Max
Floor thermostat opened (116)	Heating	90 sec	Min

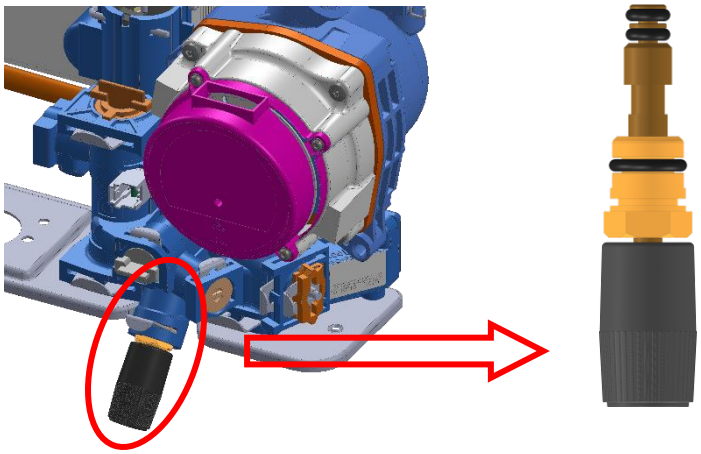
5.4 HEATING PRESSURE SENSOR

The proportional pressure sensor measures the pressure of the primary circuit, which is shown on the display.
If the pressure decreases below the value set by parameter 241 (default : 0,6bar) occur a warning (***1 P4***), but the boiler continues to operate normally; If the pressure decreases below the value set by parameter 240 (default : 0,4bar) occur a safety shout down ***1 11***.



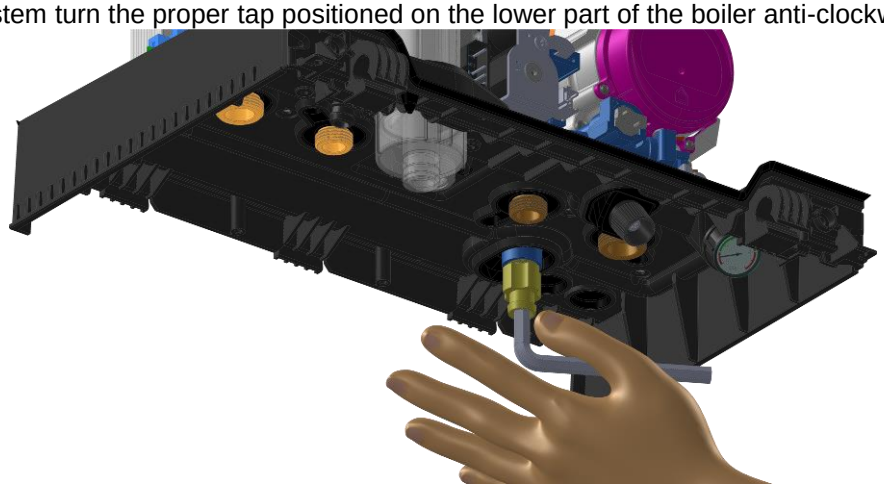
5.5 FILLING TAP.

To fill the heating circuit use the tap positioned under the hydraulic group support, pull down the handlebar and after rotate in anticlockwise.



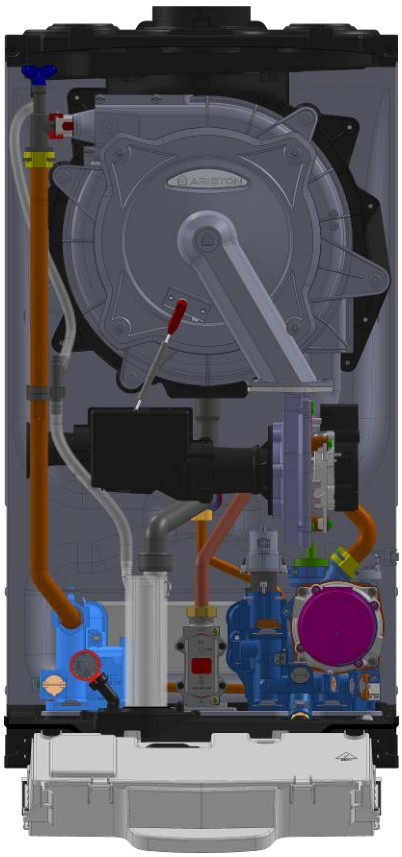
5.6 DRAIN VALVE

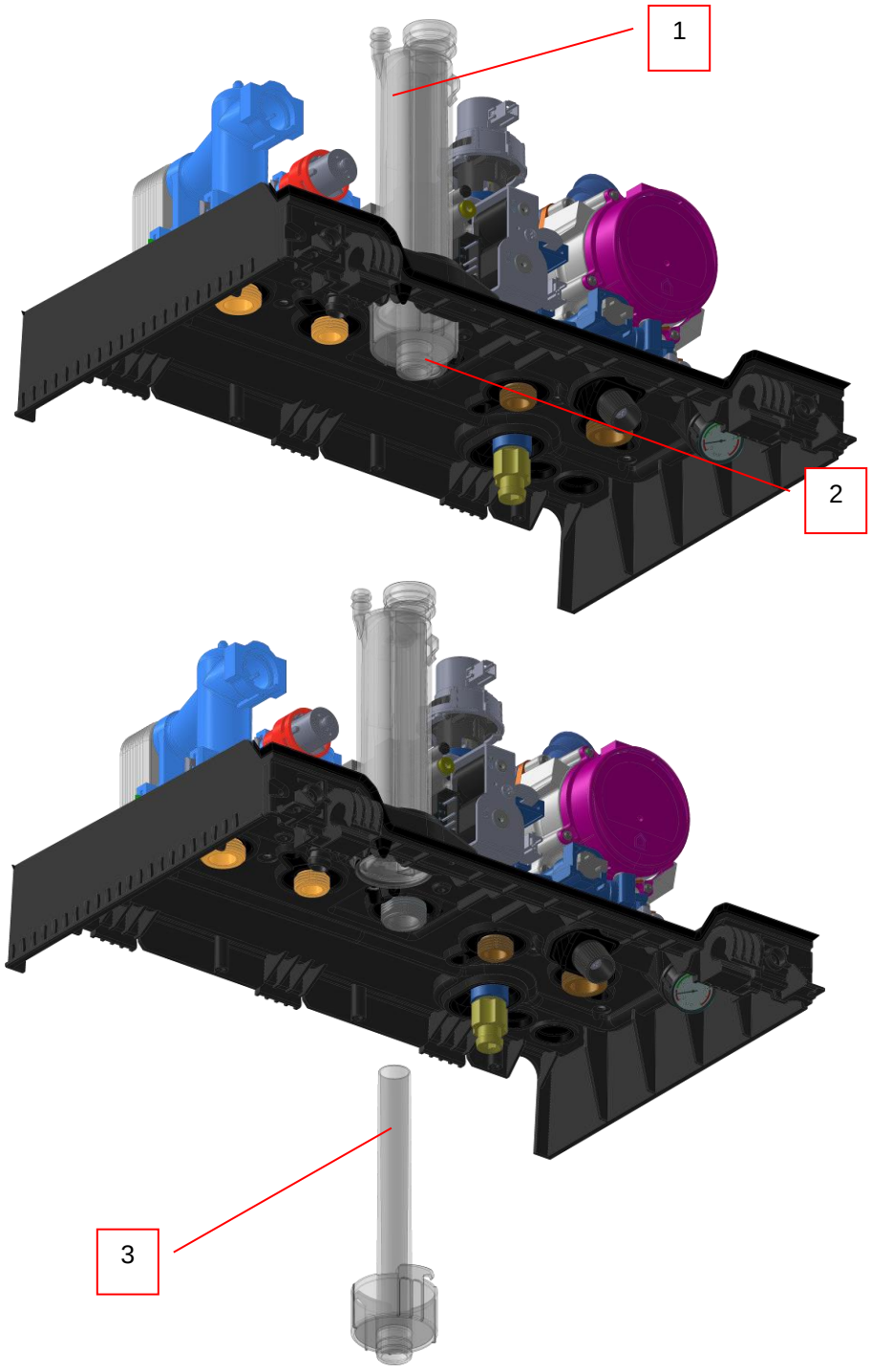
To empty the system turn the proper tap positioned on the lower part of the boiler anti-clockwise.



5.7 CONDENSATION TRAP

The condensation trap is integrated in the boiler, and located in front of flow part of hydraulic group.
It can be accessed from the outside of the case, without opening the air chamber.
In the condensation trap is also connected the pipe that came from main heat exchanger air purge and from the water protection plate.
N.B. Remember to fill the trap before commissioning the boiler.

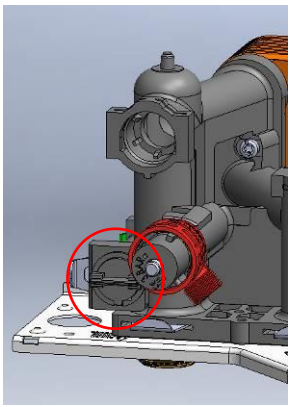


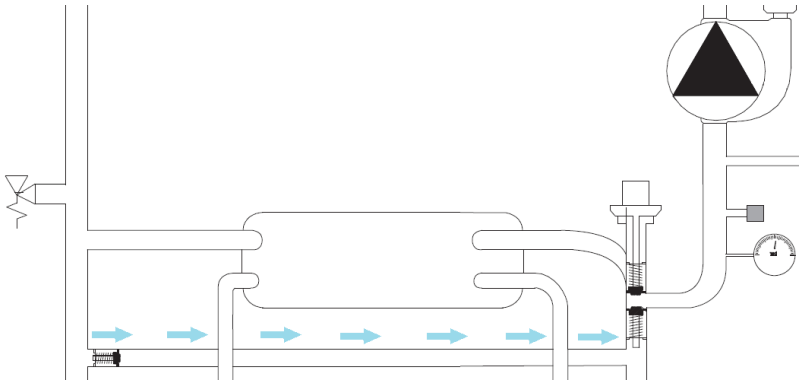


LEGEND	
1. Condensate trap	3. Condensate tank
2. Condensate drain	

5.8 BY-PASS

The boiler has an automatic by-pass and, therefore no regulation is required. In the case of load losses in the system caused for example by the intervention of thermostat or area valves, the by-pass guarantees a flow in the condensing main exchanger of at least 350l/h.
The by-pass is therefore designed to protect the condensing main exchanger from overheating in the case of poor or insufficient water circulation.
If this condition occurs, the system regulates the power normally and then switches off the main burner when the set-point temperature is reached.





By-pass

5.9 PRIMARY EXCHANGER UNIT - XTRATECH

The primary exchanger is keeping in position localised inside the combustion chamber by 4 points. It integrated extra functions: flue box, drain condensate.

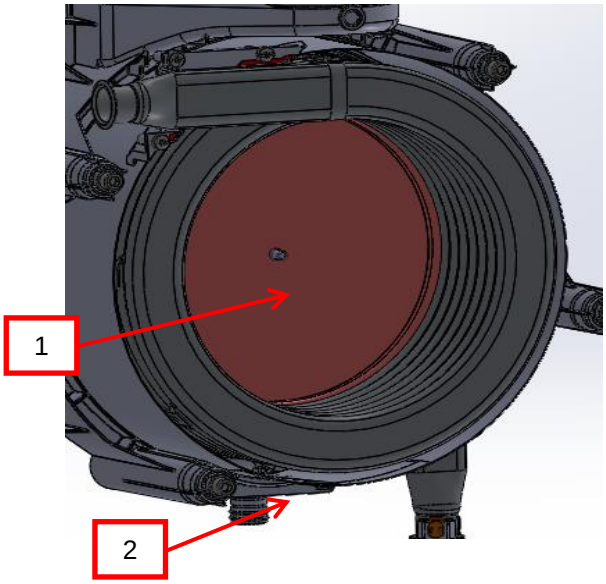
The heat exchanger is made with one pipe in stainless steel smooth (material: 304 L / Diameter: 28 mm / Thickness: 0,8 mm). In order to have a maximum thermal exchange, the tubes are flattened.

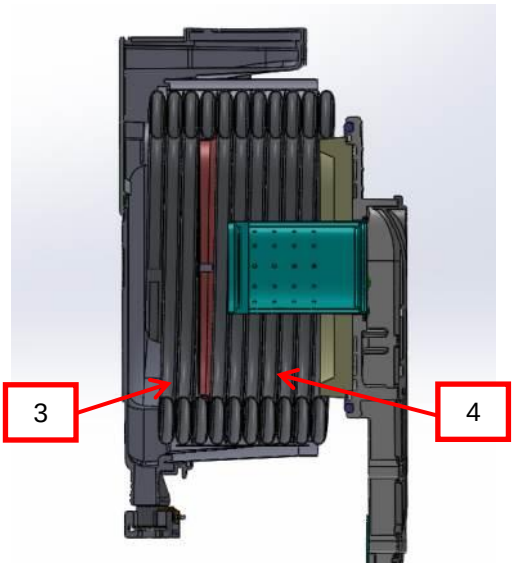
Spacers are used to maintain the distance between each coil (0,8 mm).

Number of coils according to the burner power:

Burner power	Nb of coils
12 kW	10
18 kW	10
24 KW	10
30 KW	13
35 KW	15

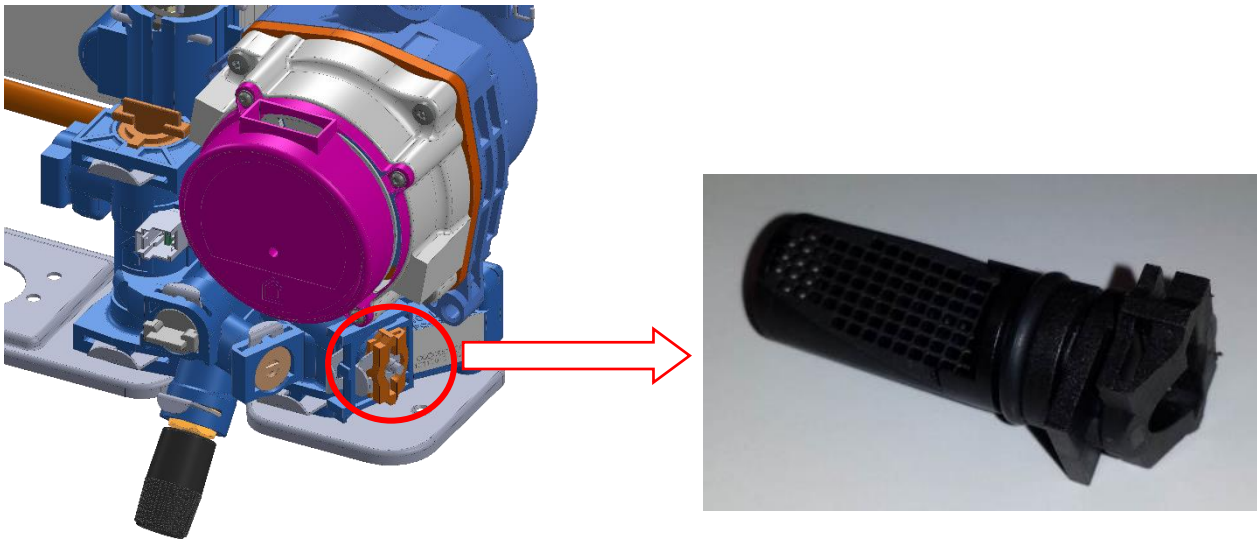
LEGEND	
1. Insulation	3. Low temperature zone
2. Condensate discharge	4. High temperature zone





5.10 HEATING FILTER

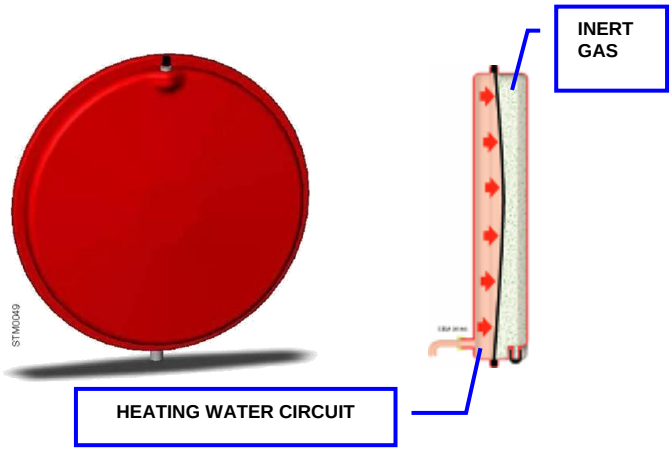
On the heating return unit there is a filter that can be removed from the front side of the boiler. To inspect and clean the filter follows the instructions shown below.

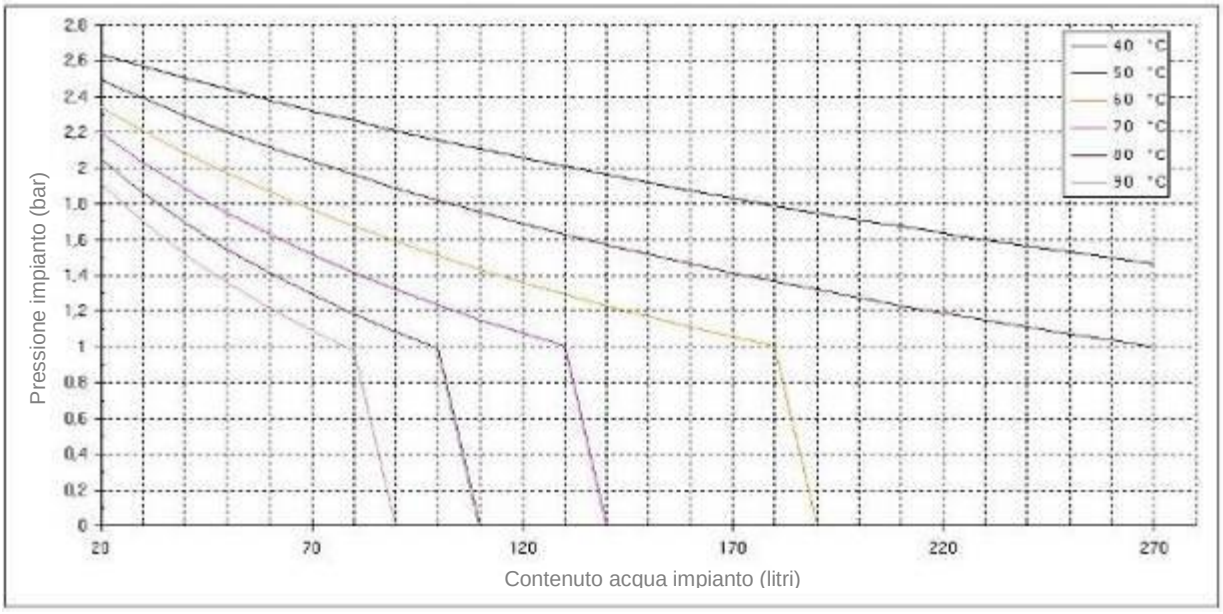


5.11 EXPANSION VESSEL

The expansion vessel absorbs primary circuit water expansion when there is a boiler temperature raise. It is constituted by two parts separated by a SBR rubber membrane. On one side, it is an inert gas (nitrogen) and on the other side, water of the primary circuit. The inert gas chamber (which can be compressed) absorbs the water volume increased because of temperature raise.
The expansion vessel has been conceived for an approx. 175 litres heating system.

Technical features	
Capacity	8 litres
Maximum operating temperature	90°C
Nitrogen pressure	1 bar
Maximum operating pressure	3.0bar





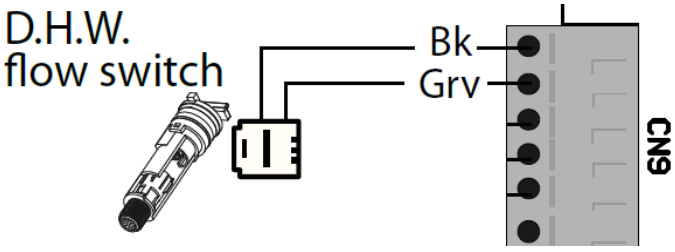
5.12 SANITARY FLOW SWITCH

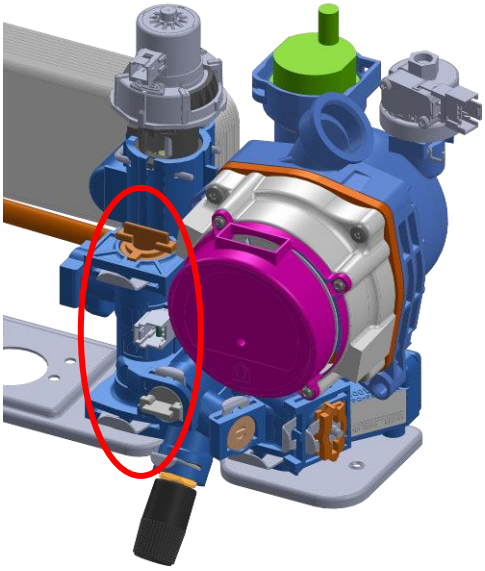
The DHW flow meter is positioned in front of e way valve.
When turned on sanitary mode, the flow of water passes through the flow switch (on/off), the float moves upwards and through the magnet close the reed sensor contact and the PCB know that the tapping is in progress.
A cold water inlet filter is built-in the sanitary flow meter to stop impurities from getting in.
There is also an anti-hammer device (through the PCB) that can be set by parameter 2 52 between 0.5 sec and 20 sec (default 0.5 sec).

It is possible check if the contact is open or closed through the connector CN09.

Flow capacity on: 2 l/min

Flow capacity off: 1,4 l/min



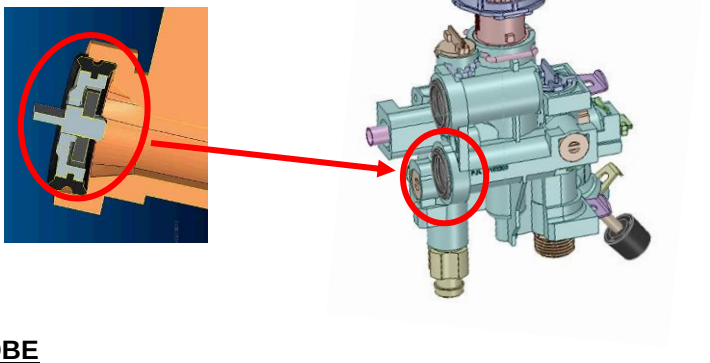


5.13 SANITARY FLOW LIMITER (accessory)

If the sanitary flow rate is too high, it is possible assemble in the boiler the flow limiter. It is available in 3 different flow rate: 8l/min, 10l/min and 12l/min, it is possible identify them with the colour:

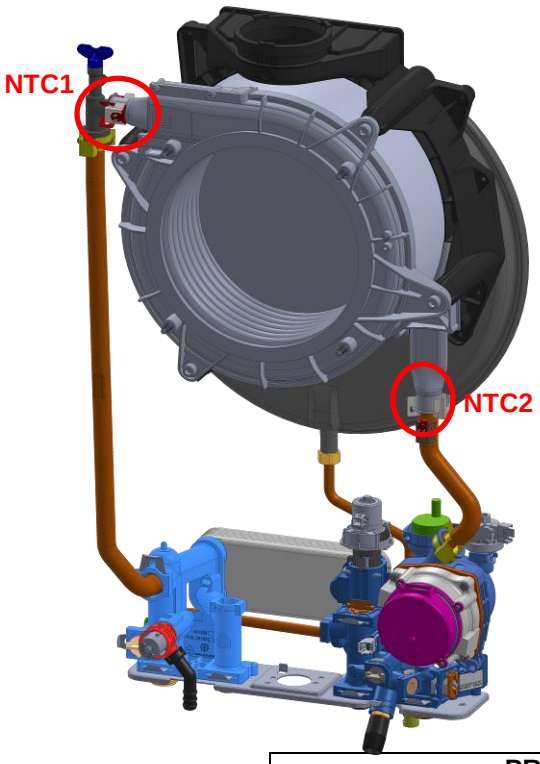
8 l/min  10 l/min  12 l/min 

The flow limiter must be assembled in the connection between right hydraulic block and sanitary heat exchanger.



5.14 TEMPERATURE PROBE

To check the delivery and return temperature use the two contact sensor. To read the sanitary water temperature the boiler uses the sensor ***NTC2***.
If the NTC1 sensor does not work properly the antifreeze function will be checked by sensor ***NTC2*** (only pump circulation).

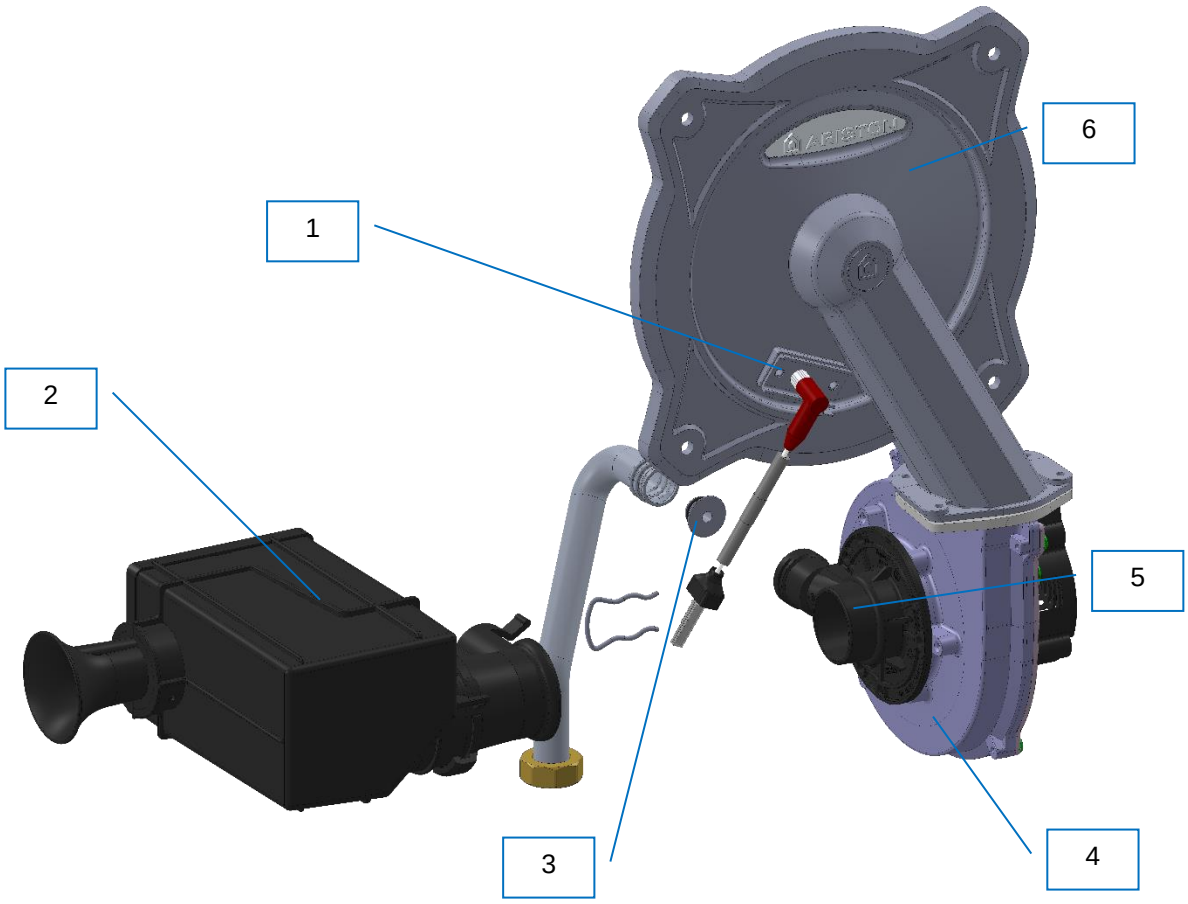


TEMPERATURE (°C)	RESISTANCE (kOmh)
0	27
10	17
20	12
25	10
30	8
40	5
50	4
60	3
70	2
80	1,5

PROBE ERROR CODES	
1 10	**NTC1** heating delivery probe open circuit or no signal.
1 12	**NTC2** heating return probe open circuit or no signal.

6 BURNER UNIT

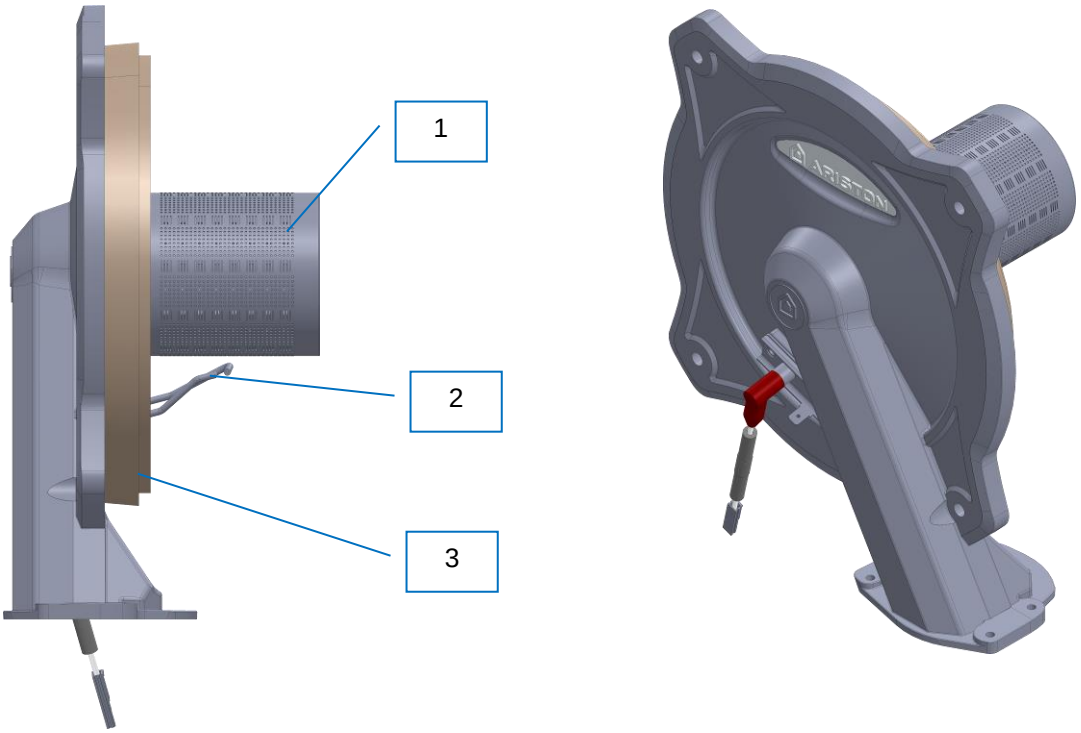
6.1 BURNER UNIT



CAPTION	
1. Ignition/detection electrode	**4.** Fan
2. Silencer	**5.** Mixer
3. Gas diaphragm	**6.** Burner door

6.2 PREMIX BURNER

The cylindrical stainless steel premix burner pot Ø 70 mm is made up of a small-diameter perforated external casing on which the combustion occurs. a large-diameter perforated internal casing that balances the propagation of the gas.
This burner can be used with natural gas and LPG.



LEGEND
1. Stainless Steel Burner
2. Ignition/detection electrode
3. Insulation

Power	Length
12 kW	75 mm
18 kW	75 mm
24 KW	75 mm
30 KW	92 mm
35 KW	99 mm

6.3 MIXER

There is only one mixer for all powers. In the different powers change the gas diaphragm.

Gas diaphragm diameter					
Gas	12kW (ø mm)	18kW (ø mm)	25kW (ø mm)	30kW (ø mm)	35kW (ø mm)
G20 / G30 / G31 / G230	5.6	5.6	5.6	6	6.3

6.4 GAS CHANGE

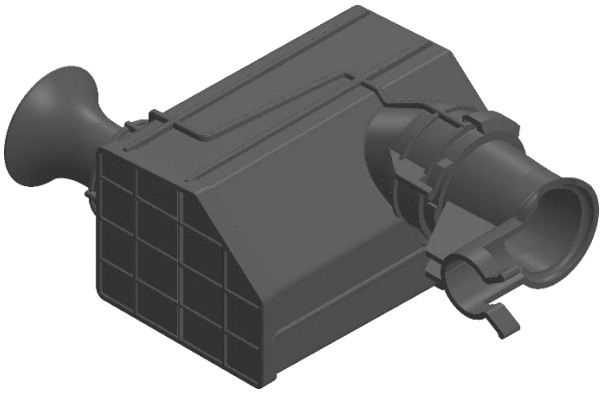
It is not necessary a conversion kit, because the boiler has an auto adaptation gas system.
Proceed as indicated:

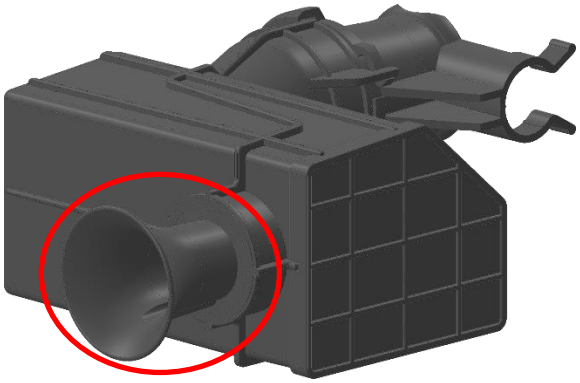
1. Change parameter 202 to the new gas (see Technical Area). The display shows the error “The boiler must be calibrated”.
2. Perform the Calibration procedure and CO2 verification.
3. At the end apply, near the data plate, the new label (supplied with the product) indicated the new gas type used.

DURING THE CALIBRATION PROCEDURE AND MEASUREMENT OF THE CO_2 VALUE, IT’S IMPORTANT THAT THE BOILER WORKS WITH THE FRONT COVER CLOSED AND THE AIR/ FUMES DUCTS FULLY ASSEMBLED.

6.5 SILENCER

There are 3 different silencers. The difference is the diameter of the air inlet.

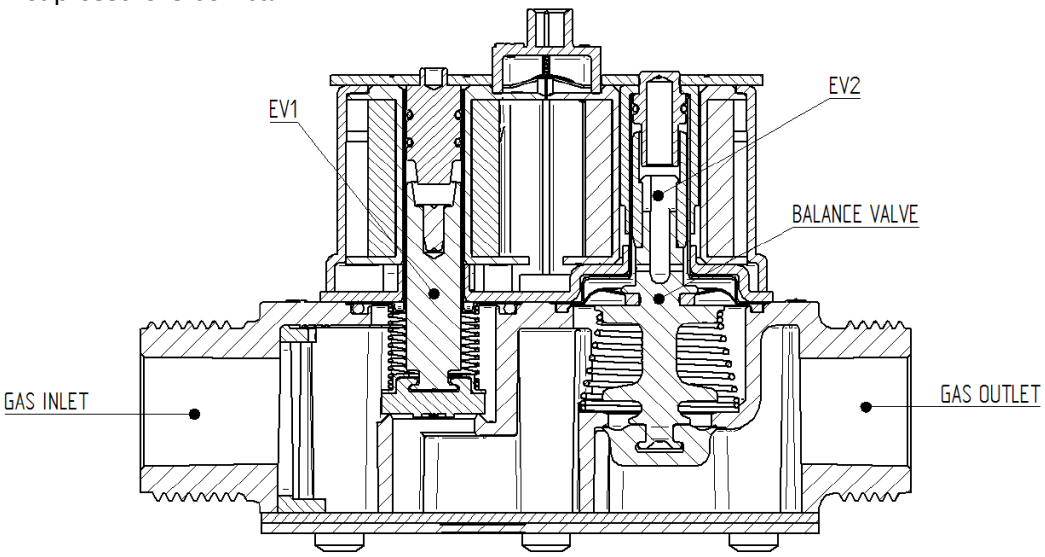


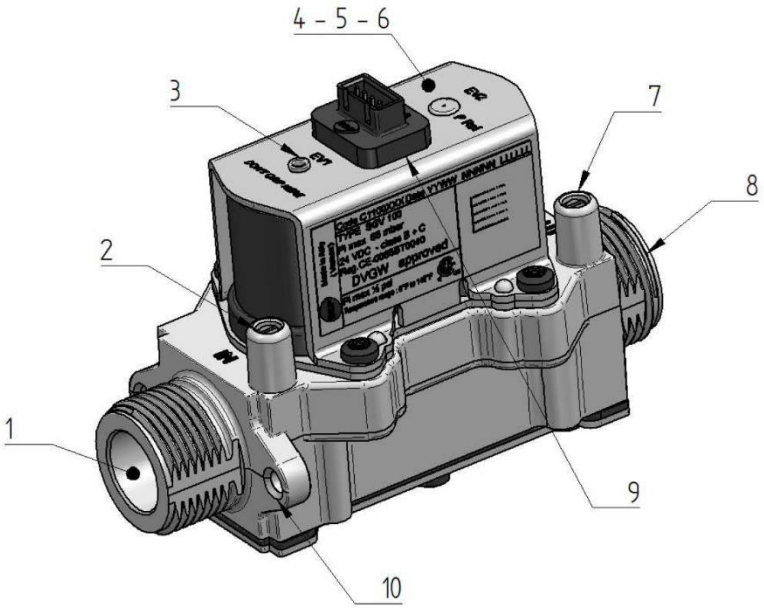


Air inlet diameter					
Gas	**12kW (ø mm)**	**18kW (ø mm)**	**25kW (ø mm)**	**30kW (ø mm)**	**35kW (ø mm)**
G20 / G30 / G31 / G230	10,2	25,3	25,3	25,3	33

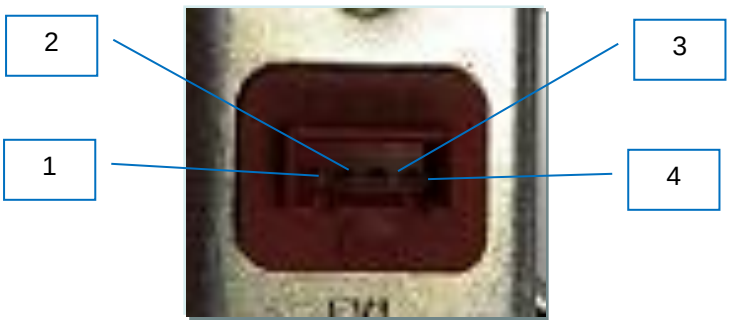
6.6 BERTELLI SGV GAS VALVE

The gas valve mounted is a **BERTELLI SGV** , fitted with two operators supplied at 24 VDC.
The gas valve is composed by 2 safety operators: the first is an ON / OFF solenoid class B, the second one is used as safety operator class C that is used to drive the “balanced pressure valve” that adjust the outlet gas flow, from min to the max rate, according to the modulation current supplied by the electronic board. This second operator provides also to stabilize the outlet gas pressure.
No mechanical adjustments are required.
The valve is prearranged to work with different types of gas without having to replace any part. The maximum inlet pressure is 65mbar.





CAPTION	
1	Gas inlet ¾’
2	Inlet pressure test point
3	Solenoid EV1 (ON/OFF safety valve)
4	Solenoid EV2 (safety valve and gas modulation)
5	Balanced pressure regulator
6	Proportional pressure regulator
7	Outlet pressure test point
8	Gas outlet ¾’
9	Electrical connection
10	Fixing holes



1 – 3 : EV1 → 27Ω → 6,5 Vdc

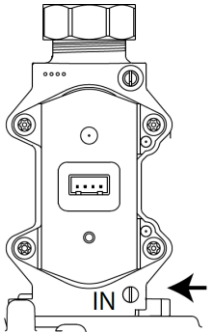
2 – 4 : EV2 → 60Ω → 8÷11 Vdc

6.7 COMBUSTION CONTROL SYSTEM AND GAS SETTINGS

The gas setting is done automatically by the PCB.
This is possible using the feed-back that came from the ionization current and adjusting the gas through the gas valve.
No mechanical adjustments are required.
During the first ignition is mandatory do the Automatic calibration procedure (see par. 2.1 – First ignition procedure).
During the normal working the system works continuously to check end if needs to correct the combustion using electrode, PCB and gas valve.

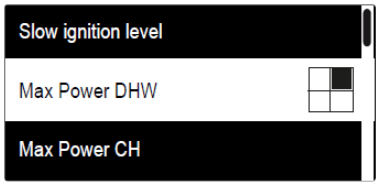
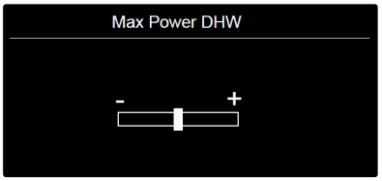
6.7.1 Inlet gas pressure check

Switch on the boiler at the maximum power (using “FLUE CLEANER” function → DHW max power), check the inlet gas pressure using the inlet pressure test point. The supply pressure must correspond to the value established in relation to the type of gas ,for which the boiler is designed (refer to table below).



Minimum supply pressure			
G 20	**G30**	**G 31**	**G 231**
17 mbar		25 mbar	

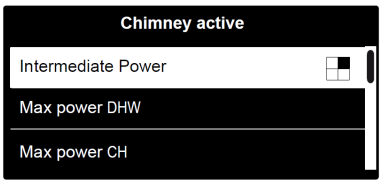
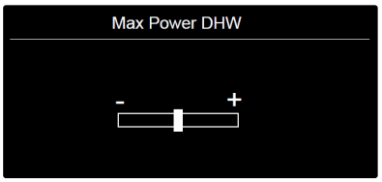
6.7.2 CO2 adjustment – DHW maximum power

1	Switch on the boiler at the maximum power (using “FLUE CLEANER” function → DHW max power)	
2	Wait till the value of the CO2 on the exhaust analyser is stable.	
3	Compare the CO2 value with the values in the table below.	
4	If the CO2 value is not ok press “OK” button and the display shows the adjustment bar.	
5	Using the buttons “<” and “>” to adjust the CO2 value (it is possible modify the CO2 of a value ±0,5%). **Note: To see the CO2 variation it needs to finish this procedure and perform 5 ignitions of the boiler.**	
6	To save the new setting push the button “Ok”	

	CO2				
Type of gas	**12KW**	**18 KW**	**24 KW**	**30 KW**	**35KW**
G20 20 mb	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7
G30 29 mb					
G31 37 mb	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7
G231					

N.B.: Values with casing closed.

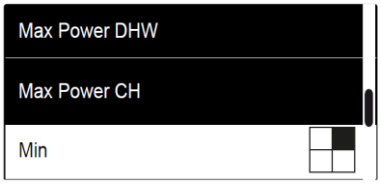
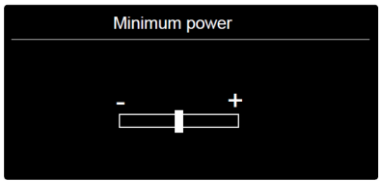
6.7.1 CO2 adjustment – Intermediate power

1	Switch on the boiler at the maximum power (using “FLUE CLEANER” function → DHW max power)	
2	Wait till the value of the CO2 on the exhaust analyser is stable.	
3	Compare the CO2 value with the values in the table below.	
4	If the CO2 value is not ok press “OK” button and the display shows the adjustment bar.	
5	Using the buttons “<” and “>” to adjust the CO2 value (it is possible modify the CO2 of a value ±0,5%). **Note: To see the CO2 variation it needs to finish this procedure and perform 5 ignitions of the boiler.**	
6	To save the new setting push the button “Ok”	

	CO2				
Type of gas	**12KW**	**18 KW**	**24 KW**	**30 KW**	**35KW**
G20 20 mb	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7
G30 29 mb					
G31 37 mb	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7
G231					

N.B.: Values with casing closed.

6.7.2 CO2 adjustment - minimum power

1	Switch on the boiler at the minimum power (using “FLUE CLEANER” function → Min power)	
2	Wait till the value of the CO2 on the exhaust analyser is stable.	
3	Compare the CO2 value with the values in the table below.	
4	If the CO2 value is not ok press “OK” button and the display shows the adjustment bar.	
5	Using the buttons “<” and “>” to adjust the CO2 value (it is possible modify the CO2 of a value ±0,5%). **Note: To see the CO2 variation it needs to finish this procedure and perform 5 ignitions of the boiler.**	
6	To save the new setting push the button “Ok”	

	CO2				
Type of gas	**12KW**	**18 KW**	**24 KW**	**30 KW**	**35KW**
G20 20 mb	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7	8,6% ± 0,7
G30 29 mb					
G31 37 mb	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7	10,0% ± 0,7
G231					

N.B.: Values with casing closed.

The soft ignition power checking and setting

To check and to set the soft ignition, it is possible in the parameter **2 20**.
The factory's setting is 60.

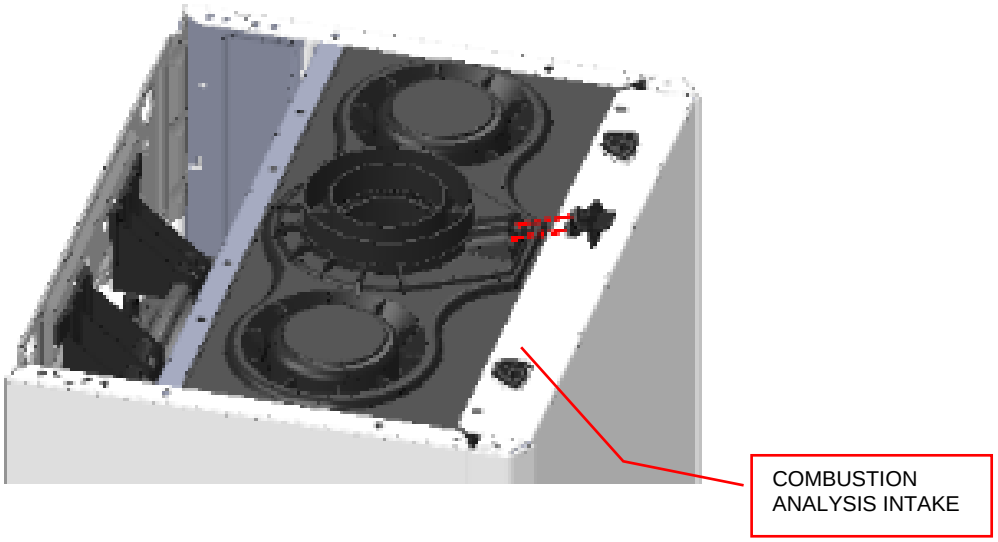
6.7.3 GAS TABLE

GENUS PREMIUM EVO					24		30		35	
GENUS PREMIUM EVO SYSTEM			18		24		30		35	
		parametro parameter	G20	G31	G20	G31	G20	G31	G20	G31
Indice di Wobbe inferiore Lower Wobbe index (15°C, 1013 mbar) (MJ/m3)			45,67	70,69	45,67	70,69	45,67	70,69	45,67	70,69
Lenta accensione Slow ignition							62		62	
Max PotenzaRiscaldamento regolabile Maximum C. H.power Adjustable							67		67	
Potenza min (%) Minimum power (%)		233	19		0		0		1	
Potenza Max Riscaldamento (%) Max CH power (%)		234	19		67		76		81	
Potenza Max Sanitario (%) Max DHW power (%)		232	85		80		82		91	
Diaframma gas (Ø)			3,8	2,9	6,4	5,5	6,9	5,8	4,5	6,0
Consumi max/min Gas flow max/min (15°C, 1013 mbar) (nat - m3/h) (GPL - kg/h)	max sanitario max D.H.W		1,90	1,40	2,75	2,02	3,17	2,33	3,65	2,68
	max riscaldamento max C.H		1,90	1,40	2,33	1,71	2,96	2,17	3,28	2,41
	minimo min		0,48	0,35	0,26	0,19	0,32	0,23	0,37	0,27

UPDATE

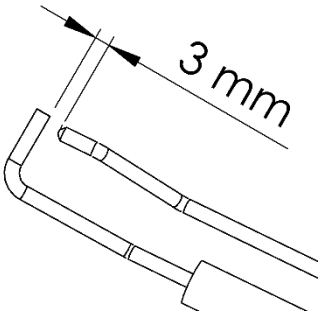
6.8 THE FUME DISCHARGE SYSTEM

On the external part of the boiler there is a fume discharge collector with two intakes used to detect the temperature of the combustion gas and of the fresh air inlet , concentrations of O2, CO2, etc.

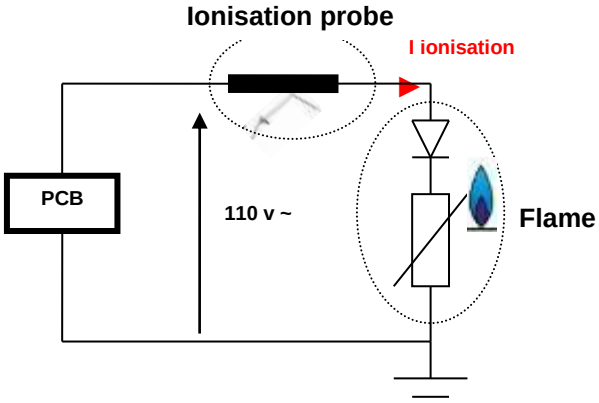


6.9 IGNITER / ELECRODE PROBES

There is only one electrode that produces ignition and detects the presence of the flame in the burner if the ionization current is more than 1 µA. If the signal disappears, three attempts are made to try to ignite the burner.

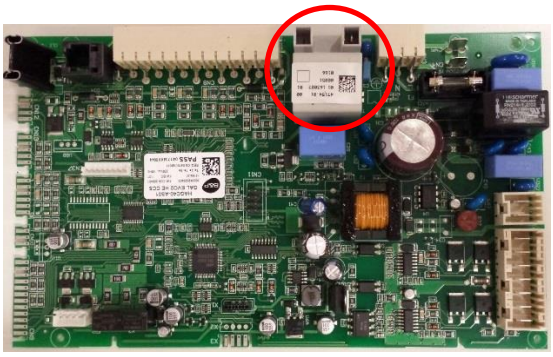


Distance between the ignition electrodes: 3±0,5 mm.
Distance between the burner and the electrodes: 5±1 mm.



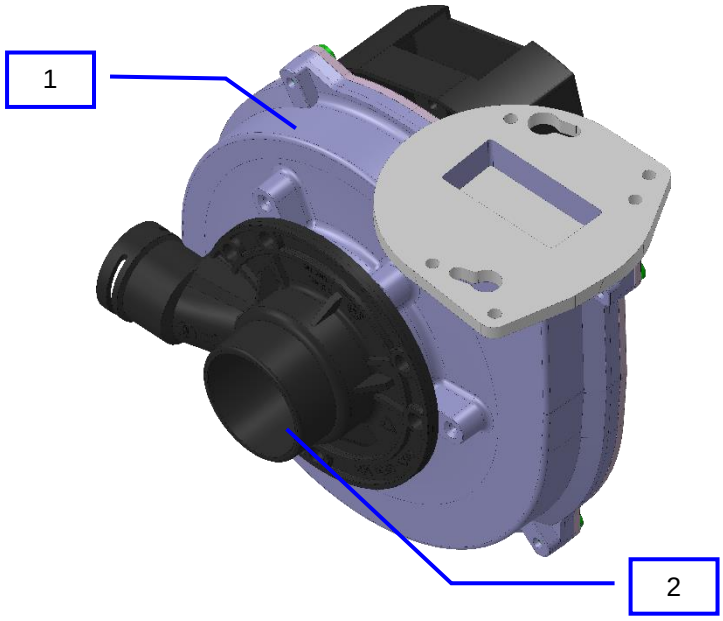
6.1 SPARK GENERATOR

Integrated in main PCB.



6.2 MODUALTING SPEED VENTILATOR

The fan has the dual purpose of expelling the fumes produced by the combustion and ensuring a consistent flow of excess air throughout the entire modulation range, from the maximum to the minimum heat output.
As soon as heat is requested the ventilator is piloted by the electronic card if required on ignition speed.
The tachymeter of the ventilator detects the right speed the gas valve is supplied. When the flame is detected by the detecting electrode the ventilator if free to modulate according to the thermal load requested by the boiler. The burner power is directly proportional to the speed of the ventilator.
The HALL sensor, to detect the fan speed, is integrated inside the motor.
It is possible to display the ventilator rpm measured by means of the parameter **8 22**.

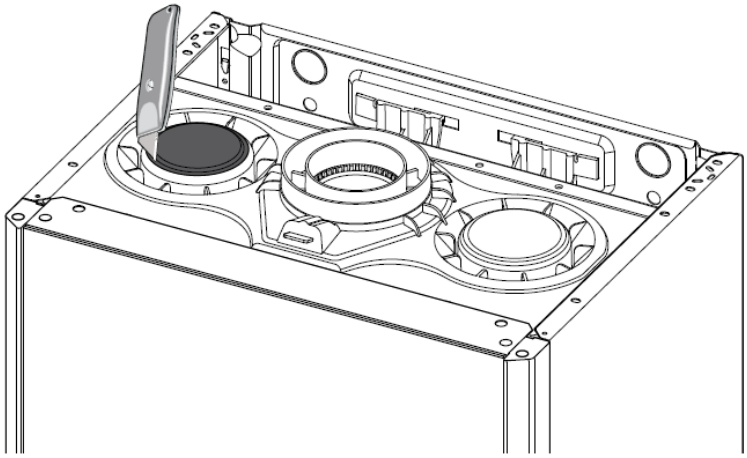


CAPTION	
1	Fan
2	Mixer

Power	Fan
12 KW	EBM NRG 118/0800-3612 - 365Vdc FIME PX 118 006 03 - 365Vdc
18 KW	
24 KW	
30 KW	
35 KW	

6.3 EXHAUST SYSTEMS

The boiler is set up for connection to a 60/100 coaxial air intake and flue gas exhaust ducting system. To use split types of suction and exhaust, one of the two air intakes must be used.
Remove the top of the air intake by cutting it with a suitable knife.



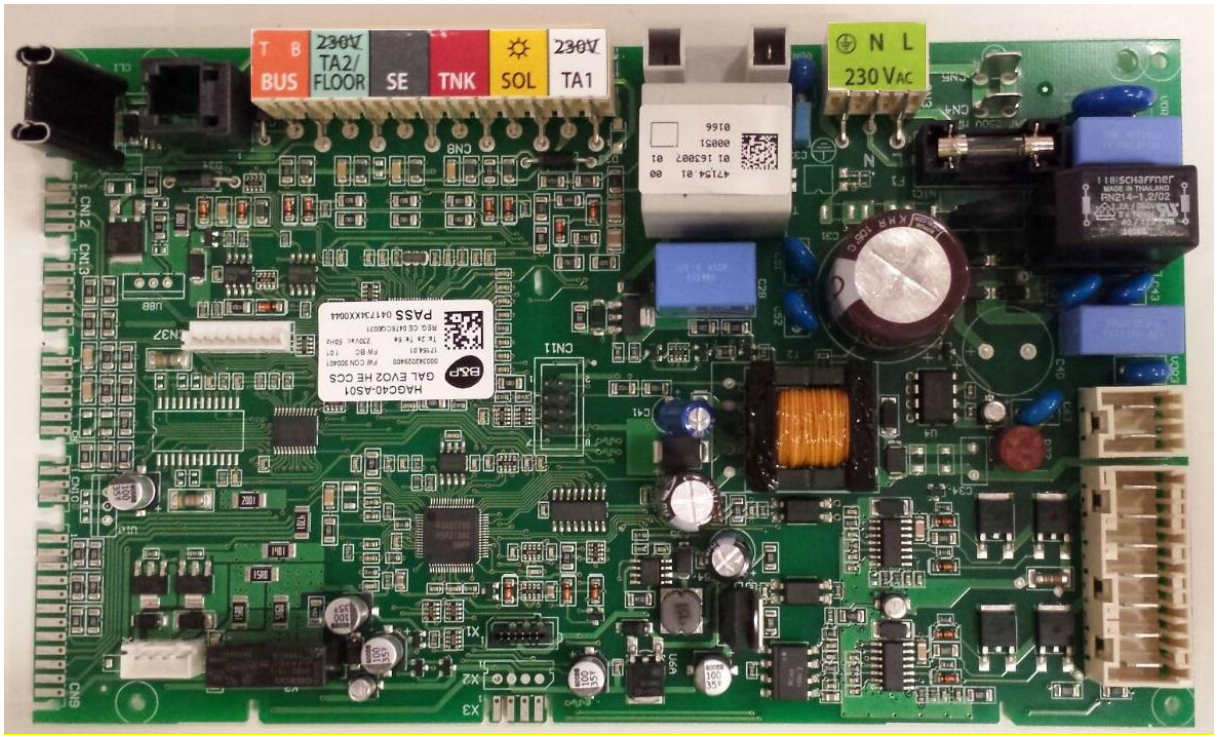
	Type	Ø (mm)	Material	18 KW (m)	24 KW (m)	30 KW (m)	35 KW (m)
Coaxial system	C13 C33 C43	60/100	Al/PP	14	12	10	8
	B 33	60/100	Al/PP	14	12	10	8
	C13 C33 C43	80/125	Al/PP	42	36	30	24
	B 33	80/125	Al/PP	42	36	30	24
Twin flue	C13	80/80				=y)	24 (x=y)
	C33	80/80				=y)	40 (x=y)
	C43	80/80				=y)	24 (x=y)
	C53 C83	80/80	PP	50 (x+y)	60 (x+y)	60 (x+y)	45 (x+y)
	B23	80/80	PP	20 (y)	60 (y)	50 (y)	45 (y)
	C13	60/60	PP	6 (x=y)	5 (x=y)	2 (x=y)	/
	C33	60/60	PP	7 (x=y)	6 (x=y)	2,5 (x=y)	/
	C43	60/60	PP	6 (x=y)	5 (x=y)	2 (x=y)	/
	C53 C83	60/60	PP	5 (x+y)	11 (x+y)	60 (x+y)	6 (x+y)

UPDATE

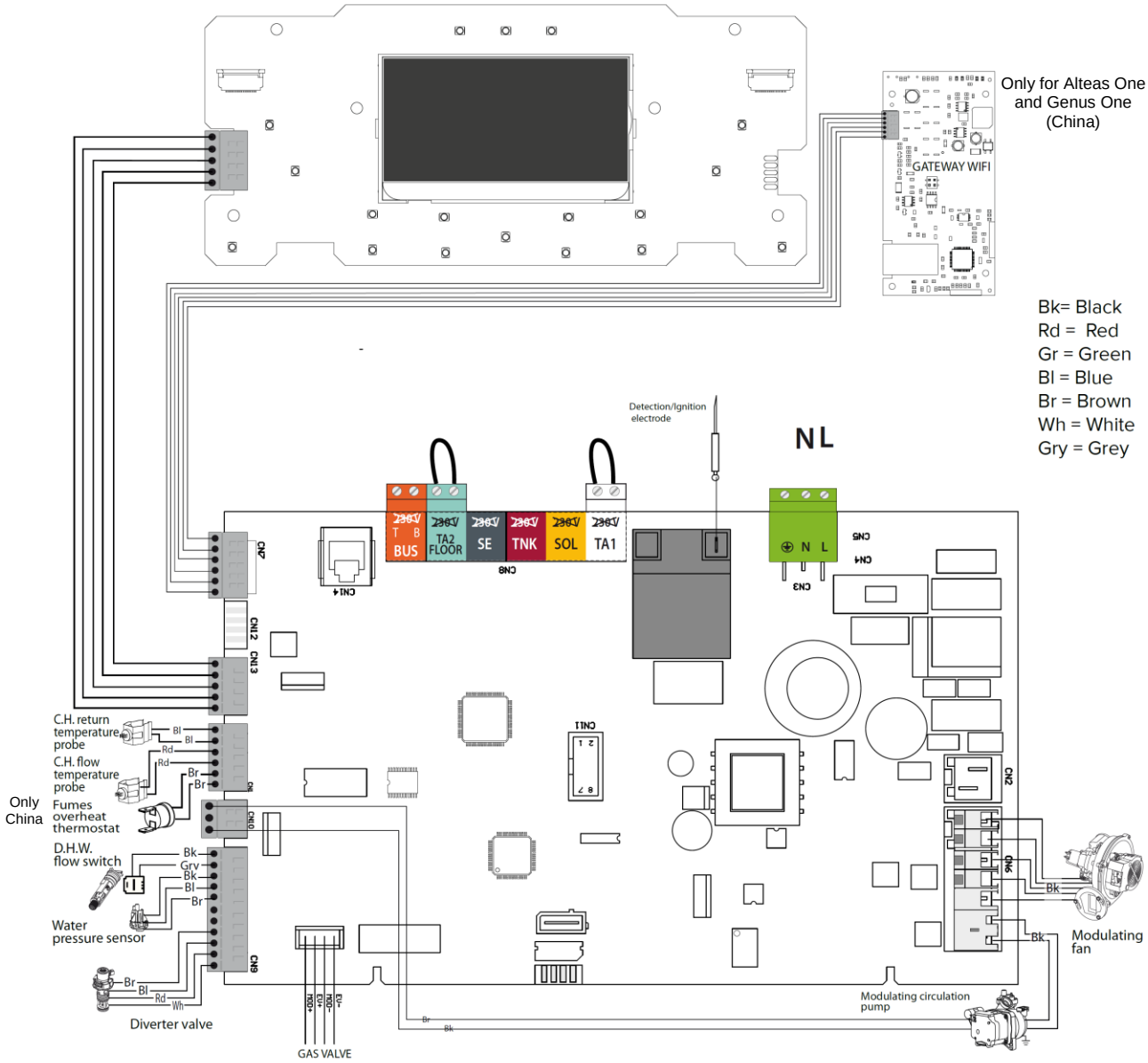
7 ELECTRIC AND ELECTRONIC SYSTEM

7.1 MAIN CARD

The boiler uses a **GAL2EVO COND** electronic card for complete checking of the boiler and users interfaces display LCD;
The **GAL2EVO COND** electronic card is protected by one 2A, 250 VAC fuses and a VDR protects the card against supply voltage peaks up to 275VAC. The supply voltage tolerance is 230 Vac +10% -15% and does not have to comply with the phase and with neutral.



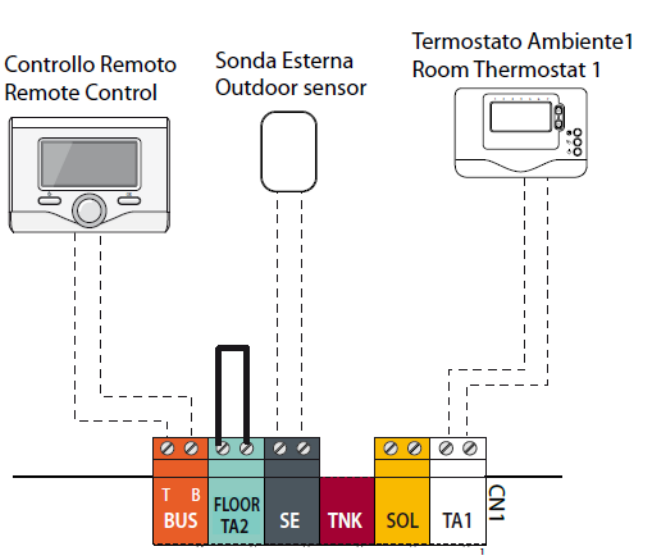
7.1.1 ELECTRIC DIAGRAM

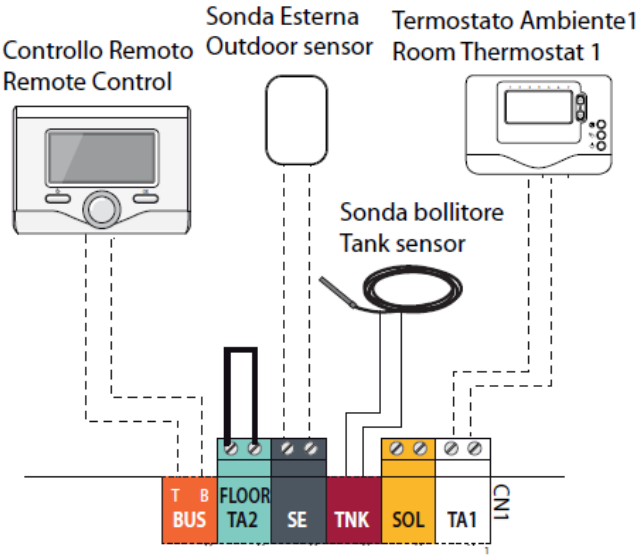


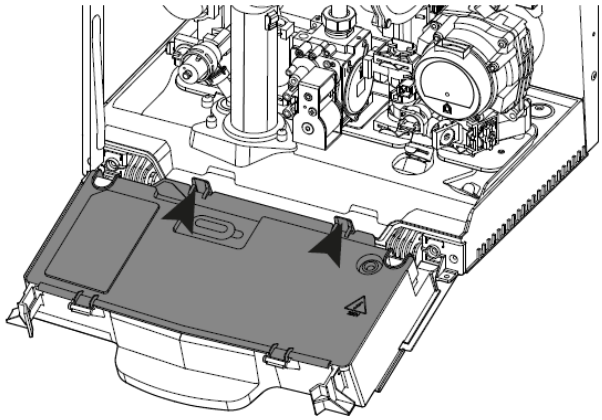
7.2 PERIPHERALS CONNECTION

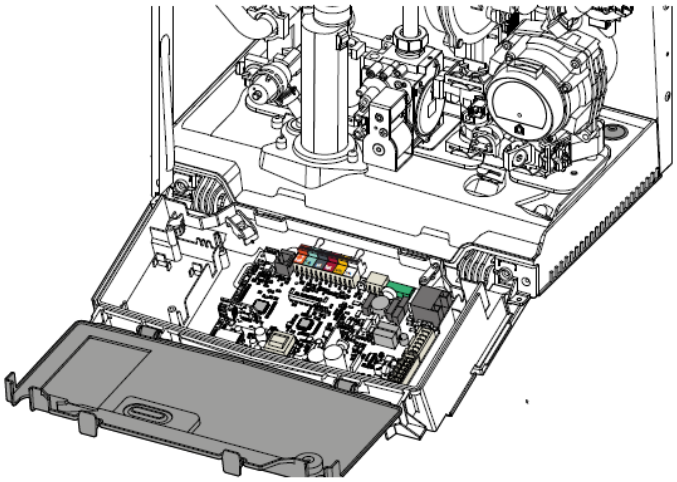
It is possible to connect the peripherals below:

- Room thermostat 1 (Crono thermostat available also wireless version);
- Room thermostat 2 (Crono thermostat available also wireless version);
- Room sensor ;
- External sensor;
- Remote control and bus (Bridgenet) devices.



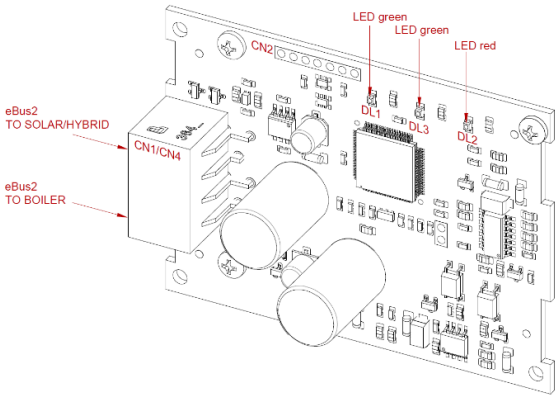




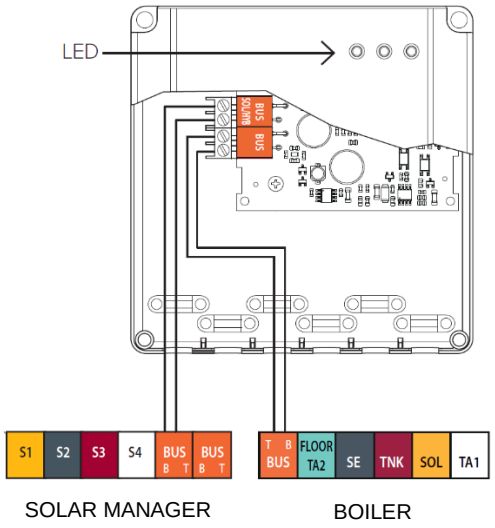


7.3 DECUPLING CLIP-IN FOR SOLAR MANAGER AND HYBRID CONNECTION

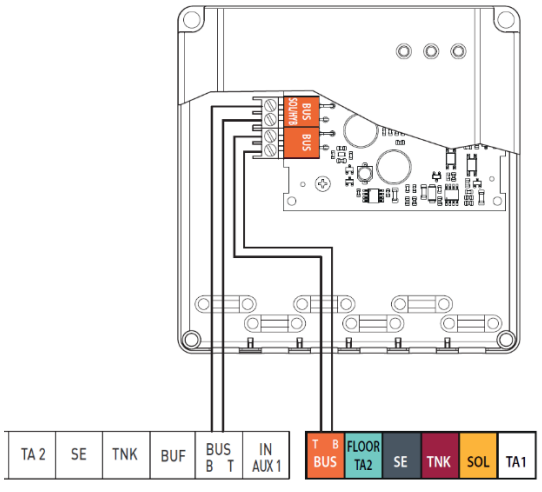
When solar manager or Hybrid are connected through bus to the boiler, the error **804** is displayed.
To solve this error, it need to install the “Decupling clip-in” on the bus net between the boiler and the solar manager and hybrid module.



GREEN LED (left)	
Off	Electrical supply OFF (via bus)
Fix	Electrical supply ON (via bus)
GREEN LED (centre)	
Off	No bus communication
Fix	Bus communication ok
Blinking	Initialization (bus device search)
RED LED (right)	
Off	Normal working
Fix	Decupling clip-in in error



SOLAR MANAGER BOILER



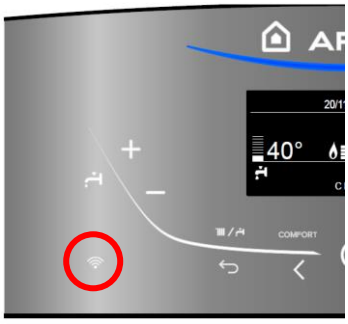
HYBRID BOILER

8 WI-FI (only Alteas One and Genus One China)

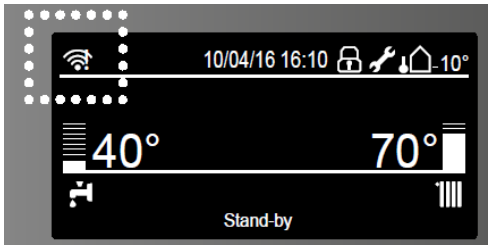
In the boilers Alteas and Genus Wi-Fi the Wi-Fi module in embedded.

8.1 CONNECTION TO INTERNET

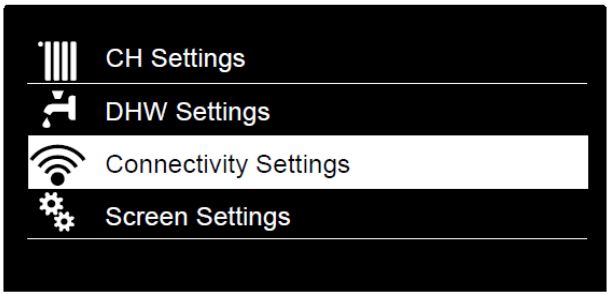
a) With the boiler on the Wi-Fi button is backlighted (see picture below) and it indicates that the Wi-Fi module is switched on.



b) With the boiler on the Wi-Fi icon is on (see picture below) and it indicates that the Wi-Fi module is not yet connected with home Wi-Fi network.



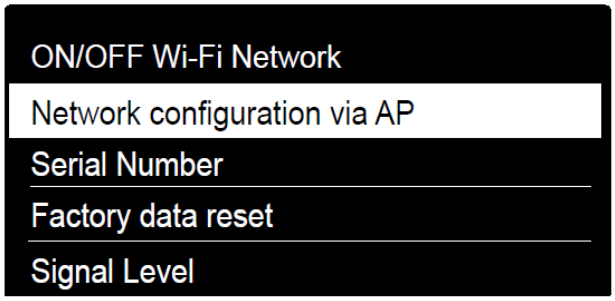
c) Push the button “OK” to enter in the menu, through the button “>” select “Connectivity Settings” and push the button “OK” 2 times.



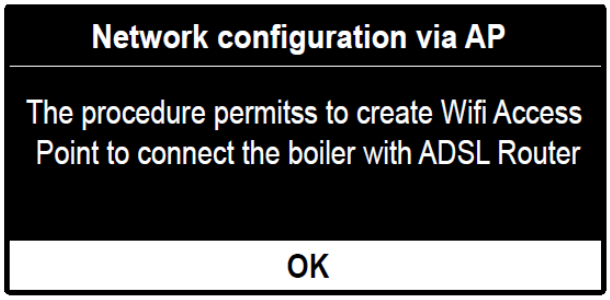
d) Make sure that home Wi-Fi network is ON, select “Network configuration via AP” and push the button “OK”.

WARNING !
The compatible Wi-Fi encryptions are:

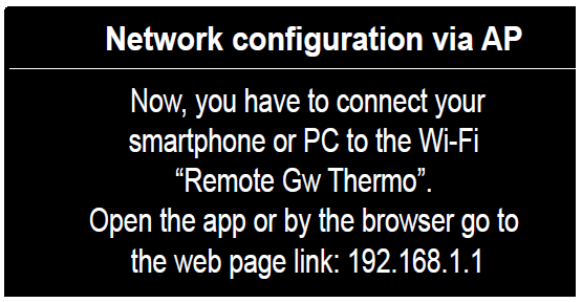
- ***WEP***
- ***WPA/WPA2 Personal***

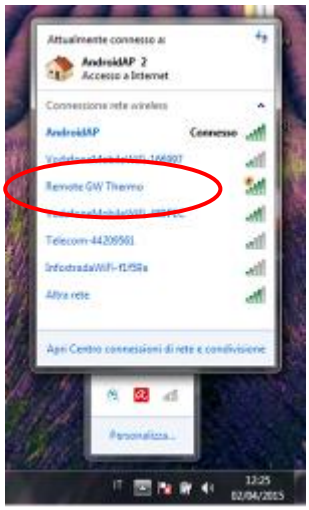


e) Push the button “OK”, the product will create a new Access Point to start the Wi-Fi network configuration that remains active for 10 minutes.



f) Open the network settings of your internet device (smartphone, tablet, PC) and search for available Wi-Fi network. Select **“Remote Gw Thermo”** network.

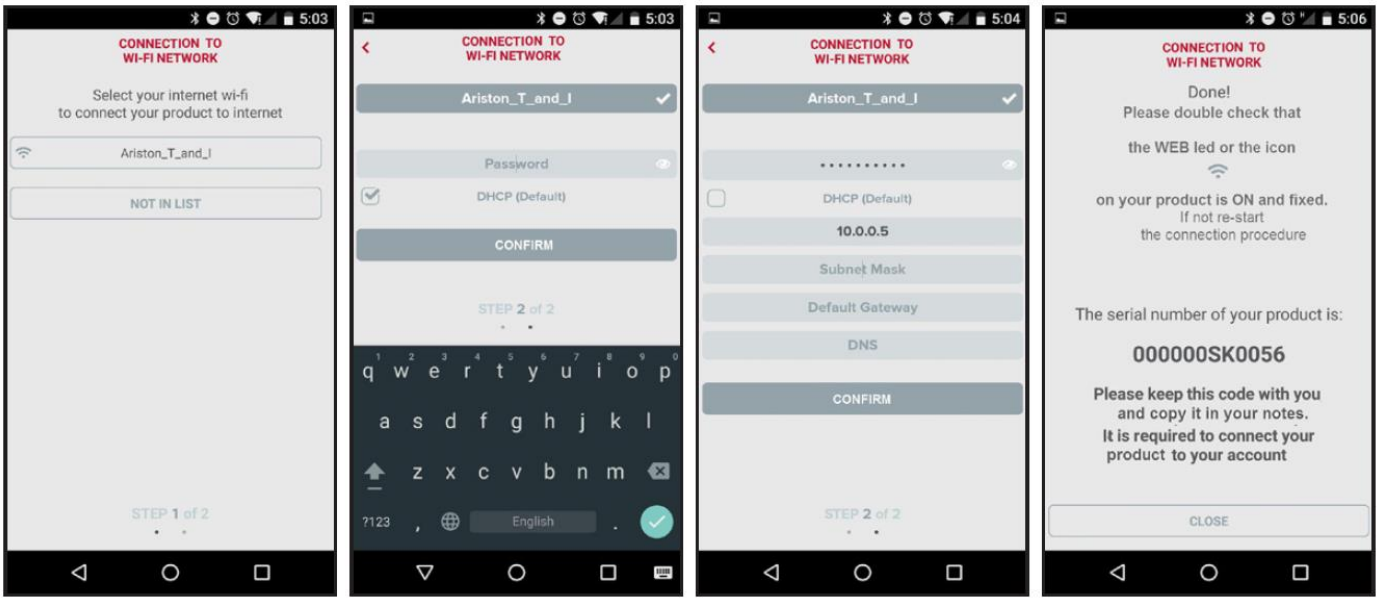




g) Wi- Fi Configuration (is possible via App or via Browser)

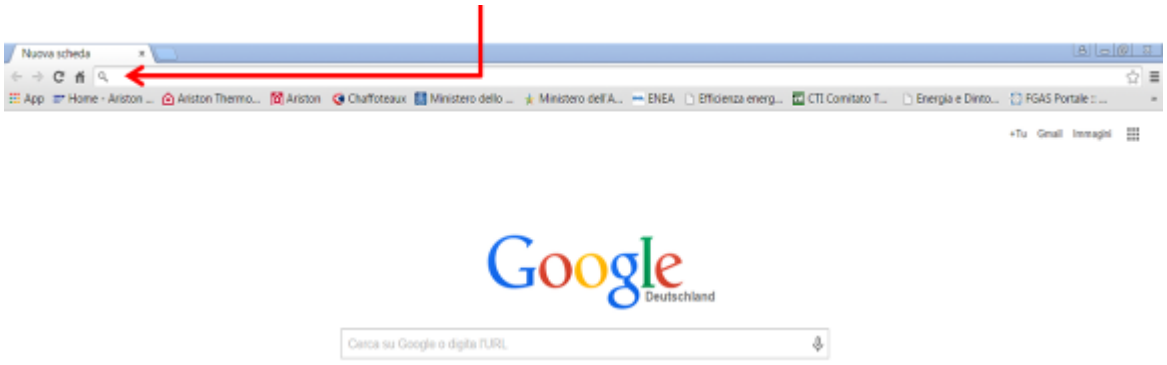
- ***Wi-Fi configuration via App***

Download and start the App according to the configuration wizard.



- ***Wi-Fi configuration via Browser***

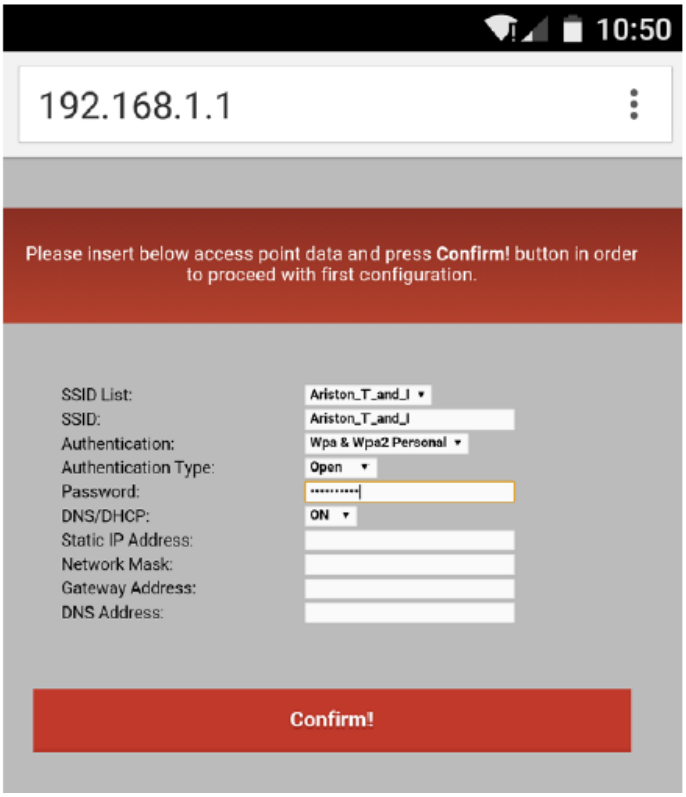
Otherwise, open the web browser (Internet Explorer, Safari, Chrome, etc.) and enter the link **192.168.1.1** in the address bar.



There are two possibility:

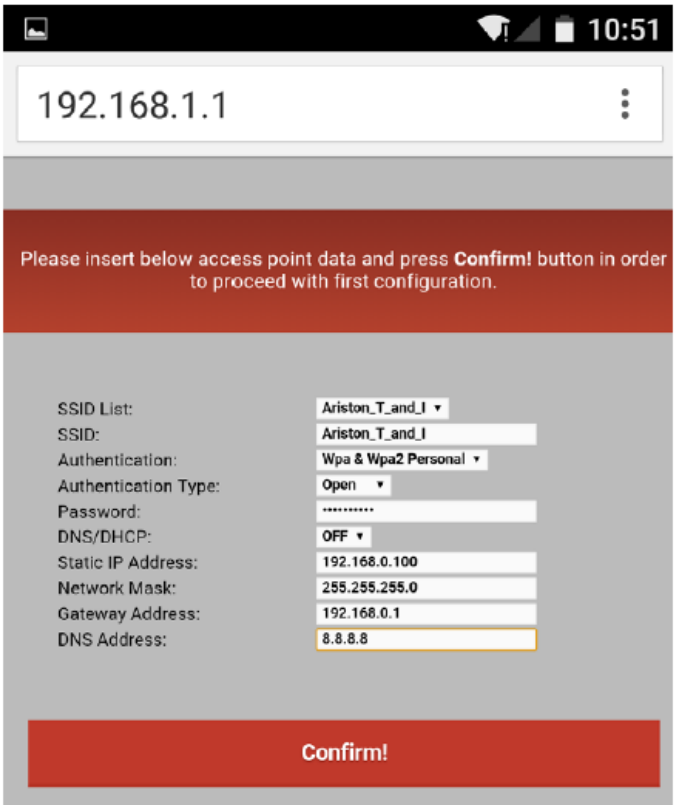
a) AUTOMATIC (recommended)

- Select your own wireless (SSID) network and enter the password
- Leave the default setting DHCP=ON
- Click Confirm

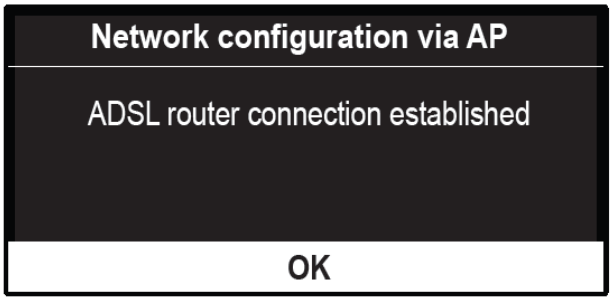


b) MANUAL

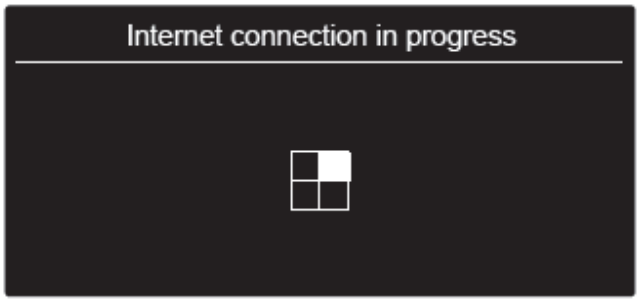
- Keep the selection SSID=Manual
- Write the name of the Wi-Fi network in the “SSID” field. State the type of authentication used in the “Authentication” and “Authentication Type” fields and enter the password
- Select DHCP=OFF
- Enter the static IP address assigned to the gateway
- Enter the network mask
- Enter the Ips of the router and of the DNS
- Click Confirm



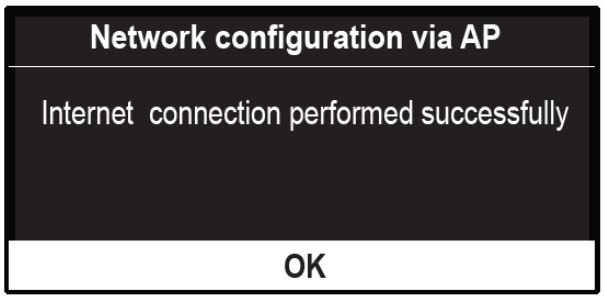
h) After some seconds, the display will show the following message, meaning that the connection to the router has been established: push the “OK” button.

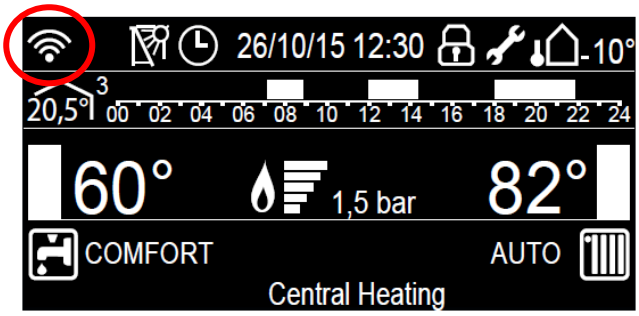


i) The display shows the following message, while it try to reach the Internet provider.



j) If the connection is performed successfully the display will shows that the connection is ready. Pressing "OK", in the home screen the WiFi icon will appear on the top.





k) If the local Wi-Fi network configuration is unsuccessful (the display shows that the connection to the router cannot be accomplished), repeat the previous procedure starting from point "e". This procedure must be repeated each time the home Wi-Fi network is modified (i.e., router replacement or changes in the Wi-Fi network settings).
The procedure can fail if:
- The Wi-Fi signal is weak;
- The inserted password is wrong;
- The router is switched off.
In this case, the Wi-Fi icon in the home screen is the same of point "b".

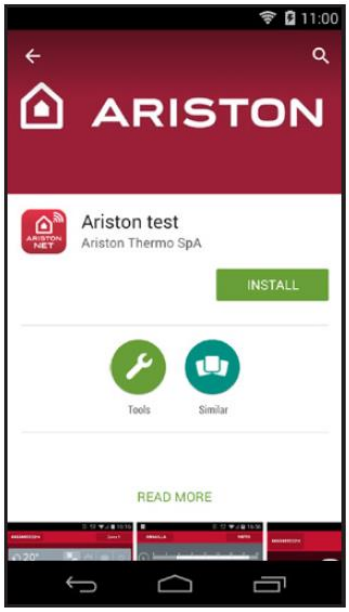
8.2 INTERNET SERVICES ACTIVATION

8.2.1 Remote control (RC) – End user

The functions of remote control for end user are reachable through App or Web App.

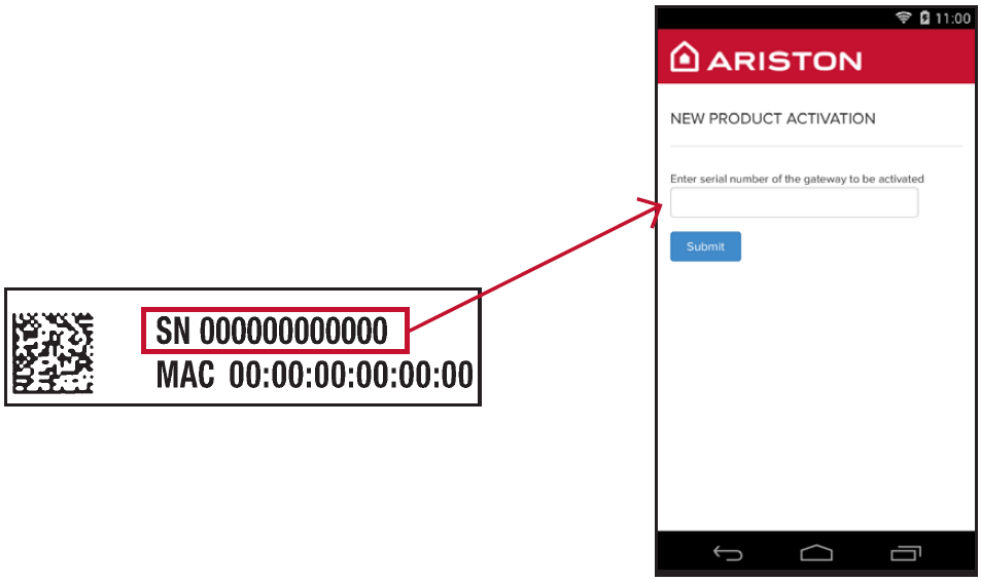
- ***App***

- Download the official App Ariston Net

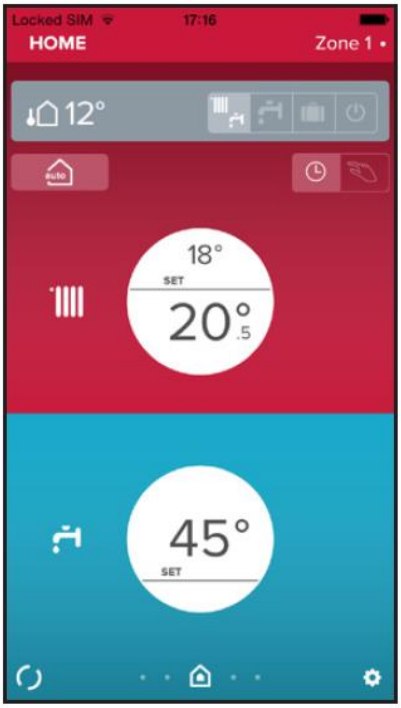


- Register your account by entering your details (you can register your account and product only after connecting the device to Internet).
  You will be sent an e-mail with an e-mail address confirmation link.

- Click on the link and enter the serial code found in the bottom part of the boiler control box.



- Start control your system.

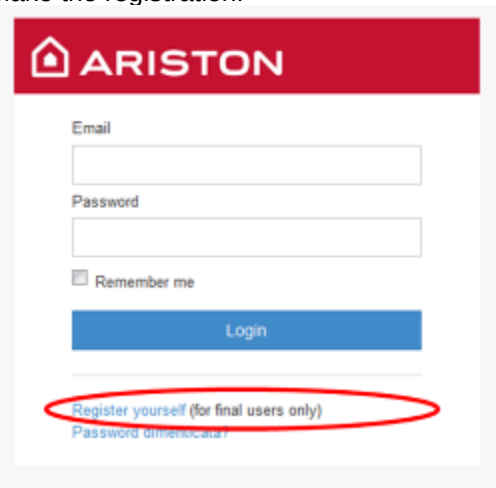


IMPORTANT:
You can control your system with several devices at once, simply use the same credentials to log in.
The App includes an option for registering more than one gateway with a single user account.

- ***Web App***

Access from web browser to Ariston Net: https://www.ariston-net.remotethermo.com

Make the registration:



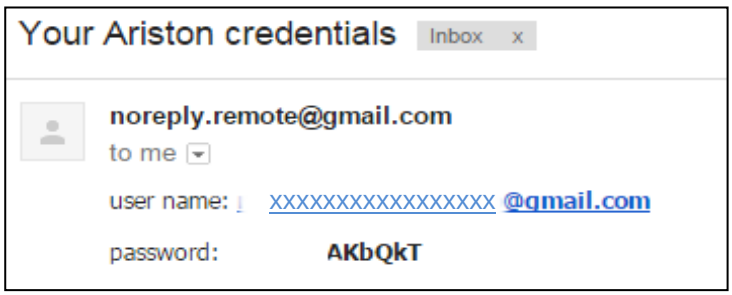
8.2.2 Remote diagnostics (RD) – After sales service

The After sales services can access on platform of remote diagnostic through web browser on Ariston Net: https://www.ariston-net.remotethermo.com

Ariston Thermo will create the account for the After sales service **with the *e-mail provided from the same assistance***.

Then the After sales service will receive one e-mail where there are written the credentials for the access:

- The username is **the *e-mail provided from the same assistance***
- The password is on the e-mail received and can be changed after the access.



- ***For major details and information, is possible to download (on the dedicated area on site Ariston) the following guides:***
- ***web App for After sales service***
- ***web App and App for the user***

8.3 ERRORS

The errors of boiler (and all components of the system connected through the Bus connection) are acquired from the Gateway and can be visualized through Ariston Net, from the After sales service and from the end user in different mode.

8.3.1 Remote control (RC) errors management – End user

The end user can **only view the errors blockers for the boiler**.
Is not possible to reset any error from remote (by App or by Web App).
While the error is active, the App is usable but is not allow any operation till the error will be solved.
On the Web App, when appears the error, contemporaneously appears also one notification.

Errors table viewable by the end user:

1	**01**	Overheat
1	**02**	Pressure Sens Error
1	**03**	Flow Check Failed
1	**04**	Flow Check Failed
1	**05**	Flow Check Failed
1	**06**	Flow Check Failed
1	**07**	Flow Check Failed
1	**08**	Filling Needed
1	**11**	Filling Needed
1	**10**	Send Probe Damaged
1	**12**	Return Probe Damaged
1	**16**	Floor Stat Open Circuit
1	**18**	Primary Probes Test Fail
2	**01**	DHW Probe Damaged
2	**03**	Tank Probe Damaged
2	**05**	DHW In Probe Open Circuit
2	**51**	DHW out sensor damaged
2	**52**	DHW in sensor damaged
3	**01**	Display EEPR err
3	**06**	PCB Fault
3	**08**	Config type mismatch
3	**09**	Gas Relais check Failed
4	**11**	Room Sensor not available Z1
4	**12**	Room Sensor not available Z2
4	**13**	Room Sensor not available Z3
4	**14**	Room Sensor not available Z4
4	**15**	Room Sensor not available Z5
4	**16**	Room Sensor not available Z6
4	**30**	MF Function not defined
4	**31**	MF Temp sensor 1 damaged
4	**32**	MF Temp sensor 2 damaged
4	**33**	MF Temp sensor 3 damaged
5	**01**	No flame detected
5	**02**	Flame Sensed with Gas Valve Closed
5	**04**	Flame lift
6	**01**	Fumes Overflow
6	**02**	Fumes Overflow
6	**04**	Low fan speed
6	**05**	Flue Sensor Open Circuit
6	**07**	APS on FAN off
6	**08**	APS off FAN on
6	**10**	Exchanger Probe Open Circuit
6	**12**	Fan Error
6	**P1**	APS late closing
6	**P2**	APS close-open
6	**P4**	Low fan speed
7	**02**	Zone2 Send Probe Damaged
7	**03**	Zone3 Send Probe Damaged
7	**05**	Zone5 Send Probe Damaged
7	**06**	Zone6 Send Probe Damaged
7	**22**	Zone2 Overheat
7	**23**	Zone3 Overheat
7	**25**	Zone5 Overheat
7	**26**	Zone6 Overheat

8.3.2 Remote diagnostics (RD) errors management – After sales service

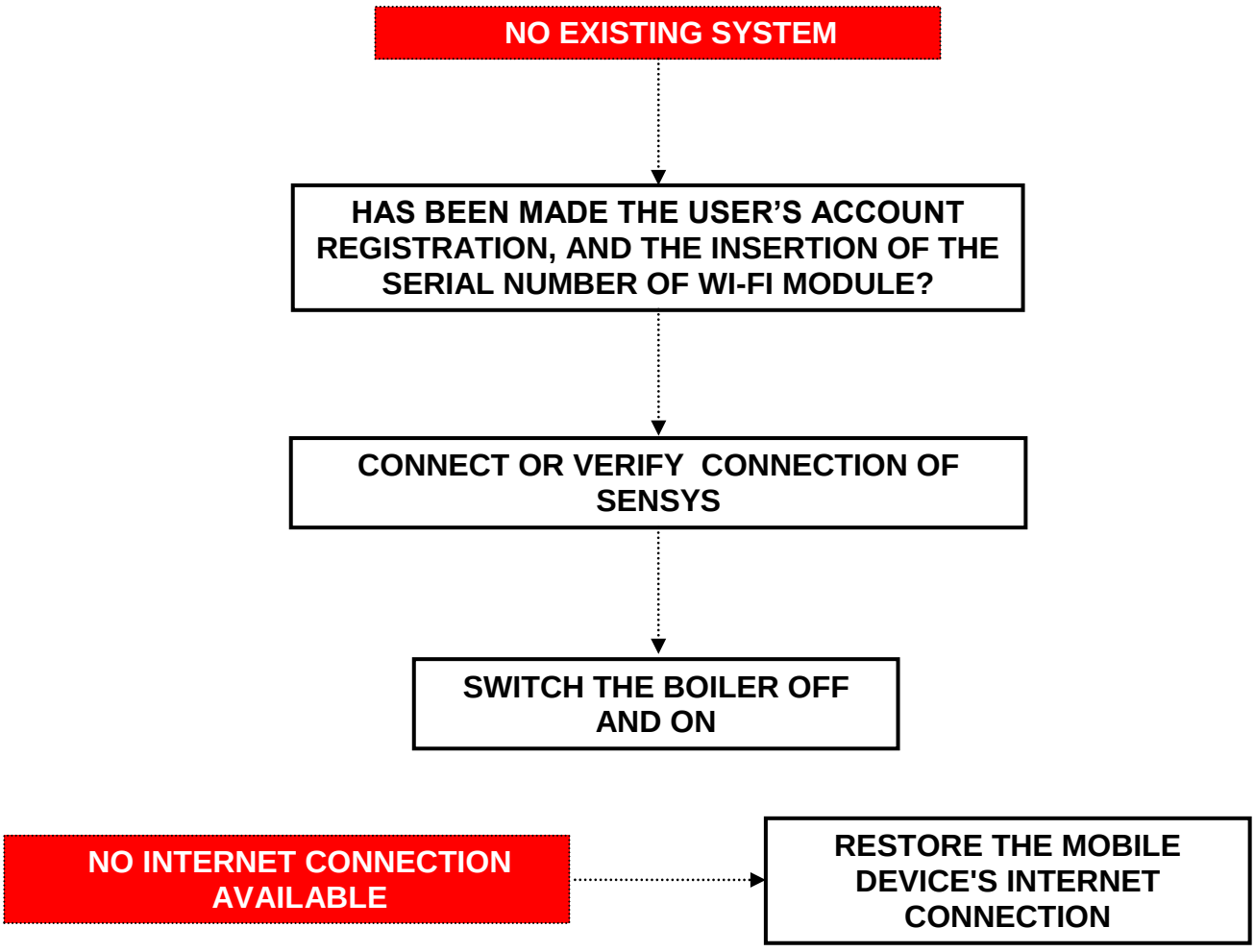
The After sales service can visualize through Web App **all errors generated from system** and contemporaneously when appears the error, **he receive one mail only for blockers errors.**
He can also reset some errors from remote (the errors regarding the gas, are not resettable for security reasons)

Errors table resettable from remote:

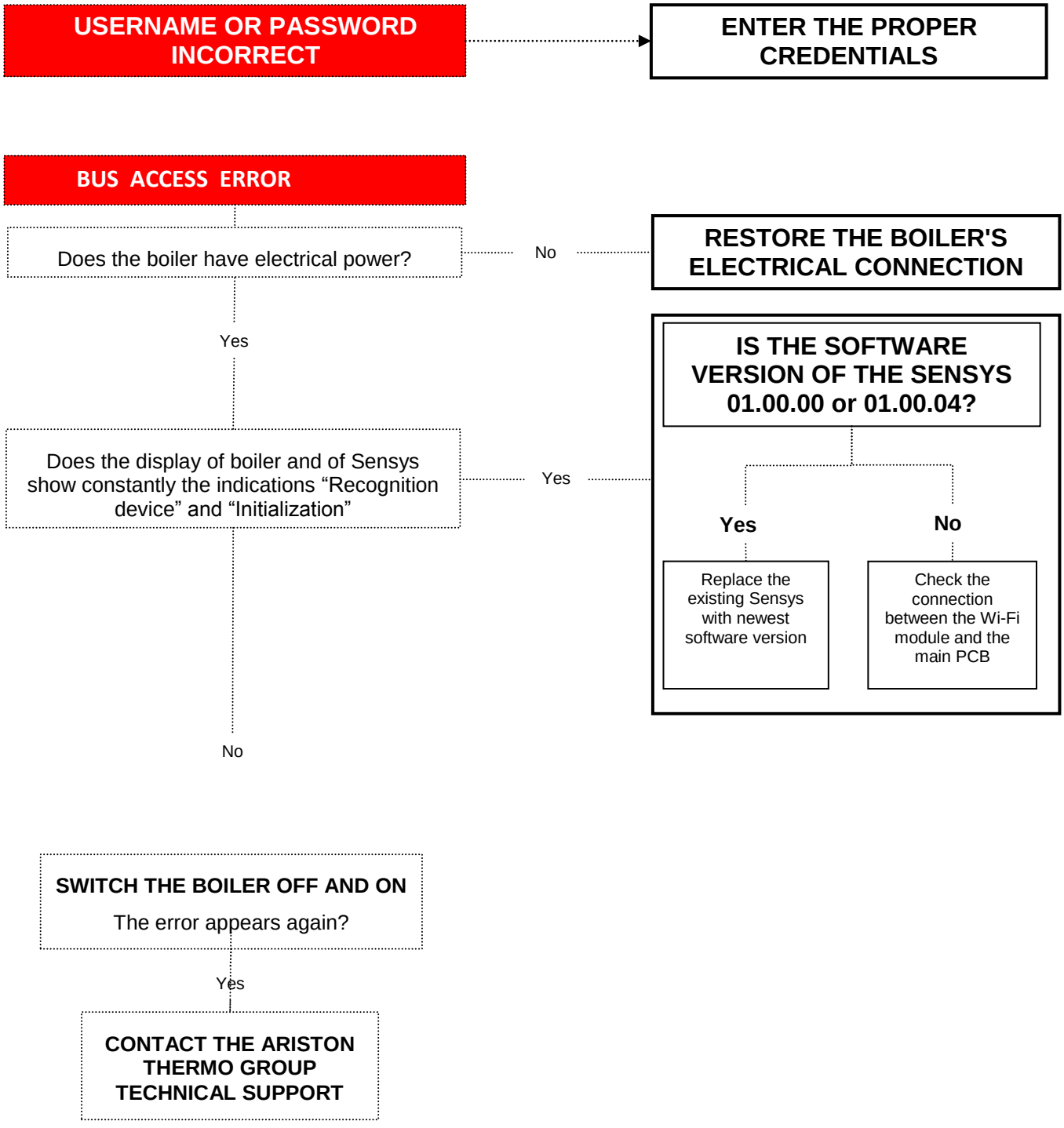
1	**01**	Overheat
1	**03**	Flow Check Failed
1	**04**	Flow Check Failed
1	**05**	Flow Check Failed
1	**06**	Flow Check Failed
1	**07**	Flow Check Failed
6	**04**	Low fan speed
6	**12**	Fan Error

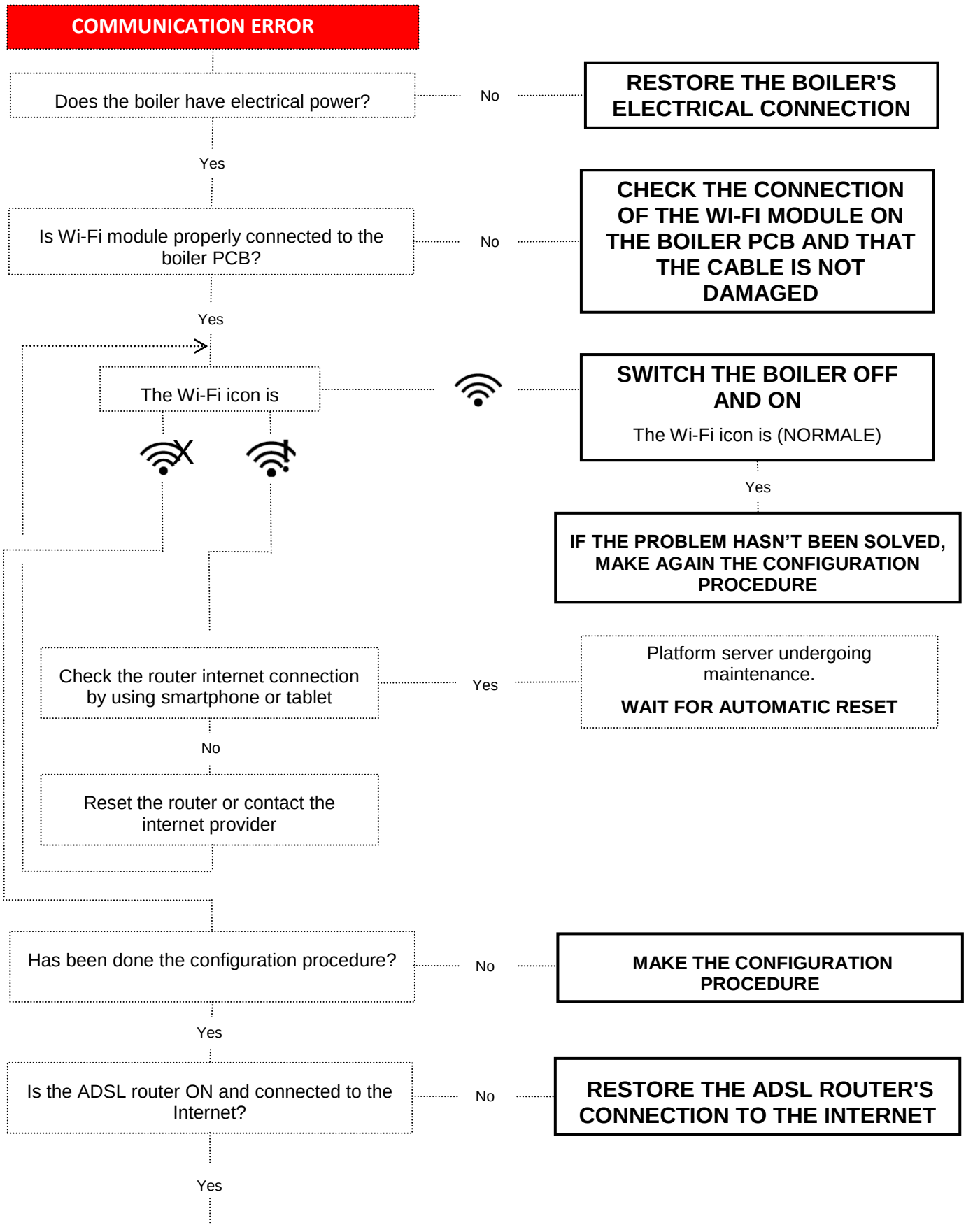
8.4 TROUBLESHOOTING

8.4.1 Only for App



8.4.2 For App and Web App





CONTINUED ON THE NEXT PAGE

CONTINUED FROM THE PREVIOUS PAGE

Is the Wi-Fi signal strength adequate?

(Verify with smartphone or tablet in exactly the same position of the gateway as a comparison)

No

INSTALL A WI-FI SIGNAL REPEATER

Yes

Make again the configuration procedure making sure that have been inserted correctly the credentials of the reference Wi-Fi network, verifying their accuracy even with another mobile device.

The W-Fi icon is:

SWITCH THE BOILER OFF AND ON

The Wi-Fi icon is (NORMALE)

Yes

IF THE PROBLEM HASN'T BEEN SOLVED, CONTACT THE ARISTON THERMO GROUP TECHNICAL SUPPORT

Reset the router or contact the internet provider

Platform server undergoing maintenance.

WAIT FOR AUTOMATIC RESET

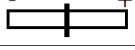
9 MENU AND SETTINGS

In the boiler there are 2 different menus, one for the end-user and one for the technician.

9.1 USER MENU

To enter in the user menu, push the button OK. Inside the “Complete menu” there are the menu below:

USER’S MENU STRUCTURE

CH Settings		
	CH Setpoint Temperature	T set Z1
		T set Z2
		T set Z3
	Time program	Free Time Programming
		Wizard time programming
		Preset programs
		Time program/manual mode
	Holiday function	The system will remain in antifreeze mode until midnight of the date set.
	AUTO function	Set of the best operation mode according to the type of installation.
DHW Settings		
	DHW comfort Setpoint Temperature	Set the domestic hot water temperature
	Time program (NOT ACTIVE)	
	Comfort function	Disabled - Funzione Comfort disattivata
		Time Based - Comfort function set to: Time Based. The Boiler will be ignited to quickly provide Hot Water for 30 minutes after the last tapping.
		Always Active - Comfort function set to: Always Active. The Boiler will be ignited to quickly provide Hot Water all day long.
Connectivity Settings - only ALTEAS SMART models - see page 18		
	ON/OFF Wi-Fi Network	
	Network configuration via AP	
	Serial Number	
	Reset to factory settings	
	Signal Level	
	Internet Time	If you enable this functionality, the date and time will be requested at the Internet Time Service.
Screen Settings		
	Language	Selected language: English
	Time & Date	see page 12
	Zone to be set by display	Select heating zone - from1 to 3
	Home screen	Boiler base Boiler complete
	Automatic keylock	The keylock will be activated together with the display stand-by
	Stand-by timing	Select the timing to pass at stand-by after the last use(from 1 to 10 minutes or 2 hours)
	Brightness in standby	Select Contrast level of screen Press the Programming Keys b to select: - + 
	Home screen timing	Select waiting time before you see the home screen (from 1 to 15 minutes)
	Sound feedback volume	Select the level of sound feedback when you press the display buttons (from 1 to 10)

9.2 TECHNICIAN MENU

To enter in the in the technician menu push for 5 second the buttons  end “OK”, and after set the access code “234” and push the button “OK”.

COMPLETE MENU STRUCTURE

Tecnical Area

Service code (reserved for qualified technicians) - Press the programming key b ^ v to select 234 and press the OK button .

- **Language, date and time** - Follow the instructions of the display. Press OK button at each entry to save
- **COMPLETE MENU - The parameters relating to each individual menu are listed in the following pages.**
- **Configuration Wizard**
  - **Boiler**
    - **Configuration parameters**
      - **Gas Parameter**
        Direct access to the parameters → 220 - 230 - 231 - 232 - 233 - 234 - 270
      - **Settings**
        Direct access to the parameters → 220 - 231 - 223 - 238 - 245 - 246
      - **Visualization**
        Direct access to the parameters → 821 - 822 - 823 - 824 - 825 - 827 - 830 - 831 - 832 - 833 - 840 - 835 - 874
      - **Zone**
        Direct access to the parameters → 402 - 502 - 602 - 420 - 520 - 620 - 434 - 534 - 634 - 830
    - **Guided procedures**
      - **System Filling**
      - **System air purge**
      - **Exhaust fumes analysis**
    - **Service options**
      - **Service Center Data** - To insert the name and phone number of Service Center
        The data appears in the display in case of error
      - **Enable service warnings**
      - **Service warning reset**
      - **Months remaining before Service**
    - **Test mode**
      - **Pump test**
      - **3 way valve Test**
      - **Fan test**
- **Service**
  - **Boiler**
    - **Configuration parameters**
      - **Gas parameter**
        Direct access to the parameters → 220 - 230 - 231 - 232 - 233 - 234 - 270
      - **Visualization**
        Direct access to the parameters → 821 - 822 - 824 - 825 - 827 - 830 - 831 - 832 - 833 - 840 - 835
      - **Boiler PCB change**
        Direct access to the parameters → 220 - 226 - 228 -229 - 231 - 232 - 233 - 234 - 247 - 250 - 253
      - **Automatic Calibration**
- **Faults** - The display shows the last 10 errors with details of the code, description and date.
  Turn the encoder to scroll the errors

9.3 COMPLETE MENU

9.3.1 Menù 0 : Network

Menù	Sub Menù	Parameter	Function	Range	Default setting
0	**2**		***BUS NETWORK***		
0	**2**	**0**	Network presence in the bus	(only visualization)	/
0	**4**		***USER INTERFACE***		
0	**4**	**0**	Zone to be set by display	1: heating zone 1 2: heating zone 2 3: heating zone 3	1
0	**4**	**1**	Backlight time (min)	1 ÷ 10 ; 24h	24h
0	**4**	**2**	Thermoregulation button deactivation	0: Off 1: On	0

9.3.2 Menù 2 : Boiler parameter

Menù	Sub Menù	Parameter	Function	Range	Default setting
2	**0**		***GENERAL***		
2	**0**	**0**	DHW setpoint temperature	36 ÷ 60	/
2	**0**	**2**	Gas Type	0 : Natural gas 1 : LPG 2 : G230 3 : G130	0
2	**2**		***GENERAL***		
2	**2**	**0**	Slow ignition as % of the maximum heating power	12kw: 18 ÷ 72 18kw: 33 ÷ 92 24kw: 22 ÷ 61 (18 ÷ 52 for G130) 30kw: 20 ÷ 58 35kw: 21 ÷ 60	See gas table
2	**2**	**3**	Floor thermostat or Room thermostat zone 2 selection	0: Floor thermostat 1: Room thermostat zone 2	0
2	**2**	**4**	Thermoregulation	0: disabled 1: enabled	0
2	**2**	**5**	Heating delay restart	0: disabled 1: 10 seconds 2: 90 seconds 3: 210 seconds	0
2	**2**	**8**	Boiler version	0: combi 1: Storage with NTC (tank) 2: only heating or storage with thermostat 3: micro-storage	Depend on the boiler version
2	**2**	**9**	Boiler nominal power	0 ÷ 100 kW	Depend on the boiler
2	**3**		***CENTRAL HEATING-1***		
2	**3**	**1**	Maximum heating power (heating absolute maximum power percentage par. 234) (%)	0 ÷ 100	See gas table

2	**3**	**2**	Maximum DHW power (do not modify this parameter, modify only in even of PCB replacement)	4 ÷ 100	See gas table
2	**3**	**3**	Minimum boiler power (do not modify this parameter, modify only in even of PCB replacement)	0 ÷ 11	See gas table
2	**3**	**4**	Maximum absolute heating power (do not modify this parameter, modify only in even of PCB replacement)	0 ÷ 100	See gas table
2	**3**	**5**	Select of heating delay manage	0: manual (set with par. 2 36) 1: automatic	1
2	**3**	**6**	Heating delay (min), enabled by par. 2 35= 0	0 ÷ 7	3
2	**3**	**7**	Heating post-circulation (min)	0 ÷ 15 CO: non stop	3
2	**3**	**8**	Pump modulation on heating	Not active	/
2	**3**	**9**	ΔT for pump modulation (°C)	Not active	/
2	**4**		***CENTRAL HEATING-2***		
2	**4**	**1**	Heating circuit pressure required to request filling (error message) (0,x bar)	Par. 240 ÷ 8	6
2	**4**	**3**	Heating post-ventilation	0: 5 sec 1: 3 min	0
2	**4**	**4**	Boost time (min)	0 ÷ 60 (with Auto function working)	16
2	**4**	**5**	Pump max speed	75 ÷ 100	100
2	**4**	**6**	Pump minimum speed	40 ÷ par 245	40
2	**4**	**7**	Heating water pressure detection device	0: temperature probes only 1: pressure switch 2: pressure sensor	2
2	**4**	**9**	External temperature correction (°C)	-3 ÷ 3	0
2	**5**		***DOMESTIC HOT WATER***		
2	**5**	**0**	Sanitary comfort function	0: disabled 1: enabled for 30 minutes after a heating request 2: always enabled	0
2	**5**	**1**	Comfort anticycle (min)	0 ÷ 120	0
2	**5**	**2**	Sanitary delay start (anti water hammering) (dec)	5 ÷ 200	5
2	**5**	**3**	Sanitary switch off logic	0: anti-scale (62 o 65°C). 1: set-point+4°C	0
2	**5**	**4**	Sanitary post-circulation and post-ventilation	0: Post-ventilation: Tflow<75°C = no post-ventilation; Tflow>75°C = 3 min (minimum speed); Post-circulation: 30sec 1: Post-ventilation: 3min Post-circulation: 3min	0
2	**5**	**5**	Heating start delay after sanitary (min)	0 ÷ 30	0
2	**5**	**7**	Antilegionella function (only for boilers with external tank and NTC sensor – par. 228 = 1)	0: disabled 1: enabled	1
2	**5**	**8**	Antilegionella time (only for boilers with external tank and NTC sensor – par. 228 = 1). The setting temperature is always 60°C (tank temperature).	24 ÷ 480 h and 30 days	30 days

2	**6**		***BOILER MANUAL SETTING***		
2	**6**	**0**	Manual mode attivation	0: Off 1: On	0
2	**6**	**1**	Boiler pump control (set parameter 260 =1)	0: Off 1: On (timed 10 min)	0
2	**6**	**2**	Fan control (set parameter 260 =1)	0: Off 1: On (timed 10 min)	0
2	**6**	**3**	3 way valve control (set parameter 260 =1)	0: Sanitary 1: Heating (timed 10 min)	0
2	**7**		***TEST & UTILITIES***		
2	**7**	**0**	Flue cleaning function	0: Off 1: On (select desired power)	0
2	**7**	**1**	Air Purge function	0: Off 1: On	0
2	**7**	**2**	Automatic calibration	0: Off 1: On	0
2	**8**		***RESET MENU'***		
2	**8**	**0**	Reset menu 2 factory setting	YES: press button "OK" NO: press button "ESC"	/

9.3.3 Menù 4 : Zone 1 parameters

Menù	Sub Menù	Parameter	Function	Range	Default setting
4	**0**		***SETPOINT***		
4	**0**	**2**	Temperature setpoint zone 1	Par 425 ÷ Par 426	/
4	**2**		***ZONE 1 SETTING***		
4	**2**	**0**	Select high or low temperature for zone 1	0: low temperature 1: high temperature	1
4	**2**	**1**	Thermoregulation mode selection	0: fixed delivery temperature 1: basic thermoregulation 2: only room probe 3: only outside probe 4: room probe + external probe	1
4	**2**	**2**	Select thermoregulation curve	0_2 ÷ 1_0 (par. 420=0) 1_0 ÷ 3_5 (par. 420=1) (with Auto function enabled)	0_6 (par 420=0) 1_5 (par 420=1)
4	**2**	**3**	Select thermoregulation curve parallel shifting	-7 ÷ 7 (par. 420=0) -14 ÷ 14 (par. 420=1) (with Auto function enabled)	0
4	**2**	**4**	Influence of the room probe on thermoregulation	0 ÷ 20 (with Auto function enabled)	20
4	**2**	**5**	Zone 1 maximum heating temperature (°C)	20 ÷ 45 (par. 420=0) 35 ÷ 82 (par. 420=1)	45 (par. 420=0) 82 (par. 420=1)
4	**2**	**6**	Zone 1 minimum heating temperature (°C)	20 ÷ 45 (par. 420=0) 35 ÷ 82 (par. 420=1)	20 (par. 420=0) 35 (par. 420=1)
4	**3**		***DIAGNOSTICS***		
4	**3**	**2**	Zone 1 delivery temperature (°C)	(only visualization)	/
4	**3**	**3**	Zone 1 return temperature (°C)	(only visualization)	/
4	**3**	**4**	Heating request by zone 1	OFF: no ON: yes (only visualization)	/

4	**3**	**5**	Zone 1 pump status	OFF: switch-off ON: switch-on (only visualization)	/
4	**4**		***ZONE 1 ZONE MODULE SETTINGS*** (visible only with zone module connected)		
4	**4**	**0**	Zone 1 pump modulation	0: Fix 1: Modulating (ΔT) 2: Modulating (pressure)	1
4	**4**	**1**	ΔT for pump modulationa	4 ÷ 25	7 (par. 420=0) 20 (par. 420=1)
4	**4**	**2**	Pump fixed speed setting (with par. 440 = 0)	20 ÷ 100	100

9.3.4 Menù 5 : Zone 2 parameters

Menù	Sub Menù	Parameter	Function	Range	Default setting
5	**0**		***SETPOINT***		
5	**0**	**2**	Temperature setpoint zone 2	Par 525 ÷ Par 526	/
5	**2**		***ZONE 2 SETTING***		
5	**2**	**0**	Select high or low temperature for zone 2	0: low temperature 1: high temperature	1
5	**2**	**1**	Thermoregulation mode selection	0: fixed delivery temperature 1: basic thermoregulation 2: only room probe 3: only outside probe 4: room probe + external probe	1
5	**2**	**2**	Select thermoregulation curve	0_2 ÷ 1_0 (par. 520=0) 1_0 ÷ 3_5 (par. 520=1) (with Auto function enabled)	0_6 (par 520=0) 1_5 (par 520=1)
5	**2**	**3**	Select thermoregulation curve parallel shifting	-7 ÷ 7 (par. 520=0) -14 ÷ 14 (par. 520=1) (with Auto function enabled)	0
5	**2**	**4**	Influence of the room probe on thermoregulation	0 ÷ 20 (with Auto function enabled)	20
5	**2**	**5**	Zone 2 maximum heating temperature (°C)	20 ÷ 45 (par. 520=0) 35 ÷ 82 (par. 520=1)	45 (par. 520=0) 82 (par. 520=1)
5	**2**	**6**	Zone 2 minimum heating temperature (°C)	20 ÷ 45 (par. 520=0) 35 ÷ 82 (par. 520=1)	20 (par. 520=0) 35 (par. 520=1)
5	**3**		***DIAGNOSTICS***		
5	**3**	**2**	Zone 2 delivery temperature (°C)	(only visualization)	/
5	**3**	**3**	Zone 2 return temperature (°C)	(only visualization)	/
5	**3**	**4**	Heating request by zone 2	OFF: no ON: yes (only visualization)	/
5	**3**	**5**	Zone 2 pump status	OFF: switch-off ON: switch-on (only visualization)	/
5	**4**		***ZONE 2 ZONE MODULE SETTINGS*** (visible only with zone module connected)		
5	**4**	**0**	Zone 2 pump modulation	0: Fix 1: Modulating (ΔT) 2: Modulating (pressure)	1
5	**4**	**1**	ΔT for pump modulationa	4 ÷ 25	7 (par. 520=0) 20 (par. 520=1)

5	**4**	**2**	Pump fixed speed setting (with par. 540 = 0)	20 ÷ 100	100

9.3.5 Menù 6 : Zone 3 parameters

Menù	Sub Menù	Parameter	Function	Range	Default setting
6	**0**		***SETPOINT***		
6	**0**	**2**	Temperature setpoint zone 3	Par 425 ÷ Par 426	/
6	**2**		***ZONE 2 SETTING***		
6	**2**	**0**	Select high or low temperature for zone 3	0: low temperature 1: high temperature	1
6	**2**	**1**	Thermoregulation mode selection	0: fixed delivery temperature 1: basic thermoregulation 2: only room probe 3: only outside probe 4: room probe + external probe	1
6	**2**	**2**	Select thermoregulation curve	0_2 ÷ 1_0 (par. 420=0) 1_0 ÷ 3_5 (par. 420=1) (with Auto function enabled)	0_6 (par 420=0) 1_5 (par 420=1)
6	**2**	**3**	Select thermoregulation curve parallel shifting	-7 ÷ 7 (par. 420=0) -14 ÷ 14 (par. 420=1) (with Auto function enabled)	0
6	**2**	**4**	Influence of the room probe on thermoregulation	0 ÷ 20 (with Auto function enabled)	20
6	**2**	**5**	Zone 3 maximum heating temperature (°C)	20 ÷ 45 (par. 420=0) 35 ÷ 82 (par. 420=1)	45 (par. 420=0) 82 (par. 420=1)
6	**2**	**6**	Zone 3 minimum heating temperature (°C)	20 ÷ 45 (par. 420=0) 35 ÷ 82 (par. 420=1)	20 (par. 420=0) 35 (par. 420=1)
6	**3**		***DIAGNOSTICS***		
6	**3**	**2**	Zone 3 delivery temperature (°C)	(only visualization)	/
6	**3**	**3**	Zone 3 return temperature (°C)	(only visualization)	/
6	**3**	**4**	Heating request by zone 3	OFF: no ON: yes (only visualization)	/
6	**3**	**5**	Zone 3 pump status	OFF: switch-off ON: switch-on (only visualization)	/
6	**4**		***ZONE 3 ZONE MODULE SETTINGS*** (visible only with zone module connected)		
6	**4**	**0**	Zone 3 pump modulation	0: Fix 1: Modulating (ΔT) 2: Modulating (pressure)	1
6	**4**	**1**	ΔT for pump modulationa	4 ÷ 25	7 (par. 420=0) 20 (par. 420=1)
6	**4**	**2**	Pump fixed speed setting (with par. 640 = 0)	20 ÷ 100	100

9.3.6 Menù 7 : Zone module

Menù	Sub Menù	Parameter	Function	Range	Default setting
7	**1**		***MANUAL MODE***		
7	**1**	**0**	Manual mode activation	0: Off 1: On	0
7	**1**	**1**	Zone 1 pump control (set parameter 710 =1)	0: Off 1: On (timed 10 min)	0
7	**1**	**2**	Zone 2 pump control (set parameter 710 =1)	0: Off 1: On (timed 10 min)	0
7	**1**	**3**	Zone 3 pump control (set parameter 710 =1)	0: Off 1: On (timed 10 min)	0
7	**1**	**4**	Zone 2 mix valve control (set parameter 710 =1)	0: Off 1: Open (timed o 10 min) 2: Close (timed 10 min)	0
7	**1**	**5**	Zone 3 mix valve control (set parameter 710 =1)	0: Off 1: Open (timed 10 min) 2: Close (timed 10 min)	0
7	**2**		***GENERAL ZONE MODULE***		
7	**2**	**0**	Hydraulic scheme	0: not defined 1: MCD 2: MGM II 3: MGM III 4: MGZ I 5: MGZ II 6: MGZ III	0
7	**2**	**1**	ΔT between zone delivery and boiler delivery (°C)	0 ÷ 40 (0= ΔT varible according the number of zones that require heat; HT = +7°C each zone; LT = +5°C each zone)	0
7	**2**	**2**	Auxiliary output setting	0: Heat request (to do a heat request to a generic boiler) 1: External pump management 2: Alarm (the contact close if there is an error regarding the zone module)	0
7	**2**	**3**	External temperature correction	-3 ÷ 3	0
7	**8**		***ERROR HISTORY***		
7	**8**	**0**	Last 10 errors	/	/
7	**8**	**1**	Reset error list	YES: push button “OK” NO: push button “ESC”	/
7	**9**		***RESET MENU’***		
7	**9**	**0**	Reset menu 7 factory setting	YES: push button “OK” NO: push button “ESC”	/

9.3.7 Menù 8 : Service parameters

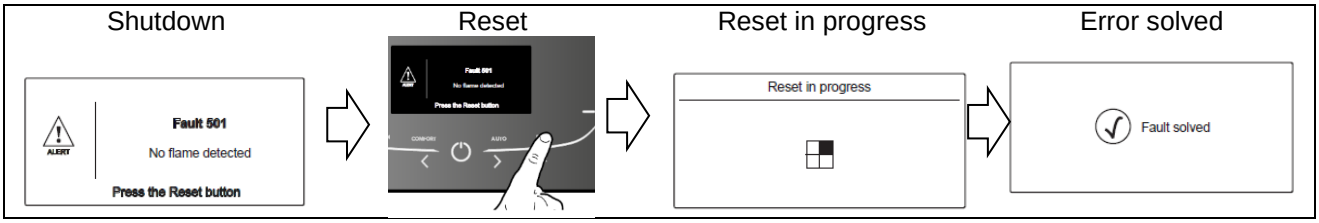
Menù	Sotto-Menù	Parametro	Funzione	Range di regolazione	Valore di default
8	0		***BOILER STATISTICS***		
8	0	0	Diverter valve cycles No.(n x 10)	(only visualization)	/
8	0	1	Time of circulator on (h x 10)	(only visualization)	/
8	0	2	Boiler circulator cycles No. (n x 10)	(only visualization)	/
8	0	3	Boiler Life Time (h x 10)	(only visualization)	/
8	0	4	Time of fan ON (h x1 0)	(only visualization)	/
8	0	5	Fan cycles No. (n x 10)	(only visualization)	/
8	0	6	CH flame detection (n x 10)	(only visualization)	/
8	0	7	DHW flame detection (n x 10)	(only visualization)	/
8	1		***BOILER STATISTICS***		
8	1	0	Hours burner on in heating (h x 10)	(only visualization)	/
8	1	1	Hours burner on in sanitary (h x 10)	(only visualization)	/
8	1	2	Number of flam lifts (n x 10)	(only visualization)	/
8	1	3	Number of ignition cycles (n x 10)	(only visualization)	/
8	1	4	Average heat request duration	(only visualization)	/
8	2		***BOLILER***		
8	2	1	Fan state	0: Off ; 1: On (only visualization)	/
8	2	2	Ventilator speed	Ventilator speed X 100 (only visualization)	/
8	2	3	Pump state (for 2 step pump)	0= off; 1= low speed; 2= high speed (only visualization)	/
8	2	4	3-way valve position	0= sanitary; 1= haeting ((only visualization)	/
8	2	7	Pump Modulation (%)	(only visualization)	/
8	2	8	Gas power (kW)	(only visualization)	/
8	3		***BOILER TEMPERATURE***		
8	3	0	Temperature set on heating (°C)	(only visualization)	/
8	3	1	Temperature measured on heating delivery (°C)	(only visualization)	/
8	3	2	Heating return measured temperature (°C)	(only visualization)	/
8	3	3	Sanitary measured temperature (°C)	(only visualization)	/
8	3	5	External temperature (°C)	(only visualization)	/
8	4		***STORAGE AND SOLAR (if present)***		
8	4	0	Storage measured temperature (°C)	(only visualization)	
8	4	2	Sanitary inlet temperature (°C)	(only visualization)	
8	5		***SERVICE***		
8	5	0	Month to next maintenance	0 ÷ 60	24
8	5	1	Maintenance on days act	0: Off	0

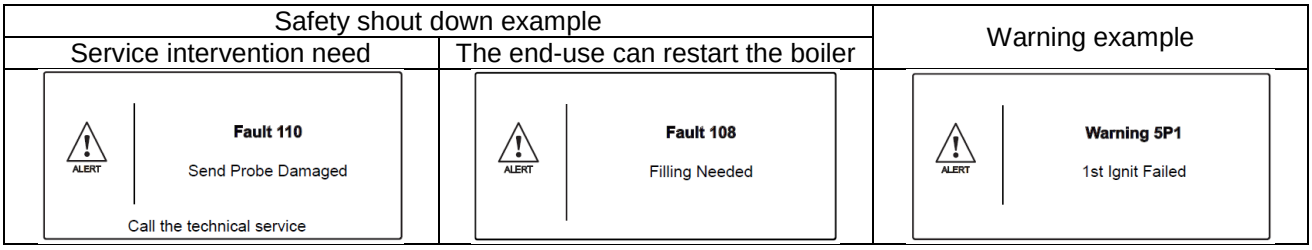
				1: On	
8	**5**	**2**	Maintenance warning reset	YES: push button “OK” NO: push button “ESC”	/
8	**5**	**4**	Display software version	(only visualization)	/
8	**5**	**5**	Main PCB software version	(only visualization)	/
8	**6**		***ERROR HISTORY***		
8	**6**	**0**	Last 10 errors	/	/
8	**6**	**1**	Reset error list	SI: push button “OK” NO: push button “ESC”	/
8	**7**		***FREE PARAMETERS***		
8	**7**	**4**	Boiler Flowswitch	0: No flow rate (open) 1: Flow rate (closed)	/
8	**7**	**6**	SAFETY Flame sensor	0: no flame 1: flame	/

10 ERROR CODES

10.1 BOILER PROTECTION SYSTEMS.

There are two types of errors for malfunctions:
- Shutdown (solved by resetting);
- Safety stop (No Reset: the boiler will start working again properly when the cause is removed).
There is a third type of error code that is used to indicate a malfunction that does not stop the boiler which continues to work properly (Indication).





10.1.1 Error codes

The error codes are divided in six different functional units, in other words the first figure indicates which functional unit of the boiler is involved in the error:

1. Primary circuit;
2. Sanitary circuit;
3. Electronic PCB;
4. Communication with peripherals;
5. Ignition and detection;
6. Air inlet / Fume outlet.
7. Zones

Display	Description	Reset
	PRIMARY CIRCUIT	
1 01	Overheat	Reset
1 02	Heating proportional pressure short circuit or open circuit	No Reset
1 03	Circulation or presence of water: Gradient Tman > 7°C/sec for 3 times	Reset
1 04	Circulation or presence of water: Gradient Tman > 20°C/sec or Gradient Trit > 20°C/sec	Reset
1 05	Circulation or presence of water: Tman – Trit> 55°C for 3 times	Reset
1 06	Circulation or presence of water: Trit > Tman + 10°C for 3 times	Reset
1 07	Circulation or presence of water: Trit > Tman + 30°C	Reset
1 08	Water missing on the primary circuit (P<Pmin) for boiler with minimum pressure switch on/off (par.247=1)	No Reset
1 09	High primary circuit pressure (P>3bar)	No Reset
1 10	Heating delivery probe open or short circuit (NTC1)	No Reset

1 11	Water missing on the primary circuit (P<Pmin) for boiler with pressure sensor(par. 247=2)	No Reset
1 12	Heating return probe open circuit or no signal (NTC2)	No Reset
1 14	Outdoor probe open circuit or no signal	No Reset
1 16	Floor thermostat opened	No Reset
1 P1	Circulation or presence of water: Gradient Tman > 7°C/sec	Signalling
1 P2	Circulation or presence of water: Tman – Trit> 55°C	Signalling
1 P3	Circulation or presence of water: Trit > Tman + 10°C	Signalling
1 P4	Low primary circuit pressure($P<P_{SIGNALLING}$): fill up	Signalling
	SANITARY CIRCUIT	
2 02	Tank low probe open circuit or no signal (solar)	No Reset
2 03	Tank probe open circuit or no signal	No Reset
2 04	Solar collector probe open circuit or no signal	No Reset
2 05	Sanitary inlet probe open circuit (solar)	No Reset
2 07	Solar manifold overheat	No Reset
2 08	Solar manifold temperature low	No Reset
2 09	Not used	/
	PCB	
3 01	Eeprom display error	No Reset
3 02	GP – GIU communication error	No Reset
3 03	PCB internal error	No Reset
3 04	More than 5 resets executed in 15 minutes	No Reset
3 05	PCB internal error	Reset
3 06 / 3 07	PCB card internal error	Reset
3 09	Gas Relais check Failed	Reset
3 13	Low voltage fault (error< 150Vac; exit condition>170Vac)	No Reset
3 P9	Sched. Maintenance-Call Service	
	COMMUNICATION WITH PERIPHERALS	
4 07	Room probe open or short circuit	No Reset
	IGNITION AND DETECTION	
5 01	Flame missing (after 5 times 5P6)	Reset
5 02	Flame detected with gas valve closed	No Reset
5 03	Flame detected with gas valve closed (after 20sec of error 502)	Reset
5 04	In lockout after 6 flame lifts 5P3	Reset
5 P3	Flame detachment during operation	Signalling
5 P5	Low gas pressure fault	Signalling
5 P6	Ignition failed	Signalling
	AIR INLET / FUME OUTLET	
6 10	Thermal fuse contact open (only China)	Reset
6 11	Fan warning (too much pressure loses on air/flue duct): fan 6000Rpm for 20min and if the problem remain error 612. Exit condition: the problem is solved within 20min.	No Reset
6 12	Fan turns too slow or wire not connected or 20min error 611	Reset
	ZONES	
7 01	Heating delivery probe zone 1 open or short circuit	No Reset
7 02	Heating delivery probe zone 2 open or short circuit	No Reset
7 03	Heating delivery probe zone 3 open or short circuit	No Reset
7 11	Heating return probe zone 1 open or short circuit	No Reset
7 12	Heating return probe zone 2 open or short circuit	No Reset
7 13	Heating return probe zone 3 open or short circuit	No Reset
7 22	Zone 2 overheating	No Reset
7 23	Zone 3 overheating	No Reset
7 50	Hydraulic scheme not defined	No Reset
	COMBUSTION CONTROL SYSTEM (CCS)	
8 01	The boiler must be calibrated	No Reset
8 02	Calibration Tuning Fault	No Reset
8 03	Mismatch kW Size, ID combustion (Set parameter 229)	No Reset
8 04	Decupling clip-in required	No Reset

11 TECHNICAL DATA TABLE

Model: GENUS PREMIUM EVO		24	30	35
CE Certification (pin)		0085CL0440		
Boiler type		C13(X)-C23-C33(X)-C43(X)-C53(X)-C63(X)C83(X)-C93(X)B23-B23P-B33		
Max/min nominal calorific flow rate (Pci)	kW	22/2,5	28,0/3,0	31/3,5
Max/min nominal calorific flow rate (Pcs)	kW	24,4/2,8	31,1/3,3	34,4/3,9
Domestic hot water max/min nominal calorific flow rate (Pci)	kW	26/2,5	30,0/3,0	34,5/3,5
Domestic hot water max/min nominal calorific flow rate (Pcs)	kW	28,9/2,8	33,3/3,3	38,3/3,9
Max/min power output (80°C-60°C)	kW	21,5/2,4	27,4/2,9	30,3/3,4
Max/min power output (50°C-30°C)	kW		/3,1	33/3,6
Domestic hot water max/min power output	kW		/2,9	33,7/3,4
Combustion efficiency (of flue gas)			3	97,9
Nominal calorific flow rate efficiency (60/80°C) Hi/Hs	%	97,8/88	97,7/88	97,7/88
Nominal calorific flow rate efficiency (30/50°C) (condensation) Hi/Hs	%	106,2/95,7	106,2/95,6	106,5/95,9
Efficiency at 30% at 30°C (condensation) Hi/Hs	%	108,1/97,3	108/97,3	108/97,3
Efficiency at 30% at 47°C Hi/Hs	%	97,8/88,1	97,8/88,1	97,8/88,1
Minimum calorific flow rate efficiency (60/80°C) Hi/Hs	%	97,8/88,1	97,8/88	97,7/88
Efficiency rating (dir. 92/42/EEC)	stars	****	****	****
Sedbuk class	class	A/90,1	A/90,1	A/90,1
Loss when stopped (ΔT = 50°C)	%			
Loss of burner gas when operating	%	1,9	2	2
Available air pressure	Pa	100	90	100
NoX class	class	5	5	5
Flue gas temperature (G20) (80°C-60°C)	°C	62	62	63
CO2 content (G20) (80°C-60°C)	%	9,3	9,3	9,3
CO content (0%O2) (80°C-60°C)	ppm	143	134	99
O2 content (G20) (80°C-60°C)	%	4	4	4
Maximum flue gas flow (G20) (80°C-60°C)	Kg/h	41,6	48	55,2
Excess air (80°C-60°C)	%	23	23	23
Expansion chamber inflation pressure	bar	1	1	1
Maximum heating pressure	bar	3	3	3
Expansion chamber capacity	l	6,5	6,5	6,5
Min/max heating temperature (high temperature range)	°C	35/ 82	35/ 82	35/ 82
Min/max heating temperature (low temperature range)	°C	20/ 45	20/ 45	20/ 45
Domestic hot water max/min temperature	°C	36/60	36/60	36/60
Specific flow rate of domestic hot water (ΔT=30°C)	l/min	12,2	14,1	16
Quantity of hot water ΔT=25°C	l/min	14,6	16,8	19,3
Quantity of hot water ΔT=35°C	l/min	10,4	12	13,8
Hot water comfort rating (EN13203)	stars	***	***	***
Hot water minimum flow rate	l/min	<2	<2	<2
Domestic hot water max/min pressure	bar	7/0,3	7/0,3	7/0,3
Power supply frequency/voltage	V/Hz	230 / 50	230 / 50	230 / 50
Total electrical power absorbed	W	78	83	83
Minimum ambient temperature for use	°C	5	5	5
Protection level for the electrical appliance	IP	X5D	X5D	X5D
Weight	kg	35	35	36

UPDATE

Model: GENUS PREMIUM EVO SYSTEM		**18**	**24**	**30**	**35**
CE Certification (pin)		0085CL0440			
Boiler type		C13(X)-C23-C33(X)-C43(X)-C53(X)-C63(X)C83(X)-C93(X) B23-B23P-B33			
Max/min nominal calorific flow rate (Pci)	kW	18,0/4,5	22,0/2,5	28,0/3,0	31,0/3,5
Max/min nominal calorific flow rate (Pcs)	kW	20,0/5,0	24,4/2,8	31,1/3,3	34,4/3,9
Domestic hot water max/min nominal calorific flow rate (Pci)	kW	18,0/4,5	26,0/2,5	30,0/3,0	34,5/3,5
Domestic hot water max/min nominal calorific flow rate (Pcs)	kW	20,0/5,0	28,9/2,8	33,3/3,3	38,3/3,9
Max/min power output (80°C-60°C)	kW	17,6/4,4	21,5/2,4	27,4/2,9	30,3/3,4
Max/min power output (50°C-30°C)				29,7/3,1	33,0/3,6
Domestic hot water max/min power output				29,3/2,9	33,7/3,4
Combustion efficiency (of flue gas)				98	97,9
Nominal calorific flow rate efficiency (60/80°C) Hi/Hs	%	97,6/87,9	97,8/88	97,7/88	97,7/88
Nominal calorific flow rate efficiency (30/50°C) (condensation) Hi/Hs	%	106,1/95,5	106,2/95,7	106,2/95,6	106,5/95,9
Efficiency at 30% at 30°C (condensation) Hi/Hs	%	107,7/97	108,1/97,3	108/97,3	108/97,3
Efficiency at 30% at 47°C Hi/Hs	%	97,7/88	97,8/88,1	97,8/88,1	97,8/88,1
Minimum calorific flow rate efficiency (60/80°C) Hi/Hs	%	97,6/87,9	97,8/88,1	97,8/88	97,7/88
Efficiency rating (dir. 92/42/EEC)	stars	****	****	****	****
Sedbuk class	class	A/90,1	A/90,1	A/90,1	A/90,1
Loss when stopped (ΔT = 50°C)	%				
Loss of burner gas when operating	%	2	1,9	2	2
Available air pressure	Pa	100	100	90	100
NoX class	class	5	5	5	5
Flue gas temperature (G20) (80°C-60°C)	°C	61	62	62	63
CO2 content (G20) (80°C-60°C)	%	9	9,3	9,3	9,3
CO content (0%O2) (80°C-60°C)	ppm	93	143	134	99
O2 content (G20) (80°C-60°C)	%	4,5	4	4	4
Maximum flue gas flow (G20) (80°C-60°C)	Kg/h	29,7	41,6	48	55,2
Excess air (80°C-60°C)	%	27	23	23	23
Expansion chamber inflation pressure	bar	1	1	1	1
Maximum heating pressure	bar	3	3	3	3
Expansion chamber capacity	l	6,5	6,5	6,5	6,5
Min/max heating temperature (high temperature range)	°C	35/ 82	35/ 82	35/ 82	35/ 82
Min/max heating temperature (low temperature range)	°C	20/ 45	20/ 45	20/ 45	20/ 45
Domestic hot water max/min temperature	°C	40/60	40/60	40/60	40/60
Power supply frequency/voltage	V/Hz	230 / 50	230 / 50	230 / 50	230 / 50
Total electrical power absorbed	W	80	78	83	82
Minimum ambient temperature for use	°C	5	5	5	5
Protection level for the electrical appliance	IP	X5D	X5D	X5D	X5D
Weight	kg	35	35	35	36