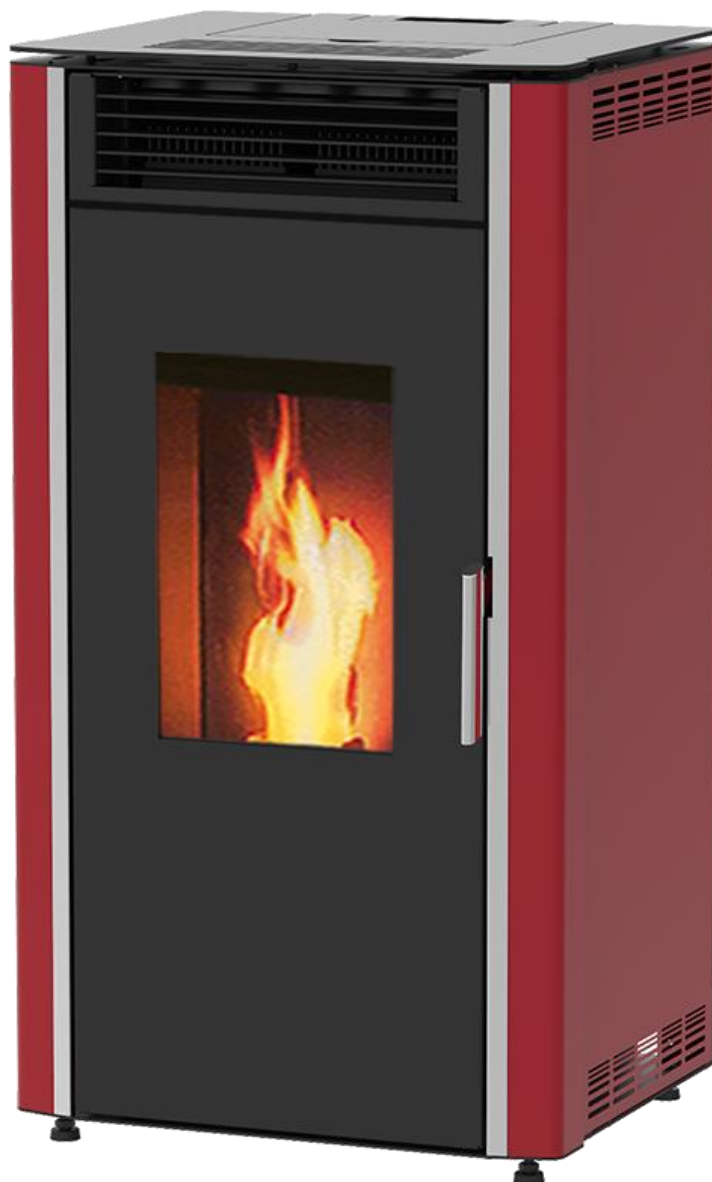


PELLET STOVE „LUCA 12”



INSTRUCTIONS FOR USE AND MAINTENANCE OF LUCA 12



This product meets the requirements of the Ecodesign Directive in terms of efficiency and air pollution level, in order to contribute to the reduction of energy consumption and negative environmental impact.

Contents

1. Introduction	1
1.1 Product serial no.	1
1.2 Materials	1
1.3 Certification	1
1.4 Dimensional features:	2
1.5 Technical features of the product	2
1.6 Fuel properties	2
1.7 Safety recommendations	3
1.8 General Recommendations	4
1.9 Safety devices	4
1.10 Surrounding area for using the product	4
2. Installation	5
2.1 Positioning the appliance	5
2.2 Stovepipe properties	6
2.2.1 Smoke exhaust to the outer wall	7
2.2.2 Draining smoke to the roof through a traditional funnel	7
2.3 Dismantling and waste disposal	8
2.4 Electrical connections	8
2.5 Room temperature gauge	8
3. Using the Product	8
3.1 The necessary checks and controls for the first ignition	8
3.2 Loading the fuel	9
4. Control System of the Furnace	9
4.1 Electrical connection scheme	10
4.2 The control panel (display): use and features	10
4.2.1 K100 display	10
4.2.2 Alarms	11
4.2.3 Other messages	11
4.2.4 Visualizations	11
4.3 User menu 1	11
4.3.1 Chrono	12
4.4 User Menu 2	13
4.5 Turning the furnace on and the state function	14
4.5.1 Check Up	14
4.5.2 Ignition	14
4.5.3 Stabilization	14
4.5.4 Normal – Run Mode	14
4.5.5 Modulation	15
4.5.6 Safety	15
4.5.7 Extinguishing	15
4.5.8 OFF	15
4.5.9 Block	15
4.5.10 Ignition Recovery	15
4.6 Other functions	15
4.6.1 Management of the absence of power	15
4.6.2 Management of pellet loading calibration	15
4.6.3 Management of flue gas engine correction	15
4.6.4 Safety thermostat	15
4.6.5 Periodic cleaning of the furnace	16
4.6.6 Shutting down during the ignition phase	16
4.7 Possible problems and solutions (Troubleshooting)	16
5. MAINTENANCE OF THE FURNACE	18
5.1 Routine maintenance	18
5.1.1 CLEANING THE DISPLAY AND PARTS OF EXTERNAL INSULATION	18
5.1.2 CLEANING THE CERAMIC GLASS	18
5.1.3 ROUTINE MAINTENANCE, TYPE 1 ACTIVITY	18
5.2 Special maintenance	21
5.2.1 SPECIAL MAINTENANCE TYPE 2 ACTIVITIES	21
5.2.2 CLEANING THE EXHAUST DUCT	22
5.3 Putting the furnace out of use	22

1. Introduction

Firstly, we would like to take this opportunity to thank you for purchasing this ALFA PLAM product.

We have prepared this short user guide for you in order to make the use of our products much easier.

Special technical problems referred to herein should be inspected by the persons involved in the installation, assembly and commissioning of the product to ensure that operations are carried out as accurately as possible.

This booklet about assembly, use and maintenance must be read carefully before assembly and use of the product. It should be considered an integral part of the product and must be kept in a safe place.

Procedures for assembly, connecting, inspections, maintenance and repairs must be carried out by qualified personnel.

It is recommended that the first ignition or, rather, commissioning, is performed by qualified personnel.

Do not use any flammable liquids for the ignition process.

This product should not be used by persons with reduced physical, sensory and mental abilities or lack of experience and skills (including children), unless they are supervised and given instructions by someone who can guarantee their safety.

Children must always be supervised by an adult in order to protect them from accidental contact with hot surfaces of the furnace, and to prevent them from using or touching the furnace settings.

Please call your dealer in order to obtain additional information that you need which is not included in this user guide.

The following symbols are used in this user guide:

⚠ ATTENTION: Safety warning

PROHIBITED: Prohibited action

INFORMATION: Important information.

Alfa Plam bears no responsibility or liability for any direct or indirect personal injury or property damage arising from non-compliance with the indications given and highlighted in this user guide.

1.1 Product serial no.

Product serial number can be found on the label affixed to the back of the appliance as well as on the cover of this user guide.

Product serial number will be required every time the user requests auxiliary services.

1.2 Materials

ALFA PLAM products often use materials that have the following properties:

- **Very thick sheets** that provide a solid structure of the appliance;
- For specific models the company uses **very thick majolica and cast iron materials** to give the product a unique design and elegant finish;

Before they are painted at high temperature, **metal parts** are exposed to the phosphate treatment to bring the painting process to the best level and to improve the end product;

Seals which provide hermetic sealing of the combustion chamber must be checked periodically to prevent the improper burning, which can occur due to excessive wear of seals;

Glass and ceramic elements for the combustion chamber door. For more details regarding cleaning procedures, see the section on maintenance.

1.3 Certification

This product respects the EN 14785 standard on wood pellet heating appliances in residential areas. Also abide by the laws implemented by the following European directives:

- 2004/108/EC (Electromagnetic Compatibility Directive);
- 2006/95/EC (Low Voltage Directive);
- 89/106/EEC (Construction Products Directive);

15a B-VG

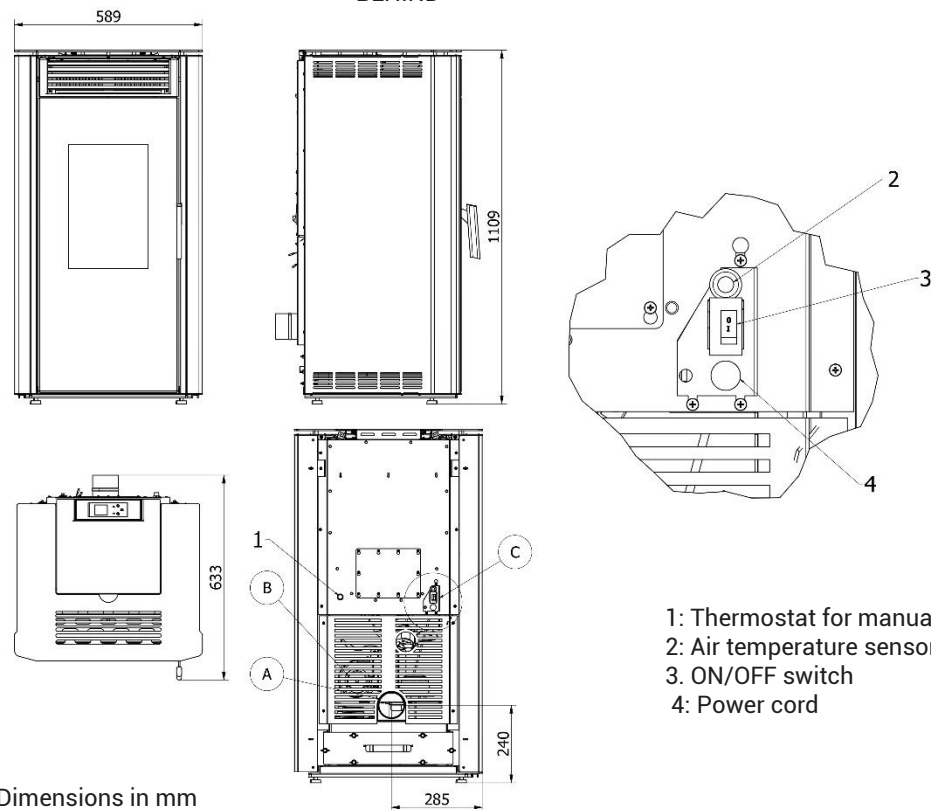


- Certification issued in Switzerland

1.4 Dimensional features:

FRONT

BEHIND



Dimensions in mm

- A: The flue gas pipe diameter \varnothing 80
- B: Air intake \varnothing 50 cm
- C: Electric connections

1.5 Technical features of the product

Product: LUCA 12			
	Unit of measure	Maximum	Minimum
Thermal power	kW	12.9	2.7
Heating power	kW	11.8	2.6
CO emission (per 13% of oxygen)	%	0.015	0.030
Efficiency	%	91	95.1
Nominal electrical power	W	420	
Nominal voltage	V	230	
Nominal frequency	Hz	50	
Fuel		Wood pellet	
Fuel consumption per hour	kg/h	2.7	0.9
The flow of gas masses	g/s	9.0	3.3
Combustion gas temperature	$^{\circ}\text{C}$	128	57
Minimum withdrawal pressure	Pa	12.0	12.0
Tank capacity	kg	28	
Autonomy	h	10,3	31,1
Energy required for operation	W	90	
Discharge of flue gases	mm	\varnothing 80	
Combustion air intake	mm	\varnothing 50	
Net weight	kg	158	
Heating volume*	m ³	337	

* The values are calculated in accordance to law 10/91 for households with a thermal requirements of 35 W/m³ and a height of 3 m.

1.6 Fuel properties

The furnace is first characterized by the fact that it burns natural fuel (wood pellets), which is environmentally derived from the wood industry waste (chips/sawdust). Once shavings and sawdust are properly cleaned and dried, which arise in the wood processing procedures, they are compressed under extremely high pressure to produce small cylinders of pure wood: pellets. Each tiny cylinder may vary in length and width from 1 to 3 cm in length and from 6 to 8 mm in radius.

Wood pellets are primarily characterized by low humidity (below 12%) and high density (= 600 kg/m³), as well as their uniformity and compactness, providing this type of fuel with high calorific value features (DTV 4100–5000 kcal/kg).



Wood pellets which are used as fuel for this furnace must have excellent quality characteristics, such as, for example, those defined by the following standards: DIN 51731, ÖNORM M 7135 and EN plus A1, with basic numeric items listed below

⚠ ATTENTION: As is required by the relevant European laws governing the characteristics of commercial fuels, pellets must be manufactured exclusively using shavings of unprocessed wood without added matter.

Using any liquid or solid fuel except wood pellets is strictly prohibited.

⚠ ATTENTION: In order to bring furnace operation to the highest level, the use of wood pellets certified by an accredited body is recommended. Using other types of pellets compared to those specified by the manufacturer can lead to failure of the furnace and may void the warranty.

Quality standards for wood pellets	Unit of measure	ÖNORM M 7135	DIN 51731	DIN plus	EN plus A1
Diameter	mm	from 4 to 10	from 4 to 10	from 4 to 10	6 ± 1
Length	mm	5 x P ¹	< 50	5 x P ¹	3,75<D<40 ³
Density	Kg/dm ³	> 1.12	1.0 – 1.4	> 1.12	>0.6 (average mass volume)*
Humidity	%	< 10	< 12	< 10	< 10
Ash	%	< 0.50	< 1.50	< 0.50	< 0.50
Thermal power	kWh/kg	> 5	4.86 – 5.42	> 5	> 4.5
Sulfur	%	< 0.04	< 0.08	< 0.04	< 0.05
Nitrogen	%	< 0.3	< 0.3	< 0.3	< 0.3
Chlorine	%	< 0.02	< 0.03	< 0.02	< 0.02
Dust	% weight	< 2.3	-	< 2.3	< 1
Binders	% pressed mass	< 2	²	< 2	

¹ A maximum of 20% of pellets may have a length 7.5 times larger than the diameter D

² DIN prohibits the use of any added substances. However, this prohibition does not apply to small heating systems.

³Up to 5% of pellets may have a length greater than 40 mm, and a maximum of 45 mm.

⚠ ATTENTION: If the appliance is not used for a sufficiently long period of time (more than two weeks), all remaining pellets should be removed from the tank to prevent it from becoming too wet as this can lead to failure of the product.

Storage and handling of wood pellets are important tasks which must be done carefully.

- Fuel must be stored in a dry and warm place.
- Pellets must be handled as to prevent too many crushed pellets that become fine powder.

Compliance with these two simple rules will allow better combustion efficiency and will even help maintain proper operation of moving mechanical parts of the appliance.

1.7 Safety recommendations

⚠ ATTENTION: Carefully read the attached user guide with the instructions before installing.

⚠ ATTENTION: The firebox must be empty before the appliance is turned on in case of any difficulty when turning the device on.

It is strictly prohibited to use any other type of solid or liquid fuel except wood pellets with a radius of 6 mm for which the furnace is designed. Avoid using wet or crushed pellets.

In order to bring furnace operation to the highest level, the use of wood pellets certified by an accredited body is recommended. Using other types of pellets compared to those specified by the manufacturer can lead to failure of the furnace and may void the warranty.

When putting the pellets into the furnace make sure they don't fall into other internal parts of the product expect into the proper container.

⚠ ATTENTION: If you can't turn the furnace on you will have to empty the combustion chamber. Not following this procedure may cause excessively strong burning that can lead to creating significant amounts of smoke.

⚠ ATTENTION: Do not open the door or turn off the electrical cable during the ignition phase or during shutting down, or while the furnace is running, even if the combustion chamber is blocked or overloaded; start the process of turning it off and wait for the furnace to complete operating phases before solving the problem. Do not attempt to turn on the furnace again until the problem is solved.

⚠ ATTENTION: Do not disturb the shutdown procedure of the furnace (for example, by turning off the power cord) until it is completed.

⚠ ATTENTION: If the wood pellets accumulate in the combustion chamber when the appliance is operation, immediately turn off the appliance and turn it on again using the greater ventilation program. If the pellets continue to accumulate, try using other types of wood pellets or call the helpline.

⚠ ATTENTION: Never manually put the pellets into the combustion chamber.

⚠ ATTENTION: In order to prevent possible accidents, always follow the instructions for proper use contained in this user guide for the appliance and its electrical components.

⚠ ATTENTION: Installation procedures, connecting inspections, maintenance and repairs may be carried out by qualified personnel.

⚠ ATTENTION: The product must be installed in full respect of the applicable legal standards.

⚠ ATTENTION: Always follow the safety recommendations and standards indicated by this user guide.

⚠ ATTENTION: Anyone who performs interventions on the product must first read and fully understand the contents of this user guide and fully know the dashboard of the product.

⚠ ATTENTION: The product can be used, modified, or programmed by adults only. Incorrect or arbitrary settings can lead to dangerous situations and faults.

⚠ ATTENTION: ALFA PLAM bears no civil or criminal liability for damages in the event that the product is subjected to unauthorized repairs or replacement of parts.

⚠ ATTENTION: While in the product is running some of its surfaces can reach extremely high temperatures.

That's why it is recommended to the user to take all the necessary precautions, particularly when children or elderly or disabled people are present.

⚠ ATTENTION: Do not block or clogs the hot air drain in any way. Do not cover the product with cloth or other similar materials.

⚠ ATTENTION: In order to avoid accidental tipping over of the appliance, never lean or place too much weight on the open door during the cleaning process.

It is recommended to avoid these kinds of pressures and to take all the necessary precautions, particularly when children or elderly or disabled people are present.

1.8 General Recommendations

⚠ ATTENTION: Never use the product for purposes other than those for which it is designed and manufactured.

⚠ ATTENTION: The product must not be used for cooking.

⚠ ATTENTION: The product should not be used in the event of any fault or failure. In these cases, immediately turn off the power cord of the product from the wall socket.

NEVER leave the door open while the product is running.

Stovepipes must be checked regularly.

NEVER use steam to clean the product.

Always consult qualified and authorized personnel for any service interventions that may be necessary. Use only original spare parts for replacement of broken parts.

Fuel can only be loaded into the burner through automated loading, and not directly by the user.

⚠ ATTENTION: In case of "unsuccessful ignition", all pellets deposited in the combustion chamber must be removed before one tries to re-ignite the furnace. Pellets that are removed from the combustion chamber should never be returned to the tank.

This user guide must be considered an integral part of the product and must be used during its entire service life. It must be stored in a safe place. In case the user guide is lost or damaged, a replacement copy can be obtained from the dealer.

1.9 Safety devices

The product is equipped with the following safety devices:

- **A thermostat for determining the temperature of the tank:** this device shuts down operation of the product each time it exceeds the set safety limit;

- **Meter for determining the smoke temperature:** this element determines the smoke temperature and continually monitors the proper functioning of the product;

- **Pressure switch:** this element determines whether there is a clogging in the pipe;

- **Thermometer for the environment:** this element constantly monitors the temperature of the room where the furnace is located;

- **Operation modulation mode:** if the flue gas temperature exceeds the set safety threshold, the appliance will automatically reduce the amount of pellets for burning until the temperature drops below the set limit.

Incorrect parameter settings can lead to exceeding of the safety limits and can lead to excessive consumption of pellets. The safety limits can also be exceeded due to poor ventilation of the room in which the furnace is located, which does not provide the appliance with enough cold air.

Disabling the safety devices is PROHIBITED. When the user eliminates the cause of activation of the security system, the appliance can be restarted in order to restore its proper functioning.

⚠ ATTENTION: The appliance must be installed in such a way so that its electrical cable is easily accessible.

Note: The safety section is made up taking into account the normal conditions of use of the product described and specified in chapter 3. ALFA PLAM bears no responsibility for any personal injury or property damage that may occur if the furnace is not used in accordance with the conditions listed in this user guide. ALFA PLAM also bears no responsibility for any personal injury or property damage that may occur if the user fails to comply with the following regulations:

A) All the necessary measures and precautions must be taken to ensure that no party turns on the equipment while carrying out repairs, adjustments, replacement of parts and maintenance operations;

B) Do not remove or modify any safety devices on the appliance;

C) The appliance must be connected to the system for smoke removal which is functioning properly;

D) Make sure that the surrounding area in which the furnace is set is sufficiently ventilated, as prescribed in this user guide.

1.10 Surrounding area for using the product

⚠ ATTENTION: The appliance must be installed in a surrounding area with ventilation, and it must be provided with sufficient air combustion in accordance with the applicable regulations. This is important for ensuring its proper operation.

⚠ ATTENTION: The room must have a volume not less than 20 m³ and must possess all the necessary ventilation conditions, as described in Chapter 2 of this user guide. These conditions will provide the necessary air flow to allow for proper combustion (40 m³/h).

Using the product in the bedrooms and bathrooms is **PROHIBITED**.

Using the product in spaces with another heating appliance which does not have its own system for air intake is **PROHIBITED**.

Placing the product close to flammable materials is **PROHIBITED**.

Placing the product on the floor made of flammable material unless a protective plate is used made of non-flammable materials is **PROHIBITED**.

Using the product in explosive and potentially explosive atmospheres is **PROHIBITED**.

2. Installation

You must comply with all local and national laws and European standards when installing, using and maintaining the appliance.

2.1 Positioning the appliance

Our product creates heat by bringing the necessary air in for the combustion process directly from the environment which needs to be warmed up.

For this reason and because of the basic safety of the users of the furnace, the appliance should always be installed inside an adequately aired out area to ensure a constant flow of combustion air.

Therefore, it is necessary to place the air intake vents that are connected to the air outside (as shown in Figure 2.1)

In accordance with the provisions set forth in the UNI 10683 standard, air intake vents must have the following characteristics:

1. They must not have an internal cross-section of less than 80 cm²;
2. They must be placed at an approximate height of the floor;
3. They must be adequately protected by wire mesh or grate so that the minimum radius condition for air flow is not diminished;
4. They must be placed so as not to be blocked in any way.

Correct flow of fresh air can also be ensured by using the opening to the next room, if that room comes equipped with direct ventilation and does not pose a risk of fire, such as a warehouse, garage or storage, as set forth by the UNI10683 standard.

It is recommended that you avoid placing a heating device in the rooms with devices which cannot work in a closed manner compared to the surrounding area or in the rooms where there are devices which can reduce the pressure in the room itself compared to the external environment, as this can lead to problems with low air intake for our product (UNI 10683).

⚠ ATTENTION: It is forbidden to discharge combustion products of the furnace in a common stovepipe.

When checking the system compatibility, it is recommended to determine if the support surface of the support (floor) possesses adequate load capacity (kg) to support the weight of the product. If this is not the case, it is recommended to take appropriate safety measures (for example, use a distribution board).

• When installing the furnace, it is advised to place it at the appropriate distance from the wall to allow access to the back side of the furnace (we recommend at least 20 cm) and to the side (we recommend 80 cm). Such a space may be necessary, for example, in order to be able to adequately clean the product.

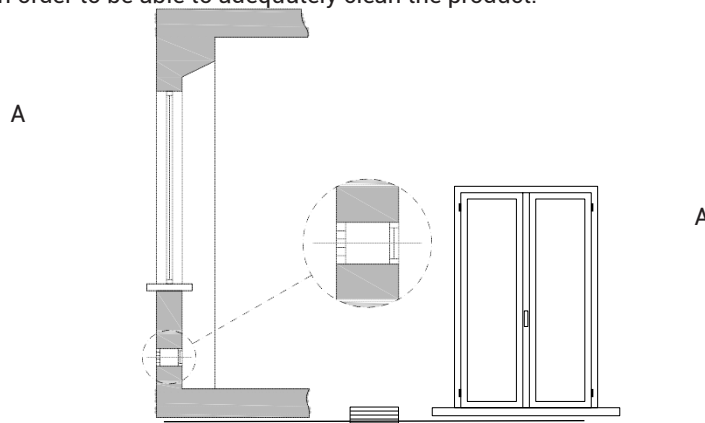


Figure 2.1: Example of the necessary vents

Never allow flammable materials to come close or, indeed, come into contact with the outer surfaces of the combustion chamber as it can reach extremely high temperatures when the product is running.

If the floor is made of flammable material (e.g. hardwood), it is recommended to protect it by placing a layer of non-flammable material under and around the furnace.

More information on the minimum safe distance from flammable materials (see figure 2.2.a):

- Minimum distance from combustible floor (H = 4 cm);
- Minimum distance from combustible rear wall (B = 50 cm);
- Minimum distance from combustible side wall S = 40 cm);
- Minimum distance from combustible material on the front side (Fr = 150 cm).

Once you've determined where you will place the furnace, it is possible to adjust the furnace feet in order to achieve the correct height. Tilting the furnace to the side requires two people. After you adjust the feet, carefully lower the furnace (see Figure 2.2.b).

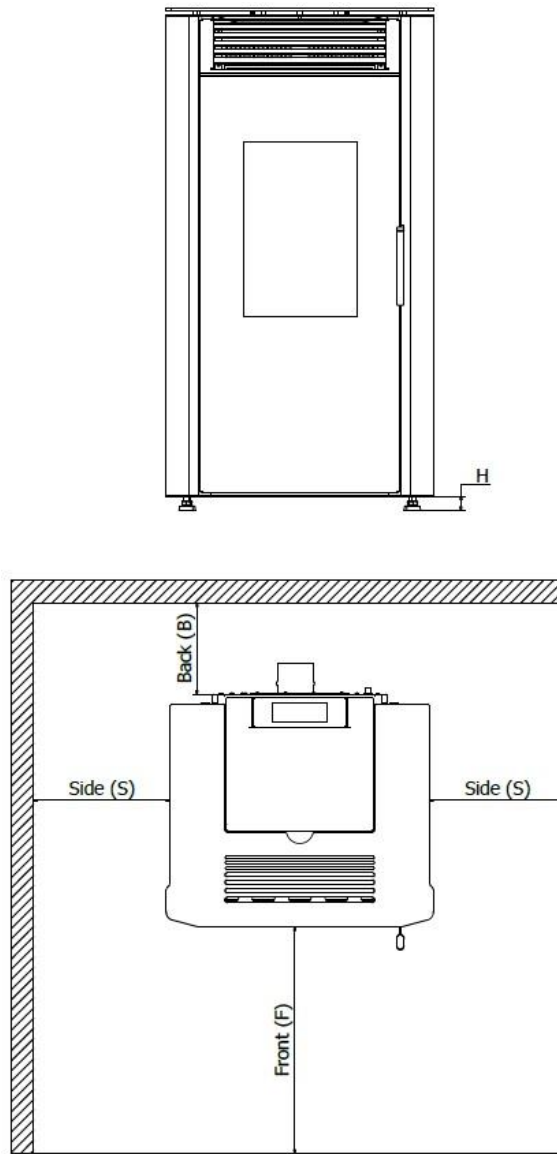


Figure 2.2: Distance when setting up

2.2 Stovepipe properties

The main properties of the stovepipe are listed below, based on the requirements of the standard:

- The inspection valve (I);
- Maximum height of the pipe which is connected directly to the smoke drain on the furnace should be between 2 to 3 m;
- If you need a horizontal segment, it should not exceed 1.5 m in length and a slope of 3 to 5% in order to help drain the smoke;

Use the back part which is resistant to wind and water in order to prevent change of state of a slightly higher pressure in the stovepipe (do not put a horizontal part at the end of the stovepipe);

The state of a slightly higher pressure in the stovepipe is needed to facilitate the flow of smoke from the combustion chamber.

Keep in mind that any removal of excess heat is done by the electric control part (modulation, shutting down, etc.)

- The exhaust duct must be made of materials that are resistant to combustion products and moisture (a review will enable the removal of any moisture);
- Ducts must be manufactured in a way as to prevent any leakage of smoke.
- The duct must be isolated, especially the outer part, which is exposed to atmospheric conditions.

Avoid using fully horizontal segments.

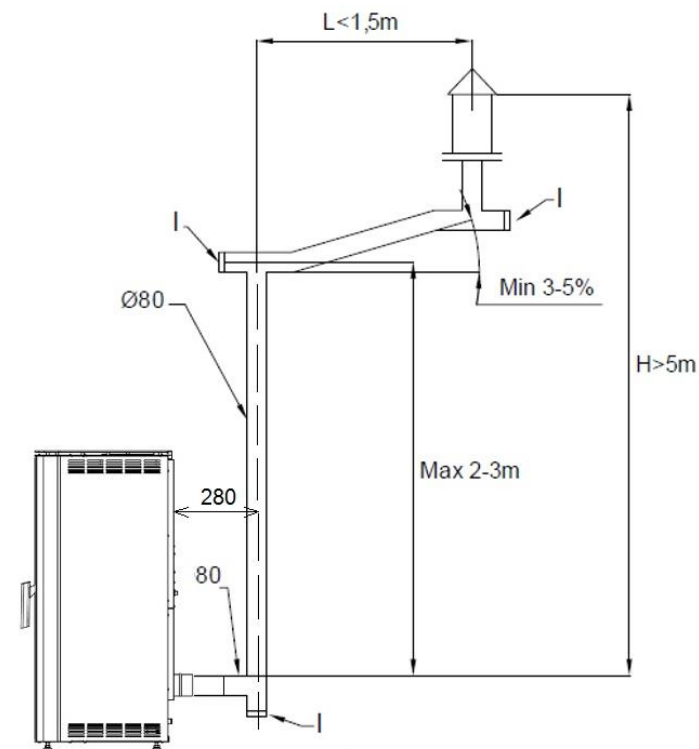


Figure 2.3: Exhaust duct

The room in which the heating device will be assembled should not have hoods because they can reduce the pressure of the surrounding area.

It is strictly prohibited to close the air vents.

The exhaust duct should be cleaned at least once a year; we recommend that you perform a thorough cleaning of the exhaust duct and its connections.

Ensure there is no congestion before the ignition after a period of inactivity.

⚠ ATTENTION: The exhaust duct must be built in accordance with the provisions of the standard.

⚠ ATTENTION: Check if the chimney has a minimum pulling power of 10 Pa using the appropriate tools.

2.2.1 Smoke exhaust to the outer wall

One of the solutions that can be applied includes storing the furnace that uses wood pellets near the outer wall of the house so that the exhaust fumes are directly released outside (Figure 2.4). Some of the notes set forth by the standard for this type of system configurations are listed below:

- Always make sure that there is an inspection valve (I) in order to enable regular cleaning procedures, as well as the removal of moisture which can be formed;
- The end of the funnel (T) must be such that it is resistant to wind and water;
- Make sure that the stovepipe is properly insulated in the part that passes through the wall.

If the stovepipe for draining the exhaust gases is completely outside, it must be made of a double stainless steel wall to provide greater resistance to atmospheric conditions, as well as proper temperature of the exhaust gases themselves.

2.2.2 Draining smoke to the roof through a traditional funnel

Furnace exhaust fumes can be removed through a traditional funnel that is already built-in (Figure 2.5), if it meets the applicable Standards and features the main characteristics of a good funnel (C), which are briefly listed below:

- Proper insulation, first in the outer part which is exposed to the atmospheric conditions;
- The constant inner radius (there cannot be segments with a smaller radius);
- It must be made of a material which is resistant to high temperatures, to the effects of the combustion products and to the corrosive effects of moisture which may be formed;
- A mostly vertical position without deviating from the vertical angles greater than 45 °.

It is recommended that the base of the funnel is equipped with a chamber for collecting solid matter and moisture (R). The chamber must be accessible through a hermetic door (I).

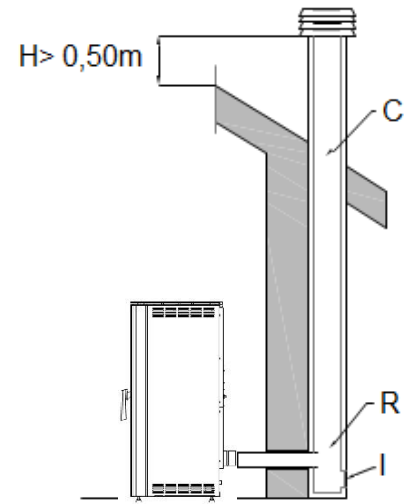
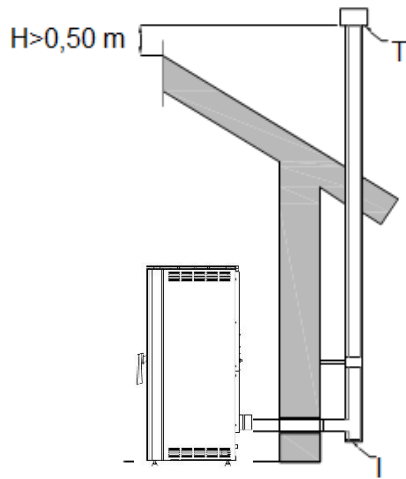


Figure 2.4: Draining smoke to the outer wall of the chimney **Figure 2.5:** Draining smoke to the roof through a traditional chimney

It is recommended that you follow the guidelines set forth in the standards in relation to the size and radius of the chimney (C). In any case, never use an exhaust duct with an inner radius smaller than 100 mm.

In the case of the exhaust ducts of greater radius, there must be a steel pipe (A) within the funnel bricks or mortar (C), as shown in Figure 2.6.

The steel pipe must be insulated using a suitable heat-resistant material, such as rock wool or vermiculite (B), and it must be separated from the outer part of the funnel.

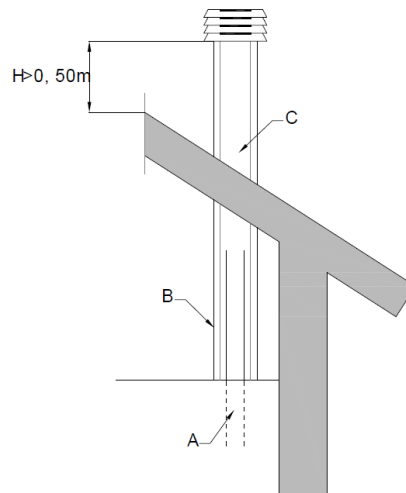


Figure 2.6: An example of connection to the chimney

In case of fire in the chimney or stovepipe, immediately turn off the furnace and disconnect it from the electrical system.

2.3 Dismantling and waste disposal

The packaging consists of materials which are not toxic or harmful. No special conditions are needed for its disposal. The user is responsible for the disposal of the remaining components of the packaging. The user must follow the proper disposal procedures in accordance with the applicable standards in the country where the product is assembled.

⚠ ATTENTION: The packaging elements must be kept out of reach of children who are not supervised or out of reach of persons with disabilities.

2.4 Electrical connections

The product can be connected to the mains only after the electrical insulation is assembled.

Connect the product to your household power.

Just press the main switch on the back of the appliance if you want to turn it on. When you do this the furnace will be ready for ignition. For ignition procedures and programming, refer to section 4.

2.5 Room temperature gauge

Room temperature gauge can be adjusted only after setting up the electrical installation.

This gauge allows the temperature in the room where the furnace is placed to be continuously monitored.

Placing the room temperature gauge in a suitable spot will ensure proper operation of the product.

3. Using the Product

3.1 The necessary checks and controls for the first ignition

The following guidelines must be followed when first igniting the product:

- Make sure all safety requirements have been met (see section 1.8);
 - Connect the appliance to the power supply only when you are sure that the voltage power supply is 230 V 50 Hz.
- When you've made sure of this turn the switch on the back panel to "ON" - switched on;
- Make sure that the display on the control panel is turned on, which indicates that the appliance is properly plugged into the power supply;
 - Make sure there is enough fuel in the tank for the planned period of operation.

The fuel must be in accordance with the instructions given in the relevant section of this guide.

Painted parts of the furnace can emit smelly fumes during the first few ignitions. This phenomenon is associated with a chemical process of stabilization of used paint. For this reason, during this period the room where the furnace is located must be regularly and properly ventilated.

3.2 Loading the fuel

Open the upper door of the product to insert the pellets. You must comply with regulations with regard to the fuel contained in the relevant part of this user guide.

⚠ ATTENTION: Do not let the bag with wooden pellets come into contact with hot parts of the product while you load the fuel.

⚠ ATTENTION: Do not remove the protective grid inside the part for loading the pellets.

⚠ ATTENTION: Do not lean the full weight of the bag containing the fuel to the product.

⚠ ATTENTION: Close the upper door when you have finished loading the pellets.

Periodically check the amount of wood pellets contained in the tank and fill it up in time.

⚠ ATTENTION: Excessive moisture can crush the pellets into fine powder, which can lead to increased sedimentation in the boiler area, and even block the insertion/loading system (auger).

When inserting the pellets make sure that the pellets do not accidentally fall into the other inner parts of the appliance except into the appropriate tank.

Only use pellets with a diameter of 6 to 8 mm.

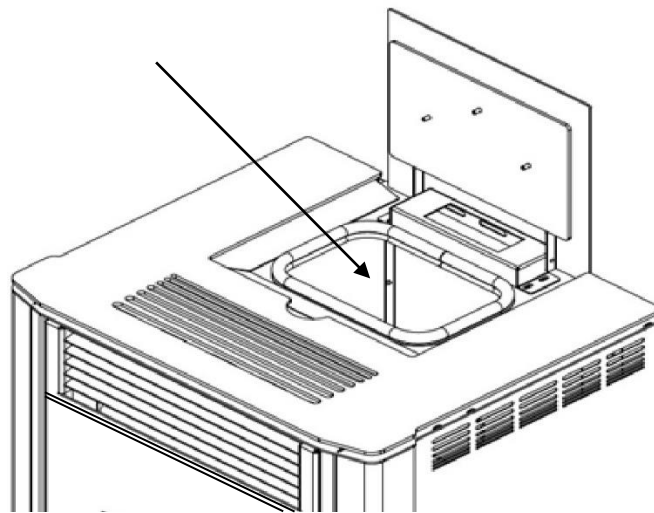


Figure 3.1. Inserting the pellets

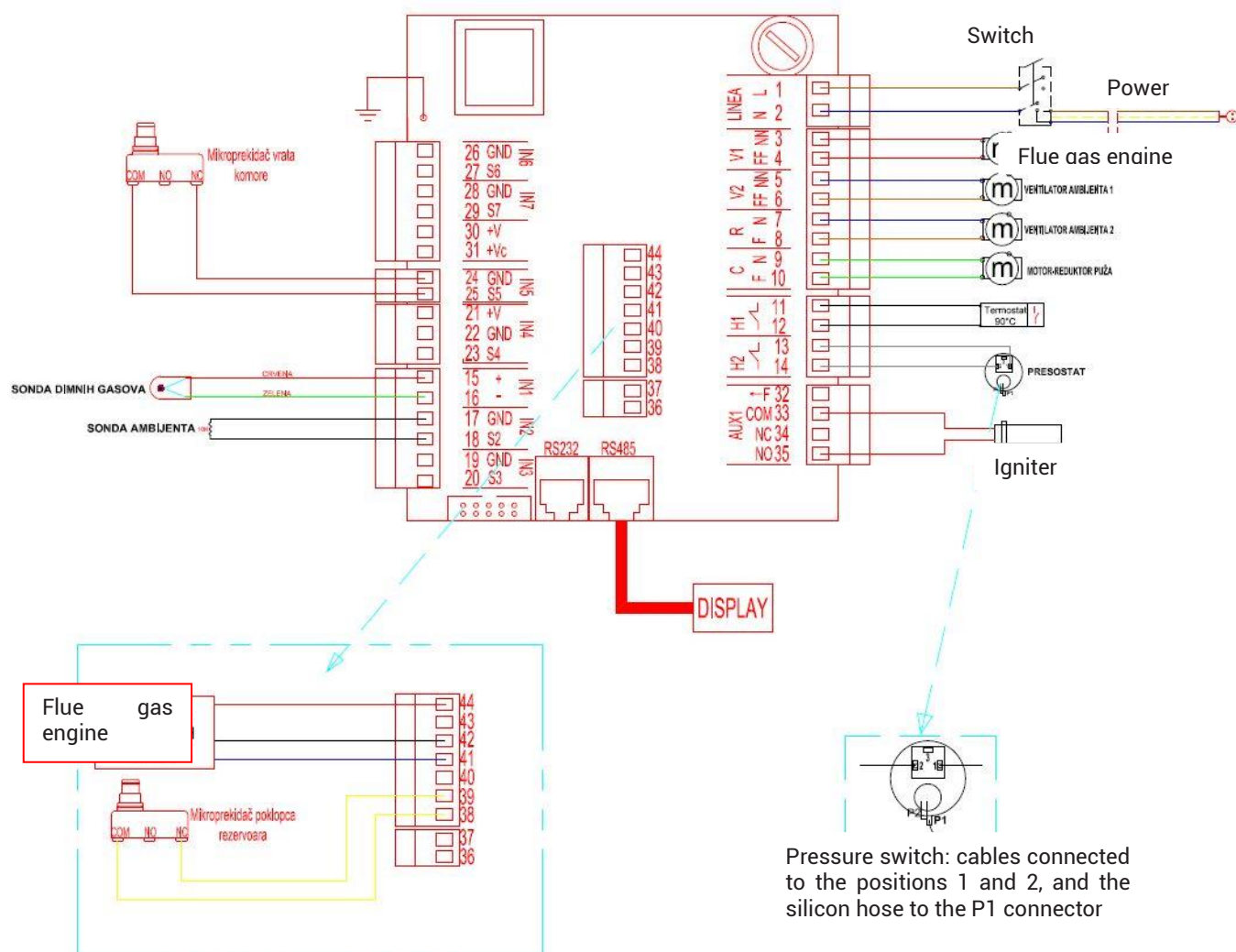
4. Control System of the Furnace

The furnace has an installed advanced control system which provides a safe, efficient and reliable controlling of the operation and a maximum functional use of the furnace.

It is characterized by:

- ease of setting up and using
- easy and direct user features,
- reliable and flexible functional software specifically designed for pellet furnaces,
- advanced features available for installers in order to adapt different configurations and installations

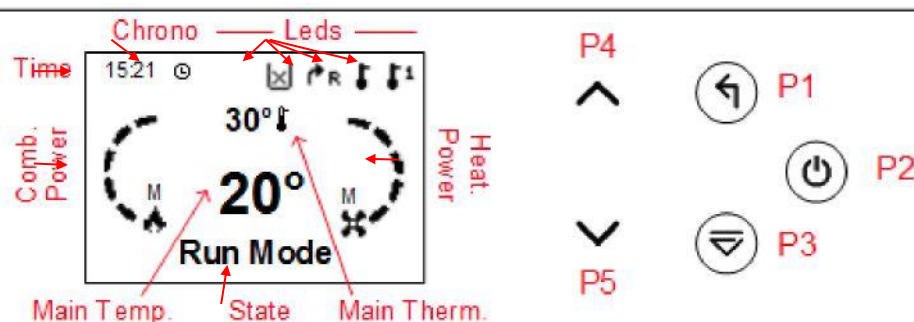
4.1 Electrical connection scheme







4.2 The control panel (display): use and features

4.2.1 K100 display

The main frame shows: time and date, chrono activation, combustion energy, heat energy, functional state, current room temperature, set room temperature, LEDs



Display	Meaning
Main Temp.	The current value of the room temperature
State	Functional state of the furnace
Main Therm.	Set room temperature
Comb. Power	Combustion power
Heat Power	Heating power
Time	Time
Chrono	Scheduled operation
Push button	Feature
P1	Exit menu/submenu
P2	Turning on and off (hold down for 3 seconds), reset errors (hold down for 3 seconds), chrono activation and deactivation

P3	Enter the user menu 1/submenu, enter the user menu 2 (hold down for 3 seconds), saving data		
P4	Enter the visualization menu, maximizing		
P5	Enter the visualization menu, minimizing		
Led	Feature	Led	Feature
	Lack of pellets		Preset room temperature reached
	The direction of air flow		Remote thermostat temperature reached (if connected to the remote thermostat)

4.2.2 Alarms

Description	System state	Code
Safety error - safety thermostat: signals when the system is off	Block	Er01
Safety error - pressure switch: signals only if the combustion fan is turned on	Block	Er02
Shutdown in case of flue gas temperatures lower than permissible	Block	Er03
Shutdown in case of flue gas temperatures exceeding the permissible temperatures	Block	Er05
The pellet thermostat is activated	Block	Er06
Encoder fan error: no encoder signal	Block	Er07
Encoder fan error: failed combustion fan regulation	Block	Er08
Date and time are not correct due to a prolonged power outage	Block	Er011
Ignition failed	Block	Er012
Power outage	Block	Er15
Communication error - display disconnected	Block	Er16
Air flux regulator error	Block	Er17
No more pellets	Block	Er18
Faulty air flux sensor	Block	Er39
The minimum air flux is not reached during the testing phase	Block	Er41
Maximum airflow reached (F40)	Block	Er42
Error: door open	Block	Er44
Auger encoder error: no encoder signal	Block	Er47
Auger encoder error: auger speed control failed	Block	Er48
Module error I/O 12C	Block	Er52
Service error. This informs that the planned period of operation has been reached (after preload): the system will stop when it goes into operation mode.	Block	Service

4.2.3 Other messages

Description	Code
Probe error when controlling during the testing phase	Prob
This informs that the planned period of operation has been reached. It is necessary to clean the furnace or boiler.	Clean
Door open	Door
The message appears if the system is turned off during ignition (after preload) by the external device: the system will stop when it goes into operation mode.	Block ignition
No communication between the motherboard and the display (keypad).	Link Error
Periodic cleaning is in progress.	Cleaning On

4.2.4 Visualizations

Pressing P4 and P5 opens the visualization menu. Here you can see the value of the ambient temperature, flue gases, engine speed of flue gases, ON auger time*, etc, at all times. The following indicators of the furnace operation can be checked in the visualization menu:		
Display		Description
Exhaust T. [°C]	103	Flue gas temperature
Room T. [°C]	25	Local room temperature
Rem. Room T. [°C]	25	Remote room temperature; visible only if the remote thermostat is active
Air Flux	750	Air flux; visible if the primary air flux gauge is active
Fan Speed [rpm]	1250	The exhaust gas fan speed;
Auger [°C]	1.2	ON auger time;
Cleaning [h]	450	Work time left before cleaning the furnace; visible only if the timer is active
Work time [h]	2985	Total furnace work time in the work mode, modulations and security
Ignitions [h]	106	Number of ignition attempts
Product Code: 494-	0000	Product code

4.3 User menu 1

Short press P3 to activate user menu 1. Keys P4 and P5 list different submenus (combustion management, heating management ...); pressing the P3 key opens any selected submenu.	
Combustion Management	Power

	<p>In this submenu it is possible to modify the power of the combustion system. Keys P4 and P5 select between the 5 powers (Power 1, Power 2, Power 3, Power 4 and Power 5). When you select the desired power press the P3 key to confirm. Exit the submenu by pressing P1.</p>
	<p>Auger Calibration Allows modification of the set value for the duration of the ON auger time. The values range from -7 to 7. The default value is 0 (see Section 4.6.2)</p>
	<p>Fan Calibration Allows modification of the set value for the speed of the flue gas engine. The values range from -7 to 7. The default value is 0 (see Section 4.6.3)</p>
Heating Management	<p>Room Thermostat This menu allows modification of the set temperature value in the local room (the room where the furnace is assembled). The temperature value set up in this menu is a requirement for furnace operation. Namely, the furnace will work in the selected mode until it reaches the preset value of the room temperature. When the preset value is reached then the furnace goes into a modulation state or it works using minimum power. The furnace exits the modulation state and returns to the mode of normal operation as soon as the room temperature falls below the preset value. The temperature value is set up using the P4 and P5 keys and then the set value is confirmed by pressing P3. Exit the submenu by pressing P1.</p>
	<p>Remote Room Thermostat This menu allows you to modify the value of the thermostat in a distant room. It is visible only if the external thermostat is installed, while a heating plant that uses it is set up to use an external thermostat.</p>
Remote Control	This menu allows turning the remote control options on and off.
Chrono	<p>Chrono program It is used for scheduling operation of the furnace and for turning the furnace on and off in certain time periods.</p>
Manual Load	This procedure activates the manual loading of pellets with the activation of the preset modality of the auger engine. Loading stops automatically after 600 seconds. The system must be turned off in order for the function to be activated.
Cleaning Reset	Menu for resetting the "System Maintenance 2" function. Visible only if the option "System Maintenance 2" is active.

4.3.1 Chrono

In order to adjust the programmed operation of the furnace it is necessary to access the Chrono menu.

The Chrono menu is accessed in the following manner:

- Short press P3 to activate user menu 1.
- Press P4 and P5 to list the submenus until you reach the Chrono submenu.
- Press P3 once again and enter the Chrono submenu
- The following is shown on the display:

Chrono
Modality
Chrono program

Press P4 and P5 to select the Modality or Chrono program and then press P3 to enter one of the two submenus.

4.3.1.1 Modality

Allows selection of desired modality or disables all set programs.

- Programming is enabled or disabled by pressing **P2**
- Use P4 and P5 to select the desired way of programming the Daily, Weekly and Weekend furnace operation.
- Pressing **P3** confirms the selected way of programming furnace operation.
- Save your settings by pressing **P1**.

Disabled
Daily Weekly

Week End

4.3.1.2 Chrono Program

Chrono program provides three types of programming: daily, weekly and weekend programming.

The following is shown on the display in the Chrono Program:

Chrono
Daily
Weekly
Week-end

The system provides three types of programming: daily, weekly and weekend programming. Selection is made by pressing P4 and P5 after which the user enters the selected program by pressing P3.

1. Daily Programming

The following is shown on the display once the **Daily** submenu or the daily program is entered:

Monday
Tuesday
Wednesday
Thursday
Friday

Days of the week are selected by pressing P4 and P5. When you select the date press P3.
Setting the activation and deactivation time of the program for the selected day is done as follows:

- Enter the change of time (the preset time is blinking) by pressing P3.
- Change the time by pressing P4 or P5.
- Save by pressing P3.
- Activate ("●" appears) or deactivate the time period ("○" remains) by pressing P2.

Example: For example, select Monday and press P3. Then press P3 and *ON time* (time of turning on of the furnace) starts blinking. By pressing P4 and P5 you can set up the desired *ON time* and confirm it by pressing P3. In this way *ON time* can be set up to, for example, 9:30 AM. When *ON time* is set up press P5 and then the *OFF time* (time of turning off of the furnace) starts blinking. By pressing P4 and P5 you can set up the desired *OFF time* and confirm it by pressing P3. In this way *OFF time* can be set up to, for example, 11:15 AM. In the end press P2 in order to activate the program. The following is shown on the display:

Daily	
Monday	
ON	OFF
● 09:30 -	11:1
○ 00:00 -	00:0
○ 00:00 -	00:0

This program schedules the furnace to turn on on Monday at 9:30 AM and turn off at 11:15 AM.
Save your settings by pressing P1.

For daily programming it is possible to switch the program from the previous day to the next day.

The procedure is as follows:

Select the day of the week for programming and setting up the turn on and turn off time.

Set the clock to ON on the previous day at the desired time: e.g., 8:30 PM.

Set the clock to OFF on the previous day at 11:59 PM.

Set the clock to ON on the next day at 12:00 AM.

Set the clock to OFF on the next day at the desired time: e.g., 6:30 AM.

The system will turn on at 8:30 AM on Tuesday and will turn off at 6:30 AM on Wednesday.

2. Weekly Programming

In terms of weekly programming, programs are the same for all days of the week.

The following is shown on the display once the **Weekly** submenu or the weekly program is entered.

The programs are activated and deactivated in the same way as with the daily programming.

3. Weekend Programming

In terms of weekend programming it is possible to choose between programs:

- Mon-Fri
- Sat-Sun

Selected programs will be active from Monday to Friday or Saturday and Sunday.

The programs are activated and deactivated in the same way as with the daily programming.

Weekly

Mon-Sun

ON	OFF
○ 00:00	00:00
○ 00:00 -	00:00
○ 00:00 -	00:00

Mon-Fri
Sat-Sun

Week-end

Mon-Fri

ON	OFF
○ 00:00	00:00
○ 00:00 -	00:00
○ 00:00 -	00:00

4.4 User Menu 2

Long press P3 (3 seconds) to activate user menu 2.

Keys P4 and P5 list different submenus ((Keyboard Settings, Keyboard Menu ...); pressing P3 opens any selected submenu.

Keyboard Settings

Time and Date

Used for setting up the day, month, year and current time.

Language

	Menu for changing the language
Keyboard Menu	Learn Menu Allows manual updating of the menu; access is protected by a four-digit password and the procedure cannot be stopped once it is started. In the event of a failed save or change of the menu, this procedure starts automatically.
	Set Contrast Menu used to regulate the contrast of the LCD screen.
	Set Minimum Light Menu used to regulate the brightness of the LCD screen when controls are not used.
	Keyboard Address This menu is password protected and is not available to the user.
	Node List This menu displays the following: table communication address, table typology, firmware code and firmware version. Data cannot be changed. Table typology that can be displayed are as follows: MSTR Master INP KEYB OUT CMPS composite SENS Sensor COM Communication
	Acoustic Alarm Allows enabling or disabling of the keyboard alarm.
System menu	Menu for entering the technical menu. This menu is password protected and is not available to the user.

4.5 Turning the furnace on and the state function

The furnace is turned on by long pressing P2 for 3 seconds. After that come the next function states of the furnace:

4.5.1 Check Up

During the check up phase the initial checks of the input signals or the probity of safety probes and pressure switches of the furnace are done. In this phase the flue gas engine runs at maximum speed while the auger and igniter are turned off. The check up phase lasts for a few seconds, and a successful check up is followed by the ignition phase.

4.5.2 Ignition

The ignition phase consists of four sub phases which alternate, and those are:

- Preheating phase
- Pellet preload phase
- Fixed ignition phase
- Variable ignition phase

The message IGNITION is displayed during the entire ignition phase. There are no special markings on the display for sub phases.

4.5.2.1 Ignition Preheating

At this stage there is warming of the igniter before dispensing of the pellets starts. In order for pellet burning to be as efficient as possible, it is desirable that the igniter is already preheated at the time when dispensing the pellets starts. At this stage the igniter is active and the auger is inactive. Flue gas engine runs on lower rpm in order to promote heating of the igniter.

4.5.2.2 Ignition Preload

In this phase there is the initial dispensing of pellets or the auger loads a certain amount of pellets necessary for ignition. In this phase the igniter, auger and flue gas engine are active.

4.5.2.3 Ignition – Fixed Phase

This phase is a fixed time period that lasts for 180 seconds and in case that the furnace ignition requirement is reached before the expiry of this phase it will always last until the end and only after the expiration of the fixed time period will the furnace move into stabilization phase. In this phase the igniter, auger and flue gas engine are active.

4.5.2.4 Ignition – Variable Phase

This phase occurs after the fixed ignition phase. The duration of this phase is a variable period that lasts until the moment of fulfillment of the ignition requirements or until the moment when the flue gas temperature of 50 °C is reached. In case the furnace ignition requirement is met before the expiry of the duration of this phase, it is stopped and the next phase follows, which is the stabilization phase. In this phase the igniter, auger and flue gas engine are active.

4.5.3 Stabilization

The stabilization phase is a transitional phase between the ignition phase and the run mode phase. This phase occurs when the ignition requirement is met, that is, when flue gas temperature reaches 50 °C. It lasts for three minutes and during that time the auger, flue gas engine and the igniter are active.

4.5.4 Normal – Run Mode

The normal run mode begins following the stabilization phase. In this phase there are five levels of power that can be set up as explained in the user menu 1. In this phase the igniter is turned off while the auger, flue gas engine and area engine are

active and run with different intensity depending on the level of power of the furnace. The furnace runs on the given power until the modulation requirements are met.

4.5.5 Modulation

The furnace goes into the modulation phase when one of the two conditions are met:

1. When the furnace reaches the preset ambient temperature
2. When the flue gas temperature reaches a value greater than 250 °C

In the modulation phase the furnace runs on minimal power - power 1, until the moment when the temperature decreases below the threshold value.

4.5.6 Safety

The Safety status occurs when flue gas temperature exceeds 275 °C. In this phase dispensing the pellets stops until the temperature of flue gases decreases. If there is no decrease in temperature in the next 60 seconds the furnace goes into an alarm stage and displays the **Er05** message.

4.5.7 Extinguishing

The furnace is turned off by long pressing P2 for more than 3 seconds. The extinguishing phase occurs next during which dispensing of pellets stops and the flue gas engine and the ambient fan operate at maximum capacity in order for the furnace to cool down as soon as possible. Minimum duration of the extinguishing phase is 30 seconds and the requirement for the furnace to completely turn off is for the flue gas temperature to be less than 68 °C.

4.5.8 OFF

During this phase the furnace is turned off, that is, no furnace output (flue gas engine, ambient fan, igniter and auger) is active.

4.5.9 Block

The block state occurs in the event of a fault or alarm. In the block state the exhaust gas fan, auger and igniter are turned off. To exit press P2 for 3 seconds: if there is no more block and no cause for alarm the system will turn off.

4.5.10 Ignition Recovery

The furnace goes into this phase in two cases:

1. If there is a power failure in the operating mode and the flue gas temperature is greater than 50 °C.
2. By pressing the main switch at a time while the furnace is in the extinguishing phase.

4.6 Other functions

4.6.1 Management of the absence of power

In the absence of power, the system keeps the most important functional data. When the power is restored the system evaluates the saved data and:

- If the furnace is turned on and the temperature of exhaust. gases is greater than 50°C, the system enters the **recovery point**. Pressing P1 can lead to a sudden new system ignition.
- If the furnace is turned on but the temperature of exhaust. gases is lower than 50°C, the system enters the **shutdown point** with error **Er15**.
- If the furnace is turned off or in extinguish or block phase, the system returns to its previous state.
- In the absence of power for more than a week the system goes into **block** with an error message **Er11** indicating that the DATE/TIME values are incorrect. When P1 is enabled the TIME value starts to blink signaling the need for updating the TIME and DATE with the CLOCK function.

4.6.2 Management of pellet loading calibration

The user has the option to calibrate the dispensing of pellets in the user menu 1. Calibration ranges between -7 ÷ 7. 1=5%. Each calibration of dispensing the pellets is applied to all workforce in percentages. For example, if -1 is set up then the dispensing of pellets will be reduced by 5% in all operating modes (Power 1 - 5).

Example	Before calibration	Power 1 = 2.0	Power 2 = 3.0	Power 3 = 4.0	Power 4 = 5.0	Power 5 = 6.0
	Step = -1	Power 1 = 1.9	Power 2 = 2.85	Power 3 = 3.8	Power 4 = 4.75	Power 5 = 5.7

Never calibrate dispensing of pellets without consulting with the service center first.

4.6.3 Management of flue gas engine correction

The user has the option to calibrate the rpm of the flue gas engine in the user menu 1. Calibration ranges between -7 ÷ 7. 1=5%. Each calibration is applied to all workforce in percentages. For example, if it is set up to 3 then the rpm of the flue gas engine will be increased by 15% (3x5%) in all operating modes (Power 1 - 5).

Example	Before calibration	Power 1 = 1000	Power 2 = 1200	Power 3 = 1400	Power 4 = 1600	Power 5 = 1800
	Step = +3	Power 1 = 1150	Power 2 = 1380	Power 3 = 1610	Power 4 = 1840	Power 5 = 2070

Never calibrate the rpm of the flue gas engine without consulting with the service center first.

4.6.4 Safety thermostat

In the event that the temperature in the pellet tank reaches the value higher than 90 °C, the safety thermostat activates in order to prevent the ignition of pellets in the tank. The system goes into block mode and there is an alarm message **Er01**.

4.6.5 Periodic cleaning of the furnace

When the system is stable after a specified time interval (every 45 minutes), the system automatically performs periodic cleaning which lasts for 30 seconds.

During the periodic cleaning, the flue gas engine works with increased intensity while dispensing of pellets stops.

4.6.6 Shutting down during the ignition phase

When the system shuts down during the ignition phase (after the preheating phase) through an external device or an internal chrono device, the system goes into shutdown mode when it enters running mode at the end of ignition phase. Message *Block ignition* is shown on the display.

If an error occurs, the system immediately goes into shutdown; if P2 is pressed, it is possible to immediately introduce the system into the turning on or off.

4.7 Possible problems and solutions (Troubleshooting)

Message on the display	Description	Possible causes	Resetting errors	Possible solution of alarm causes
Er01	Activation of the safety thermostat	High temperature inside the furnace	Wait until the furnace has cooled and then unscrew the plastic cap on the thermostat and press the reset button	Check the heat sink and check that there is no obstacle for the hot air to get out
		Too high a temperature in the room where the furnace is assembled		Contact the service center
		Faulty thermostat		
Er02	Activation of the safety pressure switch	Obstruction of flue gas drain	Press and the P2 key for more than 3 seconds	Check contamination of flue pipes and funnel
		Incorrect funnel installation		Contact the service center
		Faulty pressure switch		
Er03	Shutting down due to very low flue gas temperatures	Poor combustion (too few or too many pellets remain in the combustion chamber)	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Check the size of the pellet granules
		Empty pellet tank		Check for contamination of the furnace chamber
		Faulty flue gas probe		Check the status of flue pipes
Er05	Shutting down due to very high flue gas temperatures	The temperature of flue gases exceeds the limit	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Contact the service center
		Obstruction of flue gas drain		Insufficient heat transfer - contact the service center
		Faulty flue gas probe		
Er07	Encoder error	Missing encoder signal	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Contact the service center
Er08	Encoder error	Flue gas engine is not responding	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Contact the service center
		Flue gas engine operates at a speed that is different from the set speed		
Er011	Clock error	Problems with the internal clock	Press and hold P2 for more than 3 seconds	Check the accuracy of the preset time
		Insufficient capacity of the internal battery		Check the correctness of programming in the Chrono mode
Er012	Ignition failed	Ignition error	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Contact the service center
		During the ignition phase adequate temp. of flue gases is not reached		Check the state and quality of the used pellets
		Faulty flue gas probe		Check contamination and draft of the flue drain
Er15	Interruption of power supply	Loss of power supply during furnace operation	Press and hold P2 for more than 3 seconds	Contact the service center
				Check to see if the system and installation are in order
Er16	Communication error between the electronics and the display	Interruption of the display cable	Press and hold P2 for more than 3 seconds	Check the cable and display cable connectors

		Damage to the display cable connector		Contact the service center
Er17	Primary air flux meter error	Primary air flux meter does not adjust the operation of the furnace	The furnace continues to run without adjustment of primary air. Turn the furnace off to reactivate the air flux meter. Wait for the furnace to shut down and then press P2 for more than 3 seconds	Check pipe contamination for primary air inlet Check contamination and draft of the flue drain and funnel Contact the service center
Er39	Primary air flux meter sensor is damaged	Faulty sensor	The furnace continues to run without adjustment of primary air	Contact the service center
Er41	The minimum primary air flux is not reached during the testing stage	There is an obstacle or large contamination in the pipe for primary air inlet Obstruction of flue gas drain Doors not properly closed during the ignition phase	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Check and clean the pipe for primary air inlet Check contamination and draft of the flue drain and funnel Check if the doors close well Contact the service center
Er42	Primary air flux is greater than the maximum permissible value	Too much air intake	Wait for the furnace to shut down and then press P2 for more than 3 seconds	Check the pipe for primary air inlet Check contamination and draft of the flue drain and funnel Contact the service center

Description	Possible solution of causes
The stove is not receiving electrical power (led indicator not lit)	The power cable could be damaged or else could be disconnected from the electrical outlet The fuse inside the circuit board may have burnt out (in this case, request technical assistance)
Repeated failed ignitions take place	The combustion chamber may not have been subjected to regular maintenance (see section 5.1.3.4) The ignition heating element or smoke temperature sensor may have malfunctioned (in this case, request technical assistance)
The ventilation is not working	The fan may be blocked or malfunctioning (in this case, request technical assistance)
The burner is being filled with too many pellet (with pellet overflowing)	The door's seal may be worn or damaged The holes in the burner may be blocked by deposits (see section 5.1.3.4) The stove may not have been subjected to regular maintenance (see sections 5.1.3 and 5.2) There may not be sufficient combustion air (if the problem still persists after cleaning the stove, request technical assistance) The smoke extractor's motor may not be working properly (in this case, request technical assistance) The fuel may be damp The combustion air intake could be obstructed The set pellet parameter may not be set to proper value and may need to be corrected (in this case, request technical assistance)
Presence of smoke in the room	The door's seal may be worn or damaged The stove may not have been subjected to regular maintenance (see sections 5.1.3 and 5.2) There may be another functional (stove, fireplace, wood burning range or fume hood) or non-functional (open fire) unit in the same room whose draught is limiting or impeding that of the pellet stove, or vice versa The smoke extraction duct (flue duct and chimney) may not be clean or may be not airtight The point for inserting the flue duct into the chimney may be flawed The size of the flue duct may not comply with the indications provided in this manual (see section 2.2)

The room should be well ventilated during the first start up phases as the paint normally releases unpleasant odours

There could be obstacles (trees, buildings, etc.) that exceed the height of the chimney and prevent the smoke from flowing out; the draught in the chimney may not be sufficient

NOTE: If the recommended troubleshooting does not eliminate the direct cause of alarm, YOU MUST CONTACT THE ALFA PLUM CALL CENTER.

5. MAINTENANCE OF THE FURNACE

5.1 Routine maintenance

The furnace will keep its heating and functional features over time with routine cleaning and maintenance.

⚠ ATTENTION: Cleaning procedures described below must be carried out only when the furnace is completely cold and disconnected from the power supply (the power cord is unplugged from the socket).

5.1.1 CLEANING THE DISPLAY AND PARTS OF EXTERNAL INSULATION

Cleaning should be done using a soft dry cloth without any detergents or chemicals.

5.1.2 CLEANING THE CERAMIC GLASS

It should be done whenever necessary.

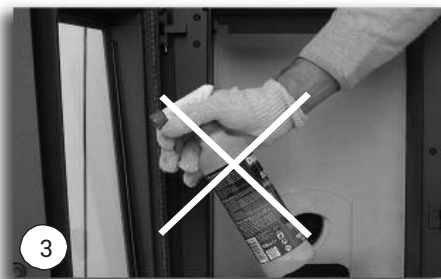
The frequency of cleaning the ceramic glass depends on the quality and type of fuel, as well as on the way of using the furnace.

In order to thoroughly clean the ceramic glass, we recommend spraying a cloth with a small amount of proper detergent and using the cloth to remove the dirt (see Figures 1 and 2).

Never spray detergent or any other liquid cleaner directly on the ceramic glass (see Figure 3).

NEVER use abrasive sponges or similar products to clean the ceramic glass because they may cause irreparable damage.

⚠ ATTENTION: Make sure you close the door well each time after you open it to clean the ceramic glass.



5.1.3 ROUTINE MAINTENANCE, TYPE 1 ACTIVITY

These activities should be done daily, depending on conditions of use.

After a certain amount of time of using the furnace, the user can specify the appropriate frequency of cleaning and maintaining the furnace.

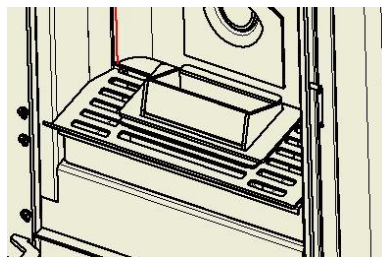
⚠ ATTENTION: Any cleaning activity must be carried out when the furnace is completely cold and disconnected from the power supply (with a cable unplugged from the socket).

Number of maintenance activities is increased in proportion to the intensity of use of the furnace.

⚠ ATTENTION: Make sure that the ash is completely cold before you start cleaning the furnace. When you make sure the ash is cold, you can clean it with a vacuum cleaner.

Periodic type 1 maintenance is carried out in accordance with the following procedure:

1. Slowly open the furnace door so that the accumulated ash doesn't splatter due to fast movement.
2. Remove the grid.



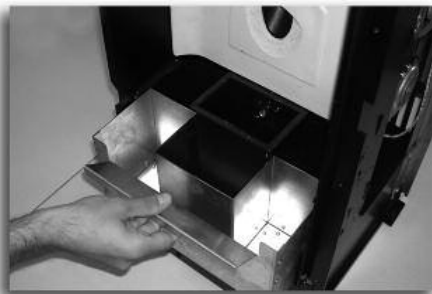
3. Remove the burner.



4. Using a vacuum cleaner and a wire brush (or other sufficiently abrasive material) clean the ash and other debris from the burner because this debris prevents the passage of air.



5. Remove the ash container by hand and empty it.



6. Using a vacuum cleaner of sufficient power (1000-1300W), remove all the ash accumulated in the combustion chamber, in the ash container and at the door.



7. The inside of the section in which the ash container is located.



After you've finished cleaning, re-assemble all the elements in reverse order from the order in which you removed them.

8. Once in a week, unlock the lock mechanism, remove and clean up the chamber lid for collecting dust on the heat exchanger



9. Once in a month, unlock the lock mechanism at back side of the stove, remove and clean up the chamber lid for collecting dust on the heat exchanger



5.2 Special maintenance

Special cleaning and maintenance activities (types 2 and 3) help the furnace keep its heating and functional characteristics for longer.

To ensure that the maintenance of the furnace is not in vain, it is necessary to maintain the system for removing smoke with the same diligence.

5.2.1 SPECIAL MAINTENANCE TYPE 2 ACTIVITIES

In addition to type 1 maintenance activities, type 2 maintenance activities must be carried out after about 350-400 working hours, or otherwise after about 500 ~ 600 kg of used fuel.

⚠ ATTENTION: Any cleaning activity must be carried out when the furnace is completely cold and disconnected from the power supply (with a cable unplugged from the socket).

⚠ ATTENTION: Make sure that the ash is completely cold before you start cleaning the furnace. When you make sure the ash is cold, you can clean it with a vacuum cleaner.

Periodic type 2 maintenance activities are carried out in accordance with the following procedure:

1. Lift and slide the heat-resistant plate on the top of the furnace inward so that the lower part is sticking out.



2. Take the heat-resistant plate with both hands and tilt it from the combustion chamber making sure that the plate does not hit other parts of the furnace.



3. Thoroughly clean the entire back part of the heat exchanger using the attached brush and a vacuum cleaner.
4. Loosen the screws that secure the front cover.

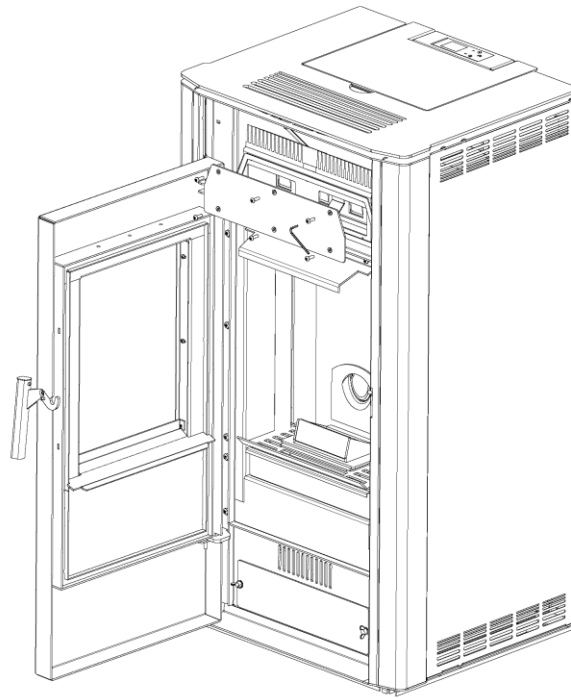


5. Thoroughly clean the inside of the chamber.



After you've finished cleaning, re-assemble all the elements in reverse order from the order in which you removed them.

6. The Luca 12 product is equipped with an upper cover that allows the pipe to be cleaned. Cleaning is done 3-4 times a season, depending on the frequency of use of the oven. For thorough cleaning, remove the plate (detail A) by unscrewing the screws with a wrench from the accessories, clean the pipes with a brush from the accessories and the vacuum cleaner and put the plate back in place, taking care of the tightness.



5.2.2 CLEANING THE EXHAUST DUCT

It is recommended that you regularly clean the smoke pipe and stovepipe.

These cleaning activities should be performed at least once a year, or more frequently if the appliance is used on a daily basis, or if the characteristics of the fuel used differ from the characteristics listed in section 1.7.

It is recommended that these cleaning activities are done by professional staff; ask a dealer for their contact details. The intervention of an authorized person can be an effective and economical way to protect the system from corrosion and to ensure its efficient operation.

For homes that are not inhabited throughout the year it is recommended to check the stovepipe and funnel at the beginning of the heating season, even if they are already cleaned, to make sure that there are no obstacles, such as bee nests, bird nests or other similar elements.

5.3 Putting the furnace out of use

It is recommended to leave the stove to burn all the wood pellets from the tank before you start with routine and special maintenance and putting the furnace out of service at the end of the heating season.

⚠ ATTENTION: When it's not heating season, the power cable of the furnace must be unplugged from the socket.