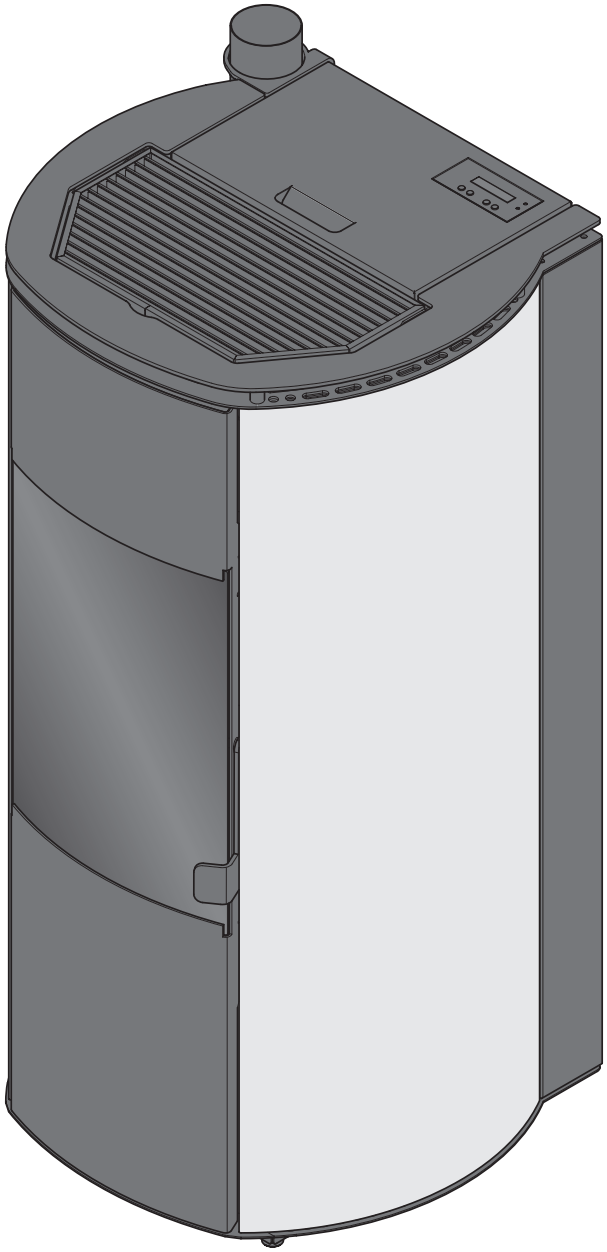
CSTHERMOS
STUFE A BIOMASSA

Air heaters



Instructions for models:

Arianna - Cortina - Garda - Sirmione - Thema - Tesi Eco - Trieste

Dear Customer,

We wish to thank you for choosing a **CSTHERMOS** stove and welcome you into our pellet/biomass/sized chip heating world.

We remind you that our products are manufactured wholly in Italy with superb quality materials and are accurately tested in compliance with the provisions of the safety regulations in force.

Great innovation and sophisticated design are added to this guarantee of quality and comfort.

These stove models can be fitted with a traditional type pellet boiler that would use only best quality wood pellets complying with the ISO EN 17225-2 reference standards and their updates, or with an innovative and patented biomass boiler capable of burning not only any kind of wood pellets (for instance consisting of bark and branches) but also biomass deriving from agricultural waste such as almond-walnut-hazelnut shells, olive pits, agripellets.

An automatic cleaning system is managed by an electronic board that keeps the burner always clean, obtaining great efficiency and reliability of use. The modulating operation varies according to the set ambient temperature and therefore allows optimal room heating. During the initial ignition phase (about 10 minutes), the burner automatically fills with fuel, while resistors, heating up, trigger the flame. Once the flame has been detected by the combustion fume detector, normal operation begins that, thanks to the microprocessor, allows changing the supply of fuel, obtaining therefore flame modulation.

The electronic board checks the temperature sensors, electrical motors and safety devices continuously and, in case of an anomaly, stops their operation and shows this on the display (see alarm code paragraph). The heating of the environment is guaranteed by an air flow that varies according to the operating power going through the combustion smoke pipes.

CE

CONTENTS

1 - SAFETY REGULATIONS

Safety regulations for the user

This manual is an integral part of the product: it is important to read it in all its parts before installing or using the equipment. Ensure it is always available, also in case of a move/sale/transfer to another owner, so that it can be consulted by the new user, installer or by any authorized staff.

Any use, cleaning or maintenance other than as stated in this booklet must be considered incorrect and may cause damage, injury or death, making the guarantee null and void and releasing the Manufacturer from any liability.

Extraordinary maintenance must be carried out **only by qualified personnel authorized by the Dealer or Manufacturer.**

This pictogram refers to a situation of immediate danger or a dangerous situation that might cause injury or death.

This pictogram shows that it is necessary to behave in such a way as not to endanger the safety of staff or cause damage to the equipment.

This pictogram hints at important technical information that must be taken into account by the installer or user of the equipment.

Danger of burns

Danger of electric shock

Danger of crushing your hands

Danger of asphyxia

Fire hazard

Danger of crushing your feet

Obligation to use protection gloves

Safety or equipment automatic adjustment devices must be modified only by the manufacturer or by an authorized service centre or supplier, during the whole life of the system.

If the equipment is not to be used for a long time, switch off the main power switch.

If the equipment does not work or you notice functional or structural changes, disconnect it from the power mains and contact **a service centre authorized by the Manufacturer or Dealer without attempting any DIY**. As to repairs, always ask for original spare parts to be used, in order to avoid problems and invalidating the warranty.

Any kind of tampering or replacement carried out by non-qualified personnel can be dangerous for the user and releases the Manufacturer from all civil and criminal liability.

Ensure the room where the unit is going to be installed is suitable and provided with air vents with minimum openings in compliance with the legislation of the country of destination and anyway sufficient to obtain perfect combustion.

When the unit is delivered, check it is intact because vibrations or impacts during transport might have loosened some components. Check the housing or the parts making up the equipment have not been damaged. If this is the case, inform the installer and/or our customer service.

Do not leave any flammable containers or substances next to the stove, comply with the safety distances mentioned in the manual.

Before connecting the equipment to the mains, always check the system data match those on the equipment plate.

Use only the fuel recommended by the Manufacturer. The product must not be used as an incinerator. It is absolutely forbidden to use liquid fuels.

Do not load the pellets into the burner manually.

The unit cannot be used by children or people with limited physical, sensory or mental capabilities or without the necessary knowledge and experience. Children must not play with the apparatus.

Non-compliance with these instructions can cause damages, injuries and even death and invalidates the warranty.

Since potentially dangerous, any packaging material must be kept out of the reach of children or animals and disposed of in compliance with local regulations.

Connect the earth cables of the equipment to the earth system of the building where it is installed.

The data plate supplies important technical information that is vital in case of a request for maintenance or repair of the equipment: please do not remove, damage or modify it.

Do not open the burner while it is running.

Do not operate the unit with the glass broken.

Do not disconnect it by unplugging it when there is a flame on in the burner.

Do not use the unit to cook food or heat drinks.

Do not use the product as a supporting structure or as a ladder.

To prevent fires, do not hang wet clothes on the unit to dry them, drying racks can be positioned at a safe distance.

Do not wash the product with water jets. Water may penetrate into the unit and cause electric shocks.

If the ignition system fails, it is absolutely forbidden to use flammable materials to light the flame.

Disconnect the electrical supply before any maintenance or cleaning.

To ensure the equipment is in perfect use and safety conditions, we recommend that it is maintained and checked by a Service Centre authorized by the Manufacturer or Dealer at least once a year.

Some small tongues of fire can appear on the sides of the burner, this **is normal** since the gases in contact with the hot parts are burnt off.

A minimum natural draught of 6-8 Pa in the flue pipe must always be guaranteed to prevent the sudden lack of voltage or adverse environmental conditions from letting smoke out into the room, making electrical components overheat (see UNI 10683 standard).

Any small noise (ticking) during operation is normal, as it is due just to the assembled parts settling.

Draught conditions unsuitable to the flue, excessive fuel humidity or high ash residue in the combustion chamber, can cause IGNITION FAILURES THAT MUST NOT BE CONSIDERED A FAULT IN THE PRODUCT.

In case of failed ignition, clean the crucible before trying to start the stove again.

The product warranty starts on the date when the equipment is switched on for the first time by an authorized engineer (dealer or CAT).

Further risks

The stove has been conceived, designed and built taking all the applicable Safety Regulations currently in force in the country of manufacture into account. Even if all possible precautions to comply with the Regulations currently in force have been taken, the following risks can still apply:

Risk of BURNS in accessing the inspection and cleaning doors with the flame still on or not completely cooled down.

Risk of ELECTRICAL SHOCK. For a correct electrical connection as well as safe protection, the thermo-stove must be connected to a thermal differential with a trigger threshold not exceeding 30 mA, in compliance with the regulations in force.

Risk of HAND INJURY during the opening and cleaning operations and/or maintenance of the supply auger, burner and ash drawer. We recommend suitable Personal Protection Equipment (PPE), such as gloves, is used. When disassembling some parts of the equipment and then reassembling them, pay attention to the risk of crushing your hands.

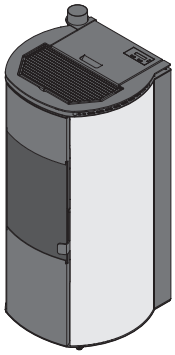
Risk of ASPHYXIA if there is no correct fume expulsion. We advise you to periodically inspect and keep the flue and fire outlets clean.

Risk of FIRE if flammable objects are placed on the surface of the unit or if solid or liquid flammable materials are positioned near it.

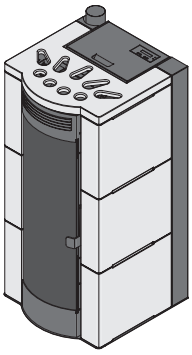
Draught conditions unsuitable to the flue, excessive fuel humidity or high ash residue in the combustion chamber, can cause ignition failures that must not be considered a fault in the product.

The company accepts no liability for any damages that may derive, either directly or indirectly, to people, animals or property due to the non-compliance with all the provisions listed in this manual and, in particular, concerning the warnings with regard to the installation, use and maintenance of the apparatus.

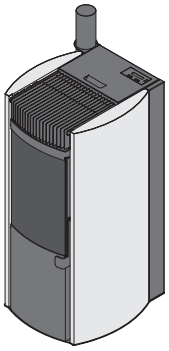
2 - STOVE MODELS DEALT WITH IN THIS MANUAL



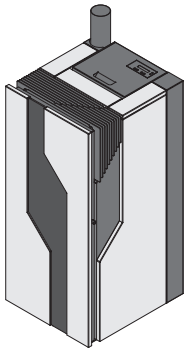
Arianna 10/12



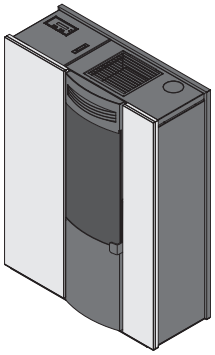
Cortina 9/10



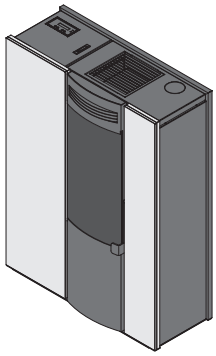
Garda 9



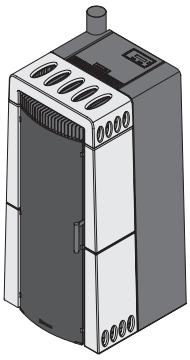
Sirmione 9/10/12



Thema



Tesi Eco



Trieste

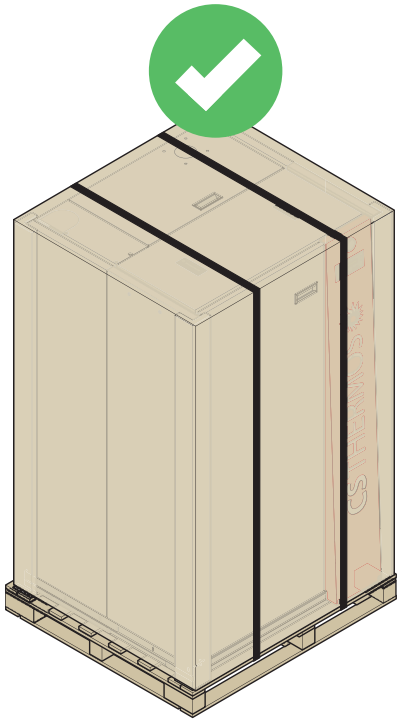
3 - RECEIVING THE EQUIPMENT

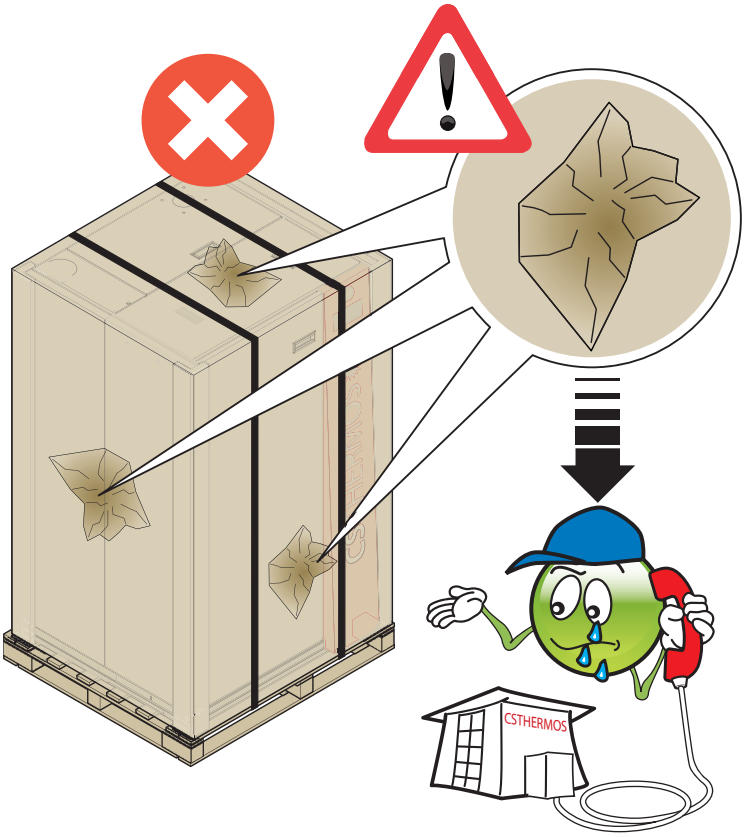
When you receive the equipment, check its packaging is intact. In case of visible damage or if some pieces are missing, do not install it, but contact the Manufacturer straight away.

If no anomaly is found, the product can be installed.

Handle the equipment following the Manufacturer's instructions shown on the packaging and in this manual. Use personal protection equipment all the time.

The means and method of transport must be chosen by the person responsible for handling, according to the equipment weight and size. Handling must guarantee the safety of the people directly involved in the installation.





4 - TRANSPORT AND HANDLING

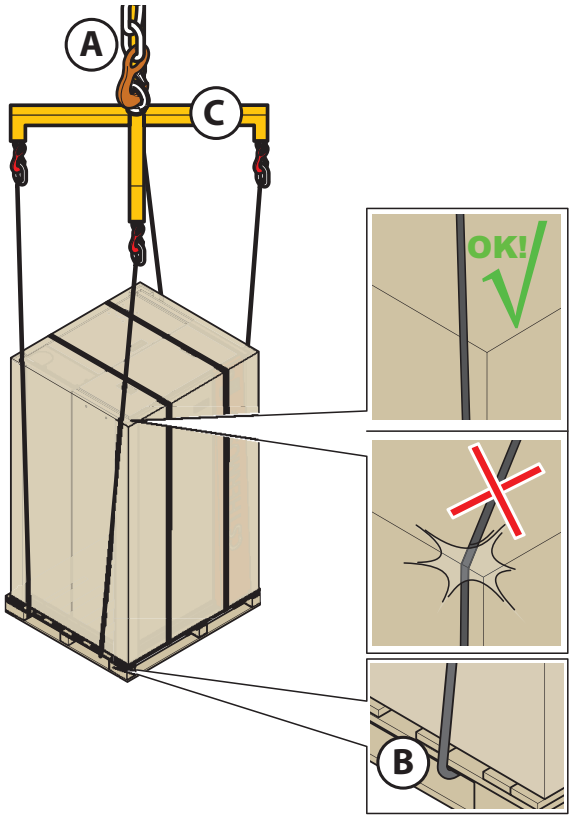
The apparatus must be lifted with a winch fitted with a hook (A) and handled with a transpallet or forklift truck of suitable capacity.

The area of movement must be free from objects or people not involved in the transport operation.

If the equipment is handled using a winch, it is necessary to use some spreader bars (C) between the lifting ropes, to prevent the unit from being damaged and ensure no excessive pressure is applied to the packaging or machine itself.

Lifting with a winch fitted with a hook

Use hooks of capacity and material suitable to the weight to be lifted. Ensure the safety lock (D) is in the correct position while lifting.



Do NOT move the equipment if the field of vision is poor or if there other other obstacles along the way (i.e. electrical cables, lintels, etc.). The range of action of the lifting equipment must be kept free from people when the loads are lifted.

Shifting must always be vertical. Use steel hooks, chains or cables in perfect condition, of a suitable material and capacity and without any joints or extensions (E). Carry out periodic checks to guarantee efficiency.

To anchor the unit, pass the ropes or chains through the pallet holes (B), paying attention it is kept perfectly level.

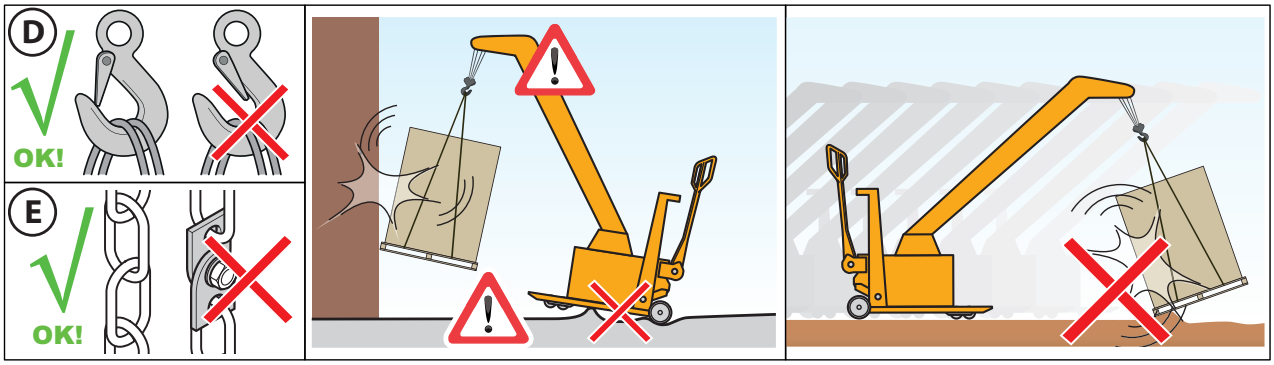
Check the flatness of the ground where the lifting equipment is standing, making sure it is stable and not prone to subsidence.

Do not move the lifting equipment during the operation.

Before starting lifting, check correct anchoring to the mentioned points and the centre of gravity, then slowly lift the packaged equipment to the minimum height required and move it carefully to avoid dangerous vibrations.

Take care of the control panel that must undergo no impacts or be exposed to the weather (rain, humidity): any damage may affect its operation.

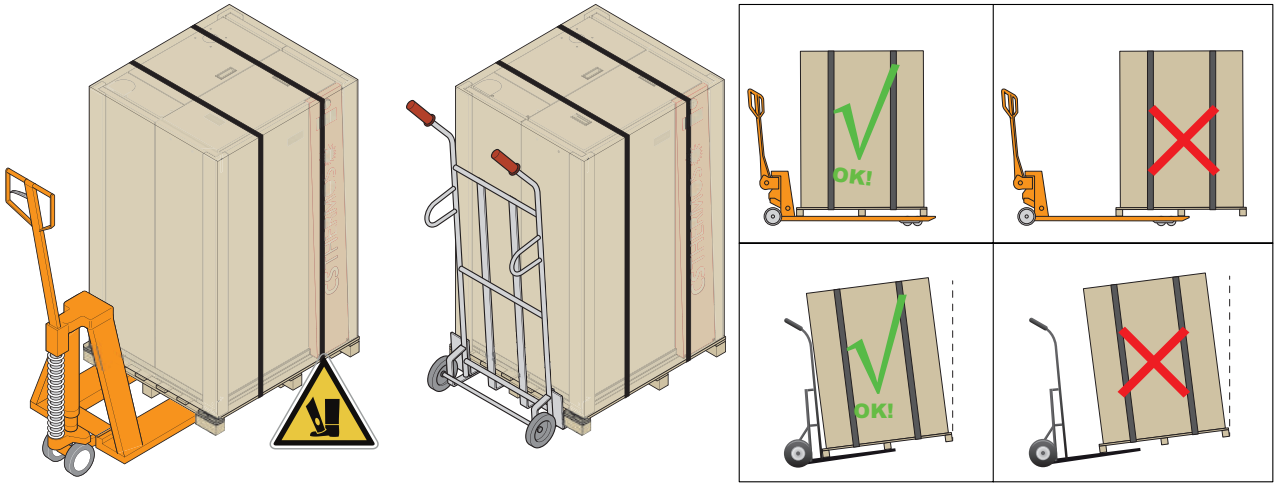
Avoid sudden stops of the lifting or descending movement, in order to avoid dangerous oscillations.



Lifting with a transpallet or forklift truck

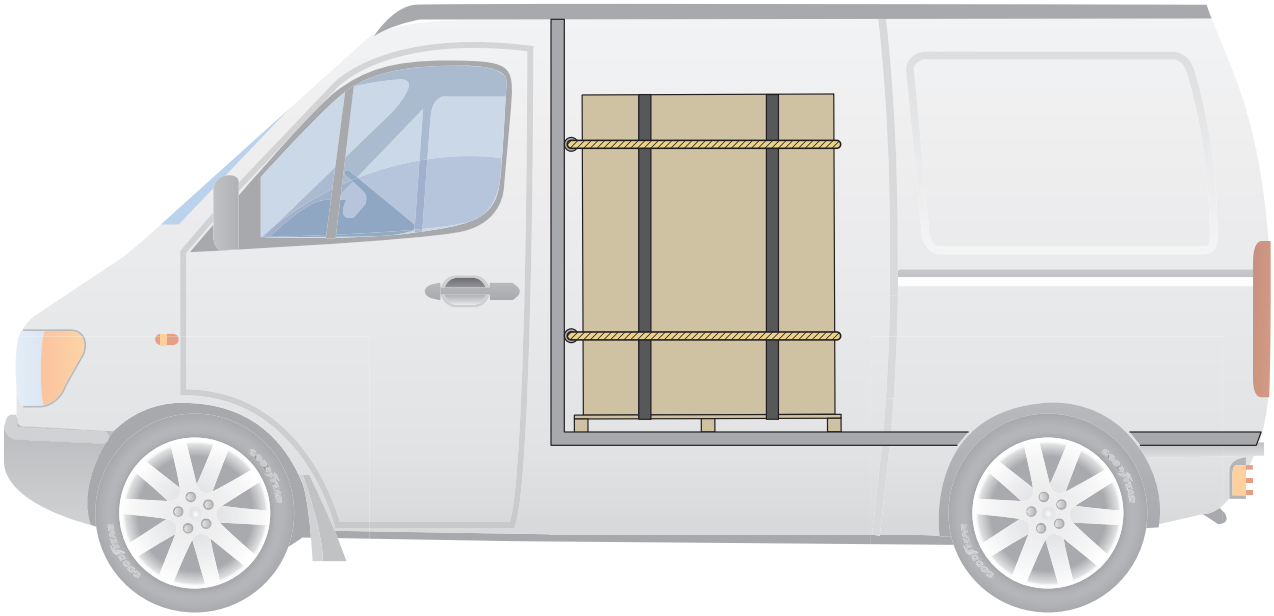
If the transport is done using a transpallet, ensure it is adequate to the weight and size of the packaged equipment. Insert the forks into the points provided for handling (usually in the central position), to keep the centre of gravity of the load balanced. Move the equipment carefully, avoiding sudden movements.

If the transport is done with a forklift truck, ensure this is strong enough to withstand the weight of the equipment and that this can be moved safely, without any risk of it falling.



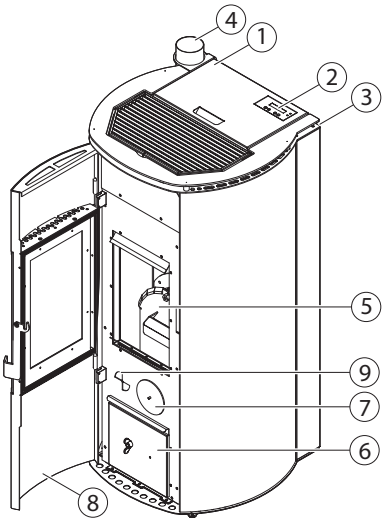
Transport with a van

If transport is done using a van, the apparatus must be fixed properly inside it, using ropes, so that it cannot move while handling.

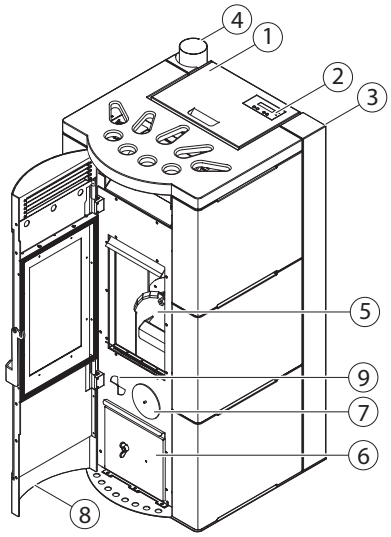


5 - DESCRIPTION OF THE PARTS

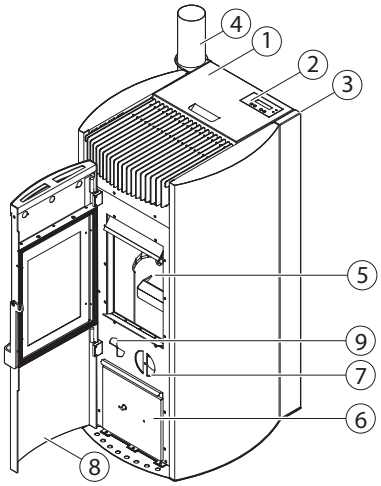
5.1 Arianna, Cortina, Garda, Sirmione, Tesi Eco, Thema, Trieste stoves



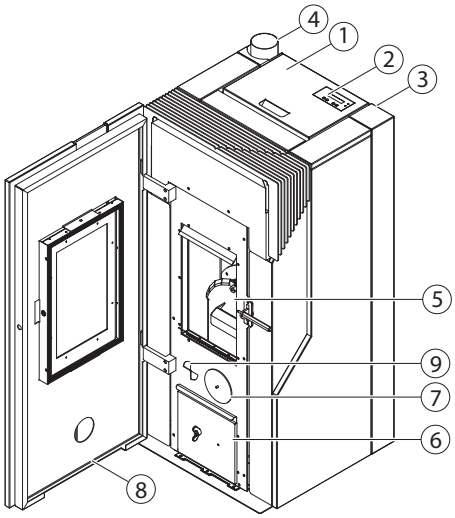
Arianna
10/12



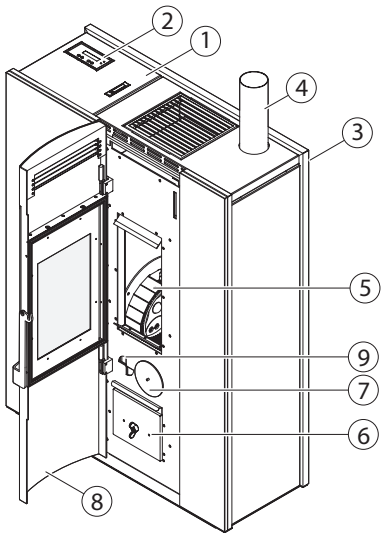
Cortina
9/10



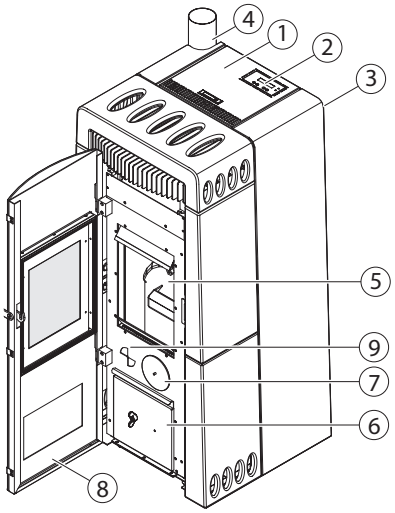
Garda
9



Sirmione
9/10/12



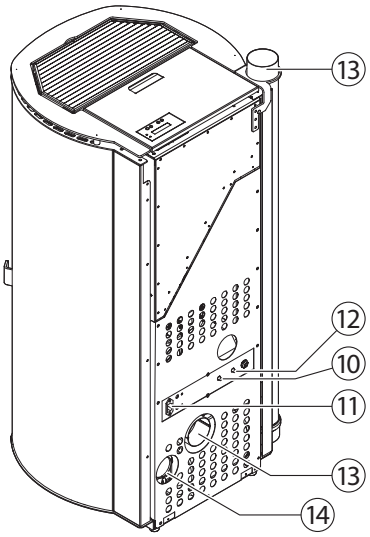
Tesi Eco
Thema



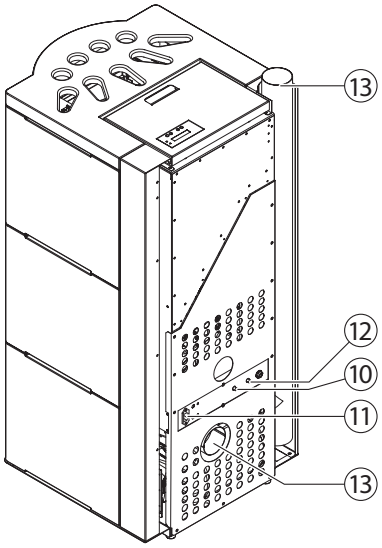
Trieste

Description

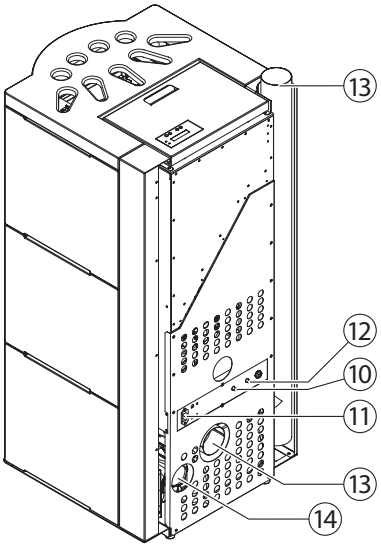
1) Container lid
2) Display
3) Technical data label
4) Top discharge arrangement
5) Burner
6) Ash drawer
7) Explosion relief
8) Hearth door
9) Glass cleaning air adjuster



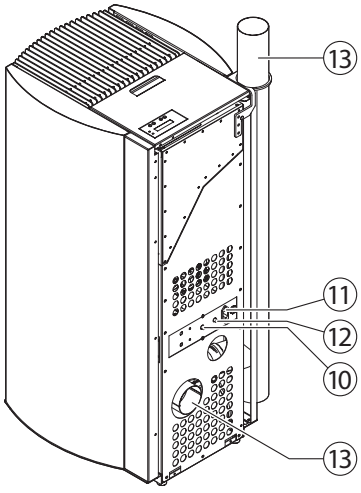
Arianna 10/12



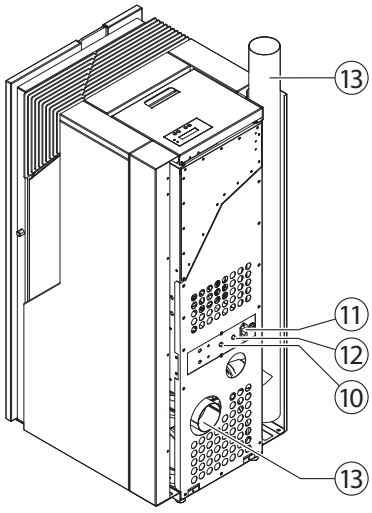
Cortina 9



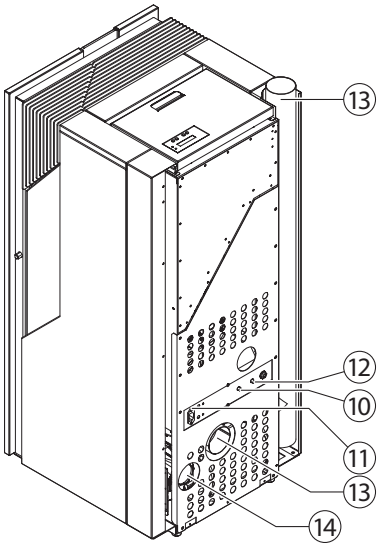
Cortina 10



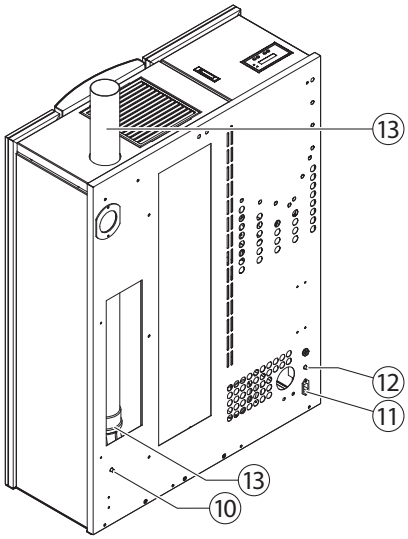
Garda 9



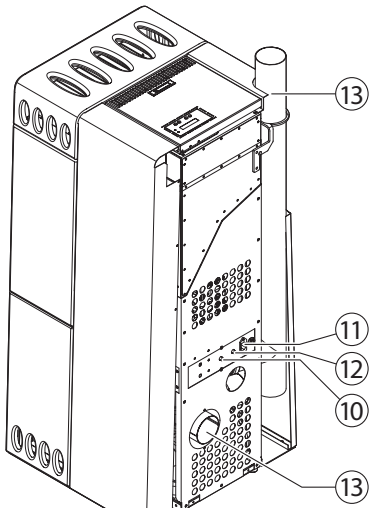
Sirmione 9



Sirmione 10/12



Tesi Eco / Thema

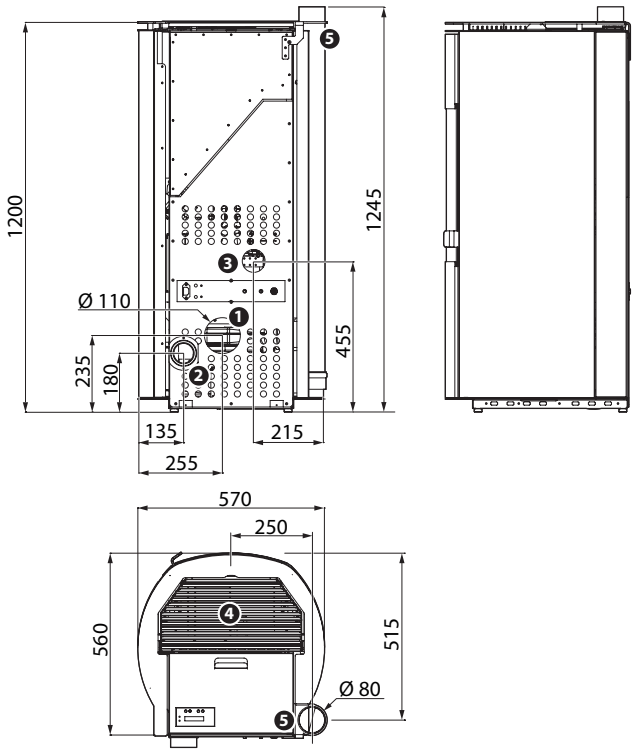


Trieste

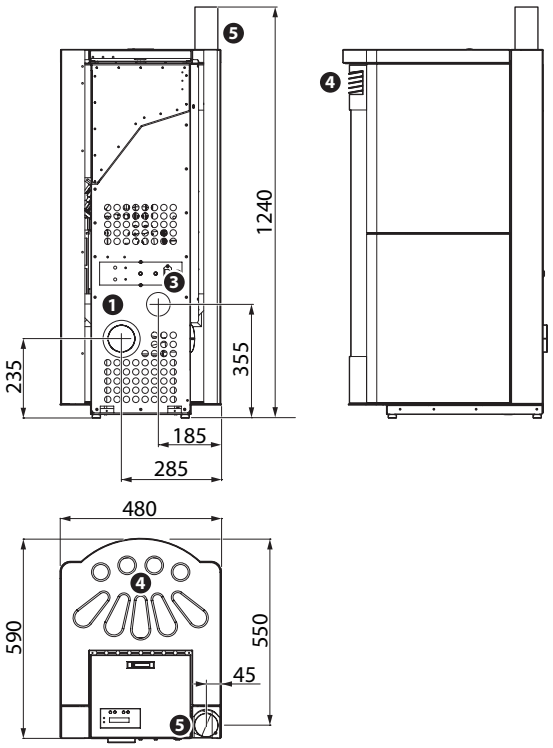
Description

10) Auger thermostat
11) Electrical outlet
12) Boiler thermostat
13) Flue gas discharge
14) Duct arrangement

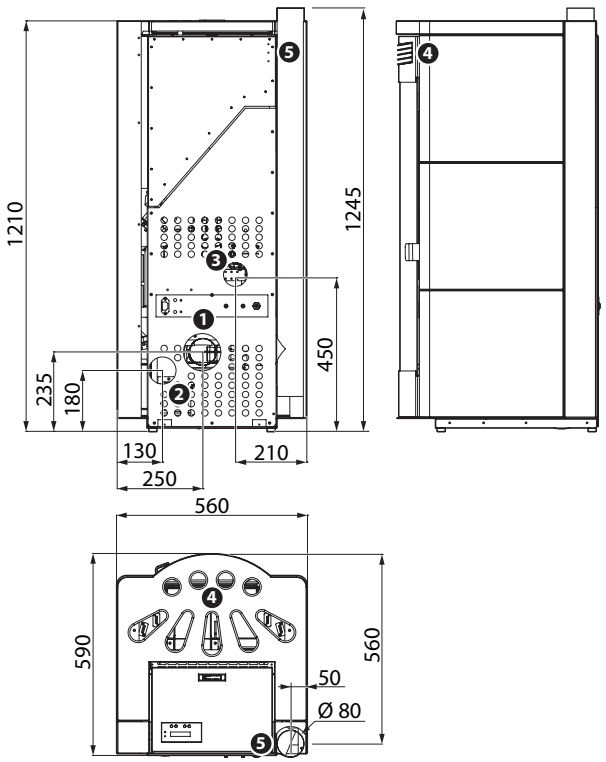
5.2 Stove dimensions



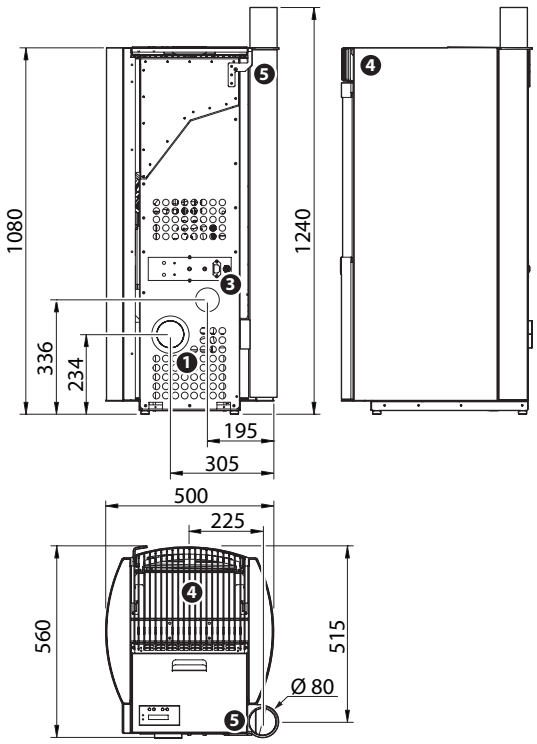
Arianna 10/12



Cortina 9

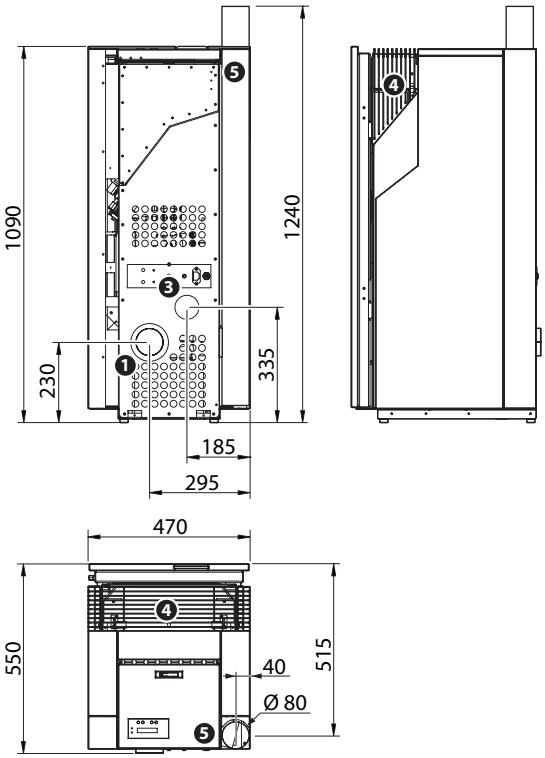


Cortina 10/12

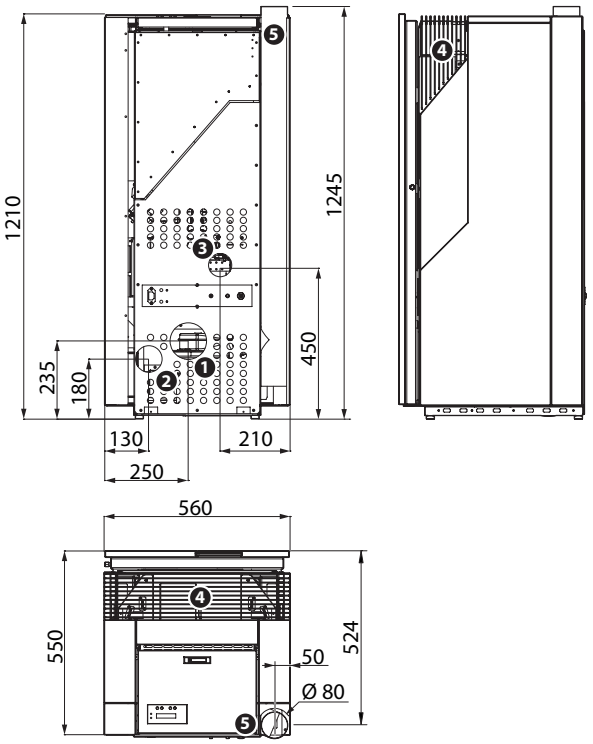


Garda 9

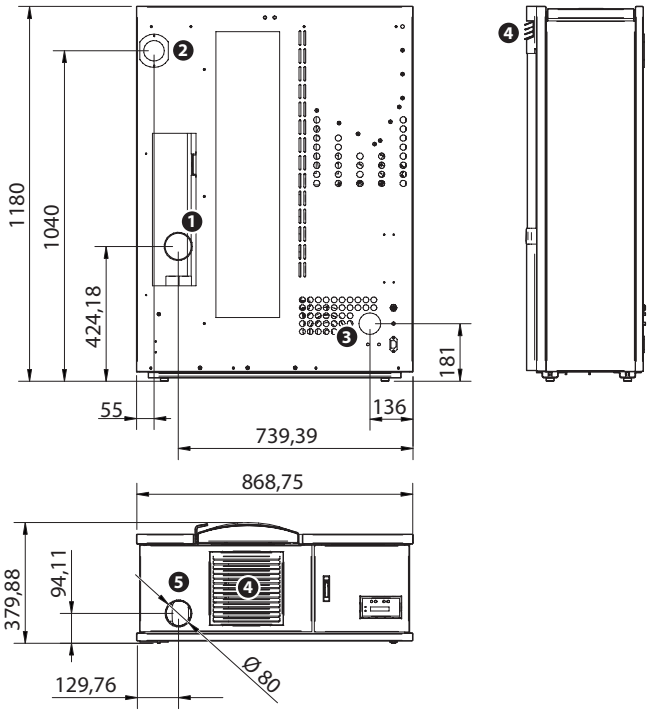
1. Flue gas discharge
2. Duct arrangement
3. External air intake
4. Hot air outlet
5. Upper fume discharge (OPTIONAL)



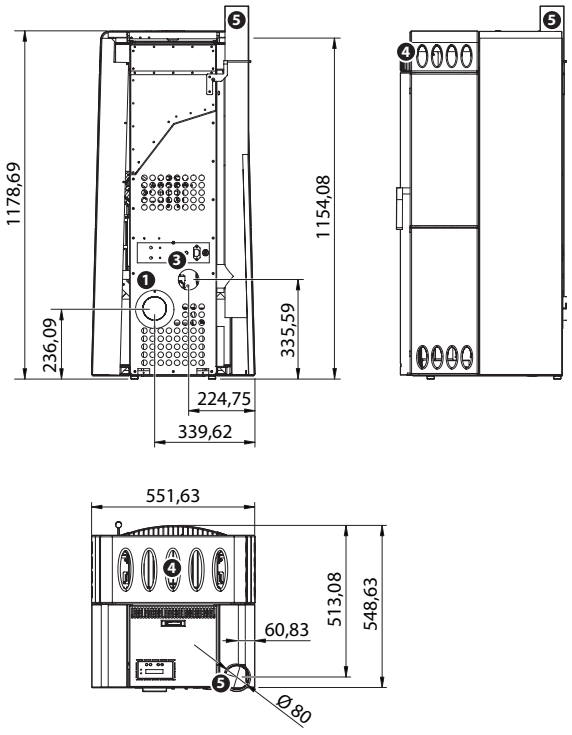
Sirmione 9



Sirmione 10/12



Tesi Eco / Thema



Trieste

1. Flue gas discharge
2. Duct arrangement
3. External air intake
4. Hot air outlet
5. Upper fume discharge (OPTIONAL)

5.3 Pellet container

All stove models are fitted with an internal container to load the pellets. Capacity varies according to the model. The container is always in the top part of the appliance and is protected by a lid.

To load, lift the lid and let the pellets slide into the container.

Find below an example with a stove model, the system for the other stoves is exactly the same.

	Container capacity (kg)
Arianna 10/12	20
Cortina 9	13
Cortina 10	20
Garda 9	13
Sirmione 9	13
Sirmione 10/12	20
Tesi Eco	18
Thema	18
Trieste	13

5.4 Stove serial plate

The plate with the data regarding the stove is located on its back. It supplies important technical information that is vital in case of a request for maintenance or repair of the equipment. Please do not remove, damage or modify it.

Find below an example of serial plate, the details regarding your stove can be found in the following chapter.

CSTHERMOS
STUFE A BIOMASSA

San Vendemiano (Treviso) ITALIA

EN 14785.2006

MODELLO		NUMERO DI SERIE	XX-XX-XX
COMBUSTIBILE		FREQUENZA NOMINALE	Hz
POTENZA INTRODOTTA	kW	TENSIONE NOMINALE	V
POTENZA TERMICA NOMINALE	kW	POTENZA ELETTRICA NOMINALE	W
POTENZA TERMICA RIDOTTA	kW	CO AL 13% DI O^2 NOMINALE	%
RENDIMENTO POT. NOMINALE	%	CO AL 13% DI O^2 RIDOTTA	%
RENDIMENTO POT. RIDOTTA	%	PPBT al 13% O^2	mg/Nm^3

DISTANZA MINIMA DA MATERIALI INFIAMMABILI: 100 mm SU TUTTI I LATI
USARE SOLO I COMBUSTIBILI RACCOMANDATI - LEGGERE LE ISTRUZIONI D'USO

6 STOVE TECHNICAL DATA

TECHNICAL DATA	UNITS OF MEASUREMENT	Arianna 12	Arianna 10	Cortina 10	Cortina 9
Thermal power input (wood pellet fuel)	kW	13.1*	10.8*	10.8*	10.0*
Rated thermal power (wood pellet fuel)	kW	11.9*	10.1*	10.1*	9.2*
Reduced thermal power (wood pellet fuel)	kW	4.9*	4.9*	4.9*	4.2*
Rated power output (wood pellet fuel)	%	90.8*	93.8*	93.8*	91.7*
Reduced power output (wood pellet fuel)	%	93.8*	93.8*	93.8*	93.0*
CO 13% RATED POWER	g/Nm^3	0.10	0.08	0.08	0.12
CO 13% REDUCED POWER	g/Nm^3	0.30	0.30	0.30	0.44
PP 13% O^2	mg/Nm^3	16.8	7.6	7.6	8.9
Noise	dB	<47	<47	<47	<47
Fuel		wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)
Consumption at maximum power (wood pellet fuel)	Kg/h	2.7 max**	2.2 max**	2.2 max**	2.0 max**
Maximum autonomy with continuous operation at power 1 (wood pellet fuel)	h	30 max**	30 max**	30 max**	16 max**
Pellet container capacity	Kg	~20	~20	~20	~13
Heatable volume	m^3	120-420 max ***	120-350 max ***	120-350 max ***	80-320 max***
Smoke outlet diameter	mm	80	80	80	80
Smoke temperature	°C	210 max	210 max	210 max	210 max
Power supply	V	V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz
Maximum absorption	A	3	3	3	3
Average absorption during operation	W	90	90	90	80
Absorption when igniting	W	620 max	620 max	620 max	620 max
Dimensions	mm	see relative chapter	see relative chapter	see relative chapter	see relative chapter
Net weight	Kg	~155	~155	~175	~135
Environmental quality class (Min. Decree 186)	stars	4	5	5	5

* The fire and rated power as well as the efficiency are measured in a lab test in optimal installation conditions.

** The data was recorded in a lab test in optimal conditions. Hourly consumption can vary according to the type of pellets used and the installation.

*** The heatable volume is subject to variation according to installation conditions, type of house insulation and external climatic conditions connected with the geographic location.

Garda 9	Sirmione 12	Sirmione 10	Sirmione 9	Thema	Tesi Eco	Trieste	
10.0*	13.1*	10.8*	10.0*	11,52	10,2	10.0*	
9.2*	11.9*	10.1*	9.2*	10,14	9	9.2*	
4.2*	4.9*	4.9*	4.2*	4,95	4,95	4.2*	
91.7*	90.8*	93.8*	91.7*	87,9	88,2	91.7*	
93.0*	93.8*	93.8*	93.0*	93,3	93,3	93.0*	
0.12	0.10	0.08	0.12	0,14	0,09	0.12	
0.44	0.30	0.30	0.44	0,32	0,32	0.44	
8.9	16.8	7.6	8.9	17,3	14,6	8.9	
<47	<47	<47	<47	<47	<47	<47	
wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	wooden pellets (EN ISO 17225-2)	
2.0 max**	2.7 max**	2.2 max**	2.0 max**	max 2,4**	max 2,1**	2.0 max**	
16 max**	30 max**	30 max**	16 max**	max 25**	max 25**	16 max**	
~13	~20	~20	~13	~18	~18	~13	
80-320 max***	120-420 max ***	120-350 max ***	80-320 max***	120-350 max***	80-240 max***	80-320 max***	
80	80	80	80	80	80	80	
210 max	210 max	210 max	210 max	max 210	max 210	210 max	
V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz	V230~ / 50Hz	
3	3	3	3	3	3	3	
80	90	90	80	80	80	80	
620 max	620 max	620 max	620 max	max 620	max 620	620 max	
see relative chapter	see relative chapter	see relative chapter	see relative chapter	see relative chapter	see relative chapter	see relative chapter	
~120	~175	~175	~135	~175	~135	~120	
5	4	5	5	4	4	5	

* The fire and rated power as well as the efficiency are measured in a lab test in optimal installation conditions.

** The data was recorded in a lab test in optimal conditions. Hourly consumption can vary according to the type of pellets used and the installation.

*** The heatable volume is subject to variation according to installation conditions, type of house insulation and external climatic conditions connected with the geographic location.

7 - FUELS

There are numerous types and qualities of wooden pellets on the market, so it is important to choose one that contains no glue, resins or chemicals and may cause early clogging of the smoke discharge, the formation of corrosive gases, loss of efficiency and the emission of polluting substances into the atmosphere. The pertinent regulations state that the products working with this fuel must use good quality, compact and not very floury pellets. Please ask your retailer for a suitable type of pellets, **complying with ISO 17225-2 standard**.

The characteristics of the wooden pellets to use are as follows: 6÷8 mm in diameter, about 5÷20 mm in length, 8% humidity and 18200 kJ/kg calorific value.

The Manufacturer accepts no responsibility for the use of FUELS OTHER THAN AS STATED or the possible malfunction of the unit.

Stack the fuel bags at at least 1 metre from the equipment.

Chopped fuels (e.g.: olive stones, shells) can be used "unmixed" with the wooden pellets, but they must have a minimum diameter of 4mm and humidity not exceeding 12%.

Self-produced fuels or fuels bought from the market but not complying with these minimum requirements must be mixed with the wood pellets. The mixture must have a percentage of wood pellets varying from 50% up to 90% according to the characteristics of the biomass (size and humidity) to ensure good operation. To get a correct mixture, weigh each fuel with a set of scales having a 100g precision factor and mix them together in a container outside and not inside the stove container, since it is not possible to obtain the necessary homogeneity inside.

7.1 Setting the fuel

Before switching the unit on, select the type of fuel to use from the display menu, following the procedure described below:

- Select “fuel 1” to use class A1 and A2 (ISO EN 17225-2) certified wood pellet.
- Select "fuel 2" to use class B (ISO EN17225-2) certified wood pellets.
- Select “fuel 3” to use agripellets with a humidity not exceeding 12%.
- Select “fuel 4” to use almond-hazelnut shells with a 4mm minimum diameter and humidity not exceeding 12%.
- "Fuel 5" is at the technician's/dealer's discretion for settings to be used with unsuitable fuels or fuels that have not been mentioned previously.

For the stove to work correctly and performance to be high, it will therefore be necessary to change the list of fuels, selecting the most suitable.

8 - INSTALLATION

8.1 Pre-installation

Before installing the stove, check that everything has been prepared.

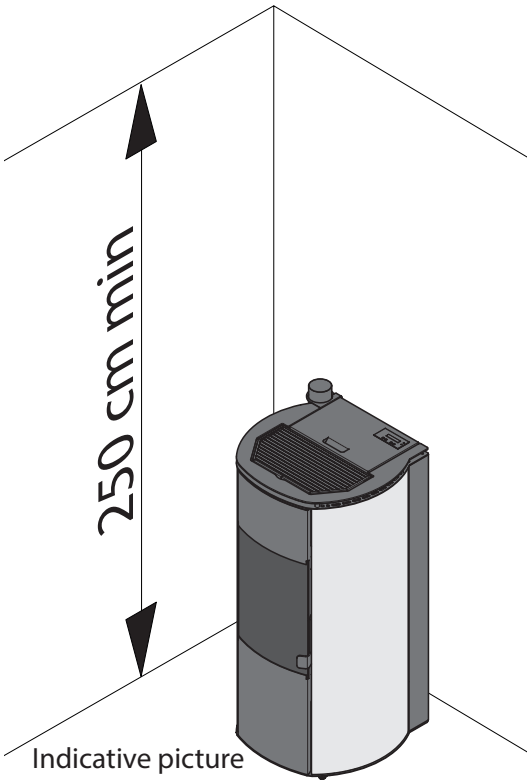
Find below a quick checklist, for the complete information always refer to the pre-installation card.

Check that:

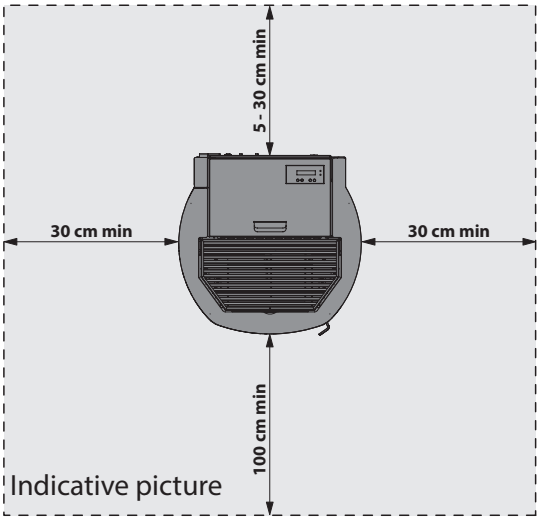
- the surface supporting the unit is level and cannot be affected by the heat;
- if the floor does not withstand the weight of the stove, a 4mm-thick metal sheet platform in the right size must be placed in between, with insulating material, to be applied on the floor, of mineral origin (rock wool) and with a rated density exceeding 80 kg/m3.
- if the stove is installed on a wooden floor, we recommend a precautionary insulation of the support base with a 2mm-thick metal sheet bigger than 50mm, all inside the unit.
- The fume outlet tube must exceed 80 mm in diameter.
- minimum dimensions have been complied with;
- In case of installation near flammable or combustible walls, keep a safety distance of at least 30cm on both sides and on the back. Avoid leaving any type of combustible or flammable material within 1 meter from the front of the unit.
- there is sufficient ventilation (250 cm^2 minimum);
- an appropriate flue pipe for the discharge of the fumes has been provided outside the installation area;
- a circuit breaker has been installed upstream that supplies the stove and is triggered as required;
- there is no flammable material around the installation area;

As to positioning, the installer must comply with the minimum distances from the walls and surrounding material.

The surrounding spaces will also be used as easy access in case of maintenance (see figure).



Indicative picture



Indicative picture

8.2 Flue pipe

For the stove to work well, the flue must be made by a qualified engineer that must comply with the regulations in force (UNI EN 10683). If that is not the case, the company cannot be held responsible for any malfunctions.

To clarify things: chimney or flue is the vertical part of a duct that is characterized by its own draft (natural convection). On the other hand, the smoke duct is the horizontal ducting necessary to connect the unit to the flue.

This unit must discharge combustion products via a vertical flue having a minimum depression of 6-8 Pa, in order to guarantee fume expulsion even if there is no electrical power or the environmental conditions are adverse.

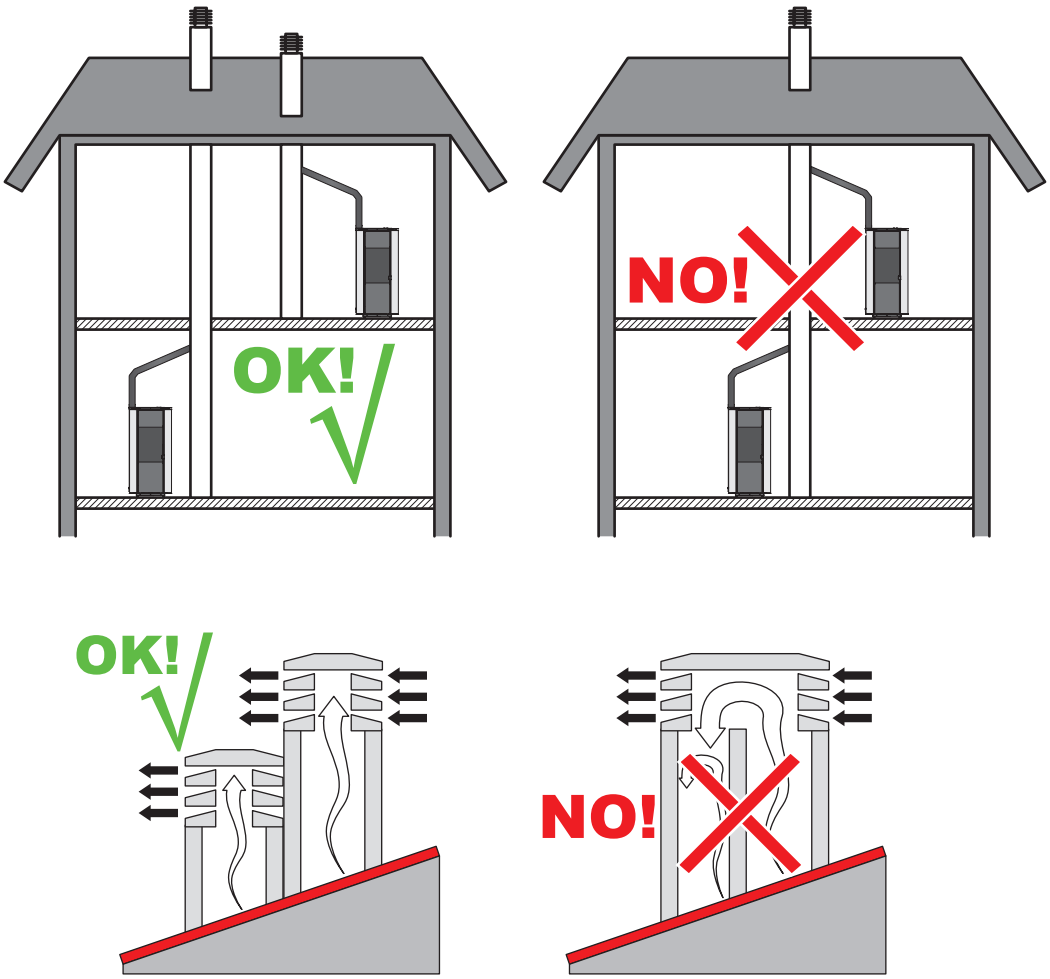
The section of flue that gets out of the roof or remains in contact with the outside must be covered in flat tiles, or anyway, be very well isolated.

Any buildings, plants and other obstacles exceeding the height of the roof must be at a minimum distance of 3m from the chimney.

We recommend the smoke duct is provided with a chamber collecting solid materials and condensate, located under the mouth of the fume channel, so that it can be opened easily and inspected via an airtight door.

For the flue, smooth pipes and fittings must be used and assembled with suitable gaskets, to guarantee the tightness of the seal and prevent combustion gases from escaping in case of a malfunction. No corrugated hoses must be used.

IT IS ABSOLUTELY FORBIDDEN TO INSTALL THE UNIT IN A COLLECTIVE FLUE!



In particular, as to flues/smoke ducts, we wish to remind you of the following:

MATERIALS:

- They must withstand mechanical stress;
- They must withstand any acid condensation that may form from the combustion products (the use of STAINLESS STEEL 316 is recommended);
- They must be waterproof;
- They must obviously withstand the heat.
- The pipes that can be used are rigid in painted steel (minimum thickness 1.5mm) or stainless steel (minimum thickness 0.5mm). The male/female coupling collars must overlap by at least 40mm.
- The tube diameter depends on the type of system. The stove has been designed for pipes with an 80mm diameter maximum, as shown in the table; in some cases a 100mm diameter is recommended. If pipes with a 100mm diameter must be used, connect them to the stove with a "T" coupling with an 80mm diameter and a fitting ø 80 - ø 100.

FLUE PIPE	DIAMETER	ASSESSMENT
Pipe shorter than 5m	80 mm	Correct
Pipe longer than 5m	100mm (minimum)	Mandatory
Installations located over 1200 m above sea level	100mm (minimum)	Recommended

PATTERN AND SECTIONS:

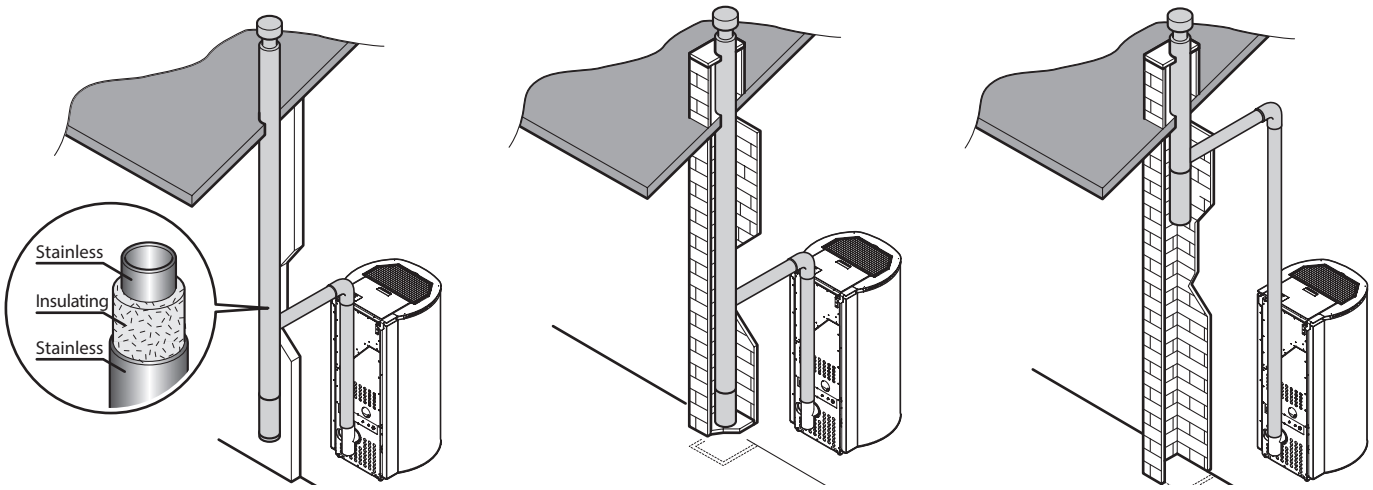
- They must be as vertical as possible, with a constant section and a smooth internal surface to prevent the accumulation of head losses that would affect the draft required to discharge the smoke.
- The lower part of the flue must be provided with a collection "T" with lid (steel flue) or with an inspection door (masonry flue), so that any condensation or soot can be collected.
- Smoke ducts connecting the unit to the flue must be as short as possible (2 - 3 metres maximum) and with two 90° turns maximum. It is important for them to have a 3-5° positive slope towards the flue to ensure the smoke goes out.
- Calculate a loss of head of 1 metre for each 90° turn.
- Calculate a loss of head of 0.5 metre for each 45° turn.
- To connect the flue and smoke duct, "T" junctions with inspection plugs must be used, to make cleaning easier.
- It is forbidden to install gates or valves that can prevent the fumes from going out.

CHIMNEY:

- In order to prevent any stove malfunction, the chimney must comply with these installation rules:
- It must be the same section and internal shape as the flue and an outlet section no less than twice the section of the flue.
- It must be a windproof chimney, to guarantee the expulsion of the smoke with winds coming from any direction and angle.

- It must prevent rain, snow and foreign bodies from getting in.
- It must not be close to other buildings, but have a free outlet that ensures combustion gases are dispersed into the atmosphere and above all, if the outlet is on a roof, its height must exceed the reflux area.

The pictures below are just an example.



INSULATION:

- Stainless steel flue: if the flue is located outside, it must be adequately insulated to guarantee good draught and prevent condensation. If the chimney is built along the outside wall, heat-insulated double-wall tubes or single-wall tubes with an adequate layer of rock-wool or ceramic fibre insulation are normally used. All chimneys must be provided with a condensation collecting plug located in the bottom part of the structure. Inside the building, simple wall tubes can be used, but have the flue sections passing through the roof space or unheated areas well insulated.
- Flue in uninsulated pre-existing masonry: in order to prevent condensation that may be visible outside the flue as humidity patches, we recommend it is ducted in a stainless steel tube.

ASSEMBLY:

- It must be possible to access all parts of the flue, so that it can be cleaned at regular intervals;
- All sections must be sealed;
- The whole structure must be able to absorb thermal expansion;
- In case of excessive draught, regulators can be fitted, on condition they do not affect the unit normal operation and guarantee minimum draught. Integration must anyway be carried out by specialized personnel.
- **WARNING: Since the regulations on the installation of pellet stoves are changed continuously, ask your installer for any upgrades.**

OTHER USEFUL SUGGESTIONS:

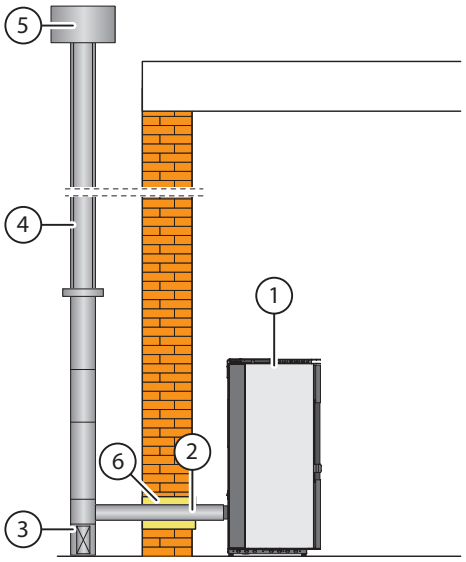
- No other heating equipment must be connected to the chimney;
- The flue must be kept at a safe distance from flammable objects;

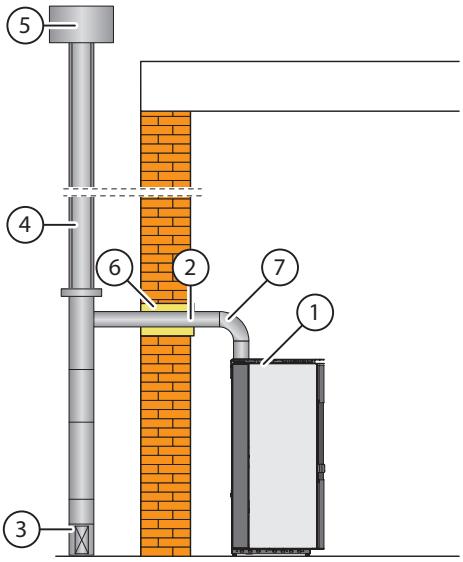
- The flue must have the same section as the smoke discharge pipe of the stove, or bigger;

- No other pipe must be located in the flue.

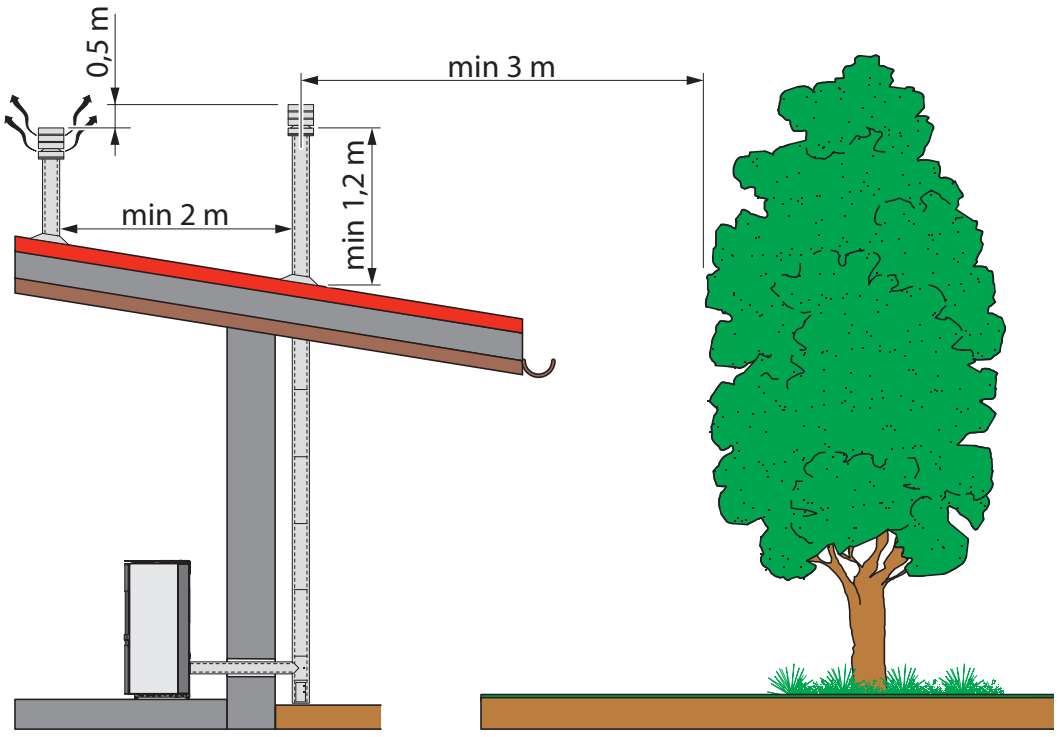
In pellet stoves, smoke extraction is guaranteed by a fan keeping the combustion chamber pressurized, combined with a state-of-the-art chimney that must allow smoke evacuation using the natural draught. For this reason we recommend you contact a specialized engineer to build the flue. The costs for any modification in programming carried out by the service centres, due to the incorrect installation of the flue, will be debited to the user. If malfunctions persist and are due to the flue, the manufacturer will carry out no interventions under warranty.

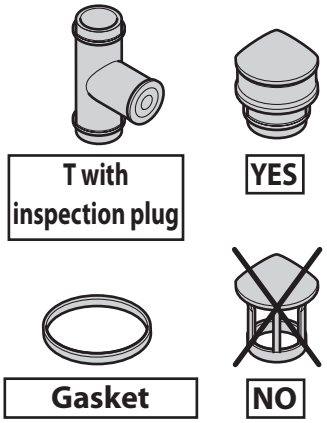
Find below some examples of flues:





1) Stove
2) Smoke channel
3) Flue ash collection element
4) Double-walled steel flue
5) Chimney
6) Sealed passage
7) Elbow





8.3 Electrical arrangement

All the units are fitted with an electrical supply cable: if this has to be replaced (i.e. if damaged), contact an authorized Technical Service Centre.

Before connecting the unit, make sure that:

- the electrical system is fitted with a 6A thermo-magnetic circuit breaker
- the system characteristics meet the details on the data plate applied to the unit (electrical power, rated voltage, etc.)
- the system is fitted with an efficient ground connection, in compliance with the legal regulations in force (grounding is compulsory by law)
- at no point should the supply cable reach an overtemperature of 50°C in comparison with the ambient temperature. If direct connection to the network is required, an omnipolar switch must be used, with a 3mm minimum opening between contacts, sized for the load stated on the plate and compliant with the regulations in force; the yellow/green earth wire must not be interrupted by the switch. The omnipolar switch must be easily reachable once the unit is installed.

If the unit is not used for a long time, disconnect the supply.

The Manufacturer accepts no responsibility if the above, as well as the usual safety regulations, are not complied with.

8.4 Unpacking

We recommend you unpack the equipment only after transporting it to the place where it must be installed and only at the time of installation. This operation must be done using all the possible personal protection equipment used to protect people (gloves, safety shoes, etc.).

Do not leave the packaging unattended: it is potentially harmful to children and animals (choking hazard).

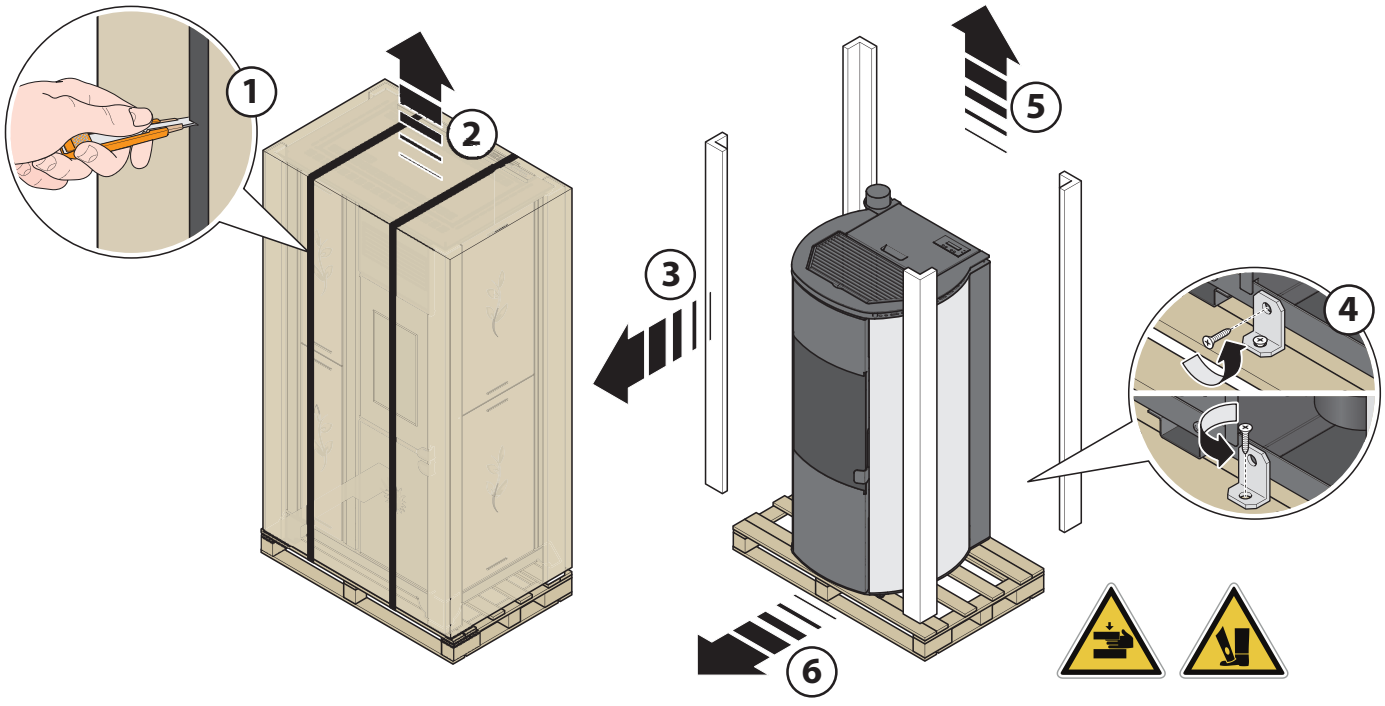
Some packaging material can be kept for future use (wooden crates, pallets, etc.), while the material that cannot be reused (polystyrene, straps, etc.) must be disposed of in compliance with the regulations in force in the country of installation: this will protect the environment!

After unpacking, check what you have received: all deliveries are accompanied by transport documents containing the list and description of the items delivered. Check all the components are present and undamaged, contact the Manufacturer in case of any problems.

While waiting for installation, components and documents must be kept in an area with the following characteristics:

- it must be dedicated only to the storage of components;
- be covered and protected from the elements (prepare a closed area, if possible), with a temperature no lower than 0°C;
- be accessible only to the operators assembling the equipment;
- have a stable floor, capable of supporting the equipment (check the load coefficient);
- be free from any other components, above all if potentially explosive/flammable/toxic.

If you cannot proceed with the installation straight away, check periodically that the above storage conditions are guaranteed.



Indicative picture

8.5 Setting up the stove

After unpacking the stove, position it in the room where it will be used.

In moving the stove, pay attention not to damage its external parts.

Please pay attention to the distances mentioned above.

In positioning the stove, make sure there are no objects underneath it that might affect its correct positioning.

Pay attention that your hands or feet are not trapped when you place the stove on the floor. Use protective gloves.

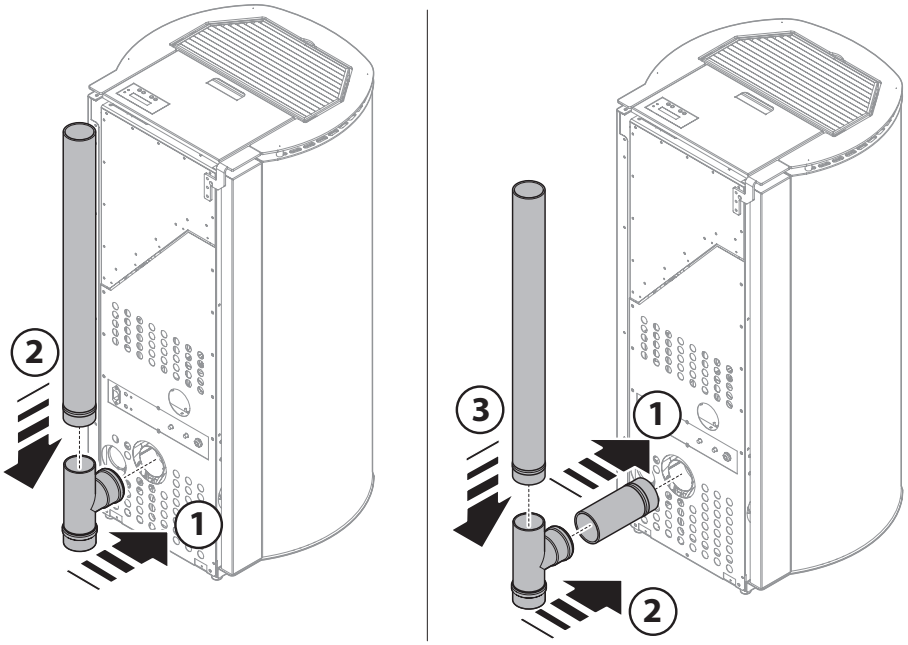
Indicative picture

8.6 Connecting the flue through the stove rear outlet

The stove can be connected to the previously installed flue pipe only horizontally, on the back. A "T" piece, or an extension followed by a "T" piece, can be connected directly.

Please use pipes suitable to discharge pressurized fumes and fitted with seals (UNI EN 1856-1 and 1856-2).

The assembly is shown with one model of stove, the procedure for the other models is the same.



8.7 Connecting the flue on the side of the stove

The stove can be connected to the previously installed flue by rotating the fume motor towards the side of the stove as shown in the following images. A "T" can be connected directly to which a tube will be attached vertically.

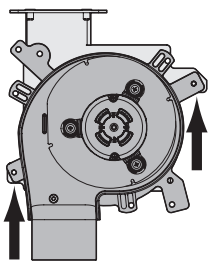
In order to support the tube in some models, it will be enough to use the existing pre-cut piece, for others it will be necessary to use the appropriate support bracket supplied.

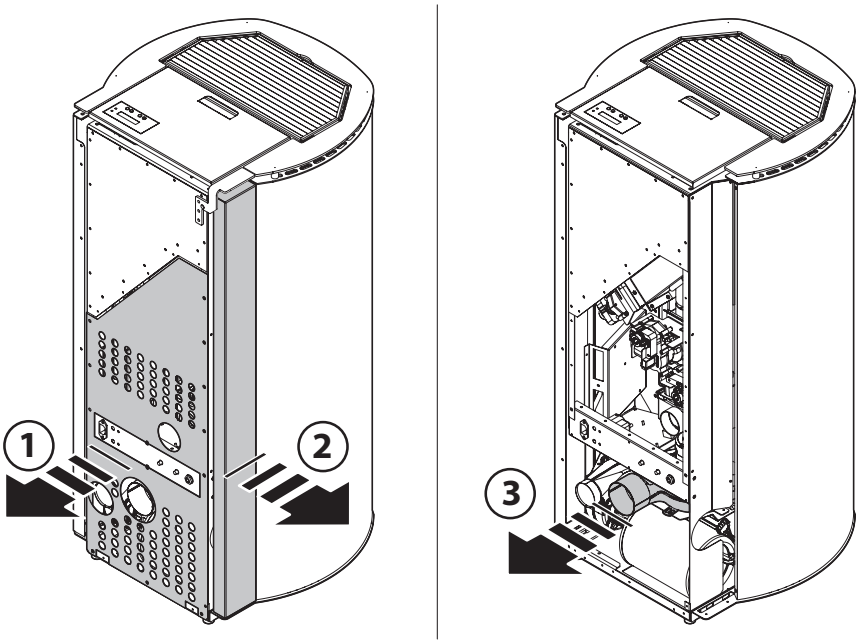
Please use pipes suitable to discharge pressurized fumes and fitted with seals (UNI EN 1856-1 and 1856-2).

The assembly is shown with one model of stove, the procedure for the other models is the same.

Dismantle the rear panel and left back side (1-2).

Unscrew the 2 fixing screws of the fume motor (3).

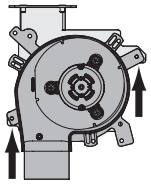




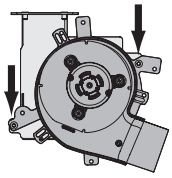
Rotate the fume motor for the side outlet according to the stove model, unscrewing the 2 screws (4).

NB: pay attention to the position of the fixings, as shown in the figura.

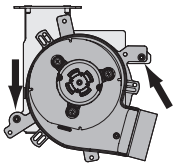
Standard outlet

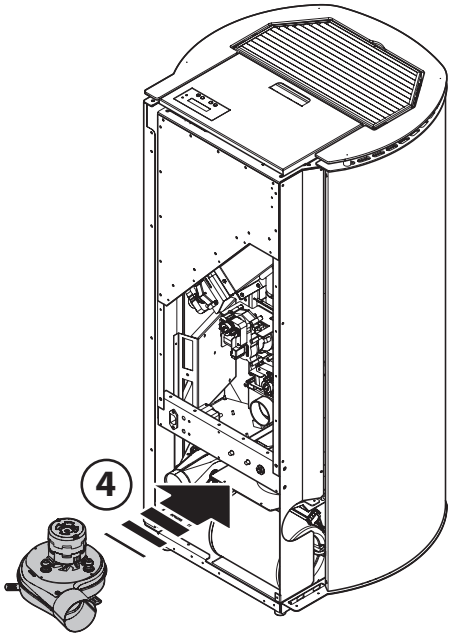


Side outlet:
- Cortina 10
- Sirmione 10/12



Side outlet:
- Arianna 10/12
- Garda 9
- Cortina 9
- Sirmione 9
- Trieste

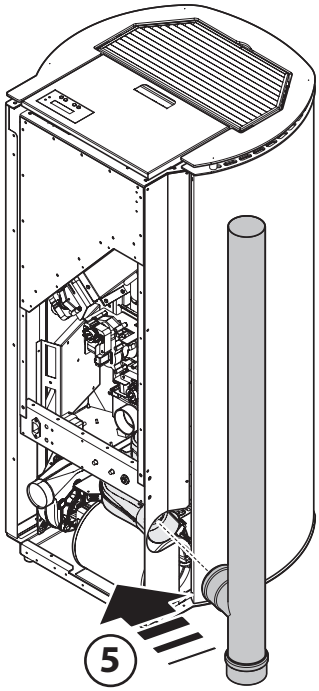


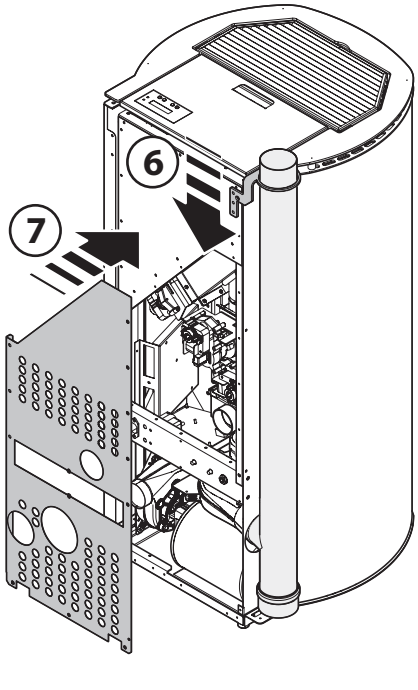


Models
Arianna - Garda

Insert the flue gas exhaust pipe (5) and then mount the supplied pipe passage bracket (6).

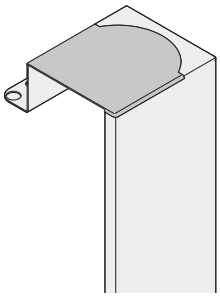
Reposition the stove back





Models
Cortina - Sirmione

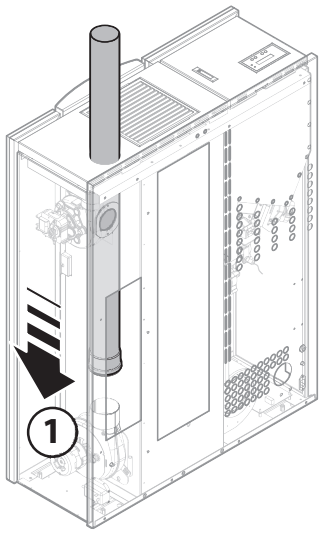
The figure on the side shows the sides with the pieces to be cut for the tube. The side has to be taken apart, the part of the pre-cut piece has to be removed, the tube fixed and the side replaced.



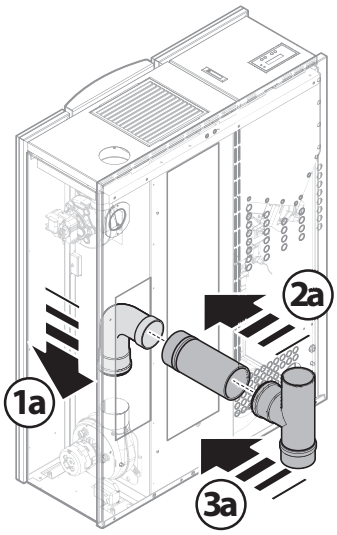
8.8 Connecting the flue pipe: Thema and Tesi Eco models

The stove can be connected to the previously installed flue in two ways: via the back opening or the top one.

Please use pipes suitable to discharge pressurized fumes and fitted with seals (UNI EN 1856-1 and 1856-2).



Top opening



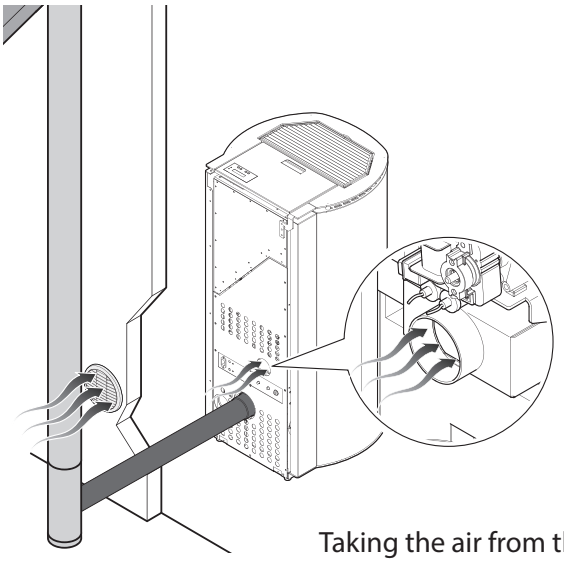
Back opening

8.9 Combustion air inlet

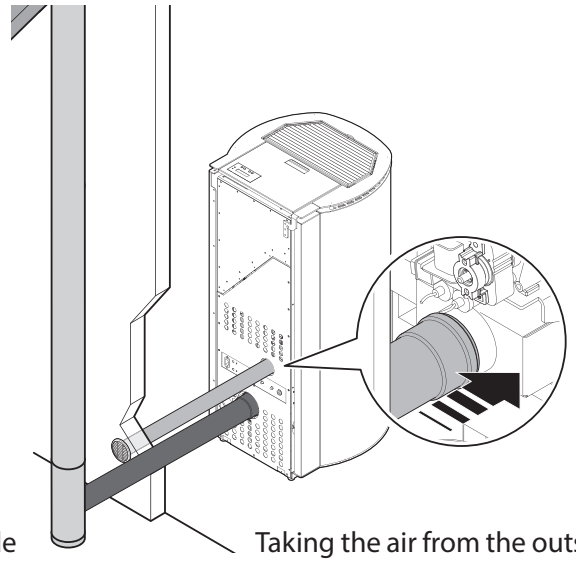
Combustion air can be taken from the room, if sufficiently ventilated, or from the outside, if not: this way optimal combustion is guaranteed, avoiding opening an air intake in the room. In both cases, refer to the regulations about installation in force (UNI 10683 and UNI7129), to avoid health risks for those who spend time in the room where the equipment is installed.

Do not use hoses and install a grille at the start of the air intake (on the outside), to prevent foreign bodies from entering and affecting the correct operation of the unit.

The assembly is shown with one model of stove, the procedure for the other models is the same.



Taking the air from the inside

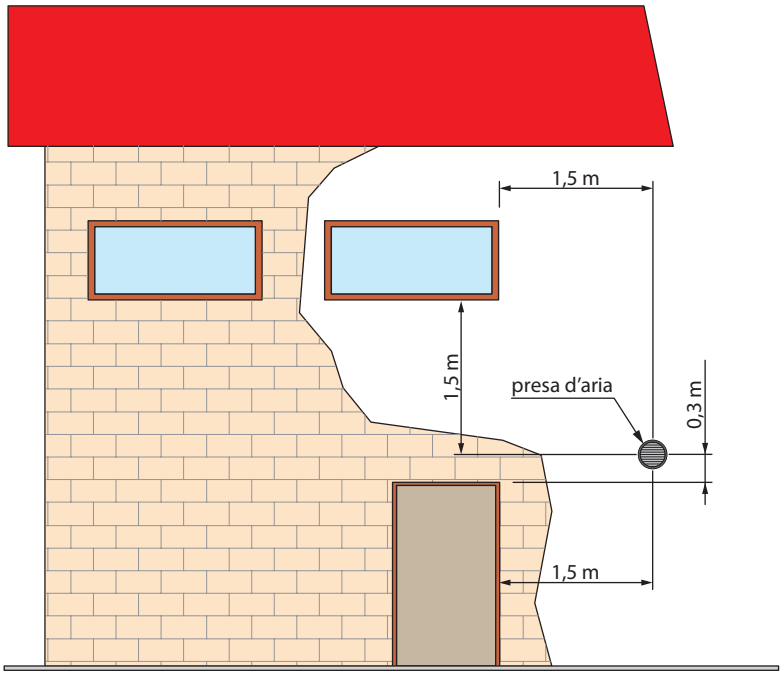


Taking the air from the outside

8.10 Minimum distance to position the air inlet

To position the air intake correctly and safely, see the drawing on the side, where the minimum distances from any other opening are shown.

It is important to take into account any wall discharges from other units or cooking extractor hoods.



8.11 Air ducting in Arianna 10/12, Cortina 10, Sirmione 10/12 models

Before starting work on the burner, disconnect the stove from the mains and turn the circuit breaker on the main panel to OFF.

The ducting kit must be installed by qualified engineers.

In the above models, it is possible to direct hot air to the back of the stove installing the appropriate kit.

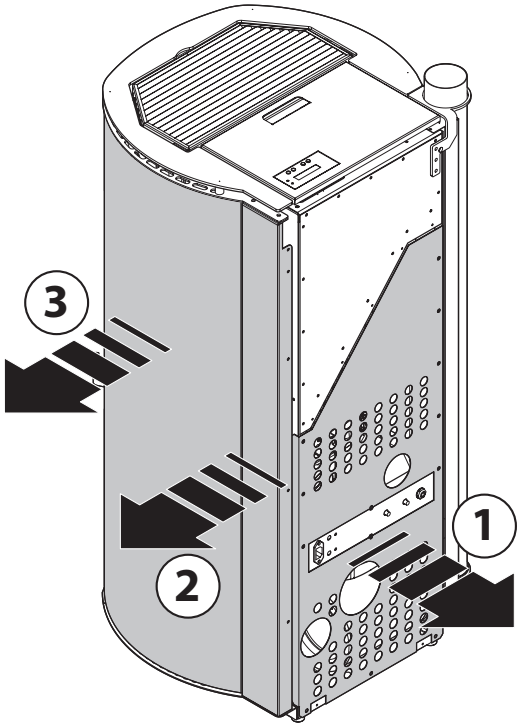
For the installation, proceed as described:

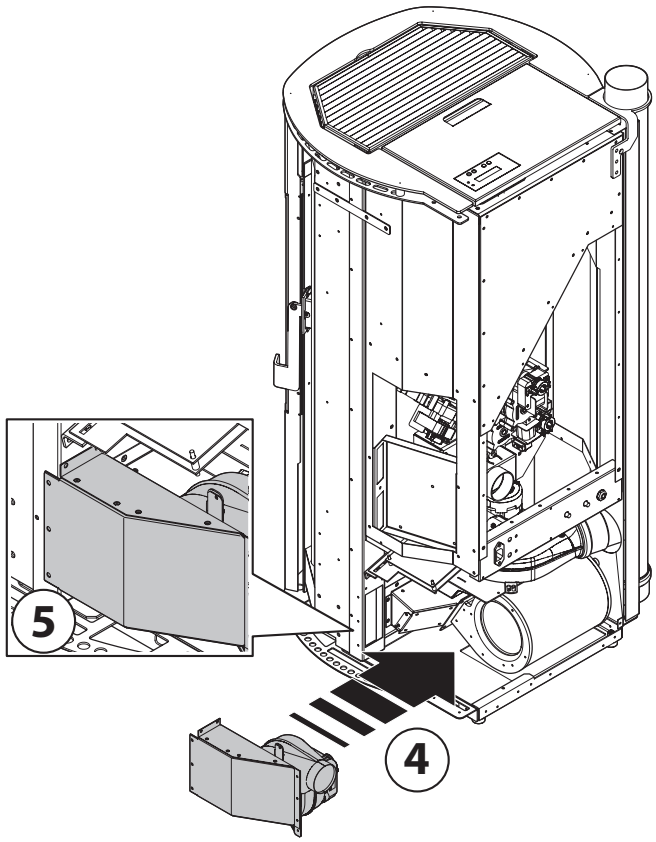
- Remove the back of the stove (1), the small side (2) and the large side (3).
- Insert the ventilation kit (4), matching it to the anchor holes (5) and fasten it with the screws.
- Make the electrical connection on the motherboard (6) and activate the channelling function via the software menu.
- Close the sides (7) - (8) and the back of the stove (9).
- Install the Ø80mm reducer (10).

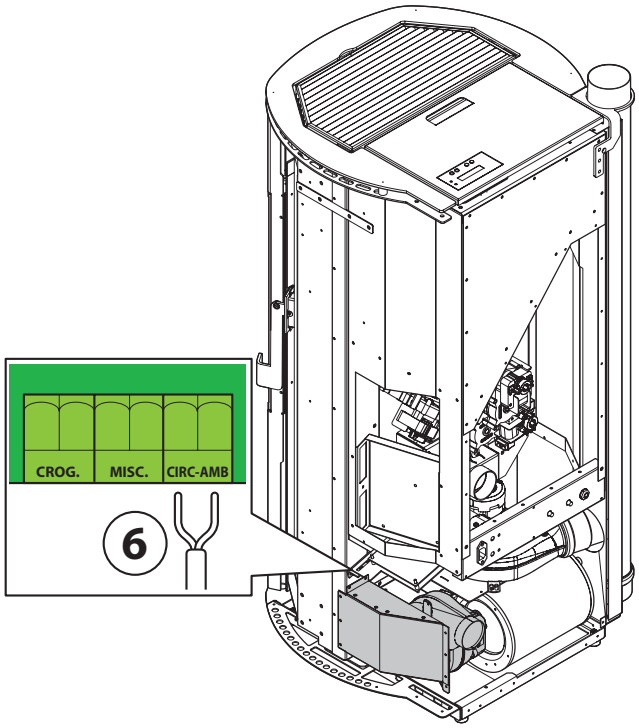
To guarantee the ducting is working, the length of the piping must NOT exceed 6 metres with two 90° elbows and the useful diameter must be between 60 and 80mm. Shorten the linear length by 1m for each further 90° elbow. Moreover the inside of the pipe must be smooth and consisting of a material withstanding at least 130°C.

If flammable walls are crossed, insulate the piping with insulating material with a thickness of at least 4cm.

During the installation, pay attention not to damage the electrical cable.



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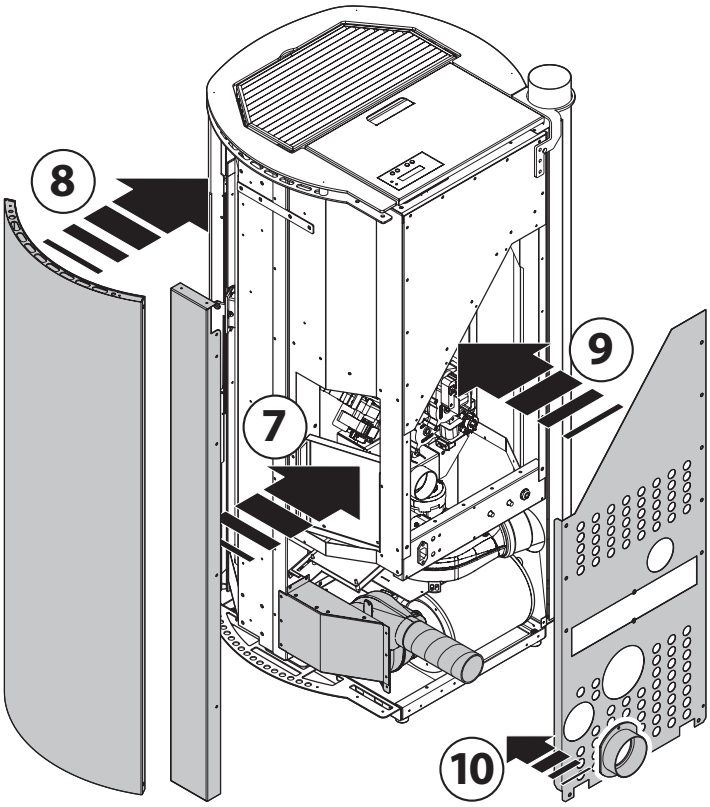
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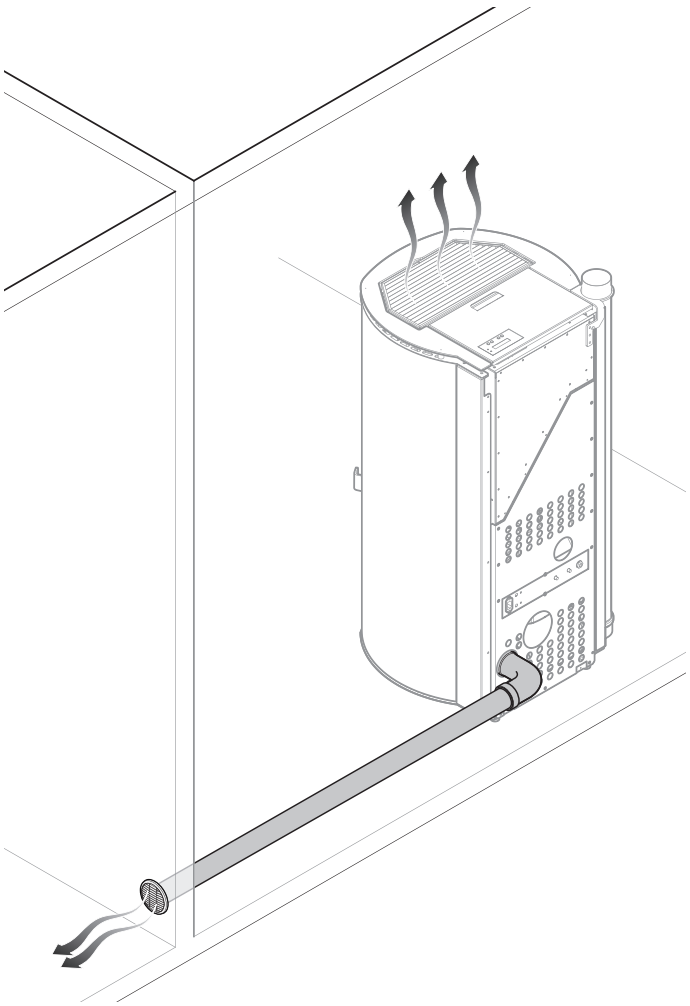
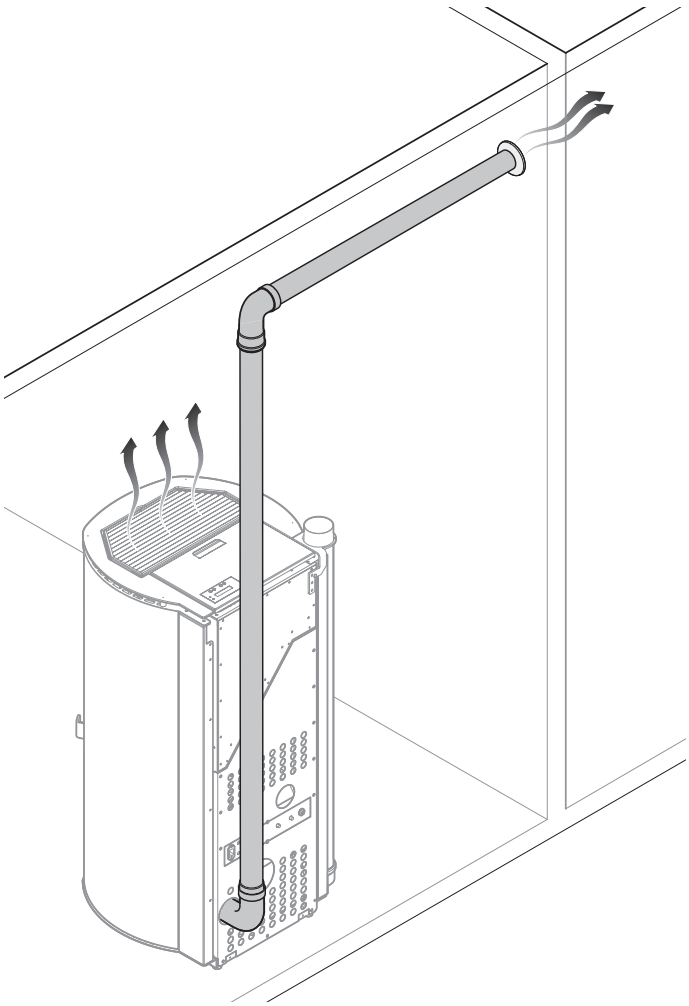




8.12 Air ducting in Thema and Tesi Eco models

Before starting work on the burner, disconnect the stove from the mains and turn the circuit breaker on the main panel to OFF.

The ducting kit must be installed by qualified engineers.

In the above models, it is possible to direct hot air to the back of the stove installing the appropriate kit.

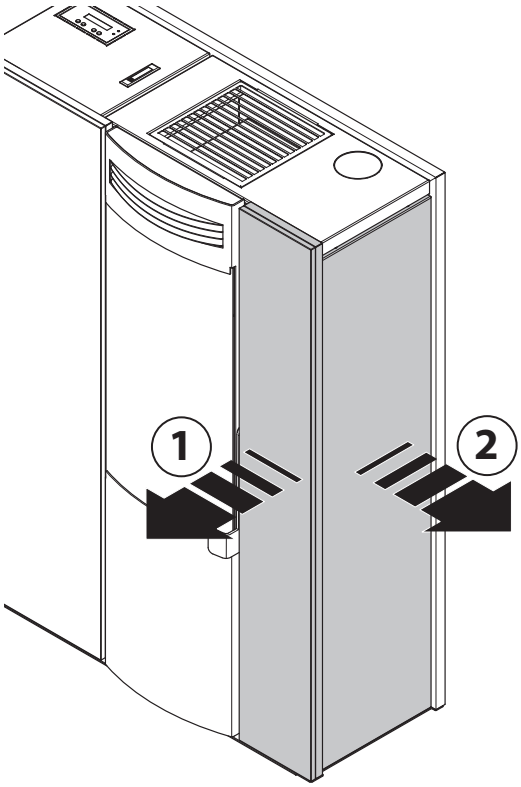
For the installation, proceed as described:

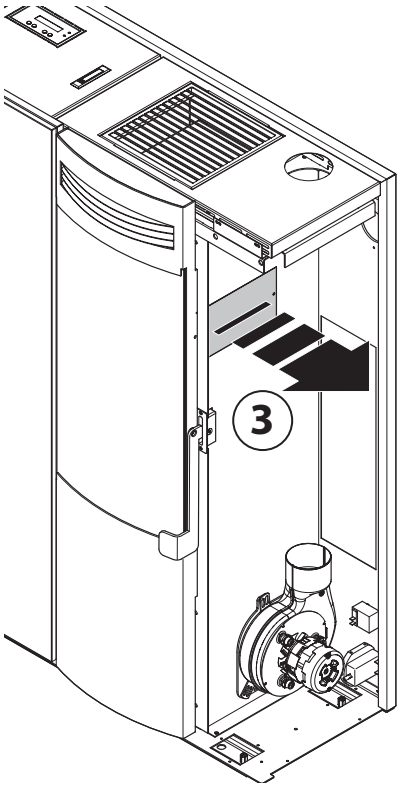
- Remove the front panel of the stove (1), the side (2) and the small panel (3).
- Insert a curve in the ventilation kit (4), insert it by making it coincide with the anchoring holes (5) and fix it with the screws.
- Insert another curve (6) and carry out the electrical connection on the motherboard (7) and activate the channelling function via the software menu.
- Close the panels (8) - (9).
- Install the Ø80mm reducer (10).

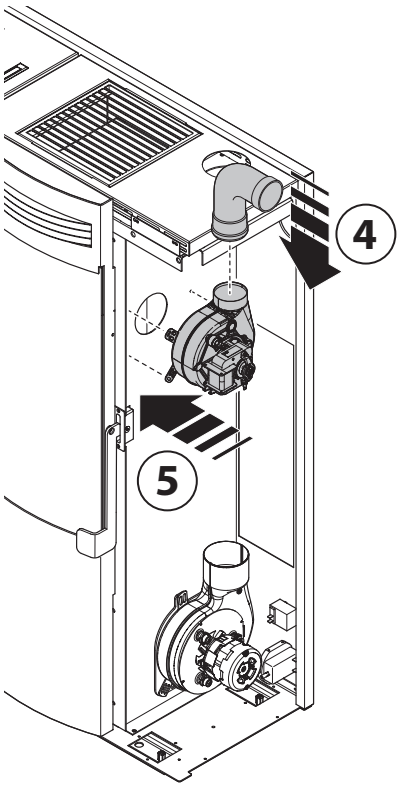
To guarantee the ducting is working, the length of the piping must NOT exceed 6 metres with two 90° elbows and the useful diameter must be between 60 and 80mm. Shorten the linear length by 1m for each further 90° elbow. Moreover the inside of the pipe must be smooth and consisting of a material withstanding at least 130°C.

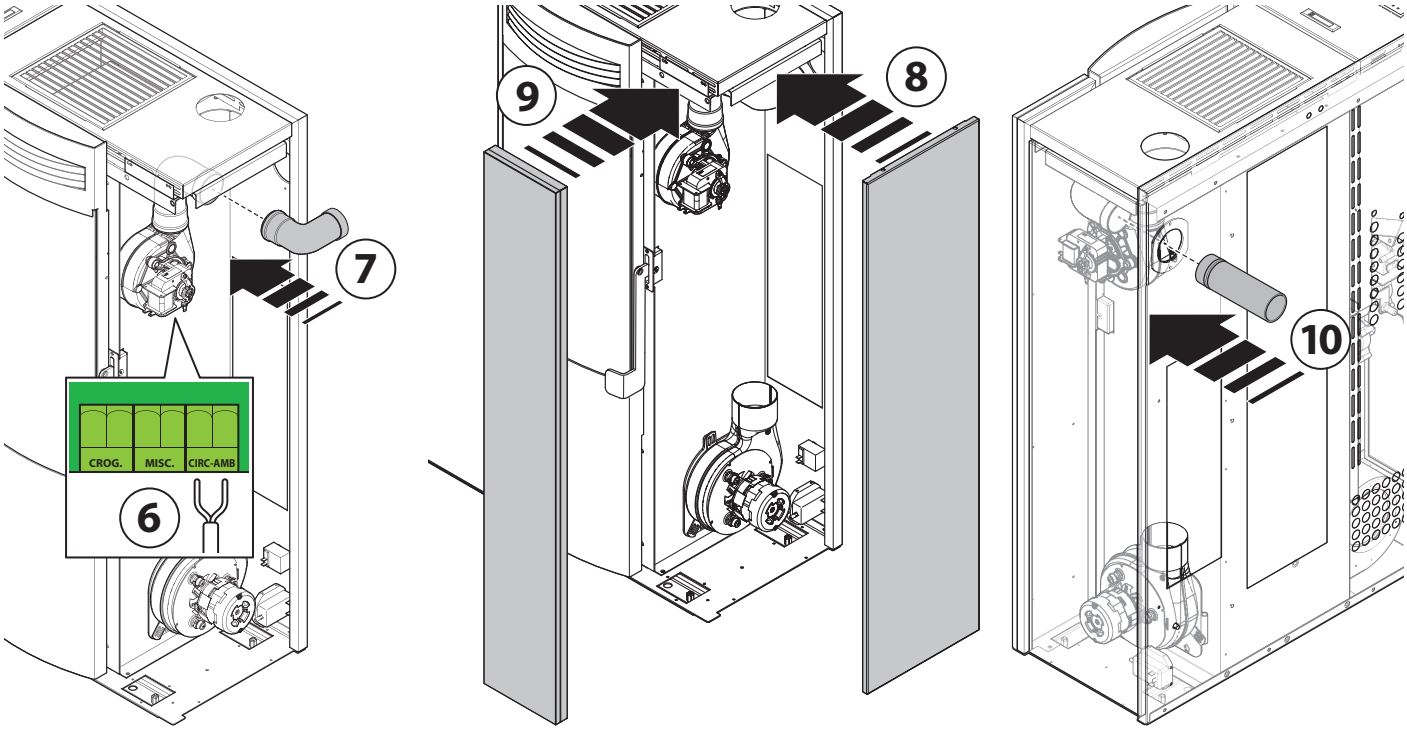
If flammable walls are crossed, insulate the piping with insulating material with a thickness of at least 4cm.

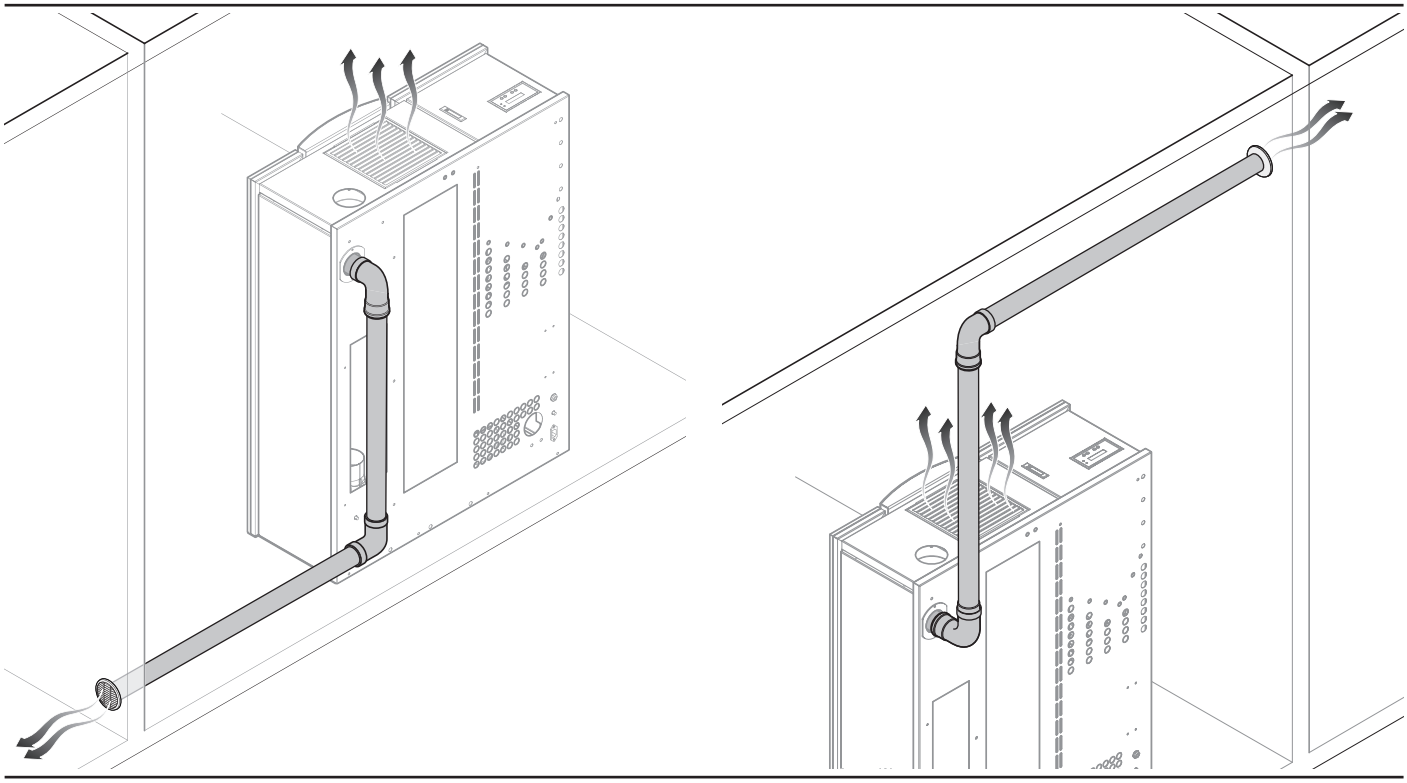
During the installation, pay attention not to damage the electrical cable.



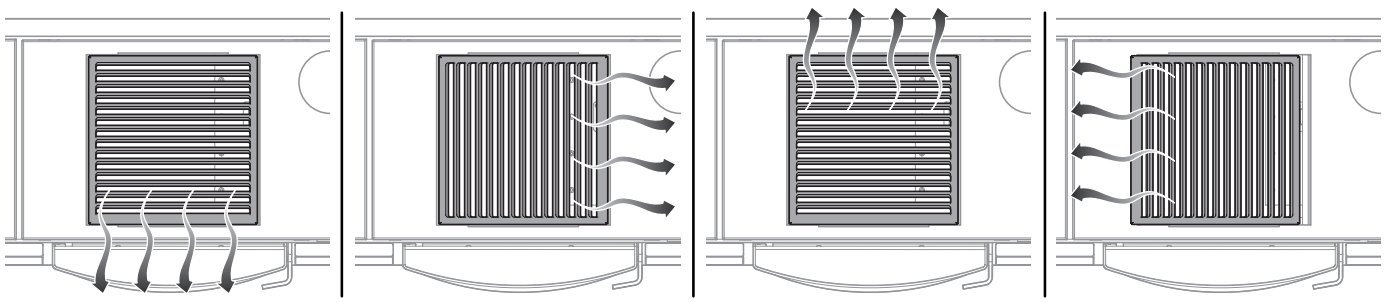








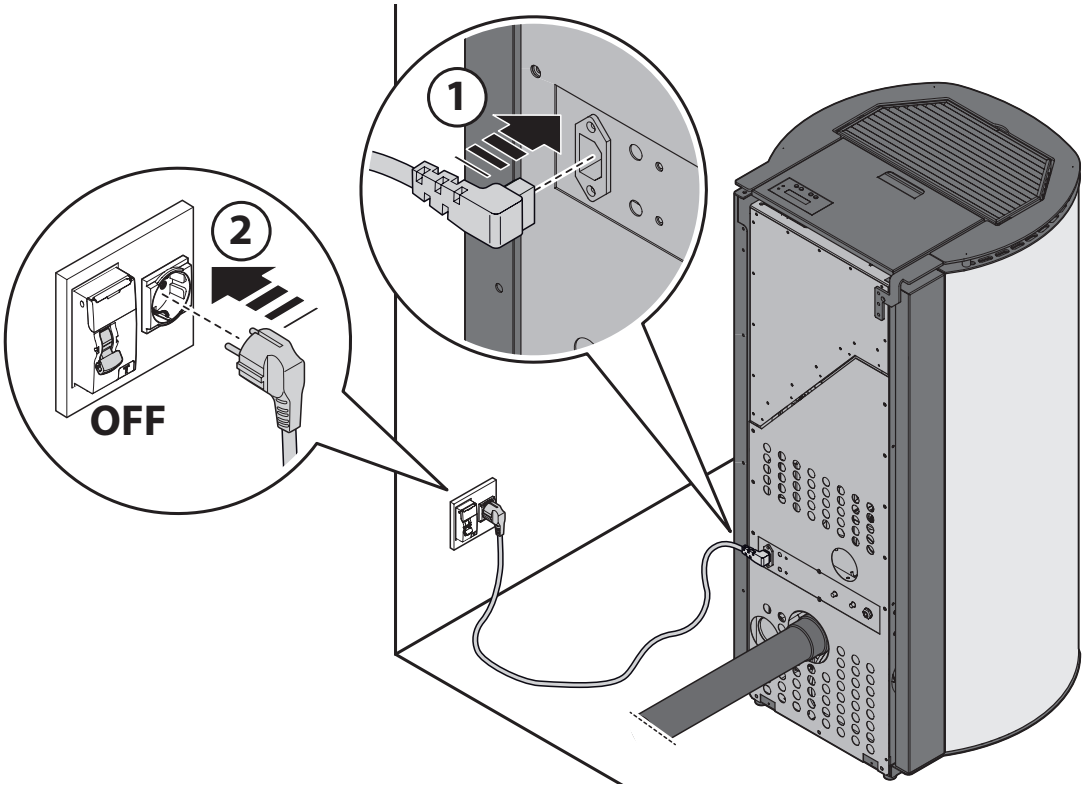
Front air outlet | **RH air outlet** | **Back air outlet** | **LH air outlet**



8.13 Electrical connections

On the back of the stove there is a socket for the electrical connection. To get power, just connect the cable supplied to the unit as well as to a wall schuko socket.

Before connecting it, make sure the circuit breaker is OFF.

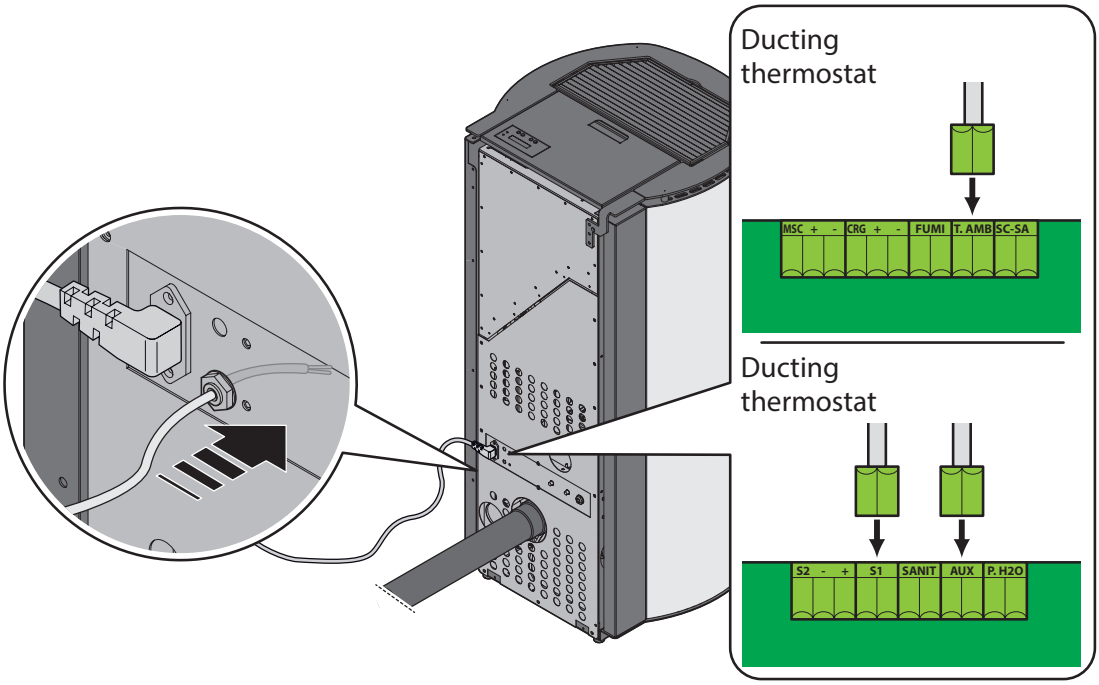


CONNECTION OF THE ROOM THERMOSTAT AND DUCTING THERMOSTAT (OPTIONS)

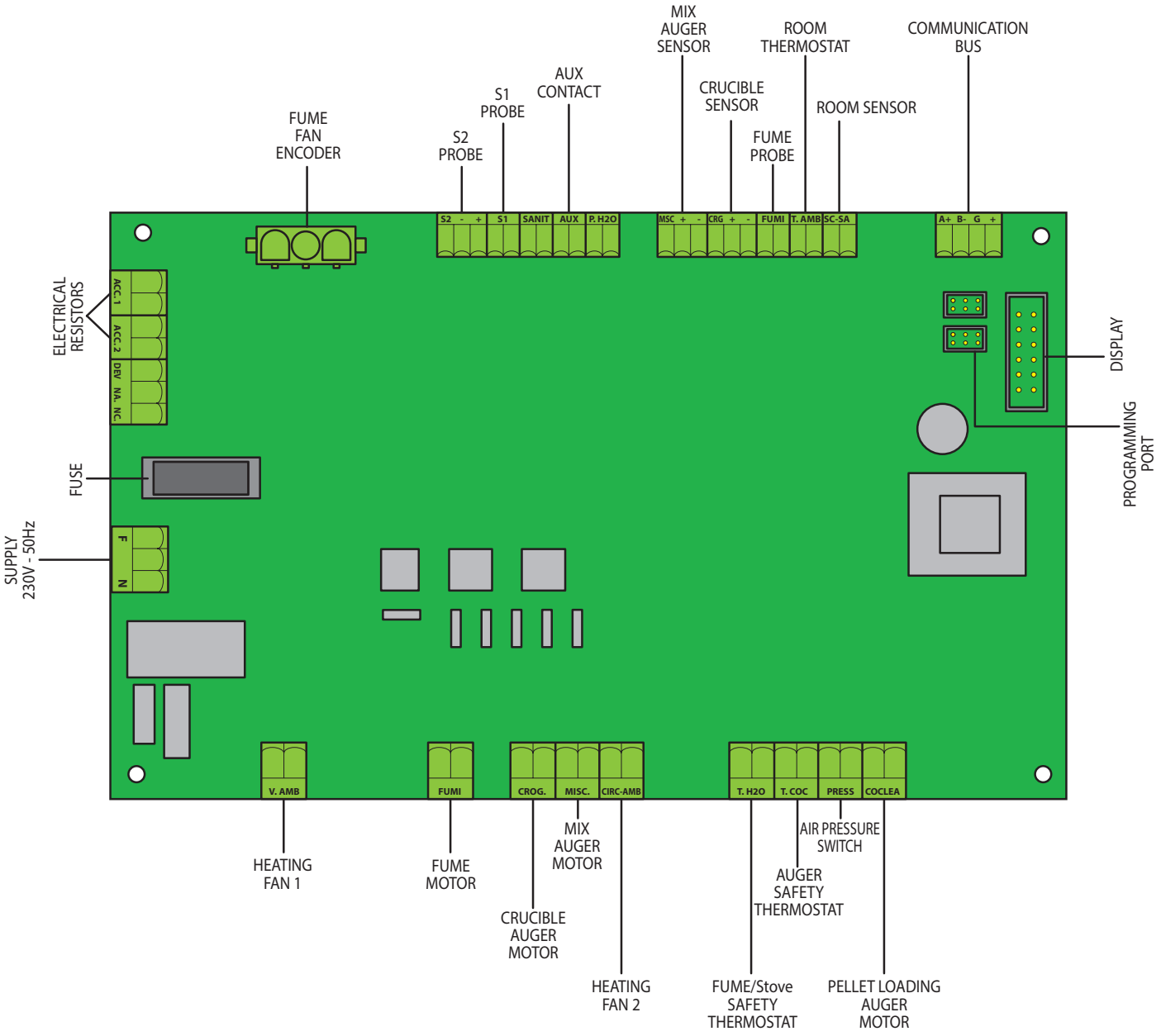
It is possible to connect a room thermostat (option) that detects the temperature in the area where it is installed and that enables and disables the operation of the stove.

The room thermostat must have a minimum activation ΔT of 1°C.

To install the thermostat, use the cable gland on the back of the stove and connect IT to the electrical board.



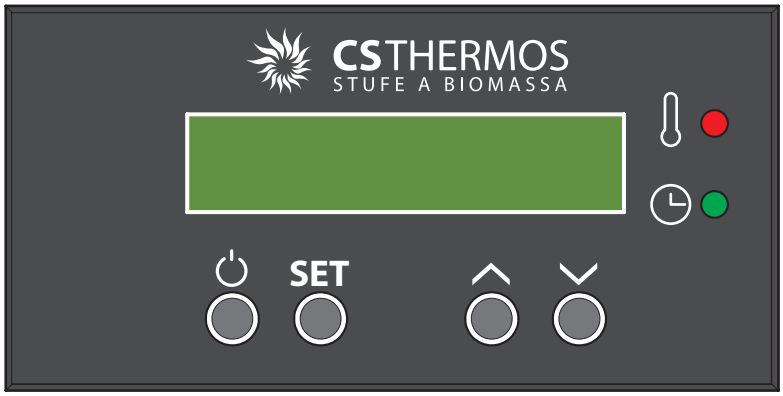
8.14 Electronic board



Take care with the connection of the room thermostat that will need to be with a "clean contact", to avoid damaging the electronic board.

9 - USE

9.1 DISPLAY



DISPLAY KEYPAD DESCRIPTION

Button ⏻ - switches the stove ON/OFF in manual mode (keep pressed for three seconds), cancels alarms and exits programming

Button SET - changes screen and confirms the set data

Button ^ - used to increase the values to be set

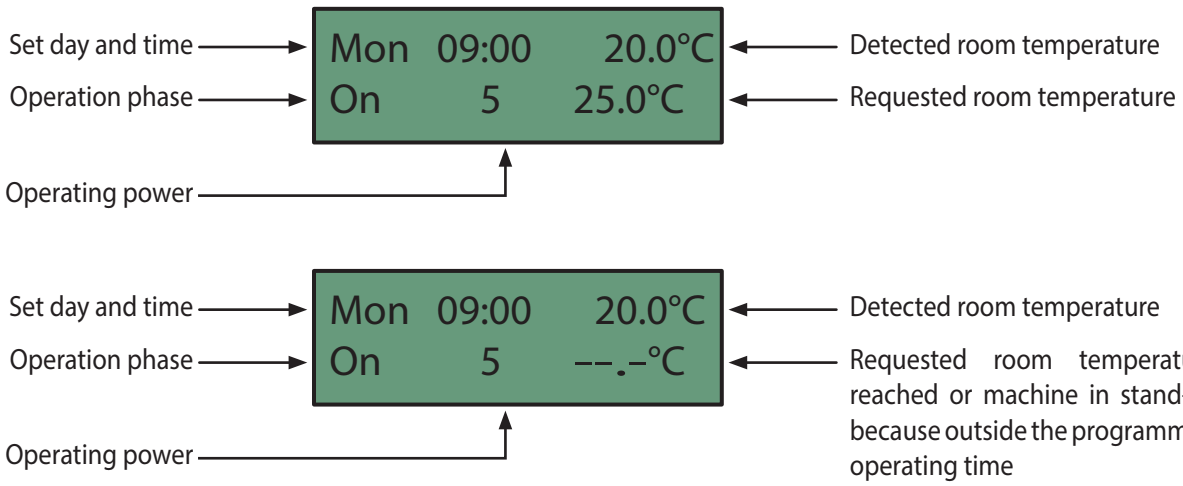
Button v - used to decrease the values to be set

MEANING OF THE LED LIGHTS

- The LED lit with "fixed" light shows that, when the set room temperature is reached, the stove is kept ON at minimum power (modulating mode YES).
- The "flashing" LED shows that, when the set temperature is reached, the stove switches OFF (modulating mode NO).
- When OFF, the LED shows that the set room temperature has been reached.

- When ON, the LED shows that time programming has been set for automatic operation.

DISPLAY STANDARD SCREEN

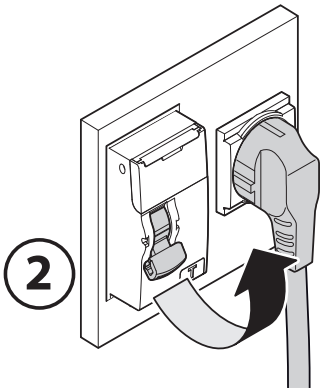


9.2 Commissioning

Once the installation has been completed and all the above has been checked, the system can be started for the first time. Only a CSTHERMOS authorized engineer can do this, also informing the customer on the operations to carry out to make the stove work correctly.

1 Fill the stove container with pellets.

2 Turn the thermal circuit breaker ON.



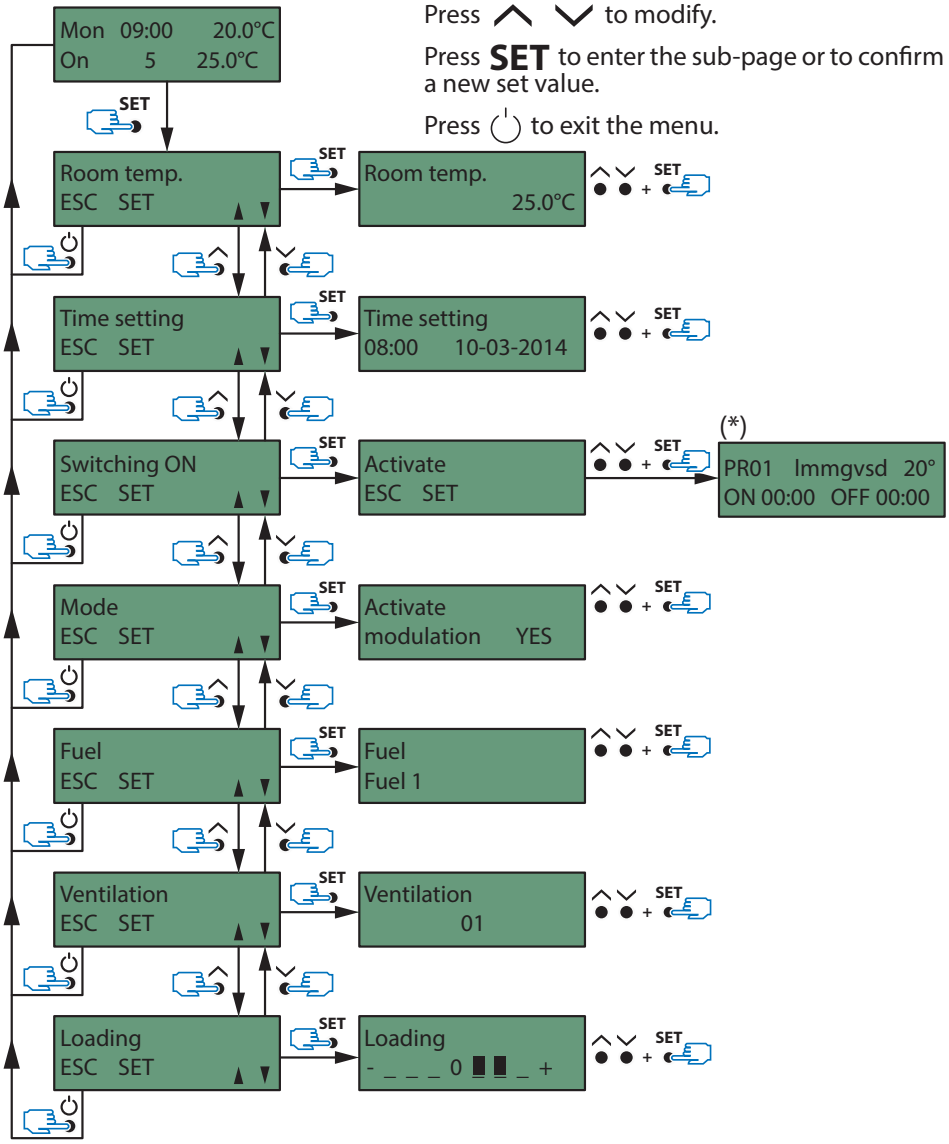
4 Switch the stove ON using the button on the control panel.

9.3 Programming

MAIN SETTINGS

Press the **SET** key repeatedly to access the desired setting.

- **"Room temp." menu:** the desired room temperature is set for manual operation (no automatic programming).
- **"Time adjustment" menu:** the current time and date are set.
- **"Ignition" menu:** the times of operation automatic programming and desired room temperature are set (see relative chapter).
- **"Mode" menu:** with modulation ON (as standard), the stove stays ON at minimum power when the desired room temperature is reached. On the other hand, with modulation OFF, the stove switches OFF if the room temperature exceeds the desired temperature by 1°C, and turns itself back ON when the temperature goes below that temperature.
- **"Fuel" menu:** the type of fuel to use for the stove operation is selected (see relative chapter). It is important to make sure that the same type of fuel has been added into the container.
- **"Ventilation" menu:** during operation, this setting allows increasing the speed of the heating air in relation to the power of the flame.

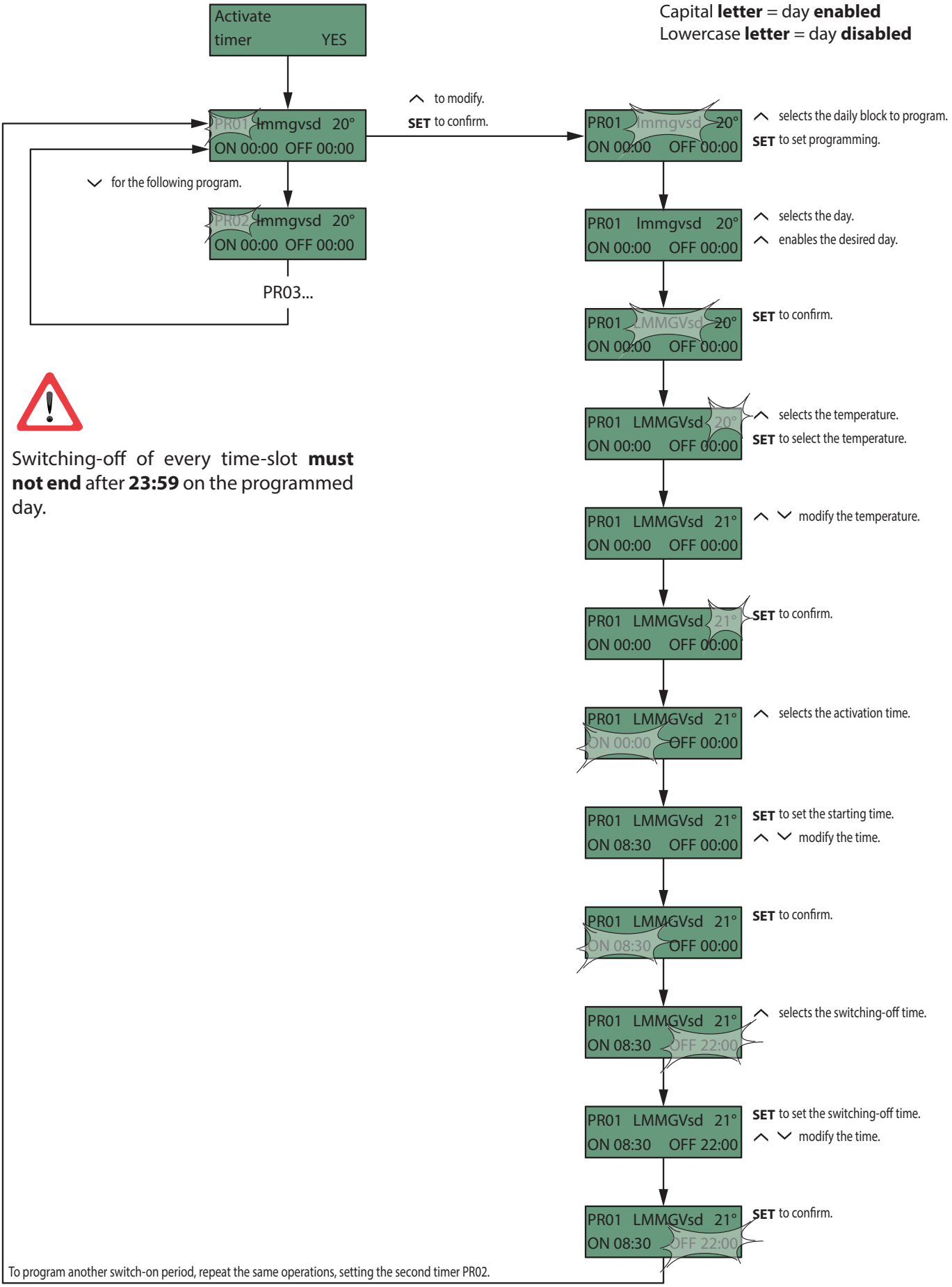


- **The "Loading" menu:** allows changing the quantity of fuel falling and is divided into 3 increasing levels (+) and 3 decreasing levels (-), each equal to 0.2 seconds for a total of +/- 0.6 seconds. This variation remains in the memory all the time and is associated to all six operating powers at the same time.

Before selecting on the display the type of fuel to use, ensure you have put the same type of fuel in the container, in case refer to paragraph 6 on fuels.

(*) The detailed description for programming switch-ons is in the following chapter.

AUTOMATIC SWITCH-ON PROGRAMMING



Switching-off of every time-slot **must not end** after **23:59** on the programmed day.

To program another switch-on period, repeat the same operations, setting the second timer PR02.

9.4 Operation phases

DISPLAY MESSAGE	MEANING
Cleaning	Pre-ventilation phase and check of safety devices with crucible cleaning before fuel loading.
Loading	Switching-on phase with fuel loading into the burner and simultaneous power ON to resistors.
Pause	Flame wait pause
Flame wait	Waiting phase within which time ignition must take place
Flame stabil.	Stabilisation phase after flame ignition with fuel intermediate loading.
ON	Burner normal operation phase with power variation from 1 to 6.
Switching-off	Timed switching-off phase associated to fuel interruption with crucible cleaning and waiting for the flame to go off totally.
OFF	OFF state until heat is requested again.
Stand by	Switching-off due to the heating temperature being reached.

In case of an alarm, it is necessary to wait for the end of the switching-off phase.

Never disconnect the electrical plug during operation or while the stove is switching off.

Unplug the plug only when the display shows the message "OFF".

9.5 Alarm code list

For your safety, do not tamper with or modify any component of the equipment: the manufacturer does not guarantee its correct operation, which can be very dangerous. In case of malfunction, problems or if a safety device is triggered, please call authorized personnel. Anyway, all operations must be carried out with the burner off and cooled down and with the power disconnected.

No.	DISPLAY	MEANING
10	fume motor	Fume motor not working: call for an authorized engineer
11	mixing auger	The mixing auger of the burner is not turning: check for any obstructions in the fuel pipe or call for an authorized engineer
12	crucible	The burner crucible does not rotate: clean the burner and restart or call for an authorized engineer
20	1 res. start. KO	One of the ignition resistances is not working: call for an authorized engineer
21	2 res. start. KO	Both ignition resistances are not working: call for an authorized engineer
22	res. fault	The ignition resistances are always powered: call for an authorized engineer
30	fume probe	Fume temperature probe interrupted or not connected: call for an authorized engineer
31	room sensor	Temperature probe interrupted or not connected: call for an authorized engineer.
40	auger sensor	Fuel auger safety thermostat triggered: clean the stove interior, reset the thermostat and restart the stove.
42	boiler sensor	Fume discharge safety thermostat triggered: clean the stove interior, reset the thermostat and restart the stove.
50	pressure switch	Air pressure switch not working: call for an authorized engineer
60	black out	No power: clean the burner and restart it
61	Network frequency	Electric voltage frequency incorrect: call for an authorized engineer
62	Short circuit Err.	Internal error of the electronic board: call for an authorized engineer
63	Short circuit err.	Internal error of the electronic board: call for an authorized engineer
70	failed ign.	Failed ignition: clean the burner and restart it
71	flame OFF	The flame went OFF during operation: clean the burner and restart
72	fume overheating	Combustion fume overheating: clean every part of the stove and restart
73	continuous loading	Pellet loading motor operation fault: call for an authorized engineer
100	system cycle	Internal error of the electronic board: switch off and restart the stove
101	service	Stove maintenance warning: call for an authorized engineer

To reset the stove operation, keep button ⏻ pressed for 5 seconds.

10 - CLEANING

During maintenance, use personal protection equipment all the time (i.e. gloves).

For the stove to work perfectly, we recommend it undergoes thorough cleaning at least once a week when using wood pellets.

If biomass is used (olive pits, shells, agripellets), cleaning must be carried out every 1 to 3 days according to the quantity of residue left in the burner.

The Manufacturer accepts no responsibility for the use of FUELS OTHER THAN AS STATED or the possible malfunction of the unit.

10.1 Cleaning the outside

To clean the outside, use:

- soft cloths
- neutral products, suitable for painted or plastic surfaces.

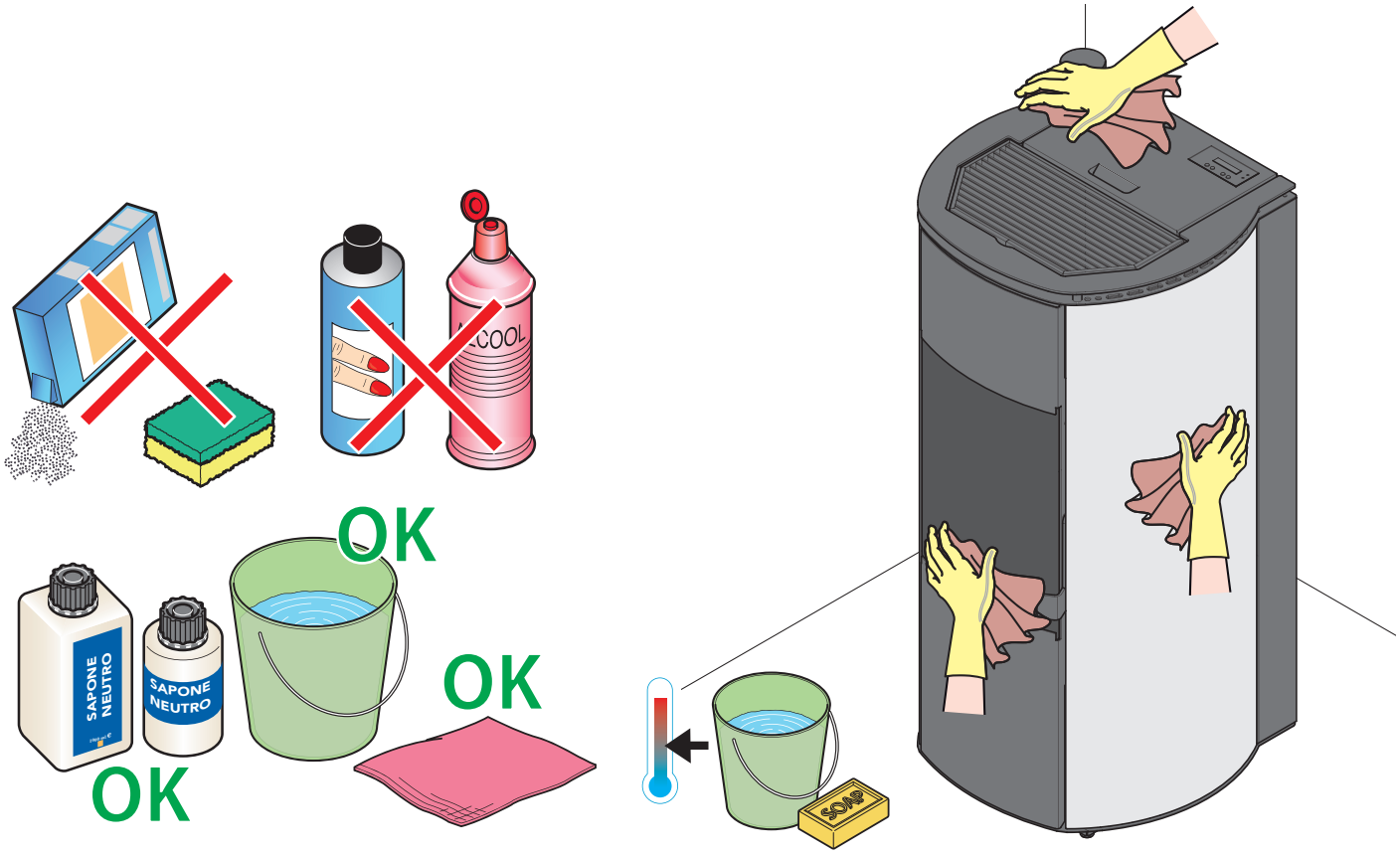
Follow the instructions for use stated on the product label.

To clean the decorative stone parts, use suitable dedicated detergents, following the instructions for use on the product label.

Always finish by drying it perfectly, possibly with a soft dry cloth.

Do not use:

- powder or abrasive detergents;
- aggressive or corrosive detergents (i.e. hydrochloric/muriatic/sulphuric acid). Warning! Do not use these substances even to clean the floor around the equipment;
- sharp or abrasive tools (i.e. abrasive sponges, scrapers, steel brushes, etc.)
- water jets.



10.2 Cleaning the biomass burner

Before starting any operation on the burner, wait for it cool down (about 3 hours).

Clean the burner every 1 to 7 days according to the type of fuel used.

Before starting work on the burner, disconnect the stove from the mains and turn the circuit breaker on the main panel to OFF.

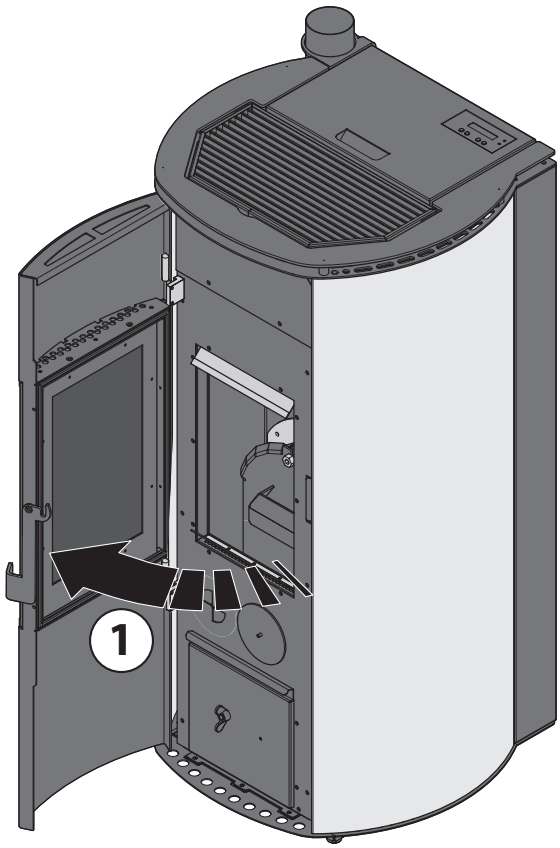
If the burner block or ash collection drawer are opened before they cool down, there might be a risk of burns.

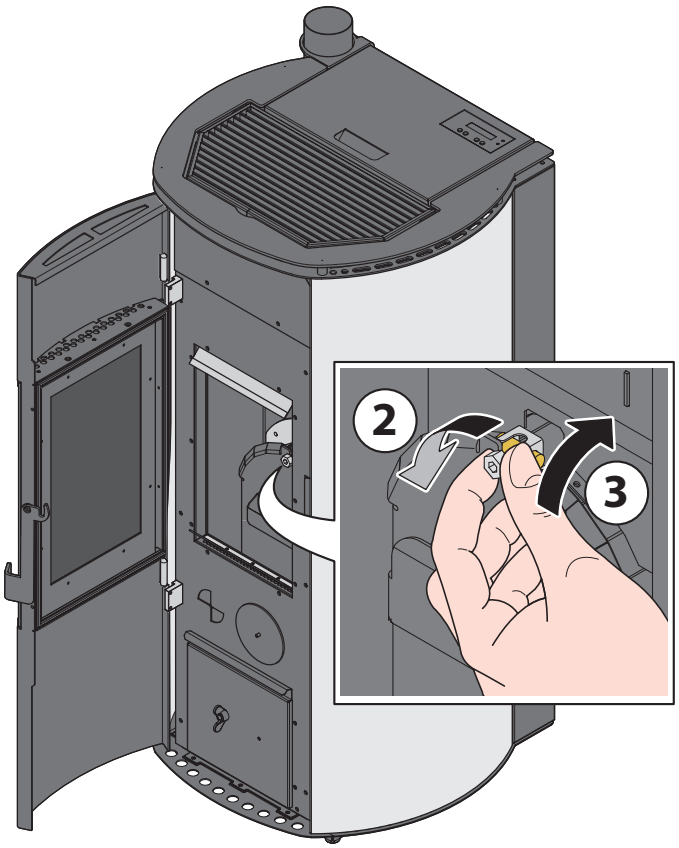
To clean the burner, use:

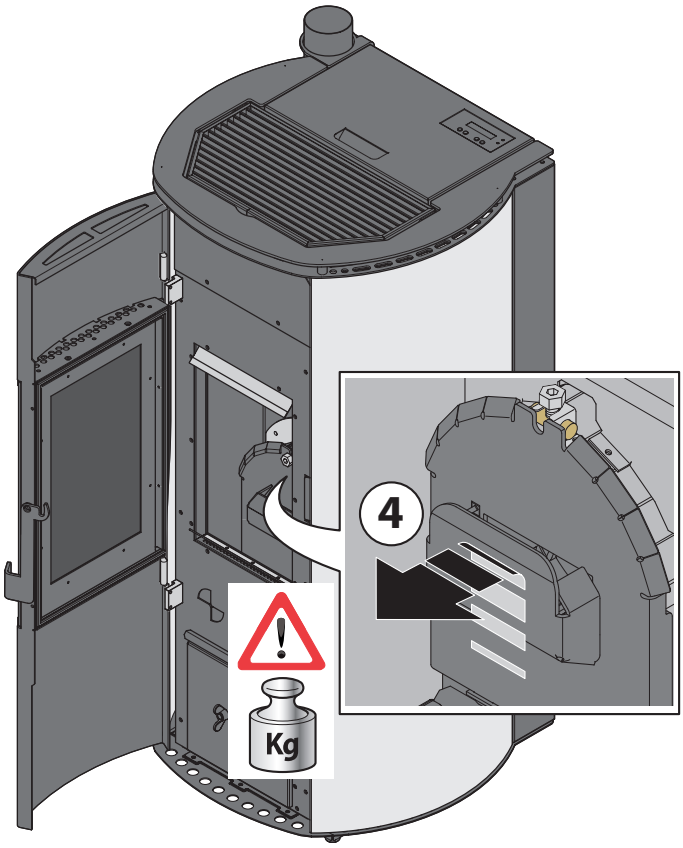
- steel brush
- ash aspirator
- scraper (to remove the more obstinate residue)

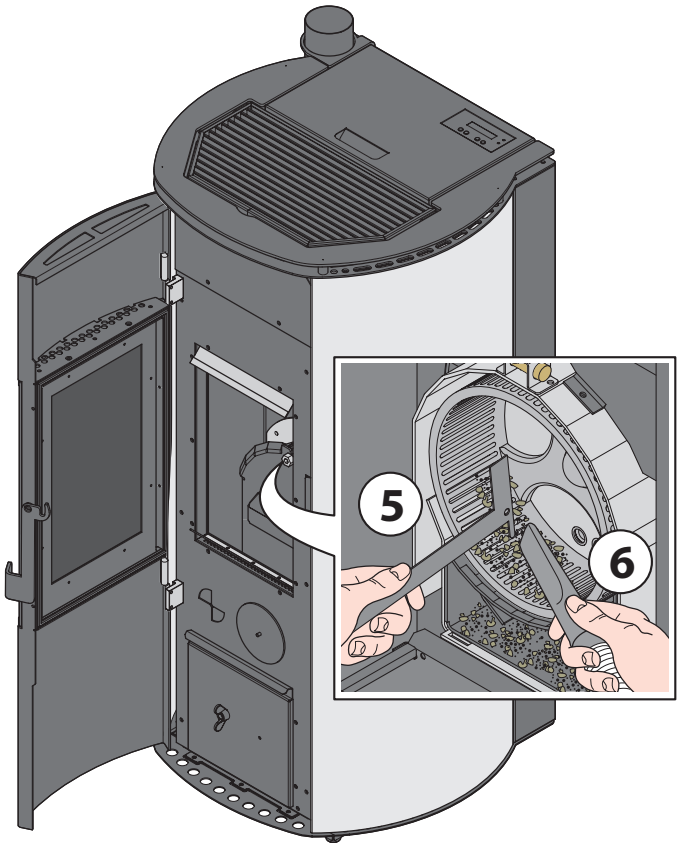
Do not use:

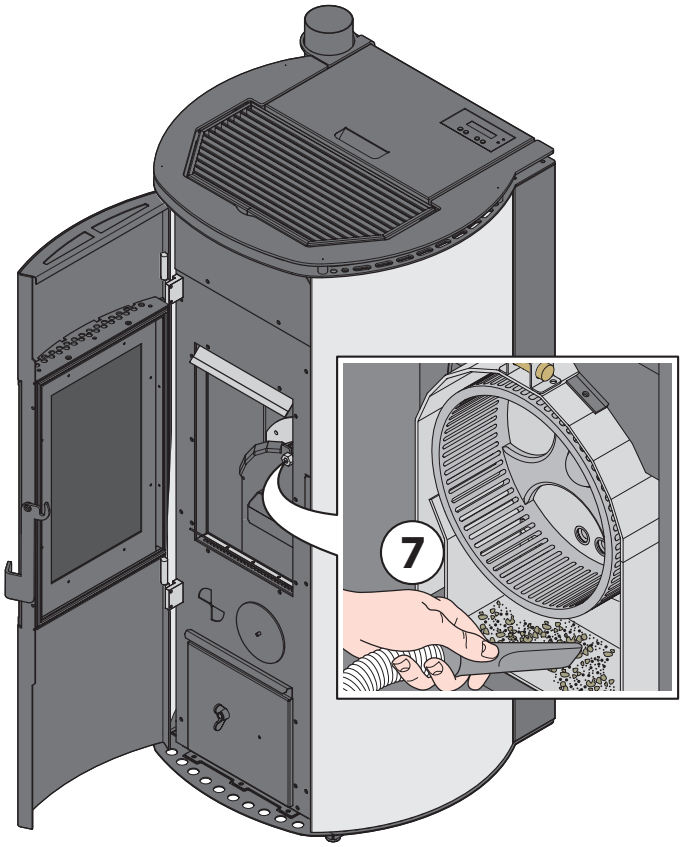
- aggressive or corrosive detergents (i.e. hydrochloric/muriatic/sulphuric acid).
- water jets.







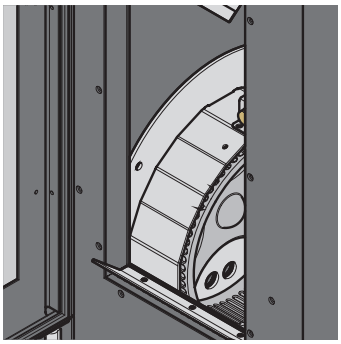




Unburnt residue inside the crucible can be vacuumed but can also be made to fall onto the bottom with a scraper, from where they will then go into the ash collection drawer. Once cleaning is complete, the burner lid can be refitted and closed, carrying out the same operations in reverse order.

After every cleaning, check the wear of the hearth door seal.

Check every time that the holes on the burner basket are totally clear from any combustion residue, this to make sure there is always sufficient air to cool the system down and for correct combustion.



In the Tesi Eco and Thema models the burner is located laterally.

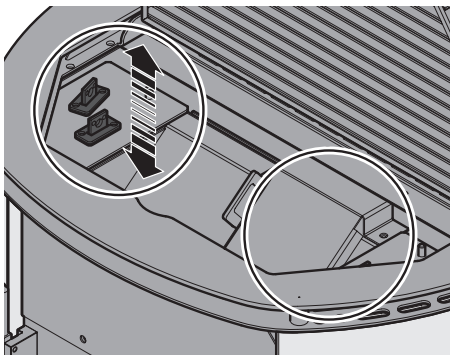
10.3 Cleaning the combustion chamber

Before starting work on the burner, disconnect the stove from the mains and turn the circuit breaker on the main panel to OFF.

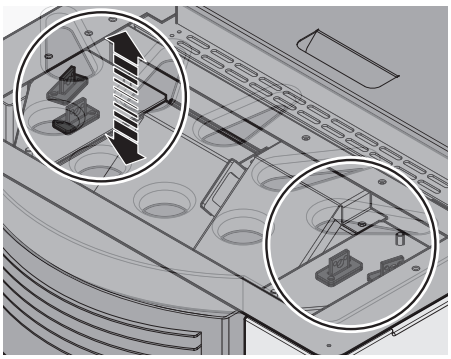
Cleaning by turbulators must be performed at least once a week, as described below:

- Raise or remove any covers.
- Raise and lower the turbulators repeatedly so that the dirt falls to the bottom of the stove using the special tool to be hooked to the handle (Arianna - Cortina - Sirmione models). For the Garda model, move the 2 side decorations.
- Remove the ash tray.
- Clean the bottom using an ash vacuum cleaner.

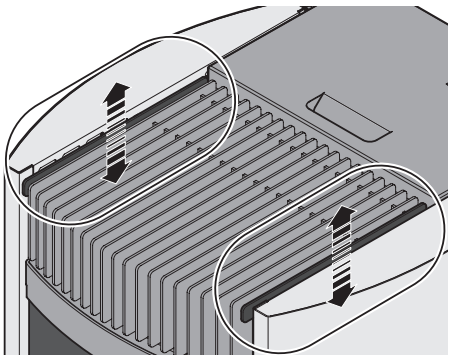
When cleaning is completed, refit all the previously removed components correctly.



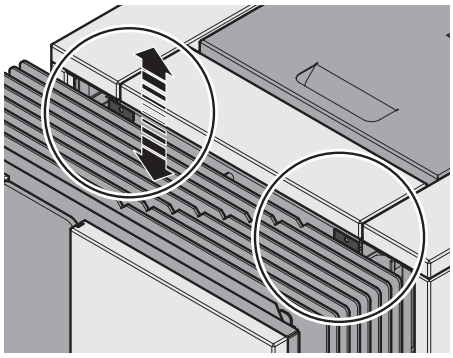
Arianna 10/12



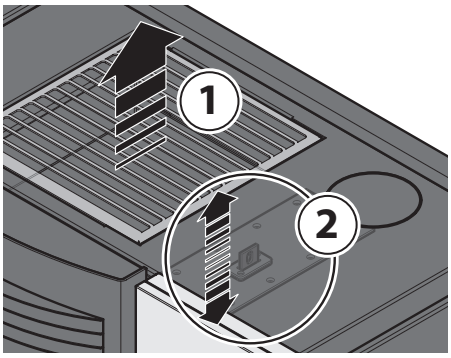
Cortina 9/10



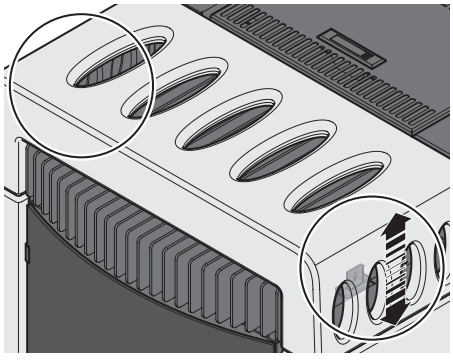
Garda 9



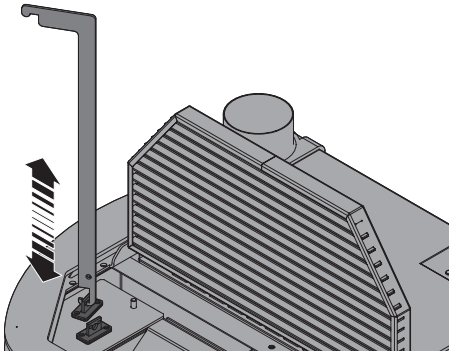
Sirmione 9/10/12

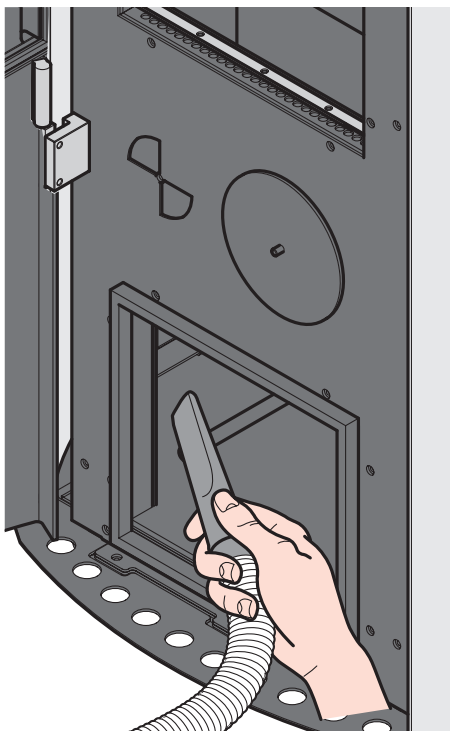


Thema / Tesi Eco



Trieste





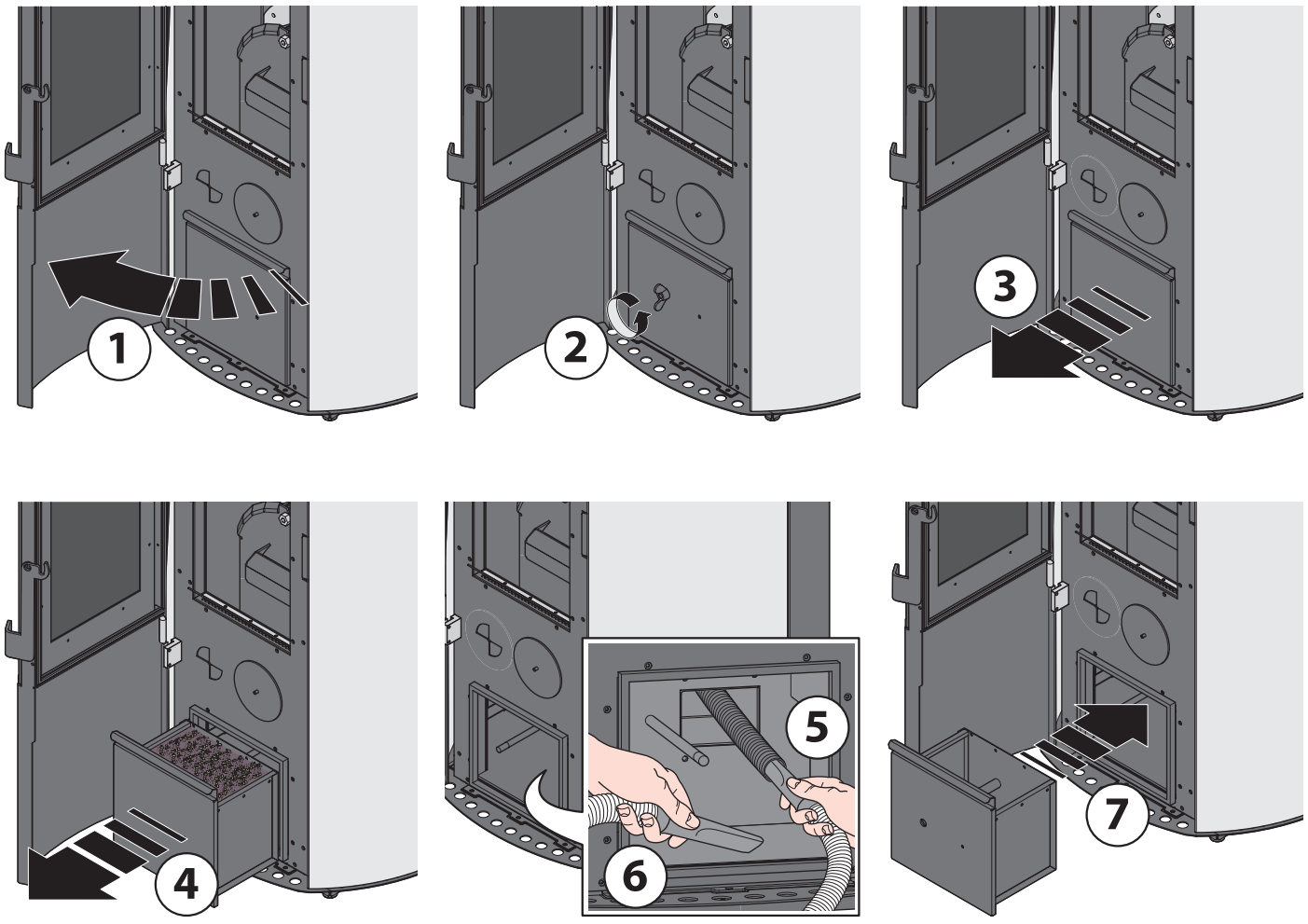
10.4 Emptying and cleaning the ash collector

Checking the ash collector must be carried out at least once a week.

Take care because there may be some incandescent pieces among the residues. If they come into contact with flammable material, they may cause a fire.

To open and empty the ash collection drawer, follow the procedure below.

The pictures are based on one stove model but the procedure is the same for the other models too.



The ash must be disposed of in compliance with the regulations in force in the country, inside a dedicated bin with a lid made out of fire-resistant material.

Once the ash container has been emptied, clean it with soft cloths and neutral products suitable for painted or plastic surfaces.

10.5 Cleaning and maintenance of other parts

By the user
Clean any dust deposited on the bottom of the fuel loading container every two months.
Check the whole stove is in good condition.
Check the burner combustion chamber is undamaged.
Check all seals are in good condition and are not showing any wear.
Check that the glass on the hearth door is not damaged (i.e. chipped).
If necessary, clean the "T" at the base of the fume duct and the pipe horizontal section, if any, at least once a month
Inspect the combustion air inlet on the back of the stove at least once a month. Remove any dirt as required

Maintenance company CS THERMOS (annual cleaning)
Check all mechanical elements are working correctly.
Check and clean the flue.
Check and clean the pellet unloading duct.
Check sleeves, gaskets and electrical cables are undamaged.
Check and clean the fume fan and its relative seat.
Check and lubricate the bushings of the fuel loading auger and of the burner.
Check and clean the heating fan as required.

For any other operation not mentioned in this list, please refer only to the CS THERMOS service centre.

If, while cleaning, the user notices any anomalies, contact CS THERMOS service centre straight away and do not use the equipment for any reason.

11 - DISPOSAL

ADVICE TO DISPOSE OF THE PRODUCT CORRECTLY

Waste of electrical and electronic equipment (WEEE) pursuant to Decree-Law 49/2014 implementing Directive 2012/19/EU.

At the end of its useful life, the product must not be disposed of together with urban waste but must be delivered to the appropriate collection centres or to the dealers that offer this service.

Disposing of the equipment separately allows avoiding possible negative consequences for health and the environment deriving from its inadequate disposal and promotes the recycling of the materials it is made of.

To stress the need for disposing of the equipment separately, the product bears the mark of the mobile waste container crossed out.

12 - NOTES

Maximum care has been paid to guarantee the accuracy of this manual.

The Manufacturer reserves the right to modify the equipment or the documentation at any time, without notice.

Therefore there might be small differences between this manual and the product you have received: we apologize in advance for any inconvenience.

The total or partial reproduction of this manual without the Manufacturer's consent is prohibited. Measurements are purely indicative and not binding.

The original language of this manual is Italian: the Manufacturer is not responsible for any mistakes in translation/interpretation.

CSTHERMOS
STUFE A BIOMASSA

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