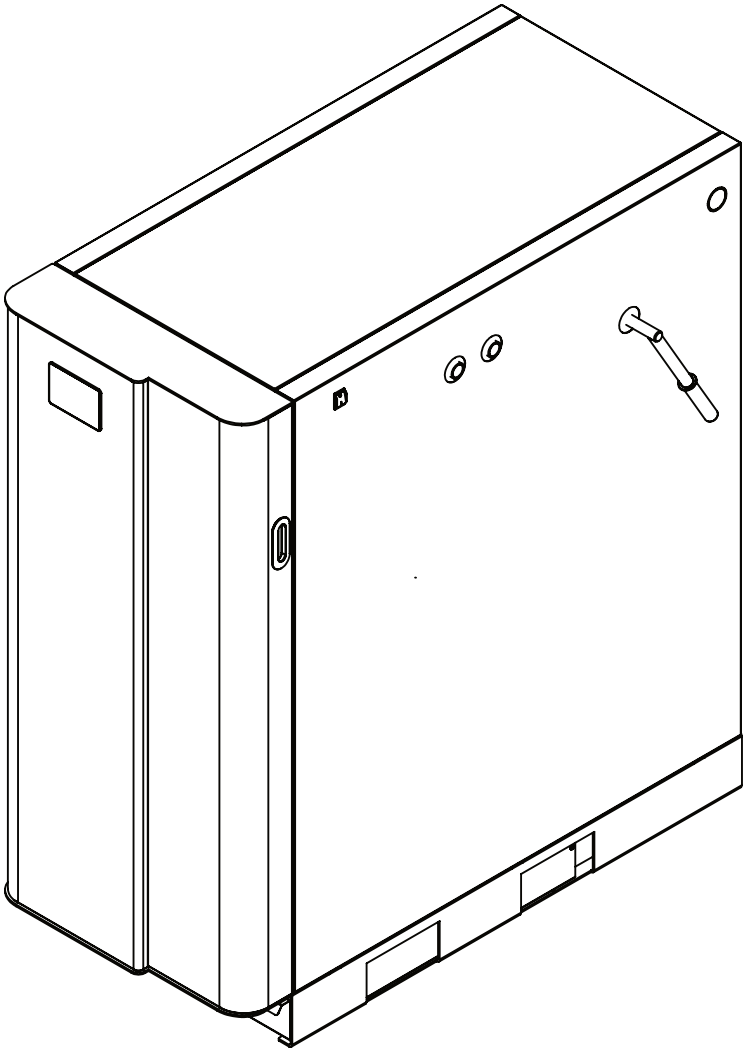
Mareli Systems

STEP FORWARD



Wood boiler

LCG Lambda 22/32/40/50

User manual

rev. 2.0

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1. Introduction

Dear Customer,
Our products are designed and manufactured in accordance with standards in force, with high quality materials and using our extensive experience in the transformation processes.

To get the best performance, we suggest you read the instructions in this manual carefully. It is an integral part of the product so ensure that the manual is always supplied with the appliance, even if it changes owner.

If the manual is lost you can download it directly from the company's website.

Data plate with all the specifics of the appliance can be found on the back panel.

2. Warnings and safety instructions

The wood heating system may only be installed and started up for the first time by an authorised technician. Professional installation and start up is the prerequisite for safe and economical operation.

- Never make any changes to the heating system or flue gas system;
- Never close or remove safety valves;
- This appliance is not intended for use by people (including children) with limited physical, sensory or mental abilities or lack of experience and knowledge.
- The place and way of connecting the boiler should be selected carefully in accord with the safety instructions. Install away from flammable objects!
- Before starting any operation, the user must read and fully understand the contents of this instruction manual. Incorrect setup may cause hazardous conditions and/or incorrect function of the boiler;
- Do not wash the boiler with water. Water can get inside the fireplace and damage the electronics and cause an electric shock;
- Do not put clothes to dry on the boiler. Any clothes hangers and other objects must be located within a reasonable distance. Fire hazard;
- The user is fully responsible for the proper use of the product which exempts the company from liability of any users errors or misbehaviour or omissions;
- Any intervention or replacement that is made by unauthorised people or using non original spare parts for the product can be risky for the user and release the company from all liability;

- Most surfaces of the boiler are extremely hot (the door handle, glass, flue pipe, etc.). Avoid contact with these parts before assuring yourself that you use temperature resistant gloves as well as suitable temperature resistant instruments;
- Turn off the boiler in case of failure or malfunction;
- The product must be electrically connected to a system equipped with an effective earth conductor. (Must be grounded);
- It is strictly forbidden to use alcohol, petrol, liquid fuel for lanterns, diesel, bio-ethanol, charcoal or any other similar liquids to light up the flame in the device. Keep such liquids away;
- Do not put any fuel other than wood and pellets for the starting mechanism;
- Periodically check and clean the smoke outlet ducts of the boiler (connection to the flue pipe);
- The boiler is not a cooker;
- Under no circumstances should the fire be ignited with the door open or broken glass;
- Do not light the boiler with flammable materials if the ignition system failed;
- When installing the product all fire safety requirements must be respected;
- If there is a fire in the flue pipe, extinguish the boiler, disconnect the power cord and never open the door. Call competent authorised service technician;
- The product maintenance operations must be exclusively carried out by a qualified operator on a yearly basis;
- A non-compliant or improper maintenance of the product can cause hazardous situations and/or irregular operation;

Seeing this sign means you must strictly follow the instructions for your own safety!

3. Type of fuel

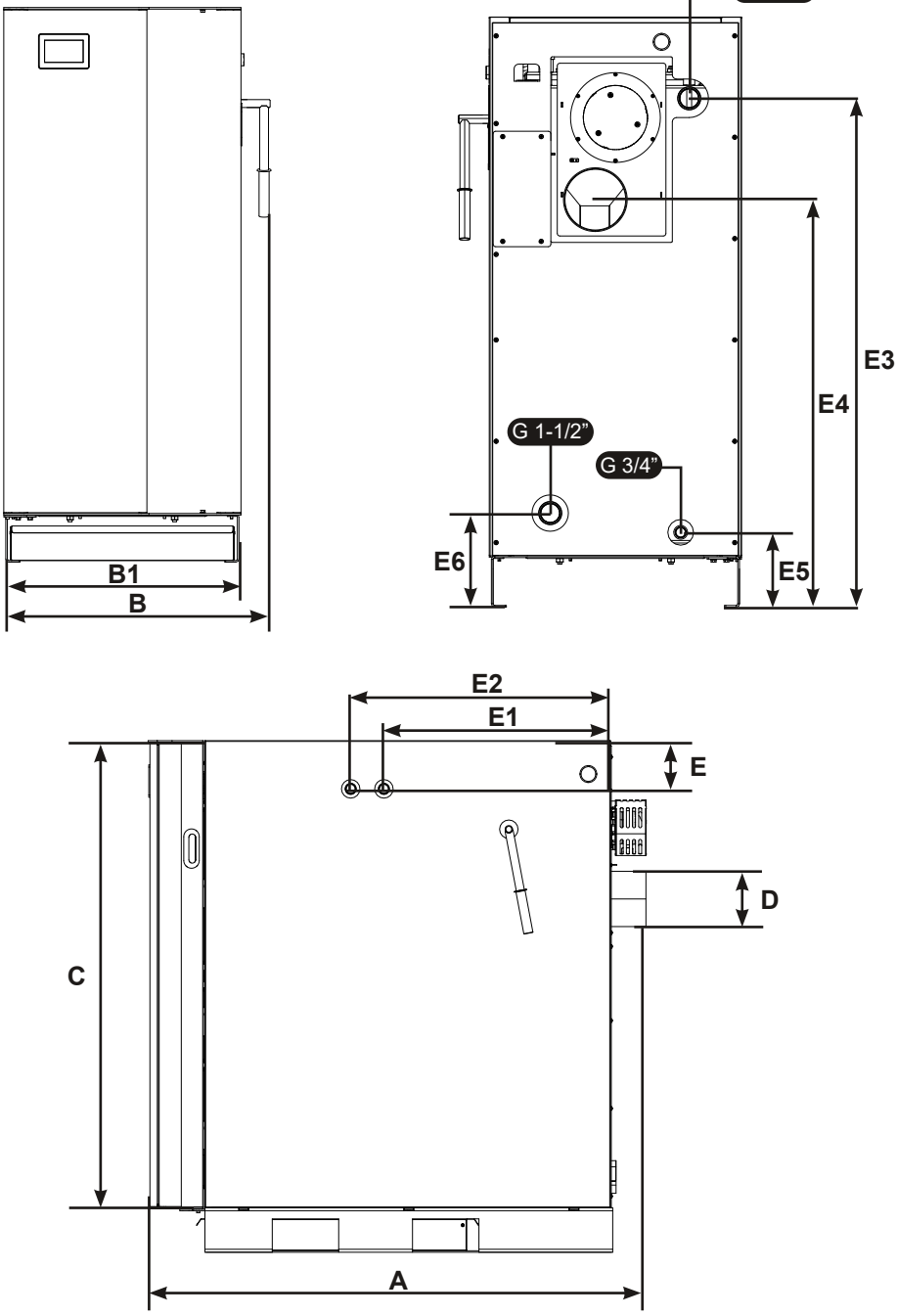
For this lambda-controlled boiler it is recommended using dry fuelwood made of hardwood species such as beech, oak, hornbeam, ash, or acacia, as these provide high calorific value and stable pyrolysis combustion. The moisture content of the wood is a critical parameter and must not exceed 20%, with a recommended range of 12–18%. The use of green or insufficiently dried wood leads to reduced efficiency, tar formation, and contamination of the heat exchanger and lambda sensor. The firewood must be split, with uniform dimensions suitable for the boiler's combustion chamber, and stored for at least 18–24 months in a dry and well-ventilated place.

Softwood species are not recommended, as they contain resins, burn faster, and produce increased amounts of tar and deposits, which disrupt the combustion process and the operation of the lambda control system. The use of contaminated, painted, impregnated, or glued wood materials, as well as wood-based panels such as chipboard, OSB, or MDF, is not permitted, as this increases emissions and may lead to damage to the boiler and its control system.

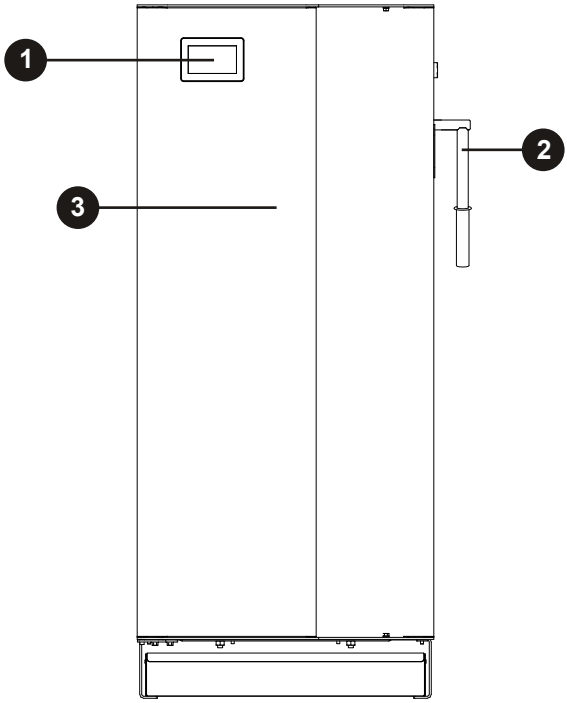
	**The use of wood that do not comply with the above characteristic may compromise the operation of your product!**

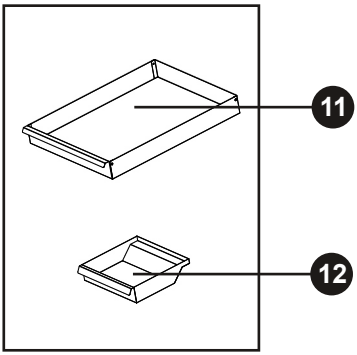
4. Technical data

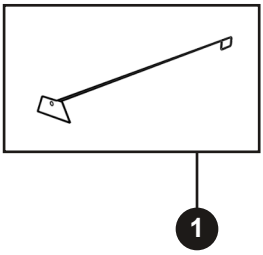
Maximum output	KW	22	32	40	50
Heat output range	KW	11-22	16-32	20-40	25-50
Boiler class (EN 303-5:2021)	-	5			
Chimney draft	Pa	10-12			
Water jacket capacity	litres	130	140	150	163
Temperature of the flue gasses max output	°C	165	160	150	150
Temperature of the flue gasses min output	°C	100			95
Minimum operating time at rated power	hours	3			
Minimum inlet water temperature at the boiler supply water connection	°C	60			
Max water temperature	°C	90			
Fuel type	-	Hardwood with less than 20% moisture			
Fuel length	mm	600			
Fuel loading chamber capacity	litres	120			150
Combustion chamber type	-	Operates under pressure			
Required minimum accumulation volume (buffer) next to the boiler	-	By EN 303-5:2021			
Electrical supply	V/Hz	230/50			
Weight	kg	518	539	567	620
Maximum working pressure	bar	3.0			
Flue gas tube external diameter	mm	150			
Energy efficiency of the boiler	-	A+			

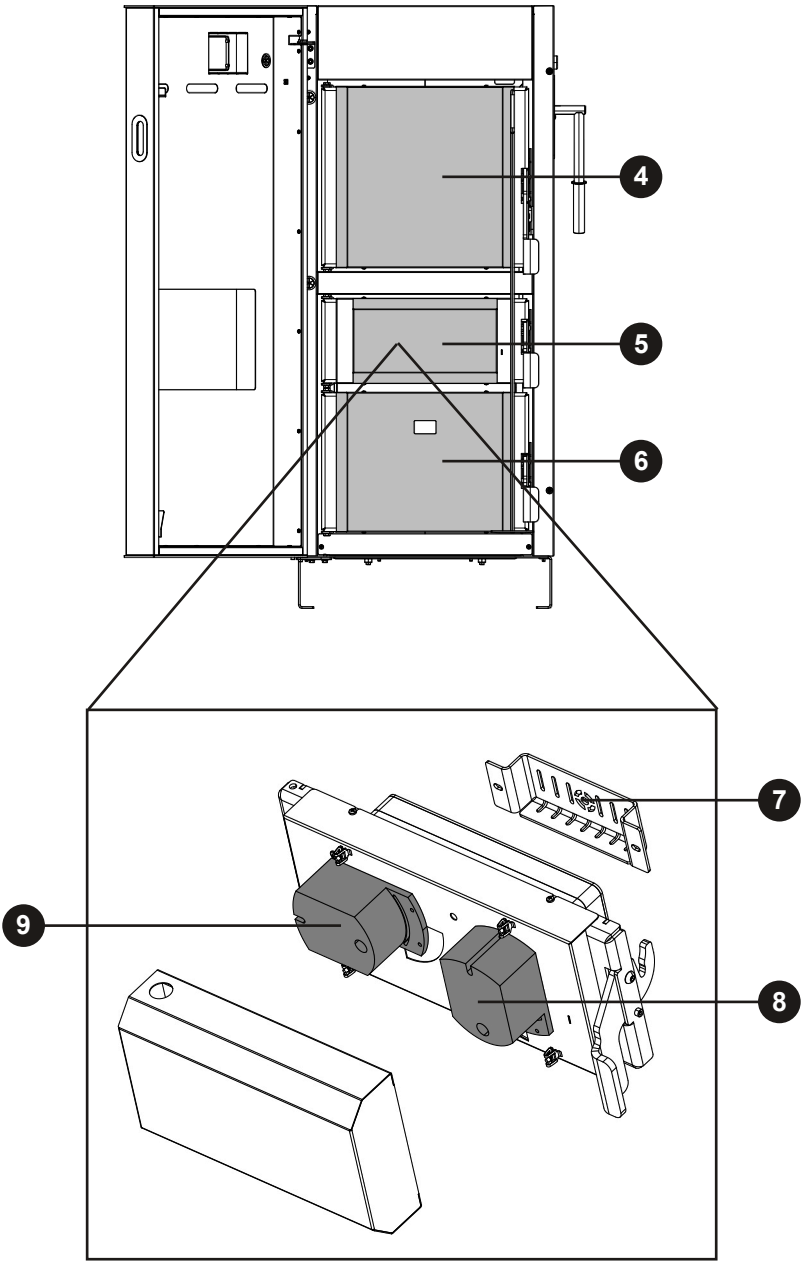

G 1-1/2”
E3
E4
G 1-1/2”
G 3/4”
E6
E5
B1
B
E2
E1
E
D
C
A

LCG	A (mm)	B (mm)	B1 (mm)	C (mm)	D (mm)	E (mm)	E1 (mm)	E2 (mm)	E3 (mm)	E4 (mm)	E5 (mm)	E6 (mm)
22	1284	663	590	1380	Ø149	130	566	656	1190	953	175	220
32	1334	663	590	1380	Ø149	130	614	704	1190	953	175	220
40	1404	663	590	1380	Ø149	130	686	776	1190	953	175	220
50	1404	663	590	1530	Ø149	130	686	776	1340	1103	175	220





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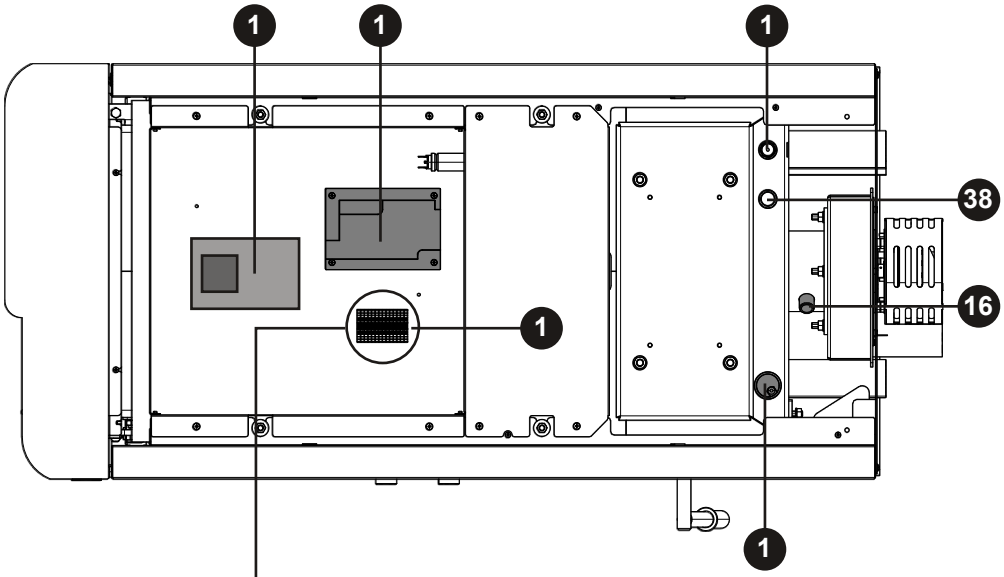
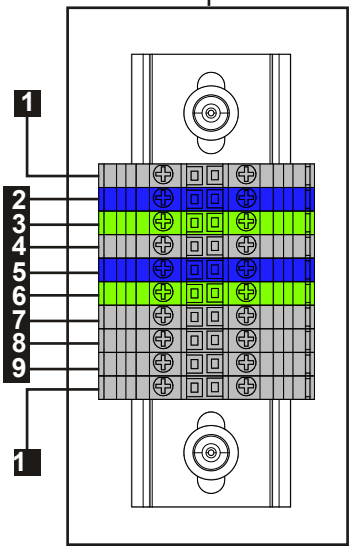
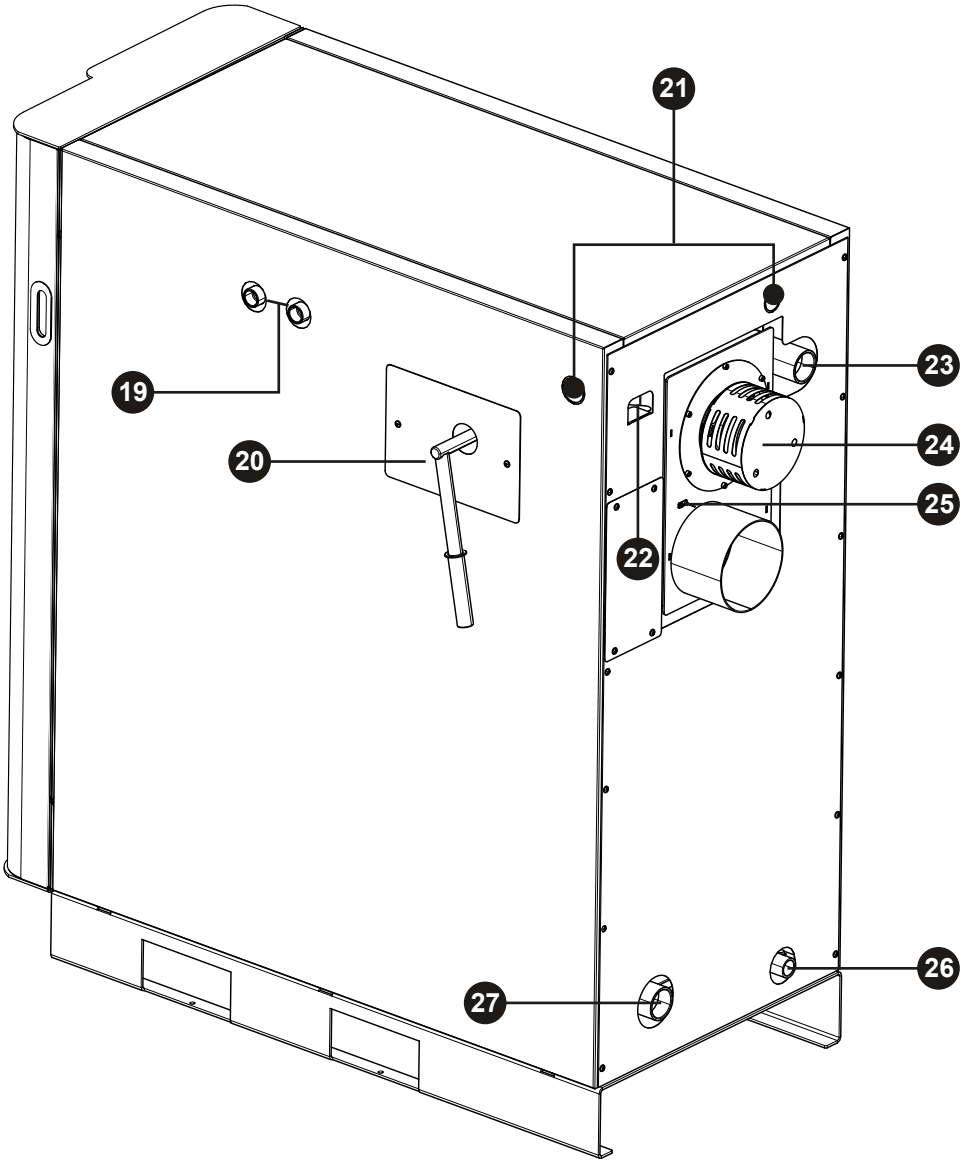




1	L	POWER SUP-PLY
2	N	
3	GROUND	
4	L	PUMP
5	N	
6	GROUND	
7		LOW BUFFER
8		
9		HIGH BUFFER
10		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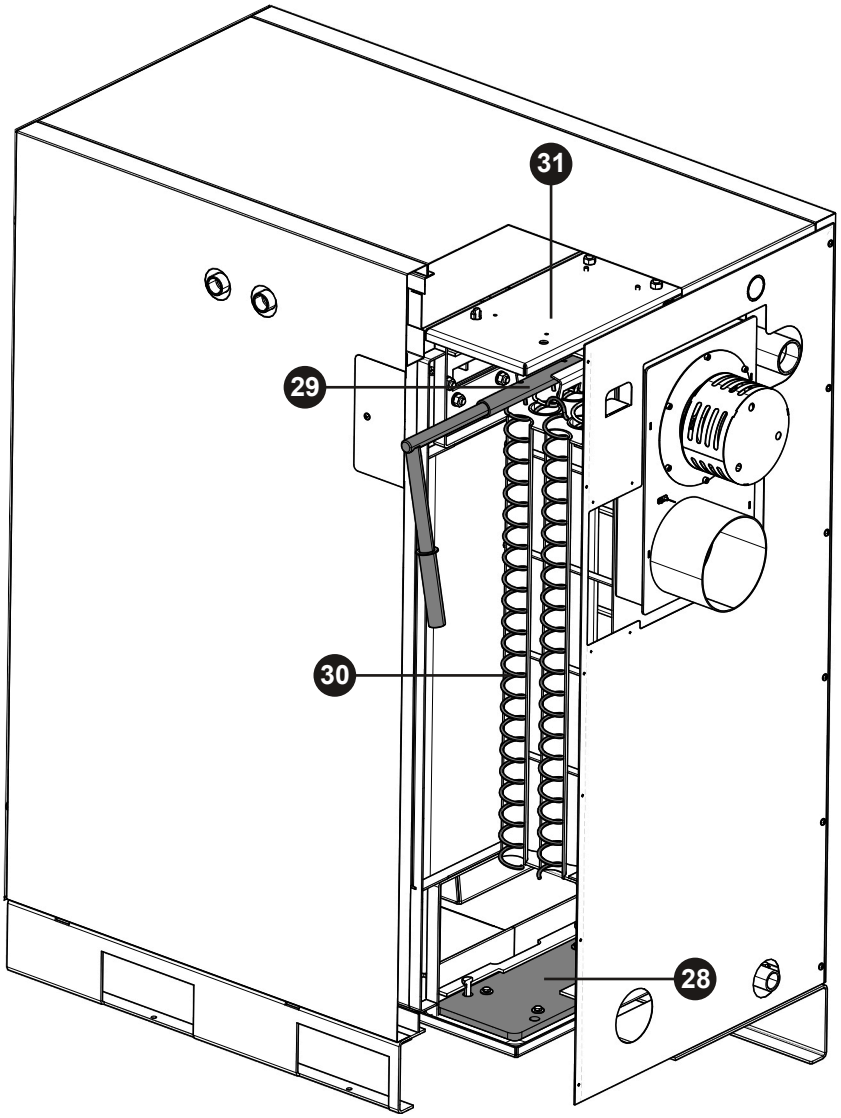
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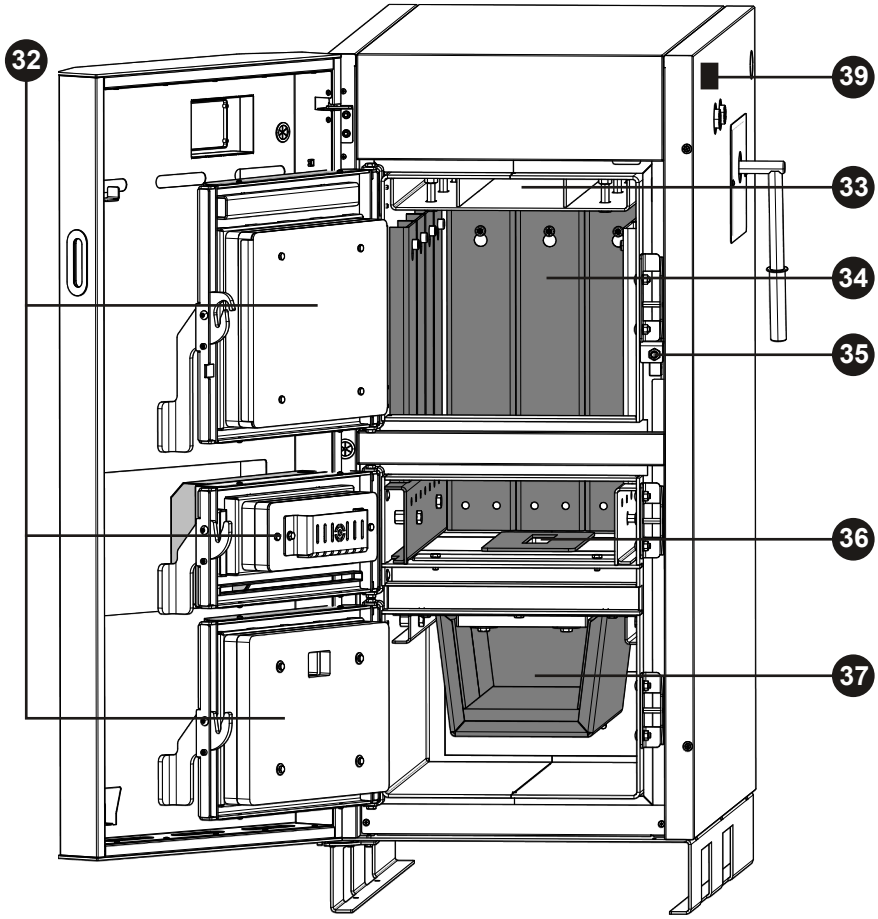
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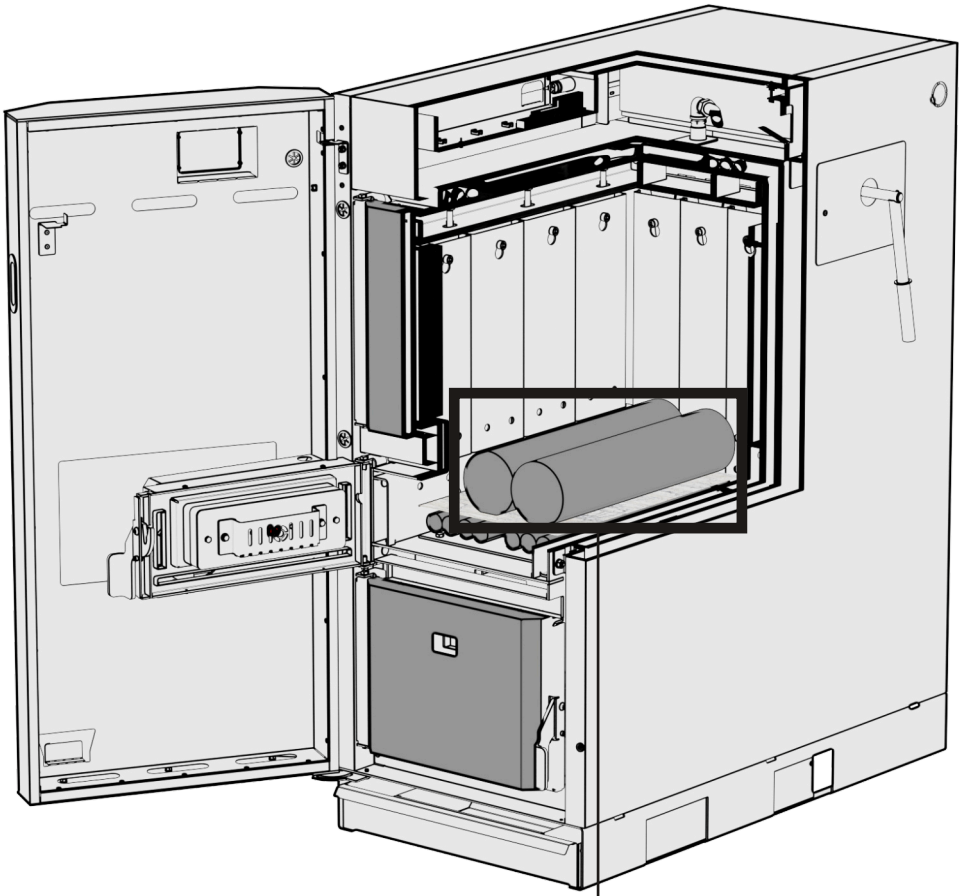
1	Boiler display	**21**	STS thermal safety valve pass-through connections
2	Turbulators cleaning lever	**22**	Cable routing canal
3	Front main door	**23**	Water outlet
4	Upper boiler door	**24**	Exhaust fan
5	Middle boiler door	**25**	Exhaust temperature sensor
6	Lower boiler door	**26**	Drainage valve
7	Pellet reservoir for automatic ignition	**27**	Water inlet
8	Motor for secondary air regulator	**28**	Bottom service door
9	Motor for primary air regulator	**29**	Cleaning mechanism for flue gas tube
10	Cleaning tool	**30**	Turbulator
11	Main ash container	**31**	Top service door
12	Ash container for loading chamber	**32**	Heat resistant plate
13	LCG Lambda main control board	**33**	Duct for smoke absorption
14	Lambda regulation control board	**34**	Protection cladding
15	Air vent valve	**35**	Open door sensor
16	Lambda regulation probe	**36**	Burner
17	Water temperature sensor	**37**	Burning chamber
18	Periphery connection unit	**38**	STS thermal safety valve capillary bulb
19	Safety coil connection	**39**	ON / OFF switch
20	Side service door		

LAMBDA PROBE

The Lambda system improves the quality of combustion through the analysis of the exhausting smoke. The system controls the devices regulating combustion, keeping it within optimal set-point parameters, by managing both secondary post-combustion and primary combustion.



The maximum wood length is 60 cm with moisture content to 20% (max. 25%).

5. Installation

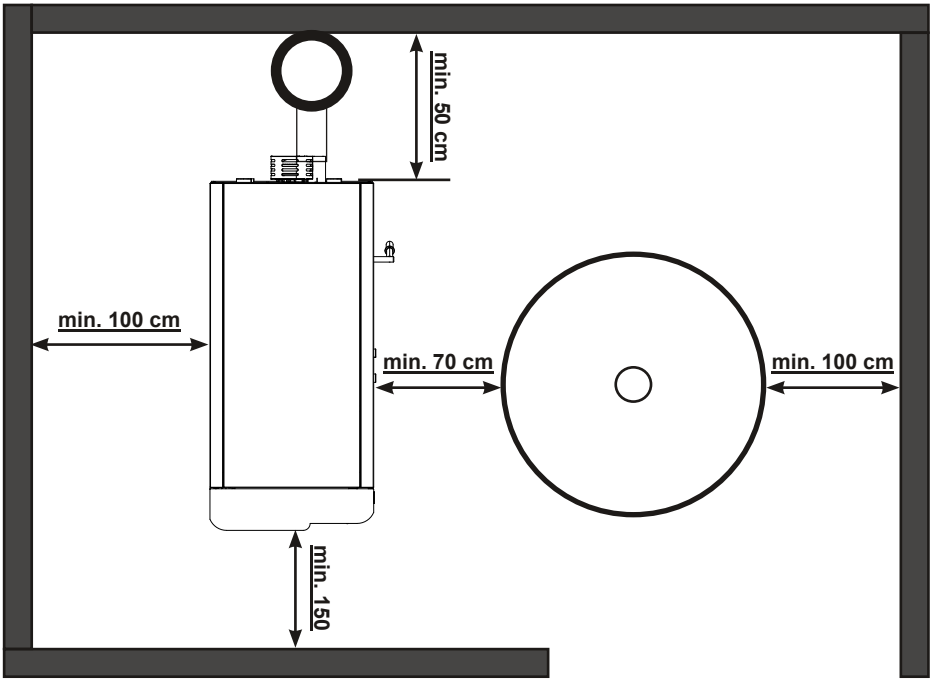
5.1 Placing

All national, regional and European requirements for safe operation of the appliance must be respected during installation and operation.

Prior to installation, load capacity of the place where the boiler will be intended must be ensured. The weight of the boiler is specified in the technical data table.
To ensure the correct and safe operation of the boiler, the following conditions must be met:

- The installation of the boiler and its accessories must be carried out by authorised technician.
- The floor where the boiler is installed should be flat and horizontal, made of fire-resistant materials and enable to handle the load.

	**Observe the distances from flammable objects (sofas, furniture, wood panelling, etc..).**



5.2 Connecting with the hydro system

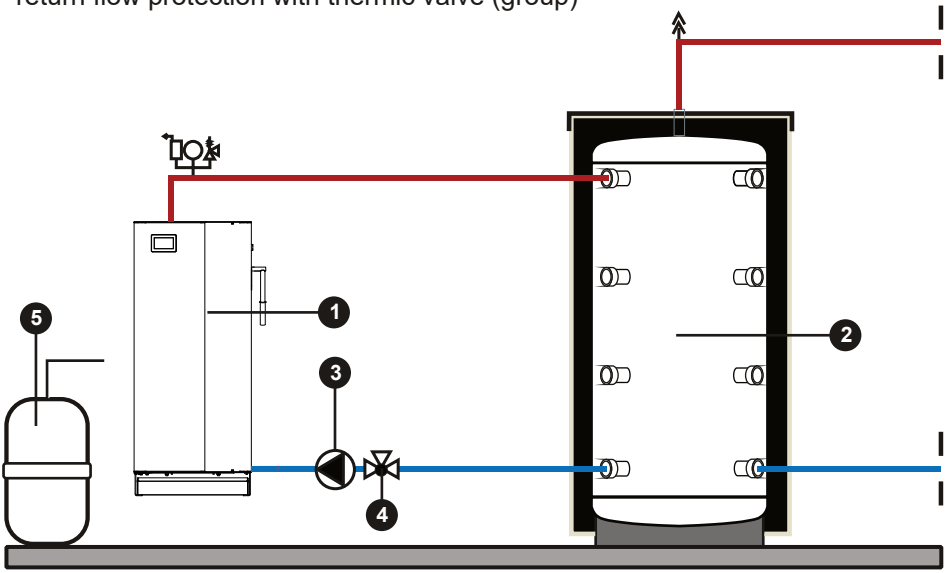
The connection boiler to the central heating system is obligatory through one or more water tanks, in accordance to the boiler power. It is recommended to connect a minimum of 12 liters water to each 1 L of fuel loading chamber capacity (i.e. for the 40 kW boiler the recommended water tank should be 1440 litres). The boiler should not be used without being connected to the water accumulation tank. It must be connected to the water tank exclusively!

- The first service cleaning of the pump's filter must be done immediately after testing the installation.
- If an old installation is going to be used it must be washed several times to ensure the removal of any accumulated dirt on the surfaces of the water jacket.
- Do not drain the circulating water of the installation during the non-heated season.
- The filling or unloading of the system is done via a hose through a facet mounted in the lowest area.
- The warranty is not valid in case of a boiler with a swollen water jacket which is a result of pressure increase in the system and improper connecting.
- It is advisable to check the water quality and provide treatment if the water is very hard, have pollution or some other deviation.

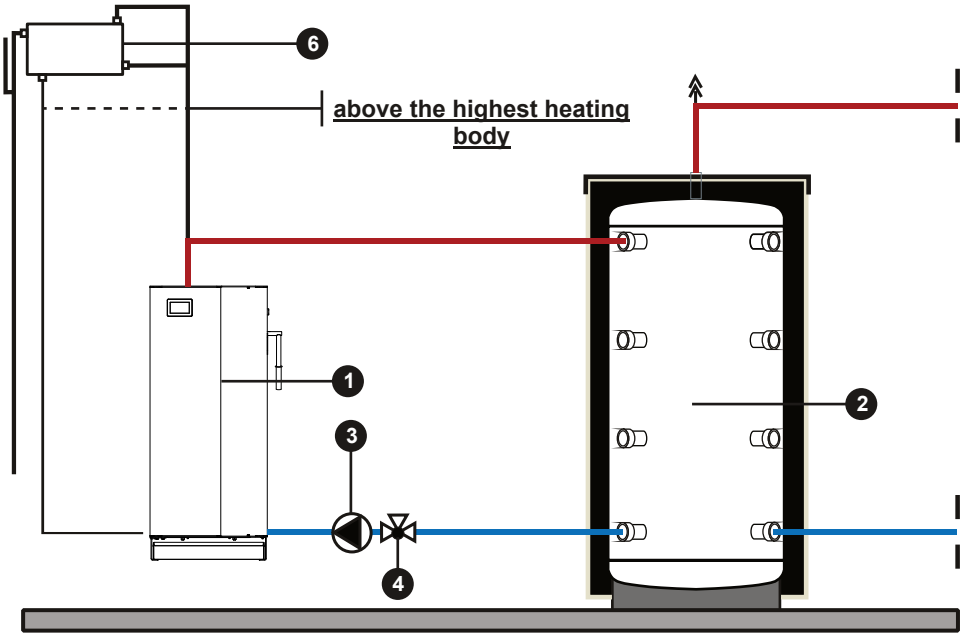
	**The boiler should not be used without being connected to the water accumulation tank. It must be connected to the water buffer exclusively through an 3-way thermic valve maintains minimum temperature of return water into the boiler above 60°C.**

	**The chemical-physical characteristics of the system and replenishing water are important for the proper operation and service life of the appliance.**

Example scheme 1 for boiler instalation on closed central heating system with return flow protection with thermic valve (group)



Example scheme 2 for boiler instalation on open central heating system with return flow protection with thermic valve (group)



1 — **LCG LAMBDA BOILER**

2 — **Water storage tank**

3 — **Boiler pump**

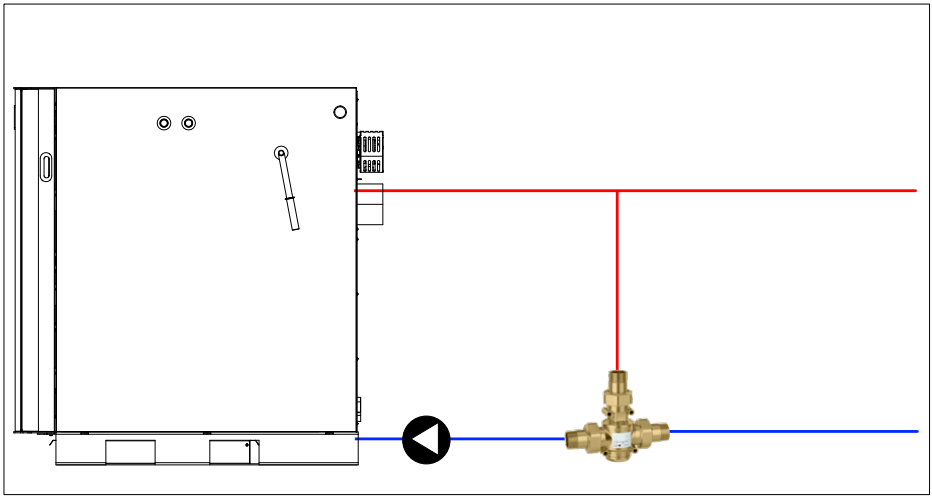
4 — **Return flow protection 3-way thermic valve (min. temp 60°C) or 3-way mixing valve with motor drive (protection valve)**

5 — **Expansion vessel for closed heating systems (approx. 10% of the total volume of installation)**

6 — **Open expansion vessel for open heating systems (approx. 7% of total volume of installation)**

⚠	**The above options are just a few of the all available. It is mandatory that the assembly is performed by an authorised specialist who can offer other more suitable scheme for you type of installation. Anti-condensation valve must be installed to prevent moisture and system malfunction.**

Example scheme for installation of an anti-condensation valve. It is recommended that the valve be at least 60 C. At the discretion of the installer, a valve with a higher return water temperature may be installed.



5.2.1 Connection to an open heating system

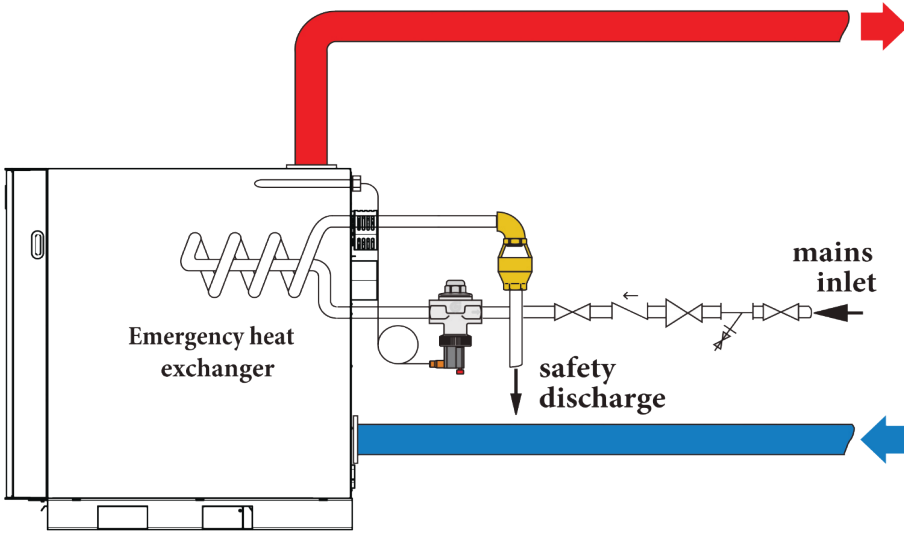
If the boiler is aimed to be integrated into an open central heating system, one of possible way how to connect the boiler to the system is shown on Example scheme 2. In case of the LCG Lambda boilers, the boiler pump obligatory has to be connected to the boiler control unit, in order to make turning on and off of the pump depending on the temperature of the water in the boiler, to avoid boiler condensation.

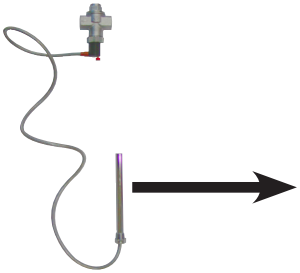
Connection to an open central heating system requires the implementation of an open expansion vessel above the level of the highest heating body (radiator). If the expansion vessel is situated inside the non heated room, it has to be insulated. The volume of the open expansion vessel is about 7% of the volume of entire heating installation.

5.2.2 Connection to a closed heating system

In closed heating system (as in Example scheme 1) it is obligatory to build in certified safety valve with opening pressure of 2,5 bar, minimum seat diameter of 15 mm, minimum inlet connection of 1/2", minimum exit connection of 3/4" and a membrane expansion vessel. Safety valve and expansion vessel must be built in accordance with professional rules and any valve must not be located between safety valve, expansion vessel and boiler. The closed heating system must have the installed expansion vessel of larger volume (vessel volume must be approx. 10% of the heating installation volume). In all boiler types the heating pump must be connected to boiler control unit so that the heating pump switching on and off would depend on water temperature in the boiler.

According to European EN standards, **boiler thermal protection must be installed in closed heating system**. Boiler is factory prepared for installation of thermal protection.





Maximum length of the sensor must not exceed 180 mm!

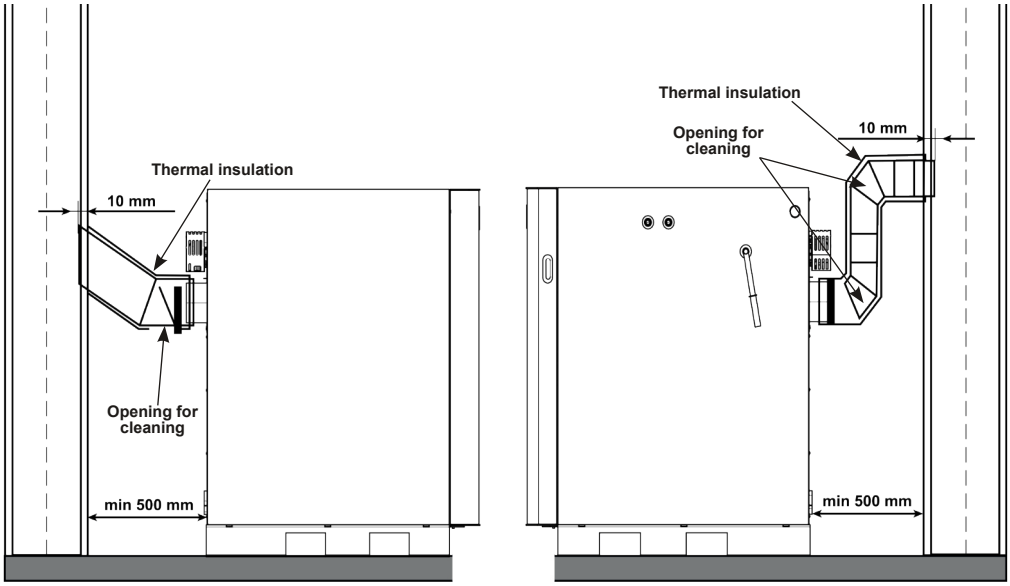
	Thermal protection must be connected to the water supply installation of the premises supplied from the water supply line and not from hydrophor. Namely, in case of failure of power supply, boiler could be overheated, and then hydrophor is not able to ensure required water supply.

	In case of any damage of boiler installed in the closed heating system due to its overheating, and boiler or system are not equipped with any thermal protection at all, or do not have properly installed thermal protection, guarantee will not be applied.

5.3 Connecting to chimney

Properly calibrated and built chimney is the precondition for a safe operation of the boiler and economic heating. The chimney has to be well insulated, gas-proof and smooth. On the lower part of the chimney, a cleaning door has to be built in. Brick layed chimney has to have 3 layers with an stone wool thermal insulation in the middle. The thickness of the insulation should be 30 mm, if the chimney is situated inside the building, i.e. 50 mm if the chimney is situated outside the building. Inside chimney diameter dimensions depend on its height and on the boiler capacity. The temperature of the flue gases on their exit point should be minimum 30°C higher then the temperature of their condensation point. The choice and the construction of the chimney should be performed by an authorized person. Minimal distance between boiler and the chimney is 500 mm. The flue gas tube has to have an inclination of 30-45°. In order to unable entering of the condensate from the chimney into the boiler, 10 mm of the flue gas tube length has to be inserted deeper inside the chimney. It is recommended to insulate the chimney connection tube with a mineral wool of 30-50 mm thickness. All installation works must be made in accordance with valid national and European standards. At connecting a boiler to the chimney, flue gas tubes and elbows must not pass behind the fan since in that case the cleaning and maintenance will not be possible.

	The chimney and the flue pipes must be cleaned and checked regularly depending on the installation and the fuel quality, but no less than once per year before the heating season.



5.4 Air inlet

Each boiler room must be equipped with an opening for supply of make up air which is dimensioned in accordance with boiler output (minimum opening area according to the below shown equation). Such opening must be protected with a net or grate. All installation works have to be performed in accordance with valid national and European standards. Boiler must not operate in flammable and explosive environment.

$$A = 6{,}02 \times Q$$

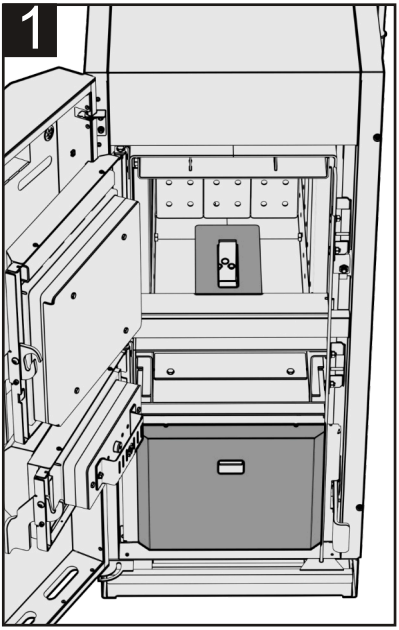
A - opening area in cm2 Q - boiler output in kW

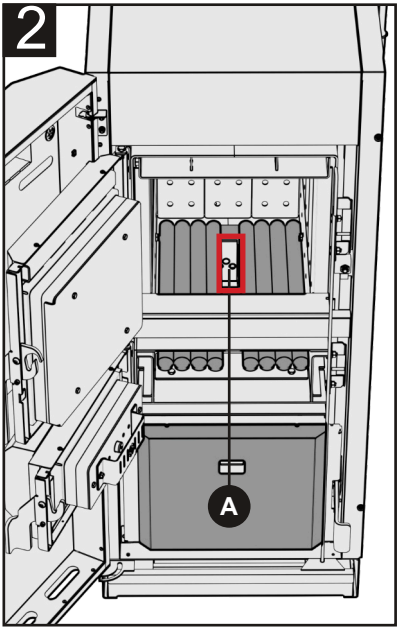
5.5 Connecting to electricity

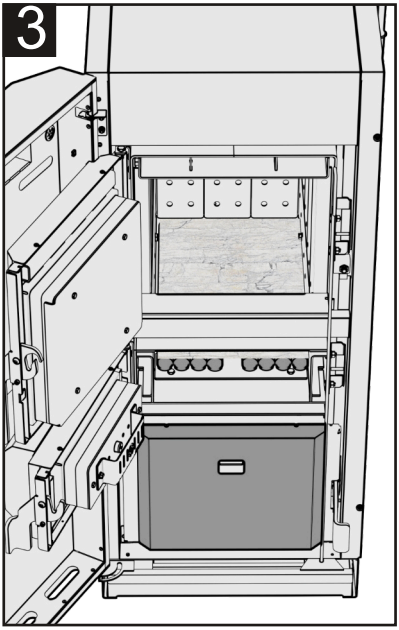
The product must be electrically connected to a system equipped with an effective earth conductor. (Must be grounded); The other requirements can be found on the data plate on the back. The power socket must be easily accessible.

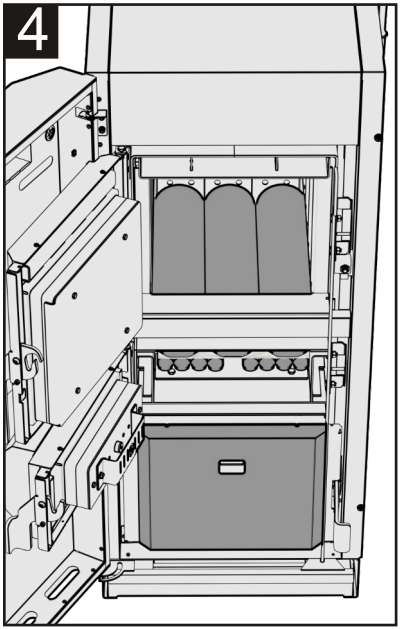
⚠	**The power cable must never touch the exhaust pipe or other hot surfaces.**

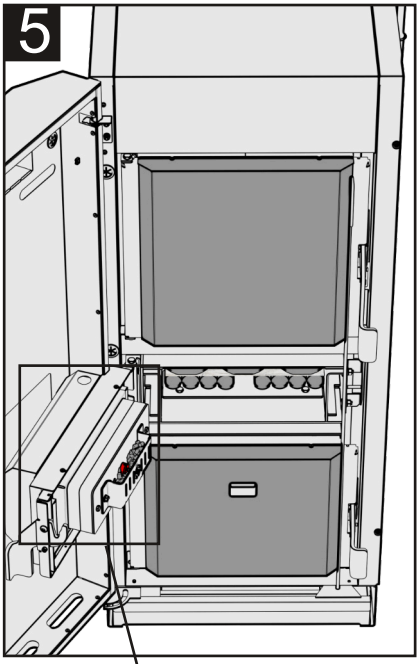
6. Ignition procedure







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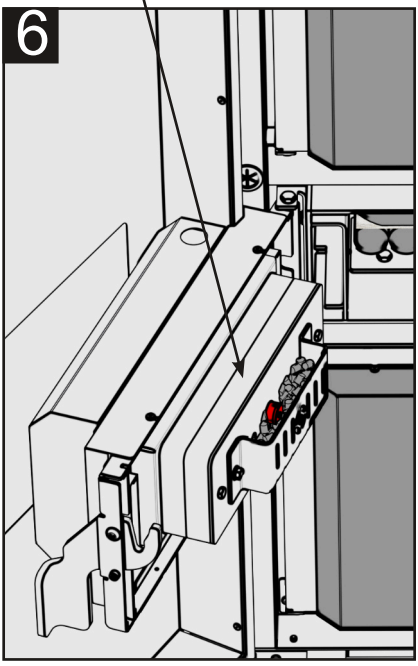
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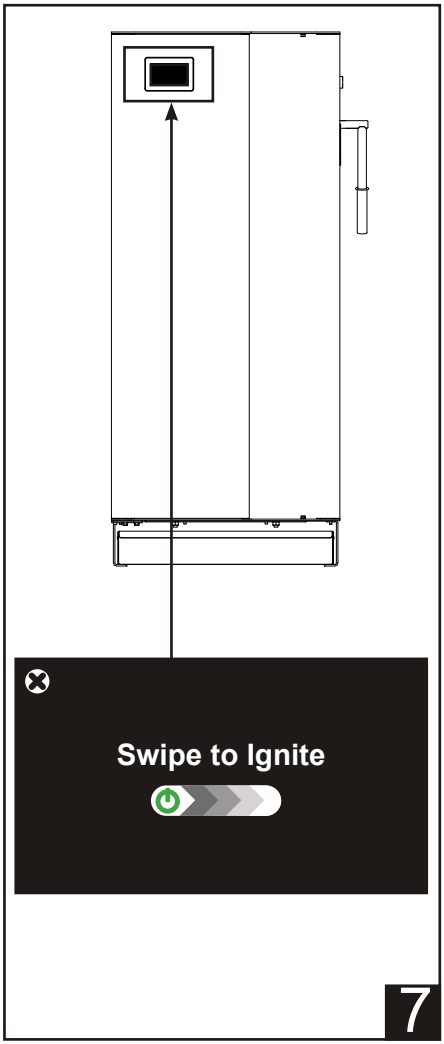
Swipe to Ignite
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1	• Open the top and middle doors. • Check the ash level in the combustion chamber and empty if necessary. It is recommended that you do not remove the ash in the combustion chamber during each heating-up process, but rather when the middle row of holes of the combustion chamber guards is no longer visible. This protects the combustion chamber.
2	• Insert one layer of small firewood. • Use firewood with a length of max. 60 cm and arrange them lengthwise. • Do not completely cover the burner (A).
3	• After the first layer of wood, lay cardboard across the whole area for best ignition.
4	• Fill the fuel loading chamber and close the fuel loading chamber door.
5	• Keep the middle door open.
6	• Put pellets in the pellet container. • Close the middle door.
7	• Activate the ignition process with touch-screen display;

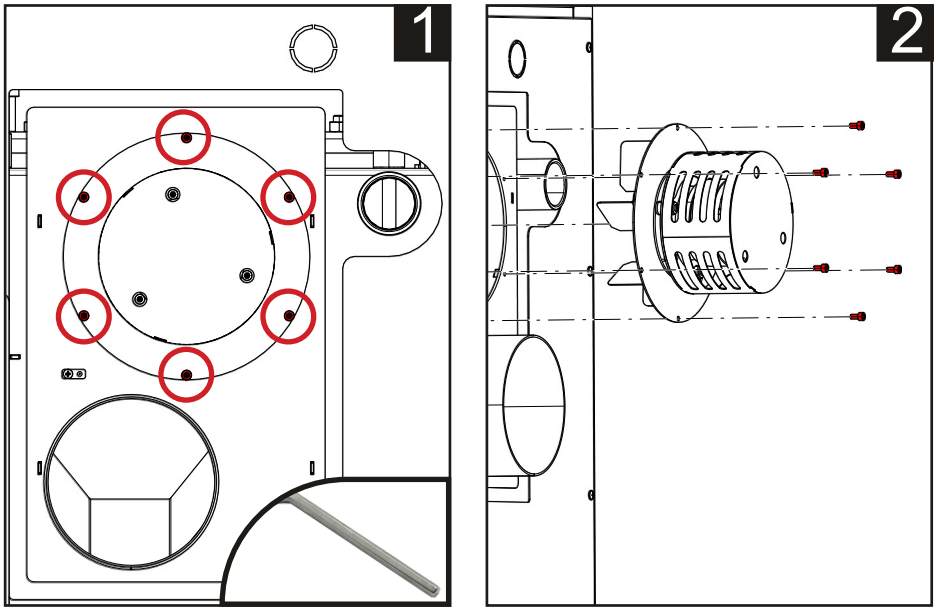
	**When the fire is ignited for a first time, a smell occurs as a result of the paint being heated. The firereplace is painted with heat-resistant paint, which achieves maximum resistance after being heated multiple times.**

7. Cleaning

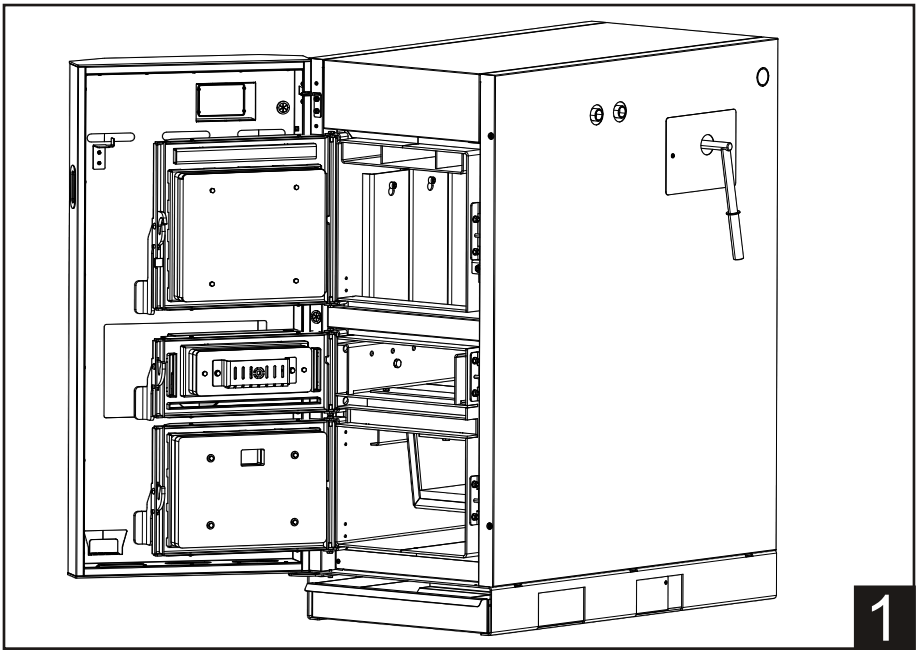
⚠	**Before any type of cleaning of the boiler be sure it is switched off and cooled down! Using protective gloves is obligatory.**

Ash remaining in boiler after solid fuel firing should be disposed into metal containers with a cover. As through the wood gasification principle the fuel burns out totally, the cleaning of the boiler is limited to the upper and lower combustion chamber once in a week and the cleaning of flue gas tubes on the back side of the boiler is necessary only after the heating season, i.e. min. once in one heating season. Cleaning the fan blade and fan box has to be performed when necessary.

COMBUSTION FAN CLEANING



Remove the combustion fan from the connection points by unscrewing the 6 socket head cap screw ISO 4762 M5 x 10 holding it in place.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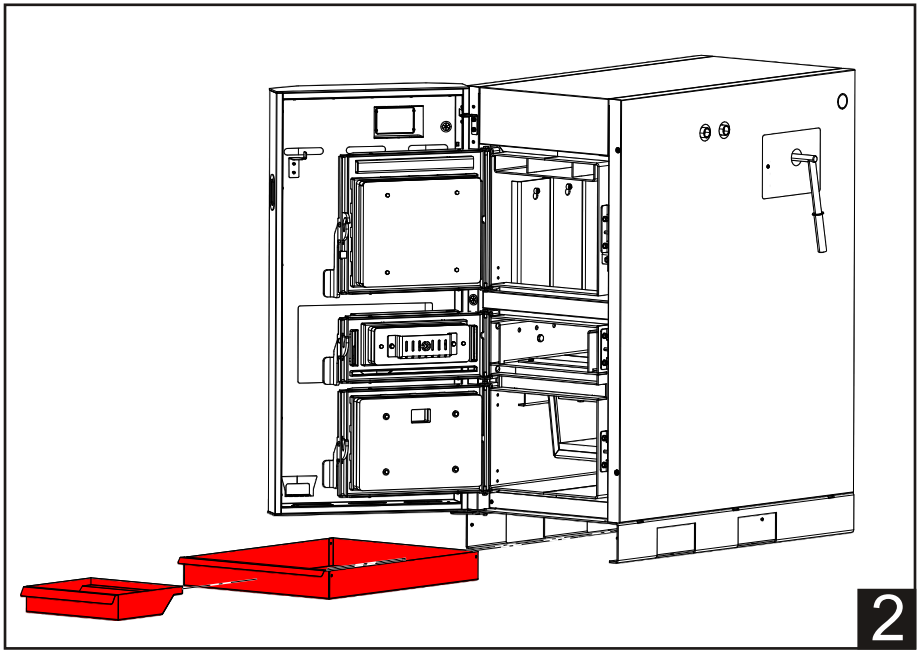
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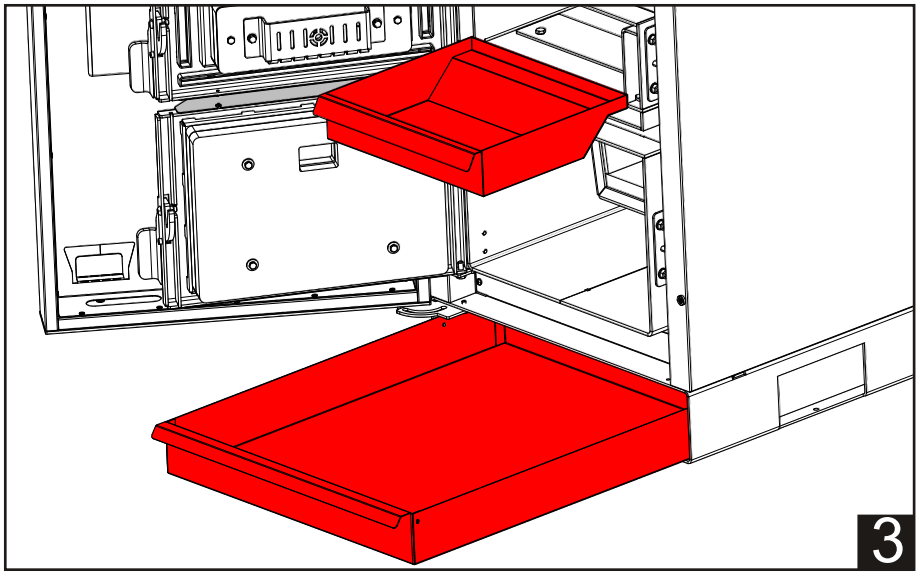
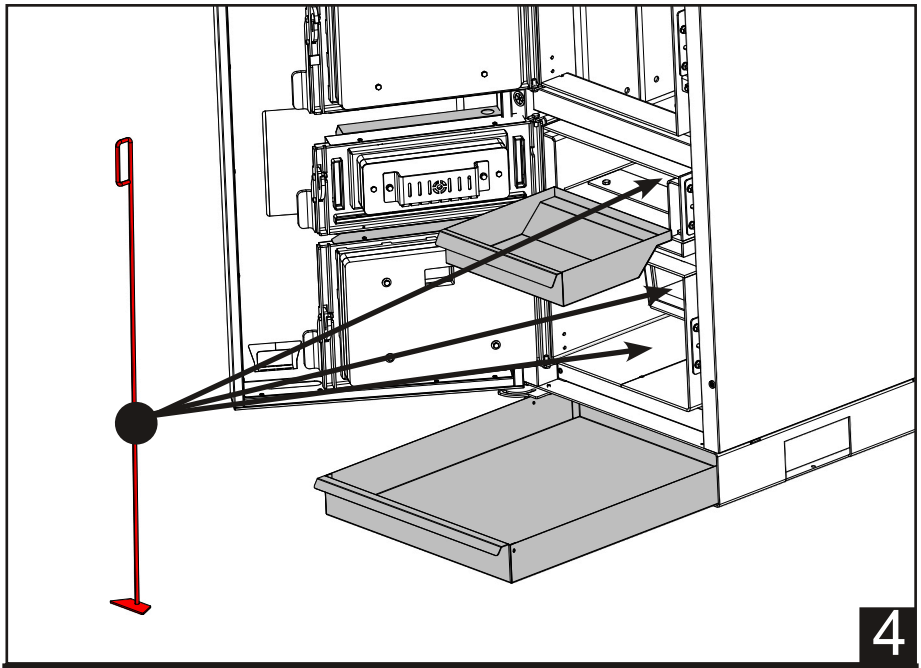
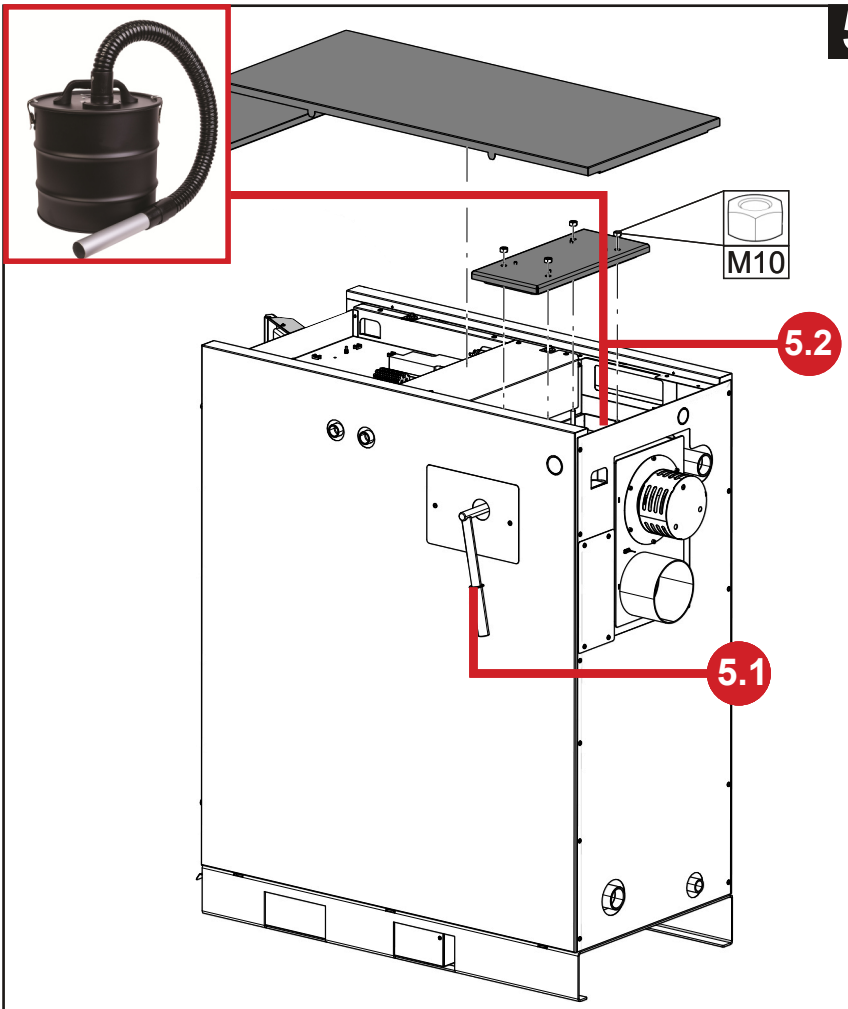




BEFORE EACH IGNITION

Before every ignition is necessary to clean the main combustion chamber from the ash. Use the special cleaning tool for this purpose.

5

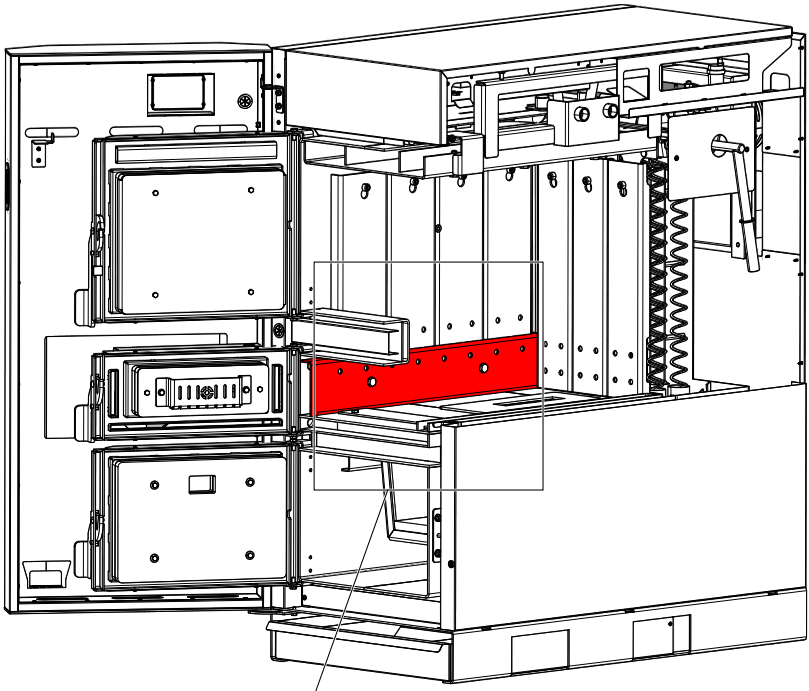


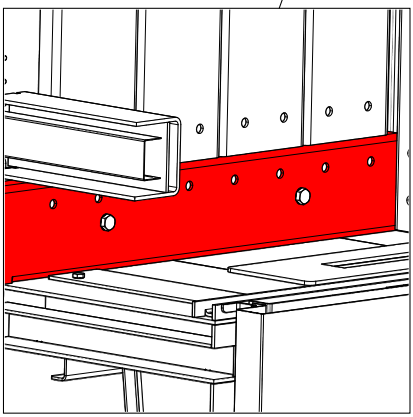
5.1 BEFORE REFILLING OF FUEL / BEFORE IGNITION

For flue gas tubes cleaning, it is necessary to pull lever left to right a few times.

5.2 AT LEAST ONCE PER YEAR

Cleaning of area over heat exchanger pipes with turbulators.
1 - Switch off the boiler and disconnect from power.
2 - Remove the top cover.
3 - Open the flue gas chamber by removing the 4 - M10 nuts.
4 - Use the metal vacuum cleaner to clean dust and ash in flue gas chamber.





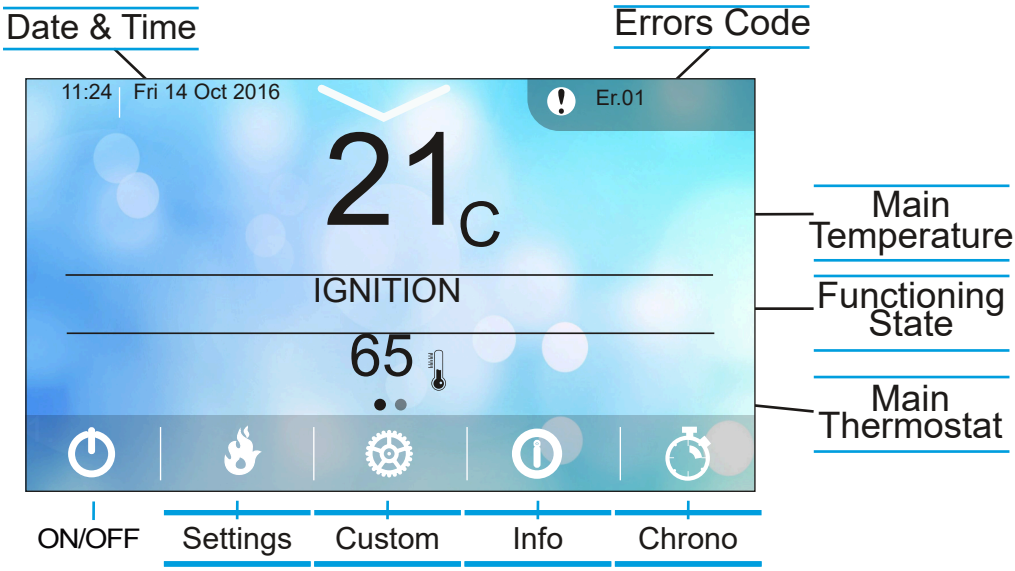
BEFORE EACH IGNITION

Before every ignition is necessary to inspect the primary air canals openings. They must always be clear of all residue. A small layer of ash and unburned coals inside the boiler, does not pose any issues.
On the contrary, if a small layer of ash is left after cleaning, it will protect the components in contact with the fire, as ash is an insulator.

6

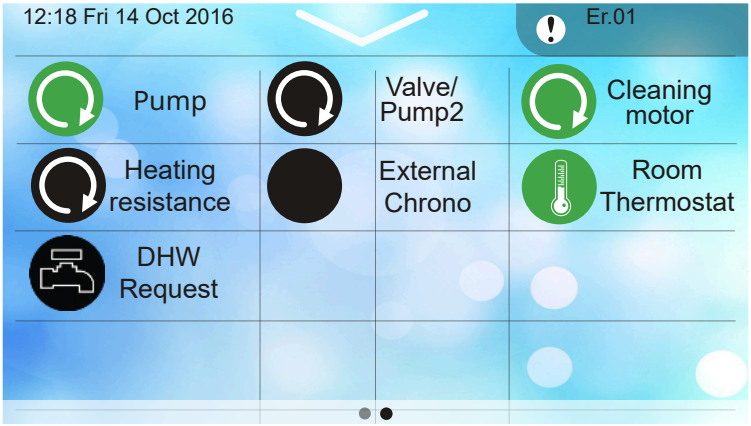
8. Operating with the display

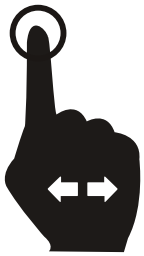
8.1 Home page



HOMEPAGE 1/3

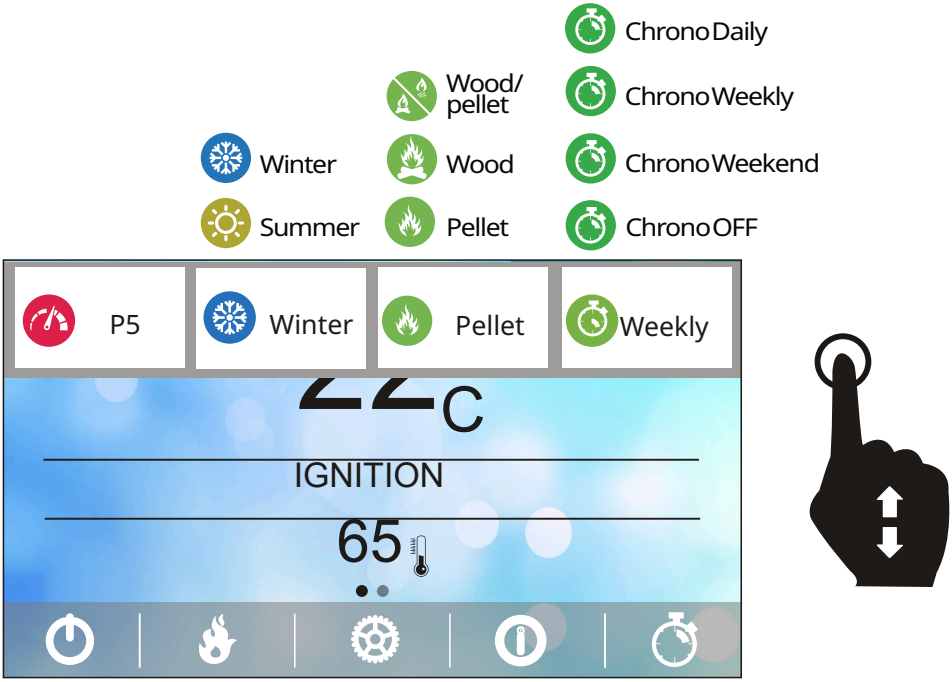
In order to go to Homepage 2 a horizontal swipe must be performed to the right side of the screen. Here you can see indication leds.





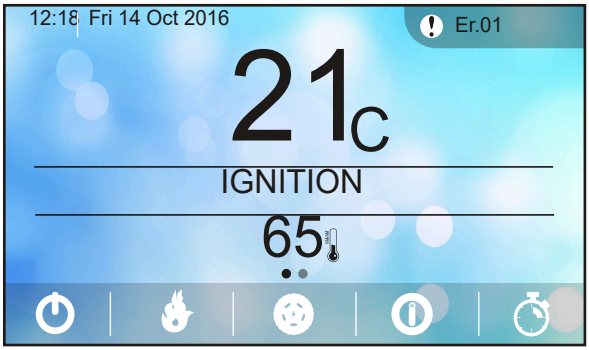
HOMEPAGE 2/3

The Quick visualisation of the system main function is accessed through a vertical swipe to the top side of the screen.

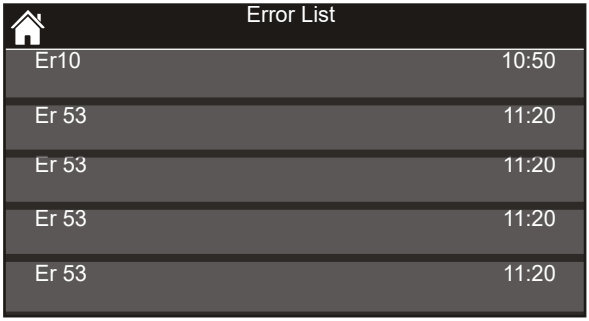


HOMEPAGE 3/3

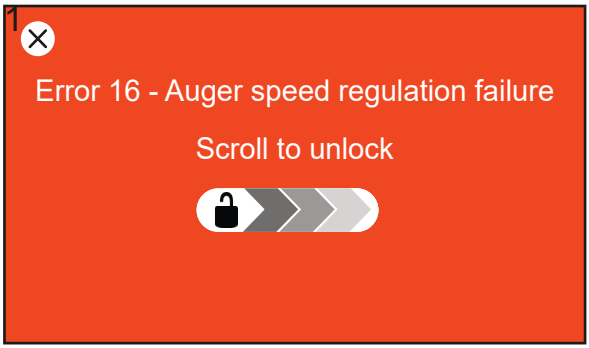
8.2 Error notifications



Blocking or non-blocking error is highlighted with a ! and the related error code. When pressed the error window opens

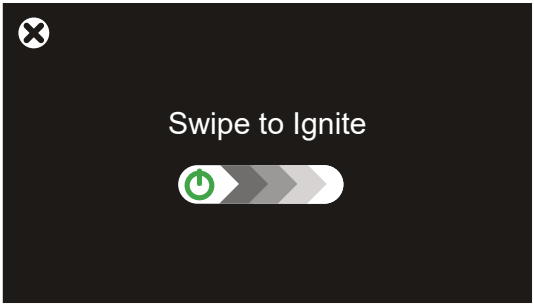


By clicking on (i) you can see the errors stored by date/time and description



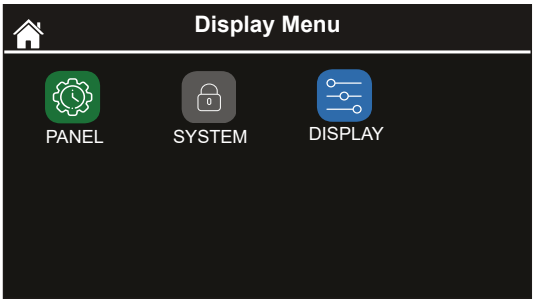
When this message is on screen this means that the product is in blocking mode and you can remove the error. You can do this by swiping to the right in the center of the screen.

8.3 Menus and submenus



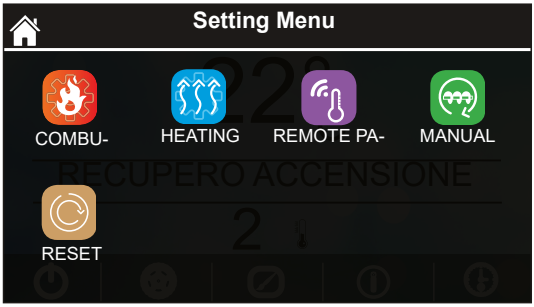
ON/OFF Menu

Screen image :
- System power ON
- System power OFF
- Alarms reset



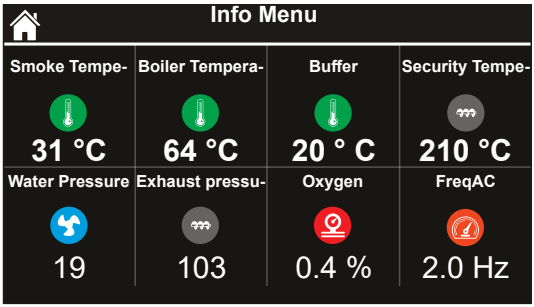
Display

In this screen you can view all the variables of the control panel.
Furthermore, it is possible to access the SYSTEM MENU which is reserved exclusively for technical personnel.



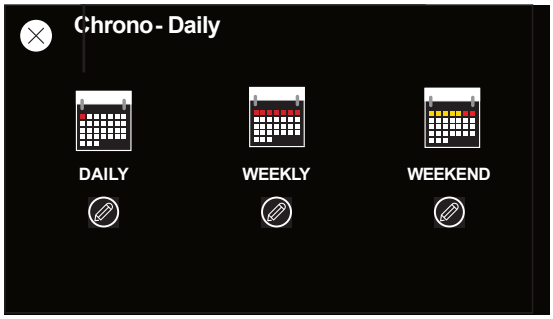
Settings

From this screen it is possible to view all the variables for the proper functioning of the heating system.



Info

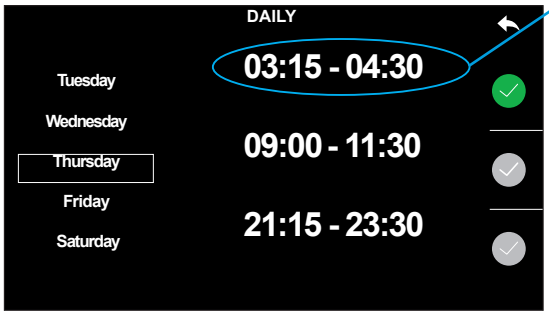
From this screen it is only possible to display the values of all inputs and outputs.



Chrono

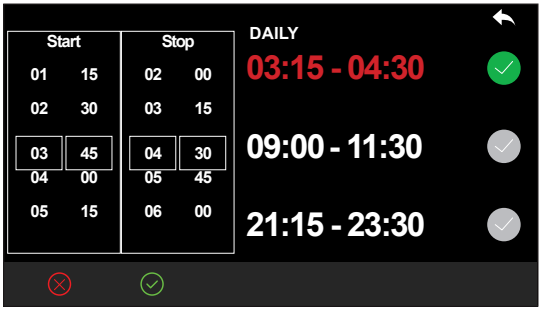
To select the desired CHRONO program, press on the respective tabs:
- Daily
- Weekly
- Weekend.

To change the chrono program, press on ✎. If the chrono function is disabled all the tabs are grey.



Click here to change the time band

To edit the time slots, press on the corresponding Frame Time.



Scroll Up or Down to change the System on/off Time.

Display menu options

	Brightness.
	Minimum brightness: the function allows you to choose the minimum brightness level which the device automatically sets to after 30 seconds of inactivity.
	Standby display: if enabled, this function will set the screen to standby after 1 minute of inactivity.
	Control panel address: password-protected menu used to set the control panel address. In mod-bus, the address reserved for the local control panel is 16. The address of the first remote control panel is 17 and subsequently the others according to the number provided by the system.
	Control panel reboot: this function allows the control panel to be restarted.
	Sound: this function allows the user to enable / disable the sounds emitted from the control panel.
	Delete error list: this password protected function (the same as in the technical menu) allows the user to delete the list of errors recorded by the control panel. The errors recorded are 64.
	Nodes list: this menu allows the user to view all the devices connected via Mod-bus with their related firmware and revision.
	Wallpaper: menu used to select wallpapers loaded in the device. 8 backgrounds are available.
	Control panel info: this menu allows the user to view the firmware and revisions that make up the control panel in detail.

9.Error codes and messages

Errors

Er03 - Low Exhaust flue gas temperature
Er04 - Water Over-temperature
Er05 - Exhaust flue gas Over-temperature
Er07 - Error Encoder. The error can occur for lack of Encoder signal
Er08 - Error Encoder. The error can occur for problems in the regulation of the number of revolutions
Er11 - Clock Error The error occurs for problems with the internal clock
Er12 - Extinguishing for Failed Ignition
Er15 - Extinguishing for lack of Voltage supply for more thanT89
Er16 - Communication Error RS485
Er22 - Lambda Regulation Failed
Er23 - Boiler Probe or DHW Probe or Boiler Supply/Return Probe or open Buffer tank Probes
Er44 - Open door error

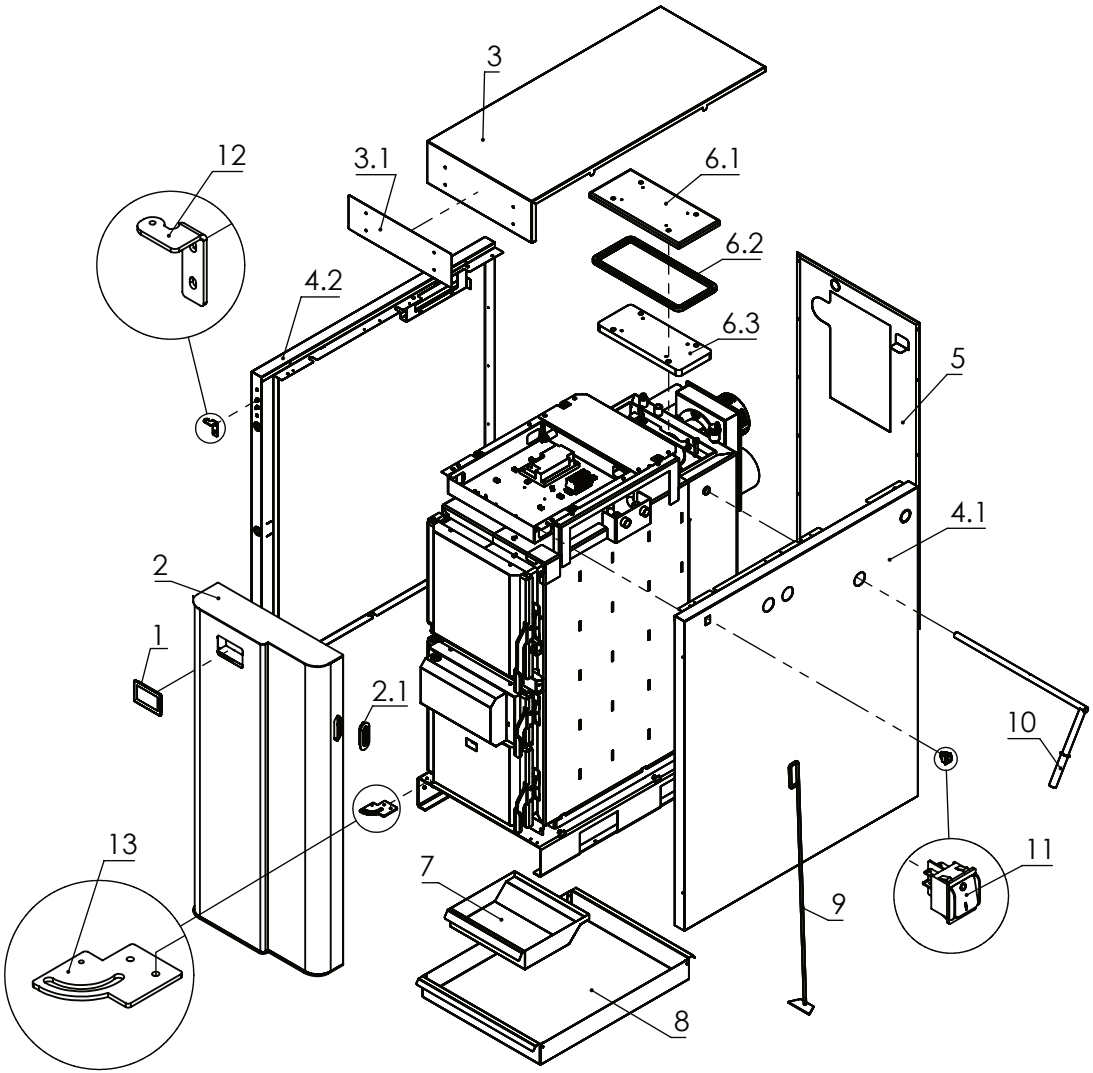
Errors Lambda

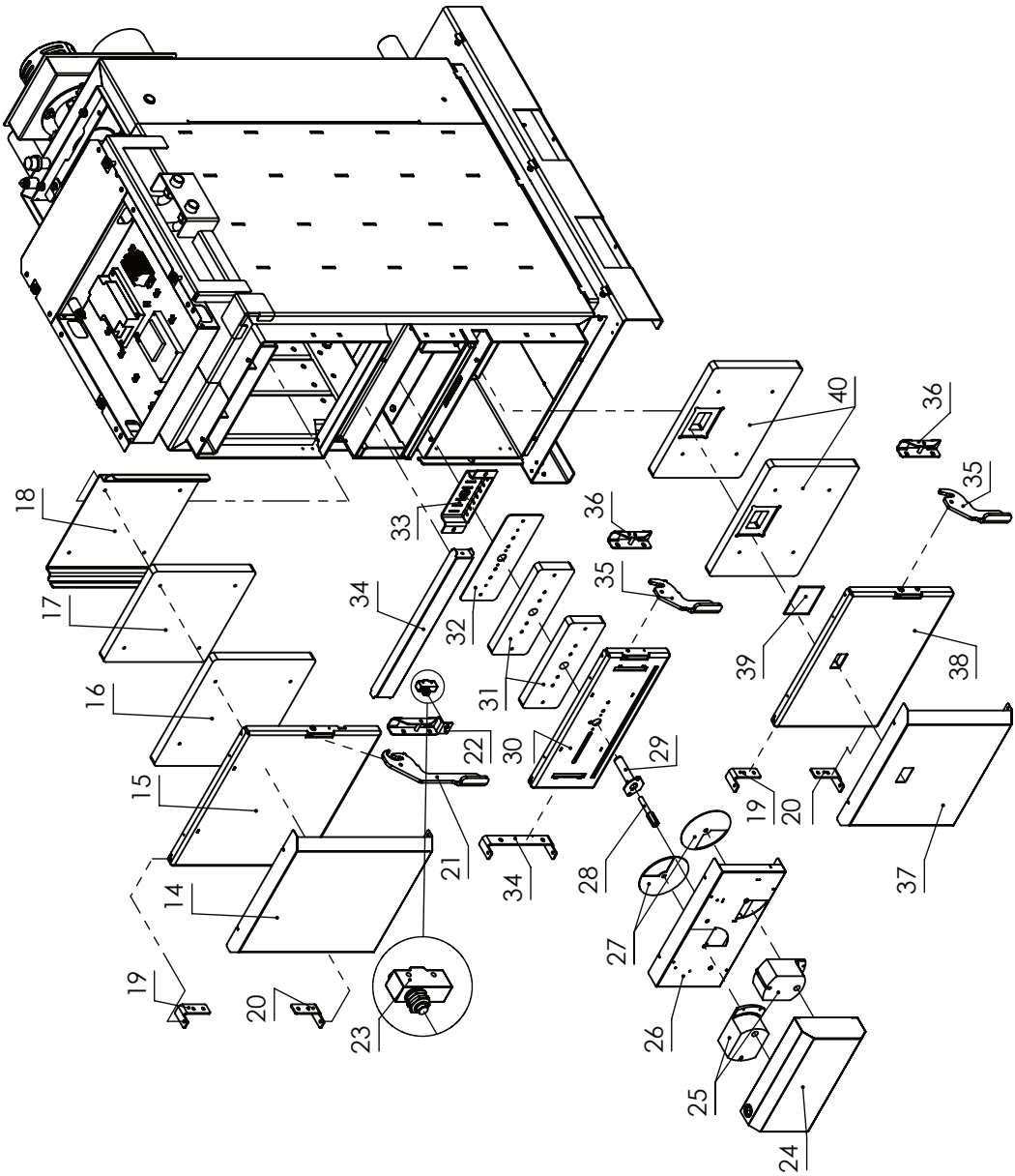
EL00 - Generic Error: switch off and on the control board
EL01 - Heating sensor ground short-circuited: Switch off the board and check the Lambda sensor connections. Replace the sensor.
EL02 - Heating sensor open: Switch off the board and check the Lambda sensor connections. Replace the sensor.
EL03 - Heating sensor short-circuited at +12V: Switch off the board and check the Lambda sensor connections. Replace the sensor.
EL04 - Lambda Sensor ground short-circuited: Switch off the board and check the Lambda sensor connections. Replace the sensor.
EL05 - Heating voltage supply too low: Disconnect Lambda Module from 230Vac and check all the fuses of the board. Check that the line voltage is 230Vac + / - 20%.
EL06 - Lambda Sensor voltage supply too low: Disconnect Lambda Module from 230Vac and check all the fuses of the board. Check if there are short-circuits in the board due to dirt. Check that the line voltage is 230Vac + / - 20%.
EL07 - Heating Sensor failure: Check that the sensor is heated. Switch off and on the board and verify a new heating procedure.
EL08 - Lambda Sensor over-temperature: The sensor should not be exposed to flames or exhaust flue gas over 700 ° C. Move the sensor or lower the temperature.

Messages

Probes - Visualization of the state of temperature probes. The message is displayed during Check Up phase and shows that the temperature detected by one or more probes is equal to minimum or maximum value (depending on the considered probe). Check that the probes aren't open (minimum value of the temperature scale). or in short-circuit (maximum value of the temperature scale).
Service - It notifies that the planned hours of functioning have been reached (parameter T66). Call the Licensed Technical Service Centre.
Cleaning - It notifies that the planned hours of functioning have been reached (parameter T67). The boiler needs to be cleaned.
Block - Message alternated to current state, it appears only if the system is turned off during Ignition (after Pre-load) by an external device: the system will stop only when it reaches the Run Mode.
Door - The door is open.
Night Mode - System in Night Mode.
Link Error - The Panel and the Control Board cannot communicate.
Transfer failed - The message is displayed if the transfer of a value of a modified parameter fails. Try again to modify the parameter.

10. Spare parts




18
17
16
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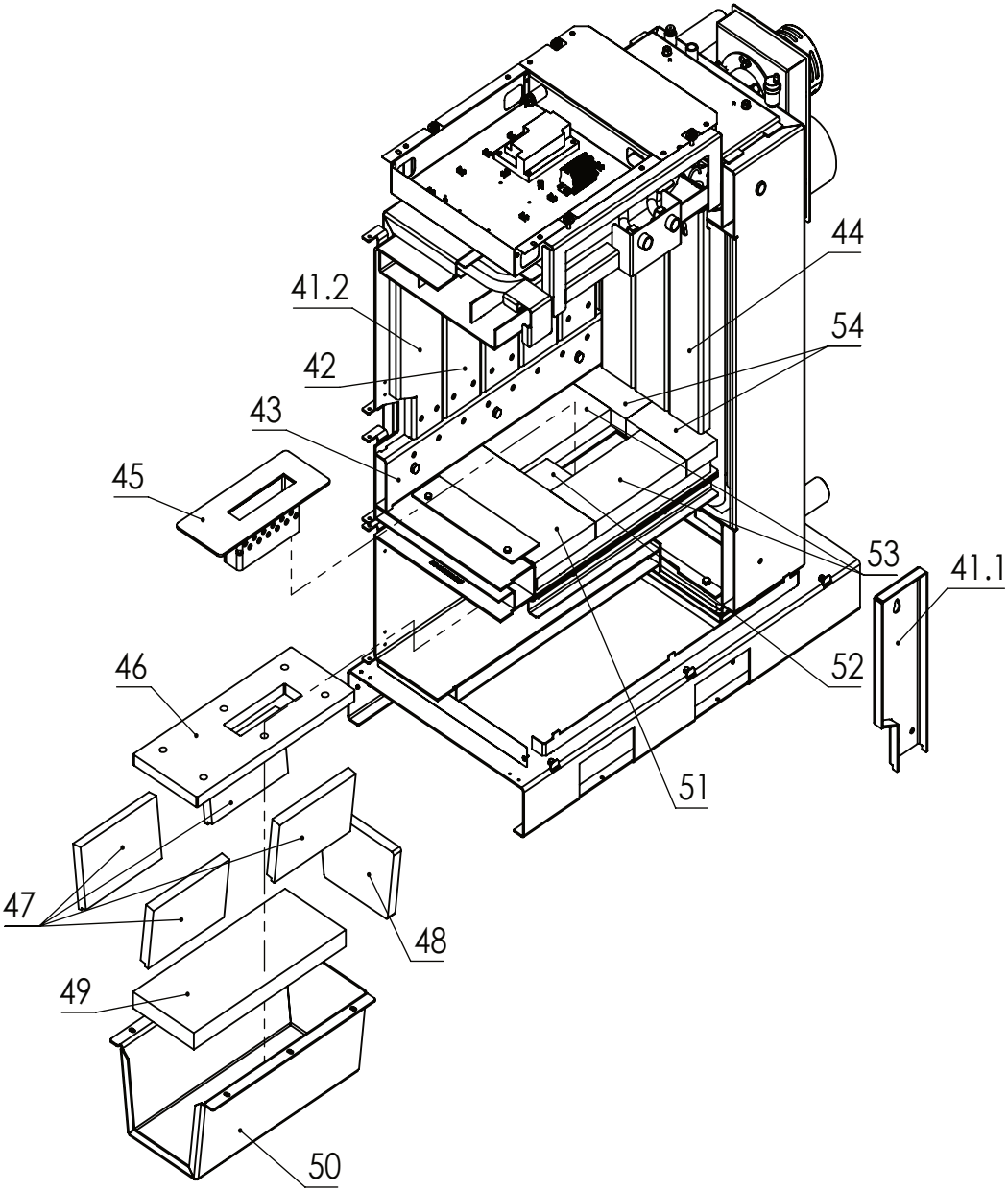
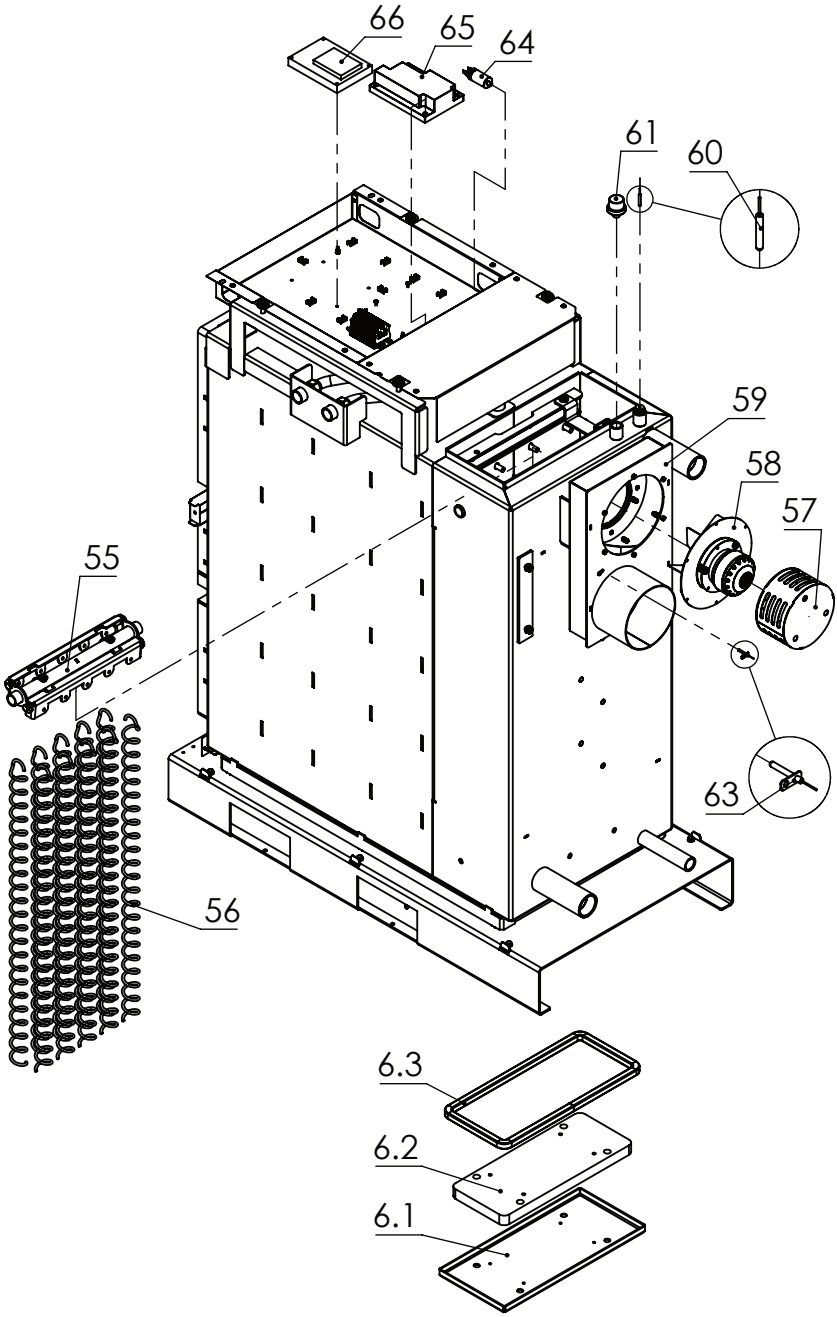

41.2
42
43
45
44
54
53
41.1
52
46
51
47
48
49
50

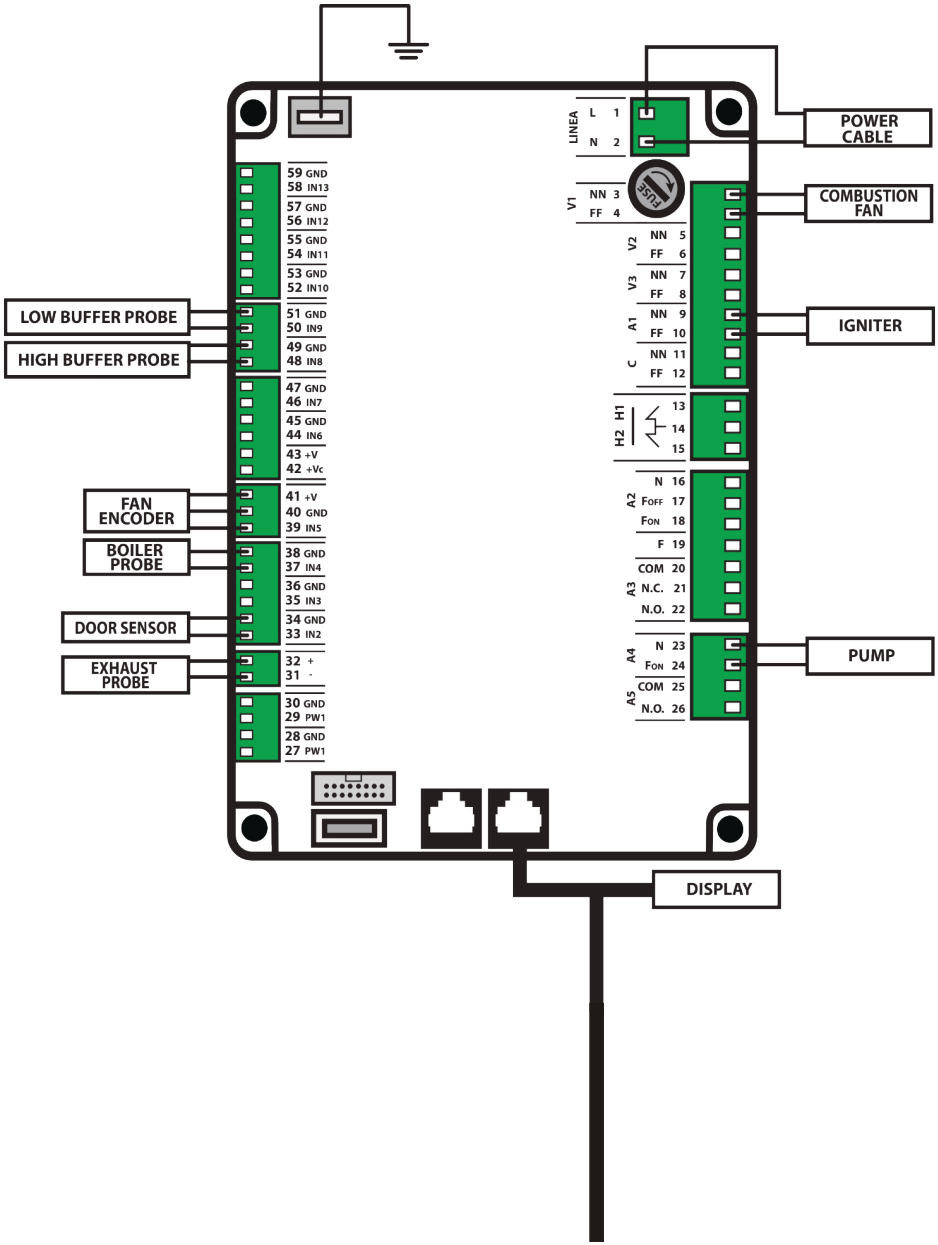

66
65
64
61
60
59
58
57
55
63
56
6.3
6.2
6.1

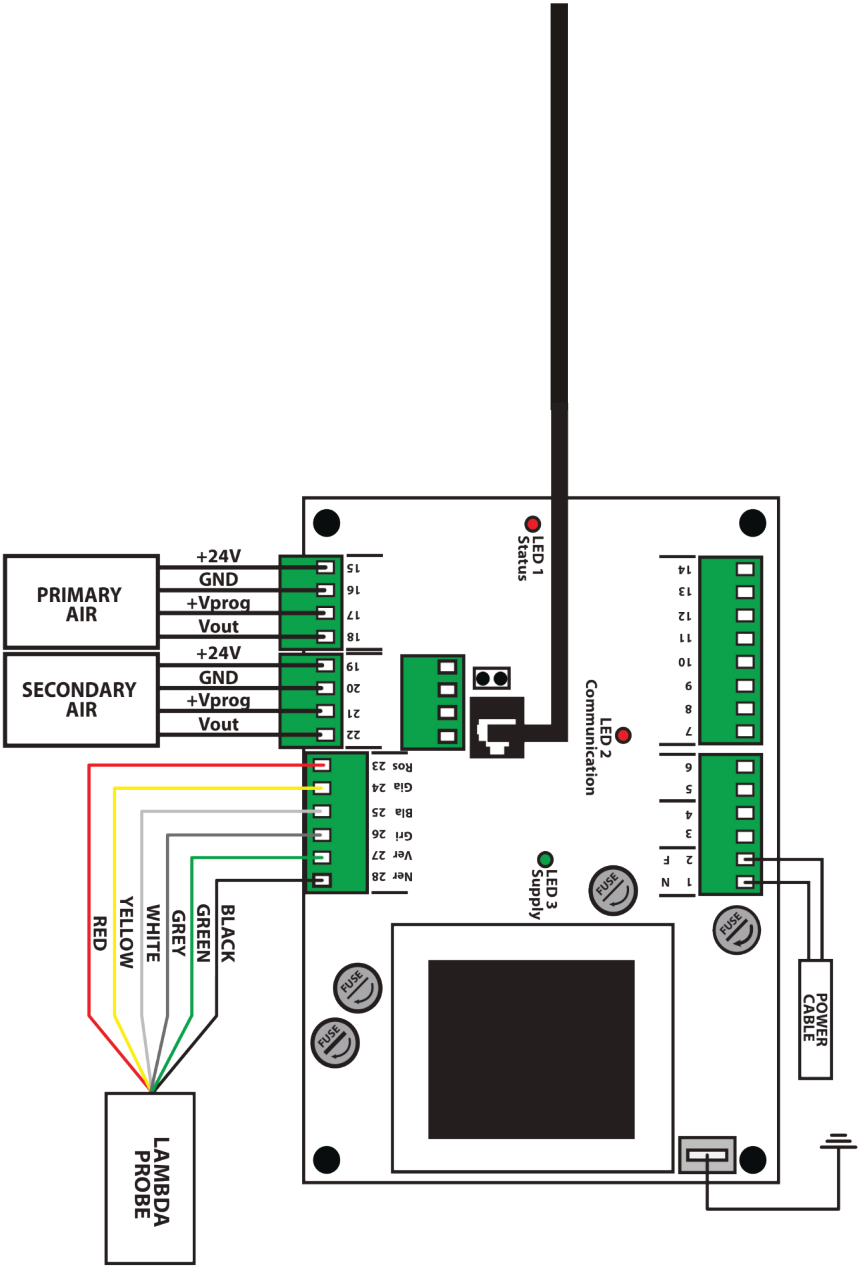
Pos.	Name
1	Display
2	Front door
2.1	Front door handle
3	Top decorative cover
3.1	Top decorative cover protective plate
4.1	Right side decorative cover
4.2	Left decorative cover
5	Back panel
6.1	Revision cover top/bottom
6.2	Insulation rope for top/bottom revision cover
6.3	Vermiculite for top revision cover
7	Loading chamber ash container
8	Main ash container
9	Cleaning tool
10	Leaver for manual cleaning mechanism of the turbolators
11	ON/OFF Switch
12	Upper hinge for front door
13	Lower hinge for front door
14	Decorative cover upper door
15	Upper door
16	Big vermiculite for upper door
17	Small vermiculite for upper door
18	Upper door holding plate for vermiculite
19	Upper/bottom door top hinge
20	Upper/bottom door bottom hinge
21	Upper door handle
22	Upper door locker
23	Door sensor
24	Decorative cover middle door
25	Primary and secondary air actuators
26	Holding plate for primary and secondary air actuators
27	Valve primary and secondary air (1 piece)
28	Ceramic igniter
29	Ceramic igniter pipe
30	Middle door
30.1	Middle door hinge
31	Vermiculite middle door (1 piece)

Pos.	Name
32	Middle door holding plate for vermiculite
33	Pellet container for automatic ignition
34	Middle front decorative cover
35	Hadle for middle/bottom door
36	Locker for middle/bottom door
37	Decorative cover bottom door
38	Bottom door
39	Bottom door glass
40	Vermiculite bottom door (1 piece)
41.1	Front right side loading chamber exhaust gas channel
41.2	Front left side loading chamber exhaust gas channel
42	Side vertical loading chamber exhaust gas channel
43	Side horizontal loading chamber exhaust gas channel
44	Back loading chamber exhaust gas channel
45	Combustion pot
46	Top vermiculite combustion chamber
47	Side vermiculite combustion chamber (1 piece)
48	Back vermiculite combustion chamber
49	Bottom fire resistant brick for combustion chamber
50	Combustion chamber
51	Bottom front fire resistant brick for loading chamber
52	Vermiculite for burning channel
53	Bottom side fire resistant brick for loading chamber
54	Bottom back fire resistant brick for loading chamber
55	Turbolator holder
56	Turbolator (1 piece)
57	Combustion fan metal protector
58	Combustion fan
59	Combustion fan housing
60	Boiler water temperature sensor
62	Air vent valve
63	Flue gas sensor
64	Combustion fan Capacitor
65	Main control-board
66	Lambda control-board

Using original spare parts provided only by the manufacturer or authorized dealer is obligatory! Self repair or using non-original parts may lead to malfunction or injury.

11. Control board wiring diagram




PRIMARY AIR
+24V
GND
+Vprog
Vout
SECONDARY AIR
+24V
GND
+Vprog
Vout
LED 1 Status
LED 2 Communication
LED 3 Supply
FUSE
POWER CABLE
LAMBDA PROBE
RED
YELLOW
WHITE
GREY
GREEN
BLACK

12. Storage and disposal

12.1 Disposal of package

The package of the appliance consist of wood, cardboard and plastic wrap. They should be separated and disposed according to local regulations.

12.2 Not used for idle periods

If the boiler is not used for a long periods (and/or at the end of each season), proceed as follows:

- Disconnect the power supply.
- Clean following the procedures in this manual and check for damaged parts. Get them replaced by a qualified personnel.
- Protect the boiler from dust with suitable covering.
- Store in dry and sage place protected from atmospheric agents.

12.3 Disposal of the appliance

Follow the operations below for boiler decommissioning:

- Disconnect the boiler from the power supply and unplug it from the socket.
- Empty any left fuel and ash.
- Seal the boiler inside strong packing.
- Dispose of the boiler as required by the regulations in force in the country of installation.

Scrapping and disposal of the appliance are the sole responsibility of the owner, who must act in compliance with the applicable laws in the country, regarding safety, respect and protection of the environment. At the end of its useful life the product must not be disposed of together with municipal waste. It can be taken ti the appropriate recycling centres set up by the municipalities, or to retailers that provide this service. Disposing of the product separately avoids possible negative consequences for the environment.
In particular, the electrical and electronic components must be separated and disposed of at centres authorized for this activity.

This symbol means the product must not be disposed together with domestic waste. For the purpose of preventing damage to health or the environment, users are kindly asked to separate this equipment and/or batteries or accumulators included from other types of waste and to arrange for disposal by a suitable service, organization or dealer. For more information about how to collect electric and electronic equipment and the appliances, batteries and accumulators, please contact your local council or public authority competent to issue the relevant permit.

Mareli Systems

STEP FORWARD

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