

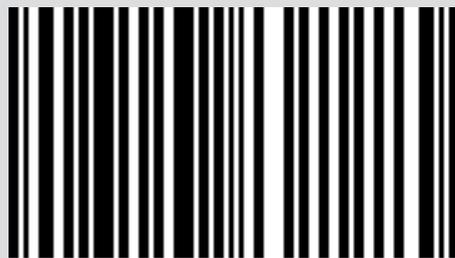


PELLET STOVE

# EGO-STAR Hydromatic 12 M1

PART 1 - REGULATIONS AND ASSEMBLY

Instructions in English



8901916300

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## INTRODUCTION

Dear Customer,

our products are designed and manufactured in compliance with European reference standards for construction products (EN13240 for wood-burning stoves, EN14785 for pellet-burning appliances, EN13229 for fireplaces/wood-burning inserts and EN 12815 for wood-burning range cookers), with high quality materials and extensive experience in transformation processes. The products also meet the essential requirements of Directive 2006/95/EC (Low Voltage) and Directive 2004/108/EC (Electromagnetic Compatibility).

To get the best performance, we suggest you read the instructions in this manual carefully.

This installation and use manual forms an integral part of the product: ensure that the manual is always supplied with the appliance, even if it changes owner. If the manual is lost, you can request another copy from the local Technical Department or download it directly from the company website.

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

In Italy, for the installation of systems with biomass below 35KW, refer to ministerial decree D.M. 37/08, and the qualified installation technician with the appropriate requisites must issue a certificate of compliance for the system installed. (By system we intend Stove+Flue+Air vent)

## REVISIONS TO THE PUBLICATION

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No part of this manual may be translated into other languages, adapted or reproduced, even in part, in other mechanical or electronic forms, photocopies, recordings or other, without the prior written authorisation from MCZ Group Spa.

The company reserves the right to make changes to the product at any time without prior notice. The proprietary company reserves its rights according to law.

## CARE OF THE MANUAL AND HOW TO CONSULT IT

- Take care of this manual and keep it in an easily and rapidly accessible place.
- Should the manual be misplaced or ruined, request a copy from your Retailer or directly from the Manufacturer, specifying the product identification data. You can also download it directly from the company website.
- “**Bold text**” requires particular attention.
- “*Italicised text*” is used to call your attention to other paragraphs in the manual or for any additional clarifications.
- “NOTE” provides the reader with additional information.

## SYMBOLS USED IN THE MANUAL

	<b>ATTENTION:</b> Read the corresponding message with care because <b>failure to observe the information provided could result in serious damage to the product and danger to the persons who use it.</b>
	<b>INFORMATION:</b> failure to comply with these provisions will compromise use of the product.
	<b>OPERATING SEQUENCES:</b> sequence of buttons to be pressed to access the menus or change settings.
	<b>MANUAL</b> carefully read this manual or the relative instructions.

### SAFETY PRECAUTIONS

- **Installation, electrical connection, operating test and maintenance must only be carried out by authorised and qualified personnel.**
- **Install the product in accordance with all local and national legislation and regulations in force in the region or state.**
- **A bad use or unproper maintainance of the product can bring to a serious risk of explosion in the combustion chamber.**
- Only use the fuel recommended by the manufacturer. The product must not be used as an incinerator. It is strictly forbidden to use liquid fuel.
- Do not put any fuel other than wood pellets in the hopper.
- The instructions provided in this manual must always be complied with to ensure the product and any electronic appliances connected to it are used correctly and accidents are prevented.
- **This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children must not play with the appliance. Cleaning and user maintenance shall not be carried out by children without supervision.**
- The user, or whoever is operating the product, must read and fully understand the contents of this installation guide before performing any operation. Errors or incorrect settings can cause hazardous conditions and/or poor operation.
- Do not climb on or lean on the product.
- Do not put linen on the product to dry. Any drying racks or the like must be kept at a safe distance from the product. **Fire hazard.**
- *All liability for improper use of the product is entirely borne by the user and relieves the Manufacturer of any civil and criminal liability.*
- Any type of tampering or unauthorised replacement with non-original spare parts could be hazardous for the operator's safety and relieves the company of any civil and criminal liability.

## 1-WARNINGS AND WARRANTY CONDITIONS

- Many of the surfaces of the product get very hot (door, handle, glass, smoke outlet pipes, etc.). **Avoid coming into contact with these parts, without adequate protective clothing or suitable implements, such as gloves with thermal protection** or “cold handle” operating systems.
- **It is forbidden to operate the product with the door open or the glass broken.**
- The product must be powered by an electrical system that is equipped with an effective earthing device.
- Switch the product off in the event of a fault or malfunction.
- Accumulated unburned pellets in the burner after each “failed start-up” must be removed before lighting again. Check that the burner is clean and positioned properly before lighting again.
- **Shut the stove down in the event of a breakdown or bad running and contact the specialised technician immediately.**
- **Pellets must not be fed manually into the burner – this wrong behaviour can generate an abnormal amount of unburned gas, with a risk of explosion in the chamber.**
- **Accumulated unburnt pellets in the burner after a failed ignitions must be removed before lighting.**
- Failure to clean and maintain the brazier can result in improper running and explosions within the stove. Make sure you remove and clear the holes in the brazier and any loose encrustations every time you empty the ash from the stove or every time you have a failed ignition. Make sure that the holes in the brazier are never reduced in size as this will affect the safe performance of the stove if not maintained.
- Do not wash the product with water. Water could get inside the unit and damage the electrical insulation and cause electric shocks.
- If there is a fire in the flue pipe, extinguish the stove, disconnect it from the power supply and never open the door. Then contact the competent authorities.
- Do not light the stove with flammable materials if the ignition system breaks down.

## 1-WARNINGS AND WARRANTY CONDITIONS

- Do not stand for a long time in front of the product in operation. Do not overheat the room you are in and where the product is installed. This could cause injuries and health problems.
- Install the product in a location that does not present a fire hazard and is equipped with power and air supplies and smoke outlets.
- In the event of fire in the chimney, turn off the device, disconnect it from the mains electricity and do not open the hatch. Then contact the competent authorities.
- The product and the cladding must be stored in a dry place and must not be exposed to weathering.
- It is recommended not to remove the feet that support the product in order to guarantee adequate insulation, especially if the flooring is made of flammable materials.
- In the event of a malfunction of the ignition system, do not force it to light by using flammable materials.
- Special maintenance must only be performed by authorised and qualified personnel.
- Assess the static conditions of the surface on which the weight of the product will rest and provide suitable insulation if it is made of flammable material (e.g. wood, fitted carpet or plastic).
- Live electrical parts: only power the product once it has been fully assembled.
- Disconnect the product from the 230V power supply before performing any maintenance operations.
- **IF ANY SMOKE SPILLAGE IS SEEN WITHIN THE ROOM OR THE APPLIANCE SUFFERS FROM AN EXPLOSIVE IGNITION PLEASE TURN OFF THE APPLIANCE, VENTILATE THE ROOM AND CONTACT THE INSTALLER/SERVICE TECHNICIAN IMMEDIATELY.**

# 1-WARNINGS AND WARRANTY CONDITIONS

## INFORMATION

- If there are any issues, contact the retailer or a qualified technician authorised by MCZ. In the event of a repair, request the use of original spare parts.
- Only use types of fuel recommended by MCZ (for Italy, pellets with a 6 mm diameter and pellets with a 6-8 mm diameter for other European countries), which must only be loaded with an automatic feed system.
- Periodically check and clean the smoke outlet duct (connection to the flue).
- Accumulated unburnt pellets in the burner after a series of failed ignitions must be removed before lighting it again.
- The pellet stove is not a cooking appliance.
- Always keep the cover of the fuel hopper closed.
- Keep this instruction manual, which will be an integral part of the stove for the whole of its service life. If the product is sold or transferred to another user, ensure the manual is also handed over.
- If lost, contact MCZ or the authorised dealer to request a copy.

## INTENDED USE

The product only works with wood pellets and must be installed indoors.

## PRODUCT PERFORMANCE CHECKS.

All our products undergo ITT tests carried out by a notified laboratory (system 3) and in accordance with (EU) regulation number 305/2011 “Construction products”, according to standard EN 14785:2006 (pellets) and “Machinery Directive” EN 303-5 (boilers).

In the case of tests for any market surveillance or inspections by third parties, please consider the following warnings:

- to reach the declared performance levels, the product must perform an operating cycle of at least 15/20 hours beforehand.
- use the average draught of the combustion smoke specified in the “technical product features” table.
- the type of pellets used must comply with current EN ISO 17225-2 regulations.
- the amount of fuel may vary according to the length and calorific value of the fuel. This may require some adjustments to stay in line with the hourly consumption specified in the “technical product features” table. A1 pellets ensure an overall calorific value within tight margins compared to the test pellets used. However, size considerably influences performance, so on average it must not be less than 24 mm long and with a 6mm diameter.
- in the case of a wood-burning product, check the correct residual moisture content of the fuel, which must not be less than 12% or more than 20%. As the moisture increases, different combustion air settings are required. The settings are to be carried out via the combustion air register, thereby modifying the mixture between primary and secondary air.
- it is necessary to check the operation of devices that can affect performance (for example air fans or electrical safety devices) in case of damage due to handling.
- maximum performance can be achieved at the maximum flame and ventilation power.
- strictly comply with the withdrawal points specified in regulations both in terms of emissions and temperature.

## WARRANTY CONDITIONS

The firm covers the product, **with the exception of the parts prone to normal wear** that are listed below, for a period of **2 (two) years** from the date of purchase as proved by:

- a document to serve as proof of purchase (invoice and/or receipt) that shows the name of the vendor and the date on which the purchase was made;
- forwarding of the completed warranty certificate within 8 days of purchase;

Furthermore, in order for the guarantee to be valid, the device must be installed and calibrated by qualified personnel, and where necessary, the user must be issued with a declaration of conformity and correct functioning of the product.

We recommend performing a functional test of the product before completion with the relative finishes, if applicable (claddings, painting of walls, etc.).

Installations that do not meet the current standards, improper use and lack of maintenance as expected by the manufacturer, void the

## 1-WARNINGS AND WARRANTY CONDITIONS

product warranty.

The warranty is valid on the condition that the instructions and warnings contained in the user and maintenance manual are observed, and therefore the product is used correctly.

The replacement of the entire system or the repair of one of its components does not extend the warranty period, and the original expiry date remains unchanged.

The warranty covers the replacement or free repair **of parts recognised as being faulty at source due to manufacturing defects**. In the event of a fault, to benefit from the warranty, the customer must keep the warranty certificate and provide it with the document given at the time of purchase to the Service Centre.

### EXCLUSIONS

The warranty does not cover malfunctions and/or damage to the appliance that arise due to the following causes:

- Damage caused during transportation and/or handling
- all parts that develop faults due to negligence or improper use, incorrect maintenance, installation that does not comply with the manufacturer's instructions (always refer to the installation guide provided with the appliance)
- incorrect sizing with regard to the use or faults in the installation or failure to adopt the necessary devices to guarantee proper execution
- improper overheating of the equipment, use of fuels not conforming to the types and quantities indicated in the instructions provided
- further damage caused by incorrect user interventions in an attempt to fix the initial fault
- worsening of the damage caused by the user continuing to operate the appliance even after the fault has been noticed
- in presence of a boiler, any corrosion, incrustations or breakages caused by water flow, condensation, hardness or acidity of the water, improperly performed descaling treatments, lack of water, mud or limescale deposits
- inefficiency of chimneys, flues or parts of the system affecting the appliance
- damage caused by tampering with the appliance, atmospheric agents, natural disasters, vandalism, electrical discharges, fires, faults in the electric and/or hydraulic system.
- Failure to have the annual stove maintenance performed by an authorised technician or qualified personnel will result in the loss of the warranty.

Also excluded from this warranty are:

- parts subject to normal wear such as gaskets, glass, cladding and cast iron grilles, painted, chrome-plated or gilded parts, handles and electric cables, bulbs, indicator lights, knobs, all parts which can be removed from the firebox.
- Variations in colour of the painted or ceramic/serpentine parts and crazed ceramics as they are natural characteristics of the material and product use.
- masonry work
- plant parts (if present) not supplied by the manufacturer

Any technical interventions on the product to eliminate the above defects and consequent damages must be agreed upon with the Service Centre, who reserves the right to accept the relative appointment or not. However, said interventions will not be carried out under warranty but as technical assistance to be granted as part of any eventual and specific agreed conditions and in accordance with the fee in force for the work to be carried out.

The user will also be charged for any costs incurred to remedy the incorrect technical interventions, tampering or damage to the appliance, not attributable to original faults.

Save for the legal or regulatory limits, the warranty does not cover the containment of atmospheric and acoustic pollution.

***The company declines all liability for any damage which may be caused, directly or indirectly, to persons, animals or objects as a consequence of non compliance with any provision specified in the manual, especially warnings regarding installation, use and maintenance of the appliance.***

## 1-WARNINGS AND WARRANTY CONDITIONS

### SPARE PARTS

In the event of a malfunction, consult the retailer who will forward the call to the Technical Assistance Department.

Only use original spare parts. The retailer or service centre can provide all necessary information regarding spare parts. We do not recommend waiting for the parts to get worn out before having them replaced. It is important to perform regular maintenance.



*The company declines all liability if the product and any other accessory is used improperly or modified without authorisation.*

*All parts must be replaced with original spare parts.*

### Information for management of waste electrical and electronic equipment containing batteries and accumulators



This symbol appears on the product, on the batteries, on the accumulators or on their packaging or on their documentation; it indicates that the product and the batteries or the accumulators included must not be collected, recycled or disposed of with household waste at the end of their service life.

Improper management of waste electrical and electronic equipment, batteries or accumulators can cause the hazardous substances contained within to leak out. In order to safeguard the environment and health, the user is required to separate this equipment, and/or the batteries or accumulators included, from other types of waste and take them to the local collection centre. The distributor can be asked to collect the waste electrical and electronic equipment under the conditions and according to the procedures laid down by Legislative Decree 49/2014.

Separate collection and correct treatment of waste electrical and electronic equipment, batteries and accumulators contribute to conserving natural resources, respect for the environment and ensure the protection of health.

For more information on collection centres for waste electrical and electronic equipment, batteries and accumulators, contact the competent public Authorities for issue of the authorisations.

## 1-WARNINGS AND WARRANTY CONDITIONS

### RULES FOR INSTALLATION

The product in question is a stove that uses wood pellets.

Below is a list of the European regulations regarding the installation of the product:

**EN 12828** Heating systems design.

**IEC 64-8** Electrical systems with rated voltage not exceeding 1000 V AC and 1500 V DC.

**EN 1443** General chimney regulation

**EN 1856-1** metal smoke ducts

**EN 1856-2** metal smoke extraction channels

**EN 1457** chimneys - Interior terracotta / ceramic flues

**EN 13384-1** Chimneys - Thermal and dynamic fluid calculation methods - Part 1: Chimneys connected to a single appliance

Below are some applicable regulations for Italy:

**UNI 10683:2012** Heat generators fuelled by wood or other solid bio-fuels - Test, installation, control and maintenance (for thermochemical power at the firebox lower than 35kW)

**UNI/TS 11278** general technical regulation for the choice of smoke duct/flue

**UNI 10847:2000** Smoke extractor systems for liquid and solid fuelled generators - Maintenance and control - Guidelines and procedures

**UNI 8065** water treatment in civil plants.

**UNI 9182** Hot and cold (domestic) water supply and distribution systems.

**Installation must be carried out with reference to the diagram of the heating system prepared in accordance with the standards and local recommendations in force:**

In any case, respect:

For the heating system -

Local requirements concerning the chimney connection.

Local requirements for fire-fighting standards.

For electrical parts - **EN 60335 "Safety of electrical household appliances and similar"**

Part 1 - General requirements

Part 2 - Special regulations for appliances with gas, gas oil and solid fuel burners with electrical connections.

## 2-INSTALLATION



**The instructions in this chapter refer explicitly to the Italian installation regulation UNI 10683. In any case, always observe the regulations in force in the country of installation.**

### PELLETS

Wood pellets are manufactured by hot-extruding compressed sawdust which is produced during the working of natural dried wood. The compactness of the material is guaranteed by the lignin contained in the wood itself and allows pellets to be produced without glue or binders.

The market offers different types of pellets with characteristics that vary according to the wood mixtures used. The diameter varies between 6 and 8 mm, with a standard length ranging from 3 to 40 mm. A good quality pellet has a density of between 600 and 750 or more kg/metres cubed and a moisture content that accounts for 5 to 8% of its weight.

Pellets have technical advantages besides being an ecological fuel, as the wood residue is used completely, thereby achieving cleaner combustion than that of fossil fuels.

While good-quality wood has a calorific value of 4.4 kW/kg (15% moisture, after about 18 months of seasoning), whereas that of pellets is around 4.9 kW/kg. To ensure good combustion, the pellets must be stored in a dry place and protected from dirt. Pellets are usually supplied in 15 kg bags, therefore, storing them is very convenient.



BAG OF PELLETS 15 kg

Good quality pellets guarantee good combustion, thereby decreasing harmful emissions into the atmosphere.



**The poorer the quality of the fuel, the more often the internal parts of the brazier and combustion chamber must be cleaned.**

The main quality certifications for pellets currently available on the European market guarantee that the fuel complies with class A1/A2 according to ISO 17225-2 (ex EN 14961). These certifications include, for example, **ENplus, DINplus, Ö-Norm M7135**, and in particular, guarantee the following characteristics:

- calorific value: 4.6 ÷ 5.3 kWh/kg.
- Water content: ≤ 10% of the weight.
- Percentage of ash: max 1.2% of the weight (A1 less than 0.7%).
- Diameter: 6±1/8±1 mm.
- Length: 3÷40 mm.
- Content: 100% untreated wood without the addition of binding agents (max 5% bark).
- Packaging: in sacks made from ecologically compatible or biologically decomposing material.



**The company strongly recommends using certified fuel for its products (ENplus, DINplus, Ö-Norm M7135). Poor quality pellets or others that do not comply with the characteristics specified previously may compromise the operation of your product and can therefore make the guarantee and product liability invalid.**

## 2-INSTALLATION

### FOREWORD

The installation position must be chosen according to the room, smoke extraction system and flue. Check with local authorities whether there are any restrictive regulations in force regarding the combustion air inlet, the smoke outlet system, the flue or the chimney pot. The manufacturer declines all responsibility in the event of installations that do not comply with the laws in force, incorrect room air exchange, electrical connection non-compliant with the standards and inappropriate use of the appliance. The installation must be carried out by a qualified technician, who must issue a declaration of conformity of the system to the purchaser and will assume full responsibility for final installation and consequent good operation of the product.

In particular one must ensure that:

- there is a suitable combustion air inlet and smoke outlet in compliance with the type of product installed
- other stoves or devices installed do not cause negative pressure in the room where the product is installed (for sealed appliances only, a maximum of 15 Pa of negative pressure in the room is allowed)
- when the product is switched on there is no reflux of smoke in the room
- smoke extraction takes place in total safety (sizing, smoke seal, distances from flammable materials..).

**We especially recommend to check the data tags of the flue for the safety distances that must be observed in presence of combustible materials and the type of insulating material to be used. These indications must be followed strictly to prevent serious harm to people and the integrity of the home.** The installation of the appliance must ensure easy access to clean the appliance itself, the smoke outlet pipes and the flue. **It is forbidden to install the stove in rooms with a fire hazard. Installation in studio flats, bedrooms and bathrooms is only allowed with sealed or closed appliances equipped with suitable combustion air ducting directly outside. Always maintain adequate distance and protection in order to prevent the product from coming into contact with water.**

In the event there are several appliances installed, the external air inlet must be sized accordingly.

### MINIMUM DISTANCES

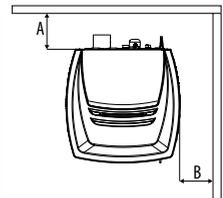
It is recommended to install the stove detached from any walls and/or furniture, with a minimum clearance to allow effective aeration of the appliance and a good distribution of heat in the room. Comply with the distances from flammable or heat-sensitive objects (sofas, furniture, wood panelling, etc.) as specified below. The frontal distance from flammable materials must be at least as specified in the product's technical data table.

If particularly delicate objects are present, such as furniture, curtains or sofas, increase the stove clearance accordingly.



***If the floor is made of wood, it is recommended to fit a floor protection sheet in compliance with the Standards in force in the country of installation.***

EGO/STAR HYDROMATIC 12 M1	Non-flammable walls	Flammable walls
	A = 5 cm B = 5 cm	A = 20 cm B = 20 cm



If the floor is made of combustible material, it is recommended to use protection made of non-combustible material (steel, glass...) that also protects the front from falling combusted material during cleaning operations.

The appliance must be installed on a floor with adequate load capacity.

If the existing construction does not meet this requirement, one must take appropriate measures (for example a load distribution plate).

## 2-INSTALLATION

### FOREWORD

The Chimney Flue chapter has been drawn up with reference to the provisions of European Standards (EN13384 - EN1443 - EN1856 - EN1457).

The chapter provides indications for installing an efficient and correct flue but is under no circumstances to substitute the regulations in force, which the qualified technician must be in possession of. Check with local authorities whether there are any restrictive regulations in force regarding the intake of air for combustion, the smoke outlet system, the flue or the chimney pot.

The company declines all liability relating to the poor functioning of the stove if this is due to the use of an insufficiently sized flue in violation of the Standards in force.

### FLUE

The flue or chimney is of great importance for the proper operation of a solid fuel-burning heating appliance with natural draught, as modern heating appliances have high efficiency with cooler flue gasses and consequently less draught, it is therefore essential that the flue is built up to standard and always kept in perfect working order. A flue that serves a pellet/wood fuelled appliance must be at least category T400 (or greater if the appliance requires so) and resistant to soot fires. Smoke must be extracted through a single flue made of insulated steel (A) or an existing flue that complies with the intended use (B).

A simple air shaft made of cement must be suitably lined. In both solutions there must be an inspection cap (AT) and/or inspection hatch (AP) - FIG.1.

It is prohibited to connect more than one wood/pellet (\*) or any other type of appliance (vent cowlng...) to the same flue.

(\*) unless there are national derogations (for instance in Germany), which under suitable conditions allow for the installation of several appliances in the same fireplace. In any case, strictly follow the product/installation requirements of the relative regulations/legislation in force in that country

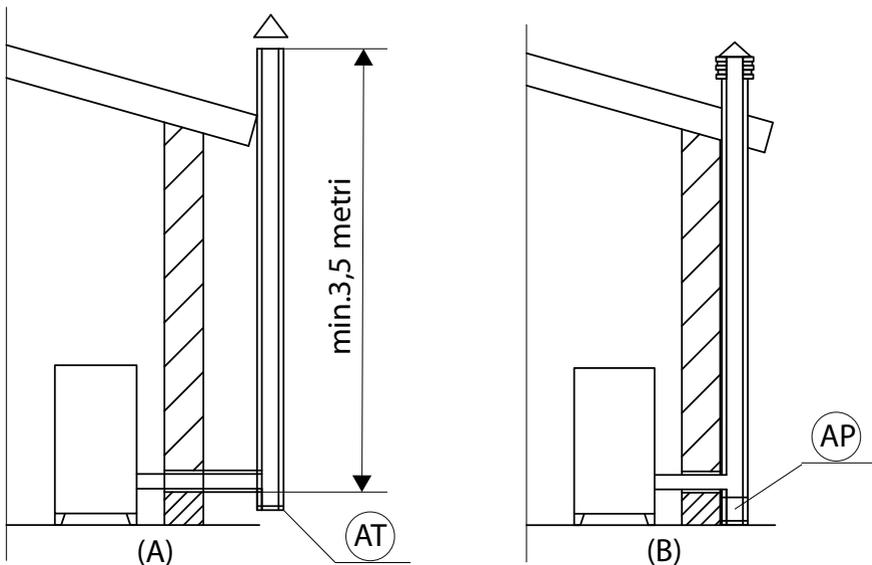


FIGURE 1 - FLUE

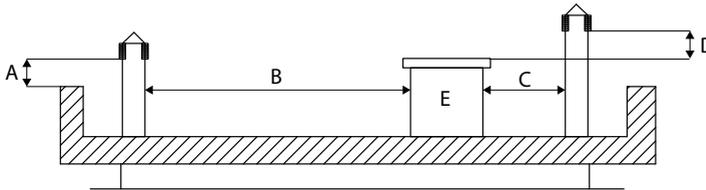
## 2-INSTALLATION

### TECHNICAL CHARACTERISTICS

Have the efficiency of the flue checked by an authorised technician.

The flue must be sealed against flue gasses, in a vertical direction without narrowing, be made with materials impermeable to smoke, condensation, thermally insulated and suitable to resist normal mechanical stress over time (we recommend fireplaces made of A/316 or refractory material with insulated round section double chamber). Be suitably insulated externally to avoid condensation and reduce smoke cooling. It should be separated from combustible or flammable materials with an air gap or insulating materials: check the distance specified by the manufacturer of the fireplace according to EN1443. The chimney opening must be in the same room as the appliance, or at most in the adjoining room, and have a soot and condensation collection chamber beneath the opening, and be accessible via a sealed metal hatch.

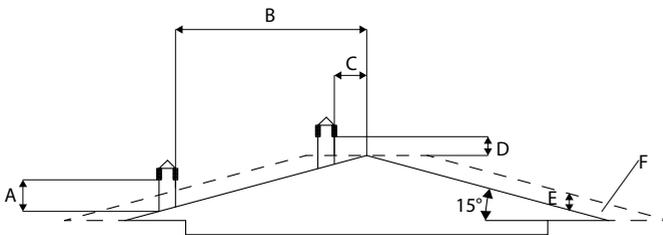
#### FLAT ROOF



A = 0.50 metres  
 B = DISTANCE > 2 metres  
 C = DISTANCE < 2 metres  
 D = 0.50 metres  
 E = TECHNICAL VOLUME

FIGURE 2

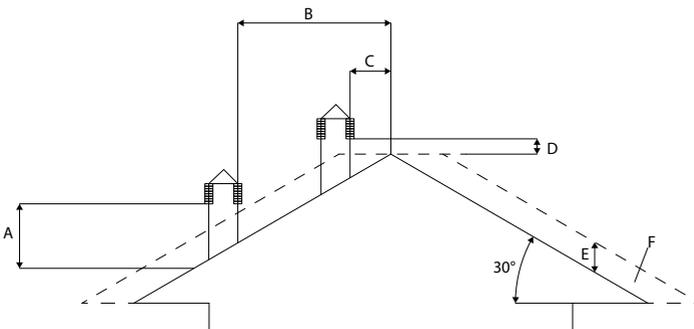
#### ROOF AT 15°



A = MIN. 1.00 metres  
 B = DISTANCE > 1.85 metres  
 C = DISTANCE < 1.85 metres  
 D = 0.50 metres ABOVE HIGHEST POINT  
 E = 0.50 metres  
 F = REFLUX AREA

FIGURE 3

#### ROOF AT 30°



A = MIN. 1.30 metres  
 B = DISTANCE > 1.50 metres  
 C = DISTANCE < 1.50 metres  
 D = 0.50 metres ABOVE HIGHEST POINT  
 E = 0.80 metres  
 F = REFLUX AREA

FIGURE 4

## 2-INSTALLATION

### ROOF AT 60°

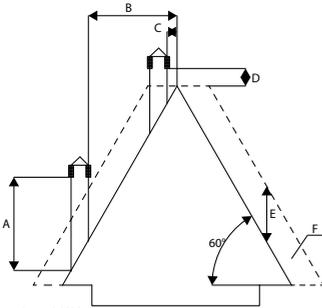


FIGURE 5

- A = MIN. 2.60 metres
- B = DISTANCE > 1.20 metres
- C = DISTANCE < 1.20 metres
- D = 0.50 metres ABOVE HIGHEST POINT
- E = 2.10 metres
- F = REFLUX AREA

### ROOF AT 45°

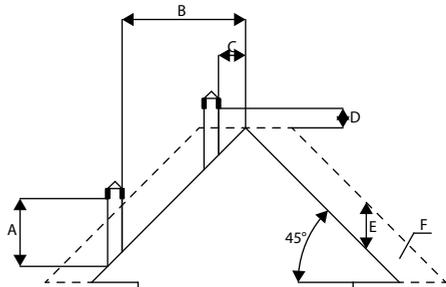


FIGURE 6

- A = MIN. 2.00 metres
- B = DISTANCE > 1.30 metres
- C = DISTANCE < 1.30 metres
- D = 0.50 metres ABOVE HIGHEST POINT
- E = 1.50 metres
- F = REFLUX AREA

### SIZING

The negative pressure (draught) of a flue depends on its height. Check the negative pressure with the values indicated in the technical characteristics. The minimum height of the chimney is 3.5 metres.

The interior cross-section of the flue can be round (best), square or rectangular (the ratio between the internal sides must be  $\leq 1.5$ ) with the sides joined with a minimum radius of 20 mm. The dimension of the cross-section must be **minimum  $\varnothing 100\text{mm}$** .

The cross sections/lengths of chimneys must be correctly sized in accordance with the general method of calculation of UNI EN13384-1 or other proven efficiency methods.

Below is a list of some flues available on the market:

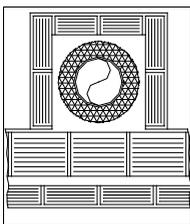
AISI 316 steel chimney with double chamber insulated with ceramic fibre or equivalent resistant up to 400°C.

Refractory chimney with double insulated chamber and external lightweight concrete cladding with cellular material such as clay.

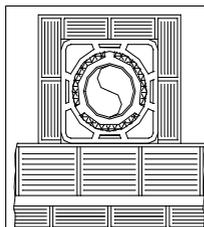
Traditional square-section clay chimney with insulating empty inserts.

Avoid products with an internal rectangular section where the larger side is 1.5 times the smaller side (e.g. 20x40 or 15x30).

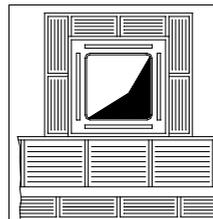
#### EXCELLENT



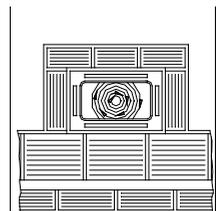
#### GOOD



#### POOR



#### VERY POOR



## 2-INSTALLATION

### MAINTENANCE

The flue must be kept clean, since the deposit of soot or unburned oils reduces the cross-section reducing the draught and thus compromising the efficient operation of the stove and, if large build-ups accumulate, can catch fire. The flue and chimney pot must be cleaned and checked by a qualified chimney sweep at least once a year. Once the inspection/maintenance has been performed, request a written report that the system is safe. Failure to perform cleaning jeopardises the system's safety.

### CHIMNEYPOT

The chimney pot is a crucial element for the heating appliance to work properly: we recommend a wind proof chimney pot (A), see

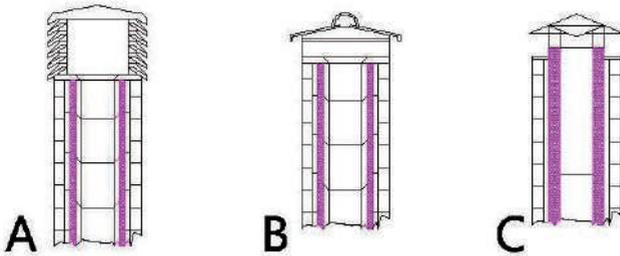
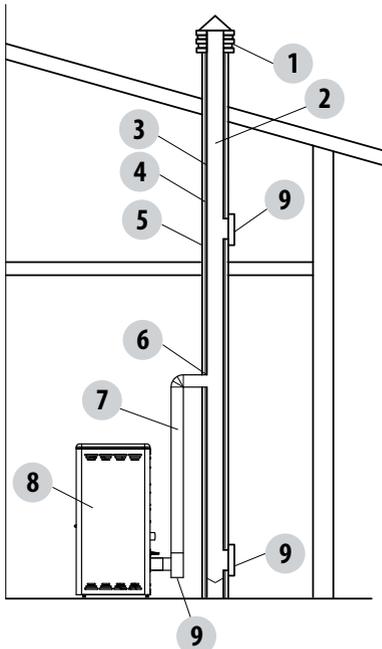


Figure 7.

The area of the opening for smoke extraction must be at least double the cross-section of the flue/lined system, and arranged so that smoke outlet is ensured even in strong wind. The chimney must prevent rain, snow or animals from entering the chimney. The height of outflow into the atmosphere must be beyond the reflux area due to the shape of the roof or any obstacles near the outlet (see Figures 2-3-4-5-6).

FIGURE 7

### CHIMNEY COMPONENTS



#### LEGEND:

- (1) CHIMNEYPOT
- (2) REFLUX CHANNEL
- (3) SMOKE DUCT
- (4) THERMAL INSULATION
- (5) OUTSIDE WALL
- (6) CHIMNEY FITTING
- (7) SMOKE DUCT
- (8) HEAT GENERATOR
- (9) INSPECTION ACCESS PANEL

FIGURE 8

## 2-INSTALLATION

### EXTERNAL AIR INLET

It is mandatory to provide an adequate external air inlet that supplies the combustion air required for the product to work properly. The flow of air between the outside and the installation room may be direct, through an inlet in an external wall of the room (preferable solution see Figure 9 a); or indirect, via air intake from adjoining rooms and connecting permanently with the installation room (see Figure 9 b). Adjoining areas may not include sleeping areas, garages or general areas with a fire hazard. During installation one must check the minimum clearances required for air intake from outside. Take into account the presence of doors and windows that could interfere with the proper flow of air to the stove (see diagram below).

The air inlet must have a minimum net total area of 80 cm<sup>2</sup>; the surface must be increased accordingly if there are other active generators (for example: electric fan for stale air extraction, hood, other stoves, etc.), which could cause a depression in the room. Make sure that, with all appliances on, the pressure drop between the room and the outside does not exceed the value of 4 Pa (also for Oyster appliances if the combustion air has not been suitably ducted outside). If necessary increase the intake section of the air inlet, which must be made at floor level and always protected with a bird-proof outer protection grid and in such a way that it cannot be obstructed by any object.

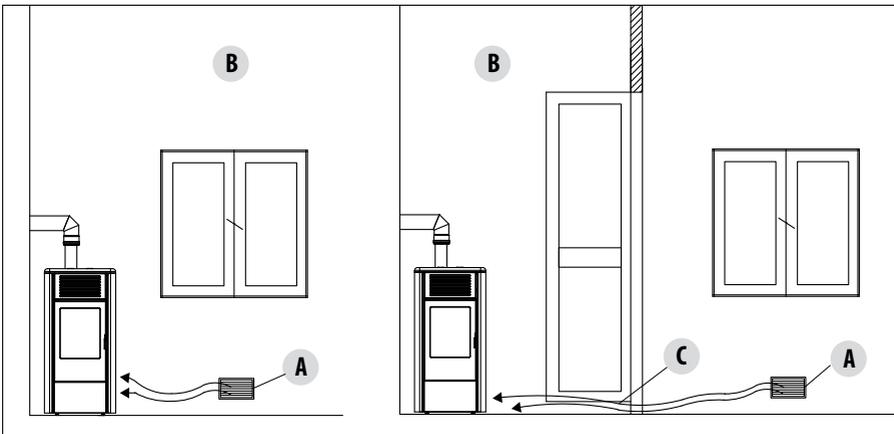
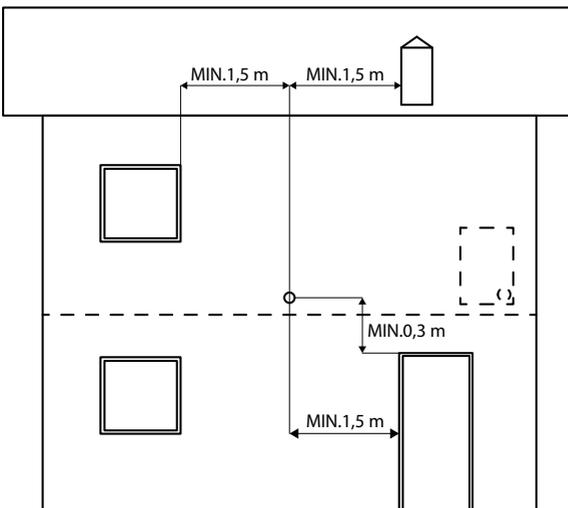


FIGURE 9 A - DIRECTLY FROM OUTSIDE

FIGURE 9 B - INDIRECTLY FROM THE ADJACENT ROOM



A=AIR INLET  
B=ROOM TO BE VENTILATED  
C=INCREASE OF THE GAP UNDER THE DOOR

It is possible to connect the air required for combustion directly to the outside air inlet, with a pipe of at least Ø50mm, with maximum length of 3linear metres; each pipe bend shall be considered equivalent to a linear metre. To attach the pipe see the back of the stove.

For stoves installed in studio flats, bedrooms and bathrooms (where allowed), it is mandatory to connect the combustion air outside. In particular for sealed stoves the connection must be sealed in order not to compromise the overall sealed characteristic of the system.

FIGURE 10

## 2-INSTALLATION

DISTANCE (metres)	The air inlet must be at a distance of:	
1.5 m	BELOW	Windows, doors, smoke outlets, cavities, ....
1.5 m	HORIZONTALLY	Windows, doors, smoke outlets, cavities, ....
0.3 m	ABOVE	Windows, doors, smoke outlets, cavities, ....
1.5 m	AT A DISTANCE	from smoke outlet

### CONNECTION TO THE FLUE

The connection between the flue and the appliance must be via a smoke duct that conforms to EN 1856-2. The connecting section must extend no more than 4 m horizontally, with a minimum slope of 3% and with a maximum of 3 90° bends (accessible for inspection - do not count the T fitting at the appliance outlet).

The diameter of the smoke duct must be equal to or greater than that of the outlet of the appliance ( $\varnothing$  80 mm).

TYPE OF SYSTEM	SMOKE DUCT
Minimum vertical length	1.5 metres
Maximum length (with 1 accessible 90° bend)	6.5 metres
Maximum length (with 3 accessible 90° bends)	4.5 metres
Maximum number of accessible 90° bends	3
Horizontal sections (minimum slope 3%)	4 metres

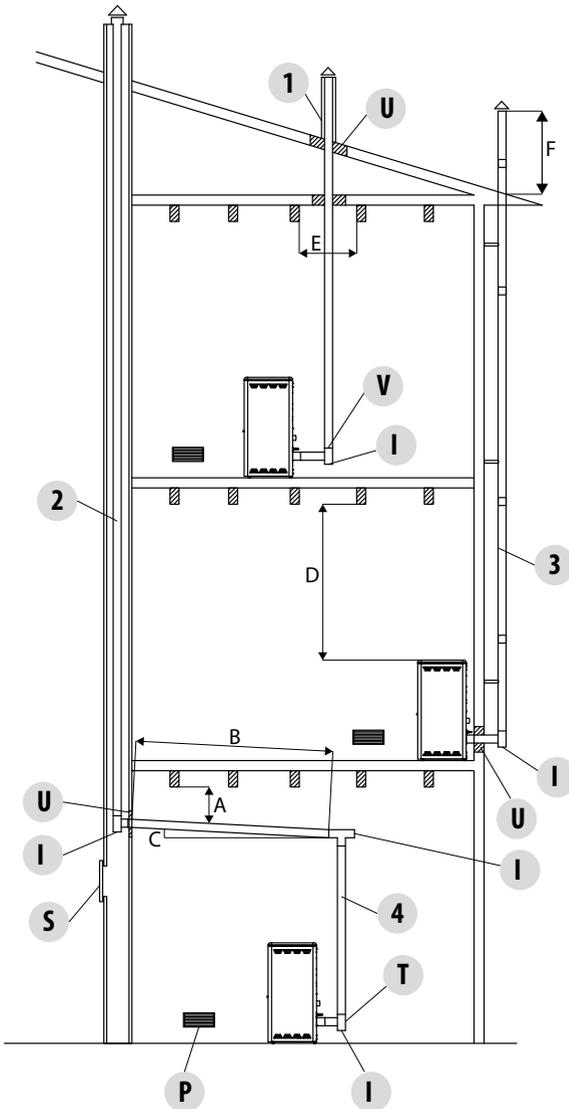
Use a smoke duct according to the regulations in force in the country of installation and verify that it is compatible with the product and installation characteristics. The temperature class of the smoke duct must exceed operating temperatures of the appliance.

It is prohibited to connect more than one appliance to the same smoke duct, or the discharge from hoods above it. It is forbidden to extract the combustion products directly through the wall, whether into indoor spaces or outdoors.

Should there be flammable or heat-sensitive structures, the smoke duct must respect the safety distances specified in the data plate.

## 2-INSTALLATION

### EXAMPLES OF CORRECT INSTALLATION



1. Installation of  $\varnothing 120\text{mm}$  flue with hole for the passage of the pipe increased by:  
 minimum 100mm around the pipe if next to non flammable parts such as cement, brick, etc.; or  
 minimum 300mm around the pipe (or as required by rating plate) if next to flammable parts such as wood etc.  
 In both cases, install suitable insulation between the flue and the ceiling.

Always check and respect the data tags on the flue, in particular the minimum safety distances from combustible materials.

The previous rules also apply for holes made in walls.

2. Old flue, minimum pipe  $\varnothing 100\text{mm}$  with the inclusion of an external access door for chimney cleaning.

3. External flue made of insulated stainless steel pipes, i.e. with double walls minimum  $\varnothing 100\text{mm}$ : all securely mounted on the wall. With windproof chimney pot. See fig. 7 type A.

4. Ducting system using T fittings that allow easy access for cleaning without having to remove the pipes

FIGURE 11

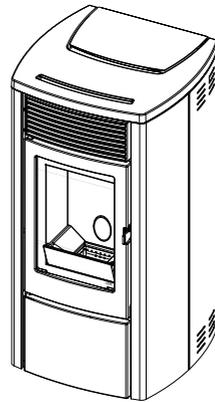
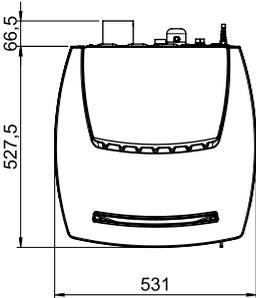
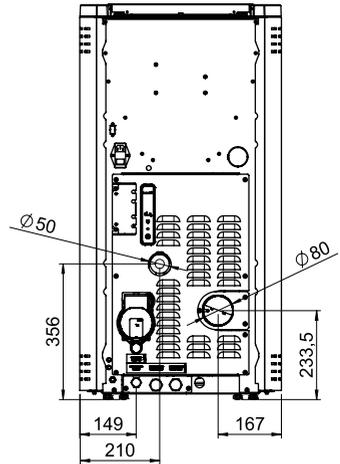
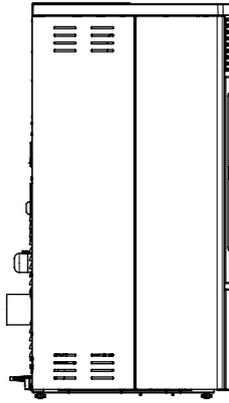
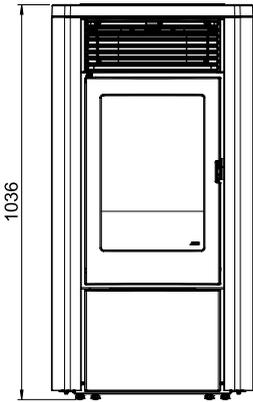
U = INSULATING  
 V = ANY REDUCTION FROM 100 TO 80 MM  
 I = INSPECTION CAP  
 S = INSPECTION ACCESS PANEL  
 P = AIR INLET  
 T = T JOINT WITH INSPECTION CAP

A = MINIMUM 40 MM  
 B = MAXIMUM 4 M  
 C = MINIMUM 3°  
 D = MINIMUM 400 MM  
 E = HOLE DIAMETER  
 F = SEE FIG.2-3-4-5-6

### 3-DRAWINGS AND TECHNICAL FEATURES

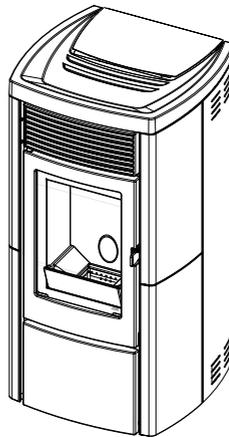
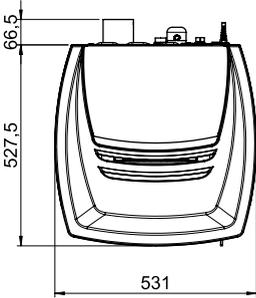
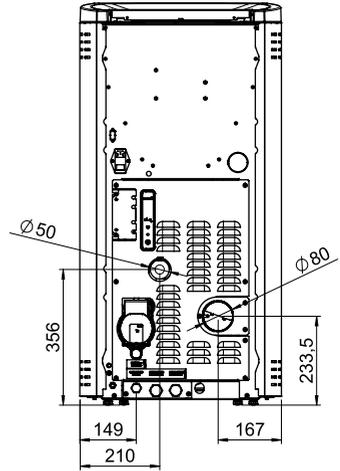
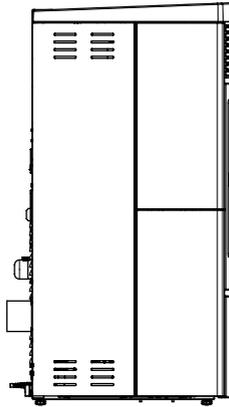
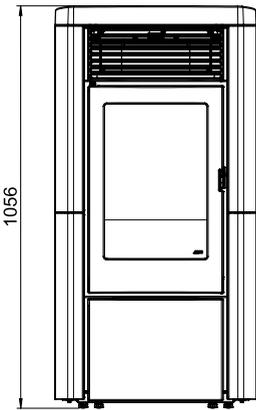
#### DRAWINGS AND CHARACTERISTICS

#### EGO HYDROMATIC 12 M1 STOVE DIMENSIONS



### 3-DRAWINGS AND TECHNICAL FEATURES

#### STAR HYDROMATIC 12 M1 STOVE DIMENSIONS



### 3-DRAWINGS AND TECHNICAL FEATURES

TECHNICAL CHARACTERISTICS	EGO-STAR Hydromatic 12 M1
Energy Efficiency Class	A+
Nominal output power	11.9 kW (10234 kcal/h)
Nominal power output (H <sub>2</sub> O)	10 kW (8600 kcal/h)
Minimum power output	3.2 kW (2750 kcal/h)
Minimum power output (H <sub>2</sub> O)	1.8 kW (1548 kcal/h)
Efficiency at Max	91.1%
Efficiency at Min	96.1%
Temperature of exhaust smoke at Max	123°C
Temperature of exhaust smoke at Min	48°C
Particulate/OGC/Nox (13%O <sub>2</sub> )	17 mg/Nm <sup>3</sup> - 2 mg/Nm <sup>3</sup> - 117 mg/Nm <sup>3</sup>
CO at 13% O <sub>2</sub> at Min and at Max	0.036 – 0.006%
CO <sub>2</sub> at Min and at Max	6.3% - 9.7%
Smoke mass	9.6 g/sec
Max operating temperature	2.0 bar - 200 kPa
Recommended draught at Max*** power	0.12 mbar - 12 Pa***
Minimum draft allowed at Min power	0.02 mbar - 2 Pa
Hopper capacity	31 litres
Type of pellet fuel	Pellet diameter 6 mm and size 3 ÷ 40 mm
Pellet hourly consumption	Min ~ 0.7 kg/h* - Max ~ 2.7 kg/h*
Autonomy	At min ~ 29 h* - At max ~ 8 h*
Heatable volume m <sup>3</sup>	256/40 – 292/35 – 341/30 **
Combustion air inlet	Ø 50 mm
Smoke outlet	Ø 80 mm
Air inlet	80 cm <sup>2</sup>
Rated electrical power (EN 60335-1)	75 W (Max 390 W)
Supply voltage and frequency	230 Volt / 50 Hz
Net weight	147 kg (EGO) - 153 kg (STAR)
Weight with packaging	160 kg (EGO) - 169 kg (STAR)
Distance from combustible material (back/side/under)	200 / 200 / 0 mm
Distance from combustible material (ceiling/front)	750 / 1000 mm

\* Data that may vary depending on the type of pellets used

\*\* Volume that can be heated, according to the power requirement per m<sup>3</sup> (respectively 40-35-30 Kcal/h per m<sup>3</sup>)

\*\*\* Value recommended by the manufacturer (non-binding) for optimal product operation

**Tested according to EN 14785 in accordance with European regulation for Construction Products (EU 305/2011).**

## 4-INSTALLATION AND ASSEMBLY

### PREPARATION AND UNPACKING

The packaging consists of a recyclable cardboard box in line with RESY standards and a wooden pallet. All packaging materials can be reused for similar use or eventually disposed of as urban solid waste, in compliance with the regulations in force.

After having removed the packaging make sure the product is intact.



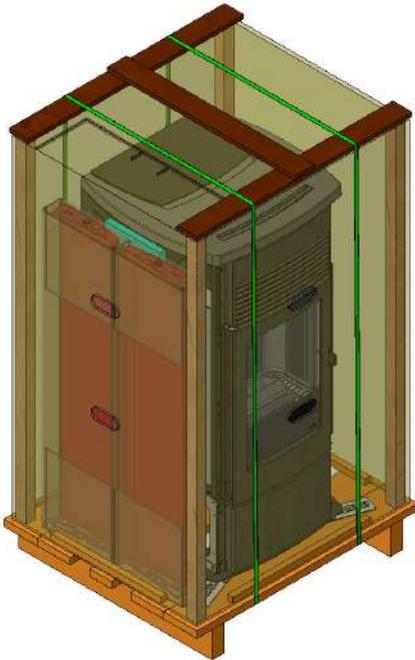
Handle the product with suitable means paying attention to the applicable safety regulations in force. Do not turn the packaging over and handle the majolica parts with care.

The stoves are delivered in a single package with ceramic panels or steel sides packaged together with the structure and placed on top or at the side. Open the package, remove the cardboard, polystyrene and any straps and position the stove in the preset place making sure that it complies with the requirements.

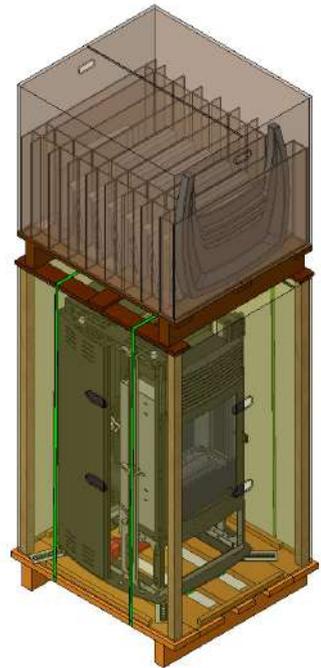
The stove body or unit must always be kept in a vertical position when handled, and handled using carts only. Pay particular attention to the door and its glass, protecting them from mechanical knocks that would compromise their integrity.

If possible, unwrap the stove near the chosen area of installation.

The packaging materials are neither toxic nor harmful.

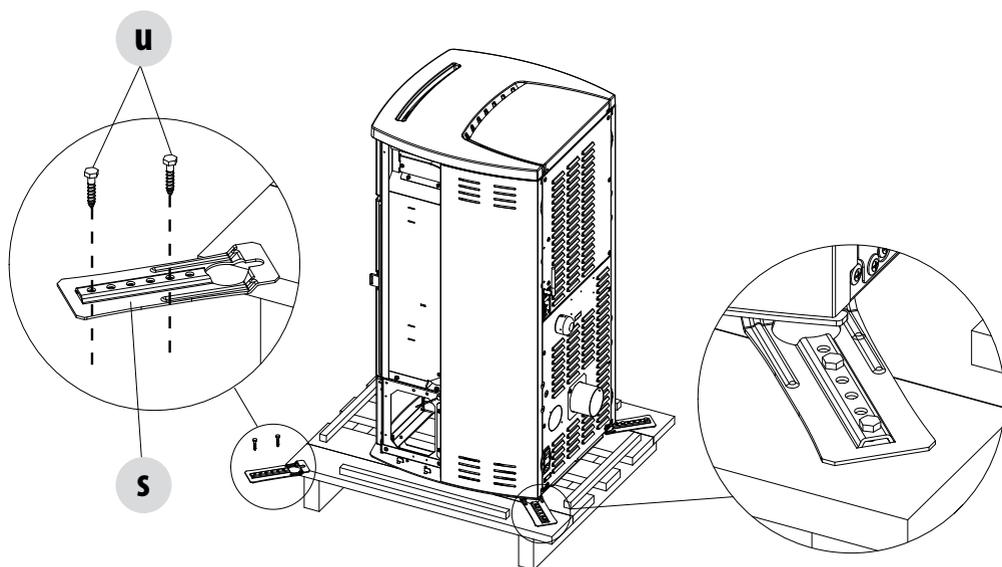


STEEL CLADDING PACKAGING



CERAMIC CLADDING PACKAGING (ABOVE)

## 4-INSTALLATION AND ASSEMBLY



REMOVING THE FASTENING BRACKETS

Remove the stoves from the pallet by removing the two screws “u” and the plate “s” from the stove foot. There are four brackets “s”.

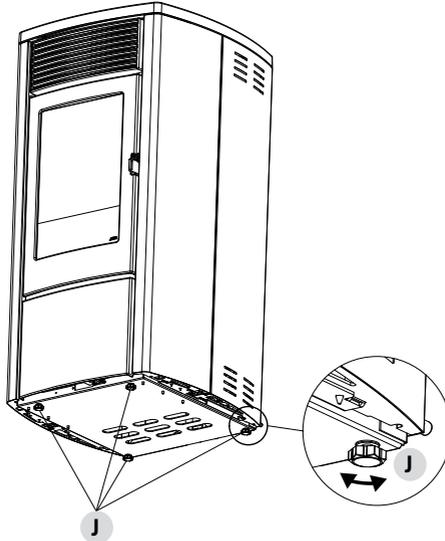
## 4-INSTALLATION AND ASSEMBLY

Position the stove and connect it to the flue pipe. Use the four adjustable feet (**J**) to get the stove correctly levelled so that the smoke outlet is lined up with the connecting pipe.

If the stove needs to be connected to an outlet pipe which goes through the rear wall (to connect to the flue), take utmost care to make sure that the joint is not forced.



***If the stove smoke outlet is forced or used improperly to lift it or position it, the operation of the stove can be damaged irreparably.***



1. TURN THE FEET CLOCKWISE TO LOWER THE STOVE
2. TURN THE FEET COUNTER CLOCKWISE TO RAISE THE STOVE

## 5-STAR STOVE ASSEMBLY

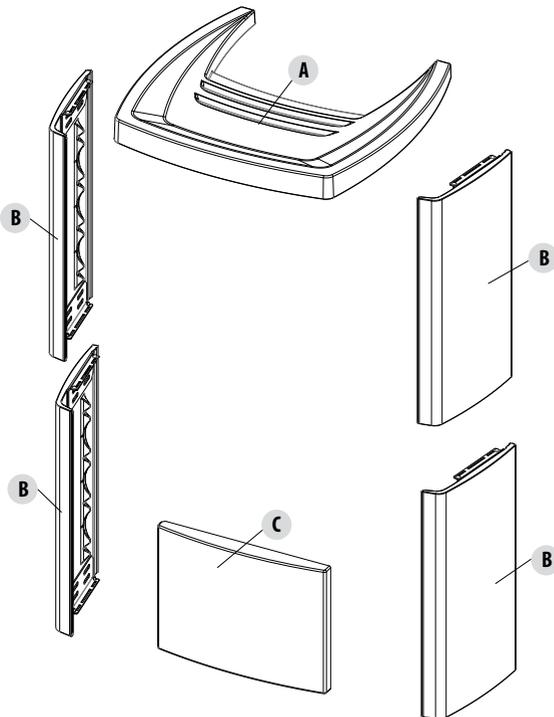
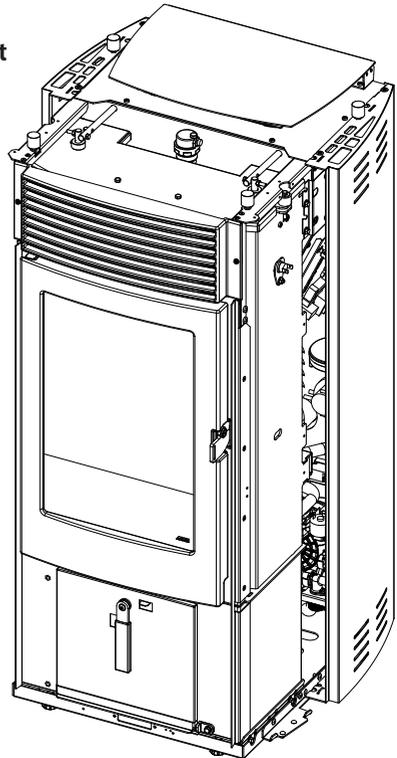
On delivery, the Star stove has no ceramic cladding, as shown in the image below.

Take the box with the ceramics (figure below) and prepare them for installation. The ceramics are already completely assembled and ready to be installed on the stove.



**Live electrical parts: only power the product once it has been fully assembled.**

STOVE STRUCTURE



**The ceramics are delicate, therefore handle with care.**

POS.	DESCRIPTION	No.
A	CERAMIC TOP	1
B	LATERAL CERAMIC PANEL	4
C	FRONT LOWER CERAMIC PANEL	1

## 5-STAR STOVE ASSEMBLY

### INSTALLING THE FRONT LOWER PANEL

To install the lower panel proceed as follows:

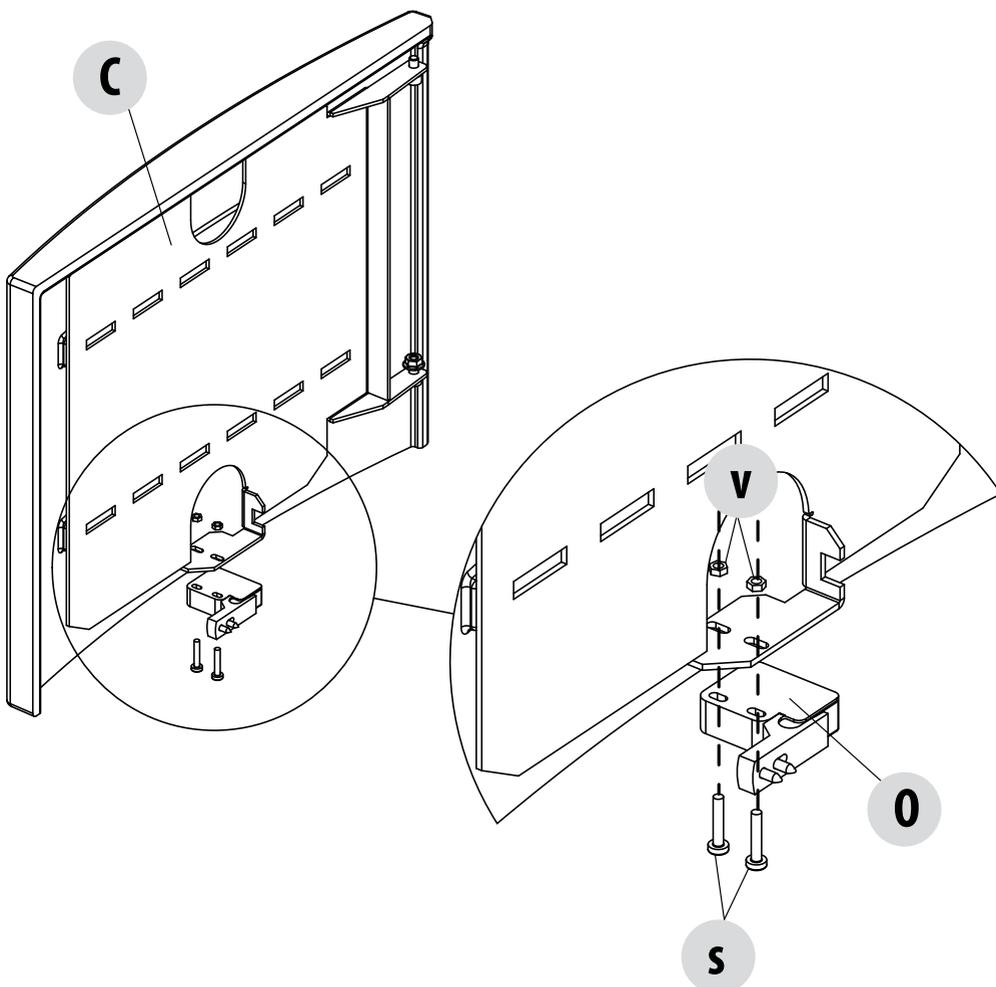
- Take lower panel "C"
- secure closure push-block "O" to the bracket positioned on panel "c" via the two screws "s" from below and the two washers "v" above the block

Now panel "C" is ready to be fastened to the stove structure.



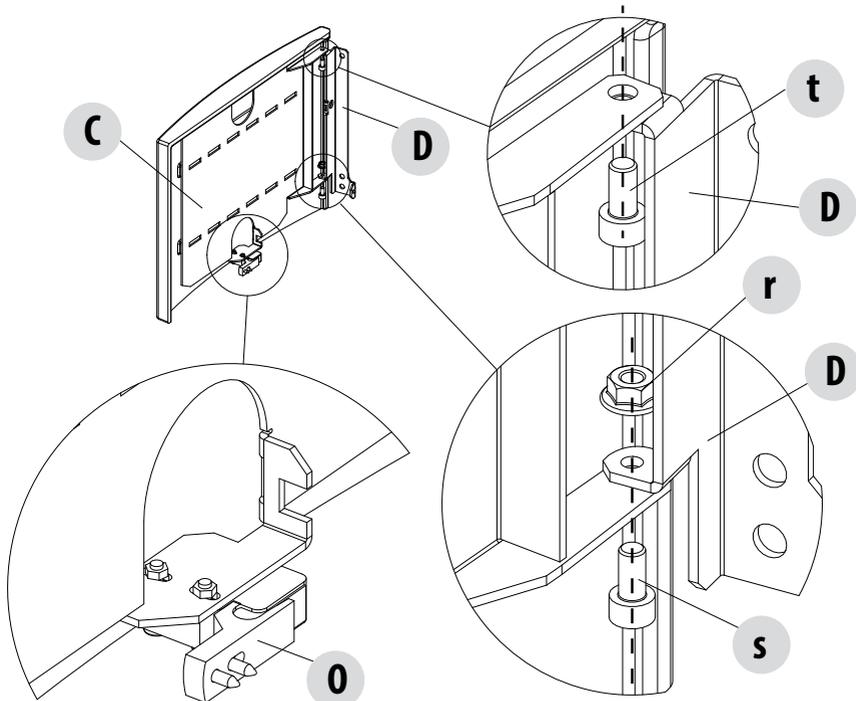
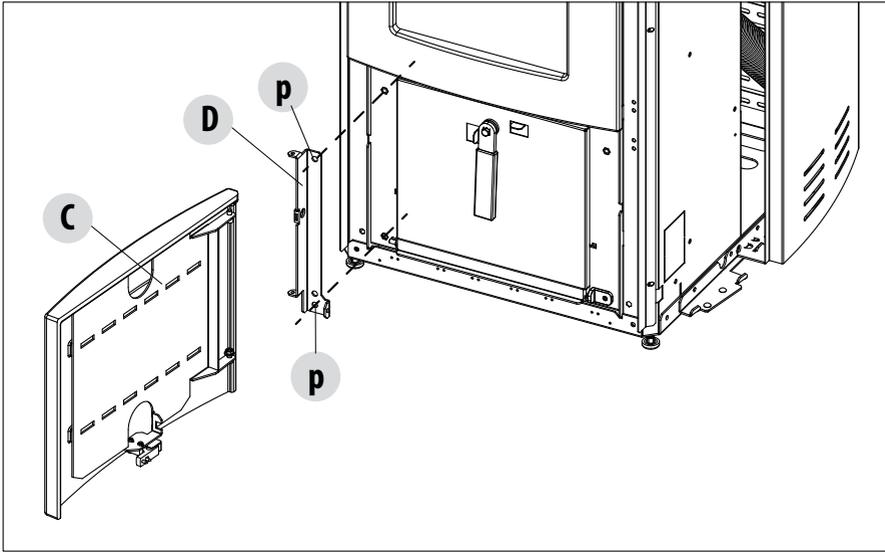
**Attention!** Closure push-block "O" is adjustable. The holes for the screws "s" are slotted, which means they allow for minimal adjustment to perfectly close door "C".

**ATTENTION!** The picture (on this page and on the next) shows how the closure block is mounted on the lower panel for the Star stove, the same assembly procedure also applies for the EGO stove.



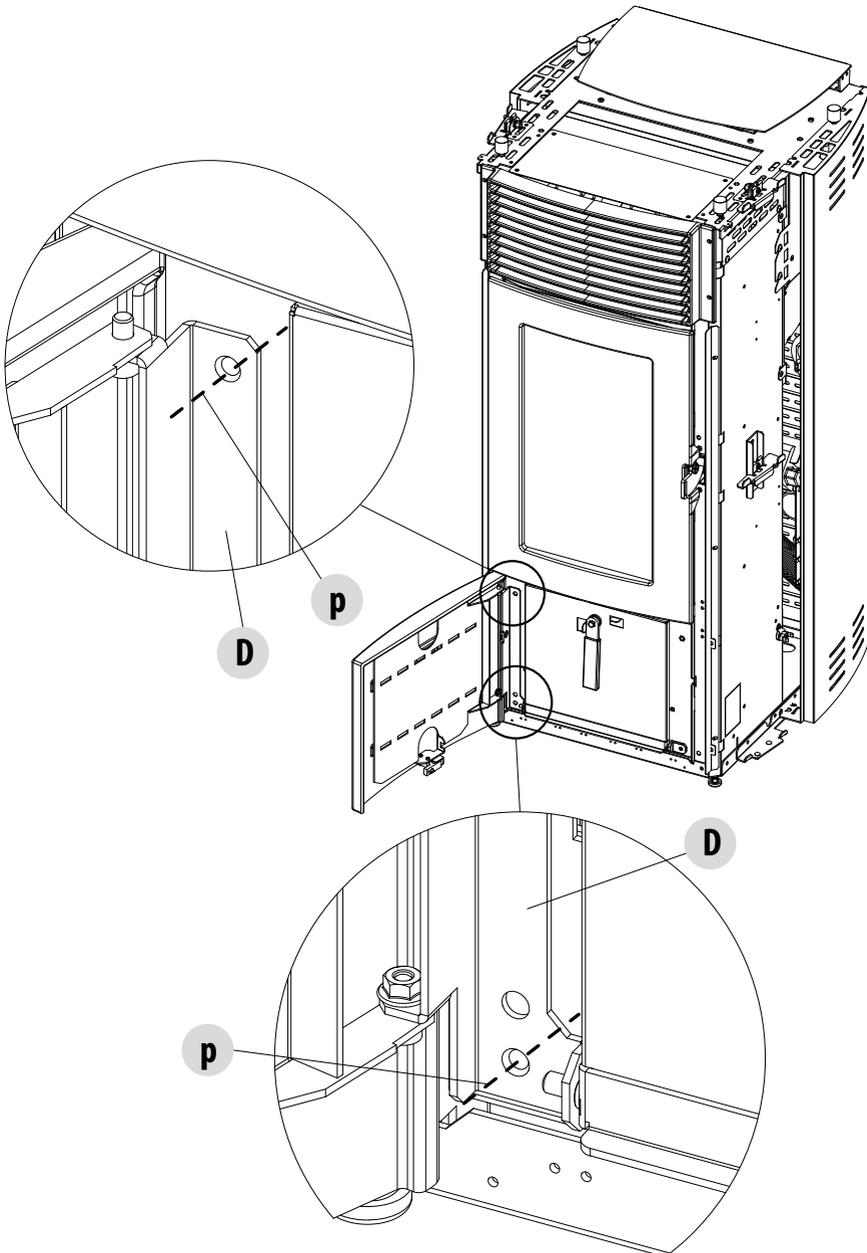
## 5-STAR STOVE ASSEMBLY

For easier assembly of panel "C" it is recommended to remove bracket "D" from the stove structure by removing the two screws "p". After that move panel "C" close to bracket "D" and fix it with screw "s" and nut "r" in the lower part and with screw "t" in the upper part.



## 5-STAR STOVE ASSEMBLY

Take panel "C" with bracket "D" that has just been fixed and, using the two screws "p", fix the whole to the stove structure.



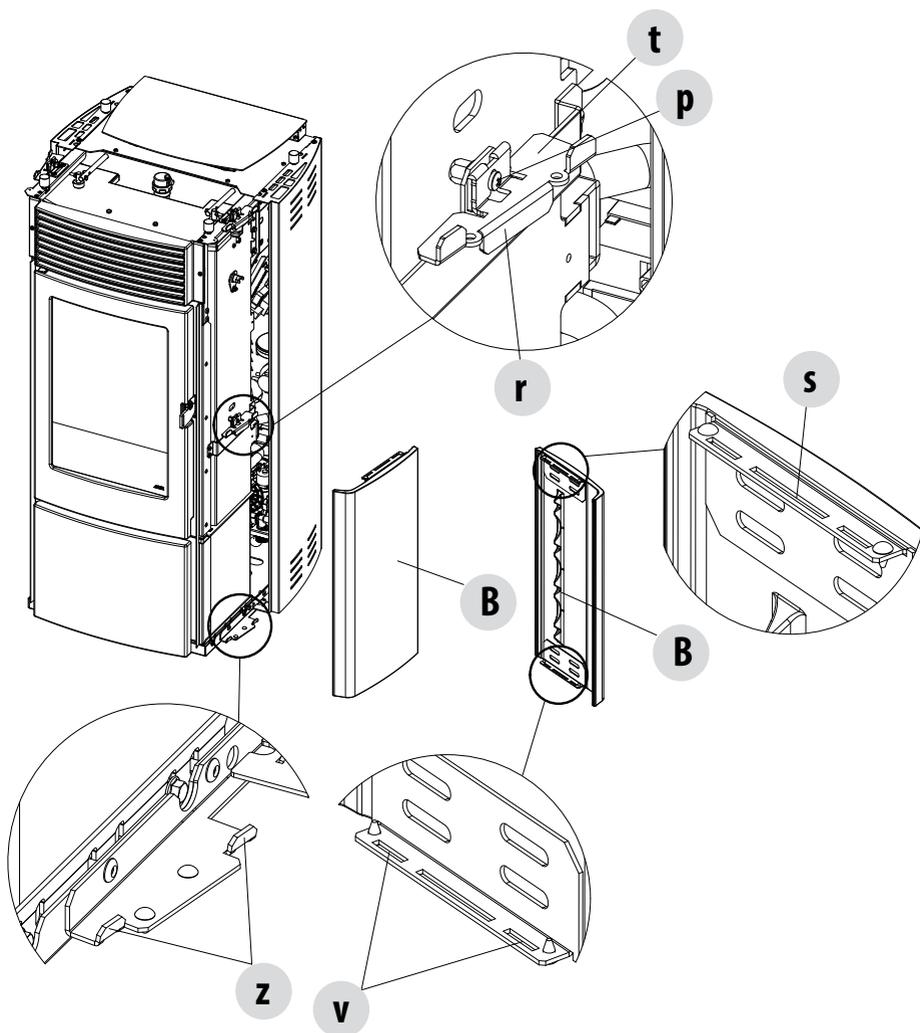
## 5-STAR STOVE ASSEMBLY

### ASSEMBLY OF SIDE PANELS "B"

In order to install the side panels:

- take a panel "B" (they are 4 equal and reversible)
- insert the holes "v" of the panel "B" on hooks "z" on the structure of the stove
- loosen the screw "p" and lift the bracket "t"
- place the panel "B" against the structure
- lower the bracket "t" so that the hook "r" enters the hole "s" of the bracket on panel "B"
- tighten the screw "p" to block the bracket "t"

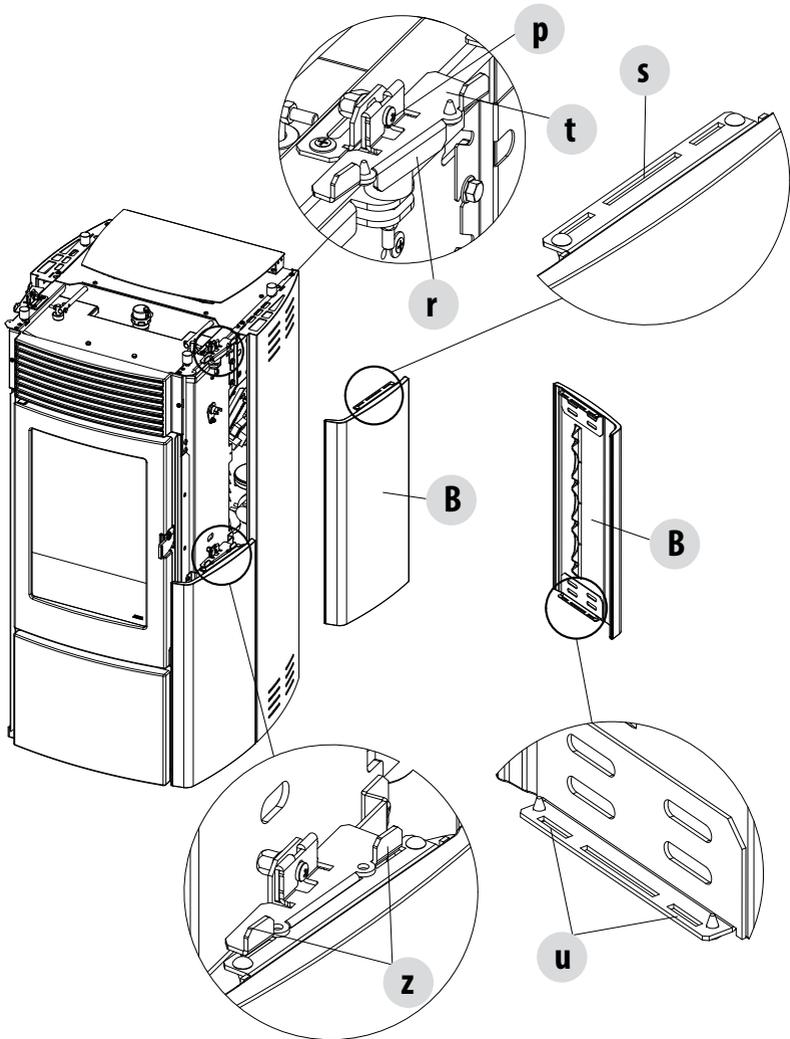
Move to the next panel.



## 5-STAR STOVE ASSEMBLY

To mount the upper panel "B" follow the steps for the lower panel (described in the previous paragraph):

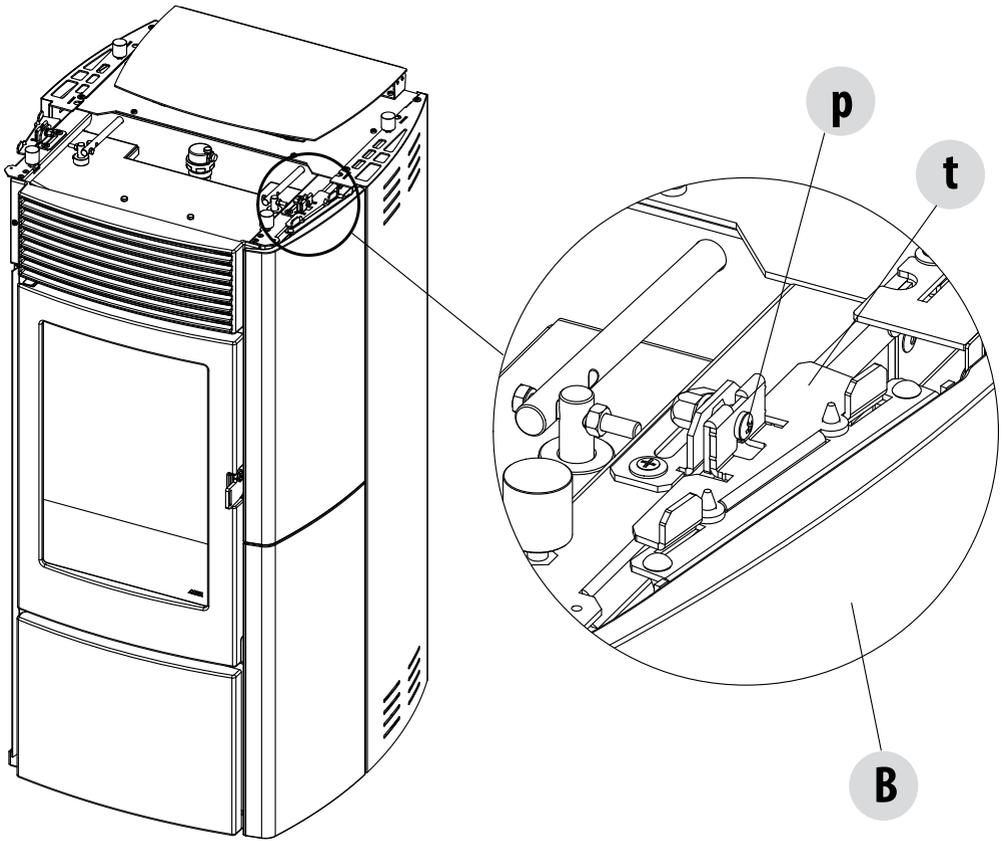
- take another panel "B"
- insert the holes "u" of the bracket on the panel and insert them on the hooks "z" in the bracket "t"
- loosen screw "p"
- extract the bracket "t"
- place the panel "B" against the structure



## 5-STAR STOVE ASSEMBLY

- mount the bracket "t" again by tightening the screw "p"

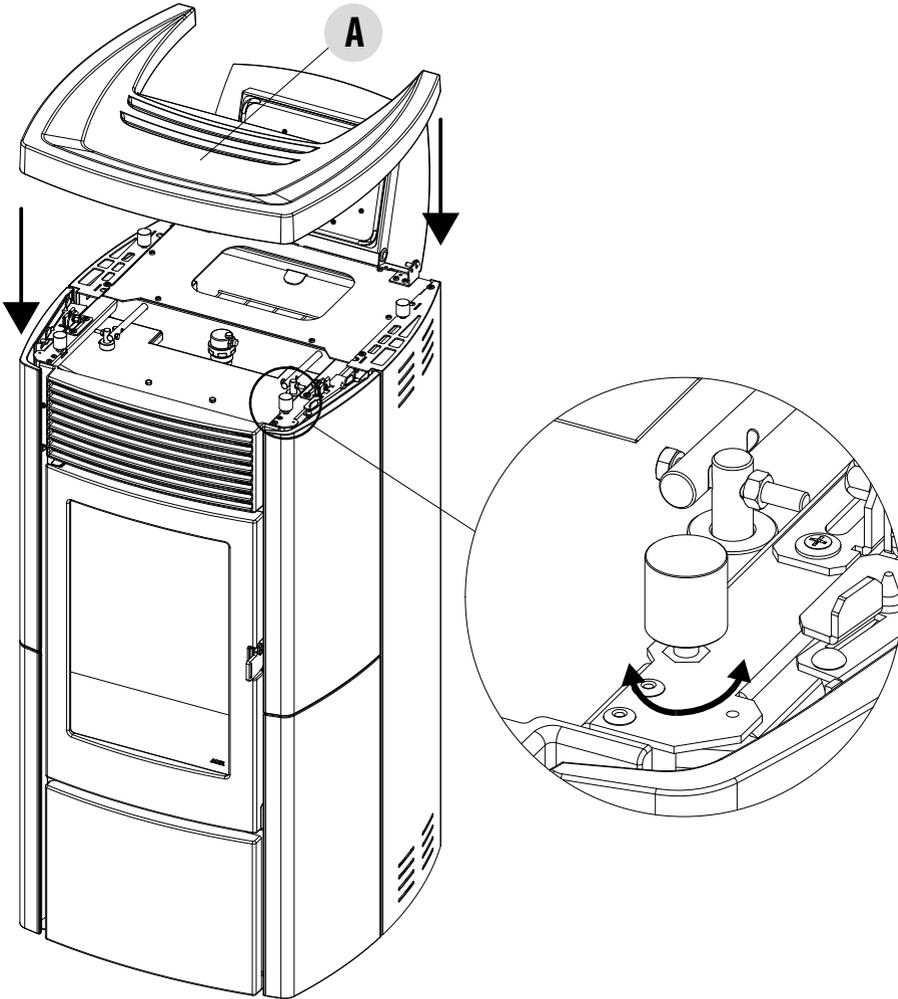
Follow the same steps to install the panels on the other side of the stove.



## 5-STAR STOVE ASSEMBLY

### ASSEMBLING THE TOP

After mounting all the ceramics "B", take the top "A" and place it on the stove in line with the appropriate adjustable rubber pads. The rubber pads are adjusted by rotating the pad clockwise or anti-clockwise, depending on whether the level of the ceramic top is to be raised or lowered.

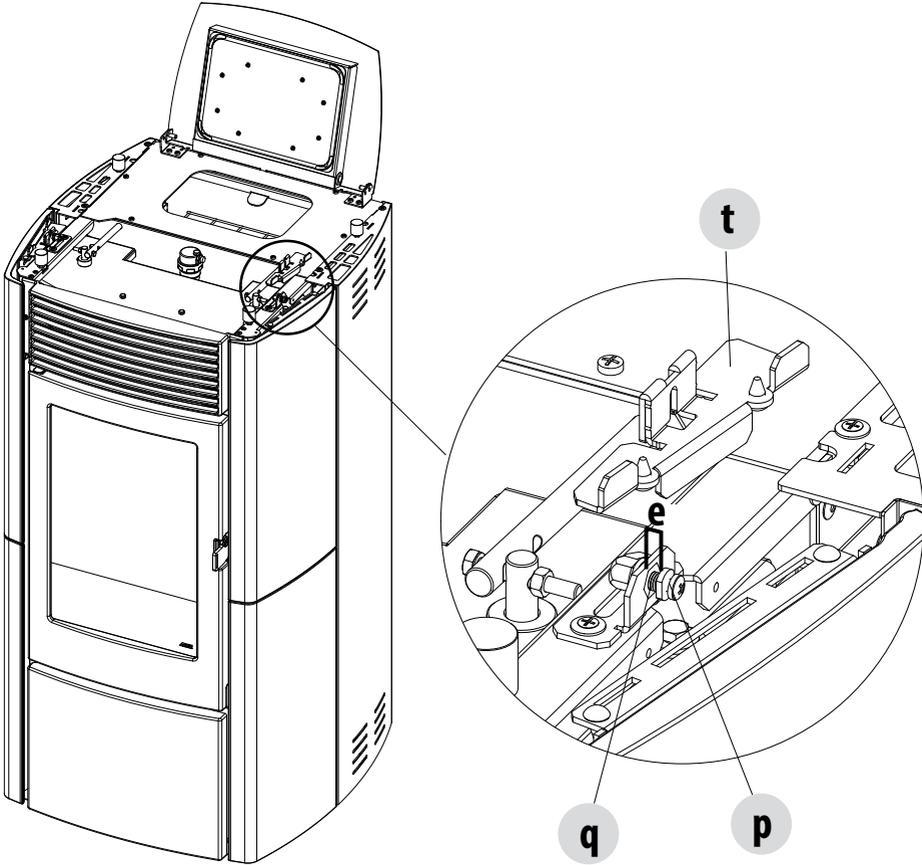


## 6-ADJUSTING THE CERAMIC SIDES

The ceramics "B" must be aligned with one another and flush with the front ceramic. It is possible to adjust the lower and upper ceramic. We recommend making this adjustment during assembly.

Proceed as follows for the adjustment:

- loosen screw "p"
- remove the bracket "t"
- act on the spacer "q" (reducing or increasing the space "e") until the panel "D" is aligned.

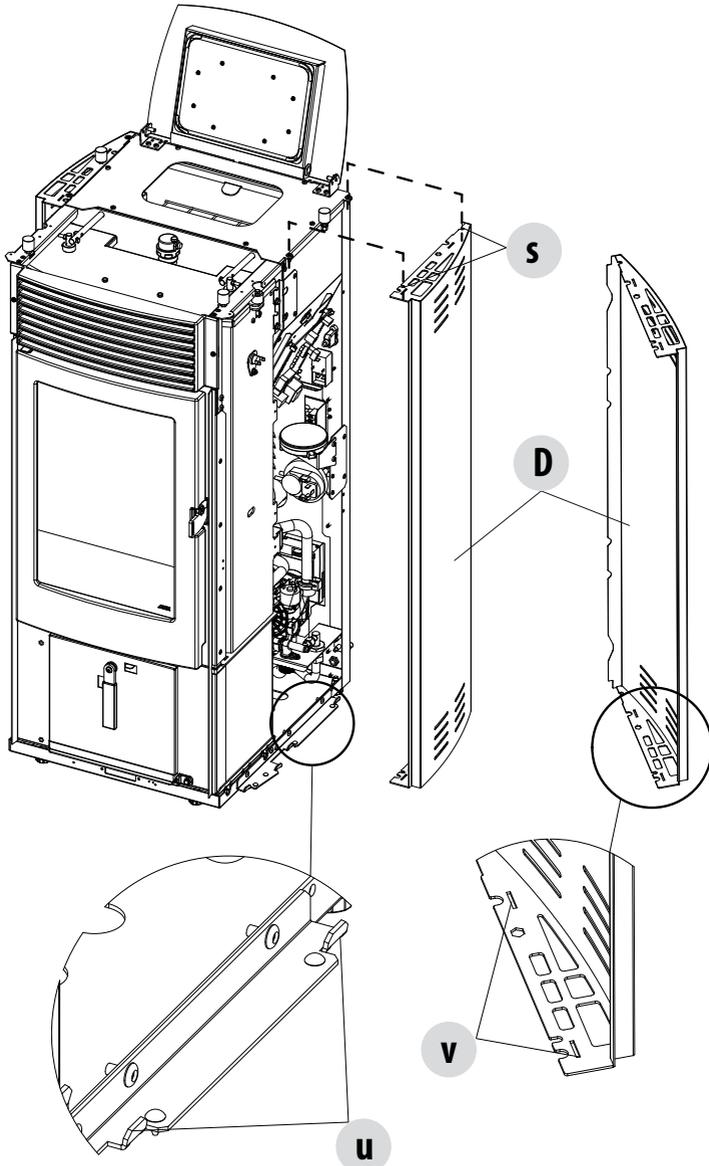


## 7-REMOVAL OF STAR STOVE METAL SIDE

In case of maintenance or operations panel "D" may be removed (metal rear side).

Proceed as follows:

- Remove the two screws "s" at the top
- lift panel "D" so that hooks "u" in the structure protrude from holes "v" on panel "D"
- place the panel in a safe place



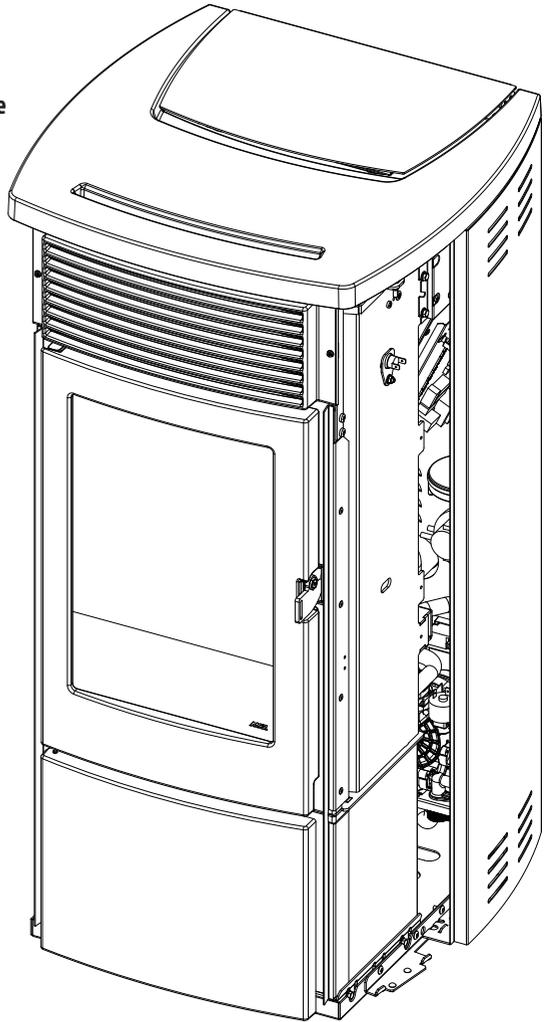
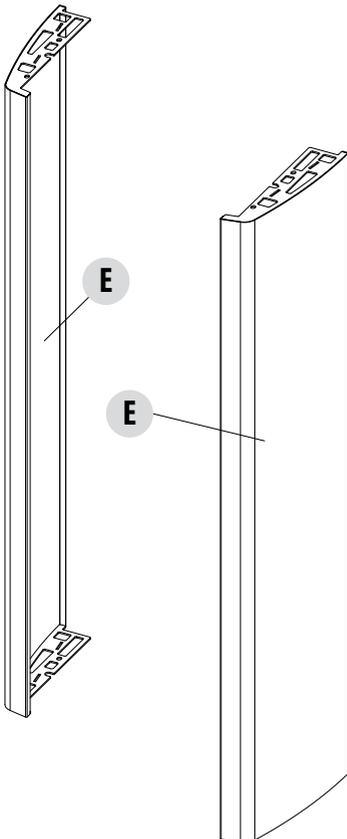
## 8-ASSEMBLING THE EGO STOVE METAL SIDES

On delivery, the Ego stove has no metal cladding and with the top fitted, as shown in the image below.

Take the box with the metal sides (figure below) and prepare them for installation. The sides are fitted with screws for fixing to the structure.

**Attention! Carefully handle the metal sides as the paint may be damaged.**

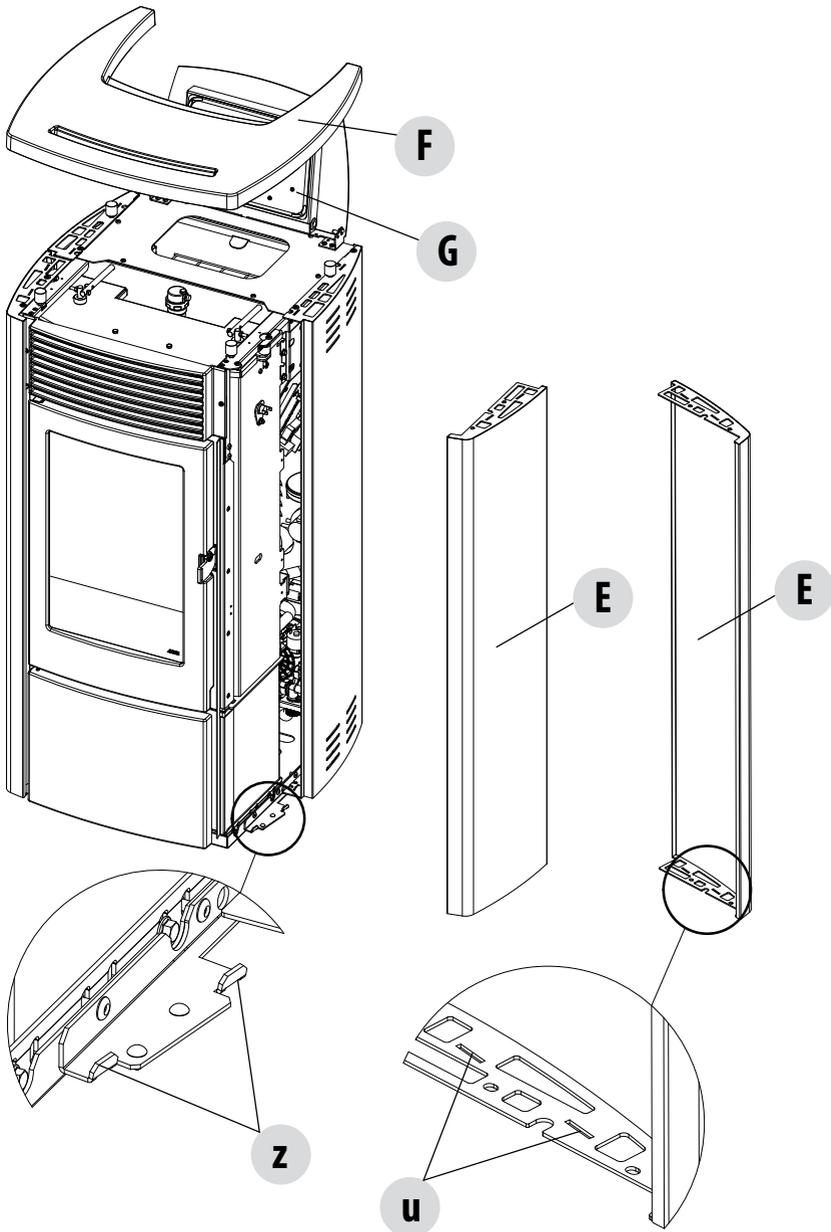
POS.	DESCRIPTION	No.
E	METAL SIDE	2



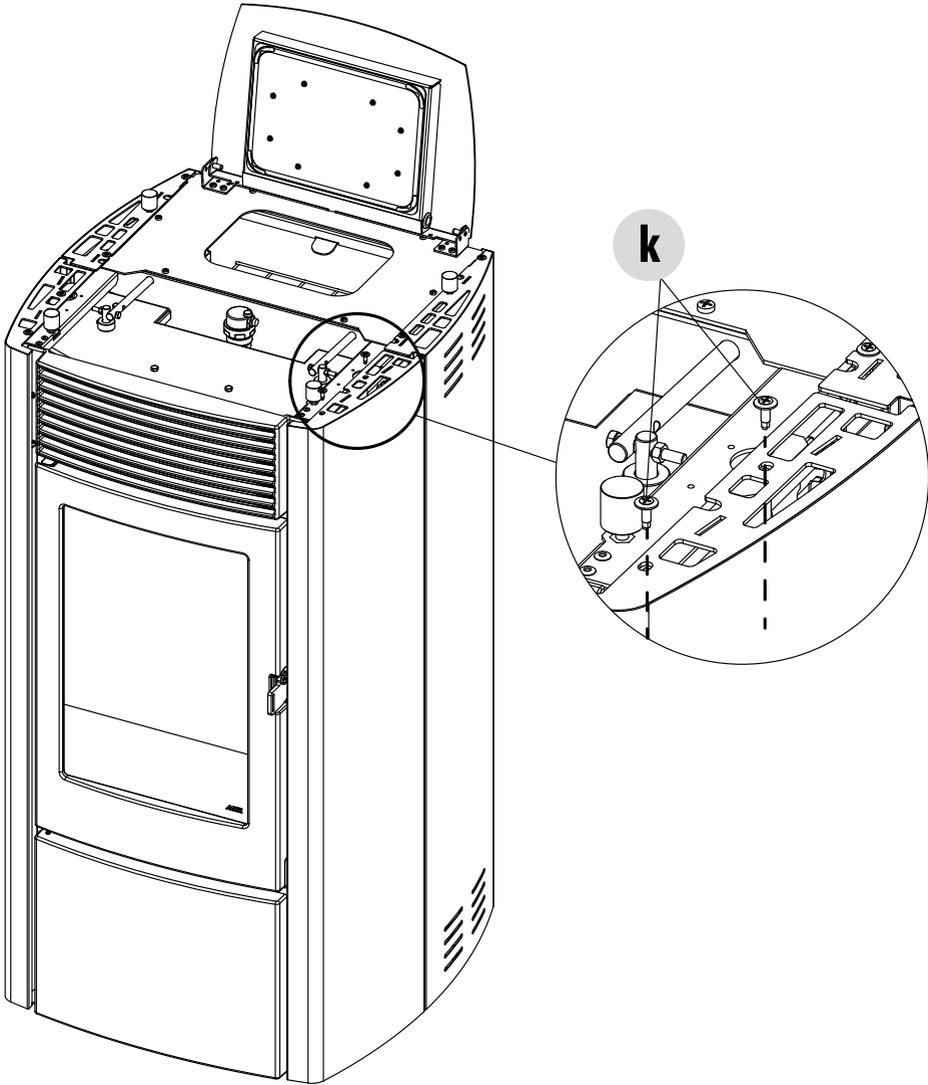
## 8-ASSEMBLING THE EGO STOVE METAL SIDES

Lift the pellet loading door "G" and remove the top "F" from the structure.

Take one of the metal sides "E" and insert the holes "u" on the bottom of the panel on the hooks "z" in the structure of the stove. Then move the panel "E" towards the structure and secure it with the two screws "k" (as shown in the image on the following page).



## 8-ASSEMBLING THE EGO STOVE METAL SIDES



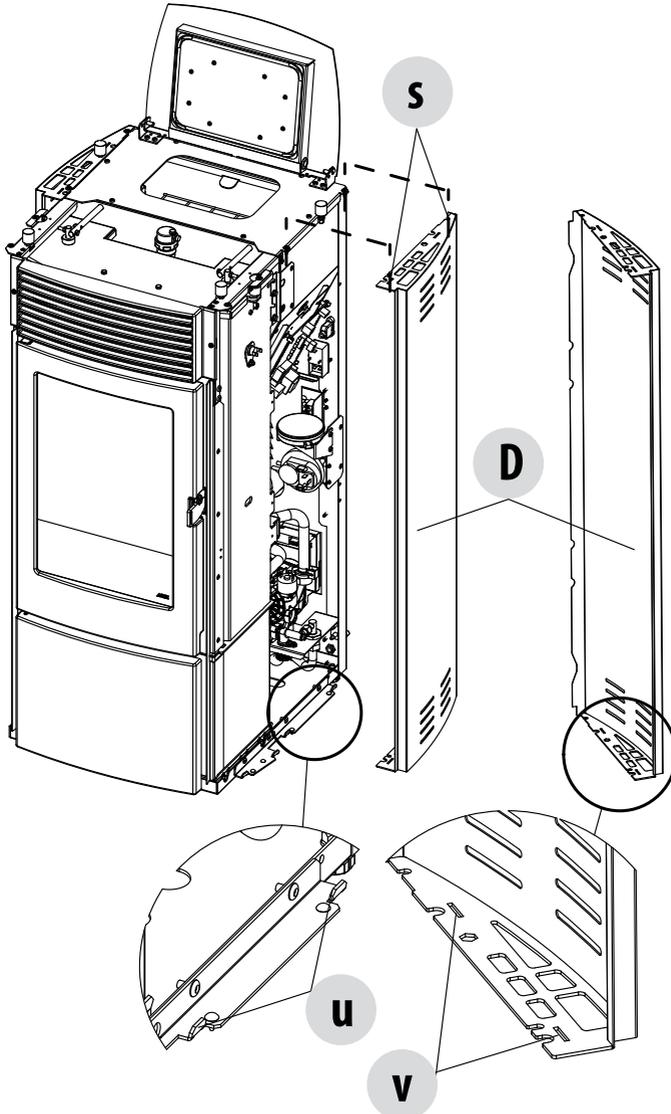
Fit the panel on the other side in the same way.

After completing installation of the metal panels, place the top "F" back in the appropriate adjustable rubber pads in the structure of the stove.

## 9-REMOVAL OF EGO STOVE METAL SIDE

In case of maintenance or operations panel "D" may be removed. Proceed as follows:

- Remove the two screws "s" at the top
- lift panel "D" so that hooks "u" in the structure protrude from holes "v" on panel "D"
- place the panel in a safe place



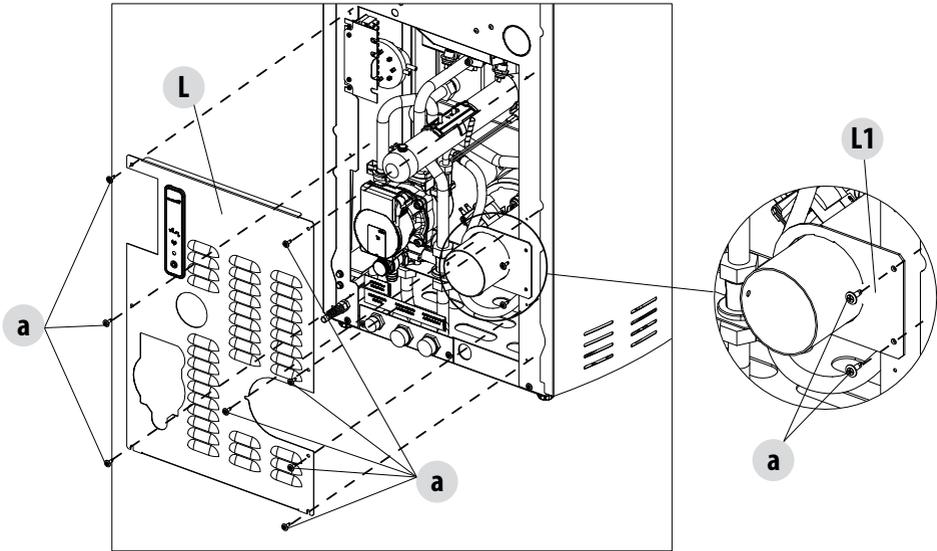
## 10-INSTALLATION AND ASSEMBLY

### REAR PANEL

If maintenance must be performed on a component of the stove, the rear panel can be removed (if the distances from the walls allow it), otherwise, the maintenance can be performed by removing the side of the stove.

To remove the rear panel, remove the seven rear screws "a" and pull panel "L" away.

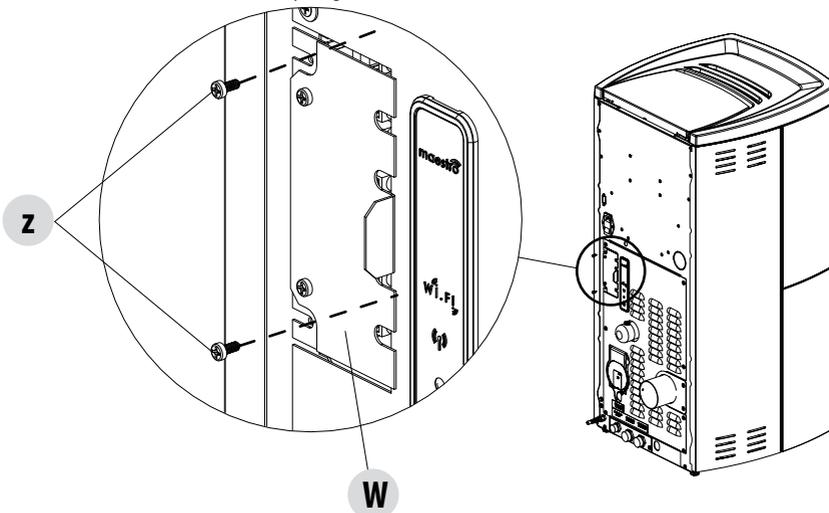
The "L" panel can also be removed with the stove installed since its shape corresponds with the smoke outlet pipe. Plate "L1" supports the flue pipe as it is secured to the stove using the two screws "a". With the stove installed you must only remove plate "L1" if the smoke pipe must be removed, otherwise remove only plate "L".



### TERMINAL BLOCK ACCESS PANEL

Make the connections to the terminal block by loosening the two screws "z", grasping bracket "W" for the guide and remove the entire unit with the terminal block.

Make the connections and reinstall everything.



## 10-INSTALLATION AND ASSEMBLY

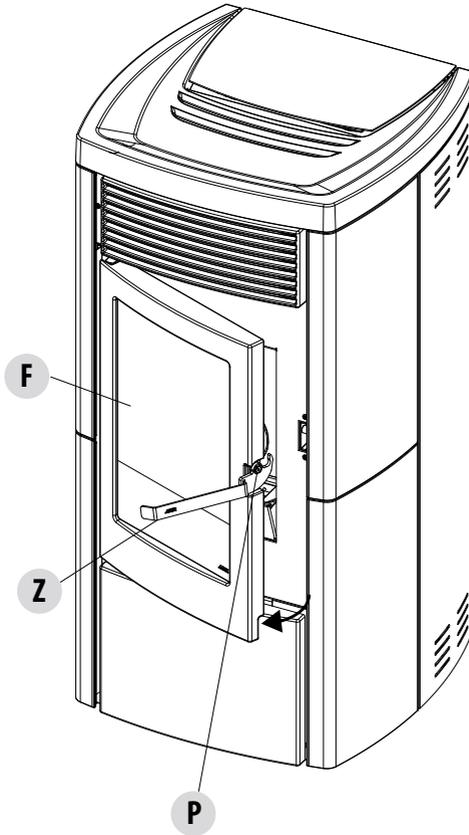
### DOOR OPENING (SAME FOR ALL MODELS)

To open the firebox door "F", insert the cold handle "Z" into the hole in the handle "P" and pull it towards you.



**Attention!** Only open the doors when the stove is switched off and cold.

### FIREBOX DOOR "F"



## 10-INSTALLATION AND ASSEMBLY

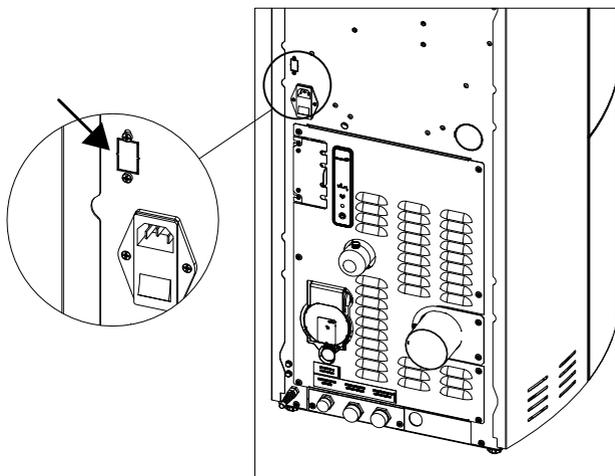
### USB SOCKET

There is a USB socket on the back of the stove, if a software update is required; the ceramic/metal parts do not have to be removed to reach the socket directly in the circuit board (pos. 5 in the PCB).



#### **Attention!**

**The USB socket must be used by skilled technicians. Risk of damaging the product.**



## 11-LOADING THE PELLETS

### LOADING THE PELLETS

Fuel is loaded from the upper part of the stove by lifting the door. Pour the pellets into the tank.

This is easier if performed in two steps:

Pour half of the contents into the tank and wait for the fuel to settle on the bottom.

Then pour in the rest.



*If loading pellets when the stove is running, open the door of the tank using the stove mitten that comes with the stove itself.*

*When loading, do not let the pellet bag come into contact with hot surfaces.*

*Never remove the protection grid inside the hopper.*

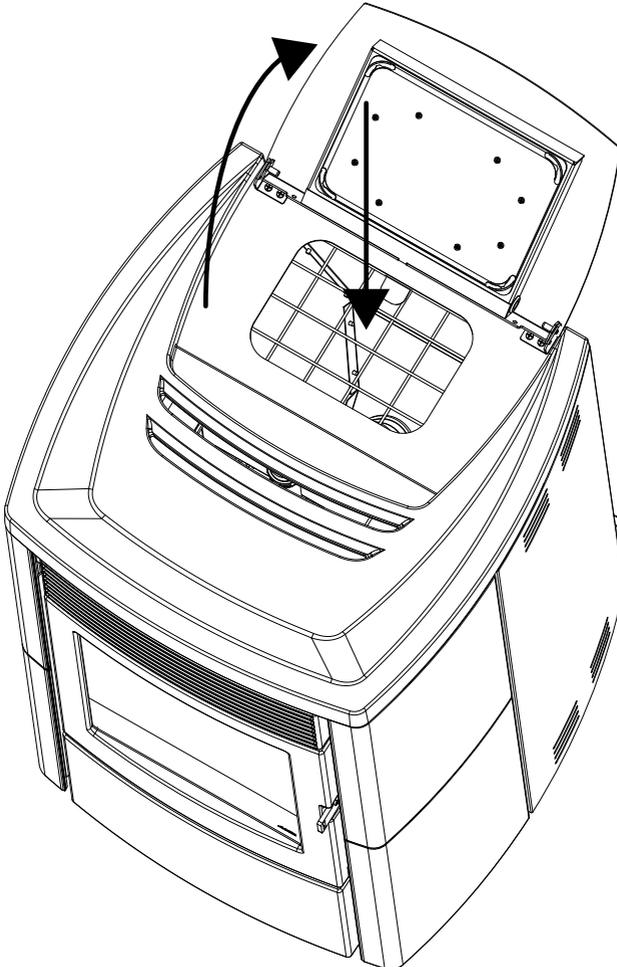
*No other type of fuel other than pellets is to be inserted into the hopper, in compliance with above-mentioned specifications.*

*Store the spare fuel at an adequate safe distance.*

*Do not pour pellets directly onto the brazier but only into the hopper.*

*When the appliance is running and when it is turned off, most of the stove surfaces are very hot (door, handle, glass, smoke outlet pipes, etc.). Therefore it is recommended to avoid coming into contact with these parts.*

LOADING THE PELLETS



## 11-LOADING THE PELLETS

### SAFETY

**WHAT TO DO IF SMOKE LEAKS INTO THE ROOM OR IN CASE OF EXPLOSION DAMAGING THE DEVICE: SWITCH IT OFF, VENTILATE THE ROOM AND IMMEDIATELY CONTACT THE INSTALLER/TECHNICIAN IN CHARGE OF ASSISTANCE.**

### User Training

**In ALL cases, the technician in charge of installation and first-start-up MUST carry out a thorough handover of the appliance to the homeowner / end user. The following elements should be covered to the satisfaction of the end user. Failure to do this may result in unsafe use of the appliance:**

- Explanation of the appliance and how it works
- Necessity to maintain ventilation to the appliance and the issues that may arise otherwise
- Fuel usage and supply
- How to light the appliance safely
- What to do in the event of failed ignitions
- What to do in the event of alarms (in particular those generated when the appliance runs out of fuel)
- How to maintain the appliance correctly and the importance of carrying out these tasks each month
- It is good practise to agree a date for the first annual service
- Discuss the use of secondary heating systems if applicable
- Explain how the remote control or room stats operate and their optimal positioning

## 12-HYDRAULIC CONNECTION

### PLUMBING SYSTEM CONNECTION

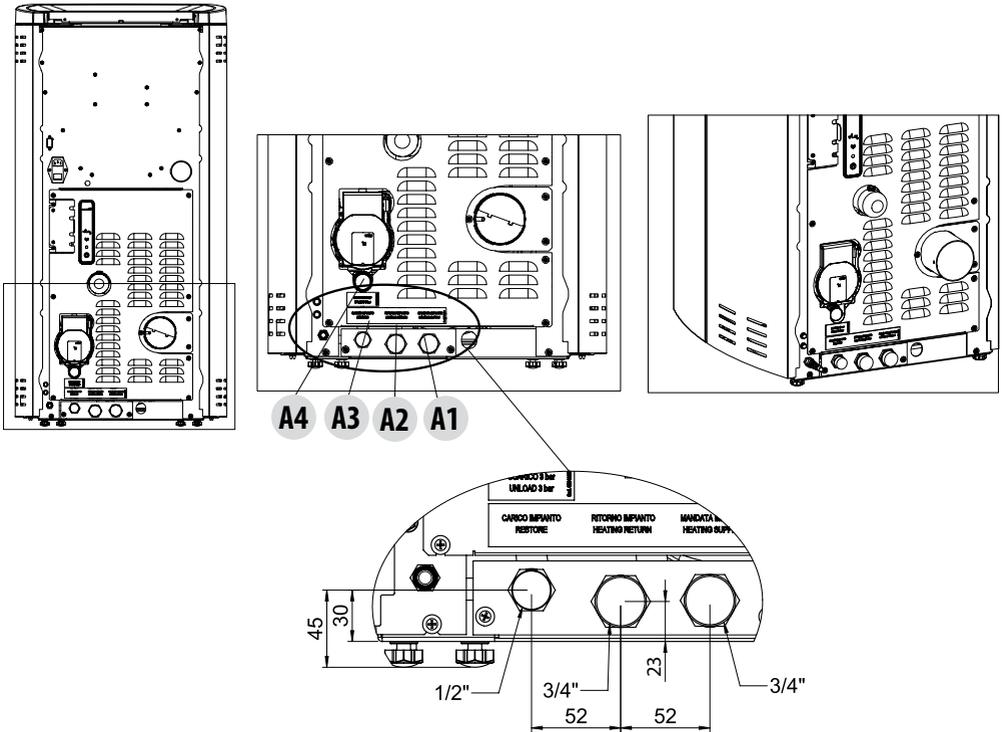


#### **IMPORTANT!**

*The connection of the stove to the plumbing system must be carried out **ONLY** by specialised personnel who are capable of carrying out installation properly in compliance with current standards in the country of installation. The manufacturer will not be held responsible for damage to persons or property in the event of failed operation if the aforementioned warning is not complied with.*

### CONNECTION DIAGRAM

- A1 Heating water supply 3/4" M
- A2 Heating water return 3/4" M
- A3 Filling the system
- A4 System outlet



#### **IMPORTANT!!!**

***CLEAN THE ENTIRE SYSTEM BEFORE CONNECTING THE STOVE, IN ORDER TO REMOVE ALL RESIDUE AND DEPOSITS. Always install shutters in the system leading to the stove so as to disconnect it from the hydraulic system should it be necessary to move it, or when it requires routine and/or special maintenance. Connect the stove using flexible pipes so that the stove is not excessively constrained to the system, and to allow slight movements.***

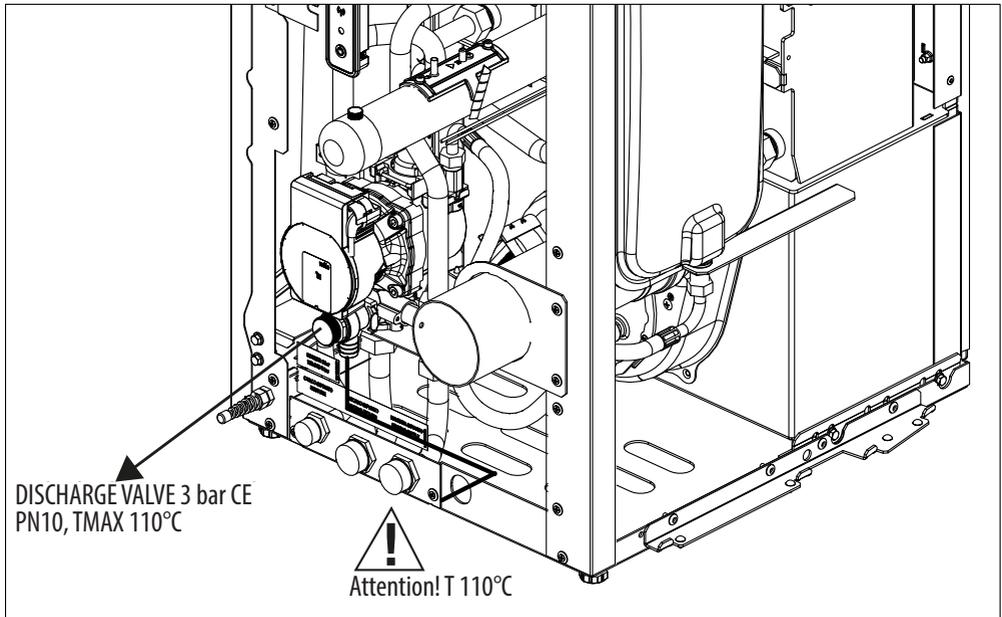
## 12-HYDRAULIC CONNECTION

### DISCHARGE VALVE 3 bar

The safety valve that can be inspected is found on the back of the stove, under the pump. It is MANDATORY to connect the safety drain to a rubber pipe that can withstand a temperature of 110°C (not supplied) and that reaches the outside for any water outlet.



*The manufacturer of the appliance is not liable for any flooding caused by the safety valves being triggered if these have not been joined properly to the outside of the product and to a proper collection and evacuation system.*



## 12-HYDRAULIC CONNECTION

### CONNECTING THE SYSTEM

Make the connections to the corresponding fittings shown in the diagram on the previous page. Make sure the pipes are not placed under tension or undersized.



***IT IS STRONGLY RECOMMENDED TO WASH THE ENTIRE SYSTEM BEFORE CONNECTING THE STOVE IN ORDER TO GET RID OF RESIDUES AND DEPOSITS.***

***Always install shutters in the system leading to the stove so as to disconnect it from the hydraulic system should it be necessary to move it, or when it requires routine and/or special maintenance. Connect the stove using flexible pipes so that the stove is not excessively constrained to the system, and to allow slight movements.***

***The pressure discharge valve (C) is always connected to a water drain pipe. The pipe must be adequate to support the water's high temperature and pressure.***

### CLEANING THE SYSTEM

It is mandatory for the connections to be easy to disconnect by way of unions with rotating connections.

Install suitable shutters to cut off the tubes from the heating system. Assembling the safety valve on the system is compulsory.

In order to protect the heating system from damage caused by corrosion, incrustation or deposit build-up, it is important to clean the appliance before installation, using suitable products, in compliance with Standard UNI 8065 (water treatment of thermal plants for civil use).

The use of FERNOX PROTECTOR F1 (available at our authorised centres) product is recommended, this provides long-term protection of heating systems against corrosion and calcium build-up. It prevents the corrosion of the metal parts of the appliance, i.e. the ferrous metals, copper and copper and aluminium alloys. It also reduces the noise produced by the boiler. Refer to the instructions on the product. Cleaning should be performed by a qualified technician.

We also recommend the use of FERNOX CLEANER F3 and LEAK SEALER F4, always available from our authorised distribution centres.

FERNOX F3 is a neutral product for rapid and efficient cleaning of heating appliances. It has been designed to eliminate residues, oily deposits and incrustations from existing appliances of all ages. It can help restore the heating efficiency of the boiler and reduce the noise it generates.

FERNOX F4 is intended to be used with all heating appliances to seal micro fractures that cause small and inaccessible leaks.

### FILLING THE SYSTEM

To fill the system, the stove can be equipped with an end piece (optional) with a non-return valve (D) for manual filling of the heating system (if the optional is not installed, the filling tap on the main boiler will be used). During this operation, any air in the system is released from the automatic vent valve located under the top.

To ensure the valve vents, it is advisable to loosen the grey cap one turn and leave the red cap blocked (see figure). Set the filling pressure of the system WHEN COLD to 1 bar (100 kPa). During operation, if the system pressure drops (due to evaporation of dissolved gases in the water) to values lower than the minimum indicated above, the user must use the filling tap to bring the pressure back up to its normal pressure.

To ensure correct stove operation, the maximum pressure in the system WHEN HOT must not exceed 1.5 bar (150 kPa).



***Fit the system with a 2 bar safety valve connected to an accessible outlet.***

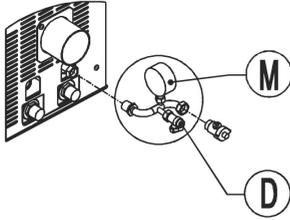
**To monitor the system pressure, the terminal (optional) is equipped with a manometer (M).**

Upon completion of this operation, always close the tap.

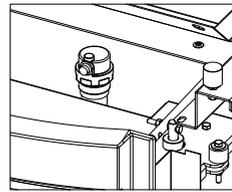


***It is normal to hear noises and gurgling until all the air in the system is released.***

## 12-HYDRAULIC CONNECTION



END PIECE WITH A FILLING TAP (D) AND PRESSURE GAUGE (M) (ACCESSORY)



MANUAL VENT VALVE UNDER THE TOP

### WATER CHARACTERISTICS

The characteristics of the water used to fill the system are very important to prevent the build-up of mineral salts and the formation of incrustations along the pipes, in the boiler and in the heat exchangers.

Therefore, please **GET YOUR PLUMBER'S ADVICE CONCERNING:**

- **Hardness of water circulating in the system, to prevent problems of incrustation and limescale, especially in the domestic water heat exchanger (> 25° French).**
- **Installation of a water softener (if water hardness exceeds 25° French).**
- **Filling the system with treated water (demineralised).**
- **Possibly providing an anti-condensation circuit.**
- **Installation of plumbing bumpers to prevent the phenomenon known as "water hammer" from occurring along the fittings and pipes.**

For those who have very extensive systems (with large amounts of water) or which require frequent refilling, to install water softening systems.



***It should be remembered that incrustations drastically reduce performance due to low thermal conductivity.***

## 13-ELECTRICAL CONNECTION

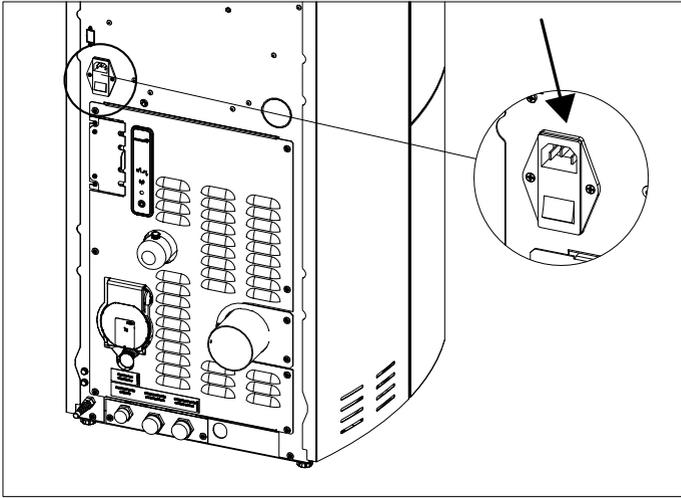
### ELECTRICAL CONNECTION

First connect the power cable to the back of the stove and then to a wall socket.

The main switch must only be activated to switch the stove on; otherwise, it is advisable to keep it switched off.



*It is recommended to disconnect the power cable when the stove is not used.*



ELECTRICAL STOVE CONNECTION

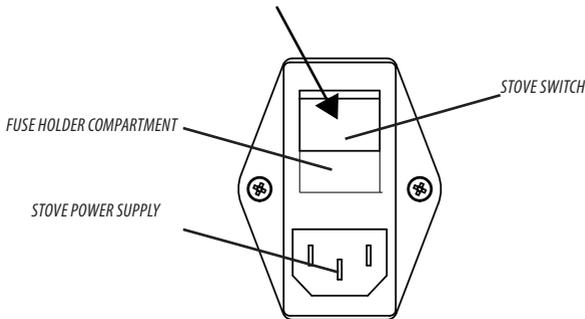
### STOVE POWER SUPPLY

After connecting the power cable to the back of the stove, turn the switch at the back to position (I).

The luminous switch button will light up.

The switch on the back of the stove is used to power the system.

On the rear of the boiler there is a fuse holding compartment located underneath the supply socket. Use a screwdriver to open the fuse-holder compartment and if necessary replace them (3.15 A delayed)









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