



PELLET STOVE

# DUO HYDRO-AIR

## PART 1 - REGULATIONS AND ASSEMBLY

Instructions in English

# MCZ



8901505500

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## INTRODUCTION

Dear Customer,

our products are designed and manufactured in compliance with European reference Standards for construction products (EN13240 wood-burning stoves, EN14785 pellet-burning appliances, EN13229 fireplaces/wood-burning inserts, EN 12815 wood-burning cookers), with high quality materials and extensive experience in the 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 service or download it directly from the company website.

All local regulations, including those regarding national and European regulations, must be observed when the appliance is installed.

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 one means Stove+Chimney+Air inlet).

## REVISIONS TO THE PUBLICATION

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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 the law.

## CARE OF THE MANUAL AND HOW TO CONSULT IT

- Take care of this manual and keep it in an easily accessible place.
- Should the manual be misplaced or ruined, request a copy from your retailer or directly from the authorised Technical Assistance Department. It can be downloaded from the company website.
- The "**text in bold**" must be read with particular care.
- "The *text in italics*" draws attention to other sections in this manual or clarifications.
- "NOTE" provides the reader with additional information.

## SYMBOLS USED IN THE MANUAL

	<b>CAUTION:</b> read the relative message carefully as <b>failure to observe the information provided could result in serious damage to the product and put the persons who use it at risk.</b>
	<b>INFORMATION:</b> failure to comply with these provisions will compromise the 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, function 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 alcohol, petrol, liquid fuel for lanterns, diesel, bio-ethanol, fluids for lighting charcoal or similar liquids to light/rekindle the flame in these devices. Keep these flammable liquids well away from the appliance when in use.
- 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 from 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 shall not play with the appliance. Cleaning and user maintenance shall not be made 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 similar objects 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 from any civil and criminal liability.*

## 1-WARNINGS AND WARRANTY CONDITIONS

- Any type of tampering or unauthorised replacement with non-original spare parts could be hazardous for the operator's safety and relieves the company from any civil and criminal liability.
- Many of the surfaces of the product get very hot (door, handle, glass, smoke extraction pipes, etc.). **Avoid coming into contact with these parts without adequate protective clothing or suitable means, 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 doors/covers on the appliance must remain closed when it is not used.**
- 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 engineer 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 too 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. The water could get inside the unit and damage the electrical insulation and cause electric shocks.

## 1-WARNINGS AND WARRANTY CONDITIONS

- A carbon monoxide alarm must be fitted in the room where the appliance is sited Refer too ADJ part 2.34 through too 2.36 page 41 (**ONLY FOR UK**).
- 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.
- 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 extractors.
- 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 with 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 after completing assembly.
- Disconnect the product from the 230V power supply before performing any maintenance operation.
- **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/**

## 1-WARNINGS AND WARRANTY CONDITIONS

### SERVICE ENGINEER IMMEDIATELY.

#### INFORMATION

- In case of any problems, get in touch with your dealer, or a qualified engineer authorised by MCZ, and if a repair is necessary, insist on the use of original spare parts.
- Use only the fuel recommended by MCZ (for Italy pellets with a diameter of 6 mm and for other European countries with a diameter of 6-8 mm) and provided only with an automatic supply system.
- Periodically check and clean the smoke outlet ducts (connection to the flue pipe).
- Accumulated unburnt pellets in the burner after repeated failed ignitions must be removed before lighting.
- The pellet stove is not a cooking appliance.
- Always keep the cover of the fuel hopper closed.
- Keep this instruction manual carefully because it must stay with the stove throughout its working life. If the stove is sold or transferred to another user, always make sure that the booklet goes with the product.
- If it gets lost, ask MCZ or your authorised dealer for another copy.

#### INTENDED USE

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

#### WARRANTY CONDITIONS

The company guarantees the product, **with the exception of elements subject to normal wear** (listed on the following page), for a period of **2 (two) years** from the date of purchase attested 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 certificate of guarantee within 8 days of purchase.

Furthermore, the product must be installed and started by specialised personnel who must, where provided, issue a declaration of conformity of the plant and of the proper functioning of the product, for the warranty to be valid and effective.

We recommend functionally testing the product before completion with the relevant finishes, where provided (claddings, painting of walls, etc.).

Installations not meeting the current standards, improper use and lack of maintenance as expected by the manufacturer, void the product warranty.

The guarantee is valid on the condition that the instructions and warnings contained in the use 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 guarantee period, and the original expiry date remains unchanged.

The guarantee covers the replacement or free repair **of parts recognised as being faulty at source due to manufacturing defects.**

**In order to activate the product warranty the commissioning document which is supplied with the appliance and also is available as a download from the Specflue website must be filled in correctly and returned within 14 days (ONLY FOR UK).**

# 1-WARNINGS AND WARRANTY CONDITIONS

## EXCLUSIONS

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

- Damage caused during transportation or relocation
- 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 and use manual provided with the appliance)
- incorrect dimensioning with regards 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 due to the continued use of the equipment by the user, once the defect has been noticed
- in the presence of a boiler, any corrosions, incrustations or breaks 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 plant affecting the equipment
- 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 stove maintenance performed on an annual basis by an authorised technician or qualified personnel will result in the loss of the warranty.

Also excluded from this guarantee are:

- parts subject to normal wear such as gaskets, glass, claddings and cast iron grids, painted, chrome-plated or gilded parts, handles and electric cables, bulbs, indicator lights, knobs, all parts which can be removed from the hearth.
- Variations in colour of the painted or ceramic/serpentine parts and craquelure 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-said defects and consequent damages must be agreed upon with the Technical Assistance 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 at 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 guarantee 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 prescription 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 Service.

Use only 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 be worn 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.***

### WARNINGS FOR THE CORRECT DISPOSAL OF THE PRODUCT.

The owner is the sole party responsible for demolishing and disposing of the product. This must be performed in compliance with laws related to safety and environmental protection in force in his/her country.

At the end of its working life, the product must not be disposed of as urban waste.

It must be taken to a special differentiated waste collection centre set up by the local authorities or to a retailer that provides this service. Separating and recycling prevents potential negative effects on the environment and health (often caused by inappropriately disposing of product parts). It also allows materials to be recovered in order to obtain significant savings in energy and resources.

## 1-WARNINGS AND WARRANTY CONDITIONS

### RULES FOR INSTALLATION

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

Below is a list of 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 (sanitary) 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 appliance -

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 contained in this chapter explicitly refer to the regulations of the Italian installation Standard UNI 10683. In any case, always comply with 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 most common diameter on the market is 6 mm (although 8 mm diameter is available too) with a length, on average, of between 3 and 40 mm. A good quality pellet has a density of between 600 and 750 or more kg/metres cubed and a water 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.

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 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.



15 Kg BAG OF FUEL

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. (formerly 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.
- Moisture 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 substances (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 render the guarantee and product liability invalid.**

## 2-INSTALLATION

### FOREWORD

The installation position must be chosen according to the room, to the smoke extraction system, to the chimney 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 cap. 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 depression in the room where the product is installed (for sealed appliances only, a maximum of 15 Pa of depression in the room is allowed)
- when the product is switched on there is no reflux of smoke in the room
- fumes 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

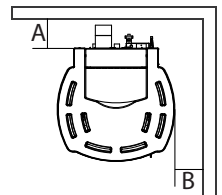
It is recommended to install the stove detached from any walls and/or furniture, with a minimum clearance to allow effective aeration of the appliance and a good distribution of heat in the room. Observe distances from flammable or heat-sensitive objects (sofas, furniture, wood panelling, etc..) as specified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

DUO HYDRO AIR	Non-flammable walls	Flammable walls
	A = 5 cm B = 5 cm	A = 10 cm B = 10 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

This chapter on the Smoke Flue has been produced in reference to the prescriptions of European regulations (EN13384 - EN1443 - EN1856 - EN1457).

The chapter provides indications for installing an efficient and correct smoke 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 extraction system, the flue or the chimney.

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

### SMOKE 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, 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 in 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 cowling...) to the same flue.

**The stove must be connected to a flue pipe or an internal or external vertical duct conforming to EN 1856-1-2 to suit the appliance and types of fuels to be burnt – refer to detailed guidance in sections 2, 3 and 4 in ADJ (ONLY FOR UK)**

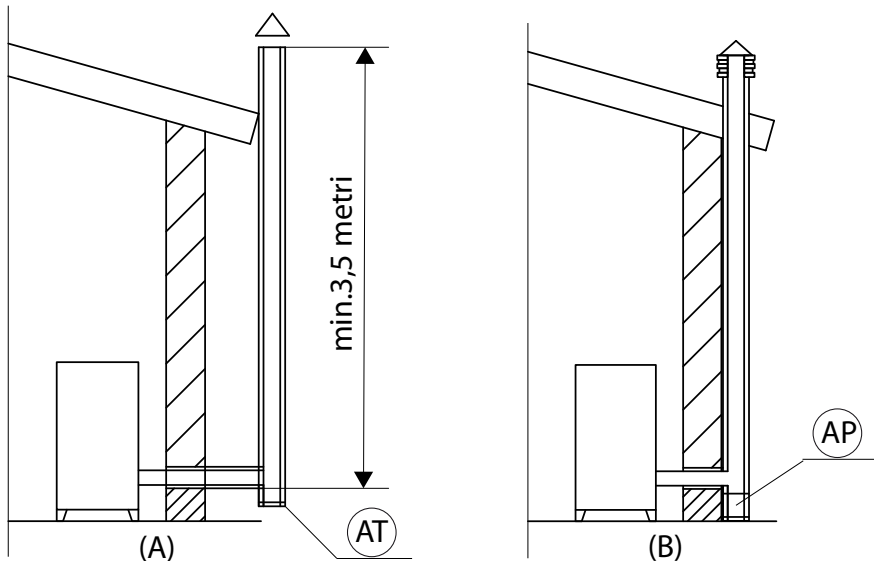


FIGURE 1 - SMOKE FLUE

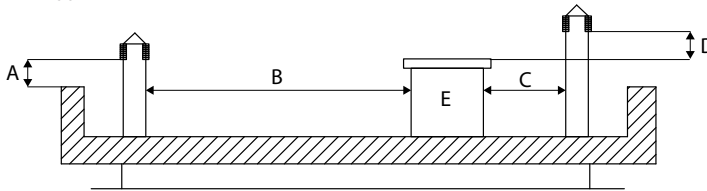
## 2-INSTALLATION

### 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 watertight metal hatch.

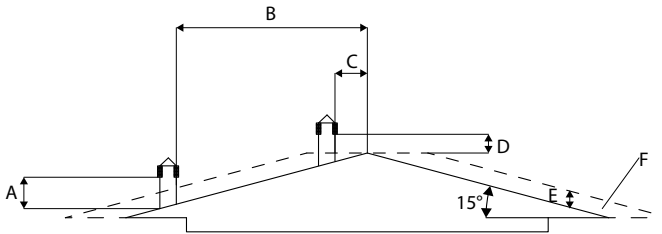
### FLAT ROOF



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

FIGURE 2

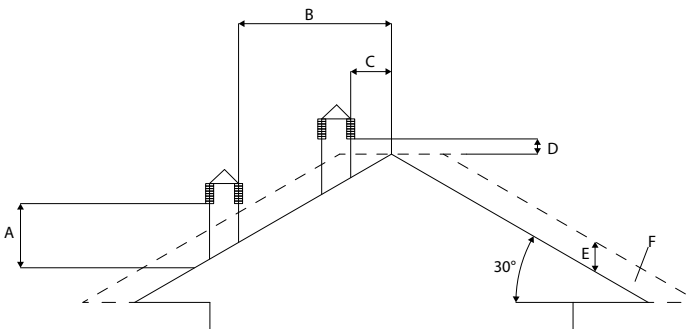
### ROOF AT 15°



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°

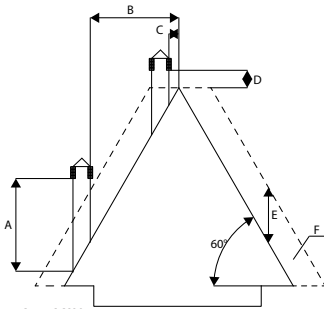


FIGURE 5

- 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°

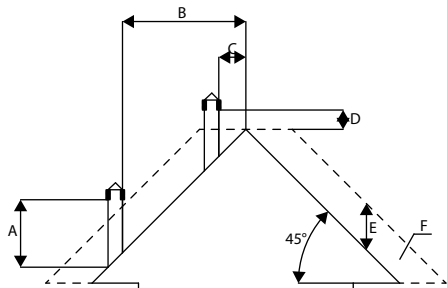


FIGURE 6

- 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

### DIMENSIONING

The drop in pressure (draft) of a flue depends on its height. Check the drop in 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 circular (best variation), square or rectangular (the ratio between the interior 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 the chimneys shown in the technical data tables are indications for correct installation. Any alternative configurations must be correctly dimensioned 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 chimney with insulating empty inserts.

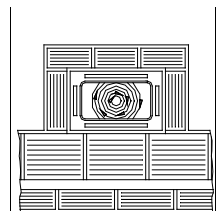
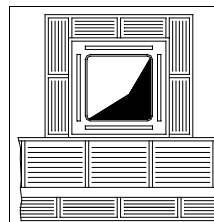
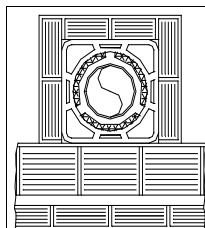
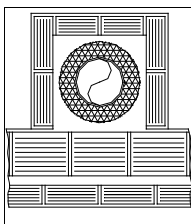
Avoid products with an internal rectangular section where the larger side is 1.5 times the smaller side (e.g. 20x40 or 15x30).

#### 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 draft and thus compromising the efficient functioning of the heater and, if large build-ups accumulate, can catch fire. The flue and chimney must be cleaned and checked by a skilled chimney sweep at least once a year. Once the check/maintenance has been performed, request a signed report stating that the system is safe.

Failure to clean the system jeopardises its safety.

### CHIMNEY

The chimney is a crucial element for the heating appliance to work properly: we recommend a wind proof chimney (A), see Figure 7.

The area of the opening for smoke extraction must be at least double the cross-section of the smoke duct/flue system, and arranged so that smoke extraction 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 zone created by the shape of the roof or any obstacles near the outlet (see Figures 2-3-4-5-6).

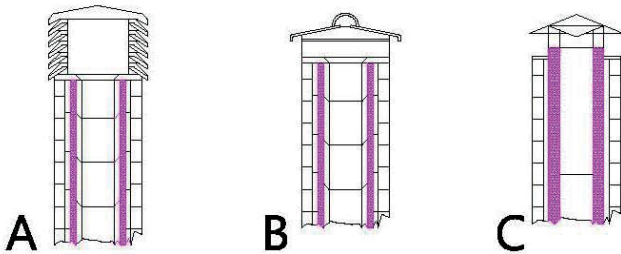
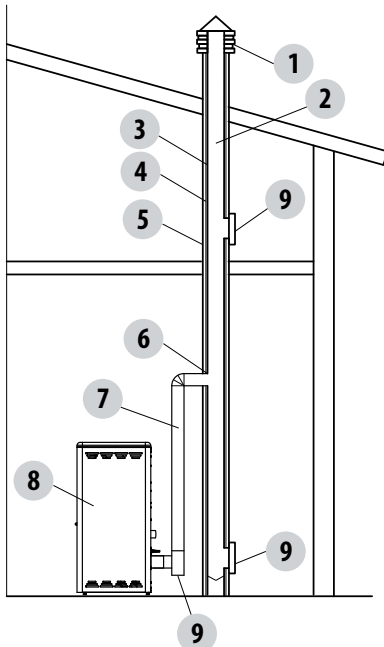


FIGURE 7

### CHIMNEY COMPONENTS



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

FIGURE 8



## 2-INSTALLATION

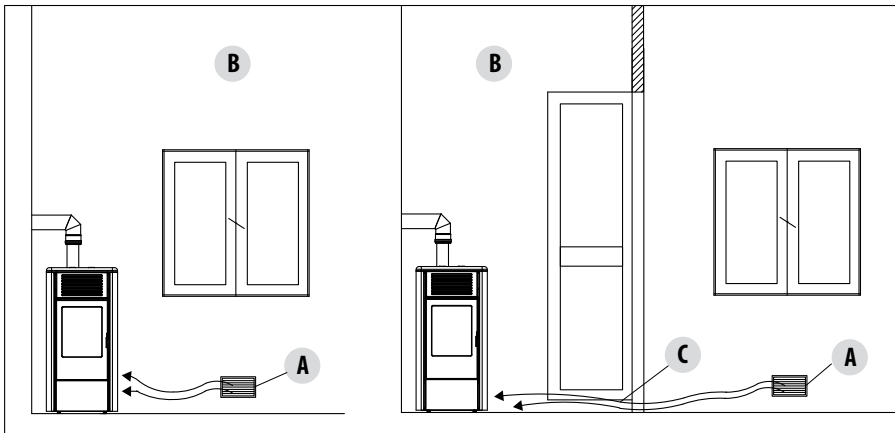
### EXTERNAL AIR INLET

It is mandatory to provide an adequate external air intake 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; 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).

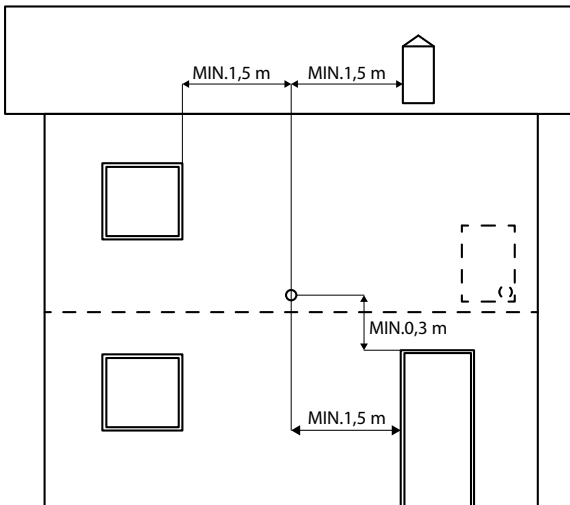
The air intake must have a minimum total net area of 80 cm<sup>2</sup>: the surface must be increased accordingly if within the room there are other active generators (for example: electric fan for stale air extraction, kitchen hood, other stoves, etc...), which could cause depression in the room. A check must be carried out to ensure that, with all equipment on, the pressure drop between the room and the outside does not exceed a value of 4 Pa. (also for Oyster appliances if 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	UNDER	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	AWAY	from smoke outlet

### CONNECTION TO FLUE

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

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

TYPE OF DEVICE	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 incline 3%)	4 metres

Use smoke ducts with a diameter of 80mm or 100mm depending on the type of system, with silicone gaskets or similar gaskets that can withstand the high operating temperatures of the appliance (min. T200 class P1). **The use of flexible metal tubes in fibre cement or aluminium is prohibited. For direction changes, we always recommend the use of a T joint** with an inspection cap allowing easy access for cleaning the tubes. Always ensure that the inspection cap is replaced and hermetically sealed with the seal in tact after cleaning.

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

The smoke duct must be a minimum distance of 400 mm from flammable or heat-sensitive structures.

### SUPPLEMENTARY ISTRUCTIONS ONLY FOR UK

**FOR CONNECTION TO THE FLUE PIPE, NOT MORE THAN 150mm OF HORIZONTAL PIPE MUST BE USED AND NOT MORE THAN 4 x 45° bends MUST BE USED. In accordance with UK Building Regulations .**

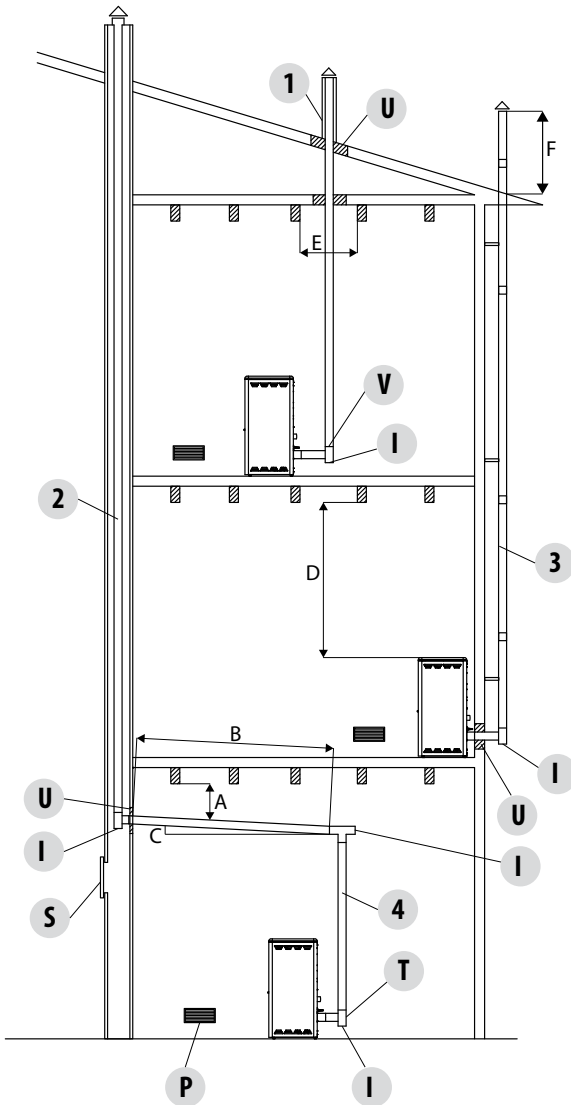
All exterior flue or flue used internally above 1.8m should be twin wall insulated pipe installed in accordance with ADJ reference page 23 section 1.31 and 1.32 and 1.33 & Hetas regulations.

The external fluepipe must have internal dimensions of a minimum of 150mm, and maximum 180mm.

**Check with suitable instruments that there is a minimum draught of 5 Pa. on low fire and 10pa on high fire. The flue must always run under negative pressure and a cold flue pull of – 2>3 pascals must be secured.**

## 2-INSTALLATION

### EXAMPLES OF CORRECT INSTALLATION



1. Installation of Ø150mm flue with hole for the passage of the tube increased by:  
 minimum 100 mm around the tube if next to non flammable parts such as cement, brick, etc.; or  
 minimum 300 mm around the tube (or as prescribed by data tags) 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 Ø100mm 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 Ø100mm: all securely mounted on the wall. With wind-proof chimney. See fig. 7 type A.

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

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

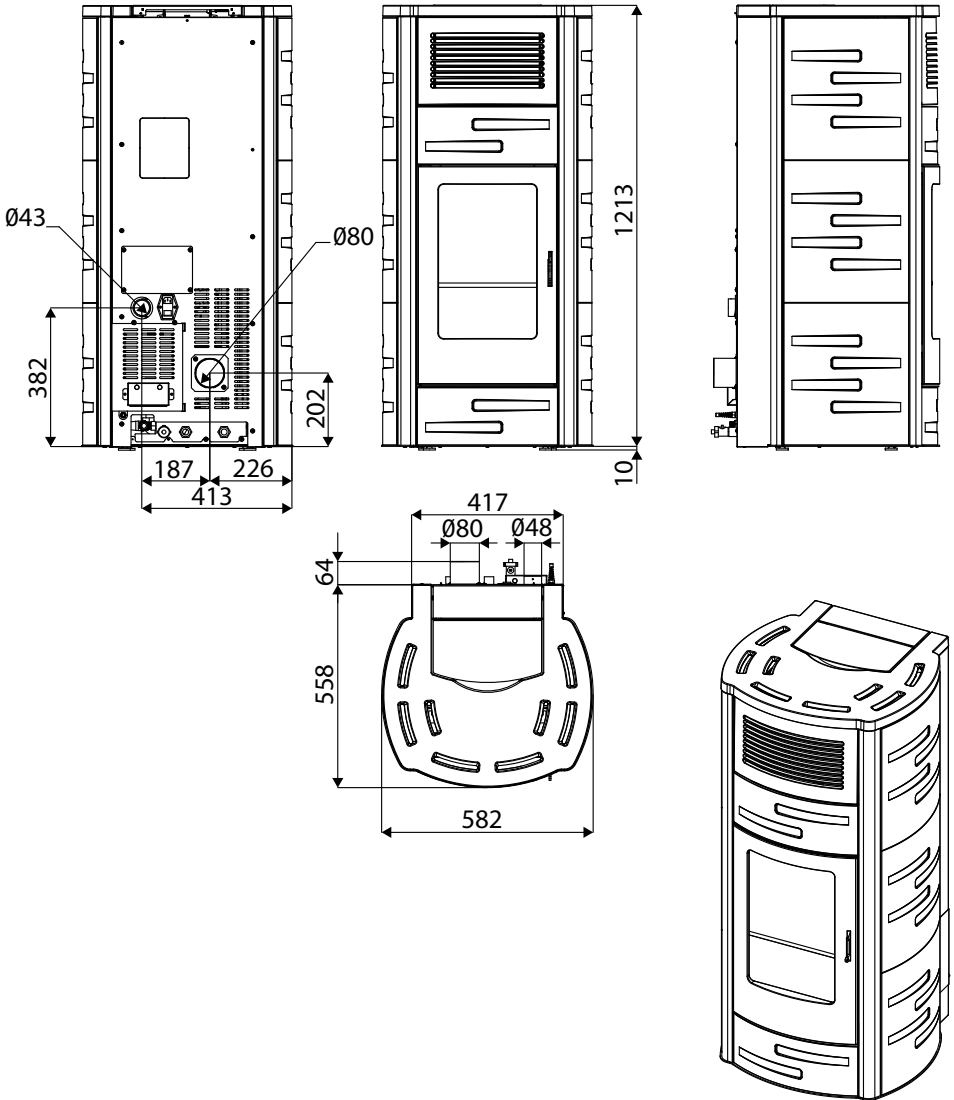
E = HOLE DIAMETER

F = SEE FIG.2-3-4-5-6

### 3-DRAWINGS AND TECHNICAL FEATURES

## DRAWINGS AND CHARACTERISTICS

### DUO HYDRO - AIR STOVE DIMENSIONS



### 3-DRAWINGS AND TECHNICAL FEATURES

TECHNICAL CHARACTERISTICS	DUO HYDRO-AIR
Nominal output power	22,3 kW (19178 kcal/h)
Nominal output power (H <sub>2</sub> O)	18,0 kW (15480 kcal/h)
Minimum output power	4,4 kW (3784 kcal/h)
Minimum output power (H <sub>2</sub> O)	3,0 kW (2580 kcal/h)
Efficiency at Max	92,5%
Efficiency at Min	95,0%
Temperature of exhaust smoke at Max	160°C
Temperature of exhaust smoke at Min	71°C
Particles/OGC/Nox (13%O <sub>2</sub> )	2 mg/Nm <sup>3</sup> - 0,2 mg/Nm <sup>3</sup> - 132 mg/Nm <sup>3</sup>
CO at 13% O <sub>2</sub> at Min and at Max	0,040 – 0,012%
CO <sub>2</sub> at Min and at Max	7,03% - 12,49%
Smoke mass	12,6 g/sec
Max operating temperature	2,5 bar - 250 kPa
Recommended draught at Max power***	0,10 mbar - 10 Pa***
Recommended draught at Min power	0,02 mbar - 2 Pa
Hopper capacity	44 litres
Type of pellet fuel	Pellet diameter 6-8 mm and size 3÷40 mm
Pellet hourly consumption	Min ~ 0,9 kg/h* - Max ~ 4,9 kg/h*
Autonomy	At min ~ 28 h* - At max ~ 5 h*
Heatable volume m <sup>3</sup>	481/40 – 550/35 – 642/30 **
Combustion air inlet	Ø 50 mm
Smoke outlet	Ø 80 mm
Air inlet	80 cm <sup>2</sup>
Rated electrical power (EN 60335-1)	120 W (Max 420 W)
Supply voltage and frequency	230 Volt / 50 Hz
Net weight	190 kg
Weight with packaging	200 kg
Distance from flammable material (back)	100 mm
Distance from flammable material (side)	100 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 (UE 305/2011)**

## 4-INSTALLATION AND ASSEMBLY

### PREPARATION AND UNPACKING

The packaging consists of a recyclable cardboard box according to RESY standards, recyclable EPS foam inserts, wooden pallets. 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 ceramic parts with care.

The **DUO** stove is delivered with two overlapping packaging:

- the first contains the stove structure (fig. 1).
- the second (fig.2) contains the box with the ceramic cladding (1 top, 2 front panels, 6 side panels)

Open the packaging, remove the two screws on the right and the two screws on the left (see figure 4) that secure the base of the stove to the pallet, and position the stove in the selected place, ensuring that it complies with the above instructions.

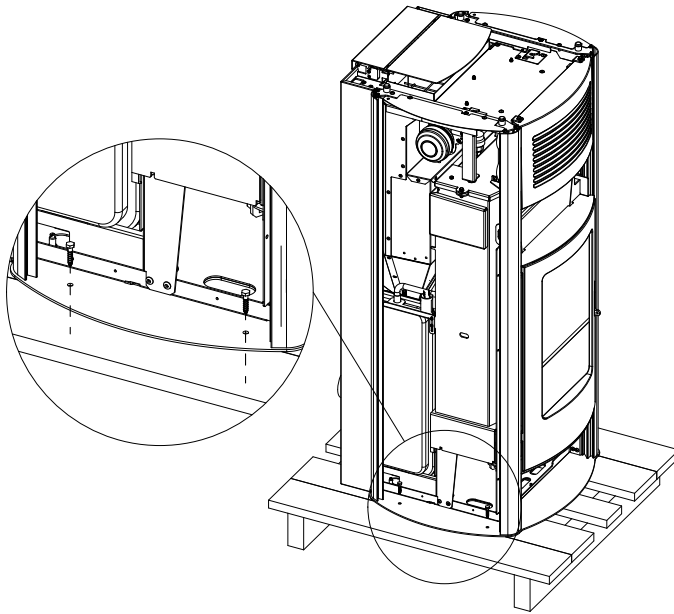
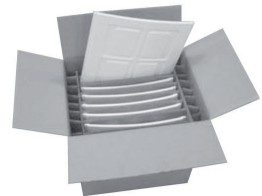


FIGURE 1 - REMOVING PACKAGING SCREWS

FIGURE 2 - CERAMIC PANEL PACKAGING



## 4-INSTALLATION AND ASSEMBLY

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. The product must always be handled with care. If possible, unwrap the stove near the chosen area of installation. The packaging materials are neither toxic nor harmful, therefore no particular disposal measures are required.

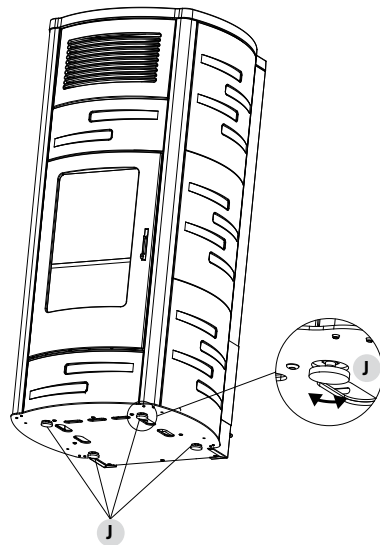
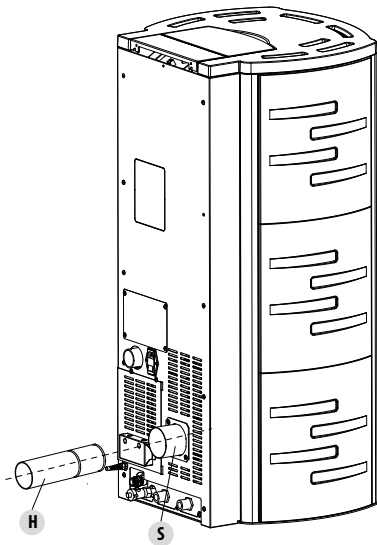
Therefore, the end user is responsible for product storage, disposal or possible recycling in compliance with the relative applicable laws in force. Do not store the unit/stove or its cladding without their packaging.

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 (**S**) is lined up with the connecting pipe (**H**).

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 LIFT THE STOVE

## 4-INSTALLATION AND ASSEMBLY

### ASSEMBLING THE FRONT AND SIDE CLADDING

The stove is delivered with all ceramic parts packaged and therefore, before installing the side tiles and the top, it is necessary to insert the front panels.

In order to insert the front panel it is necessary to work on the right side of the stove (handle side) and proceed as follows:

- Remove the micro-perforated sheet metal grille "B" removing the two screws "c" (fig.3).
- Remove the two screws "d", lift and remove the bracket "E" (fig.4)

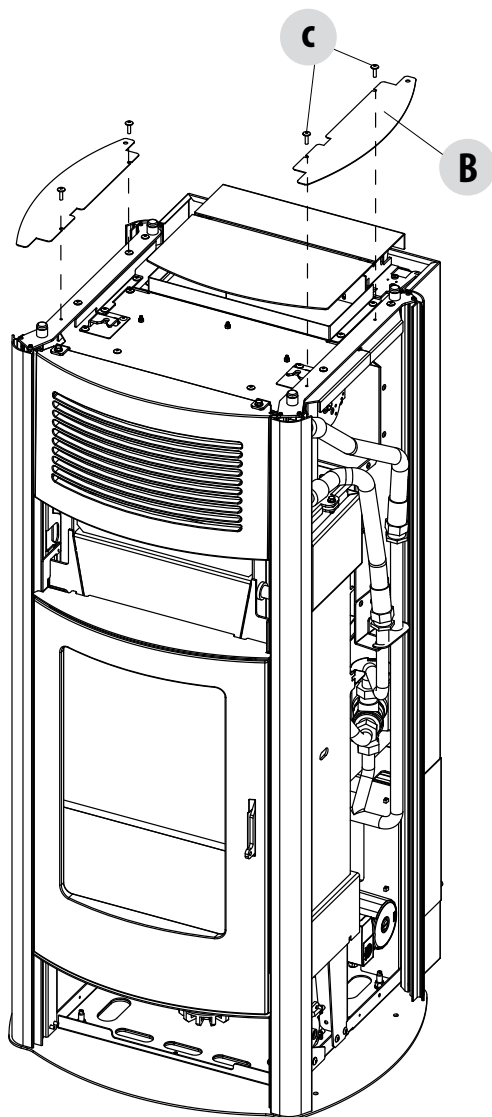


FIGURE 3 - REMOVAL OF GRILLE B

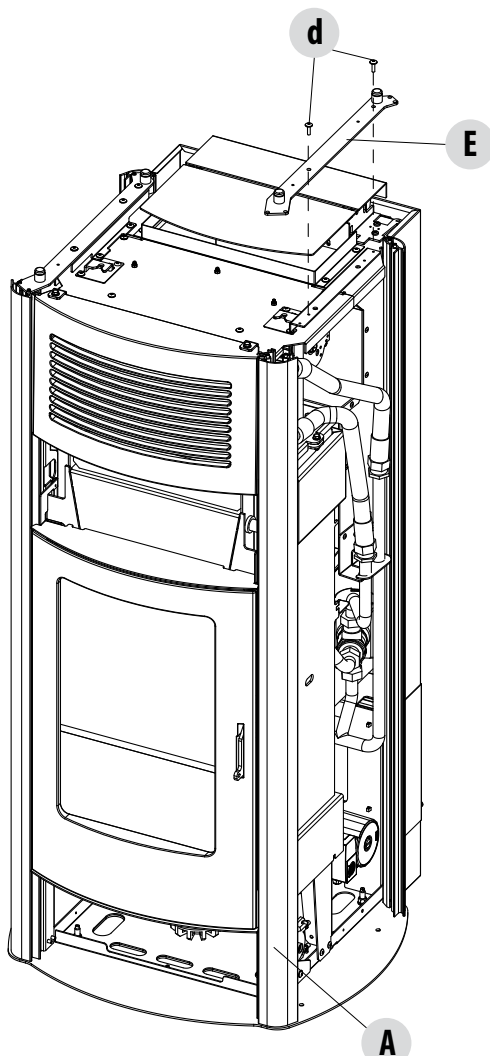


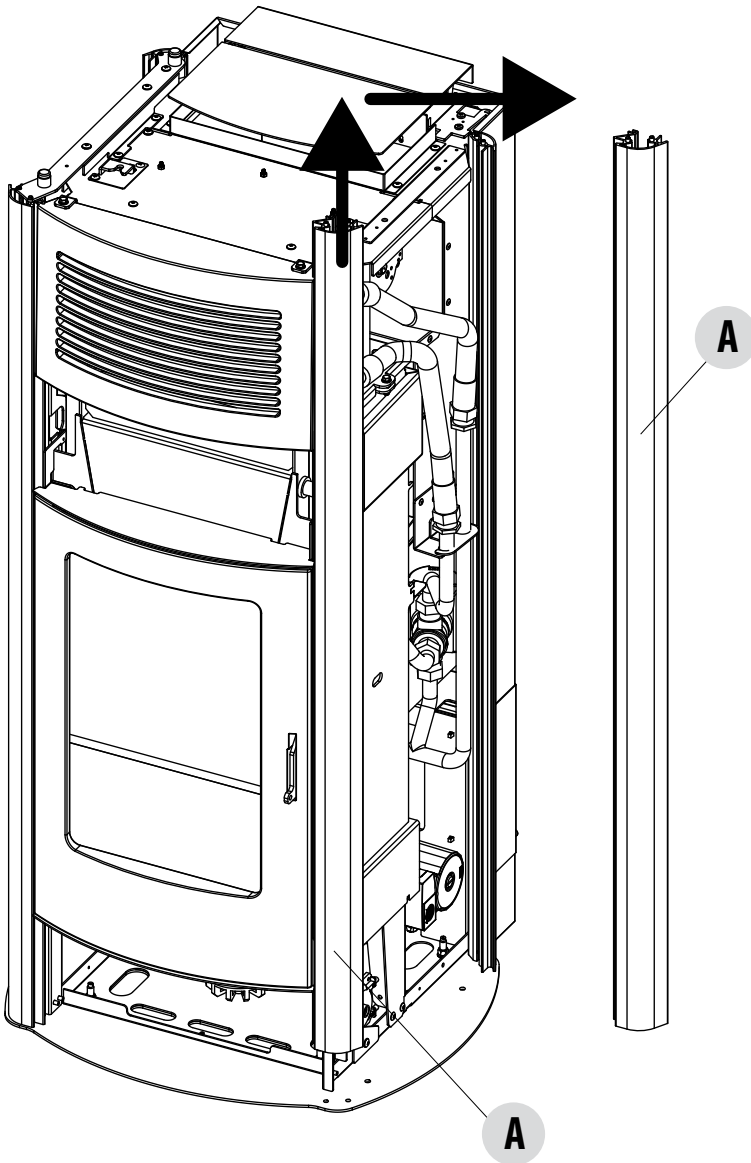
FIGURE 4 - REMOVAL OF E BRACKET



## 4-INSTALLATION AND ASSEMBLY

- Lift profile "A" to remove it from the base and place it in a safe position (fig.5)

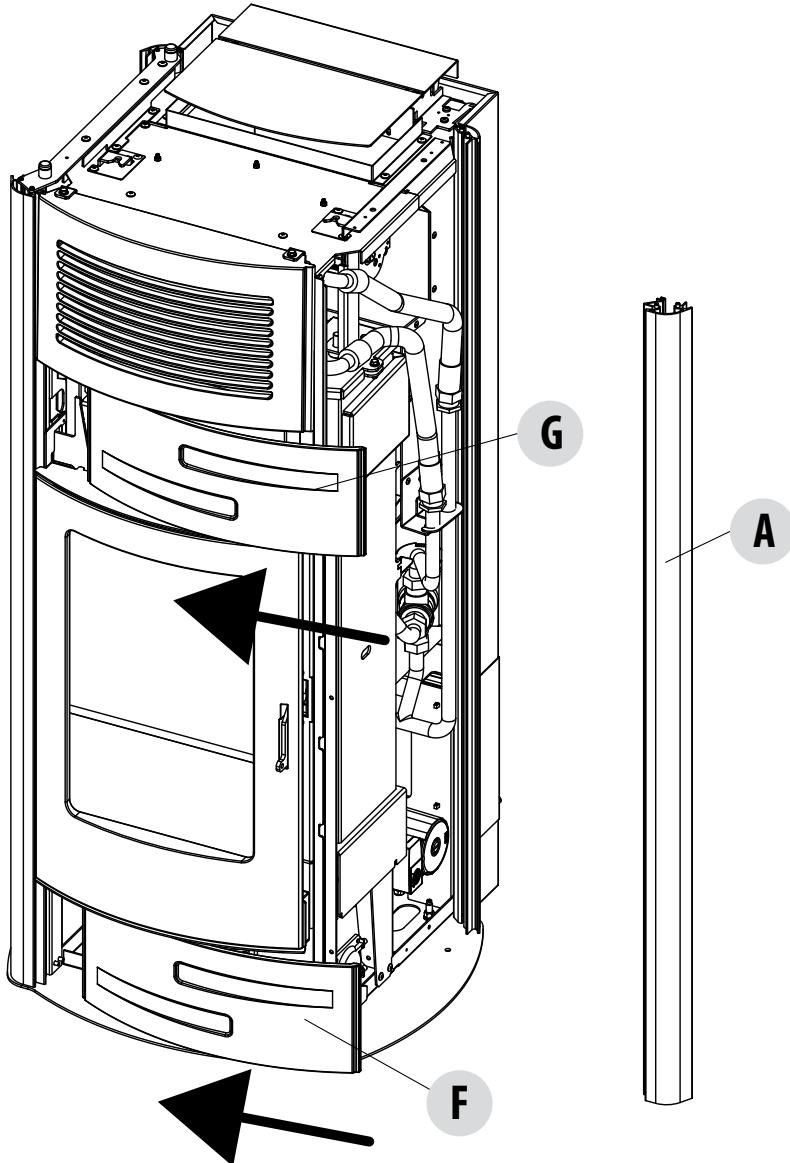
FIGURE 5 - REMOVAL OF PROFILE A



## 4-INSTALLATION AND ASSEMBLY

- Take the two front ceramic pieces "F" and "G" and insert them on the right (handle side) towards the left so that they fit exactly in the seat (fig.6)

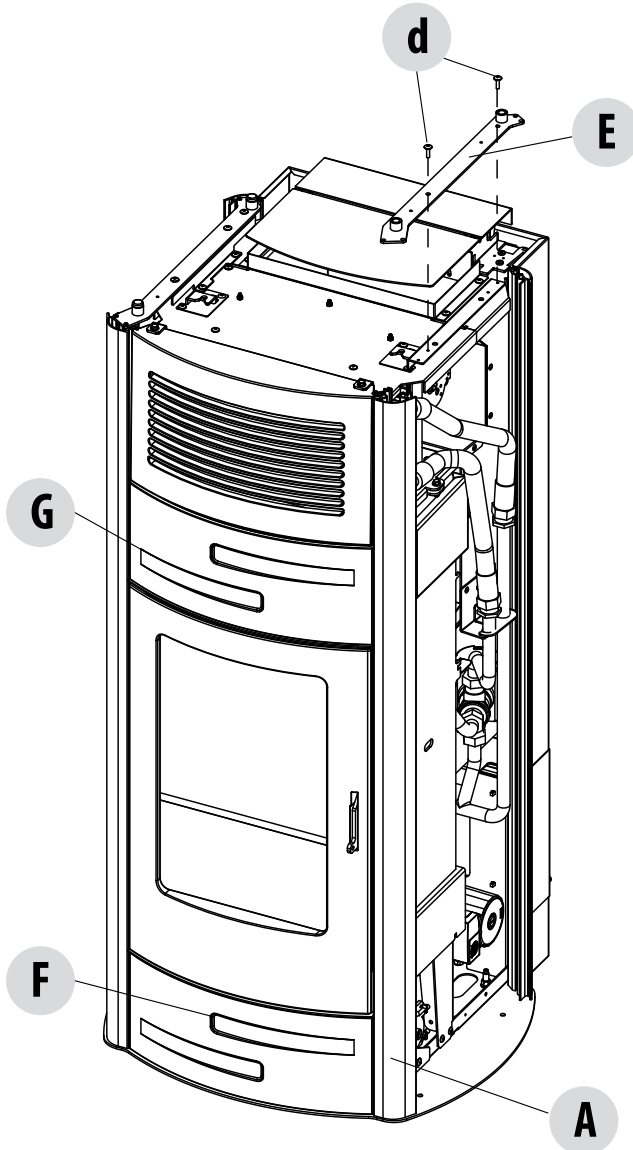
FIGURE 6 - ASSEMBLY OF FRONT CERAMIC PANELS "F" - "G"



## 4-INSTALLATION AND ASSEMBLY

- After inserting ceramic pieces "F" and "G", reinsert profile "A", bracket "E" tightening the two screws "d" (fig.7).

FIGURE 7 - ASSEMBLY OF PROFILE "A" AND BRACKET "E"



## 4-INSTALLATION AND ASSEMBLY

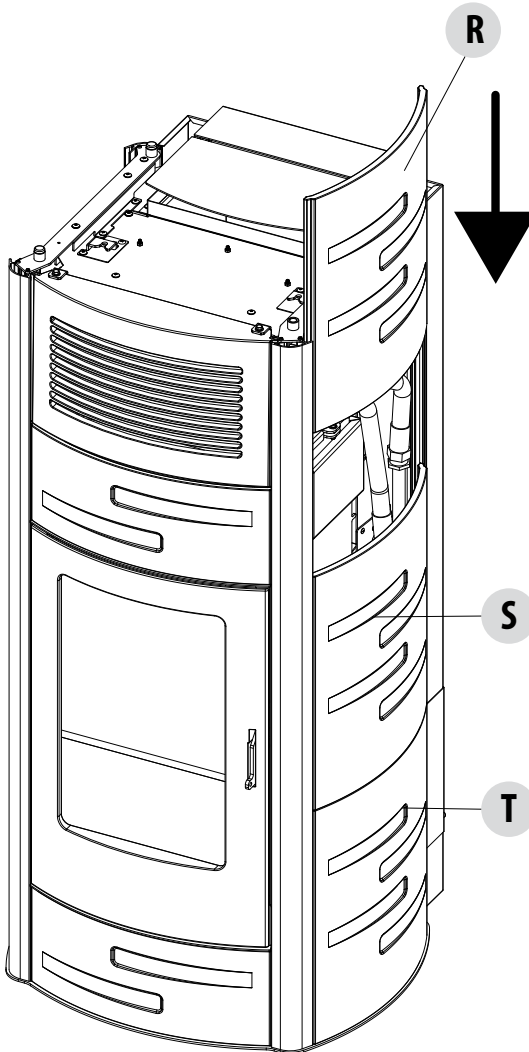
- At this point insert side ceramic pieces "R", "S", "T" (fig.8) sliding them from the top towards the bottom on the guide of profile "A".



### ATTENTION!

*On the top and lower part of the ceramic tile we recommend placing small pieces of felt in order to avoid that the ceramic tiles break and also to level the spacing if necessary.*

FIGURE 8 - SIDE PANEL ASSEMBLY



## 4-INSTALLATION AND ASSEMBLY

On the left side (opposing the handle - fig.9) remove the micro-perforated grille "B" from the structure removing the two screws "c". Insert the three ceramic pieces "U", "V", "Z" sliding them from the top towards the bottom on the guide of profile "A".



### ATTENTION!

*On the top and lower part of the ceramic tile we recommend placing small pieces of felt in order to avoid that the ceramic tiles break and also to level the spacing if necessary.*

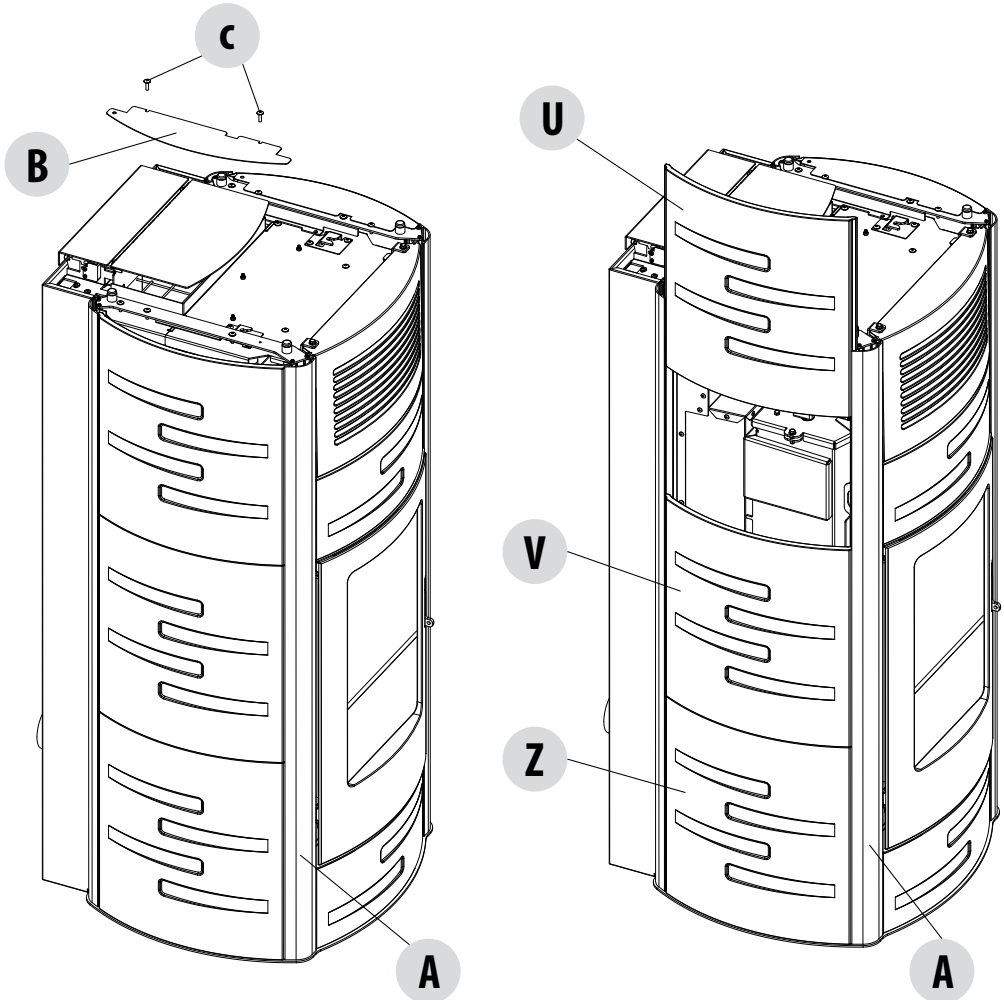
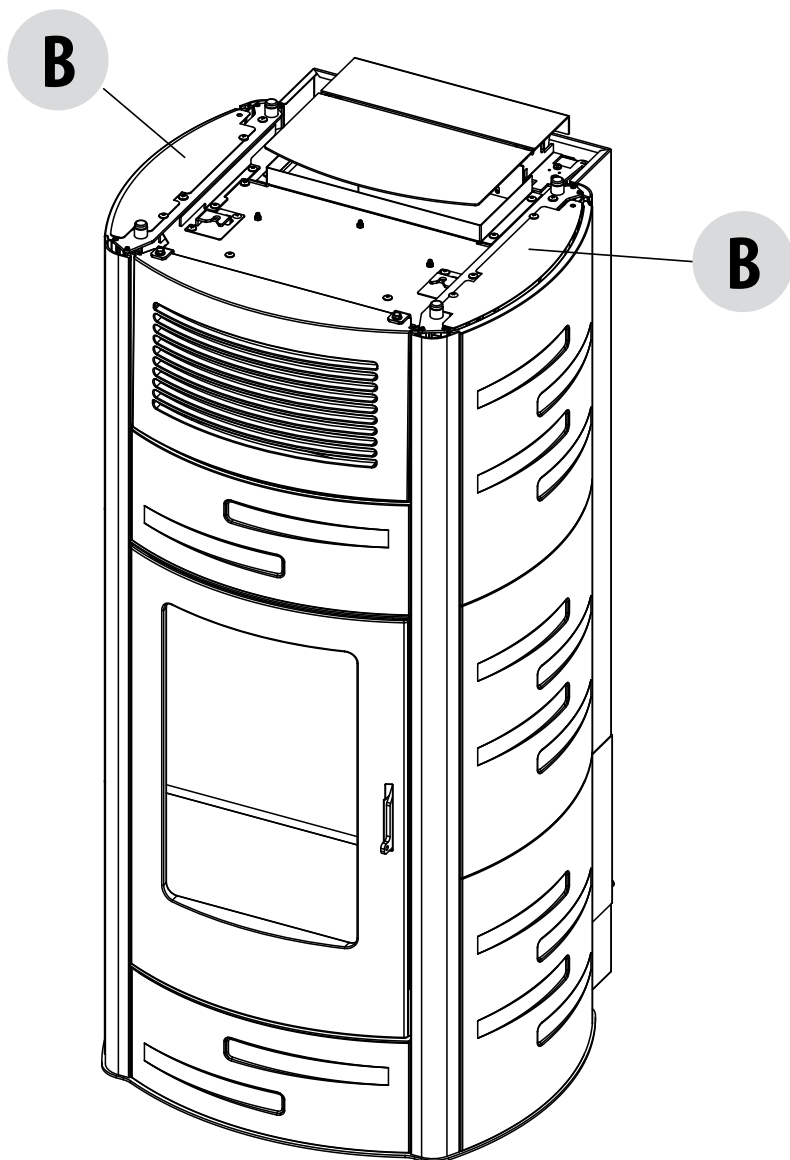


FIGURE 9 - SIDE PANEL ASSEMBLY

## 4-INSTALLATION AND ASSEMBLY

At this point it is possible to screws the micro-perforated grilles "B" (fig.10) to the structure and proceed with top positioning.

FIGURE 10 - ASSEMBLY OF GRILLES "B"



## 4-INSTALLATION AND ASSEMBLY

### ASSEMBLY OF THE CERAMIC TOP

Assemble the top "K" resting it on the four top rubber supports (see details below - fig.12) of the stove. The part under the ceramic top is equipped with four small cavities corresponding with the rubber supports.

FIGURE 11 - TOP ASSEMBLY

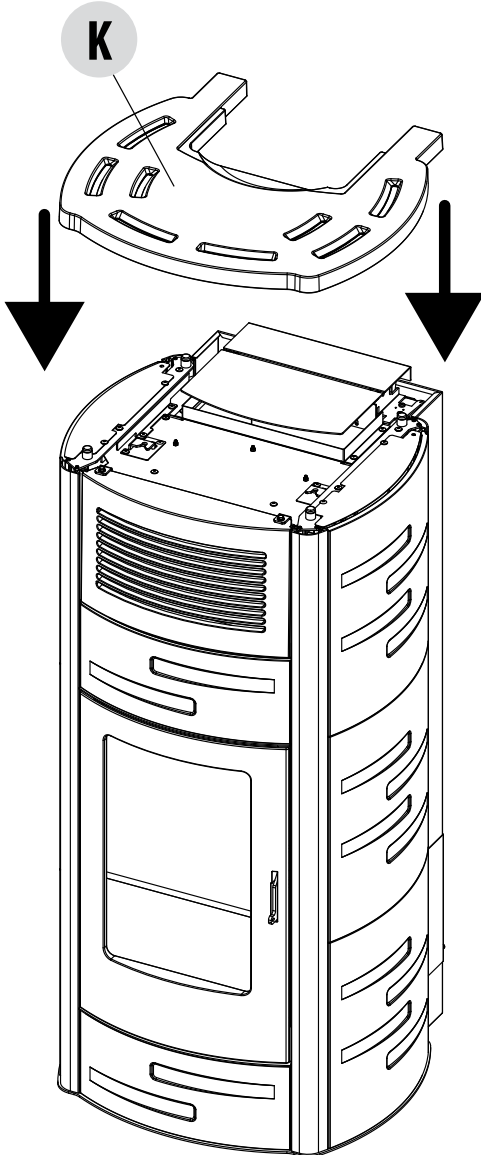
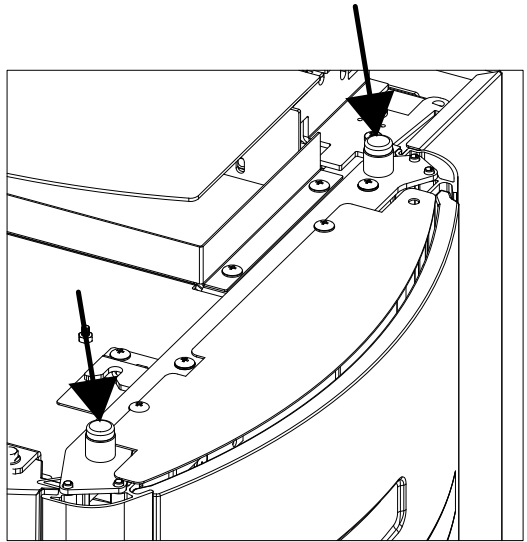


FIGURE 12 - DETAIL OF TOP RUBBER SUPPORTS



## 4-INSTALLATION AND ASSEMBLY

### LOADING THE PELLETS

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

This is easier if performed in two steps:

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

Then pour in the rest.



**Never remove the protection grid inside the hopper. When loading, do not let the pellet bag come into contact with hot surfaces.**

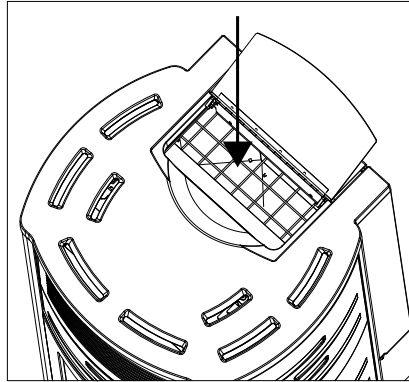
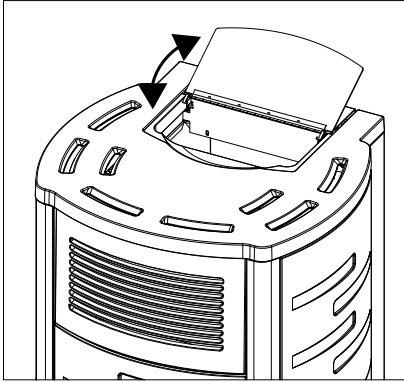
**No other type of fuel other than pellets is to be inserted into the hopper, in compliance with above-mentioned specifications.**

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

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

**Most of the stove surfaces are very hot (door, handle, glass, smoke outlet pipes, hopper door etc.), therefore it is recommended to avoid coming into contact with these parts without appropriate protective clothing.**

LOADING THE PELLETS

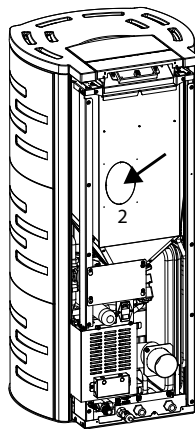
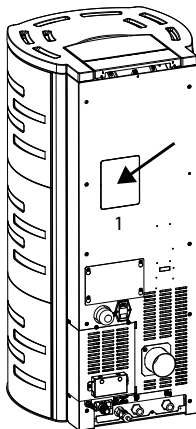


### CONDUIT FOR THE AUXILIARY TANK (optional)

It is possible to purchase conduit to be fastened, using four screws, to the back of the stove, in correspondence of the knock-out panel, first the

square and then the round piece is to be removed.

This conduit makes it possible to insert pellets into the tank through an auxiliary tank (not supplied).





## 4-INSTALLATION AND ASSEMBLY

### **SAFETY**

***PROCEDURE TO FOLLOW 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 ENGINEER IMMEDIATELY.***

### **User Training**

***In ALL cases the installation and commissioning engineer 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
- Explain the importance of the CO alarm in accordance with approved document J of the building regs (ONLY FOR UK)
- Explain the need for the flue draft stabiliser and its position within the flue system (ONLY FOR UK)
- Discuss the use of secondary heating systems if applicable
- Explain how the remote control or room stats operate and their optimal positioning
- Explain the need for the appliance data plate in accordance with approved document J of the building regulations (ONLY FOR UK)
- The commissioning process and paperwork should also be explained to the homeowner. A copy of the base settings on the commissioning paperwork should also be left with the appliance (ONLY FOR UK).

## 5-HYDRAULIC CONNECTION

### PLUMBING SYSTEM CONNECTION



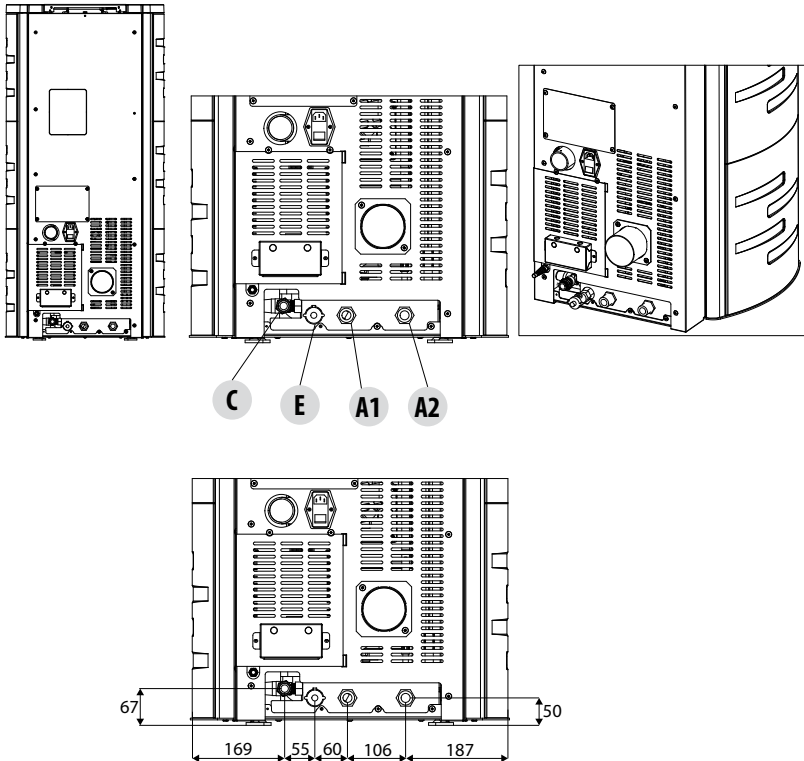
#### IMPORTANT!

The connection of the stove to the plumbing system must be carried out **ONLY** by specialized 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 things in the event of failed operation if the aforementioned warning is not complied with.

It is important that **ONLY** qualified engineers are used to fit and commission the appliance in **ALL** cases. The installing engineer **MUST** hold a QCF recognised biomass qualification. Any company using sub-contractors **MUST** ensure they also hold the relevant qualifications (**ONLY FOR UK**).

#### CONNECTION DIAGRAM

- A1 Heating water supply 3/4" M
- A2 Heating water return 3/4" M
- C 3 bar safety shut off valve – 1/2" F
- E System emptying device 1/2" F



#### IMPORTANT!!!

**CLEAN THE ENTIRE SYSTEM BEFORE CONNECTING THE STOVE, IN ORDER TO REMOVE ALL RESIDUE AND DEPOSITS.** Upstream from the stove, always install shutters so as to disconnect it from the plumbing system should it be necessary to move it, or when it requires routine and/or special maintenance. Connect the stove using hoses so that the stove is not too strictly connected to the system, and to allow slight movements.

## 5-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.**

**Upstream from the stove, always install shutters so as to disconnect it from the plumbing system should it be necessary to move it, or when it requires routine and/or special maintenance. Connect the stove using hoses so that the stove is not too strictly connected 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 connection.

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 against corrosion and calcium build-up for heating systems. 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 option 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.

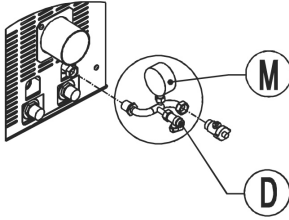
To ensure the valve vents, it is advisable to loosen the grey cap one turn and leave the red cap blocked (see figure). The filling pressure of the system **WHEN COLD** must be **1 bar**. During operation, if the system pressure drops (due to evaporation of dissolved gases in the water) to values lower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

For proper operation of the stove **WHEN HOT**, the pressure in the boiler must be **1.5 bar**.

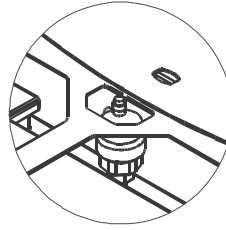
**To monitor system pressure, the end piece (optional) is equipped with a pressure gauge (M).**

Upon completion of this operation, always close the tap.

## 5-HYDRAULIC CONNECTION



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



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 banging along the fittings and pipes.**

If you have very extensive systems, with a large amount of water, or which require frequent refilling, the installation of water softening systems.



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

## 6-ELECTRICAL CONNECTION

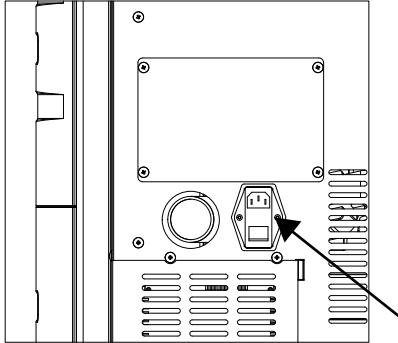
### ELECTRICAL CONNECTION

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

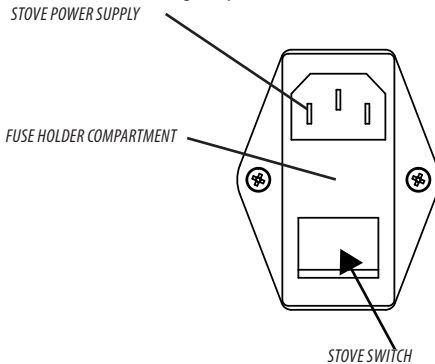
### STOVE POWER SUPPLY

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 stove there is a fuse holding compartment which is 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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