LAGA
LAGA VISION

Instruction Book

LACUNZA®

Lacunza congratulates you on your choice.
Certified under ISO 9001, Lacunza guarantees the quality of its appliances and undertakes to meet the needs of its customers.
Confident of the know-how afforded by more than 50 years' experience, Lacunza uses advanced technologies in the design and manufacture of its entire range of appliances. This document will help you install and use your appliance in optimum conditions for your comfort and safety.

CONTENTS

1. PRESENTATION OF THE APPLIANCE

For optimum operation of the appliance, we advise you to read this manual carefully before switching on the appliance for the first time. In case of problems or concerns, we urge you to contact your dealer, who will cooperate with you.

In order to improve the product, the manufacturer reserves the right to make changes without notice by updating this document.

This appliance is designed to burn wood in absolutely safe conditions.
WARNING: Faulty installation may have serious consequences.
Installation and all necessary regular maintenance operations must be performed by an authorized installer in full accordance with the specifications set out in the legislation applicable in each country and this instruction book.

1.1. General characteristics

		Unit	LAGA LAGA VISION
	Operating appliance	-	Intermittent
	Appliance classification	-	Type BE
	Preferred fuel	-	Wood logs (Humidity<25%)
	Indirect heating functionality	-	NO
Values at Nominal Output	Nominal output to atmosphere (Direct) (P_{nom})	kW	7.2
	Efficiency at P_{nom} (η_{nom})	%	81
	CO emission at 13% O_2 at P_{nom} (CO_{nom})	mg/m³	715
	NO_x emission at 13% O_2 at P_{nom} (NO_{Xnom})	mg/m³	120
	OGC emission at 13% O_2 at P_{nom} (OGC_{nom})	mg/m³	33
	PM emission at 13% O_2 at P_{nom} (PM_{nom})	mg/m³	18
	Optimum flue draught at P_{nom} (p_{nom})	Pa	12
	Gas temperature of flue at P_{nom} (T_{nom})	°C	245
	Gas temperature on the flue socket flange at P_{nom}	°C	294
	Log load frequency at P_{nom}	h	0.85
	Gas mass flow at P_{nom}	g/s	7
	Wood consumption (beech) at P_{nom}	kg/h	1.9
Values at Partial Load Output	Partial load output to atmosphere (Direct) (P_{parc})	kW	2.8
	Efficiency at P_{parc} (η_{parc})	%	78
	CO emission at 13% O_2 at P_{parc} (CO_{parc})	mg/m³	5157
	NO_x emission at 13% O_2 at P_{parc} (NO_{Xparc})	mg/m³	161
	OGC emission at 13% O_2 at P_{parc} (OGC_{parc})	mg/m³	620
	PM emission at 13% O_2 at P_{parc} (PM_{parc})	mg/m³	37
	Optimum flue draught at P_{parc} (p_{parc})	Pa	6
	Gas temperature of flue at P_{parc} (T_{parc})	°C	174
	Log load frequency at P_{parc}	h	0.85
	Chimney temperature class	-	T400
	Dimensions of the firebox		
	Width	mm	572
	Depth	mm	383
	Useful height	mm	315

Maximum length of the logs	cm	55
Volume heated (45W/m^3) at P_{nom}	m^3	160
Weight	kg	145
Flue socket diameter (d_{out})	mm	150
Voltage (AC)	V	230
Frequency	Hz	50
Maximum electricity consumption (el_{max})	kW	0.048
Minimum electricity consumption (el_{min})	kW	0
Auxiliary electricity consumption in standby mode (el_{SB})	kW	0
Type of heat output/room temperature control	Single stage heat output, no room temperature control	
Energy efficiency class	-	A+
Energy efficiency index (EEI)	-	107
Seasonal Energy Efficiency of space heating (η_s)	%	71

Note: The values indicated in the above table are based on tests performed in accordance with EN-16510, with logs with no more than 18% humidity and pressure conditions as indicated in each case.

Warning: this appliance is designed and prepared to work with the types of fuel, degree of humidity of the fuel, fuel loads, fuel load frequencies, flue draught and system of installation indicated in this Instruction Book. Failure to respect these conditions may lead to problems with the appliance (deterioration, shorter useful life, etc.) which are not covered by the Lacunza warranty.

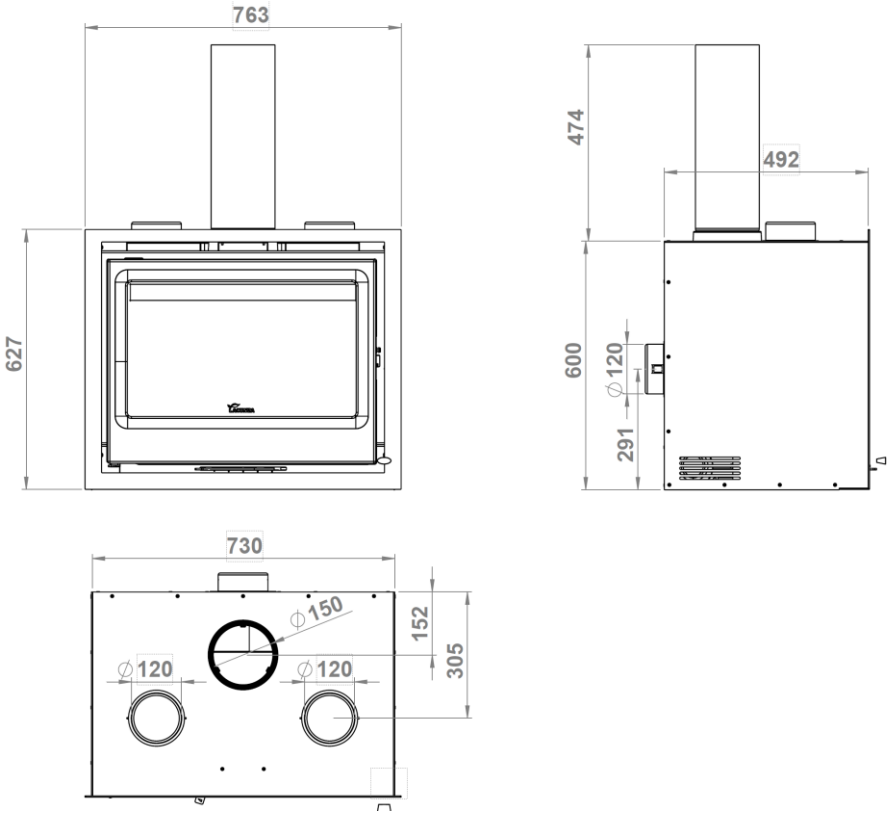


Figure No.1 - *Dimensions of the LAGA appliance in mm*

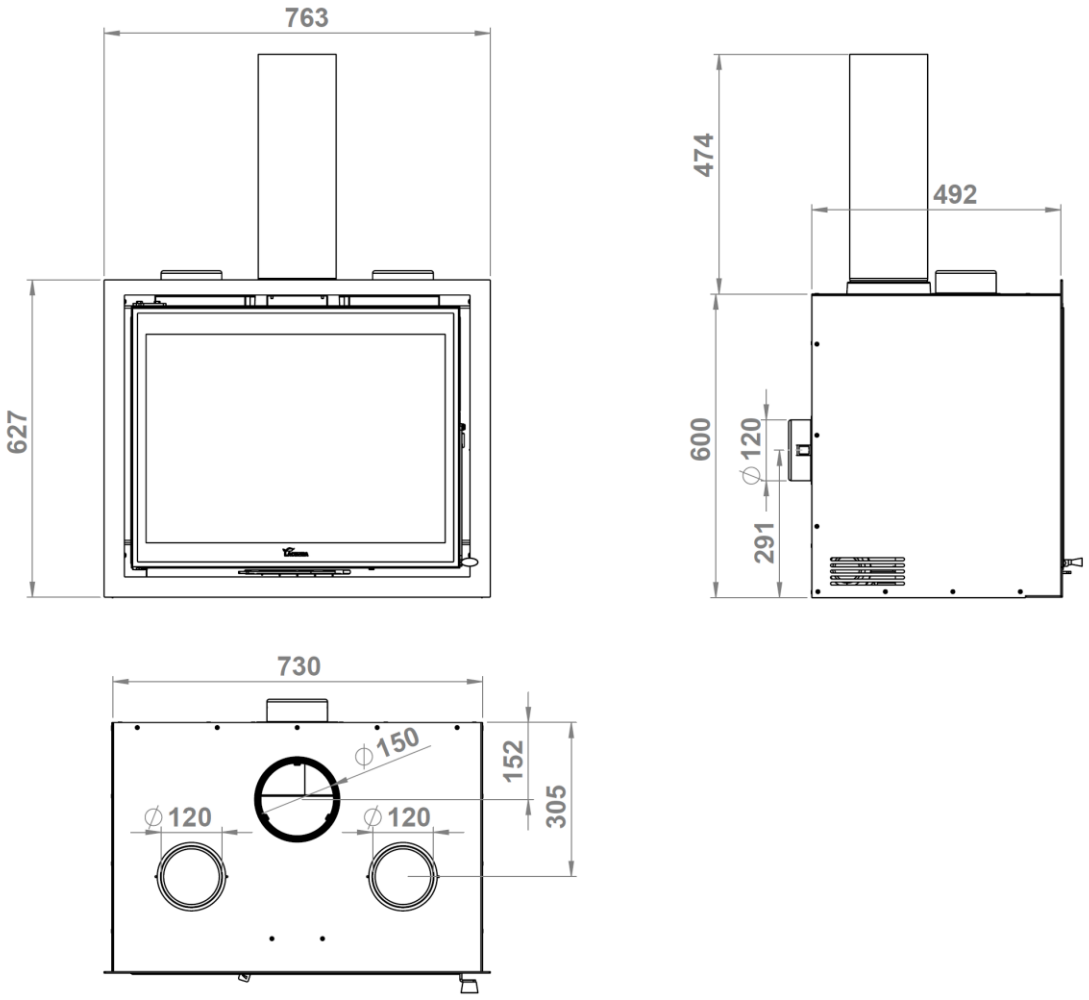
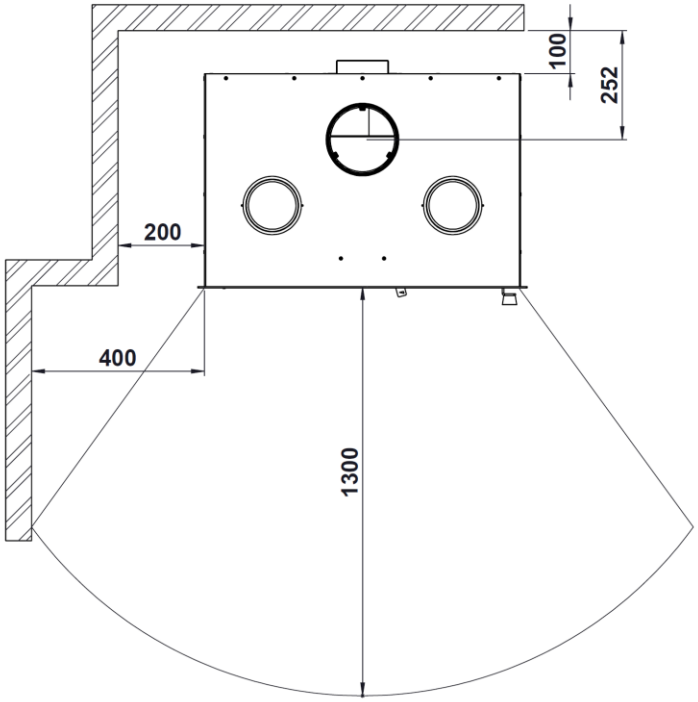


Figure No.2 - *Dimensions of the LAGA VISION appliance in mm*

1.2. Safety distances

Be sure to respect the appliance installation distances from **combustible materials**. (Distances in mm)



Combustible materials

Bear in mind that it may even be necessary to protect non-combustible material in order to prevent breakage, deformation, etc., as a result of overheating if the non-combustible material is not designed to withstand high temperatures.

2. INSTRUCTIONS FOR THE INSTALLER

2.1. Warning to installers

All local and national regulations, including all those referring to national and European standards, must be observed when installing the appliance.

Installation of the appliance must be performed by an authorised installer.

An incorrectly installed appliance may lead to serious incidents (fires, creation of harmful gases, deterioration of nearby fixtures, etc.).

Lacunza's liability is limited to the supply of the material and does not include installation of the appliance.

2.2. Room for installation

2.2.1. Ventilation of the room

The appliance needs to consume oxygen (air) in order to work properly. Ensure a suitable air supply in the room in which the appliance is fitted. This quantity of oxygen is additional to the oxygen that we need in order to breathe (air renewal).

In order to ensure the high quality of the air you breathe and to avoid potential accidents resulting from high concentrations of the gases produced by combustion (mainly carbon dioxide and carbon monoxide), it is absolutely crucial to ensure the suitable renewal of the air in the room in which the appliance is fitted.

The room must always have at least two permanent grilles or openings to the exterior in order to renew the air (one for intake and the other for extraction).

For the installation of its appliances, Lacunza recommends an additional section for these openings. One of these two grilles must be situated high up in the room (at less than 30 cm from the ceiling) and the other one low down (at less than 30 cm from the floor). Both grilles must open outdoors in order to renew the air in the room with fresh air.

The air inlet grilles must be positioned so that they cannot be blocked or closed accidentally.

The minimum section that each of these grilles must have depends on the nominal output of the appliance in accordance with the following table:

Output of the appliance (kW)	Minimum additional section of each of the grilles (cm^2)
P ≤ 10kW	70
10 < P ≤ 15	90
15 < P ≤ 20	120
20 < P ≤ 25	150
25 < P ≤ 30	180
30 < P ≤ 35	210
P > 35	240

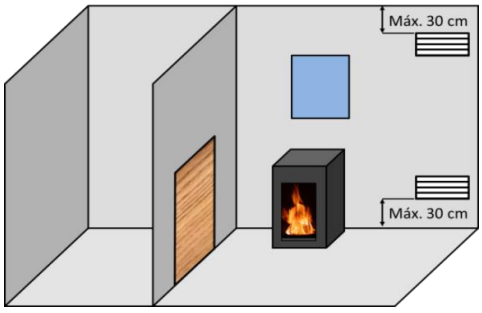


Figure No.3 - *Guideline indications for ventilation grilles*

In the case of appliances on whick it is posible to pipe combustión air in from outdoors (appliances type BE, BF, CA, CM y CC), the specificatioins described in the table above are not necessary.

The appliance must always be used with the door(s) closed.

In rooms equipped with Controlled Mechanical Ventilation, the system extracts and renews the ambient air; in such cases, the room is at slightly low

pressure and it is necessary to install a non-closable outside-air inlet with a section of at least 90 cm^2.

2.2.2. Location of the appliance in the room

Choose a location in the room which favours good hot-air distribution by convection and radiation.

2.3. Installation of the appliance

2.3.1. Floor

Make sure that the base can withstand the total constructed weight of the appliance and its casing.

When the floor surface (base) is combustible, fit suitable insulation.

2.3.2. Checks before lighting for the first time

- Make sure that the glass is not broken or damaged.
- Make sure that the flueway is not obstructed with packing or loose parts.
- Make sure that the airtight joints on the flue circuit are in perfect condition.
- Make sure that the doors close properly.
- Make sure that all moving parts are fitted in place.
- Check that the deflector is fitted properly

2.3.3. Height adjustment and levelling the appliance

The appliance must be perfectly level, horizontally and vertically, both at the front and on the sides (use a spirit level).

The appliance has adjustable legs with which to adjust its height.

The legs can be adjusted using a 24mm spanner.

2.3.4. Casing

Make sure that the material around the appliance is not flammable or likely to deteriorate as a result of heat (wallpaper, carpet, plastic-based casing, Silestone, etc.).

The image below gives an example of how the appliance can be encased properly:

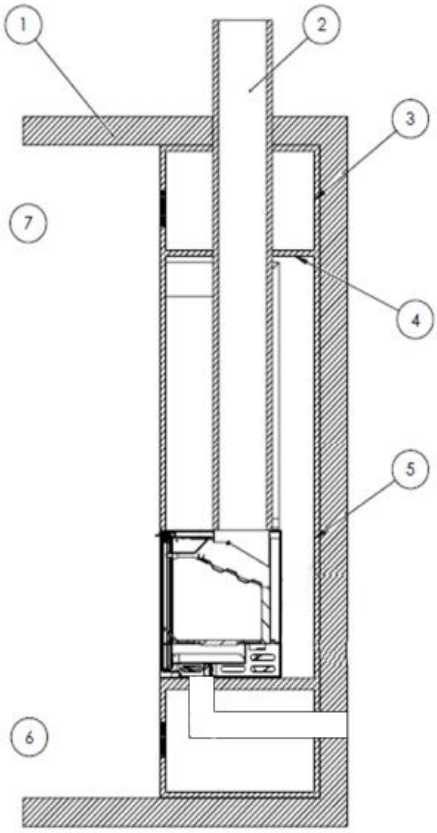


Figure No.4 - *Interior diagram of the casing*

Key to casing diagram:
1 Ceiling
2 Flue
3 Incombustible material (Inner hood insulation)
4 Insulating deflector made of incombustible material
5 Wall
6 Fresh-air inlet (1,000 cm^2)
7 Hot-air outlet (1,000 cm^2)

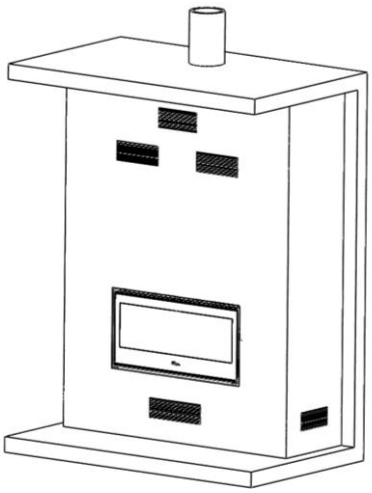


Figure No.5 - *Exterior diagram of the casing*

In order to enable suitable air circulation and correct operation, the casing must have a fresh-air inlet with a minimum section of 1,000cm^2 beneath the level of the actual appliance and a hot-air outlet measuring at least 1,250cm^2 above it (just before the insulating deflector inside the casing). These inlet and outlet sections must ensure air renewal in such a way as to avoid damage to parts inside the hood due to excess temperature.

This specification must be observed regardless of the type of installation chosen (with or without forced ventilation, combustion air from indoors or outdoors, directed hot-air outlets with or without pipes, etc.). A further hot-air ventilation grille is also recommended between the insulating deflector on the hood and the ceiling.

As well as this, the hood/closure should have a free opening of at least 100 cm2 for the intake of air for combustion.

Warning: on appliances on which it is possible to pipe air to the firebox, the hood requires a further air inlet at the bottom, in addition to the 1,000cm^2 inlet, if the air supply comes from the room in which the appliance is fitted.

On non-central-heating appliances (without back boiler), Lacunza does not recommend enveloping the outside of appliances with insulation.

Never completely block off the lateral ventilation grilles of the fairing.

The installer must fit the necessary inspection accesses (trap doors, hatches, etc.) so that everything inside the hood that may need maintenance work, cleaning or replacement can be accessed at any time.

2.3.5. Preparing the outside air conection

On this model, it is possible to pipe air to the appliance for combustion straight from outdoors. We recommend that, if possible, air be drawn from outdoors for combustion via a non-closable pipe with a diameter of 80mm leading to the nozzle on the bottom-front of the appliance.

If the tube is straight, it can have a maximum of 12 meters in length. If you use accessories like elbows, you must subtract the total length (12 meters) 1 meter for each accessory used.

This is the best option because it means that draughts are not created in and oxygen is not consumed from the room in which the appliance is fitted. A further advantage is that there is no danger of downdraught which may hinder the correct updraught of the appliance when an extractor or mechanical ventilation appliance is used in the same room as the central-heating appliance or in another one alongside it.

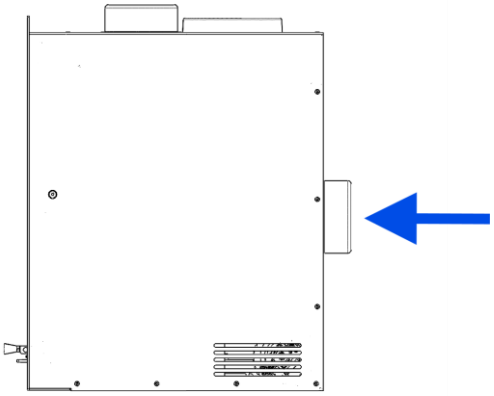


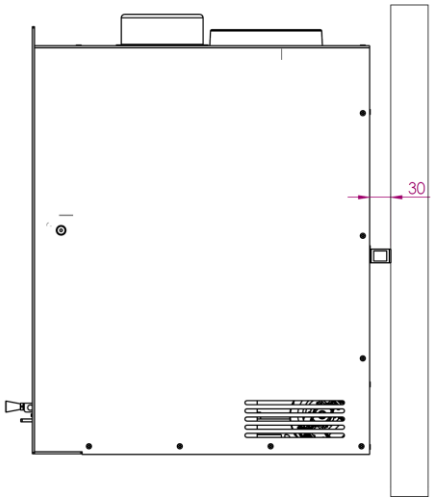
Figure No.6 - *Air conduction for the combustion chamber*

If this is not possible, ensure that the appliance receives air for combustion.

Outside air connection via the wall

1. Make an opening in the wall (see the measurements of the appliance on the section 1.1 to see the exact position of the hole).
2. Close the air connection hermetically to the wall.

Attemtion: If the air supply is NOT ducted from the outside, it's NOT possible to remove the rear piece that ensures the 30mm distance between the rear and the appliance.



2.3.6. Connection to the flue

The appliance must be connected to the chimney flue using special piping designed to resist the products of combustion (e.g. stainless steel, enamelled steel, etc.).

To connect the flue to the socket flange, insert the piping inside the flange and seal the joint with fire sealant or fire cement to make it completely airtight.

The installer must ensure that the pipe connected to the appliance is well secured and there is no chance of it coming free from its housing (e.g. as a result of dilatation due to temperature, etc.).

On this appliance, the flue socket can be fitted on top of the appliance.

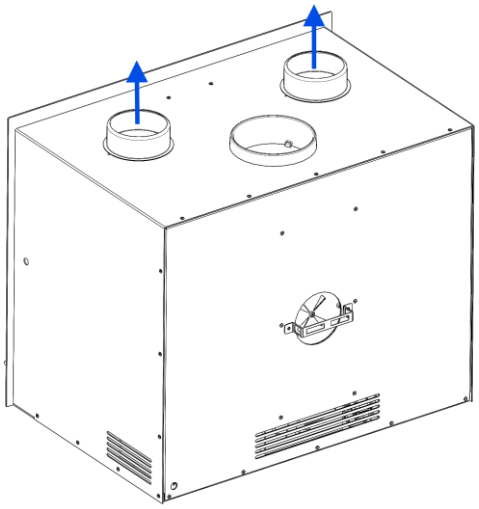
2.3.7. Piping air to other rooms

It is possible to pipe some of the heat generated to other rooms in the house using the appliance. This does not mean that the appliance works more efficiently, but it does mean that the heat it creates is distributed better. For this purpose, in the top surface of the appliance there are 2 potential hot-air outlets with diameters of 120mm on the top shell of the appliance. Pipes can be fitted from these outlets to other rooms. If you intend to do this, bear the following points in mind.

- The air ducts must always be heat insulated and smooth inside (not corrugated).
- The pipes must always have an upward slant to facilitate movement by air density.
- On routes with a lot of load loss (a lot of retention), air movement can be forced along the ducts using a motor or fan, provided that it is designed to withstand such temperature conditions.

Bear in mind that air ducts mean that noise travels more easily from one room to another.

The following table shows the heat output of the air from the hot-air outlets with the appliance working at Nominal Heat Output:



	Output (kW)
LAGA LAGA VISION	

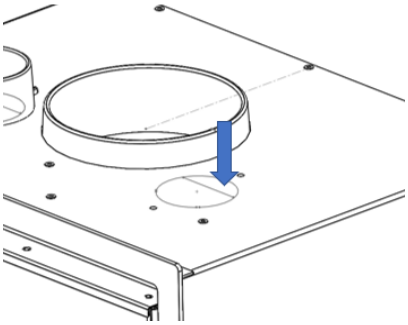
Figure No.7 - *Table showing heat output of the air leaving the appliance*

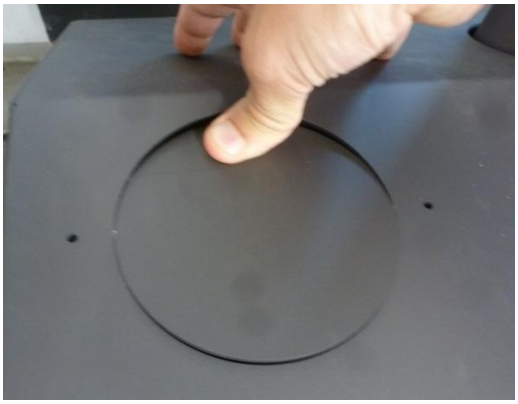
Note: The values shown in the above table were measured at the appliance output point and based on tests performed at nominal heat output and maximum fan speed.

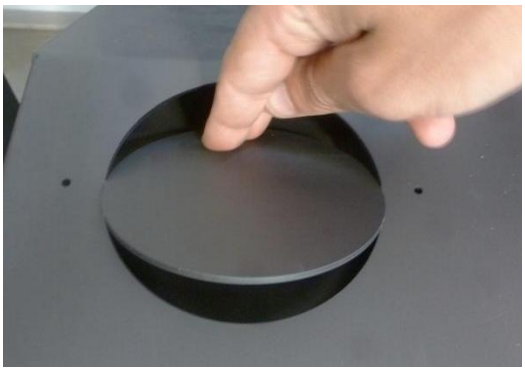
All hot-air ducts lose heat, meaning that the heat output obtained at the end of piping always depends on its design.

The appliance LAGA there are 2 potential hot-air outlets with diameters of 80mm on the top shell of the appliance.

1º Turn the piece from the back of the circle as seen in the images.







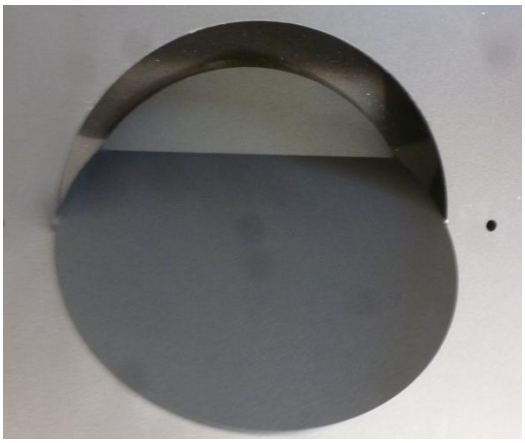


Figure No.8 - *Push as indicated by arrow*

This favors the movement of air into the air outlet.

2º Place the nozzle into position.

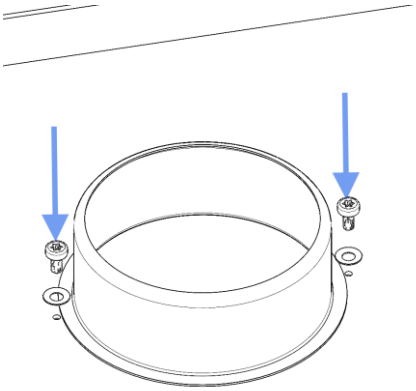
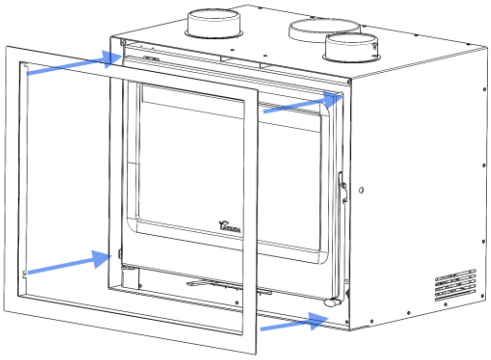


Figure No.9 - *Screw the nozzle*

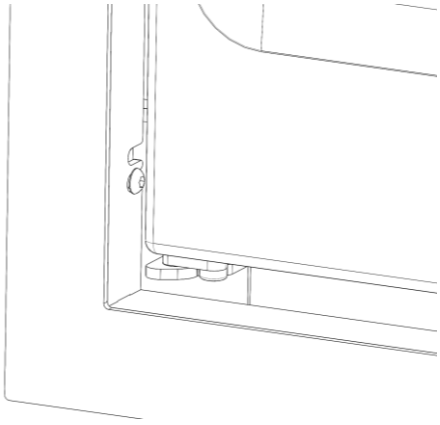
2.3.8. Exterior Frame. Removal and assembly

To fit the frame, proceed as follows:

Fit the frame parts to the 4 screws on the body.



Tighten the 4 screws.



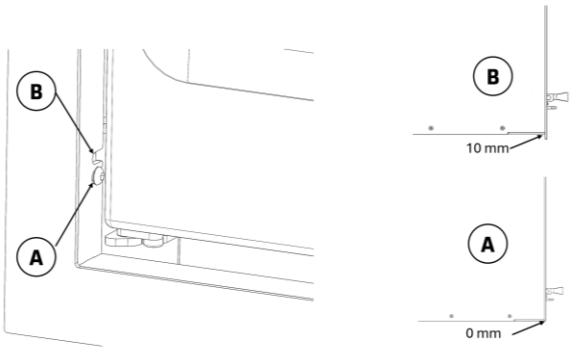


Figure No.10 - *Different positions*

A - Flush with base

B - 10mm overlap at the bottom

To release the frame again, follow the reverse of the removal procedure.

2.3.9. Turbine-potentiometer connection

These are the connection instructions in order to control the ventilator system using the supplied potentiometer.

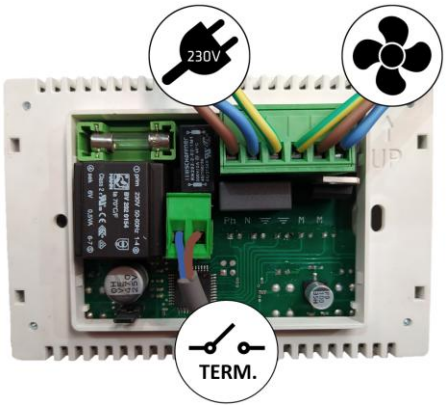


Figure No.1 - *Connections to be carried out in the potentiometer*

WARNING: the operating temperature of the potentiometer supplied by Lacunza is from 0 to 40°C. Particular care should be taken when choosing where it will be positioned so that it is not damaged by temperatures above 40°C. Insulate the potentiometer correctly so as to avoid this problem.

Read the potentiometer instruction manual.

2.4. Chimney flue

The chimney flue must comply with present standards on the installation of chimneys.

In rooms equipped with Controlled Mechanical Ventilation, the ventilation outlet must never be connected to the flue.

The appliance must always have its own chimney flue, never sharing a chimney flue with another appliance.

2.4.1. Type of flue

The flue must be made of special material designed to resist the products of combustion (e.g. stainless steel, enamelled steel, etc.).

Non-central-heating appliances (without back boiler) require an insulated, double-sleeve flue only on those sections that run outdoors or through cold areas. Single piping can be used inside the building, the heat of the gases serving to heat rooms, insulating only those sections where excess temperature may cause damage.

If the chimney is constructed, then it is necessary to pipe and insulate it to ensure correct updraught.

The diameter of the pipe must be the same as the diameter of the flue socket on the appliance over its entire length in order to ensure correct operation.

The flue must prevent the entry of rainwater.

The flue must be clean and airtight over its entire length.

The flue must be at least 6m tall and the chimney cap must not hinder the free release of gases.

If the flue tends to suffer from downdraught, then it is necessary to fit an effective anti-downdraught cowl, a static cowl or a smoke extraction fan, or reshape the chimney.

Never make 90° bends, due to the great loss of draught they cause, and reduce 45° bends down to an absolute minimum. Each 45° bend is equivalent to a 0.5m reduction in flue length. Horizontal flue sections should not be installed because they cut updraught a great deal.

The appliance is designed to operate under controlled draught conditions. The appliance must operate at a chimney draught of between 12Pa and 15Pa. To ensure this draught, an automatic draught moderator must be installed in the flue. Uncontrolled draught operation can lead to quick damage of the appliance, which will not be covered by the warranty.

The flue must not rest its weight on the appliance, as this could damage the worktop.

Bear in mind that high temperatures may be reached in the flue, meaning that it is essential that insulation be enhanced in sections in which combustible material is present (wooden beams, furniture, etc.). It may even be necessary to protect non-combustible material in order to prevent breakage, deformation, etc., as a result of overheating if the material is not designed to withstand high temperatures.

It must be possible to clean the entire flue, no sections being left inaccessible for cleaning purposes.

2.4.2. Chimney crown

The upper end of the chimney must clear the roof, the roof ridge or any obstacle located on the roof by at least 1m.

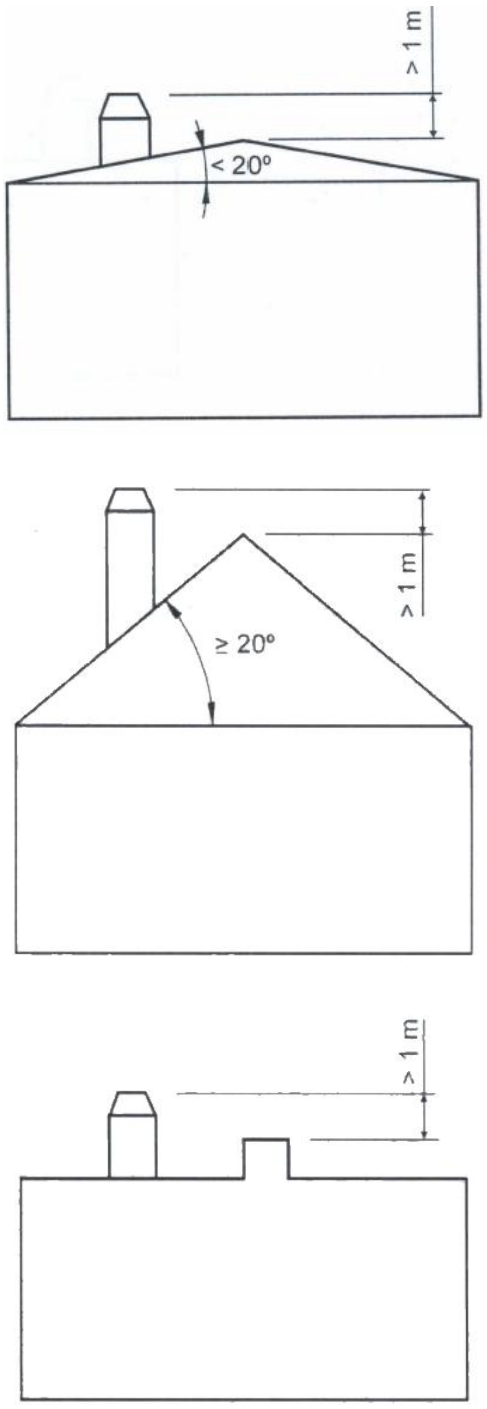


Figure No.2 - *Distances between chimney crown and roof ridge*

The chimney crown must clear the highest point of any neighbouring building or obstacle located within a 10m radius of the chimney outlet by more than 1m.

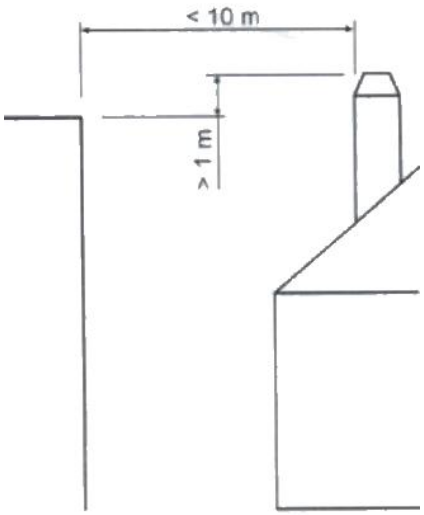


Figure No.3 - *Distances between the chimney crown and objects within a 10m radius*

The chimney crown must clear any neighbouring building or obstacle located within a radius of 10m to 20m from the chimney outlet.

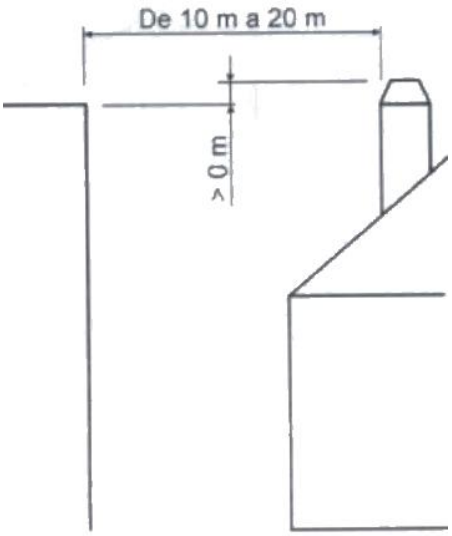


Figure No.4 - *Distances between the chimney crown and objects within a radius of between 10 and 20m*

3. INSTRUCTIONS OF USE

The manufacturer accepts no liability whatsoever for damage caused to parts as a result of the improper use of non-recommended fuels, modifications made to the appliance or how it is installed. **Only use original replacement parts.**

All local and national regulations, including those referring to national and European standards, must be observed when using the appliance.

Heat is diffused by radiation and convection via the front and exterior of the appliance.

3.1. Fuel

This appliance must not be used as an incinerator. Do not use non-recommended fuels.

- Use dry logs (max. 16% humidity), cut at least 2 years ago, clean of resin and stored in a sheltered, ventilated place.
- Use hard woods with high calorie values and good ember production.
- Large logs should be cut to useable lengths before being stored. The logs should have a maximum diameter of 150mm.
- Finely-chopped wood produces greater heat output, but also burns more quickly.

Optimum fuels:

- Beech.

Other fuels:

- Oak, chestnut, ash, maple, birch, elm, etc.
- Pine and eucalyptus logs are low density and produce very long flames, and may cause the parts of the appliance to wear out more quickly than normal.
- Resinous wood may mean that the appliance and the flue need to be cleaned more often.

Non-permitted fuels:

- All types of coal and liquid fuel.
- "Green wood". Green or damp wood reduces the performance of the appliance and leads to soot and tar build-up on the inner walls of the flue, obstructing it.
- "Recovered wood". The burning of treated woods (railway sleepers, telegraph posts, plywood, fibreboard, pallets, etc.) quickly blocks the system (soot and tar build-up), harms the environment (pollution, smells) and may lead to deformation of the firebox due to overheating.
- All materials which are not wood (plastic, spray cans, etc.).
- Never use gasoline, gasoline-type lamp fuel, paraffin, charcoal lighter fluid, ethyl alcohol or similar liquids to ignite or rekindle a fire in the equipment. Keep all such liquids away from the equipment while it is in use.

Green and reprocessed wood may cause chimney fires.

The graph below shows how the humidity of firewood affects its heat output:

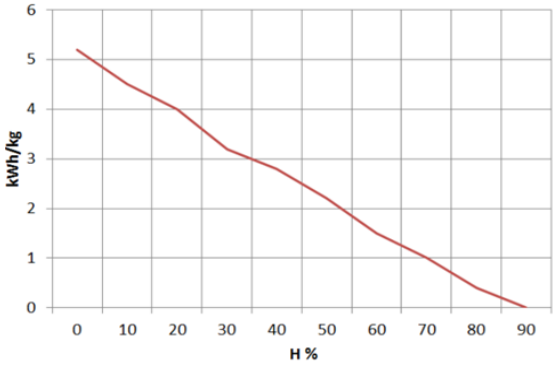


Figure No.5 - *Relationship between firewood humidity and heat output.*

3.2. Description of the parts of the appliance

3.2.1. Operating components

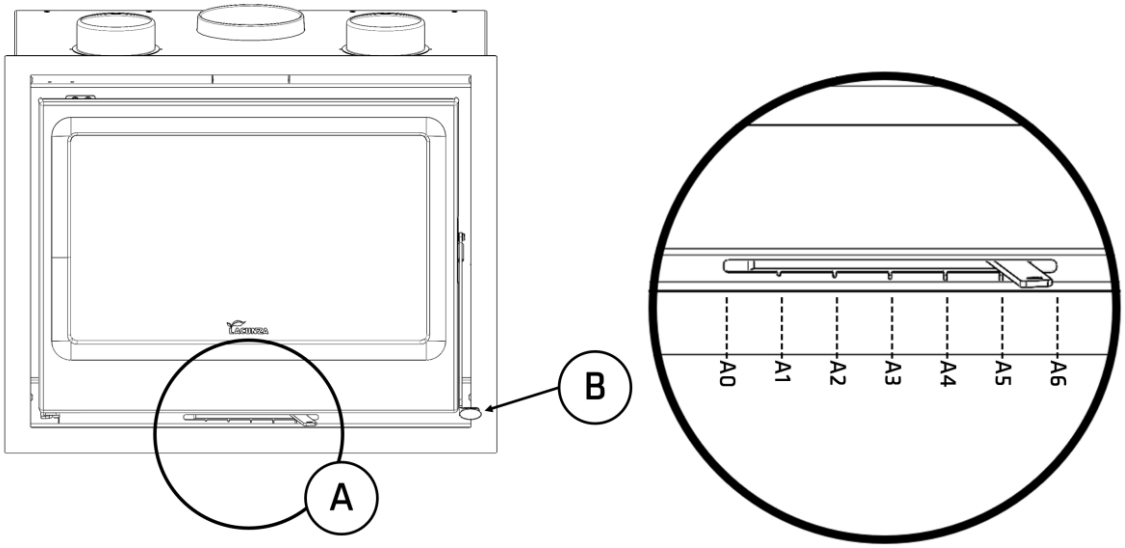


Figure No.6 - *Operating components on the appliance*

- A: Air intake
  - A0: Closed (left)
  - A6: Opened (right)
- B: Firebox door handle

3.3. Lighting

Use of the appliance in warm weather (warm days, early hours of the afternoon on sunny days) may lead to lighting and updraught problems.

Certain weather conditions, such as fog, ice, humidity entering the flue, etc., may hinder sufficient updraught in the flue and lead to suffocation.

Proceed as follows in order to light the appliance satisfactorily:

- Open the firebox door(s) and open all the firebox air-intake inlets to the full.
- Place paper or a firelighter and some wood chips in the firebox.
- Light the paper or firelighter.
- Leave the door slightly ajar, the width of two or three fingers, for about 15 minutes until the glass warms up.
- The first ignition must be soft, to allow the different parts that compose the appliance to dilate and dry.

Caution: On first switch-on, the appliance may produce smoke and odour. Do not be alarmed and open a window to the outside to air the room during the first hours of operation.

If you notice water around the appliance, this is caused by condensation from the moisture in the wood when the fire is lit. This condensation will cease after three or four ignitions when the appliance is adapted to its flue. If this is not the case, the flue should be checked (length and diameter of the chimney, chimney insulation, tightness) or the humidity of the wood used.

3.4. Loading fuel

In order to load firewood, open the firebox door gently, preventing the sudden entry of air to the firebox so that smoke does not enter the room that the appliance is installed in. Perform this operation with the glove to prevent burns to the hands.

The maximum height of the load shall be approximately one third of the height of the firebox.

The minimum interval between loads for nominal heat output is 60 minutes.

Always load with the nominal amount (see table in section 1.1).

For minimum burning (e.g. at night), use thicker logs.

When the firebox is loaded, close the door.

Be careful when placing logs in the firebox on appliances with vermiculite interiors. Vermiculite is a fragile material and may crack if knocked. The use of wood with non-recommended humidity levels will quickly damage the vermiculite parts.

3.5. Operation

The appliance should be operated with the door closed.

For safety reasons, never close all the appliance's combustion-air intakes.

Primary-air intake

To fully open the primary air inlet, the register lever must be moved to position A6. Moving the register to position B4 closes the primary air inlet register.

Secondary-air intake

To start opening this inlet, the register lever must be placed in position A1. By moving the register up from this position to A6, a gradual opening of the secondary air inlet is achieved.

Opening this inlet, we introduce air into the combustion chamber through the upper part of the firebox door and side doors.

IMPORTANT: Keeping the secondary-air intake open helps keep the door glass cleaner for longer.

Double-combustion air intake

Moviendo la palanca del registro desde la posición A0 hasta A6, se consigue una apertura gradual de la entrada de aire de doble combustión, estando cerrada en la posición A0 y abierta al 100% en la posición A6.

By opening this inlet, air enters the combustion flame, making for more efficient and less polluting combustion because post-combustion takes place, burning the particles which were not burned in the first combustion. This increases the performance of the appliance and reduces emissions.

IMPORTANT: The appliance is exposed to extreme changes in temperature and may, as a result, make noises when in operation. These noises are a natural result of expansion/contraction of the parts which make up the appliance. Do not be alarmed by noises of this kind.

To obtain maximum power, we will open all the air inlet registers by placing the register lever in position A6, and to obtain minimum power we will tend to close the register. For normal use, at nominal power, it is advisable to place the register lever in a medium position, between A2 and A3.

In class B or BE appliances (without combustion air ducting from the street), when the appliance is not in use, the appliance-flue duct assembly may represent a heat leakage route to the street. When the appliance is not in use, it is advisable to leave the air inlet registers to the combustion chamber closed to minimise these energy losses.

3.6. Removing ash

Following sustained use of the appliance, it is necessary to remove the ash from the firebox. Remove the ashpit box when cold or using something to prevent yourself from getting burned (glove).

Never throw hot embers into the rubbish.

3.7. Deflectors

The appliance is supplied with two baffles, a two-piece vermiculite deflector and a steel deflector on top of the vermiculite.

Dismantling the deflectors

First, the steel reinforcement has to be removed.

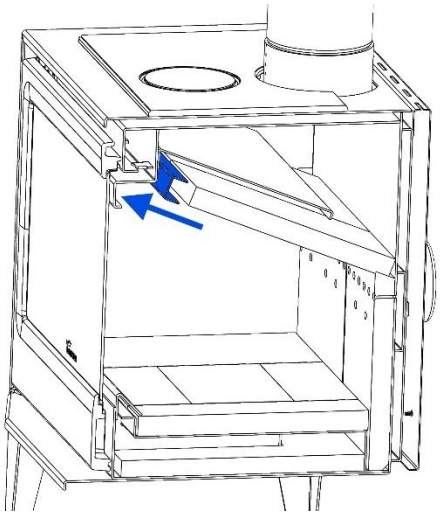


Figure No.7 - *Reinforcement*

The two pieces of vermiculite are then removed.

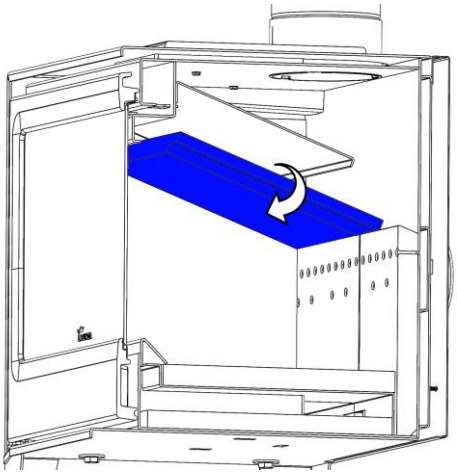


Figure No.8 - *Vermiculite deflector*

Finally, remove the steel deflector by first moving it upwards to unlatch it.

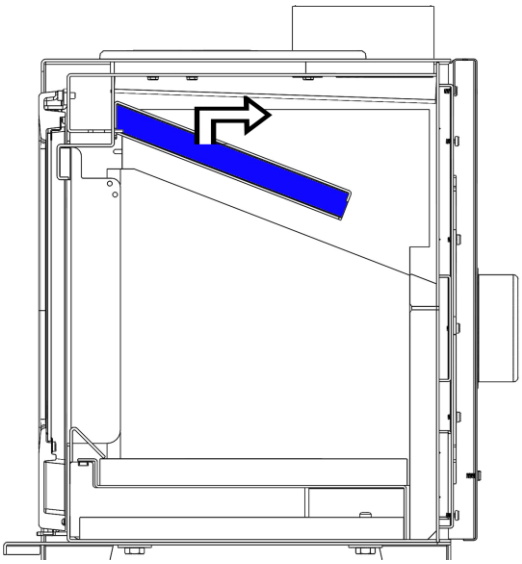


Figure No.9 - *Steel deflector*

3.8. Electrical system

Forced convetion. Fans

LAGA has 2 fans for the forced convection of the hot air generated around the appliance inside the shell. This air can be piped to other rooms.

IMPORTANT: This appliance is not covered by our warranty unless directly connected to the mains electricity supply in accordance with the conditions described in the relevant section in 1.1.

Potentiometer operation:

By means of its rotating lever, the potentiometer controls the flow of hot-air output from the appliance in two ways:

- **Operation:**

The fan automatically or manually starts working at the set speed. When the fan is working automatically (recommended), when a fire has been lit in the firebox and the thermostat reaches a temperature of approximately 50°C, the fan starts working at the power set on the potentiometer (rotating wheel) and stops automatically when the temperature drops beneath 50°C.

In addition, we have the option of stopping the fans fron the Stop button, whenever we want.

The potentiometer has a remote control, whick allows the same operations as the potentiometer.

The remote control of some TV brands may interfere with the potentiometer sensor and change its operation. To avoid possible interference, it is recommended to place the potentiometer in a place away from the TV.

For more information see the potentiometer instruction manual.

4. MAINTENANCE AND IMPORTANT ADVICE

4.1. Maintenance of the appliance

The appliance, the flue connector piping and the flue must be cleaned regularly, particularly following long periods without use.

4.1.1. Firebox

Clean the firebox area of ash, etc.

4.1.2. Inside the appliance

Clean the firebox area of ash. Clean the deflectors, where soot may build up.

4.1.3. Flue socket

The flue socket area must be kept clean at all times for the appliance to work properly.

It must be cleaned as often as required. How often it is cleaned depends on how much the appliance is used and the type of fuel employed.

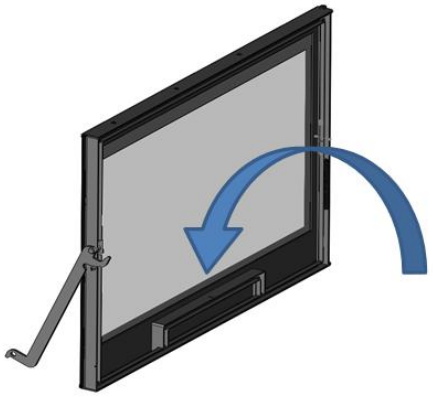
4.1.4. Firebox glass

To keep the glass as clean as possible for as long as possible, the secondary air register should be kept open. However, over the hours of use, the glass may become dirty. To clean it, we will use specific degreasing products or dry cleaning products for this task.

The cleaning should be carried out with the glass cold and taking care not to apply the glass cleaner directly on the glass as, if it comes into contact with the door's closing cord, it may deteriorate. Put the cleaning product on the cloth.

It is also important to prevent the cleaning liquid from getting into the moving mechanism of the register, as this could jam it.

Attention, never let the product drip into the lower part of the glass. The accumulation of the cleaning product, with soot or ash residues, can damage the screen printing on the glass.



Note: If we use the appliance in draught conditions higher than 15Pa or burn more wood (per hour) than those indicated in table 1.1, we will subject the appliance to working conditions higher than those designed for it. This can lead to aggressive fouling of the glass (white halo), which cannot be cleaned by the traditional method.

Caution, the vitro ceramic glass is prepared to support 700°C. Never let burning woods or combustion flame beating against the glass for prolonged periods of time. In this case, the glass would be submit to temperatures above 750°C, this could change the internal structure of the glass and make it opaque (irreversible phenomenon).

4.1.5. Painted sheet-steel-cast-iron parts.

These parts should be cleaned with a brush or dry cloth. Do not dampen the parts: the steel could rust and the paint could blister and chip. Be particularly careful when cleaning the glass: the liquids used must not dampen the painted steel.

4.1.6. Electrical system

The electrical system should be cleaned-vacuumed regularly (depending on

the installation and use), so as to avoid the accumulation of ash, lint and other remains that may generate strange noises and/or deteriorate the ventilators and electrical system. Disconnect the electrical network system to perform this task.

Open the door and dismantle the gate under the fireplace (part 16 of the basic brakedowns).

4.2. Maintenance of the chimney flue

VERY IMPORTANT: In order to avoid incidents (chimney fires, etc.), it is necessary to perform maintenance and cleaning operations on a regular basis; if the appliance is used often, then the chimney and the flue connector piping must be swept several times a year.

In the event of fire in the chimney, close the flue draught, close doors and windows, remove embers from the firebox, block the connection hole with damp cloths and call the fire brigade.

4.3. Important advice

Lacunza recommends that only Lacunza-authorised replacement parts be used.

Lacunza accepts no liability for any modification to the product which it has not authorised.

This appliance is a heat-producing appliance and contact may lead to burns.

This appliance may remain HOT for a period of time after it has gone out. MAKE SURE THAT SMALL CHILDREN DO NOT GO NEAR IT.

5. TROUBLESHOOTING

 This symbol means that a qualified professional should be called to perform the operation.

Problem	Probable causes		Solution
The fire does not light properly **The fire does not stay alight**	Green or damp wood		Use hard woods, cut at least 2 years ago and stored in a sheltered, ventilated place
	The logs are too large		Use crumpled paper or firelighters and dry wood chips to light the fire. Use split logs to keep the fire going
	Poor-quality wood		Use hard woods which produce heat and embers (chestnut, ash, maple, birch, elm, beech, etc.)
	Insufficient primary air		Open the primary- and secondary-air intakes completely, or even open the door slightly. Open the outdoor-air inlet grille
	Insufficient updraught		Check that the draught is not blocked. De-soot if necessary. Check that the flue is in perfect condition (airtight, insulated, dry, etc.)
The fire flames up too much	Excessive primary air		Close the primary- and secondary-air intakes partially or totally
	Excessive updraught		Install a draught damper
Smoke given off on lighting	Poor-quality wood		Do not continually burn chips, carpentry scraps (plywood, pallets, etc.)
	Cold flue		Heat up the flue by burning a piece of paper in the firebox.
Smoke during burning	The room is at low pressure		In rooms with Controlled Mechanical Ventilation, leave an outdoor window ajar until the fire is fully alight.
	Too little wood loaded		Load as recommended. Loads notably smaller than those recommended lead to low smoke temperature and downdraught.
	Insufficient updraught		Check the condition of the flue and insulation. Check that the piping is not blocked. Clean mechanically if necessary
	Wind enters the flue		Install an anti-downdraught system (Cowl) at the top of the chimney
Does not warm up enough	The room is at low pressure		In rooms with Controlled Mechanical Ventilation, there must be an outdoor-air inlet
	Poor-quality wood		Only use the recommended fuel
The fans do not work	Electrical fault		
Water condenses (after the appliance has been lit more than 3 or 4 times)	Too little wood loaded		Load as recommended. Loads notably smaller than those recommended lead to low smoke temperature and condensation.
	Green or damp wood		Use hard woods, cut at least 2 years ago and stored in a sheltered, ventilated place.
	Condition of the flue		Lengthen the flue (5-6 metres minimum). Insulate the flue properly. Check the airtightness of the flue/appliance.

6. BASIC BREAKDOWNS

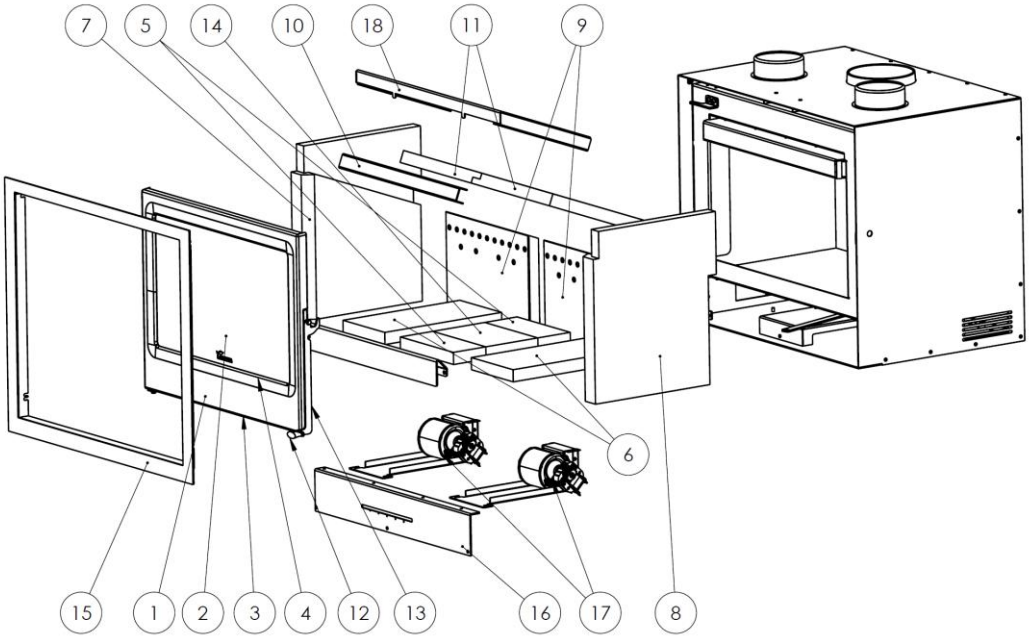


Figure No.10 - *LAGA*

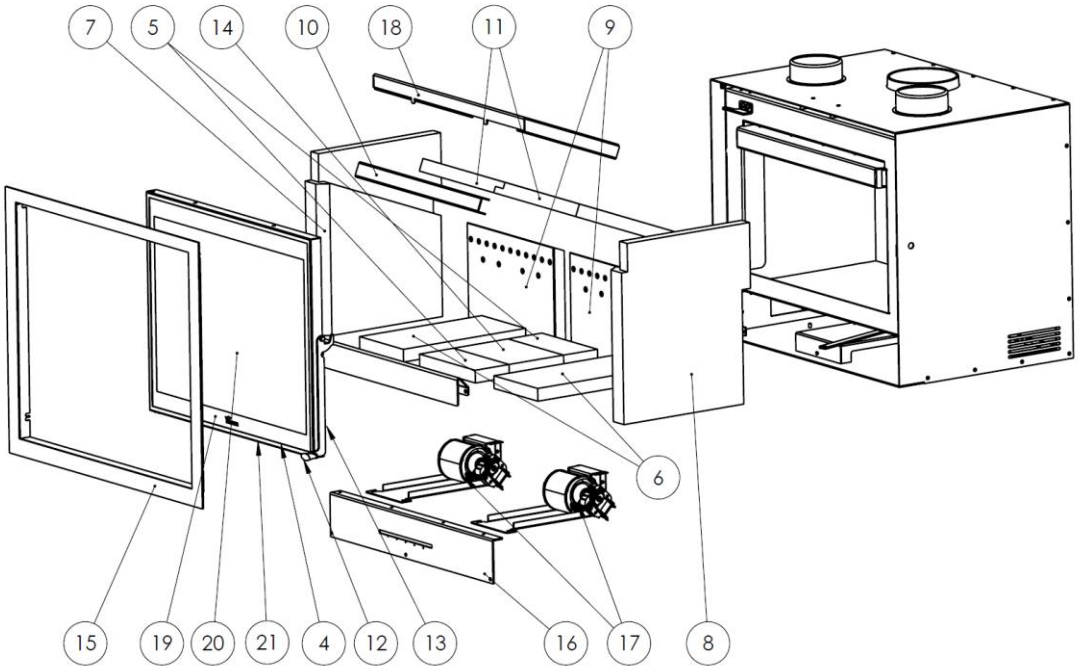


Figure No.11 - *LAGA VISION*

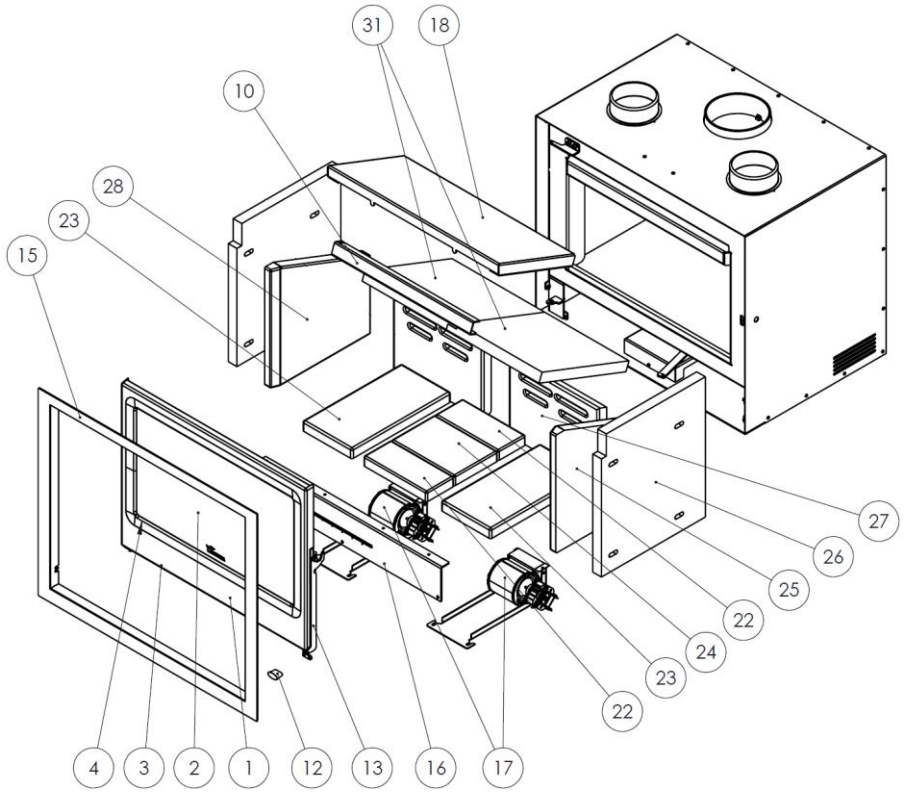


Figure No.12 - *LAGA C*

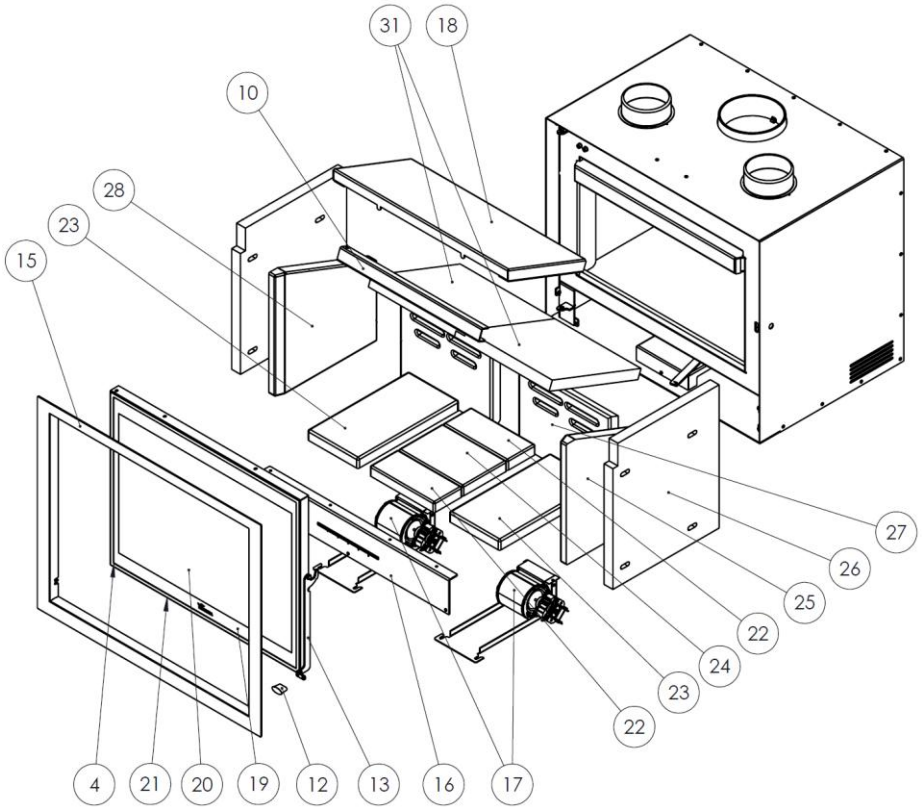


Figure No.13 - *LAGA C VISION*

Nº	CÓDIGO	DENOMINACION	CANTIDAD
1	5021200000	Martina P/Hogar Completa S/Cristal	1
2	5021200001	Martina Cristal C/Junta	1
3	500900000010	Cordón Ø8mm	2.5m
4	500000000510	Cordón plano pelos 8x2mm	2m
5	5021200002	Martina vermiculita base del-tras.	2
6	5021200003	Martina vermiculita base izda-dcha.	2
7	5021200004	Martina vermiculita lateral izda	1
8	5021200005	Martina vermiculita lateral dcha.	1
9	5047200000	Laga vermiculita trasera	2
10	5000000945	Refuerzo deflector vermiculita	1
11	5021200007	Martina vermiculita deflector (unid.)	2
12	5021200008	Martina pomo negro	2
13	5021200009	Martina manilla capa (sin pomo)	1
14	5021200010	Martina vermiculita central	1
15	5047200001	Laga marco	1
16	5047200002	Laga tapa inferior frontal	1
17	5047200003	Laga subc. Ventilador (turbina+chapa)	2
18	5021200014	Martina/Laga deflector superior Chapa	1
19	5047200004	Laga Vision P/Hogar Completa S/Cristal	1
20	5047200005	Laga Vision Cristal C/Junta	1
21	509020000042	Cordón Ø13mm	2.5m
22	5021200016	Maule-LagaC base del-tras cerámica blanca	2
23	5021200017	Maule-LagaC Base lateral cerámica blanca	2
24	5021200019	Maule-LagaC base central	1
25	5021200021	Maule-LagaC lateral derecho cerámica blanca	1
26	5021200020	Maule-Laga vermiculita lateral	2
27	5021200023	Maule, Trasera cerámica blanca	2
28	5021200018	Maule-LagaC lateral izdo cerámica blanca	1
31	5021200024	Maule Laga C, Deflector vermiculita blanca	2

7. PRODUCT RECYCLING

The recycling of the appliance is the exclusive responsibility of the owner, who must act in compliance with the laws in force in his country regarding safety, respect and protection of the environment. At the end of its useful life, the product must not be disposed of with urban waste.

It can be delivered to the specific selective collection centres set up by the municipalities, or to retailers who offer this service. The selective disposal of the product avoids possible negative consequences for the environment and for health and makes it possible to recover the materials of which it is composed, thus obtaining significant savings in terms of energy and resources.

It can be disassembled (the parts are assembled with screws or rivets) and the components can be deposited in their corresponding recycling channels. The components of the appliance are: steel, cast iron, glass, insulating materials, electrical material, etc.

8. DECLARATION OF PERFORMANCE

LACUNZA
Natural comfort

ES FR *EN* **IT** PT *DE*

N.º ES -S-057G

DECLARACIÓN DE PRESTACIONES
Conforme al R. E. Productos Construcción (UE) Nº 305/2011

DÉCLARATION DE PERFORMANCE
Selon le Réglement (UE) Nº 305/2011

DECLARATION OF PERFORMANCE
According to Regulation (UE) N° 305/2011

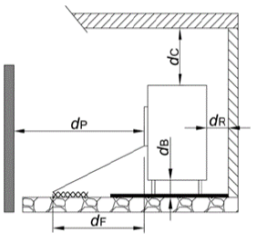
DICHIARAZIONE DI PRESTAZIONE
In base al Regolamento (UE) Nº 305/2011

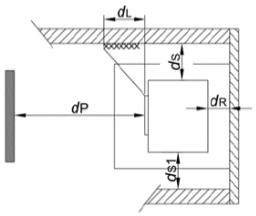
DECLARAÇAO DE PRESTAÇÕES
Em base com o Regulamento (UE) Nº 305/2011

LEISTUNGSERKLÄRUNG
Gemäß R. E. Bauprodukte (EU) Nr. 305/2011

1	**Código de identificación única del producto tipo:** Code d'identification unique du produit type: *Unique identification code of the product-type:* **Codice di identificazione unico del prodotto-tipo:** Código de identificação único do produto-tipo: *Eindeutiger Kenncode des Produkttyps:*	**LAGA** **LAGA C**
2	**Usos previstos:**	**Estufa de calefacción residencial, alimentada con combustibles sólidos.**
	Usage(s) prévu(s):	**Poêles de chauffage domestiques à combustible solid.**
	Intended	**Residential solid fuel burning Roomheaters.**
	Usi previsti:	**Stufa di riscaldamento domestici a combustibile solido.**
	Utilização(ões) prevista(s):	**Fogão de aquecimento residencial, alimentado por combustíveis sólidos.**
	Verwendungszweck(e):	**Häusliche Raumheizer für feste Brennstoffe.**
3	**Fabricante:** Fabricant: *Manufacturer:*	**Fabbricante:** Fabricant: *Hersteller:*
		LACUNZA KALOR GROUP S.A.L. Pol. Ind. Ibarrea 5A 31800 Alsasua (Navarra) (Spain) T. (0034) 948563511 comercial@lacunza.net www.lacunza.net
5	**Sistemas de evaluación y verificación de la constancia de las prestaciones (EVCP):** Système(s) d'évaluation et de vérification de la constance des performances: *System/s of AVCP:*	**Sistemi di VVCP:** Sistema(s) de avaliação e verificação da regularidade do desempenho (AVCP): *System zur Bewertung und Überprüfung der Leistungsbeständigkeit:*
		3
6a	**Norma armonizada:** Norme harmonisée: *Harmonised standard:*	**Norma armonizzata:** Norma harmonizada: *Harmonisierte Norm:*
		EN-16510-2-1 (2022)
6a	**Organismos notificados:** Organisme(s) notifié(s): *Notified body/ies:*	**Organismi notificati:** Organismo(s) notificado(s): *Notifizierte Stelle(n):*
		CEIS Nº NB1722 Centro de ensayos, innovación y servicios Cr. Villaviciosa de Odón a Mostoles (M-856) Km 1.5 Móstoles 28935

7	**Características esenciales** Caractéristiques essentielles *Essential features*	**Caratteristiche essenziali** Características essenciais *Unerlässliche Eigenschaften*	**Prestaciones declaradas:** Performance(s) déclarée(s): *Declared performance/s:*	**Prestazioni dichiarate:** Desempenho(s) declarado(s): *Erklärte Leistung(en):*
	Capacidad para soportar carga Capacité de chargement *Load bearing capacity*	**Capacità di carico** Capacidade de carga *Tragfähigkeit*	**NPD**	
	Protección de materiales combustibles Protection des matériaux combustibles *Protection of combustible materials*	**Protezione dei materiali combustibili** Proteção de materiais combustíveis *Schutz brennbarer Materialien*		





dS =	**200 mm**	**dL =**	**0 mm**
dS1 =	**200 mm**	**dC =**	**800 mm**
dR =	**100 mm**	**dF =**	**0 mm**
dP =	**1300 mm**	**dB =**	**200 mm**

	A	B
Prestación Declarada a Potencia Calorífica: Performance déclarée à la puissance thermique: *Declared Performance at Heating Power:* **Prestazioni dichiarate alla potenza termica:** Desempenho declarado na potência de aquecimento: *Angegebene Leistung bei:*	**Nominal** Nominale *Nominal* **Nominale** Nominal *Nennheizleistung*	**A carga parcial** Á charge partielle *At partial load* **A carico parziale** Com carga parcial *Teillast-Heizleistung*
Emisión. Émission. *Emission*. **Emissione**. Emissão. *Emission* **CO_{nom}** ($13\%O_2$) / **CO_{part}** ($13\%O_2$)	A **715 mg/m³**	B **5157 mg/m³**
Emisión. Émission. *Emission*. **Emissione**. Emissão. *Emission* **NOx_{nom}** ($13\%O_2$) / **NOx_{part}** ($13\%O_2$)	A **120 mg/m³**	B **161 mg/m³**
Emisión. Émission. *Emission*. **Emissione**. Emissão. *Emission* **OGC_{nom}** ($13\%O_2$) / **OGC_{part}** ($13\%O_2$)	A **33 mg/m³**	B **620 mg/m³**
Emisión. Émission. *Emission*. **Emissione**. Emissão. *Emission* **PM_{nom}** ($13\%O_2$) / **PM_{part}** ($13\%O_2$)	A **18 mg/m³**	B **37 mg/m³**
Temperatura de salida de gases de combustión (TSnom/TSpart) Température de sortie des gaz de combustión (TSnom/TSpart) *Combustion gas outlet temperature* (TSnom/TSpart) **Temperatura uscita gas di combustione (TSnom/TSpart)** Temperatura de saída do gás de combustão (TSnom/TSpart) *Verbrennungsgasaustrittstemperatur* (TSnom/TSpart)	A **245 °C**	B **145 mg/m³**
Tiro mínimo (Pnom/Ppart) Tirage minimum (Pnom/Ppart) *Minimum depression* (Pnom/Ppart)	**Depressione minima (Pnom/Ppart)** Depressão mínima (Pnom/Ppart) *Minimale depression* (Pnom/Ppart)	A **12 Pa**	B **6 Pa**
Caudal másico de los gases de combustión (**$Øf,g_{nom}$/$Øf,g_{part}$**) Débit massique des gaz de combustion (**$Øf,g_{nom}$/$Øf,g_{part}$**) *Mass flow rate of combustion gases* (**$Øf,g_{nom}$/$Øf,g_{part}$**) **Portata massica dei gas di combustione** (**$Øf,g_{nom}$/$Øf,g_{part}$**) Taxa de fluxo de massa de gases de combustão (**$Øf,g_{nom}$/$Øf,g_{part}$**) *Massenstrom der Verbrennungsgase* (**$Øf,g_{nom}$/$Øf,g_{part}$**)	A **7 g/s**	B **5 g/s**
Seguridad contra incendios de instalaciones en una chimenea (T_{class}) Sécurité incendie des installations dans une cheminée (T_{class}) *Fire safety of installations in a chimney* (T_{class}) **Sicurezza antincendio delle installazioni** (T_{class}) Segurança contra incêndio de instalações em chaminé (T_{class}) *Brandschutz von Anlagen in einem Schornstein* (T_{class})	**T400**	

Potencia de calefacción (Pnom/Ppart) Puissance de chauffe (Pnom/Ppart) *Heating power* (Pnom/Ppart)	**Potenza di riscaldamento** (Pnom/Ppart) Potência de aquecimento (Pnom/Ppart) *Heizleistung* (Pnom/Ppart)	A **7,2 kW**	B **2,8 kW**
Potencia de calentamiento de agua (PWnom/PWpart) Puissance de chauffage de l'eau (PWnom/PWpart) *Water heating power* (PWnom/PWpart) **Potenza di riscaldamento del l'acqua (PWnom/PWpart)** Potência de aquecimento (PWnom/PWpart) *Wasserheizleistung* (PWnom/PWpart)		A **NPD**	B **NPD**
Eficiencia (ηnom/ηpart) Efficacité (ηnom/ηpart) *Efficiency* (ηnom/ηpart)	**Efficienza** (ηnom/ηpart) Eficiência (ηnom/ηpart) *Effizienz* (ηnom/ηpart)	A **81 %**	B **78 %**
Eficiencia de calefacción estacional (ηs) Efficacité du chauffage saisonnier (ηs) *Seasonal heating efficiency* (ηs)	**Efficienza térmica stagionale** (ηs) Eficiência de aquecimento sazonal (ηs) *Saisonale Heizeffizienz* (ηs)	**71**	
Índice eficiencia energética (EEI) Indice d'efficacité énergétique (EEI) *Energy efficiency index* (EEI)	**Indice di efficienza energetica (EEI)** Índice de eficiência energética (EEI) *Energieeffizienzindex* (EEI)	**107**	
Clase Classe *Class*	**Classe** Classe *Klasse*	**A+**	
Consumo de energía eléctrica *(elmáx / elmín)* Consommation d'énergie électrique *(elmáx / elmín)* *Electrical energy consumption (elmáx / elmín)* **Consumo di energia elettrica** *(elmáx / elmín)* Consumo de energia elétrica *(elmáx / elmín)* *Elektrischer Energieverbrauch (elmáx / elmín)*		A **NPD**	B **NPD**
Consumo de energía modo espera (elsb) Consommation d'énergie en veille (elsb) *Standby power consumption* (elsb)	**Consumo energético in standby (elsb)** Consumo de energia em espera (elsb) *Standby-Stromverbrauch* (elsb)	**NPD**	
Sostenibilidad medioambiental La durabilité environnementale *Environmental sustainability*	**Sostenibilità ambientale** Sustentabilildade ambiental *Umweltverträglichkeit*		

Las prestaciones del producto identificado anteriormente son conformes con el conjunto de las prestaciones declaradas.
Les performances du produit identifié ci-dessus sont conformes à toutes les performances déclarées.
The performances of the product identified above are in accordance with all the declared performances.

Le prestazioni del prodotto sopra identificato sono conformi a tutte le prestazioni dichiarate.
Os desempenhos do produto acima identificados estão de acordo com todos os desempenhos declarados.
Die oben genannten Leistungen des Produkts entsprechen allen erklärten Leistungen.

La presente declaración de prestaciones se emite, de conformidad con el Reglamento (UE) nº 305/2011, bajo la sola responsabilidad del fabricante arriba identificado.
Cette déclaration des performances est établie, conformément au Règlement (UE) n° 305/2011, sous la seule responsabilité du fabricant identifié ci-dessus.
This declaration of performance is issued, in accordance with Regulation (EU) No. 305/2011, under the sole responsibility of the manufacturer identified above.

La presente dichiarazione di prestazione viene rilasciata, in conformità al Regolamento (UE) n. 305/2011, sotto la responsabilità esclusiva del produttore sopra identificato.
Esta declaração de desempenho é emitida, de acordo com o Regulamento (UE) n.º 305/2011, sob a exclusiva responsabilidade do fabricante acima identificado.
Die Erstellung dieser Leistungserklärung erfolgt gemäß Verordnung (EU) Nr. 305/2011 in alleiniger Verantwortung des oben genannten Herstellers.

LACUNZA
Natural comfort
LACUNZA KALOR GROUP S.A.L.
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comercial@lacunza.net
www. lacunza.net

Firmado por y en nombre del fabricante por:
Signé pour le fabricant et en son nom par:
Signed for and on behalf of the manufacturer by:
Firmato a nome e per conto del fabbricante da:
Assinado por e em nome do fabricante por:
Unterzeichnet für den Hersteller und im Namen des Herstellers von :

ALSASUA (Navarra, Spain) a 16/10/2024

Igor Ruiz de Alegria
Director Gerente de Negocio

9. CE MARK

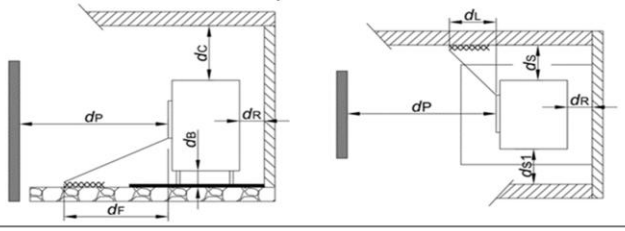
CE 24	LACUNZA KALOR GROUP S.A.L. Pol. Ind. Ibarrea 5A 31800 Alsasua (Navarra) (Spain) www.lacunza.net	
	DoP: **ES-S-057G**	**EN 16510-2-1 (2022)**

Marca, Marque, Mark, Marca, Marca, Markierung: **LACUNZA**
Tipo, Type, Type, Tipo, Tipo, Nett: **Estufa, Poêle, Stufa, Stove, Aquecedor, Holzofen**
Modelo, Modèle, Model, Modello, Modelo, Modell: **LAGA , LAGA C**

Organismo notificado: Organisme notifié: Notified body: Organismi notificati: Organismo notificado: Notifizierte Stelle: **CEIS Nº 1722**

Aparato Tipo, Type d'appareil, Apparatus Type, Tipo di apparecchio, Tipo de aparelho, Gerätetyp: **BE**

Estufa de calefacción residencial, alimentada con combustibles sólidos. Poêles de chauffage domestiques à combustible solid. Residential solid fuel burning Roomheaters. Stufa di riscaldamento domestici a combustibile solido. Fogão de aquecimento residencial, alimentado por combustíveis sólidos. Häusliche Raumheizer für feste Brennstoffe.

Características esenciales, Caractéristiques essentielles, Essential features, Caratteristiche essenziali, , Características essenciais, Unerlässliche Eigenschaften	**Prestaciones, Performance, Prestazione, Services, Desempenho, Leistungen**
Capacidad para soportar carga, Capacité de chargement, Load bearing capacity, Capacità di carico, Capacidade de carga, Tragfähigkeit	**NPD**
Protección de materiales combustibles. Protection des matériaux combustibles. Protection of combustible materials. Protezione dei materiali combustibili. Proteção de materiais combustíveis. Schutz brennbarer Materialien 	**dS = 200mm** **dS1 = 200mm** **dR = 100mm** **dP = 1300mm** **dL = 0mm** **dC = 700mm** **dF = 0mm** **dB = 200mm**

Prestación Declarada a Potencia Calorífica: Performance déclarée à la puissance thermique: Declared Performance at Heating Power: Prestazioni dichiarate alla potenza termica: Desempenho declarado na potência de aquecimento: Angegebene Leistung bei:	**Nominal** Nominale *Nominal* **Nominale** Nominal *Nennheizleistung*	**A carga parcial** Á charge partielle *At partial load* **A carico parziale** Com carga parcial *Teillast-Heizleistung*
Emisión. Émission. Emission. Emissione. Emissão. Emission **COnom (13%O2) / COpart (13%O2)**	**715 mg/m³**	**5157 mg/m³**
Emisión. Émission. Emission. Emissione. Emissão. Emission **NOxnom (13%O2)/NOxpart (13%O2)**	**120 mg/m³**	**161 mg/m³**
Emisión. Émission. Emission. Emissione. Emissão. Emission **OGCnom (13%O2)/OGCpart (13%O2)**	**33 mg/m³**	**620 mg/m³**
Emisión. Émission. Emission. Emissione. Emissão. Emission **PMnom (13%O2) / PMpart (13%O2)**	**18 mg/m³**	**37 mg/m³**
Temperatura de salida de gases de combustión. Température de sortie des gaz de combustión. Combustion gas outlet temperature. Temperatura uscita gas di combustione. Temperatura de saída do gás de combustão. Verbrennungsgasaustrittstemperatur. **(TSnom/TSpart)**	**245 °C**	**145 °C**
Tiro mínimo. Tirage minimum. Minimum depression. Depressione mínima. Depressão mínima. Minimale depression **(Pnom/Ppart)**	**12 Pa**	**6 Pa**
Caudal másico de los gases de combustión. Débit massique des gaz de combustion. Mass flow rate of combustion gases. Portata massica dei gas di combustion. Taxa de fluxo de massa de gases de combustão. Massenstrom der Verbrennungsgase **(Øf,gnom/Øf,gpart)**	**7 g/s**	**5 g/s**
Seguridad contra incendios de instalaciones en una chimenea. Sécurité incendie des installations dans une cheminée. Fire safety of installations in a chimney. Sicurezza antincendio delle installazioni. Segurança contra incêndio de instalações em chaminé.Brandschutz von Anlagen in einem Schornstein **(Tclass)**	**T400**	
Potencia de calefacción. Puissance de chauffe. Heating power. Potenza di riscaldamento. Potência de aquecimento. Heizleistung **(Pnom/Ppart)**	**7,2 kW**	**2,8 kW**
Potencia de calentamiento de agua. Pussance de chauffage de l'eau. Water heating power.Potenza di riscaldamento del l'acqua. Potência de aquecimento. Wasserheizleistung **(PWnom/PWpart)**		
Eficiencia. Efficacité. Efficiency. Efficienza. Eficiência. Effizienz **(ηnom/ηpart)**	**81 %**	**78 %**
Eficiencia de calefacción estacional. Efficacité du chauffage saisonnier. Seasonal heating efficiency. Efficienza térmica stagionale. Eficiência de aquecimento sazonal. Saisonale Heizeffizienz **(ηs)**	**71%**	
Índice eficiencia energética. Indice d'efficacité énergétique. Energy efficiency index. Indice di efficienza energética. Índice de eficiência energética. Energieeffizienzindex **(EEI)**	**107**	
Clase. Classe. Class. Classe. Classe.Klasse	**A+**	
Consumo de energía eléctrica. Consommation d'énergie électrique. Electrical energy consumption. Consumo di energia elettrica. Consumo de energia elétrica. Elektrischer Energieverbrauch **(elmáx / elmín)**		
Consumo de energía modo espera. Consommation d'énergie en veille. Standby power consumption. Consumo energético in standby. Consumo de energia em espera. Standby-Stromverbrauch **(elsb)**		

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